''ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षणप्रसार'' - शिक्षणमहर्षी डॉ. बापूजी साळुंखे
Shri Swami Vivekanand Shikshan Sanstha, Kolhapur's
PADMABHUSHAN DR. VASANTRAODADA PATIL MAHAVIDYALAYA
TASGAON, Dist. Sangli, Pin- 416 312 ☎ - STD : 02346-250665, 250575 FAX : 250575
• Affiliated to Shivaji University, Kolhapur •
E-mail : san.pdvpm.tas@gmail.com Website : www.pdvpmtasgaon.edu.in
Established Year : June 1962 P. B. No. : 14 Jr. College No. : J22-10-001 Sr. College Code No. : 51ACA Jr.: C-8
ISO Certified : 9001:2015
NAAC Reaccredited 'B' (2.76)
Shikshanmaharshi Dr. Bapuji Salunkhe B.A. B.T. D.Litt. FOUNDER
Hon. Chandrakant (Dada) Patil B.Com. PRESIDENT Ex- Minister of Revenue, Public Works Govt. of Maharashtra
Prin. Abhaykumar Salunkhe M.A. CHAIRMAN
Prin. Mrs. Shubhangi Gawade M.Sc. B.Ed SECRETARY
Dr. Milind S. Hujare M.Sc., Ph.D. PRINCIPAL

Ref.No. : PDVPMT /

Date :

Criterion III

Research, Innovations and Extension

3.3.2

Patent

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

क्रमांक : 022111793
SL No :

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE

पेटेंट प्रमाणपत्र
PATENT CERTIFICATE

(Rule 74 Of The Patents Rules)

पेटेंट सं. / Patent No.	:	358284
आवेदन सं. / Application No.	:	201821013419
फाइल करने की तारीख / Date of Filing	:	09/04/2018
पेटेंटी / Patentee	:	1.MR. KADAM SHUDDHODAN NARHARI 2.DR. AMBHORE AJAY NIWRUTTIRAO 3.DR. DAWANE BHASKAR SADASHIV

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित A RAPID PROCESS FOR THE SYNTHESIS OF ORGANIC SULFIDE BY USING IN SITU-GENERATED N-HETERO SULFANYLSUCCINIMIDES AT ROOM TEMPERATURE. नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 9th day of April 2018 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled A RAPID PROCESS FOR THE SYNTHESIS OF ORGANIC SULFIDE BY USING IN SITU-GENERATED N-HETERO SULFANYLSUCCINIMIDES AT ROOM TEMPERATURE. as disclosed in the above mentioned application for the term of 20 years from the 9th day of April 2018 in accordance with the provisions of the Patents Act,1970.

THE PATENT OFFICE GOVT. OF INDIA

अनुदान की तारीख :
Date of Grant : 10/02/2021

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, **9th day of April 2020** को और उसके पश्चात प्रत्येक वर्ष मे उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 9th day of April 2020 and on the same day in every year thereafter.

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Criterion III

Research, Innovations and Extension

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Research papers of the Teachers

2020 and 2021

Research on Chemical Intermediates
https://doi.org/10.1007/s11164-021-04608-2

Revisit to Henry reaction by non conventional heterogeneous and efficient catalyst for nitroalcohol synthesis

Swati D. Jadhav[1] · Rupesh C. Patil[1] · Ashutosh A. Jagdale[1] · Suresh S. Patil[1]

Received: 6 July 2021 / Accepted: 13 October 2021

Abstract

A sustainable, green and efficient process for the synthesis of 2-nitro alcohol derivatives from different substituted aromatic aldehydes with nitroalkane by stirring at ambient temperature with high product yield is reported. Adoption of very mild reaction conditions, use of Calcined Eggshell (CES) as natural catalyst and simple workup are expected to contribute to the development of environmentally benign synthetic method for Henry (nitroaldol) reaction. CES is ecologically safe, inexpensive, and attractive heterogeneous base catalyst obtained from renewable resources, thus opening a new perspective for this process.

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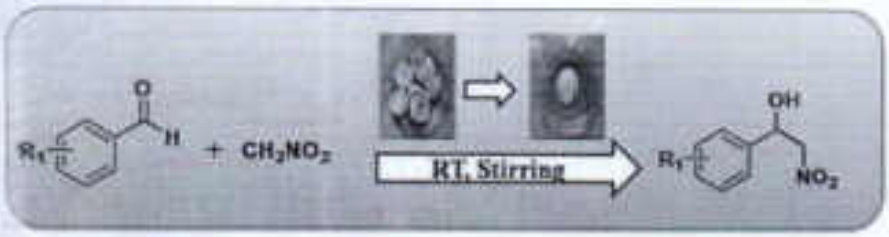

Keywords Calcined eggshell · Heterogeneous catalyst · Henry reaction · Nitro alcohol

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Published online: 28 October 2021

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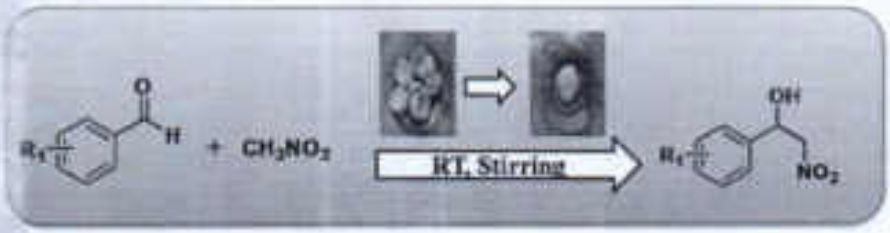

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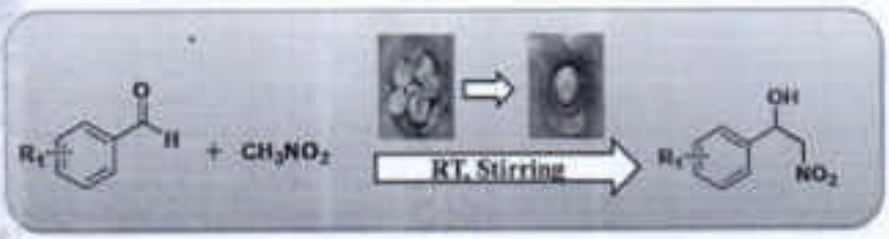

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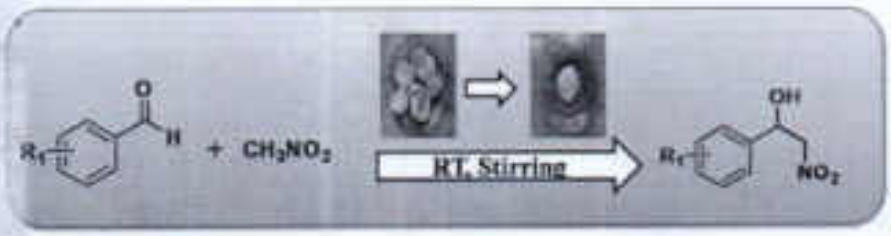

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Catalysis Letters
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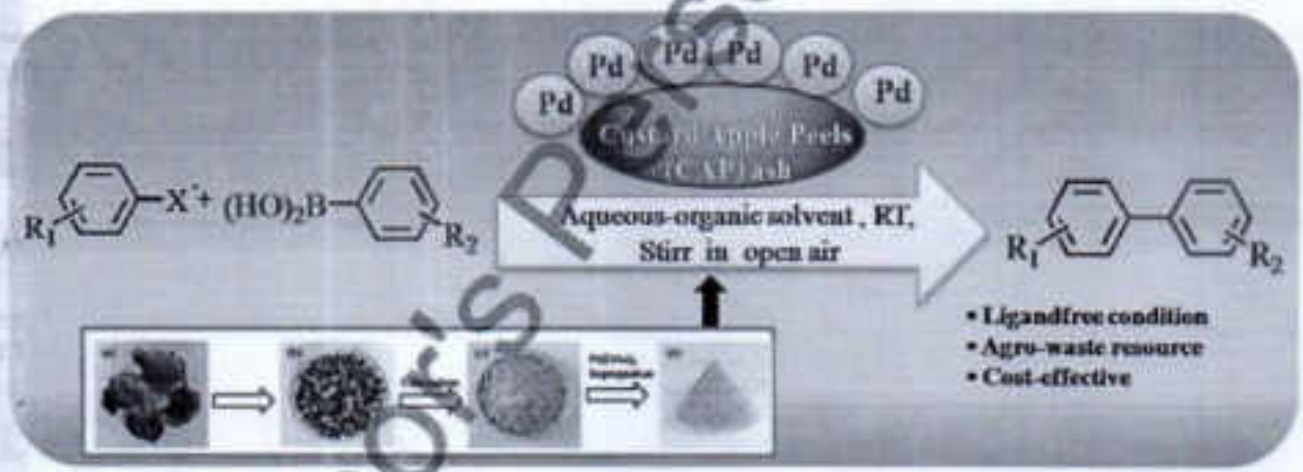

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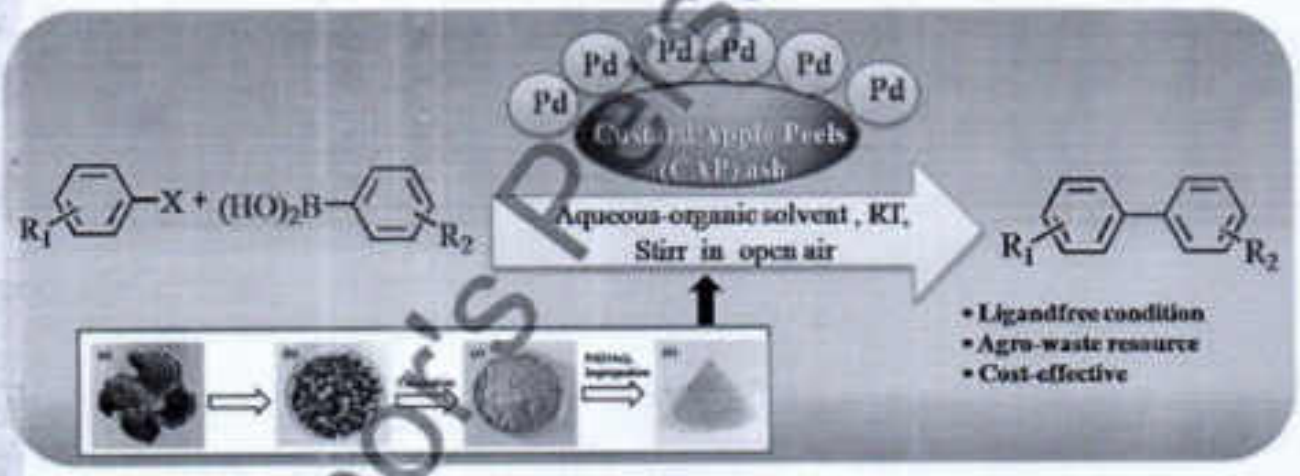

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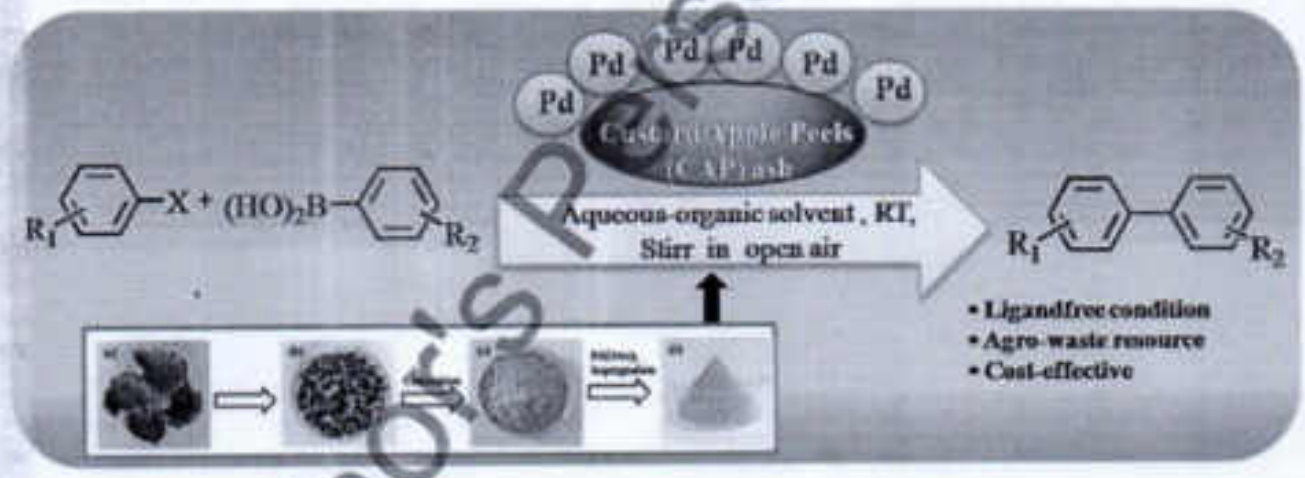

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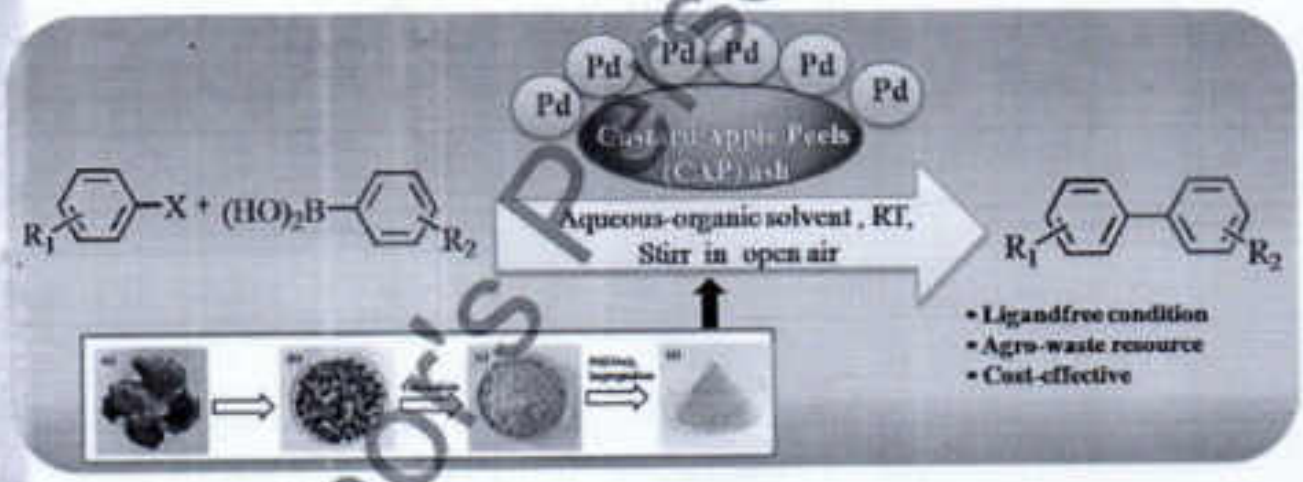

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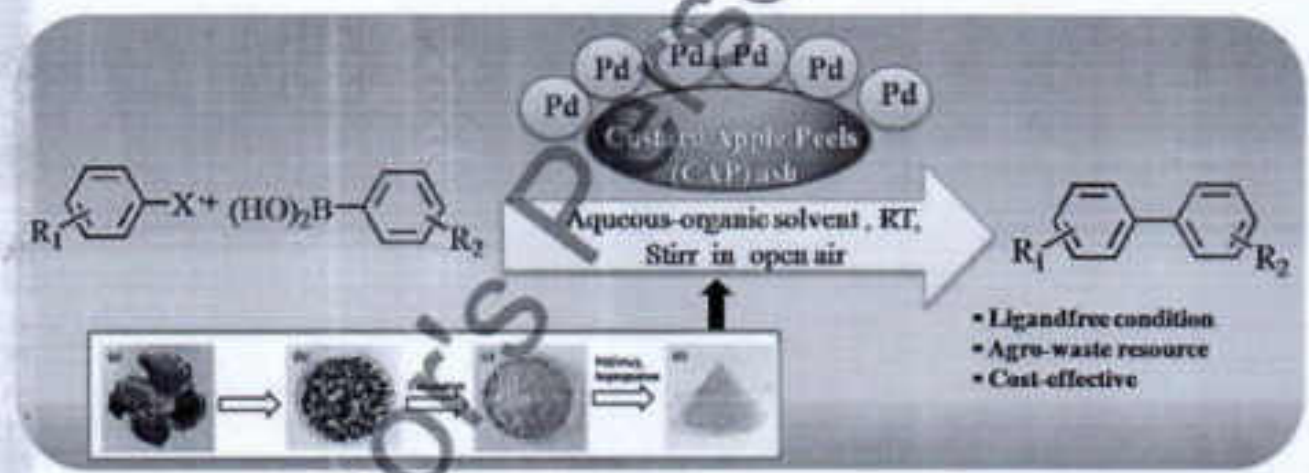

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Fruit Extract of *Averrhoa bilimbi*: A Green Neoteric Micellar Medium for Isoxazole and Biginelli-Like Synthesis

Bhagyashree M. Patil[1] · Sachinkumar K. Shinde[2] · Ashutosh A. Jagdale[2] · Swati D. Jadhav[2] · Suresh S. Patil[2]

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Abstract

A transition metal/ligand/additive/promoter-free synthesis of 3-methyl-4-arylmethylene-isoxazol-5(4*H*)-ones and the Biginelli-like synthesis is carried out in a natural acidic medium of *Averrhoa bilimbi* extract (ABE) with cleaner and facile approach smentioned here. The isoxazol-5(4*H*)-ones and 11-acetyl-2-methyl-5,6-dihydro-2*H*-2,6-methanobenzo[*g*][1,3,5]-oxadiazocin-4(3*H*)-ones are synthesized, respectively, under aerobic conditions at room temperature and at reflux temperature of ethanol. This eco-friendly and economically cheap, non-toxic acidic catalytic media is obtained from the renewable resource, and its dynamic phase is confirmed by the optical microscopy, DLS technique, and with critical micelle concentration (c.m.c.) measurements. The notable advantages are excellent yields of the obtained products, versatility in handling substrates, reuse of the catalyst, use of no hazardous organic solvents, and minimization of waste or side products. So, the reported procedure is simple, evergreen, and a sound alternative to the existing protocols for isoxazol-5(4*H*)-one synthesis and for Biginelli-like synthesis as well.

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Fruit Extract of *Averrhoa bilimbi*: A Green Neoteric Micellar Medium for Isoxazole and Biginelli-Like Synthesis

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Chickpea leaf exudates: a green Brønsted acid type biosurfactant for bis(indole)methane and bis(pyrazolyl)methane synthesis†

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1. Introduction

C-C bonding in organic transformations is an indispensable tool for synthesis of numerous structural moieties which are indeed building blocks of agrochemicals, natural products, medicinally important compounds, and so forth.[1,2] The simplest and of course the most imperative synthetic transformations are based on formation of carbon–carbon and carbon–nitrogen bonds. These transformations have been proved as a pioneer for synthesis of various biologically active compounds and construction of fine chemicals pharmaceutical agents, and smart engineering materials, including conducting polymers and molecular wires.[3–5]

Due to the environmental issues associated with many organic transformations, there is a huge challenge for researchers to develop chemical processes using more environmentally acceptable reagents, catalysts, solvents, and atom-efficient methods, and energy-efficient technologies eliminating waste production as well as employing renewable feedstocks are experiencing a profound challenge to meet sustainability criteria.[6] Furthermore, the environmental risks posed by volatile and toxic organic solvents have become a major concern, as organic reactions employ more consumption of solvents than reactants and the employed solvents are difficult to recycle;[7] to overcome this problem, the first task is to replace organic solvents with auxiliary ones.

Nowadays, an important aspect which is receiving growing attention is the use of alternative reaction media that avoid the problems associated with many of the traditional volatile organic solvents.[8] The use of hazardous solvents in the chemical industry is associated with a variety of indirect environmental impacts such as non-renewable resource reduction as a result of petrochemical solvent production, air emissions due to solvent incineration or high energy investment for solvent recycling processes.[9] Therefore, the ability to efficiently carry out organic reactions in more environmentally friendly solvents remains an important object of green chemistry research. It means that, wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to animal as well as human health and the environment.[10] Our interest is using easily available natural feedstocks to replace chemical catalysts and solvents.

Biosurfactants, being naturally sourced materials, have certain advantages over chemical surfactants, such as their biodegradable nature, their less toxic nature, and their ecological acceptability. One of the fundamental properties of surfactants is their self-association into organized molecular structures such as micelles,

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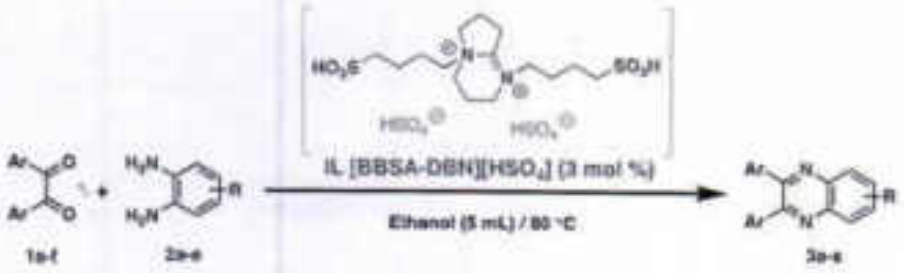
and high ionic conductance. By virtue of this, they are acknowledged as suitable solvent for wide array of synthetic protocols [39]. ILs are widely classified in two groups viz. protic ionic liquids (PILs) and aprotic ionic liquids (AILs). Among these, protic ionic liquid is a class of ionic liquids that are formed by mixing strictly equimolar amount (1:1) of appropriate Bronsted acids and bases. Proton transfer from the acid to base creates proton-donor as well as proton-acceptor sites establishing hydrogen-bonded network is the key property of PILs that distinguish them from other ILs [40]. Therefore, its argent need to developed new protocol for the synthesis of quinoxaline using -SO_3H bifunctionalized Bronsted acidic ILs.

In continuation of our research interest in the development of new methodologies using clean and more efficient catalysts [41–44], herein, we wish to report a synthesis of novel -SO_3H bifunctionalized Bronsted acidic ionic liquid 1, 5-bis (butanesulphonic acid)-diazobicyclo [4,3,0] non-5-enium hydrogen sulphate [BBSA-DBN] [HSO_4] in aqueous solution and their application to synthesize quinoxalines via one-pot two component condensation of substituted 1,2-diketones and various aromatic 1,2-diamines in ethanol at 80 °C (Scheme 1). The highly Bronsted acidity of IL due to the presence of two -SO_3H groups and two HSO_4^- anions were determined by Hammett method. Moreover, the IL [BBSA-DBN][HSO_4] could be easily recovered and reused at least five times without change in its catalytic activity. Advantage of this protocol are mild reaction condition, high yield, simple work-up, no chromatographic separation required and low reaction time.

Results and discussion

The synthetic approach used to assemble the zwitterionic precursors to these acidic –SO_3H functionalized IL is well precedented [45]. Reaction of the neutral nucleophile 1,5-diazobicyclo[4,3,0]non-5-ene [DBN] with 1,4-butanesultone produces the requisite zwitterions in excellent yields. In the second step, the simultaneous realization of the latent acidity of the zwitterions and their conversion into IL 1, 5-bis(butanesulphonic acid)-diazobicyclo [4,3,0]non-5-enium hydrogen sulphate [BBSA-DBN][HSO_4] is accomplished. The chemical yields for both the zwitterion formation and acidification steps are essentially quantitative. The process of



Scheme 1 One-pot condensation of 1,2-diketones **1** with aromatic 1,2-diamines **2** for synthesis of quinoxalines **3**

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One-pot multicomponent synthesis of *N*-sulfonyl amidines using magnetic separable nanoparticles-decorated *N*-heterocyclic carbene complex with copper

Arvind Pawar[1] · Shivanand Gajare[2] · Audumbar Patil[2] · Rajanikant Kurane[2] · Gajanan Rashinkar[2] · Suresh Patil[1]

Received: 8 November 2020 / Accepted: 29 March 2021

Abstract

Magnetic separable nanoparticles-decorated *N*-heterocyclic carbene complex with copper (MNP[1-Methyl benzimidazole]NHC@Cu) has been prepared by covalent grafting of ionic liquid like 1-methyl benzimidazole unit on the surface of chloro-functionalized Fe_3O_4 magnetic nanoparticles (MNPs) followed by metallation with copper(I) iodide. MNP[1-Methyl benzimidazole]NHC@Cu complex has been characterized by different techniques including Fourier transform infrared (FT-IR) spectroscopy, thermogravimetric analysis (TGA), energy-dispersive X-ray (EDX) analysis, X-ray diffraction (XRD), transmission electron microscopy (TEM) and vibrating sample magnetometer (VSM). MNP[1-Methyl benzimidazole]NHC@Cu complex was successfully implemented as heterogeneous catalyst in one-pot multicomponent synthesis of *N*-sulfonyl amidines from phenylacetylene, tosyl azide and amines at room temperature. Complex could be recycled six times without significant loss in the yield of product.

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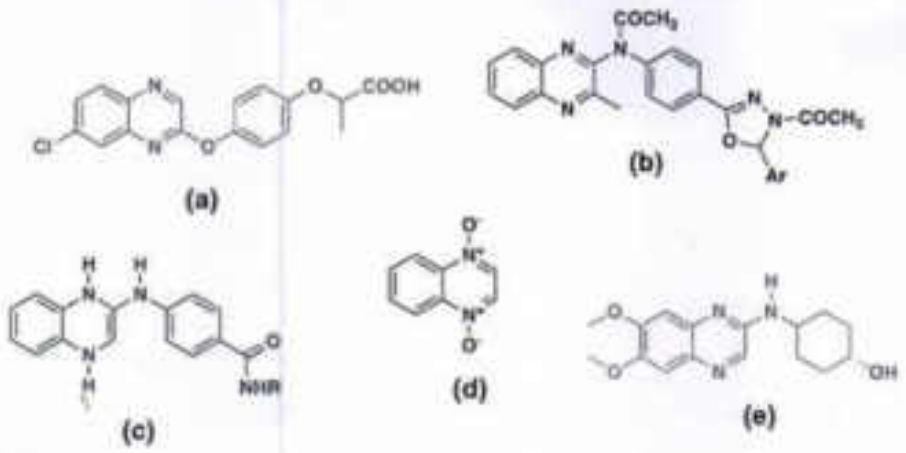

Fig. 1 Some biological active quinoxaline derivatives

However, these methods show varying degrees of success as well as limitations such as use of expensive catalysts, prolonged reaction times, lower yields, use of toxic organic solvents and harsh reaction conditions. Although a large number of catalytic systems have been developed for the synthesis of quinoxaline using the routes, there is a still scope for improvement especially towards developing an efficient protocol using a highly forceful catalyst. Organic transformation by ionic liquids (ILs) has concerned increasing interest offering many economic and practical pros. From a viewpoint of ecological advantages of ILs, it is desirable to use ILs as a catalyst since it is harmless and environmentally benign [31].

Using ILs, avoids the use of toxic and expensive organic solvents that are normally used in organic transformation owing to their special physical and chemical properties such as low vapour pressure, non-volatility, high thermal stability, excellent solvation ability, wide liquid temperature range, non-inflammability, excellent chemical stability, easy recyclability and the possibility of varying their structure to manipulate parameters like density, solubility [32, 33], etc. These properties and most importantly their power as solvent encourage the scientist to synthesis such compounds. Coulombic interactions are the dominant interactions between the ions; however, intermolecular interactions like pep stacking, van der Waals interaction and hydrogen bonding, so forth help the supramolecular organization of the ILs [34]. It should be noted that covalently tethered alkane sulphonic acid group to the IL cation produced a strong Brønsted acid [35]. These ILs with SO_3H as functional have been intensively studied over the past five years. Also, due to this functional group, their acidic properties and water solubility could be improved [36].

Recently, DBN was significantly used as catalysts in different research area. The combination of cation with DBN can produce novel types of ILs and these hybrid materials are used as catalysts [37]. The great number of functional ILs has been designed for different purposes [38]. ILs have been deemed as recyclable and environment friendly substitutes for volatile organic solvents attributing to their attractive negligible vapour pressure, chemical and thermal stability, non-flammability

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A synergetic role of *Aegle marmelos* fruit ash in the synthesis of biscoumarins and 2-amino-4*H*-chromenes

Rupesh C. Patil, et al. *[full author details at the end of the article]*

Received: 13 August 2020 / Accepted: 11 December 2020

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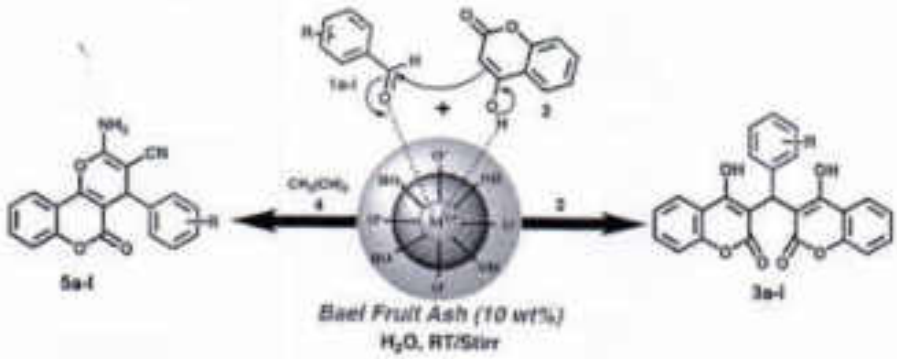

Keywords Bio-waste · Bael fruit · Natural catalyst · Biscoumarins · 2-Amino-4*H*-chromenes

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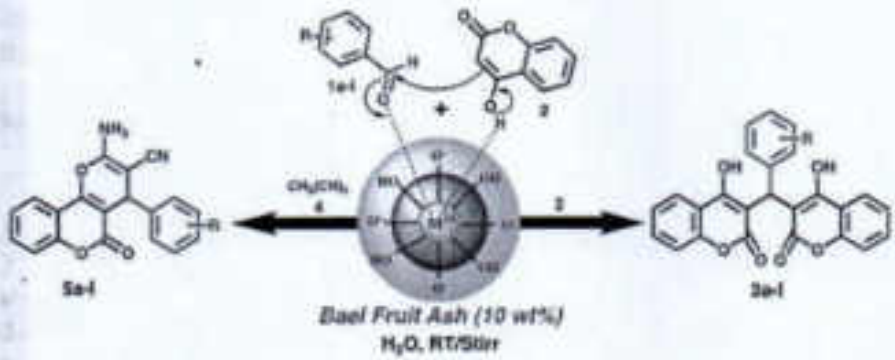

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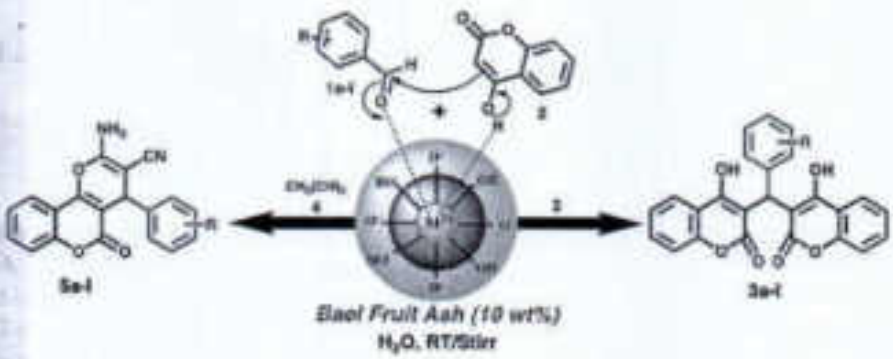
Graphic abstract



Keywords Bio-waste · Bael fruit · Natural catalyst · Biscoumarins · 2-Amino-4*H*-chromenes

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11164-020-04367-6) contains supplementary material, which is available to authorized users.

Catalysis Letters
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Supported NHC-Benzimi@Cu Complex as a Magnetically Separable and Reusable Catalyst for the Multicomponent and Click Synthesis of 1,4-Disubstituted 1,2,3-Triazoles via Huisgen 1,3-Dipolar Cycloaddition

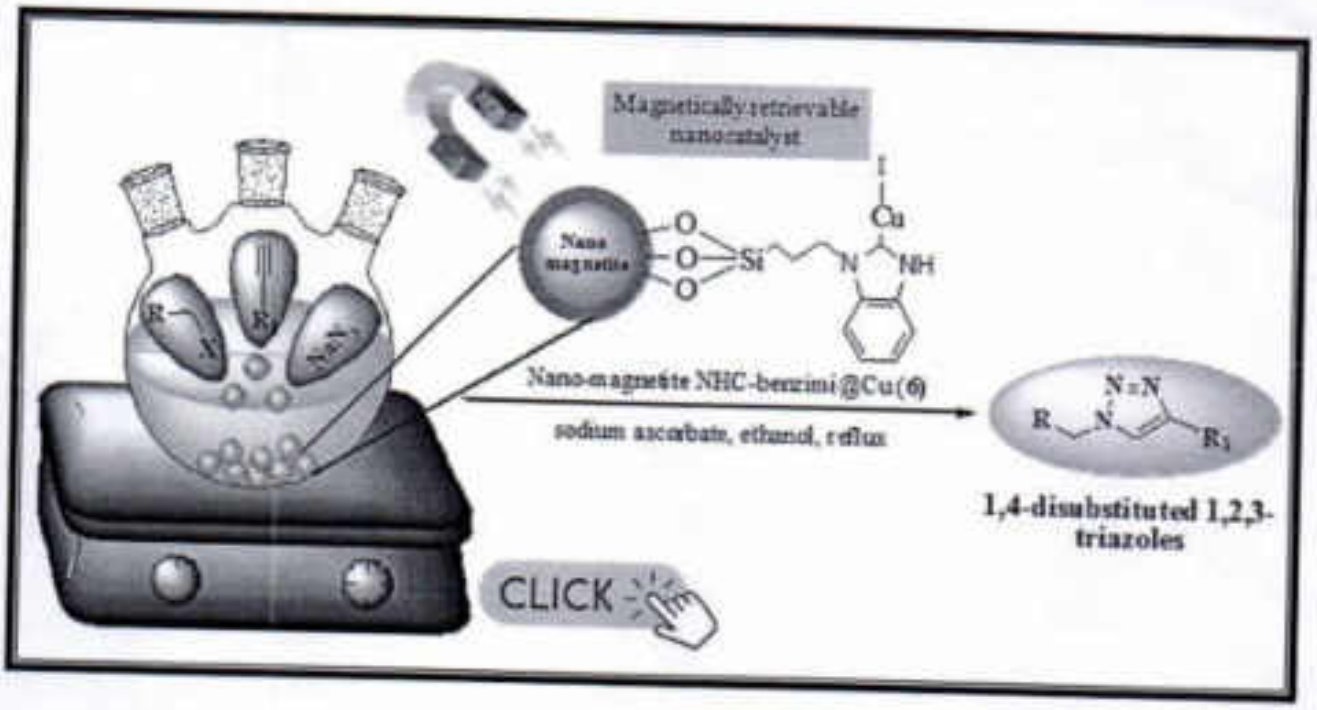
Arvind Pawar[1,3] · Shivanand Gajare[2] · Ashutosh Jagdale[1] · Sandip Patil[1] · Wilson Chandane[3] · Gajanan Rashinkar[2] · Suresh Patil[1]

Received: 15 June 2021 / Accepted: 10 August 2021

Abstract

In this paper, we report a novel magnetically separable silica coated copper nano-magnetite NHC-benzimi@Cu complex as heterogeneous catalyst for the multicomponent click reaction via Huisgen 1,3-dipolar cycloaddition reaction of alkyl or aryl halide, sodium azide and terminal alkyne, which affords various1,4-disubstituted 1,2,3-triazoles. The multistep prepared nano catalyst has been characterized by various spectroscopic methods such as FT-IR, TGA, EDX, XRD, TEM and VSM. The heterogeneous nano catalyst structures coated on the copper surface are responsible for the excellent catalyst performances in the reaction. The reusability of the catalyst makes the present protocol more fascinating from an environmental and economic point of view.

Graphic Abstract



Keywords Magnetically retrievable nanocatalyst · Click reaction · Copper iodide · 1,2,3-triazoles · Reusability

Extended author information available on the last page of the article

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Catalysis Letters
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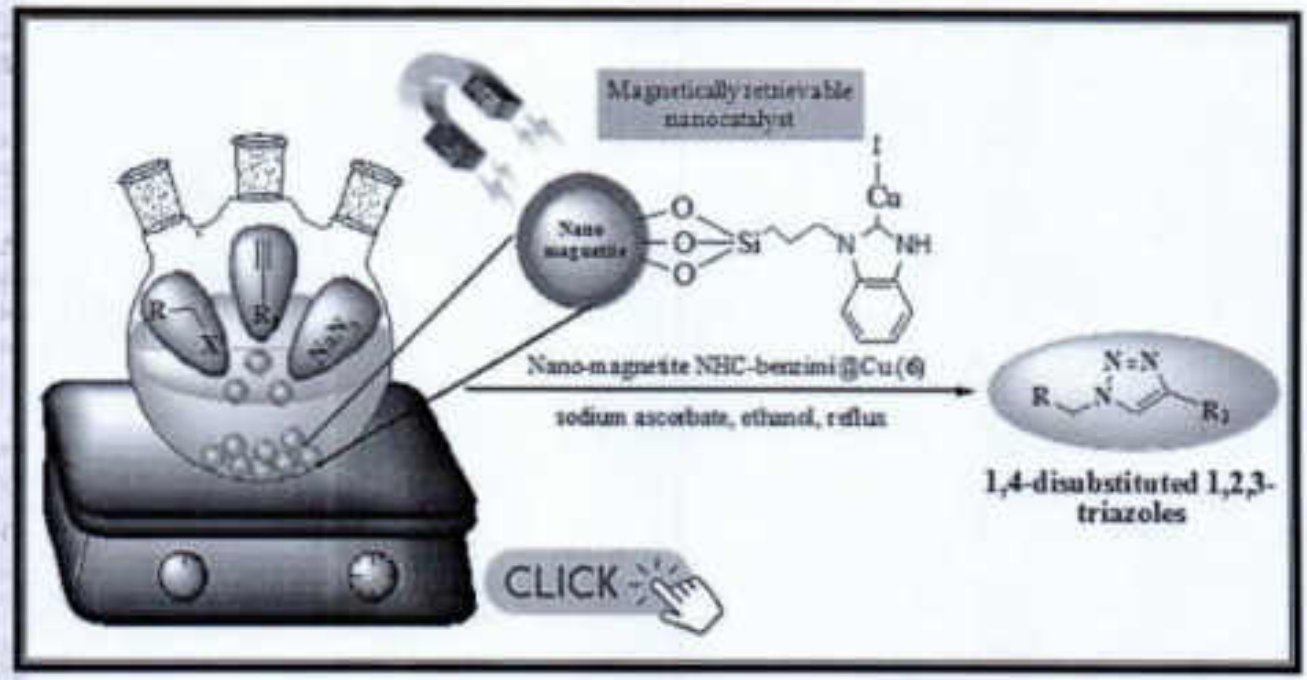

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Topics in Current Chemistry (2021) 379:36
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REVIEW

Natural Feedstock in Catalysis: A Sustainable Route Towards Organic Transformations

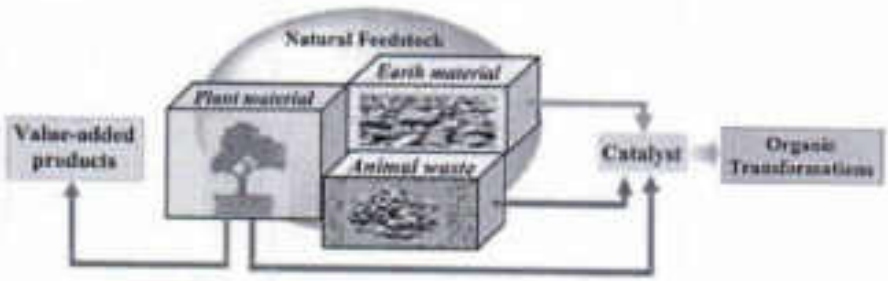
U. P. Patil[1] · Suresh S. Patil[2]

Received: 20 February 2021 / Accepted: 21 July 2021

Abstract

Catalysts are the jewel in the crown of the chemical industry, accelerating reaction kinetics and augmenting the efficiency of desired reaction paths. Natural feedstock is a renewable resource capable of providing valuable functional products; in addition, it confers an opportunity to create catalysts. As an alternative to stoichiometric reagents, and as a part of a sustainable approach, the implications of using natural feedstocks as a source of new catalysts has attracted considerable interest. Natural feedstock-derived catalysts can promote chemical transformations more efficiently. Recent reports have highlighted the significant role of these biogenic, cost-effective, innocuous, biodegradable materials as catalysts in many biologically and pharmacologically important protocols. This review outlines the decisive organic transformations for which feedstock-derived catalysts have been employed effectively and successfully, along with their economic and environmental benefits over traditional catalytic systems.

Graphic Abstract



Keywords Plant material · Animal waste · Earth material · Catalysis · Organic transformations

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Extended author information available on the last page of the article

Published online: 13 August 2021

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Brönsted acid hydrotrope combined catalysis in water: a green approach for the synthesis of indoloquinoxalines and bis-tetronic acids

Arjun Kumbhar[1] · Dhanaji Kanase[2] · Suhas Mohite[3] · Rajshri Salunkhe[4] · Trushant Lohar[2]

Received: 17 December 2020 / Accepted: 27 February 2021

Abstract

The present work describes the applications of Brönsted acid hydrotrope combined catalyst (BAHC) as a mild, efficient and reusable catalyst for synthesis of indoloquinoxalines and bis-tetronic acids in water. Using BAHC, we synthesized many indoloquinoxaline derivatives from isatins and o-phenylene diamine using 10 mol% PTSA in 40% aqueous hydrotropic (NaPTS) solution at room temperature with 83–90% yields. On the other hand, the reaction of tetronic acid with the aldehydes/isatins forms bis-tetronic acids with 83–88% yields through Knoevengel condensation-Michael addition pathway in same BHAC. Moreover, the BAHC can be recycled upto 5th cycles with slight decrease in product yields. The extremely simple operational methodology, green solvent, ambient reaction conditions and high yields render this approach extremely appealing for the synthesis of different heterocyclic compounds.

Keywords Brönsted acid hydrotrope combined catalyst (BAHC) · Water · Indoloquinoxalines · Bis-tetronic acids

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PAPER

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Metal-free efficient thiolation of C(sp^2) functionalization *via in situ*-generated NHTS for the synthesis of novel sulfenylated 2-aminothiazole and imidazothiazole†

Shuddhodan N. Kadam,[a] Ajay N. Ambhore,[b] Rahul D. Kamble,[c] Mahesh G. Wakhradkar,[d] Priya D. Gavhane,[d] Milind V. Gaikwad,[d] Krishna Chaitanya Gunturu*[d] and Bhaskar S. Dawane*[d]

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A direct metal-free approach for the synthesis of novel sulfenylated 2-aminothiazole and imidazothiazole derivatives at room temperature is reported *via* an *in situ*-generated electrophilic thiolating agent. The present protocol provides mild and selective access for the insertion of C–S bond functionalization with good yield. The mechanistic path was justified *via* density functional theory (DFT) calculations, which explore the role of the solvent in the reaction mechanism.

Introduction

The prevalent occurrence of organosulfur compounds in vital biological systems, drug architectures and natural products present themselves as versatile scaffolds in organic chemistry, medicinal chemistry and materials chemistry.[1–3] They constitute an active portion of commercially available drugs.[4–7] These consequences have led to an unending quest for a capable catalytic system, comprising a blend of carbon-sulfur bonds to create organosulfur compounds.[8–16] The majority of reported transformations for C–S bond coupling includes the synthesis of diaryl sulfides using imidazoheterocycles,[17–30] indoles[31–35] or aryl halides[36–38] by reaction with thiols or thiones. Several catalytic systems utilized for the cross dehydrogenative coupling reaction (CDC) of the C–S bond include the use of transition metals,[31–36] elemental sulfur,[37–39] and iodine.[40–44] Amongst these protocols, those capable of encountering direct metal-free regioselective C–S bond coupling in bifunctional motifs for the selective synthesis of heterocyclic organosulfur compounds are highly desirable.[45–52] Moreover, among numerous catalytic systems reported for the synthesis of organosulfur compounds, the use of *N*-halosuccinimides was proven to be a highly useful approach;[53–59] however, *N*-halosuccinimides have a general tendency to oxidise secondary alcohols to their corresponding ketones.[60,61] In recent years, the use of *N*-sulfanylsuccinimides for the direct sulfenylation of aromatic and heteroaromatic C–H bonds has become an interesting strategy.[62–72] Very few reports are available for the synthesis of catechol thioethers.[73–77] However, the selective synthesis of organosulfur compounds has not been reported hitherto *via in situ*-generated *N*-(heteroarylthio)-succinimide (NHTS), by utilizing *N*-halosuccinimide and heterocyclic thiols such as 1H-benzo[*d*]imidazole-2-thiol, benzo[*d*]oxazole-2-thiol and 5-(pyridin-4-yl)-1,3,4-oxadiazole-2-thiol. The use of these heterocyclic thiols may impart advantages in the areas of small molecule syntheses as well as pharmaceuticals as imidazothiazole and thiazoles are considered to possess a broad spectrum of biological activity.[78,80] Consequently, the selective C-5 electrophilic sulfenylation of pseudo aromatic imidazothiazoles with secondary alcohols may provide a beneficial synthetic route for medicinal chemistry research. Jie *et al.* have reported the organocatalytic sulfenylation of β-naphthols using *N*-(arylthio)succinimide as the sulfur source, and they have observed that the dearomatization of β-naphthols takes place with the oxidation of an alcoholic group to a ketone (Scheme 1).[78]

Nevertheless, alcohols also possess the propensity to react with thiols to generate thioethers in the presence of certain catalytic systems.[81–86] These annotations and our previous study regarding the synthesis of bioactive compounds[87–89] have provoked us to focus on the development of a new catalytic system for the selective C(sp^2)–H bond thiolation of 2-aminothiazoles and imidazothiazoles using heterocyclic thiols and *N*-halosuccinimide.

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† Electronic supplementary information (ESI) available. See DOI: 10.1039/d0nj05904h

Original Article: DTP/SiO_2: An Efficient and Reusable Heterogeneous Catalyst for synthesis of Dihydropyrano[3,2-c]Chromene-3-Carbonitrile Derivatives

Rahul D. Kamble[a] | Milind V. Gaikwad[b]* | Manojkumar R. Tapare[a] | Shrikant V. Hese[c] | Shuddhodan N. Kadam[d] | Ajay N. Ambhore[e] | Bhaskar S. Dawane[f]

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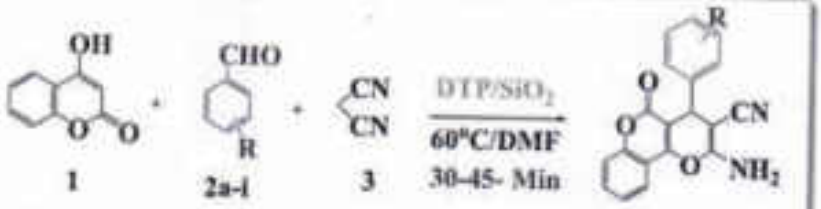
DTP/SiO_2, green synthesis, dihydropyrano[3,2-c]chromene-3-carbonitrile.

ABSTRACT

An efficient and convenient method has been developed for the synthesis of 2-amino-5-oxo-4-phenyl-4, 5-dihydropyrano[3,2-c]chromene-3-carbonitrile derivatives from one-pot multicomponent reaction between 4-hydroxy-2H-chromen-2-one. Aromatic aldehydes and malononitrile were catalyzed by DTP/SiO_2 as an efficient and reusable heterogeneous catalyst. The current method provides adavtages over reported method viz simple operational procedure, easy isolation and recyclability of the catalyst, environmental benign, reduced reaction time and superior yield.



R= 4-H, 4-Cl, 4-Br, 4-F, 4-NO_2, 3-NO_2, 4-OH, 4-Me,4-OMe, 2-OH,2,4-Cl etc

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Silica-supported sodium carbonate: an efficient heterogeneous catalyst for the synthesis of new thiazolopyrimidine derivatives

Priya D. Gavhane[1] · Shuddhodan N. Kadam[2] · Ajay N. Ambhore[3] · Bhaskar S. Dawane[1]

Received: 6 August 2020 / Accepted: 5 June 2021

Abstract
Herein we describe a new convenient strategy for the synthesis of substituted thiazolopyrimidines. The present approach delivers the use of silica-supported sodium carbonate (SSC) as a recyclable heterogeneous catalyst in PEG- 400 solvent. The described synthetic route offers an easy access for the synthesis of titled compounds through green chemistry protocols.

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Chemical Methodologies

Journal homepage: http://chemmethod.com

Short communication

A Short Synthesis of Carbazole Alkaloids Murrayanine and Mukonine

Milind V. Gaikwad[1*], Rahul D. Kamble[2*], Shrikant V. Hese[3], Shuddhodan N. Kadam[4], Ajay N. Ambhore[5], Sunil V. Gaikwad[6], Ashok P. Acharya[7], Bhaskar S. Dawane[8]

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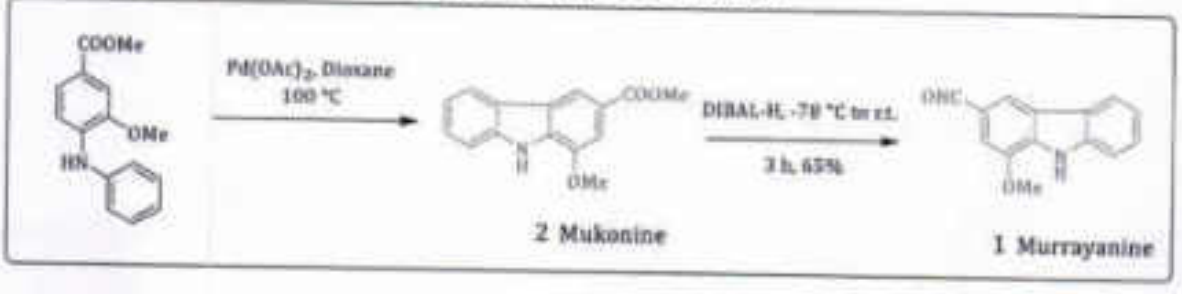
Buchard coupling

ABSTRACT

The short, easy and total synthesis of Murrayanine (1), Mukonine (2), carbazole alkaloids were elaborated, based on a regioselective buchwald coupling of methyl 4-bromo-3-methoxybenzoate with aniline and successive transformation into the corrsponding carbazole alkaloids by oxidative coupling followed by cyclization of the phenyl and aryl rings.

GRAPHICAL ABSTRACT



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[BBSA-DBN][HSO_4]: a novel –SO_3H functionalized Bronsted acidic ionic liquid for easy access of quinoxalines

Megha U. Patil[1] · Sachinkumar K. Shinde[1] · Sandip P. Patil[1] · Suresh S. Patil[1]

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Abstract

A novel –SO_3H difunctionalized Bronsted acidic ionic liquid (BAIL) 1, 5-bis (butanesulphonic acid)-diazobicyclo [4,3,0] non-5-enium hydrogen sulphate [BBSA-DBN][HSO_4] is introduced for efficient synthesis of quinoxalines via condensation of substituted 1,2-diketones and various aromatic 1,2-diamines. It could serve as a dual functional catalyst for these reactions. This method has the advantages of mild reaction conditions, high yields, short reaction times, easy work-up, non-chromatographic separations and being environmentally friendly. This protocol provides an effective and environmentally friendly alternative methodology for production of quinoxalines and extends the chemical utilization of benzil in organic synthesis. This room-temperature-derived ionic liquid is highly acidic due to presence of two –SO_3H groups and two HSO_4^- anions. Moreover, the IL [BBSA-DBN][HSO_4] could be easily recovered and reused at least five times without change in its catalytic activity. The formation of IL [BBSA-DBN][HSO_4] was confirmed by ^1H, ^{13}C NMR spectroscopic techniques.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11164-020-04227-3) contains supplementary material, which is available to authorized users.

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Research on Chemical Intermediates
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Published online: 19 August 2020

Averrhoa bilimbi in organic transformation: a highly efficient and green biosurfactant for the synthesis of multi-functional chromenes and xanthenes

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A simple, clean and efficient one-pot three-component synthesis of multi-functional chromene and xanthene derivatives has been developed in this study in the presence of a catalytic amount of Brönsted acidic-type biosurfactant bilimbi fruit extract (BFE) under elevated temperature condition. BFE is an unprocessed micellar catalyst that works well in an ethanolic aqueous medium. Employment of ethanol as a co-surfactant enhances catalytic performance of BFE as a biosurfactant. The presence of micelles in the reaction medium was detected using light microscopy and their critical micelle concentration was measured by electrical conductivity method. Some new derivatives of chromene and xanthene are reported here. This novel catalytic medium obtained from an environmentally renewable resource is highly advantageous because of its non-toxicity, higher efficiency, operational simplicity, bio-compatibility as well as absence of any tedious work-up or column chromatography and thus no waste generation. Here, we also signify the 'greenness and sustainability' of the present protocol on the basis of EcoScale metric which validates the practical application of the synthetic procedure.

Keywords: Bilimbi fruit extract, biosurfactant, green chemistry, natural catalyst.

THE development of a proactive protocol for chemical transformations with high efficacy and reduced environmental impact is an important goal in green chemistry and in future sciences. With reduced environmental impact, young discipline of chemistry, green chemistry, promotes the use of highly efficient and environmental benign synthetic procedures to deliver life-saving medicines, and accelerating the guide optimization processes in drug discovery. In the synthetic organic reactions, solvents handle 80% of the total mass and also in 70% of the cases they are just incinerated to recover heat[1,2]. Therefore, their substitution with more environment-friendly options can directly have a positive effect on both emission and hazardous issues[3]. Hence, it is desirable to use environmentally benign water as a safe, abundant, inexpensive and non-toxic solvent instead of organic solvents[4]. Due to the same features, accomplishing organic reactions in water has been explored over the past few decades[5–8].

Methods

Nowadays, a viable alternative for the development of green protocols are biosynthetic processes utilizing bio-based solvents or catalysts for organic tranformations[9]. The advanced and/or newer organic promoters which perform well in the aqueous medium will be beneficial in reaction handling, product selection and purification, improving the reaction rate, and reducing toxic solvent consumption and disposal problems, etc. These are found to be important from the industrial point of view. Henceforth, there is demand for the use of catalyst/media which works avoiding the hydrophobicity of organic precursors and reagents, which is satisfied by the use of surfactant assembled aqueous micelles. Typically, the micellar environment has a pronounced effect in enhancing the reaction rate with good efficiency exhibiting environmentally benign character, which act as 'nanoreactors' characterized by exclusive features[10]. Hitherto, organic transformations involving surfactants in aqueous media have received considerable attention from researchers[11,12].

All these findings validate the case of a naturally occurring medium/phase acting as surfactant, known as a biosurfactant. The surfactants that are directly obtained from natural sources, viz. plants, animals, or microbial cells, or by separation procedures such as extraction, precipitation or distillation are known as biosurfactants. They have potential industrial applications such as use in improved oil recovery, lubricants, food processing

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Averrhoa bilimbi in organic transformation: a highly efficient and green biosurfactant for the synthesis of multi-functional chromenes and xanthenes

Bhagyashree M. Patil[1], Snehali R. Mali[2], Bhimrao M. Patil[3] and Suresh S. Patil[2,*]

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A simple, clean and efficient one-pot three-component synthesis of multi-functional chromene and xanthene derivatives has been developed in this study in the presence of a catalytic amount of Brönsted acidic-type biosurfactant bilimbi fruit extract (BFE) under elevated temperature condition. BFE is an unprocessed micellar catalyst that works well in an ethanolic aqueous medium. Employment of ethanol as a co-surfactant enhances catalytic performance of BFE as a biosurfactant. The presence of micelles in the reaction medium was detected using light microscopy and their critical micelle concentration was measured by electrical conductivity method. Some new derivatives of chromene and xanthene are reported here. This novel catalytic medium obtained from an environmentally renewable resource is highly advantageous because of its non-toxicity, higher efficiency, operational simplicity, bio-compatibility as well as absence of any tedious work-up or column chromatography and thus no waste generation. Here, we also signify the 'greenness and sustainability' of the present protocol on the basis of EcoScale metric which validates the practical application of the synthetic procedure.

Keywords: Bilimbi fruit extract, biosurfactant, green chemistry, natural catalyst.

THE development of a proactive protocol for chemical transformations with high efficacy and reduced environmental impact is an important goal in green chemistry and in future sciences. With reduced environmental impact, young discipline of chemistry, green chemistry, promotes the use of highly efficient and environmental benign synthetic procedures to deliver life-saving medicines, and accelerating the guide optimization processes in drug discovery. In the synthetic organic reactions, solvents handle 80% of the total mass and also in 70% of the cases they are just incinerated to recover heat[1,2]. Therefore, their substitution with more environment-friendly options can directly have a positive effect on both emission and hazardous issues[3]. Hence, it is desirable to use environmentally benign water as a safe, abundant, inexpensive and non-toxic solvent instead of organic solvents[4]. Due to the same features, accomplishing organic reactions in water has been explored over the past few decades[5–8].

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Research on Chemical Intermediates
https://doi.org/10.1007/s11164-020-04160-5

Ash of pomegranate peels (APP): A bio-waste heterogeneous catalyst for sustainable synthesis of α,α′-bis(substituted benzylidine)cycloalkanones and 2-arylidene-1-tetralones

Rupesh C. Patil[1] · Uttam P. Patil[2] · Ashutosh A. Jagdale[1] · Sachinkumar K. Shinde[1] · Suresh S. Patil[1]

Received: 13 January 2020 / Accepted: 15 April 2020

Abstract
α,α′-bis(substituted benzylidene)cycloalkanones were efficiently prepared from variously substituted aldehydes and cycloalkanones in water by using ash of pomegranate peels (APP) as a catalyst. The APP-catalyst was obtained from bio-waste by simple thermal treatment to dry peels of pomegranate fruit and formation of its active phase was confirmed by FT-IR, XRD, XRF, EDX, SEM, DSC-TGA and BET techniques. The analysis revealed that the present catalyst has basic sites which promote the synthesis of desired products. The main attractions of our protocol are utilization of highly abundant bio-waste-derived catalyst and good-to-excellent yield in shortest reaction time. This green protocol was further extended for structurally diverse 2-arylidene-1-tetralones by condensation of equimolar quantity of aromatic aldehydes and 1-tetralone at low temperature. The catalyst could be quantitatively recovered and reused effectively for five times.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11164-020-04160-5) contains supplementary material, which is available to authorized users.

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EXPERIMENTAL PAPER

Biowaste-Derived Heterogeneous Catalyst for the One-Pot Multicomponent Synthesis of Diverse and Densely Functionalized 2-Amino-4*H*-Chromenes

U. P. Patil[a], Rupesh C. Patil[b], and Suresh S. Patil[c]

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Chromene skeletons are crucial structural motifs existing in abundant natural products and drug molecules.[1] These oxygen-containing heterocyclic compounds have a broad range of biological properties such as antimicrobial,[2] anti-HIV,[3] anti-inflammatory,[4] and cytotoxic activities.[5] They are being investigated in neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, and Huntington's disease.[6–8] Notably, several drug-molecules possessing 4*H*-chromene moieties are currently in use for the treatment of such ailments as asthma, hypertension, ischemia and urinary incontinence.[9–11]

The synthesis of these O-heterocycles involves the three-component coupling of C-H activated acids with malononitrile and aromatic aldehydes in the presence of homogeneous and heterogeneous catalysts such as piperidine,[12] triethylamine,[13] DBU,[14] $(NH_4)_2HPO_4$,[15] POPINO,[16] piperazine,[17] aqueous K_2CO_3,[18] hydrotalcite (HT),[19] TiO_2 nanowire,[20] MgO,[21] mesolite,[22] nanozeolite clinoptilolite,[23] trichloroisocyanuric acid[24] and 2-aminopyridine.[25] In no denial of fact, the reported methods are creditable; however, the implication of hazardous reagents and solvents, lengthy processes, energy investment for heating purposes and complications in the separation of products are realistic problems associated with these methods. Considering the diverse functionality of 2-amino-4*H*-chromenes, it was deemed worthwhile to explore a convenient protocol for the synthesis of these heterocycles.

Waste biomass has been increasingly targeted as a renewable feedstock for the production of high energy-density fuels, construction materials and, more recently, platform chemicals and high-value functional products. Using waste material to develop promising heterogeneous catalysts in addition to the target product makes the system more cost-effective and environmentally benign.[26,27] The functionalized heterogeneous catalysts evaluated from waste biomass are mainly composed of metal oxides and possess high surface area and significant pore volume with high thermal stability.[28] The basic active sites of the heterogeneous ash catalyst may be responsible for the acceleration of the rate of reactions.

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Reaction Kinetics, Mechanisms and Catalysis
https://doi.org/10.1007/s11144-020-01743-6

Waste mussel shell as a highly efficient heterogeneous catalyst for the synthesis of polyfunctionalized 4*H*-pyrans in aqueous media

U. P. Patil[1] · Rupesh C. Patil[2] · Suresh S. Patil[3]

Received: 26 December 2019 / Accepted: 9 February 2020

Abstract
An economical and environmentally friendly heterogeneous base catalyst has been developed from a waste freshwater mussel shell and employed successfully for the synthesis of 4*H*-pyrans in an aqueous medium at ambient temperature. 2-arylidenemalononitrile, an intermediate of 4*H*-pyran reaction, was also prepared using the same catalyst. The catalyst was characterized by FT-IR, XRD, XRF, EDS, and SEM. Analytical tools such as XRF and EDS explored the presence of calcium oxide as a main component in the mussel shell, while the XRD pattern showed crystalline nature and SEM image displayed porous surface with irregular cavities. The catalyst exhibited unprecedented performance in the one-pot three-component condensation reaction of C–H activated acidic compounds with aromatic aldehydes and malononitrile in the green reaction medium and offered pure products without chromatographic separation.

Keywords Heterogeneous catalyst · Mussel shell · Green solvent · 4*H*-pyrans

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11144-020-01743-6) contains supplementary material, which is available to authorized users.

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Reaction Kinetics, Mechanisms and Catalysis
https://doi.org/10.1007/s11144-020-01828-2

Sulfonic acid@pericarp-pomegranate: A natural supported catalyst for synthesis of bis(indolyl)alkanes

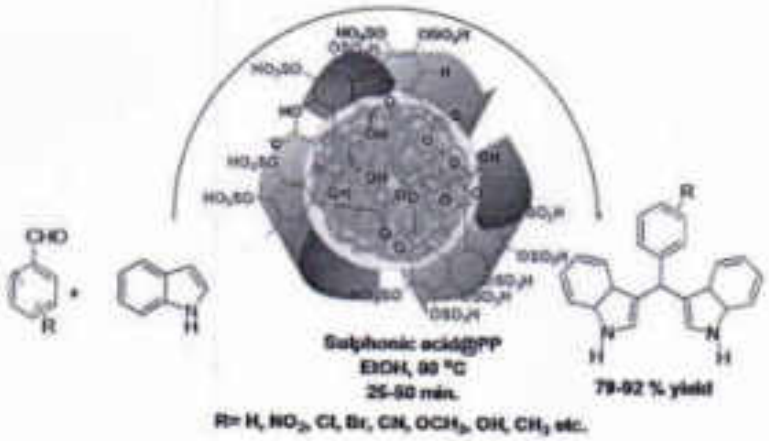
Monika Patil, et al. *[full author details at the end of the article]*

Received: 7 June 2020 / Accepted: 15 July 2020

Abstract

A heterogeneous solid acid catalyst, sulfonic acid supported on pericarp-pomegranate (sulfonic acid@PP) is prepared with green an eco-friendly approach. The prepared sulfonic acid@PP catalyst was extensively characterized by IR, FE-SEM, EDX and TGA techniques. The efficiency of the catalyst has been investigated for the synthesis of bis(indolyl)alkanes by electrophilic substitution reaction of indoles with carbonyl compounds in ethanol at 80 °C. Easy recovery by simple filtration and at least three times reusability without significant loss in the yield of the desired product are conspicuous features of the reported catalyst. In addition, the notable features of this protocol are high conversions, shorter reaction times, cleaner reaction profile, simple experimental and work-up procedure.

Graphic abstract



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Transition Metal Chemistry (2020) 45:403–411
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RESEARCH ARTICLE

Bio-surfactant: a green and environmentally benign reaction medium for ligand-free Pd-catalyzed Mizoroki–Heck cross-coupling reaction in water

Seema P. Patil[1,2] · Sanjay N. Jadhav[3] · Chandrashekhar V. Rode[2] · Rajendra V. Shejwal[4] · Arjun S. Kumbhar[1]

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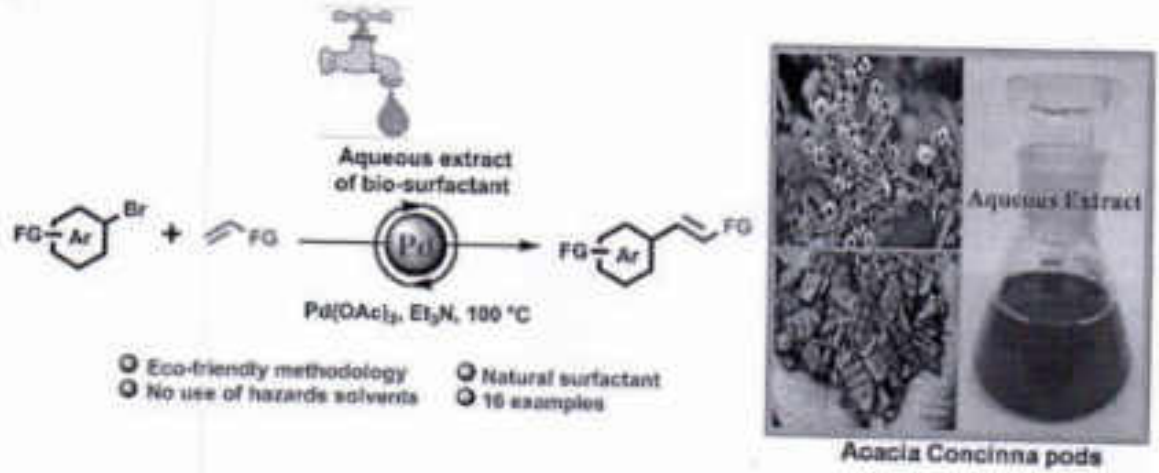
Abstract

A simple and efficient protocol for the ligand-free Mizoroki–Heck coupling reaction of various aryl bromides with different olefins has been reported by using in situ generated PdNPs of size 5–10 nm in aqueous solution of bio-surfactant. The bio-surfactant used in this study is a saponin extract of the seeds of pericarps (pods) of the *Acacia concinna* plant. The in situ generated PdNPs have been characterized by various techniques such as HRTEM, EDS and XPS. The influence of various parameters such as the nature and amount of bases, the nature of Pd precatalysts as well as the effect of temperature has been investigated on Mizoroki–Heck coupling reaction. The generated PdNPs significantly coupled the various aryl bromides with different olefins in aqueous extract of the seeds of pericarps (pods) of the *Acacia concinna* plant at 100 °C.

Graphic abstract



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9

Synthesis of hydrazinylquinoline-3-carbonitrile derivatives using green protocol and screening of their bioactivity

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Research Paper - Chemistry

ABSTRACT

Synthesis of bioactive heterocyclic compounds is the continuous work in every era. With achieving novel scaffold, discovery of synthetic rout as a diversion to the tradition rout is also a main aim on the mind of each research. Improvement of eco-friendly way for the synthesis of bioactive compounds is one of the leading objectives of medicinal chemist. Traditional synthetic rout suffers from number of serious barriers. These disadvantages are removed by applying the green chemistry principle which results in to the new and simple way for that synthesis. In this section we report an efficient green rout for the synthesis of hydrazinylquinoline-3-carbonitrile derivatives (4a-j) by using Bleaching Earth Clay (pH 12.5) in PEG-400 as green reaction media. All the synthesized compounds are characterized and screened for their antimicrobial activity in which most of the screened compounds shows significant activity.

Keywords : quinoline, BEC (pH-12.5), PEG-400, Antimicrobial.

Introduction

Convergent synthesis of heterocyclic compounds from relatively simple starting materials can be achieved using tandem C–C bond formations [1-2]. Such transformations are usually operated in one pot without isolation or purification of intermediates. The development of tandem reactions for efficient construction of small molecules with operational

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Influence of rare earth ions (Sm^{3+}, Dy^{3+}) substitution on magnetic and microwave performance of magnesium ferrite

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Permeability
Microwave absorption

ABSTRACT

The nano-crystalline rare earth (Sm^{3+}, Dy^{3+}) substituted $MgFe_2O_4$ with composition $Mg[(Sm)_{0.05}(Dy)_{0.x}]_xFe_{2-x}O_4$ [x varies from 0.0 to 0.3 in steps of 0.05] have been prepared by chemical combustion route. X-ray diffraction analysis confirmed the formation of the spinel cubic phase as a major phase along with the perovskite orthoferrite phase as a minor phase in all the samples except $MgFe_2O_4$. The room temperature magnetic properties of these samples have been investigated. It has been observed that with an increase in substitution of rare-earth ions (Sm^{3+}, Dy^{3+}), for iron in $MgFe_2O_4$, initial permeability increases, attain peak value for the composition with x = 0.15, and decreases for higher substitution concentrations. The microwave absorption performance of the $Mg[(Sm)_{0.05}(Dy)_{0.x}]_xFe_{2-x}O_4$ systems have been investigated. The reflection coefficients are found to be higher as compared to $MgFe_2O_4$ whereas Voltage Standing Wave Ratio (VSWR) found to be lower. Overall investigations indicate $Mg[(Sm)_{0.05}(Dy)_{0.x}]_{0.15}Fe_{1.85}O_4$ is a promising candidate for microwave device fabrication.

1. Introduction

Magnesium ferrite is a ferrimagnetic material with reasonably high resistivity, magnetic permeability, Curie temperature, and low loss. Due to these properties, magnesium ferrite and substituted magnesium ferrites were used for the fabrication of high-density magnetic recording heads, high-frequency devices, sensors, electronic devices, and microwave absorbents [1]. It is expected that the rare earth ion substitution in place of iron improves the magnetic as well as electric properties of spinel ferrites [2–4] Now-a-days spinel ferrites are widely used for biomedical as well as photocatalytic applications [5–8]. Bamrai et al. [9] studied the structural and magnetic properties of dysprosium substituted magnesium ferrite. They observed the presence of an ortho-ferrite phase namely $DyFeO_3$ as evidenced from X-ray diffraction analysis. Gadkari et al. [10] have observed the orthoferrite phase due to $SmFeO_3$ for samarium substituted Mg-Cd ferrites. Juli Liang et al. reported magnetic properties of rare-earth substituted cobalt magnesium ferrite where the samples have been reduced in the $Ar + H_2$ atmosphere [11]. The authors have noted that the non-stoichiometric composition gives maximum magnetization. Yousuf et al. reported high-frequency dielectric properties of nanocrystalline yttrium substituted manganese ferrite synthesized by the micro-emulsion method. Prior to dielectric measurements, the samples were thoroughly characterized using TGA, XRD, FTIR, SEM techniques [12]. Balamurugan et al. reported magnetic and optical properties of nanocrystalline magnesium-based spinel ferrite systems processed by ball milling [13]. Murugesan et al. reported structural, electrical, and dielectric properties of Mg, Co, and Cu-based spinel ferrites. The contribution of grain and grain boundary has been elucidated using impedance spectroscopy [14]. Gabu et al. reported the effect of cerium ion doping on structural and magnetic properties of sol-gel synthesized nano-crystalline magnesium ferrite. Prior to the investigation, the samples were characterized thoroughly using microscopic techniques and electron paramagnetic resonance properties have also been investigated [15]. Elkady et al. reported structural and magnetic properties of gadolinium substituted magnesium ferrite and proposed many applications such as hyperthermia, neutron capture therapy, etc. Maximum value of the saturation magnetization was found to be 26 emu/gm at room temperature among the samples examined [3]. Abdellatif et al. have investigated magnetic properties, specifically, magneto-impedance of rare earth substituted spinel ferrites. In their study the rare earth elements viz Dy, Gd, and Sm were doped in the Mn–Cr spinel ferrite system. Giant magnetoimpedance of 60% is

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Studies on Real and Imaginary Part of Permeability for Sm–Dy Substituted Mg Ferrite

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The ferrite samples having composition $Mg[(Sm)_{0.5}(Dy)_{0.5}]_xFe_{2-x}O_4$, in which x varies from 0.05 to 0.3 in steps of 0.05 have been prepared by using combustion method. X-ray diffraction analysis confirmed the formation of cubic spinel structure in addition of ortho-ferrite phase due to substitution of rare earth ions. The initial permeability and complex permeability of toroid samples are calculated by measuring the values of inductance and Q-factor. It is seen that initial permeability and real part of initial permeability increases with increase in Samarium[Sm]–Dysprosium [Dy] rare earth element in magnetium (Mg) up to x = 0.15 and thereafter it decreases. The composition $Mg[(Sm)_{0.5}(Dy)_{0.5}]_{0.15}Fe_{1.85}O_4$ show low loss factor and initial permeability becomes higher as compared to other prepared rare earth content samples.

1. Introduction

Magnesium ferrite is an interesting and important ferrimagnetic material among the soft ferrites.[1] They are used for the fabrication of high density recording sensors, color imaging, high frequency devices, microwave absorbents due to its high electrical resistivity, and magnetic properties.[2–4] Magnesium ions play an important role in the grain growth and densification for formation of the ferrite materials.[5] In addition, rare earth ions substitution in place of Fe of ferrite material also shows structural distortion[6] and strain in lattice; thereby, enhancing magnetic as well as electrical properties.[7] Several researches have been conducted on electrical and magnetic as well as gas sensing properties of rare-earth substituted ferrites.[8–11]

Kumbhar et al.[12] prepared Sm-Dy substituted magnesium ferrite by auto combustion method. They reported that real part of initial permeability of ferrite materials initially increases with frequency and thereafter remains constant for higher frequency. Xion et al.[13] studied structural and magnetic properties of $(Nd_xGd_{1-x})_3Fe_{24}Cr_3$ and $(Nd_xTb_{1-x})_3Fe_{24}Cr_3$ intermetallic compounds. They have shown that the value of saturation magnetization increases with increasing Nd content for both compounds. Karthik et al.[14–16] and Abdo Hezam et al.[17] have studied various properties of nanomaterials.

This work, reports the effect of Sm – Dy substitution on structural and magnetic properties of Mg ferrite materials.

2. Results and Discussion

Figure 1 shows the XRD pattern of the $Mg[(Sm)_{0.5}(Dy)_{0.5}]_{0.20}Fe_{1.80}O_4$ ferrite material. The presence of nominated peaks in the pattern confirmed the formation of cubic spinel ferrite phase with presence of ortho-ferrite phase due to rare earth ions. Loganathan et al.[18] have also observed such a phase for Sr^{2+} substituted $MgFe_2O_4$ nanoparticles.

Structural parameters like lattice parameter (a), crystallite size (D), strain (ε),[19] and X-ray density (ρ_x)[20] of all the ferrites under investigation were calculated and are presented in Table 1. From this table, it is seen that no remarkable change occurs in lattice parameter, crystallite size, and strain of magnesium ferrites with rare earth substitution. The value of maximum strain are observed in the range of 2.96×10^{-4}–3.33×10^{-4}. It is found that X-ray density of ferrites increases with increasing rare earth content. This is attributed to increasing mass with increasing volume. Similar result was also reported by Shinde et al.[21] for Nd^{3+} substituted Ni–Zn ferrites.

Initial permeability (μ_i) and complex permeability of toroid samples were calculated by measuring L and Q values on LCR-Q meter using the formula described elsewhere.[22,23] The frequency variation of initial permeability (μ_i), real part of initial permeability (μ') and imaginary part of initial permeability (μ'') for the Sm–Dy substituted Mg ferrite are shown in Figures 2, 3 and 4, respectively.

From Figure 2, it is seen that μ_i of all the ferrites show normal behavior. The value of μ_i increases with increase in rare earth content up to x = 0.15 and then decreases with increase in rare earth content. From Figure 3, it is clear that μ' increases with increase in frequency up to 25 kHz and then nearly remains constant as frequency increases. The value of μ'' gradually decreases up to frequency 500 kHz and thereafter it nearly remains constant with increasing frequency as shown in Figure 4. Initial permeability and loss factor at different frequencies of the samples under investigations are reported in Table 2. Similar type of study have been reported by Stergiou[24] for rare earth doped Ni-Co and Ni-Co-Zn spinel ferrites.

Figure 5 shows variation of loss factor with frequency for $Mg[(Sm)_{0.5}(Dy)_{0.5}]_xFe_{2-x}O_4$ for x = 0.05 to 0.30. It is observed

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Ni-Cu-ZnNanoferrite Prepared at Lower Sintering Temperature

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Abstract. Spinel ferrite with chemical formula $Ni_{0.7}Cu_{0.1}Zn_{0.2}Fe_2O_4$ was synthesized by oxalate co-precipitation technique and characterized by X-ray diffraction, Infra-red spectroscopy, energy dispersive X-ray spectroscopy and field emission scanning electron microscopy techniques. X-ray diffraction analysis confirms the formation of single phase cubic spinel structure. Crystallite size of the ferrite obtained by Debye Scherrer formula is found to be about 36.55nm. Lattice constant of the ferrite is about 8.3816 Å and which is slightly higher than reported by microwave sintering technique. Absorption bands appear at 587.2 cm^{-1} and 402.9 cm^{-1} corresponding to the tetrahedral (A) and octahedral (B) sites in the IR spectra gives strong characteristic of spinel ferrite. E-DAX spectra confirm the required stoichiometric proportion of elements achieved in the ferrite. FESEM images give the information about morphology of prepared ferrite. It is observed that with co-precipitation technique and at lower sintering temperature (600 °C), we can synthesize well nano-ferrite material.

Keywords: Ni-Cu-Zn ferrite; Co-precipitation method; structural properties.

INTRODUCTION

In recent years, a considerable amount of research has been carried out on ferrites because of their applications in biodiesel production, gas sensors, humidity sensors, Li-Ni batteries, super-capacitors [1-5]. The rapid development of ferrites for the new fields of computer circuits and microwave components [6] promises a greater effect on the daily lives of engineers and the public in the near future. Now a day, ferrite materials are largely synthesized in nano-metric scale for new and improved properties, which are considerably different from bulk materials. These materials are technologically important and have been used in many applications, including magnetic recording media and magnetic fluids for the storage and or retrieval of information, magnetic resonance imaging (MRI) enhancement, magnetically guided drug delivery [7].In last decade lot of research work carried out on properties of Ni-Zn ferrites. It was found that the poor densification and slow grain growth rate of Ni-Zn ferrite can be greatly improved by the substitution of Cu^{2+} ions due to the formation of a liquid phase during sintering [8]. Recently there is a growing interest on Ni-Cu-Zn ferrites used in the fabrication of electronic devices instead of Ni-Zn ferrites and Mg-Zn ferrite.

Several researchers have prepared Ni-Cu-Zn nano-ferrite by various methods such as reverse micelle method, auto-combustion method, oxalate based precursor method, microwave sintering method, sol-gel method etc. Magnetic properties of copper substituted Ni-Zn nano-crystalline ferrites have been reported by Ghasemi et al. [9]. They were prepared ferrites by employing reverse micelle process and found that saturation magnetization decreases with increase in copper content. Batoo and Ansari [10] synthesized the Ni-Cu-Zn ferrite nanoparticles through auto-combustion method for multilayer chip inductor. Structural and dielectric properties of Ni-Cu-Zn ferrites have been studied by Raghavender et al. [11]. They synthesis Ni-Cu-Zn nano-crystalline ferrites by oxalate based precursor method and reported that the dielectric constant and loss of ferrites are lower than that of prepared by other synthesis techniques.

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RESEARCH ARTICLE

Studies on Canopy Parameters of Some Mangroves Along the Coast of Maharashtra

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ABSTRACT

Mangrove species, viz., *Avicennia officinalis*, *Avicennia marina* var. *acutissima*, *Avicennia marina* (dwarf), *Rhizophora mucronata*, *Sonneratia alba*, *Aegiceras corniculatum*, *Kandelia candel* were chosen for measurement of height of the tree and girth or circumference. The sampling was random and at least 50 records were made. The girth is measured by the tape. The measurement of the height is made with the help of Absncy level. The Tables 1 to 8 records the values for girth, height and canopy cover as well as for correlation coefficient (r). There correlation between girth and canopy in all the species studied however in case of *Avicennia officinalis* and *Aegiceras corniculatum* girth and height show more co-relation than girth and C. cover. The positive co-relation observed between girth and canopy is more or less 0.7 except *Avicennia marina* (dwarf) *Excoecaria agallocha* and *Aegiceras corniculatum*. The co-relation is observed in girth and height is difficult to explain. This case is observed in *Avicennia officinalis* and *Aegiceras corniculatum*.

Keywords : Mangroves, Canopy, Height, Girth Correlation

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Effect of Biofertilizers on Chlorophyll Contents in Maize (*Zea Mays* L.) Variety African Tall

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ABSTRACT

An attempt has been made to study the effect of different biofertilizers such as *Azotobacter* and Phosphate solubilizing bacteria (PSB) on chlorophyll content of maize variety African Tall. The experiments were carried out in a randomized complete block design with three replications. The biofertilizers used were *Azotobacter* (A), phosphate solubilizing bacteria (P) and combine treatment *Azotobacter* + phosphate solubilizing bacteria (A + P), without treatment was control. The comparative extraction of chlorophylls (Chlorophyll a, chlorophyll b and total chlorophyll) and carotenoids from maize was studied by using 80% acetone as extraction method. The studies relate to the amount of concentration of chlorophyll and carotenoids between the control and treated of maize crop. Investigation revealed that method of Arnon, is simple method for extracting the pigment molecules along with other methods used for extraction and results showed higher content of chlorophyll-a, Chlorophyll-b, total chlorophyll and Carotenoids in the treated plants in comparison with the control plants. By the application of biofertilizers treatment levels were corresponding to (TA_1), (TP_1), ($TA+P_1$) respectively to the treated fodders, little amount of differences were observed in the concentrations of pigments between treated and control plants selected for present study.

1. Introduction

Maize is an important staple food crop, occupies a prominent place among cereals and first rank in terms of productivity and third in total area and production after wheat and rice while in India it strands fourth ranks next to rice, wheat and Jowar in terms of area and production (IITA, 2006). Total pigment molecules present in the leaf, are chlorophyll-a, chlorophyll-b and total chlorophyll, carotenoids which are essential for photosynthesis. Follet et al. (1981) reported that the chlorophyll coloration is related to the amount of nutrients absorbed by the plant from soil. Biofertilizers applied to the soil, supply plant nutrients for crop growth and serve as important instruments in yield development and physiological processes. Most plants possess chlorophyll a and chlorophyll b as the main photosynthetic pigments (Young and Britton, 1993).

Chlorophylls and carotenoids are essential pigments of higher plant assimilatory tissues and responsible for variations of color from dark-green to yellow. Moreover, they play important roles in photosynthesis capturing light energy which is converted into chemical energy (Bauernfeind, 1981). Carotenoids provide bright coloration, serve as antioxidants, and can be a source for vitamin A activity (Britton et al., 1995).

Nitrogen (N) is a key element in chlorophyll, therefore there is usually a high correlation between them (Schepers et al., 2005). Positive correlation of nitrogen and chlorophyll is previously reported by some researchers (Ding et al., 2005; DaMatta et al., 2002). The distribution of chlorophyll is the key indicator of crop photosynthesis within maize leaves is quite homogenous at a specific growth stage indicator. Chlorophyll content of leaf tissue is a good index of photosynthetic activity (Chowdhury and Kohri, 2003) and timing of fertilizer application (Haboudane et al., 2002; Wu et al. 2008) of crop. This crucial pigment also plays role as an index of plant growth and production of organic matter (Lahai et al. 2003).Chlorophyll content is an indicator for crop growth and development, therefore accurate determining and assessing of chlorophyll concentration is essential (Bannari et al., 2007).

The quantification of chlorophyll and carotenoids provides important information about the effects of environments on plant growth (Schlemmer et al., 2005). Chlorophyll concentration usually is a good indicator of plant nutrient stress, photosynthesis and growing periods, the content of chlorophyll in the plant leaves indicates the growth status of the crops, also it is the important condition for exchange of mass and energy from the outside world and therefore real-time monitoring of the content of chlorophyll is a key step to complete crop monitoring and yield estimation (Canfield et al. 1993; Rao et al. 2007;

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RESPONSE OF NITROGEN AND AMINO ACID SOURCES ON DEVELOPMENT OF *FUSARIUM OXYSPORUM* CAUSING ROOT ROT OF SOYBEAN

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ABSTRACT

During sample collection in Maharashtra, it was observed that soybean (*Glycine max* L.) roots infected by *Fusarium oxysporum*, were found to be dominant among the diseased samples. From these samples wild sensitive (Fo-5) and highly resistant (Fo-15) isolates were identified using fungicide roko. The aim of present investigation was to evaluate nitrogen and amino acid sources on disease development of soybean caused by *Fusarium oxysporum*. The sensitive and resistant isolates of *Fusarium oxysporum*, when grown on Czapek Dox agar medium show different response to nitrogen, and amino acid sources on development of disease on soybean. Different nitrogen sources like Sodium nitrate, ammonium nitrate, potassium nitrate and calcium nitrate were evaluated for growth response which showed variation in results. Four amino acid sources namely, Proline, Serine, Histidine and Phenyl alanine were used in this study. There was variation in the growth of the sensitive and resistant isolates on different amino acids. All these amino acids show different action on the growth of sensitive and resistant isolates. There was significant variation, in the growth of development of pathogen. *Fusarium oxysporum*, casing root of soybean, either stimulant or inhibitory, when nitrogen and amino acid sources used.

KEYWORDS: Soybean, *Fusarium oxysporum*, root rot, nitrogen and amino acid sources.

INTRODUCTION

Soybean [*Glycine max* (L.) Merrill.] is a native of northern China. It is the most important legume crop in the world. Soybean is also called 'Golden bean', 'Miracle bean' and 'Crop of planet.' Soybean is capable of fixing and utilizing atmospheric nitrogen through symbiotic

EFFECT OF BIOFERTILIZERS ON MORPHOLOGICAL CHARACTERS AND YIELD COMPONENTS OF MAIZE (*ZEA MAYS* L.)VARIETY VARUN

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ABSTRACT

An attempt has been made to study the effect of Biofertilizers viz. *Azotobacter and phosphate solubilizing bacteria (PSB)* on morphological characters and yield components of Maize (*Zea mays* L.) variety – Varun at field of Bedag Dist.Sangli, Maharashtra. The experiment was carried out a randomized complete block design with three replications. The morphological characters and yield components like plant height, number of leaves per plant, length of leaves, stem and cob diameter and length of cob are measured in cm. It is revealed that, the experiment was considerably enhanced in morphological characters and yields components parameters. The value of treatment means was compared using least significance difference (p<0.05).It is evident from the resulted biofertilizers treatment producing high yield in maize variety Varun.

KEYWORDS – *Maize (Zea mays L.)* Varun, morphological and yield

INTRODUCTION

Maize (*Zea mays* L.) is a most important cereal crop, every part of the maize plant has economic value which is the grain, leaves, stalk, tassel and cob are used to produce a large variety of food and non food production (IITA, 2006). Apart from this, corn is an important industrial raw material and provides a large opportunity (*Pandey et al.* 2000).Maizeplant is a best example of C_4 *mode of carbon fixation*, plant efficiently utilizes inputs because of its rapid growth and high biomass (*Miller et al.* 2010).Beyranevand*et al.* 2013 suggested that effect of nitrogen and phosphate biofertilizers were evaluated positively, there were an increase in plant height, earweight, ear length and grain yield. The productivity of maize is dependent on its nutrient requirement and management particularly that of nitrogen, phosphorus and potassium (Arunkumar, 2007). The extensive research programme over the years on beneficial bacteria and fungi has resulted in the development of a wide range, biofertilizer which not only fulfill the nutrient requirement of various crop species but increase the crop yield and nutrient composition.*Azotobacter* species besides playing a role in nitrogen fixation, it has the capacity to synthesize and secrete considerable amounts of

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IN VITRO AGGRESSIVENESS OF *TRICHODERMA* SPP AGAINST *FUSARIUM OXYSPORUM* INCITING ROOT ROT OF SOYBEAN.

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ABSTRACT

Root rot of Soybean (*Glycine max* L.) is caused by *Fusarium oxysporum*. This paper describes the efficacy of *Trichoderma* spp against sensitive and resistant isolates of *Fusarium oxysporum* by dual culture method under *invitro* conditions. *Trichoderma atroviride, Trichoderma viride, T. harzianum, T. virens, T. koningii* and *T. pseudokoningii* species were used for antagonistic study. Results indicate that all *Trichoderma* species showed great antagonistic activity. But among them, *T.atroviride, T.koningii* and *T.harzianum* showed 90% and 80 % antagonistic activity than others in case of sensitive isolate of test fungus. Resistant isolate of pathogen was restricting the antagonism in some extent.

KEYWORDS: Soybean (*Glycine max* L.), *Fusarium oxysporum, Trichoderma* species dual culture.

INTRODUCTION

The main cause of reduction of the crop yield are the diseases. Plant diseases are infections which are caused by variety of pathogens namely bacteria, fungi, viruses, nematodes, insects etc. According to the American Phytopathological Society (APS) fungi are the No. 1 cause of crop yield loss from 10 to 100 % worldwide. They causes the severe diseases like root rot, late blight, downy mildew, wilt, pulse seed-borne diseases, powdery mildews, rusts and smuts which having a significant impact on yield and quality, hence managing them becomes the first part of crop production (Chiranjeevi *et al.*, 2002). Soybean [Glycine max (L.) Merrill.] is a native of Northern China. It is the most important legume crop in the world. Soybean is also called 'Golden bean', 'Miracle bean' and 'Crop of planet'. Soybean is capable of fixing and utilizing atmospheric nitrogen through symbiotic relationship with

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COMPARISON OF CULTURAL AND MORPHOLOGICAL VARIATION AMONG DIFFERENT FUSARIUM OXYSPORUM ISOLATES CAUSING ROOT ROT OF SOYBEAN (GLYCINE MAX)

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ABSTRACT

18 isolates of *Fusarium oxysporum* causing root rot of soybean were recorded for its cultural and morphological variations. The *Fusarium oxysporum* isolates Fo4, Fo8, Fo 11, Fo12, Fo14, Fo15, Fo16, Fo17, having the radial colony growth between diameter of 85 mm to 90 mm were among the fast growing category whereas isolates Fo1, Fo3, Fo10, Fo13, Fo18 showed colony growth between 66 mm to 80 mm classified as medium growing and bellow 64 mm growth of isolates were recorded as slow growing. The biggest size macro-conidia were obtained in isolates Fo 18 (30 – 32 × 5 – 6 µm) whereas, the smallest size were obtained from isolate Fo6 (11 – 13 × 3 – 4 µm). The biggest size micro-conidia were obtained in isolate Fo18 (7 – 10 × 1 – 3 µm) whereas, the smallest size were obtained from isolates Fo5 and Fo6 (2 – 4 × 1 – 2 µm). The number of septa in macro and micro-conidia were3-4 and 0-1 respectively all conidia showed hyline nature. The Macro-conidia were sickle shaped with blunt ends and micro-conidia were round to oval. Chlamydospores were recorded from all 11 days culture of *F. oxysporum*. The highest dry mycelium weight was obtained from the isolate Fo13 having weight 188.0 mg and minimum dry mycelium weight 133.0 mg was obtained from the isolate Fo8.

KEYWORDS: Root rot, Soybean, Variation, Conidia, *Fusarium oxysporum*.

INTRODUCTION

Soybean (*Glycine max* (L) Merrill) is an important pulse food crop belongs to family Fabaceae. India is one of the largest producer of soybean in world and the major regions where soybean is cultivated are mainly Maharashtra, Karnataka, Gujarat, Andhra Pradesh. This crop is treated as golden bean because of its three dimensional utility viz. pulse, oil seed

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Correlation Studies of Bhakuchi Wadi Reservoir of Sangli District, Maharashtra

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Abstract

This Investigation describes the physico- chemical profile and correlation matrix of Bhakuchi wadi perennial reservoir of Sangli in Maharashtra where limnological studies were conducted from August 2016 to July 2017. The physico-chemical parameters varied seasonally. The Secchi disc values varied from 13.5 to 81.5 cm. The pH remained alkaline between 8.0 to 8.8. The dissolved oxygen varied from 4.32 to 9.53 mg/l during study period. The total alkalinity values ranged between 108 and 302 mg/l. The total hardness values varied from 115 to 412 mg/l for annual period. Calcium content was fluctuated from 43.62 to 66.26 mg/l. The magnesium values are ranged between 29.71 to 34.1 mg/l. The values of total dissolved solids were observed from 200 to 510. Chlorides and total dissolved solids were maximum during summer and minimum in winter season. The reservoir may be placed under the category of oligotrophic in winter season. In correlation matrix free carbon di-oxide is negatively correlated with all parameters.

Key words: Physico-chemical parameters, Correlation coefficient, Bhakuchi wadi reservoir

Introduction

India has vast fresh water resources in the form of both lentic and lotic ecosystems. The lentic ecosystems include ponds, lakes, tanks and reservoirs. The perennial reservoirs play an important role as a valuable water resource for domestic, agriculture and aquaculture. The lentic ecosystems have long attracted attention of ecologists, both for their importance as a source of drinking water and the development of fisheries.

Several limnological studies have been carried out in this region, notable among these are of Kamat (1965), Goel *et al* (1988) and Bhosale *et al* (1994). Most of the studies were carried out in water bodies of urban area. Few of studies from rural area are reported by Hujare (2008) and Jadhav *et al* (2009).

The study has been designed to understand the hydrobiological features of reservoir, to assess water quality which will state the potability, suitability for fish culture and irrigation purpose.

Material And Methods

Study Area:

The fresh water reservoir of Bhakuchi wadi is located in Sangli district (74° 37' N latitude and 17° 19' E longitude) of south-eastern Maharashtra. A year can be broadly divided into three seasons; summer season from March to May, rainy season from June to October and winter from November to February.

This is minor irrigation project constructed in 1988-91 in Khanapur tahsil of Sangli district. The total capacity of storage is 680.30 Mcft and dead storage is 59.96 Mcft. The catchment area of reservoir is 261.21 sq. miles.. Total length of dam including slipway is 1990 M with 150 M is only the length of slipway. It is of clear overflow type. Earthen type of dam having height of 19.70 M. Total water spread is 1207 hector having 108.80 hectare of submergence area. The bottom of reservoir is rocky. The reservoir water is formerly used for irrigation but also for washing, bathing and pisciculture activities. The reservoirs store rain water received from adjoining catchment area and is much influenced by anthropogenic activities.

Physicochemical analysis and diversity of Chlorophyceae in four lakes of Kolhapur District Maharashtra, India.

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ABSTRACT:

The diversity in Chlorophyceae (47 spp.) has been studied at four lakes (Khupire, Sawarwadi, Ganeshwadi and Palsambe) in Kolhapur district. Wherein, six orders viz. Chlorococcales (17 sp.), Volvocales (4 spp.), Zygnematales (23 spp.), Siphonales, Chaetophorales and Chladophorales (1 sp. each) have been recorded. Different physicochemical parameters from these lakes also been studied to understand their compatibility in response to algal growth. The Palasambe lake is found to susceptible for algal bloom.

KEYWORDS: Chlorophyceae, parameter, water quality, correlation, diversity

INTRODUCTION:

Contamination of water bodies has become one of the most important and common environmental problems. Two main types of pollution threats can be recognized viz., organic pollution which leads to high organic content in aquatic ecosystems and, resulting into eutrophication. It is a well-known fact that polluted water can hamper the water quality thus limiting the use of water bodies for many purposes.

Organic pollution in lentic water bodies occurs when large quantities of organic compounds from many sources are released into them. Organic pollutants originate from domestic waste, sewage water and farm water. Organic pollution can adversely affect the water quality in many ways. During the decomposition of organic waste, dissolved oxygen in the water may be used up at a greater rate than it can be replenished thus, giving rise to oxygen depletion which causes severe effects on the aquatic community. Organic effluents also commonly contain large quantities of

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Original Article Open Access

Effect of Biofertilizer changes on DPPH radical scavenging activity of Maize (*Zea mays* L.) Variety Eco-92

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ABSTRACT

The objectives of this research were to evaluate the performance of 1, 1-diphenyl-2-picrylhydrazyl radical scavenging activity (DPPH) at immaturity and physiological maturity stages, to study the correlation studied antioxidant activities. The effect of different biofertilizers such as *Azotobacter* and Phosphate Solubilizing Bacteria (PSB) on 1,1-diphenyl-2-picrylhydrazyl radical scavenging activity in the Maize (*Zea mays* L.) variety Eco-92. Maize cob harvested at dry kernel stage was significant and slightly higher than cob harvest at fresh kernel stage. It revels from the figure, significantly different at ($p \leq 0.05$) higher in application of biofertilizers treatments. However, treatment with combined application of *Azotobacter*+PSB biofertilizer (A+P) biofertilizers had the highest 1,1-diphenyl-2-picrylhydrazyl radical scavenging activity (DPPH) as compaired to control. Overall, *Azotobacter* and PSB biofertilizers improved the quality and Antioxidant activity to a stronger scavenging potential.

Keywords: *Azotobacter, PSB*, Eco -92, DPPH etc.

INTRODUCTION

Maize (*Zea mays* L.) being an important staple food crop after Rice and Wheat throughout the world (FAO, 2002), Maize originated from Mexico. Every part of the maize plant has economic value and cob can all be used to produce a large variety of food and non-food production (IITA 2006). It has a wide variety of uses including use as a raw material for edible and processed food, in animal feed, and in industrial applications. In many countries, maize grains are transformed into various products. They can be roasted, boiled, fried, or ground and fermented to produce bakery products or alcoholic beverages (Rooney & Serna-Saldivar 2003).Maize grain is well-off in molecules with antioxidant characteristics, such as phenol compounds , carotenoids, anthocyanins, and flavonoids (Nuss ET *et al.* 2010). Capturing the value

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Identification of soil borne mycoflora of soybean (Glycine max) from different localities of Maharashtra state

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Research Paper - Botany

ABSTRACT

A survey of soybean (variety Ahilya) infected by different fungal diseases was carried out in different localities of Sangli, Kolhapur, Satara, Pune and Solapur districts of Maharashtra. During present investigation 10 different localities of soybean grown regions were examined for their disease incidence. The survey from these districts showed that there were some fungal species which showed severe diseases to soybean. It was observed that Fusarium oxysporum(Schlecht) was dominant in all 10 isolates. This report indicates the increasing importance of effective disease management. To design an effective method for controlling soil borne diseases of soybean further biological and chemical applications are needed.

Key words-Fusariumoxysporum, Soil borne mycoflora, Soybean.

Introduction

Soybean (Glycine max (L.) Merill) is an important pulse food crop belongs to family fabaceae. India is one of the largest producer of soybean (60%) in world and in India the major cultivated regions are mainly Maharashtra, Karnataka, Gujrat, Andhrapradesh. This crop is treated as golden bean because of it's three dimensional utility viz. pulse, oil seed and vegetable (Anonymous, 2007). Soy oil finds a variety of uses for domestic and industrial

IJRPES

Insights: Social Science, Education and Humanities

BIODIVERSITY OF SPIDERS IN TASGAON TAHSIL-SANGLI DISTRICT OF MAHARASHTRA, (INDIA)

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ABSTRACT

Knowledge about the diversity, distribution and abundance of spider is very scattered in India. Spiders are common generalist predator in ecosystem, having an important role in the biological control of pest. They are good indicator of the fluctuating weather condition and change in their diversity aid to evaluate the condition of habitat. In present investigation 19 different spider species of 13 families were reported during 2019-2020.

Key words: Biodiversity, Spider, Tasgaon, Sangli, Maharashtra.

Introduction

India is rich in flora and fauna and is a mega diverse country. Spiders are the top of the lower food web in ecosystem.Spider belongs to class Arachnida of the phylum Arthropodaand rank seventh in total species diversity among other orders of animal kingdom. In the recent past 'Research Survey' show the importance of spider to human welfare. Spiders are one of the most charming and diverse invertebrate animal in the world.In all over the world 44,540 species of spider belonging to 3,924 genera of 112 families.The spider fauna of India is represented by 1520 spider species,belonging to 377 genera and 60 families (Sebastian and Peter, 2009). Spiders are air breathing exclusively carnivorous arthropods.Major contribution to the Indian spiders study were made by Tikadar (1980-'1987). Spiders are the most omnipresent and frequent predator in agricultural and natural ecosystem. Spiders are an important food source for aves, reptiles, amphibians, wasps and other animals. Due to scarcity of workers, much of the Arthropodandiversity in most of the parts of Maharashtra remains unexplored. Many spiders are nocturnal and the color variation is observed to reduce their visibility during day time (Saravan, 2006).

Study area: Tasgaon Tahsil (17.0295° N, 74.6078° E; 819.74 sq. Km.)

Material and Methods -

Equimepnts:

Pencil, Pen, Notebook, Camera (Nikon, Sony).

Location :

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Research Article

DEFLECTIONS IN GLUTATHIONE CONTENT IN SiO_2 AND ABHRAK BHASMA INFLUENCED PROTECTION IN CCl_4 INDUCED ACUTELY INTOXICATED LIVER AND KIDNEY IN MALE ALBINO RAT

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Key Words:

Abhrak Bhasma, Glutathione, CCl_4, SiO_2, LPO.

ABSTRACT

Abhrak bhasma (Silica ore derived product) is an Ayurvedic drug used against liver diseases. CCl_4 (3.00ml/kg body wt/day for 7 days) induced acute toxicity in liver and associated injury in kidney are protected by abhrak bhasma in albino rat (Buwa, 2000; Teli *et al*, 2013). In present work the injury was protected by abhrak bhasma (30mg and 40mg/gm wet wt. of tissue) and partially by SiO_2 (10, 20 mg/body wet wt. of tissue) by simultaneous treatment. During the protection, CCl4 induced free radicals appear to be scavenged by GSH as the alterations in GSH are compared with LPO changes studied earlier in same experimental conditions (Teli and Kanase, 2020). SiO_2 was used as silica control for drug to distinguish the role of silica from Ayurvedic drug.

The results indicate that the silica in the form of SiO_2 is partially potent in protection as compared to abhrak bhasma. Silica in the form of abhrak bhasma was fully potent to protect acutely intoxicated liver and also the associated renal injury. Thus abhrak bhasma protection seems to function through GSH/GSSH metabolism in liver and kidney effective through monitoring hepatic cell death and survival; in normal conditions of free radical scavenging. Thus results indicate that abhrak bhasma mediated effects use the same pathway and thus strengthens the natural *in vivo* pathways of liver and kidney protection in rat or behaves as a positive immunomodulator.

INTRODUCTION

Abhrak bhasma is one of the Ayurvedic medicine used independently or with other drugs and known to cure many ailments (Sharma, 1977). It was used to treat CCl_4 induced hepatotoxicity and associated kidney toxicity to study its protective and cure effects along with probable mode of action in our continued work. There are many parameters being investigated to reveal its probable mode by action/s, so that, it can be manipulated therapeutically in integrated medicine and/or the mode/s of actions can be exploited in use or to design modern drugs for various diseases.

Acute hepatotoxicity model of CCl_4 featuring fatty degeneration of liver with specific histological architecture (Kanase, 1998; Buwa, 2000; Chougule, 2007) with associated altered histological appearance of kidney accompanied by deflected liver and kidney functions (Teli *et al*, 2013) has been used to test hepatoprotective and nephroprotective influences of various Ayurvedic drugs (Patil *et al*, 1993; Kanase, 1998) and also with abhrak bhasma (Teli *et al*, 2013; Teli *et al*, 2014; Teli and Kanase, 2020) in our earlier studies.

CCl_4 mediated acute toxicity in liver and its harmful effect on kidney is known to produce free radicals formation (Teli *et al*, 2015; Teli and Kanase, 2020) to lead histological damage to liver and kidney. So also abhrak bhasma influences to protect it (Buwa, 2000). The managements of free radicals during protection of liver and kidney can be revealed through study of one of the free radicals scavengers.

Present studies were designed to illustrate the role of glutathione a natural free radical scavenger during abhrak bhasma mediated protective action against CCl_4 induced acute hepatotoxicity and associated renal toxicity as CCl_4 is known to increase LPO in present experimental conditions of work (Teli and Kanase, 2020).

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Research Article

ABHRAK BHASMA AND SiO_2 INFLUENCED FREE RADICAL STATUS IN LIVER AND KIDNEY OF CCl_4-INDUCED ACUTELY INTOXICATED MALE ALBINO RAT

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ABSTRACT

Objective: The objective of the study was to study the mechanism of action of abhrak bhasma-mediated liver and kidney protection in CCl_4-induced acute hepatotoxicity-induced male albino rats. Action of abhrak bhasma is compared with the action of SiO_2 in similar experimental conditions to differentiate the role of silicon.

Methods: Male albino rats (*Rattus norvegicus*) were used for experiments. The acute hepatotoxicity was induced by daily dose of CCl_4 (3.0 ml/kg body wt for 7 days consecutive). Concurrent treatment of abhrak bhasma in graded doses (10, 20, 30, and 40 mg) was given for 7 days (PO). SiO_2 (10, 20, 30, and 40 mg) in graded doses was also given in independent groups of rats as silica control. Lipid peroxidation (LPO) in liver and kidney was studied by malondialdehyde (MDA) estimations as parameter of toxicity and also to study protection.

Results: CCl_4-induced hepatotoxicity (MDA levels) is partially managed by low doses of SiO_2 but not by high doses. Abhrak bhasma hepatoprotective activities were dose dependent. A 40 mg dose maintained normal levels of LPO. Abhrak bhasma also protected associated renal toxicity.

Conclusion: Abhrak bhasma protected CCl_4-induced hepatotoxicity and also associated renal toxicity. Silicon from both SiO_2 and abhrak bhasma is hepatoprotective in 10 ml doses (10 and 20 mg) but silicon processed in abhrak bhasma by traditional Ayurvedic processes increased its potency and hepatoprotection and added the potency of renal protection.

Keywords: Abhrak Bhasma, Acute Hepatotoxicity, Lipid Peroxidation, CCl_4, SiO_2.

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INTRODUCTION

As the traditional and ethnic being tested for their efficacy, new formulations of hepatoprotective drugs have also been tested in rats [1]. Our laboratory is also engaged in testing bhasmas for their efficacies and probable mode of action against induced hepatotoxicity [2,3]. In our earlier study, abhrak bhasma and SiO_2 protective efficiency were tested against single dose of CCl_4 (3.0 ml of CCl_4/kg body wt given once) induced hepatotoxicity in male albino rat [4]. In the present study, the protective potency of abhrak bhasma and SiO_2 graded doses was tested against CCl_4-induced acute hepatotoxicity model [5].

The hepatotoxic effects of CCl_4 are largely due to its active metabolite/s, including the free radicals CCl_3 and CCl_3OO [6], causing lipid peroxidative degradation of biomembranes leading to centrilobular hepatotoxicity [7], which is referred as fatty degeneration. Metabolically produced aldehydes can act as second toxic messengers of free radicals [8]. Malondialdehyde (MDA), the cytotoxic aldehydes, is one of the final products of polyunsaturated fatty acids peroxidation in the cells [9]. MDA is a major aldehyde resulting from the peroxidation of biological tissue and it is an indicator of tissue damage [10-12].

The control of lipid peroxidation (LPO) *in vivo* is important for several reasons, in particular because it contributes to the development of atherosclerosis [13]. Thus to prevent free radicals associated damage to tissues/organs or to control/management of free radicals, drug/s are helpful. Thus, abhrak bhasma and SiO_2 are used to control oxidative damage that leads to atherosclerosis and further development of associated cardiac complications.

The experimental design evaluates the potency of hepato and nephroprotection of abhrak bhasma and distinguishes role of SiO_2 also, since abhrak bhasma is derived from ores of silica.

METHODS

Male albino rats (130–140 g each) were used for experiment. They were obtained from the departmental animal house (Reg. No. 233/CPCSEA). They were basically derived from *Rattus norvegicus* breeding pairs obtained from National Institute of Virology, Pune (India). During breeding, maintenance, and experimentation, the animals were provided with standard pellet diet (by Amrit Feeds, Sangli, MS, India) and water *ad libitum* (during 8 am–9 am).

Preparation of abhrak bhasma and SiO_2

Abhrak bhasma was prepared as per Rasa Ratna Samucchaya [14]. SiO_2 was obtained from local chemical store.

Experimental schedule

A 3 ml of CCl_4/kg body wt of rat/day was injected (SC) for 7 consecutive days to induce acute hepatotoxicity in animals. Graded doses (10, 20, 30, and 40 mg/kg body wt of rat) of abhrak bhasma and SiO_2 were administered (PO) simultaneously with CCl_4.

Doses of abhrak bhasma and SiO_2 were administered with honey (PO). Honey control rats (six animals) were also maintained. Since their results were similar to normal, they are not included in the present data. The male albino rats were assigned into the following groups, each containing six animals and the various treatments were given as follows.

- Group 1 – The rats were maintained as normal without any treatment
- Group 2 – Hepatotoxicity induced by dose of 3.0 ml CCl_4/kg body wt/day for 7 days
- Group 3 – 10 mg abhrak bhasma/kg body wt/day for 7 days was given po
- Group 4 – 20 mg abhrak bhasma/kg body wt/day for 7 days was given po

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REFLECTION OF SOCIAL WELFARE VERSUS PRIVATE BENEFITS IN HENRIK IBSEN'S PLAY *AN ENEMY OF THE PEOPLE*

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ABSTRACT

The present article tries to analyze, interpret and discuss in details in the context of the major social aspect that is 'Social Welfare Versus Private Benefits' in An Enemy of the People play. The main research objective of this article is to explain how the two types of the social approaches reflected in An Enemy of the People play. The entire play is based on two important issues like Social Welfare Versus Private Benefits in which politicians use their political power for their own benefit and try to show how we are superior to those who take care of social welfare. Henrik Ibsen has shown the condition of politicians and how they misuse their power for their political purpose in this play. Social welfare versus private benefits is the protagonist and the antagonists of the present play. It means social welfare is represented in Dr. Stockman's character, a medical officer in municipal health center in a small town of Norway and a private benefit is represented in the Peter Stockman's character, the doctor stockman's elder brother and the Mayor of the town. So you can see that in this article, Henrik Ibsen shows how there is a difference between a common man and a powerful person in this world. This article is an attempt to present a real picture of how people's attitude towards to see the society in the special reference of themes like social welfare versus self-interests behavior's in this play through the various characters. Thus, the present article will help to understand to the researchers as well as students in the context of the major social aspects like Social Welfare Versus Private Benefits.

Keywords: Social Welfare, Private Benefits, Pollution, Contrast, Social Approach, Politics, Etc.

Introduction

The present study is an attempt to analyses and interprets the social welfare versus private benefits of Henrik Ibsen's play *An Enemy of the People*. In these plays, Ibsen skillfully illustrated the contrast between the two brothers from a social point of view. The conflict between two brothers is the central theme of this play in the context of who is doing a good work for the society. This conflict arises due to their different nature. Their devotion towards the society, development of society, public welfare, private interests, balances of

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Reflection of Humanistic Approach in Henrik Ibsen's An Enemy of the People (1882) Play

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Abstract
The present research article is related to the 'Humanistic Approach' in Henrik Ibsen's An Enemy of the People (1882) play. The main research objective of this article is to explain how humanistic approaches reflected in this play. In that regards, two things are mainly reflected in this play by the playwright. One is the portrayal of people (character) who work sincerely for the society, and the other is the people (character) who see how they can benefit themselves without considering the welfare of the society. Through the character these two different personalities the researcher has tried to show that humanistic approach in it. It is a good attempt to show what is good and bad for society. Henrik Ibsen has shown the reflection of humanistic approach through the role of different characters in this play. Henrik Ibsen has shown the condition of politicians and how they misuse their power for their political purpose in this play. However, the main research objective of this article is to try to suggest that human principles should be properly nurtured for humanity while working in different fields. This article is an attempt to present a real picture of how people's attitude towards to see the society in the special reference of themes like humanistic approach in this play through the various characters. Researcher is going to discuss here in details in the context of some of the human values for humanity such as brotherhood, friendship, role and duties of press, hospitalities acceptance, recognition, appreciation, honesty, loyalty, unity, courtesy and respect etc. Thus, the present article will help to understand to the researchers as well as students in the context of the major social aspects like Humanistic Approach in Henrik Ibsen's An Enemy of the People (1882) Play.

Keywords: Social aspects, Humanistic Approach, Politic, culture, community, society, Public health, discuss etc.

Introduction:

The present research article tries to analyze, interpret and discuss in details in the context of the major social aspects 'Humanistic Approach' in *An Enemy of the People* play. *An enemy of the people* is written by Henrik Ibsen. It is appeared in 1882. *An enemy of the people* presents a complex analysis of society and class in humanistic point of view. *An enemy of the people* playwright shown that, some of the upper classes people use the power of the majority for their own benefits and try to sidestep the humanitarian approach. In this play, Ibsen shown that, how the superior class as they try to rule the minority or even the struggles or working poor people. Henrik Ibsen skillfully illustrated the contrast between the two brothers with the special reference of social aspects like humanistic approach. The conflict between two brothers is the central theme of this play in the context of humanistic approach that is doing a good work for the society. This conflict arises due to their different nature. Their devotion towards the society, development of society, public welfare, private interests, balances of environment, pollution, water, political power, moral values, rule of government, corruption, scientific view etc. Considering all these things in

7. Reflection of Human Values in Mulk Raj Anand's Fiction

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Abstract

Mulk Raj Anand is tremendously outstanding personality as an Indian novelist, renowned essayist, socialreformer, craftsmanship commentator, editorial manager, writer, a short story author and social activist.He released additional area of scholars of novels alongside Raja Rao and R. K. Narayan and produced a lot of English literature and his supremacy in the realistic and thoughtful description of the untouched class of Indian society denotes. His virtue is as he is a socially committed novelist. Mulk Raj Anand's two novels show the reality of his early Indian society in the early twentieth century in terms of writing, including untouchability and human values.He was one of the founding fathers of Indian English novel writing in the specific context of human values. So, the present paper tries to analyze, interpret and discuss in details the term of reflection of human values in Mulk Raj Anand's fiction in the context of Indian English literature. The Indian English literary tradition is wide range in the history of English literature. Human values are the most prominent issue reflected in their writing as they face many problems in it. Indian English Literary Writing tackles the problems and frustrations of Indian cultural issues in the context of human values. According to the larger purpose of this important study, the present paper focuses on how Mulak Raj Anand's human values affect to people to people, group to group, individuals and people from all over the world. So, the present paper will help to understand the importance of human values in Mulk Raj Anand's writing to all community of the society.

Key Words:- Human Values, down-trouble, underprivileged, Indian literature, humiliation, Society & Culture, Problems and Frustrations, fiction & discussion etc.

I. Introduction

Mulk Raj Anand was a considerable respected writer, novelist, critic, editor, journalist and social activist of the twentieth century in Indian English literature.MulkrajAnand was committed to being a novelist. He has produced a good deal of literature in this literary genre. He

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Water Management: the Need of the Future

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Abstract:

The present paper tries to investigate, understand and discuss in details about theWater Management: The Need of the Future in the perspective of all human beings in the society. As we all know that well aware about the need of water and its importance. Nowadays is big problem creates about the water management in our Indian society. Water... water ... water.....where did the water go? All of you know that today's water is the life of tomorrow. The basic needs of a human being are air, food, clothing, home and water. But in it, the greatest basic need of that is water. The earth is a planet in our solar system that exists in the water. Seventy-one percent of the earth is water and twenty-nine percent is land. But, ninety-nine percent of it is water alkaline and the remaining two percent is fresh-water. So, in the present paper would be concentration on how to use of water and where it is needed. And you should have to think about it because you need water to drink. Without food, plants, trees, what would you eat? Does the business in your village and area do not require water? So why don't you want water management? It is very needful to all human beings on the earth. Therefore, the present article gives a brief overview of importance of water and its use and also covered how to do water management for our future need.

Keywords: water, management, human being, need, future, discussion, problem.

Introduction:

Doing maintenance, repairing means aren't water management. It is just part of the management.The idea beyond that is expected in management.Facing up to the any difficult occasion may be part of maintenance or repairing. But how can such an event be avoided,there are certain things you need to do,in that situation , management is the way to research how to do water management.Irregular rainfall and low groundwater levels are a consequence of future crises. This is the time to recognize the importance of water. It is the need of the period to stop the rain drops and the waters.

Water management means, it is the proper distribution of available water resources on the earth to do properly supply all living community which is called as water management. Nowadays, Due to water pollution, water resource reduction, and global temperature rise, this question is raging on all levels, from local to global. All of you know that, one of the big problems of water management arising in front of to us.Rising prices of land and displacement of locals are opposing the construction of new dams or river linking projects for water management. And it is the basic problem of water managements. In that case, the great social worker, MedhaPatkar has done awareness work in this regard worldwide. Similarly, people like Rajendra Singh, who is also the oldest Johad who created the water revolution in the state of Rajasthan and

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॥ शरच्चंद्र मुक्तिबोध जन्मशताब्दी विशेषांक ॥

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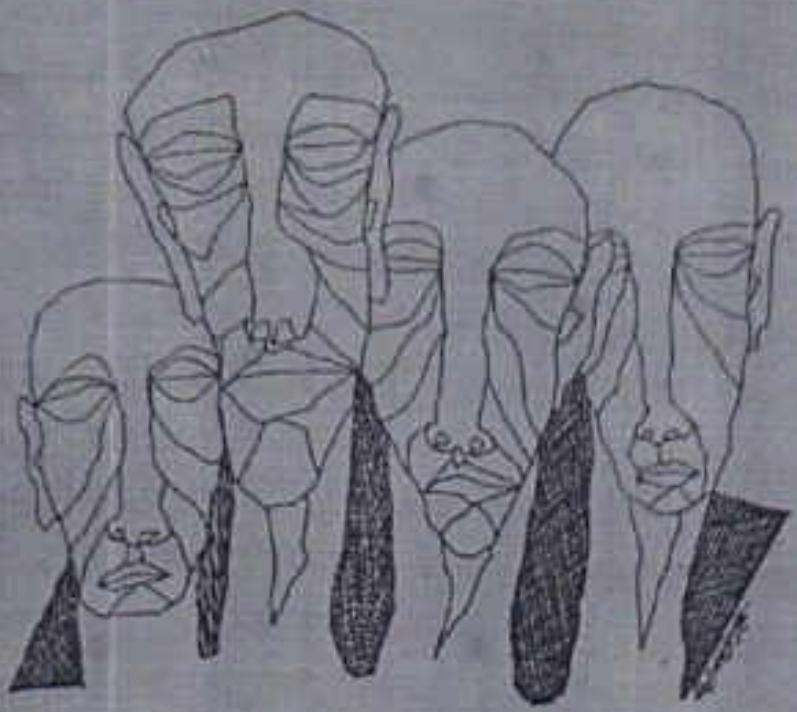


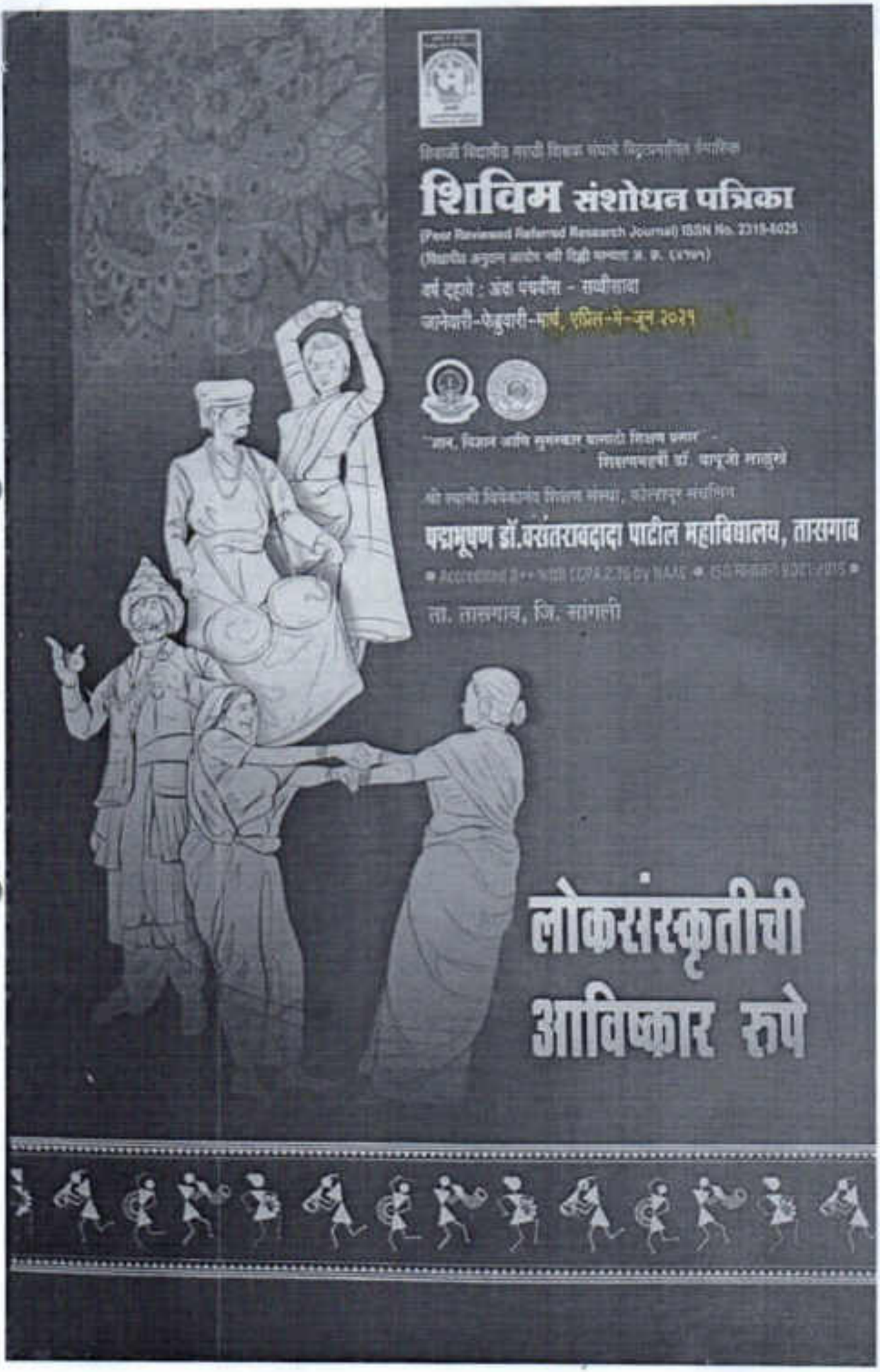
मानुषतेची संकल्पना आणि मुक्तिबोधांच्या कादंबऱ्या

डॉ. तातोबा बदामे

शरच्चंद्र मुक्तिबोधांनी ललित वाङ्मय निर्मिती बरोबरच अतिशय मूलगामी असे समीक्षालेखनही केले. नवकवितेचे प्रतिनिधित्व करणाऱ्या मुक्तिबोधांनी त्रिखंडात्मक कादंबरी लेखनाचाही तितक्याच यशस्वी पद्धतीने प्रयत्न केला. त्यांनी मर्मग्राही व साक्षेपी समीक्षालेखनही केले.

ज्या काळात वा. सी. मर्ढेकर सौंदर्यवादी विचारसरणीतून कलाकृतीच्या आकृतिबंधाचे, लयतत्त्वासंबंधीचे लेखन करत होते त्या विचारसरणीला विरोध करणारी भूमिका मुक्तिबोधांनी वारंवार मांडली. मर्ढेकरांच्या लयनिष्ठ विचारसरणीला तीव्र आक्षेप घेतला. लयतत्त्ववादी भूमिकेचे जोरदार खंडण करताना वाङ्मयकृतीच्या मूल्यमापनासाठी 'मानुषता' ही नवी संकल्पना त्यांनी मांडली.

'मानुषता' सारखी संकल्पना मांडणारे शरच्चंद्र मुक्तिबोध म्हणूनच दखलपात्र समीक्षक ठरले. त्यांच्या 'सृष्टी', 'सौंदर्य आणि साहित्यमूल्य' या समीक्षा ग्रंथात दहा भागांमध्ये विस्ताराने त्यांनी ललित साहित्यकृतीच्या मूल्यांकनासाठीचा एकमेव सर्वोकृष्ट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ता. तासगाव, जि. सांगली
लोकसंस्कृतीची
आविष्कार रुपे

तौलनिक लोकसंस्कृती अभ्यास : नवे अभ्यासक्षेत्र

डॉ.तातोबा बदाने

पद्मभूषण डा.वसंतरावदादा पाटील महाविद्यालय, तासगाव जि.सांगली

प्रास्ताविक :

तौलनिक साहित्याभ्यासातून विकसित झालेली अनेक अभ्यासक्षेत्रे जगभरात अभ्यासली जात आहेत. प्रत्येक देशात तौलनिक साहित्याभ्यास स्वतंत्रपणे विकसित झाला आहे. फ्रान्स, जर्मनी, अमेरिका यांचे उदाहरण घेतल्यास तिथे अनुप्रयुक्त प्रभावाभ्यास, उद्गमअभ्यास आणि संस्कृती अभ्यास मोठ्या प्रमाणावर होत असल्याचे दिसून येते. भारतात तौलनिक लोकसंस्कृती अभ्यास व्हायला हवेत. त्यासाठी पूरक पृष्ठभूमी भारतात सहज उपलब्ध आहे.

तौलनिक लोकसंस्कृती अभ्यास : नवे अभ्यासक्षेत्र

तौलनिक लोकसंस्कृती अभ्यासक्षेत्र हे एक व्यापक अभ्यासक्षेत्र आहे. भारतासारख्या खंडप्राय देशात अनेक भाषा, संस्कृती, कलांचे भांडार दिसून येते. भाषावार प्रांतरचना झाल्याने बरवर वेगळ्या दिसणाऱ्या प्रदेशांना विभिन्न कला-संस्कृतीनी जोडलेले आहे. भारतात साजरे केले जाणारे सण, समारंभ, बरवर वेगळे वाटत असले तरी ते संस्कृतीच्या आंतरीक धाग्याने एकमेकांत घट्ट विणले गेले आहेत. भारतात असणारे विविध धर्म, जाती, पंथ, संप्रदाय आपापले स्वतंत्र तत्त्वज्ञान, आचारधर्म असूनही या विविधतेन कमालीची एकताही प्रदिप्त होताना दिसते. अशा प्रकारच्या वैशिष्ट्यपूर्ण पृष्ठभूमीमुळेच भारतातील लोकसंस्कृतीचा तौलनिक अभ्यास शक्य आहे असे वाटते.

जागतिकीकरणास अद्दीच ते तीन तप उलटून गेल्यानंतर आता माहिती तंत्रज्ञानाच्या युगाचा बोलबाला सर्वत्र दिसून येत आहे. संपूर्ण जग आंतरजाल, चलभाष या तंत्रांमुळांनी व्यापले आहे. जगाचे अंतर संपुष्टात आले असल्याने जगातील विभिन्न संस्कृतीचा प्रभाव व स्वीकारही वेगाने होत आहे. पाश्चात्य संस्कृतीचा भारतीयांवर निश्चितपणे प्रभाव पडला असला, तरी आज पाश्चात्यांनीही भारतीय संस्कृतीचा प्रभाव स्वीकारला असल्याचे उत्तम उदाहरण योगविद्येच्या आणि आयुर्वेदाच्या जगभरातल्या स्वीकारामुळे सहजपणे लक्षात येते. जागतिकीकरणामुळे वाढते शहरीकरण आणि तंत्रज्ञानातील प्रभावामुळे वाढते यांत्रिकीकरण सर्वत्र प्रत्ययाला येत आहे; असे असले तरीही लोकसांस्कृतिक वारसा लोकांनी सर्वत्र जपला असल्याचे दिसून येते.

सांस्कृतिक अस्मिता आणि अस्मितांच्या संस्कृती :

ISSN No. 2319-6025

शिवाजी विद्यापीठ मराठी शिक्षक संघाचे [illegible]

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जानेवारी-फेब्रुवारी-मार्च, एप्रिल-मे-जून २०२१

लोकसंस्कृतीची आविष्कार रूपे

◎ प्रकाशक ◎
अध्यक्ष, शिवाजी विद्यापीठ मराठी शिक्षक संघ, कोल्हापूर
अनुराज, ७/ब सूर्यवंशी कॉलनी, सानेगुरुजी वसाहत, कोल्हापूर - ४१६ ०११

मुद्रक
देशमाने ऑफसेट,
औद्योगिक वसाहत, पलूस, (जि. सांगली) ४१६ ३१०, मो. [illegible]

मूल्य: ₹300

हे त्रैमासिक पत्रिका प्रकाशक डॉ. शिवकुमार सोनाळकर, यांनी शिवाजी विद्यापीठ मराठी शिक्षक संघ, कोल्हापूर [illegible] देशमाने ऑफसेट, औद्योगिक वसाहत, पलूस येथे छापून अनुराज, ७/ब सूर्यवंशी कॉलनी, सानेगुरुजी वसाहत, कोल्हापूर [illegible] येथे प्रसिद्ध केली. [illegible] मराठी संपादक, प्रकाशक, सल्लागार व मुद्रक सहमत असतीलच असे नाही

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११. तृतीयपंथी यांचा समाजशास्त्रीय अभ्यास

डॉ. विनोदकुमार धोंडीराम कुंभार
सहाय्यक प्राध्यापक आणि विभागप्रमुख, समाजशास्त्र विभाग, पी. डी. व्ही. पी. महाविद्यालय, तासगाव.

प्रस्तावना

भारतीय समाजात विविध निकषांवरून असमानता दिसून येते. तसेच काही समूह आजही दुर्लक्षित, वंचित म्हणून जीवन जगत आहेत. तृतीयपंथीयांकडे समाज हिनतेच्या दृष्टिकोनातून पाहतो. त्यामुळे तृतीयपंथी व्यक्ती स्वतंत्रपणे जीवन जगण्याच्या पद्धतीचा अवलंब करतात. तसेच या प्रकारच्या जीवनपद्धतीमुळे ते समाजाच्या मुख्य प्रवाहापासून अलिप्त किंवा वंचित राहिले आहेत. तसेच अशा व्यक्ती तृतीयपंथीयांच्या समुहामध्ये सहभागी होतात. तृतीयपंथी समुदायामध्ये सहभागी होणाऱ्या व्यक्तीला समुदायाचे नियम आणि अटी यांचे पालन करावे लागते. तसेच समुदायाच्या प्रथा आणि परंपरा यांचा स्वीकार करावा लागतो. तृतीयपंथी समुहातील काही व्यक्ती पुरुष असूनही ते स्त्रियांच्या कृतीचे अनुकरण करतात. काही तृतीयपंथी जन्मताच व्यंग घेऊन जन्माला येतात तर काहींना समाजातील अनिष्ट प्रथा-परंपरानुसार नपुसंकासाठी देवाला सोडले जाते. त्यामुळे त्यांना तृतीयपंथीयांचे जीवन जगावे लागते. काही व्यक्तीमध्ये झालेल्या शारीरिक आणि मानसिक बदलांमुळे त्यांना तृतीयपंथीयांचे जीवन जगावे लागते. काही सांस्कृतिक कार्यक्रमांमध्ये त्यांना महत्त्वाचे स्थान मिळत असले तरी समाजातील व्यावहारिक लोकांकडून त्यांना अपमान आणि अवहेलना स्वीकारावी लागते. २०११ च्या जनगणना अहवालानुसार, भारतातील तृतीयपंथीयांची लोकसंख्या ८५७८०३ आहे तर महाराष्ट्रातील लोकसंख्या ४०८९१ इतकी आहे.

व्याख्या

"तृतीयपंथी म्हणजे शारिरीक पुरुष असून त्यांची लैंगिक ओळख, वेशभूषा आणि लैंगिक भूमिका स्त्रीप्रमाणे असते. त्यांना तृतीयपंथी म्हणतात. (https://mr.wikipedia.org).

"एखादी व्यक्ती जन्मताच नैसर्गिकरित्या लैंगिक विकृती घेऊन जन्मास येते आणि अशा वेळेस तो स्त्री लिंग आहे की पुलिंग आहे हे स्पष्ट होत नाही, म्हणजेच तो नर आहे की मादी हे स्पष्ट होत नाही या विकृतीलाच आपल्या समाजात तृतीयपंथी असे संबोधले जाते."(https://marathi.pratilipi.com)

उद्दिष्टे

- तृतीयपंथीयांच्या समस्यांचा अभ्यास करणे.
- तृतीयपंथीयांच्या समस्यांवर उपाययोजना सुचविणे.

संशोधनपद्धती

प्रस्तुत संशोधनासाठी वर्णनात्मक संशोधन पद्धतीचा वापर करण्यात आला आहे.

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भारतीय समाजातील सामाजिक संस्थांचे बदलते स्वरूप

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प्रस्तावना:

भारतीय समाजामध्ये जात, वर्ग आणि धर्म या तीनही संकल्पना परस्परावर अवलंबून आहेत. भारतीय समाजामध्ये प्रामुख्याने कुटुंबसंस्था, धर्मसंस्था, राज्यसंस्था, अर्थसंस्था, विवाहसंस्था प्रमाणेच सामाजिक संस्थांमध्ये जातीसंस्था ही एक मूलभूत सामाजिक संस्था म्हणून अस्तित्वात असल्याचे दिसून येते. भारतीय समाजामध्ये प्रत्येक व्यक्तीचे स्थान, तिचा दर्जा , समाजामध्ये राहण्याचे नियम, जीवन जगण्याची एकूण पद्धती, ही त्या व्यक्तीचीजात, वर्ग आणि धर्म यावर प्रामुख्याने अवलंबून होती. कारण समाजामधील सर्व नियमने, मुल्ये इत्यादी जात, वर्ग आणि धर्म यामुळे विशिष्ट रचनेमध्ये विभागलेली होती आणि समाजातील प्रत्येक व्यक्तीला या नियमांचे पालन करावे लागत होते. तसेच ज्या व्यक्तीकडून या नियमांचे पालन होत नाही, त्या व्यक्तीला कोणती शिक्षा करावी हेसुद्धा जात, वर्ग आणि धर्म यानुसारच ठरत असे. समाजातील व्यक्तींच्या नात्यांची रचना सुद्धा जात, वर्ग आणि धर्म नुसारच ठरत असे. अशा या भारतीय समाजामध्ये मुख्य भूमिका बजाविणाऱ्या जात धर्म आणि वर्ग या संकल्पनांचाआणि सामाजिक संस्थांचा अभ्यास करणे अत्यंत महत्त्वपूर्ण ठरते. तसेच यांचे स्वरूप स्वातंत्र्यप्राप्तीपूर्वी कसे होते आणि स्वातंत्र्यप्राप्तीनंतर यामध्ये कोणता बदल होत आहे याचाही अभ्यास करणे महत्त्वपूर्ण ठरते. मानवाच्या मूलभूत गरजा पूर्ण करण्यासाठी सामाजिक संस्था निर्माण झाल्या. प्रत्येक सामाजिक संस्थेचे एक मूलभूत कार्य असते.प्रस्तुत संशोधन लेखामध्ये संशोधकाने जात, वर्ग, धर्म, विवाहसंस्था, कुटुंबसंस्था, शिक्षणसंस्था इत्यादीचे स्वातंत्र्यप्राप्तीपूर्वीचे स्वरूप आणि स्वातंत्र्यप्राप्तीनंतर या सामाजिक संस्थांमध्ये झालेले परिवर्तनाचा अभ्यास करण्याचा प्रयत्न केलेला आहे.

उद्दिष्टे:

१.स्वातंत्र्यप्राप्तीपूर्वीचे सामाजिक संस्थांचे स्वरूप स्पष्ट करणे.

२.स्वातंत्र्यप्राप्तीनंतर सामाजिक संस्थांमध्ये झालेले परिवर्तनाचा अभ्यास करणे.

संशोधन पद्धती:

प्रस्तुत संशोधन लेखासाठी संशोधकाने वर्णनात्मक संशोधन पद्धतीचा वापर केलेला आहे. तसेच माहिती संकलनासाठी दुय्यम स्त्रोतांचा वापर करण्यात आलेला आहे. यामध्ये प्रामुख्याने संदर्भ ग्रंथ, इंटरनेट इत्यादींचा वापर करण्यात आलेला आहे आणि त्यानुसार मिळालेल्या माहितीचे विश्लेषण पुढीलप्रमाणे करण्यात आलेले आहे.

सामाजिक संस्थांचे स्वरूप आणि सामाजिक संस्थांमध्ये झालेले परिवर्तन

- जातीव्यवस्था:

डॉ.मुजुमदार व मदन यांच्या मते, " जात हा एक बंद वर्ग आहे."

जातिव्यवस्थेचा अभ्यास प्रामुख्याने डॉ.जी.एस.घुर्ये, हर्बर्ट रीजले इत्यादी अनेक समाजशास्त्रज्ञांनी केलेला दिसून येतो. डॉ.जी.एस.घुर्ये यांनी जातिव्यवस्थेची प्रमुख वैशिष्टे सांगितलेली आहे. त्यामध्ये समाजाची खंडात्मक विभागणी, सोपान परंपरा, खाण्या–पिण्या संदर्भात व सामाजिक संबंधाविषयक निर्बंध, सामाजिक व धार्मिक अपात्रता व विशेष अधिकार, विवाहविषयक नियम, व्यवसाय स्वातंत्र्यविषयक नियम इत्यादी मुख्य वैशिष्टयसंदर्भात मांडणी दिसून येते. डॉ.जी.एस.घुर्ये यांनी जातीची वैशिष्टे सांगितली आहेत त्यावरून भारतीय समाजातील जातीव्यवस्थेचे स्वरूप समजण्यास मदत होते.

स्वातंत्र्यप्राप्तीपूर्वी प्रामुख्याने भारतीय समाज चार वर्णांमध्ये विभागलेला होता. यामध्ये ब्राह्मण,क्षत्रिय, वैश्य, शूद्र आणि अतिशूद्र यानुसार समाजाचे विभाजन झालेले होते. तसेच प्रत्येक

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19. Inculcation of Human Values

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Abstract

In earliest societies, religion had a dominating pressure in every sphere of human activity. Result was, the content of education was more or less religious in nature. Besides mental training, moral training was emphasized to a great extent. Learners had to experience rigorous character training and value-education during their stay in Gurukuls or Ashrama.

Key Word: Human Value, Inculcation

Objectives

1. To know human values
2. To understand the way to inculcate Human values among the students

Introduction

Much stress was on spiritual development of the teachers. Thus, The Entire Education System Was Primarily Value Oriented! But as the days passed by, there was a gradual erosion of values and the so-called modern education entered inside the modern world.Character training and value-education started getting ignored. Materialism, cutthroat competition, influence of Western Culture, etc. contributed a lot which resulted in all kinds of value-crisis.

Newspapers were full of news like rape of minor children, kidnapping, forgery, gang rape of girls/women, thefts, murder, killing of brides for dowry, etc. Vices like drinking, drugging, gambling etc. are now on increase. Thus, by all such quoted facts it is seen that a factor called "Contentment" has started losing the ground! Corruption has entered in all walks of life. Based on the above quoted facts one can understand the strong need for the education in human values. The process of inculcating values must start right from the primary education level. In other words, Education in Human Values needs to be incorporated as an integral component of the entire educational system.

After all this discussion, the question that now jumps up like a boomerang is what is vale? Literally, value means something that has a price, and is precious. In a given situation, a person may have a number of alternative responses. However, he or she chooses one which is

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- Chief & Executive Editor

Sanskruti International Multidisciplinary Research Journal
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A GEOGRAPHICAL ANALYSIS OF LOCAL PROBLEMS IN MUNICIPAL SOLID WASTE MANAGEMENT OF SATARA CITY.

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3. Assistant professor, Department of Geography, P. D. V. P. College, Tasgaon

Abstract

Municipal solid waste management is a global environmental issue which concerns about a very significant problem in today's world. There is a considerable amount of disposal of waste without proper segregation which has lead to both economic and environment sufferings. It is still practiced in many cities. There is a tremendous amount of loss in terms of environmental degradation, health hazards and economic descend due to direct disposal of waste. It is better to segregate the waste at the initial stages where it is generated, rather than going for a later option which is inconvenient and expensive. There has to be appropriate planning for proper waste management by means of analysis of the waste situation of the area.

The problem of solid waste management is face from Municipal authority, but in the coming future solid waste management is if properly not measures we having the worse situation. Mostly in urban centres generate the critical issue of solid waste. Solid waste management is if not appropriate managed, we have air, water, land pollution, some diseases and disturbances of living life and besides a lot of energy. Today we are experienced various diseases, skin irritation, heart and breathing problems, and more examples of diseases due to improper disposal of solid waste. Sensitive and serious health problems are facing today's world due to improper solid waste management.

Keywords: *Solid waste management, segregation, environmental degradation, disposal of solid waste.*

Introduction:

The rapid increasing population, economic growth, urbanization and industrial development it has resulted the high rate increased of solid waste generation. Especially in urban areas, the problems of solid waste expand because more peoples are migrating towards the middle and metro cities. Solid waste generation rate is increased day by day due to increasing population but solid waste management done from municipal authority. In India, Municipal or local authorities provides the services of solid waste collection, transportation and disposal treatment. The solid waste collection and storage in the dumper bins, dust bins or containers,

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Water Management: Present Situation and Upcoming Challenges

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P. D. V. P. Mahavidyalaya Tasgaon.

Abstract:

Water distinguishes our world compare to all the others we know about. Though the overall deliver of available freshwater is more than sufficient to meet all present and estimated water demands. The lack of sufficient fresh water to meet human intake water and hygiene needs is certainly a constraint on human fitness and production and hence on economic development as well as on the protection of a clean surroundings and healthy ecosystem. This paper identified the issue facing water managers these days and upcoming research needed to well again inform those who struggle to generate a more sustainable and attractive upcoming.

Key Word: Water management, water condition, Global Environment, Challenges etc.

Introduction:

All through the world, demographic, financial, and technological trends contain accelerate our ability to by design and naively adjust the environment we survive in and that sustain us. We human have befallen the main driver of ecological change. Our actions are impacting our overall atmosphere, with our climate. This in turn impact the amount and spatial and of time distributions of rainfall that falls on watershed and the time of its surplus. Together with change in landscape, due to increase in food and energy making and from the society of public into urban centers, we are varying the amount and quality of our freshwater wealth on which we depend to live, both actually and carefully. Water plays a role in the creation of the lot we create. There is no substitute and while it is renewable there is only a limited quantity of it.

Objectives:

To study the present situation of water condition
To understand the present and upcoming challenges of water management
To analyze and interpretation of about water management

Freshwater Stress:

Now a day's each one is troubled about the possible water shortage in the face of increasing, mainly population driven, water difficulty, and its penalty on our energy and food production. The universal danger Perception Survey conducted with 900 standard expert by the World Economic Forum reports that the maximum level of community shock over the next 10 years. In recent decades the gain raise in water use on a overall scale has exceed double that of population growth. This has lead to more, and larger, region in the world being subject to water stress where the present limited rates of water use and utilization, let alone the beloved rates, are invalid. Water stress and supplies are varying. What they will be in the upcoming is unsure, but it is positive that they resolve change.

Globalization:

Growing globalization is inspiring the realization of new rules and events for the international trade of goods and services, rejecting the rising cheek of global Firm engaged

Global Climate Change and It's Social, Economic and Environmental Consequences

Sunil S. Gavit

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Abstract:
Climate change is one of the foremost challenges of our time and adds significant stress to our society and the atmosphere. From variable weather patterns that pressure food production, to growing sea levels that boost the risk of terrible flood, the impact of climate change are global in capacity and unique in balance. Without severe action now, adapt to these impacts in the potential will be more hard and rich. This outline deals with the thought of Global Climate Change, the related conditions, causes, consequences, solutions, and its possible fitness impact. It shows the want to proceed directly if we are to let alone a permanent build-up of greenhouse gases and global warming at a potentially vast cost to the wealth and civilization global. Therefore, address climate change require a "unique altitude of collaboration, not only among country but also between unusual levels of government, secret segment, and persons.

***Keywords**: greenhouse gases Global; Climate Change*

Introduction:

Climate change is a severe risk to scarcity decline and could open decades of progress efforts. While climate change is universal, its harmful impacts are more strictly felt by poor citizens and poor countries. They are more helpless because of their high confidence in natural wealth and partial ability to get by with climate changeability and extreme. Restore and maintain key ecosystems can help a community in their adjustment hard work and hold up livelihoods that depend ahead on the services of these ecosystems. Affecting towards low-carbon society can help decrease greenhouse gas emission, civilizing human fitness, and well-being and create the green job. Climate change is an actuality of days. We need to act immediately if we are to let alone a permanent build-up of greenhouse gases and global warming at a potentially vast cost to the financial system and humanity universal. Society for financial assistance and growth study suggests that if we act at present, we have ten to fifteen years of breathing space through which act is potential at a rather diffident charge. But each year of delay reduces this breathing space, while require ever more severe events to create a distinction. Present financial confusion is not a motive to wait. Its macro-financial penalty will be determined in a relatively short point, after which increase will begin again, while the penalty of functional on global warming will maintain to cultivate more and more dear over point. This study presents a summary of Global Climate Change intending to help value the idea, its pressure and to give a coming to the ways it affects civilization and the natural situation and proffering solution

Objectives:

1. To understand concept of greenhouse effect
2. To study social, economic and environmentalconsequences of global climate change

Methodology and Data sources:

The present research article is theoretical in nature. The data collected from various published and unpublished articles, newspapers, journalsand books.

Greenhouse Effect

A normal structure is known as the "greenhouse effect" which regulates temperature in the world. Just as wineglass in a greenhouse keeps heat in, our feeling traps the sun's heat near the earth's plane, above all during heat-trapping properties of confident "greenhouse gases". Earth is fiery by daylight. The majority of the sun's force passes during the atmosphere, to temperate the earth's plane, oceans, and atmosphere. The normal process is well-known as the greenhouse effect. Devoid of greenhouse gases, Earth's regular hotness would be −19°C in its place of +14°C, or 33°C colder. Above the history ten thousand years, the quantity of greenhouse gases in our atmosphere has been rather steady. Then little centuries ago, their concentration begins to rise due to the growing requirement for energy caused by industrialization and growing populations, and due to shifting land use and human being settlement patterns.

Greenhouse Gases

The greenhouse gases and their sources are as below:

Water vapor is the main general greenhouse gas but others are especially important too. Some occur obviously and some approach from human being activity.

CO2: is the most significant greenhouse gas released by human activities, mostly through the burning of fossil fuels. It is the main contributor to climate change.

CH4: is formed when vegetation is burned, digested, or rotted with no O2 present. Compost dumps, rice paddies, and grazing cows and other livestock release lots of methane

N2O: can be found naturally in the environment but human being activities are growing the amounts. Nitrous oxide is at large when chemical fertilizers. Nitrous oxide is released when chemical fertilizers and measures are used in crop growing.

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Research Article

An Analysis of Spatial Distribution of Major Settlements in Nandurbar District (Ms)

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Research Guide Shivaji Mahavidyalaya Renapur, Latur Maharashtra, India
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MR. SUNIL SOMA GAVIT

Abstract: The spatial distribution of major settlements across a country and their interconnectivity and obtain ability from major settlements areas are significant for providing healthcare, allocating resources and socio-economic development. We hypothesize that there are variations in the spatial patterns of major settlements across different places in Nandurbar district that exist in accordance with different human activities and environmental conditions. We analyse and compare the spatial patterns of major settlements in Nandurbar district. The analyses highlight large inequities in access, the isolation of many settlements in Nandurbar district.

Keywords: Settlements, Spacing

INTRODUCTION:

Today, urbanization is common developing activity of the world. The world recognized the importance of urbanization in the economy of that place, so day by day various major settlements places are immerging throughout the world. To conserve and protect the urban and rural culture are essential for the regional development. In Nandurbar district there are various urban places are situated this all places haveits own characteristics historical, cultural, geographical as wellas religious importance. These all destination are unevenly distributed all over the district. Andto study of these major settlements destinations and its distribution is very essential for the future planning.

Objectives:

- To study the classification and distribution of settlements in study region.
- To study the spacing of settlements in study region.

METHODOLOGY:

This study is based on secondary data sources. Secondary data is collected by various sources like book, journals, maps, newspapers etc. For the analysis of data nearest neighbour technique has been used.

Study Region:

Nandurbar district is the northern most district of the Maharashtra state. *Nandurbar* is a tribal district bestowed with abundant natural resources. This district bounded from west and North West by Gujarat State, to the northand north east by Madhya Pradesh state, in the south Dhule district. It situated between the 17° 2' to 17° 3' North and 74° 06' to74° 36' East longitudes. This district covers areaabout 5034.23 sq.km, 16,48,296 (2011) populations concentrated in this district. This district has Narmada and Tapi and their sub streams river aswell as mountain ranges of Satpuda.

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8. Demographical Characteristics of Mangalwedha Tahsil in Solapur District

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Abstract

Mangalwedha tahsil is located in the north-western part of Solapur district. The tahsil situated in Bhima and Sina river basin. It is surrounded by Pandharpur tahsil to the northern part, Mohol tahsil to the northeast part, Solapur South tahsil to the east, Indi tahsil of Bijapur district to the southeast part, Jath tahsil of Sangali district to the south and Sangola tahsil to the west part. It's an area of 1596.09 sq. Km; the 2nd rank of tahsil in Solapur District. This tahsil has situated on the upper part of Ujjani dam in Solapur District. The latitudinal extent is 17°11'0" N to 17°37'0" North and longitudinal extent is 75°15'17" E to 75°40'14" East. This Karmala tahsil is mainly rural in character and has 123 villages according to 2011 census. The total population of tahsil was 254489 people and holds 10th rank in district & literacy rate was 75.5 % and holds 7th rank in Solapur district as per 2011 census.The study is based on secondary data which is collected from census & Government documents.

Key words: Population composition, Population growth, Distribution, Socio economic Development.

Introduction

An integrated programme for the utilization of population should include long term aims and instruments for the development of human capacities, notably; professional and occupational skills may constitute the most formidable bottlenecks in the successful implementation of the programme of economic and social development. The development of population through education and vocational training should, therefore, be accorded a very high priority in the future planning and programme of economic development.

Population has both quantitative & qualitative dimension. Characteristics like the size, composition and distribution of population and skilled labour force, literacy level, the number of

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9. Goods and Services Tax - Challenges in India

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I. Introduction

"The goods and services tax law in India is a comprehensive, multi-stage, destination-based tax that is levied on every value addition". Taxation policy plays a very crucial role on the economy of a country. The main source of revenue of the government comes from the taxes levied on the citizens who can be direct or indirect. When the impact and incidence falls on same person it is called as direct tax and when the impact and incidence falls on two different people i.e. The burden can be shifted to any other person it is called as indirect tax. Before the introduction of GST India had a complicated indirect tax system with multiple taxes imposed by union and state separately, with the introduction of GST all the indirect taxes will be under an umbrella and ensuring a smooth national market with high economic growth rate. GST is a single point tax levied on the supply of goods and services, right from the manufacturer to the consumer. It would bring down the prices of goods and services which in turn will help the companies as consumption will increase

- Higher threshold for registration which will exempts many small traders and service providers.
- In the GST system, when all the taxes are integrated it would eliminate the number of compliances like return filling
- . It would help to eliminate the separate tax imposition on goods and services which requires the transaction to split its value among goods and services leading to greater complications
- GST would simplify the working procedures and would minimize the tax burden of E-commerce and logistics companies
- Employment generation for youths as GST trained experts

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भारतातील शहरीकरण :समस्या आणि उपाययोजना

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प्रस्तावना

स्वातंत्र्यप्राप्तीनतंर शहराची वाढ वेगाने झाली. या वाढीबरोबर समस्या वेगाने वाढल्या आहेत.वाढती लोकसंख्या ही भारताच्या विकासातील मोठा अडथळा आहे. या वाढत्या लोकसंख्येला सोयी–सुविधा पुरविण्यासाठी शहरपातळीवर कोणकोणत्या योजना राबवायला हव्यात, याविषयीचे विश्लेषण करतानाच दुसऱ्या बाजूला वाढत्या लोकसंख्येमुळे शहराचे कसे बकालीकरण होत आहे याचाही विचार करण्यात आला आहे. थोडक्यात प्रस्तुत शोधनिबंधामध्ये आपल्या देशातील शहरीकरण निर्माण झालेल्या समस्या आणि त्या समस्यावरती उपाययोजना यावर प्रकाश टाकण्याचा प्रयत्न करण्यात आला आहे.

शहरीकरण म्हणजे काय?

शहरीकरण म्हणजे शहराच्या लोकसंख्येची व त्याच्या क्षेत्राची वाढ. वाढते औद्योगिकीकरण व खेड्यातून शहराकडे होणारे लोकांचे स्थलांतर यांचासुद्धा शहरीकरणामध्ये समावेश होतो. 2011 च्या जनगणनेनुसार 30.16 टक्के लोकसंख्या शहरामध्ये राहते. एका पाहणीनुसार 2030 पर्यंत जवळपास 25 कोटी अतिरिक्त लोकसंख्या शहरांमध्ये येणार आहे. असेही दिसून आले आहे, की शहरीकरण आणि विकास हे बरोबरीनेच चालतात. जी राज्ये झपाटयाने विकास करत आहेत त्यांचाच शहरीकरणाचा वेग अधिक आहे. 2012–13 सालच्या पाहणीनुसार महाराष्ट्राच्या शहरीकरणाची टक्केवारी 45.2 टक्के होती. ती 2030 पर्यंत 58 टक्के होण्याची शक्यता आहे. भारतातील 3 मोठया मेट्रो शहरांची लोकसंख्या जगातील काही देश जसे कॅनडा, मलेशिया, सौदी अरेबिया, ऑस्ट्रेलिया यांच्यापेक्षा मोठी होईल.

अभ्यासाची उद्दिष्टे

- शहरीकरण या संकल्पनेचा अभ्यास करणे
- शहरीकरणमुळे निर्माण होणाऱ्या समस्यांचा अभ्यास करणे.
- वाढत्या समस्या कमी करण्यासाठी उपाययोजना सुचविणे.

संशोधन पध्दती आणि तथ्य संकलन

प्रस्तुत शोधनिबंध तयार करण्यासाठी दुय्यम सामग्रीचा वापर करण्यात आला आहे. यामध्ये प्रामुख्याने वेगवेगळे संदर्भ ग्रंथ, वेगवेगळया समित्याचे अहवाल, मासिके,वर्तमान पत्रे, इंटरनेट इत्यादीचा वापर करण्यात आला आहे.

शहरीकरणाचे परिणाम (समस्या)

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महाराष्ट्रातील शेती : एक चिकित्सक अभ्यास

डॉ. बंडू जयसिंग कदम

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शोधसार:

भारतीय शेती अर्थव्यवस्थेचा कणा आहे. १९९१ मध्ये नवीन धोरणाचा स्वीकार केला गेला. त्यास आज २७ वर्षे पूर्ण झाली आहेत. ६८.७: लोकसंख्या आजही शेती व पूरक व्यवसायावर अवलंबून आहे. नियोजनाचा स्वीकार करून आज ६७ वर्षे पूर्ण झाली तरी नैसर्गिक साधन संपत्तीवर संपूर्ण अर्थव्यवस्था अवलंबून आहे. दुष्काळ, अतिवृष्टी, गारपीठ अशा सर्व नैसर्गिक आपत्तींचा सामना शेतकरी करत आहे. प्रतिकुलतेवर मात करत आर्थिक विकासाचा दर बदलत आहे. कधी कमी तर कधी जास्त अशी शेती विकासदराची स्थिती आहे. प्रस्तुत शोधनिबंधामध्ये महाराष्ट्रातील शेतीवर प्रकाश टाकण्याचा प्रयत्न करण्यात आला आहे.

प्रस्तावना–

भारतीय शेती अर्थव्यवस्थेचा कणा आहे. 1991 मध्ये नवीन धोरणाचा स्वीकार केला गेला. त्यास आज 27 वर्षे पूर्ण झाली आहेत. 68.7% लोकसंख्या आजही शेती व पूरक व्यवसायावर अवलंबून आहे. नियोजनाचा स्वीकार करून आज 67 वर्षे पूर्ण झाली तरी नैसर्गिक साधन संपत्तीवर संपूर्ण अर्थव्यवस्था अवलंबून आहे. दुष्काळ, अतिवृष्टी, गारपीठ अशा सर्व नैसर्गिक आपत्तींचा सामना शेतकरी करत आहे. प्रतिकुलतेवर मात करत आर्थिक विकासाचा दर बदलत आहे. कधी कमी तर कधी जास्त अशी शेती विकासदराची स्थिती आहे.

देशाच्या तुलनेत महाराष्ट्राचे भौगोलिक क्षेत्र 9.4% आहे. तर शेत जमीन क्षेत्र 12.3% आहे. शेती उत्पादनासाठी 11.6% इतके क्षेत्र उपलब्ध आहे. देशाच्या स्थूल उत्पन्नामध्ये 23.2 महाराष्ट्राचा वाटा आहे. महाराष्ट्राची 11.24 कोटी लोकसंख्या 2011 च्या जनगणनेनुसार आहे.

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DRAGON FRUIT: GATEWAY TO PROSPERITY FOR DROUGHT STRICKEN FARMERS IN SANGLI DISTRICT

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ABSTRACT

This research paper is an investigative study which is based on secondary data. Secondary data resources which are previously available, it refers to data which has been collect and analysed by someone else. Dragon fruit is a climbing vine cactus species which has invigorated universal recognition, first as an attractive plant and then as a fruit a fruit crop. There is worldwide demand increase for dragon fruit because of its nutritional value as well as its medicinal properties. It indicates importance of this fruit in the horticulture export. Natural environment of Sangli district is favourable for production of dragon fruit having good quality with low cost in whole the year. Gross production of dragon fruit in Sangli district shows positive change, at the end of the year 20219-20 gross production and cultivated area of dragon fruit was near about 900 tonne and 550 acre respectively. This indicates economical importance of dragon fruit production in Sangli district. This indicates that dragon fruit production is gateway to prosperity for drought stricken farmers in Sangli district.

KEYWORDS
Dragon fruit, Drought

INTRODUCTION

Dragon fruit is a climbing vine cactus species which has invigorated universal recognition, first as an attractive plant and then as a fruit a fruit crop. Its fruit is the most gorgeous in the family Cactaceae with a bright red skin studded with green scales and white or red flesh with tiny black seeds. The flower is so gorgeous that it is nicknamed as "Noble Woman" or "Queen of Night". The juicy flesh of the fruit is full of flavour in taste. It is well accepted as a new crop in Australia, China, Israel, Malaysia, Nicaragua, Taiwan and Vietnam. It Vietnam, it has become a major export, which fetches a higher price than even Durian, the "King of Fruits" in Southeast Asia. The main limitation is that the establishment cost is high due to the use of trellises for climbing. However, the cost of establishment will depend on the type of trellises used, and knowledge shows that a relatively cheap trellising is sufficient. The other agronomic practices are easy and a lesser amount of expensive, maintenance cost is low and aftercare is minimal due to fewer pest and disease attacks. The biggest advantages of this crop are that once planted, it will grow for about twenty years and one hectare could accommodate

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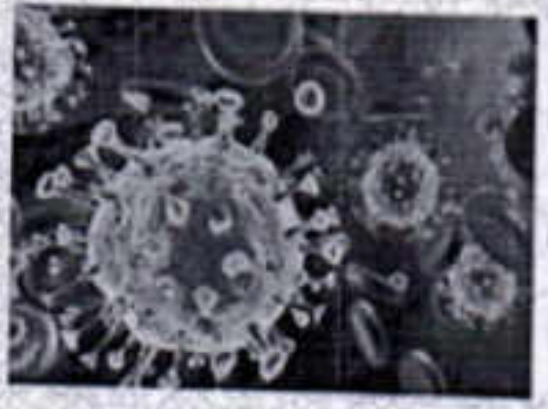
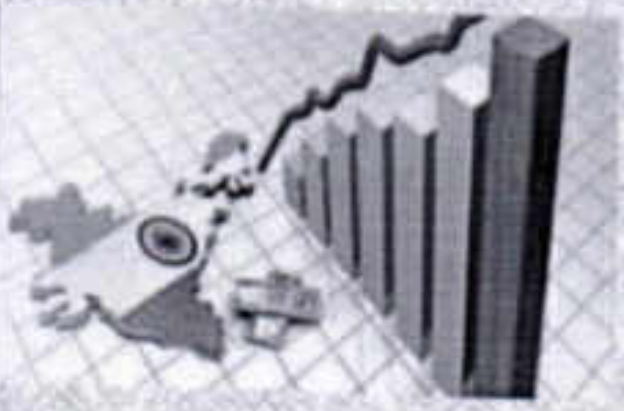
Impact of COVID-19 on Indin Economy





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Impact Of Covid-19 On Digital Payments In India An Overview

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Abstract

The worldwide spread of the COVID-19 pandemic has disrupted how people buy goods and services and how they take in e-commerce. The uniform lockdown rules across India and the growing uncertainty among consumers to go outside and shop for necessary goods have tilted the nation towards e-commerce.The world has been moving towards all things digital for some time now. However, the year 2020 put into perspective the dire need to adapt to digital technology as soon as possible. This adaptation happened almost instantly with the lockdown coming into effect, especially fordigital payments in India. The share of digital transactions in the total volume of non-cash retail payments increased to 97.0 % during 2019-20, up from 95.4 per cent in the previous year.The decline in digital transactions during the lockdown period is suggestive of the addition of the digital economy with the real economy. Empirical analysis for the period 2009-2019 supported statistically significant unidirectional Granger causal relationship from the growth of nominal GDP and private final consumption expenditure (PFCE) to the growth of digital and retail transaction value.

Key Words: E-Commerce, Digital Payment, Covid-19

Introduction

The worldwide spread of the COVID-19 pandemic has disrupted how people buy goods and services and how they take in e-commerce. The uniform lockdown rules across India and the growing uncertainty among consumers to go outside and shop for necessary goods have tilted the nation towards e-commerce.Consumers have switched from shops, supermarkets, and shopping malls to online portals for the purchase of goods, ranging from basic commodities to branded goods. Since the norm of social distancing has been initiated for almost the entirety of year 2020, the scope of online purchases and online businesses is expected to rush. Many people are implementation the concept of online retail and the surge in FTUs (First Time Users) on e-commerce sites is visible.

COVID-19 has been remarkably different from what we have ever witnessed. As the world was forced into complete shutdown, it's safe to say that e-commerce was the economy grace, helping millions of people stay home and procure what they wanted at their doorstep. "Customers want to avoid stepping out unless it's very critical. We are helping customers who are stuck in that situation, and we are able to play a small part in helping (cater) to their needs," – Gopal Pillai, Vice President for Seller Services at Amazon India.Business data platform Statista stated that the consumer retail segment is expected to see an increase in losses ranging from 3-23%, depending on the market. The report even included that the average retail e-commerce revenue per user in the nation was $50 as of 2018, and is expected to go up till $75 by 2024. In the difficulty of things, lack of output during the countrywide lockdown resulted in the loss of jobs, pay cuts, and finances. Shutting down of shops and family-based businesses has made many people influence towards online retail to meet their financial requirements.

Objectives of the study

1. To the study of digital payment system.
2. To examine the impact of Covid-19 on digital payments.

Research Methodology

The present study is based on secondary data. This is collected from books, journals and websites.

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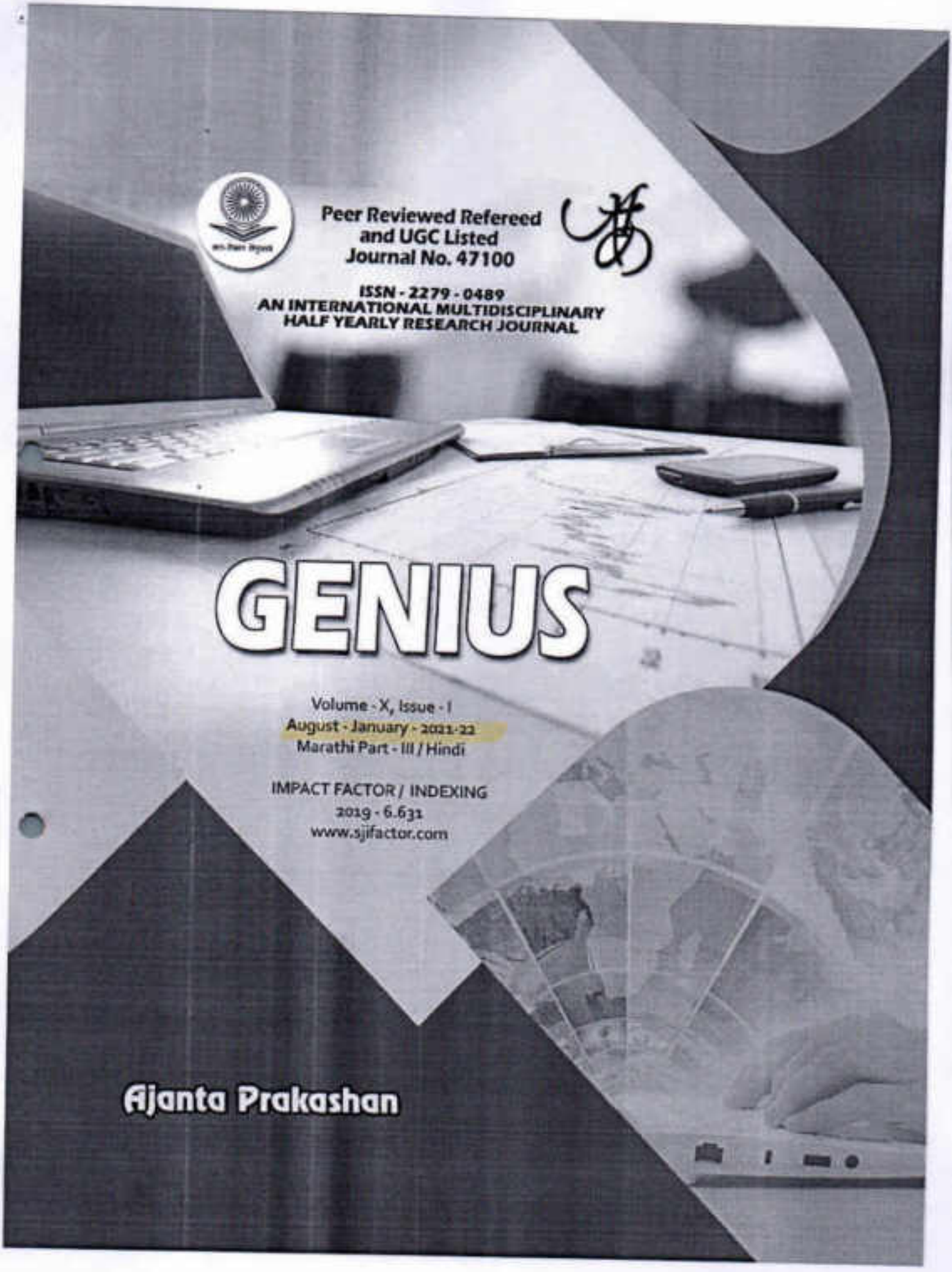

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१२. कोरोना आणि भारतीय शेती : वास्तव आणि उपाययोजना

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(संलग्नित शिवाजी विद्यापीठ, कोल्हापूर.)
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सहाय्यक प्राध्यापक, अर्थशास्त्र विभाग, पद्मभूषण वसंतदादा पाटील महाविद्यालय, तासगाव, ता. तासगाव, जि. सांगली.
(संलग्नित शिवाजी विद्यापीठ, कोल्हापूर.)

गोषवारा

चीनमधे आलेल्या कोरोना विषाणूच्या साथीने हाहाकार उडवला होता. बघता बघता जगभरात कोरोना या महामारीने थैमान घातले. जागतिक आरोग्य संघटनेने या विषाणूमुळे होणाऱ्या आजाराचे अधिकृत नामकरण COVID-19 असे केले आहे. या रोगाने जगामधील सुमारे 2,97,765 बळी घेतले आहेत. मार्च 2020 पासून हा रोग भारतात संक्रमित झाला होता. बघता बघता संपूर्ण भारतामध्ये या रोगाने थैमान घातले. परिणामी वाढता प्रसार रोखण्यासाठी भारतात जनता कर्फ्यू घोषित करावा लागला. त्यानंतर लगेच लॉकडाऊन, बाजारपेठा बंद झाल्या, वाहतूक बंद करण्यात आली, प्रवास करण्यावर निर्बंध घालण्यात आले. या सर्वाचा परिणाम कृषीप्रधान अर्थव्यवस्थेवर झाला. याचे विवेचन सदर शोधनिबंधामध्ये करण्याचा प्रयत्न केला आहे.

1. प्रस्तावना

चीनमधे आलेल्या कोरोना विषाणूच्या साथीने हाहाकार उडवला होता. बघता बघता जगभरात कोरोना या महामारीने थैमान घातले. जागतिक आरोग्य संघटनेने या विषाणूमुळे होणाऱ्या आजाराचे अधिकृत नामकरण COVID-19 असे केले आहे. या रोगाने जगामधील सुमारे 2,97,765 बळी घेतले आहेत. मार्च 2020 पासून हा रोग भारतात संक्रमित झाला होता. बघता बघता संपूर्ण भारतामध्ये या रोगाने थैमान घातले. परिणामी वाढता प्रसार रोखण्यासाठी भारतात जनता कर्फ्यू घोषित करावा लागला. त्यानंतर लगेच लॉकडाऊन, बाजारपेठा बंद झाल्या, वाहतूक बंद करण्यात आली, प्रवास करण्यावर निर्बंध घालण्यात आले. या सर्वाचा परिणाम कृषीप्रधान अर्थव्यवस्थेवर झाला. याचे विवेचन सदर लेखामध्ये करण्याचा प्रयत्न केला आहे.

शेती आणि शेतीशी संबंधित कामे याचा विचार केला तर शेती आणि शेतकरी अनेक स्थित्यंतरातून जात आहे. नोटबंदी, जीएसटीमुळे शेतीविषयक साहित्य खरेदी करताना शेतकऱ्यावर पडलेला आर्थिक ताण आणि आता लॉकडाऊन यामुळे शेती आणि शेतकरी हतबल झालेला दिसून येत आहे.या लॉकडाऊनच्या काळात सरकारने शेतीशी निगडीत असणाऱ्या कामांना मुभा दिली असली तरी शेतकऱ्याच्या खरीपाच्या शेतीसाठी शेतकऱ्याच्या हातात पैसा कोठे शिल्लक आहे.

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The Study of Pomegranate Supply Chain Management in Pandharpur Taluka

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Introduction :

India is one of the leading countries in pomegranate production and more than 1.32 lakh hectares area is under cultivation presently. Out of this, nearly 94,000 hectares area is covered in Maharashtra, which produces fruits of over one lakh metric tonnes worth about Rs. 400 crores. Pomegranate is the most important fruit crop of the tropical and subtropical region. High yielding, better keeping quality and possibilities to thrive the plant into rest period when irrigation potential is low, pomegranate is commercially cultivated in Solapur, Sangli, Nashik, Ahmednagar, Pune, Dhule, Aurangabad, Satara, Osmanabad and Latur districts (Maharashtra), Bijapur, Bagalkot, Koppal, Chitradurga and Tumkur Districts (Karnataka) and to a smaller extent in Gujarat, Rajasthan, Uttar Pradesh, Andhra Pradesh and Tamil Nadu. At the global level, India is the world's largest producer of pomegranates followed by Iran. Other countries like Turkey, France, Armenia, Cyprus, Egypt, Italy and Palestine also cultivate this product. At present good quality pomegranates come from turkey, Iran, Afghanistan, Syria, Morocco and Spain. India exports pomegranates to the Gulf countries, the European Union, Asian countries, Pacific-Rim countries, China, USA and Canada. As far as country-wise export of pomegranates for 2009-10 is concerned, UAE is the major buyer followed by Bangladesh, the Netherlands and Saudi Arabia. Even though there appears to be an increase in the Cohen of exports from India over these years, the country export is only 4 percent of its production while Spain exports about 75 percent of its estimated production. This is in spite of the fact that India is the largest producer of pomegranate. In India, Maharashtra is the leading producer of pomegranates followed by Karnataka, Andhra Pradesh, Gujarat and Tamilnadu. To a smaller extent, it is also grown in Rajasthan and Himachal Pradesh. It is cultivated commercially in Solapur, Sangli, Nashik, Ahmednagar, Pune, Dhule, Aurangabad, Satara, Osmanabad and Latur district of Maharashtra.

Objectives :

Keeping the above aspects in consideration the study have been carried out with the following objectives

1. To examine and evaluate supply chain management of pomegranate at farm level in the study area.
2. To examine price spread of pomegranate.

Research Methodology and Research Design :

This section explains about sample design, data collection methods, data analysis, instruments used for data collection, framework and analysis.

Data Collection :

The present study is concerned with the study of pomegranate supply chain management in Pandharpur Taluka. So the required data for the study were collected from Primary and Secondary Sources.

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Development of Rural Entrepreneurship In India

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1.1 Introduction

The term entrepreneur is a relatively new term and concept used in economic study. Because of its increasing significance in economic subject over the period it has become the catchphrase in the economic literature. However it has been defined differently by different writers and thinkers. An entrepreneur is an individual who, rather than working as an employee, founds and runs a small business, assuming all the risks and plunder of the venture. The entrepreneur is commonly seen as an innovator, a source of new ideas, goods, services and business or actions. Rural entrepreneurs are those who carry out entrepreneurial activities by establishing industrial and business units in the rural sector of the economy. In other words, establishing industrial and business units in the rural areas refers to rural entrepreneurship. In simple words, rural entrepreneurship implies entrepreneurship emerging in rural areas. Or, say, rural entrepreneurship implies rural industrialization. Thus, we can say, entrepreneurship precedes industrialization.

1.2 Objectives

1. To study the concept of rural development.
2. To study the development need of rural entrepreneurship in India.

1.3 Research Methodology:

The present study is based on secondary data. This is collected from books, journals and websites.

1.4 Rural Development

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SPORTS TRAINING METHODS

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ABSTRACT:

Training is extremely important and should form an integral part of all elite athlete's daily routines. Training allows the body to gradually build up strength and endurance, improve skill levels and build motivation, ambition and confidence. Training also allows athletes to gain more knowledge of their sport as well as enabling them to learn about the importance of having a healthy mind and body. In terms of physical effects of training, regular exercise increases muscle tone, facilitates good circulation training, improves strength, agility and flexibility and improves the rate of waste product disposal. Regular training also speeds up recovery time following physical exercise; this enables the body to cope with the demands of training more effectively and makes it more resistant to injury and illness. Training also has benefits for mental health as it improves concentration and increases self-esteem. Experts recommend training is varied and tailored to specific individual or team needs; this helps to keep players motivated, establish individual and team goals and improve cohesion. Athletes should take care to rest fully between training sessions; this will help to prevent overtraining, which can have negative effects on performance and contributes to injuries. Training should be serious and demanding but it should also be enjoyable; this will boost morale and help to keep players interested and relaxed. Sessions should not be too easy or too demanding; they should be pitched at the appropriate level to facilitate improvement but prevent injury and a lack of self-confidence.

1. Introduction

Training in this way combines extreme, vigorous periods of fast running or aerobic exercise with periods of slower running, allowing the athlete to recover a bit before resuming fast running. When an athlete trains in the hard, fast run, oxygen deprivation occurs and lactic acid builds up in the muscle tissues. During the slower running, or recovery, the heart and lungs work hard to provide oxygen, which helps break down the lactic acid. The stresses of interval training help to strengthen the heart, improve uptake of oxygen and get rid of lactic acid more efficiently.

Design, synthesis and Pharmacological investigation of pyridine-4-yl triphenyl pyrazol-4-yl-thio-1,3,4-oxadiazole derivatives

Ajay N. Ambhore[1], Arjun S. Kumbhar[1], Vishwas D. Suryawanshi[1], , Bhaskar S. Dawane[2]

[1]Deptartment of Chemistry, PDVP College, Tasgaon. Sangli (MS)

[2]School of Chemical Science, SRTMU Nanded (MS)

Abstract

Synthesis of heterocyclic compounds incorporating pyrazole and 1,3,4 oxadiazole nucleus have provoked interest because of its extensive range of pharmacological properties. In molecular hybridization, two pharmacophore units having varied mode of action are incorporated in a single molecule. Such type of technique enhances the activity of that molecule. By keeping this prospective in mind numerous heterocycles are synthesized by various methods.

In this section we report the synthesis of triphenyl pyrazolyl-thio-1,3,4-oxadiazole derivatives (7**a-s**) by using Bleaching Earth Clay (pH 12.5) and PEG-400 as a green reaction media. All these synthesized compounds were characterized by spectral data and screened for their antibacterial and antioxidant activity. Most of the synthesized compounds display remarkable activity.

Keywords: pyrazole 1,3,4 oxadiazole, PEG-400, BEC, Antibacterial, Antioxidant activity

I. Introduction and Review of Literature

During the past years several extensive evidences have been collected which prove the emergence of microorganism resistance. Generally, bacteria have a power to transmit and acquire resistance to drug genetically[1]. The development of resistance is shown in nearly all class of bacterial strain and become major public health concern worldwide[2]. Therefore, to design new class of antibacterial agents is a growing need and very important task for the researcher.

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Polymer supported reagent as a reusable catalyst for an efficient acid catalyzed cyclisation

Vishwas D. Suryawanshi, Arjun Kumbhar, Ajay Ambhore

Post Graduate Department of Chemistry, PDVP Mahavidyalaya Tasgaon, Maharashtra, India

Abstract

.The acid catalyzed cyclisation reactions were carried out in the presence of catalytic amount of cation exchange resins; the reaction conditions were mild and the yields of the target products were good. The polymeric catalyst was easily recovered, purified and regenerated, ready to be used in further reactions. This protocol offers several advantages including high yield, short reaction time, easy work-up and use of relatively moderate acidic and safe catalyst. It also allows a greener process, since no waste generation and resins are reused repeatedly. Some reusable polymeric SO_3H-functionalized cation exchange resins like Amberlite IR-120 have been used as catalysts. The products could simply be separated from the catalyst by filtration and the catalyst could be regenerated and reused for several times without noticeably decreasing the catalytic activity and yield.

Keywards: polymeric catalyst, cation exchange resins, greener process

Introduction:

In the field of polymer chemistry great process has been made over last two decades. Polymer chemistry has become famous since synthetic organic chemical reaction give a byproduct which can sometimes be difficult to isolate from the desired product. On the other hand if a polymer reagent is used in the organic synthesis, then the by-product will remain attached to the insoluble polymer and can be separated from the desired product by simple filtration. In electrophilic aromatic substitutions, non-generable catalysts such as metal chlorides and mineral acids are generally applied. Substitution of these by cation exchange resins result in simplified product recovery and reduction of undesirable waste stream [1-5]. We are especially interested in developing the potential use of simple, inexpensive catalysts. In recent years, organic reactions on solid phase have received considerable interest in organic synthesis because of their ease of handling, enhanced reaction rate, greater selectivity, and simple work-up.

Heterocyclic compounds particularly five or six membered ring compounds have occupied the first place among various classes of organic compounds for their biological and pharmacological activities. [6,7] Quinoline moiety is an important class of N-containing heterocyclic compound widely used as key building blocks for pharmaceutical agents.

Quinolines, quinolones and its derivatives are important classes of compounds. The development of new efficient synthetic strategies for the synthesis of quinolones has considerable interest. Quinoline and its derivatives have attracted great interest because of their importance in the synthetic organic and medicinal chemistry. Arylamines condenses with the ketonic carbonyl group to isomeric 2-quinolones [8]. Most of the quinolone derivatives are prepared by the ring formation reactions. Knorr [9] discovered that the

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Title: Design, synthesis and in silico study of pyridine based 1,3,4-oxadiazole embedded hydrazinecarbothioamide derivatives as potent anti-tubercular agent

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GREEN AND EFFICIENT SYNTHESIS OF TETRAHYDROBENZO[b]PYRAN DERIVATIVES USING NATURAL CATALYST

S. D. Jadhav, S. A. Damate and M. U. Patil

Department of Chemistry, Padmabhushan Dr. Vasantraodada Patil Mahavidyalaya, Tasgaon.

Keywords: Tetrahydrobenzo[b] pyran, *Limonia acidissima* ash, natural catalyst

Abstract:

A short and simple synthesis of Tetrahydrobenzo[b]pyran derivatives was accomplished in good yields by the reaction of dimedone, malononitrile or *b*-naphthol and aldehydes by using *Limonia acidissima* ash as a natural efficient catalyst. The remarkable advantages offered by this method include green inexpensive catalyst, mild reaction conditions, fast reaction rate and good to excellent yield of products. Use of catalyst obtained from natural resources makes the method greener without formation of any hazardous waste materials.

The novel methodology maintains atom economy and an environmentally friendly approach.

Introduction:

The discovery of new synthetic methodologies to facilitate the preparation of organic compounds is necessary for the research activities in the field of modern organic, bioorganic and medicinal chemistry. For this, it is necessary to perform efficient chemical transformations, multicomponent condensations by catalytic processes avoiding use of excess of solvents and expensive purification techniques.

Tetrahydrobenzo(*b*)pyran derivatives are an important class of heterocyclic compound having important pharmaceutical and biological activities. These compounds are potential biodegradable agrochemicals[1], photoactive materials[2], cosmetics and pigments[3]. These derivatives can be used as potent antibacterial such as rhodomyrtone pigments, photoactive materials[4]. The derivatives of tetrahydrobenzo[*b*]pyran show biological properties as antioxidant[5], spasmolytic and anti-HIV[6], anticancer[7], diuretic[8] and anti-anaphylactic activities[9].

Various synthetic methods have been reported for the synthesis of tetrahydrobenzo[*b*]pyran derivatives using different catalysts such as $(NH_4)_2HPO_4$[10], K_3PO_4[11], Ru(II) complex[12], L-proline[13], phenylboronic acid[14] and cerium(III) chloride[15] 1,4–diazabicyclo [2,2,2] octain[16], silica nanoparticals[17], sulfonic acid functionalized silica[18], amino functionalized silica gel[19] and ionic liquids[20].

Various parts of *Limonia acidissima* are prescribed as medicine for the treatment of various ailments.[21] Fruits are refrigerant, stomachic, stimulant, astringent, diuretic, cardio tonic, good for asthma. Leaves extract has phytochemical and anti microbial activity[22]. *Limonia acidissima* is a moderate sized tree grown throughout India. It is an aromatic, slow growing plant grows all over India in dry and warm areas.

EXPERIMENTAL METHODS

Preparation of CLAS Catalyst:

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A lemon juice catalysed synthesis of quinoxaline derivatives: as a green approach

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[3]Department of Chemistry, Shivaji University, Kolhapur (MS), India-416 002.

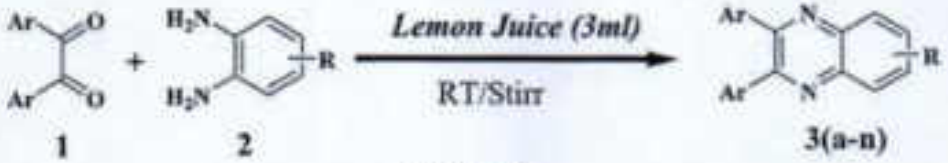
ABSTRACT: *In the present investigation, we have developed an efficient and greener protocol for the synthesis of quinoxalines via two component one-pot condensation between benzil and orthophenylenediamine (OPD) under Lemon juice as a catalyst. Lemon juice catalyst was found to be highly efficient, inexpensive, environmentally benign, non -toxic and ecofriendly. This solvent free approach was completely nonpolluting having several advantages such as mild reaction condition with good to excellent yield in short reaction time with simple workup procedure.*

Keywords: *Natural Catalyst, Solvent free approach, Non-chromatographic Technique, Quinoxalines.*

I. Introduction

Family of quinoxaline skeleton exhibit the source of some bactericides,[1] antitumor agents,[2] herbicides,[3] insecticides,[4] fungicides.[5] Also, they are used in dyes,[6] building blocks for the synthesis of organic semiconductors,[7] cavitands,[8] DNA cleaving agents,[9]dehydroannulenes, [10] and electrical-photochemical materials.[11] Literature data reveals that various catalytic systems were employed for the synthesis of substituted quinoxalines. Most common method relies on the condensation of 1,2-diamines with α-diketones under microwave irradiation,[12] and the use ofzeolites,[13] $H_6P_2W_{18}O_{62}.24H2O$, and ionic liquids[14] as a catalyst. Conversely, most of the traditional processes have no agreement with the green chemistry protocols which limit their use under the aspect of environmentally benign processes[15].

Considering these facts and in continuation of our interest in application of naturally sourced material for organic transformation[16]. Herein we wish to report environmentally benign protocol for the synthesis quinoxalines using *Citrus limon*juice as green catalyst **(Scheme 1)**. *Citrus aurantium, Citrus indica, Citrus limonium*are some important species of citrus family commonly known as lemon. The juice is highly soluble in water and thus acts as a homogeneous catalysis on solvent free synthesis of quinoxaline.



1 2 3(a-n)

Scheme 1

The main ingredients of the extract of *Citrus limonium*species of lemon are minerals (0.3%), ascorbic acid or vitamin-C (0.5%), fat (0.9%), protein (1%), fibres (1.6%), citric acid (5-7%), carbohydrates (11.2%), moisture (85%) and some other organic acids[16d]. The juice is soluble in water. Due to presence of ascorbic acid and citric acid, lemon juice is acidic (pH= 2-3) in nature, and thus it works as acid catalyst in organic reactions.Conventional uses of lemon juice are cooking, industrial and medicinal. Nowadays the lemon juice plays important role of catalyst in organic synthesis.

II. RESULTS AND DISSUSION

Fresh lemon was collected from home garden in Tasgaon area, washed with water cut by using knife and then pieces were pressed in a fruit juice to get the juice extract. Then the juice was filtered through filter paper to remove solid material and to get clear juice which is used as a catalyst.

Initial studies were undertaken using the two component one-pot reaction of benzil and orthophenylenediamine based as a model reaction **(Scheme 2)**. We examined the model reaction with 3 ml

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A lemon juice catalysed synthesis of quinoxaline derivatives: as a green approach

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ABSTRACT: *In the present investigation, we have developed an efficient and greener protocol for the synthesis of quinoxalines via two component one-pot condensation between benzil and orthophenylenediamine (OPD) under Lemon juice as a catalyst. Lemon juice catalyst was found to be highly efficient, inexpensive, environmentally benign, non -toxic and ecofriendly. This solvent free approach was completely nonpolluting having several advantages such as mild reaction condition with good to excellent yield in short reaction time with simple workup procedure.*

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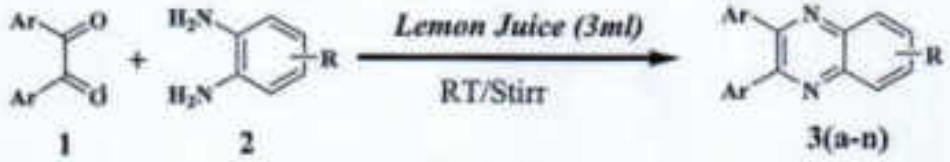
Considering these facts and in continuation of our interest in application of naturally sourced material for organic transformation[16]. Herein we wish to report environmentally benign protocol for the synthesis quinoxalines using *Citrus limon*juice as green catalyst **(Scheme 1)**. *Citrus aurantium, Citrus indica, Citrus limonium*are some important species of citrus family commonly known as lemon. The juice is highly soluble in water and thus acts as a homogeneous catalysis on solvent free synthesis of quinoxaline.



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Scheme 1

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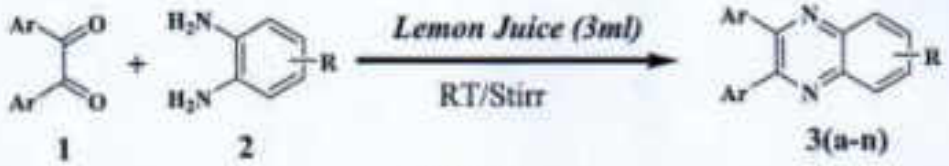

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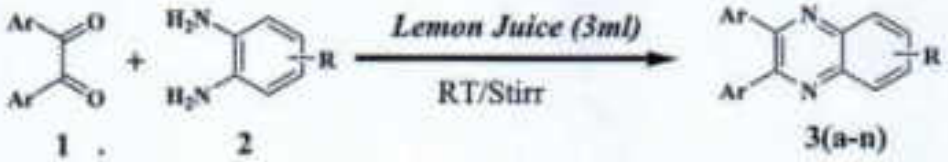

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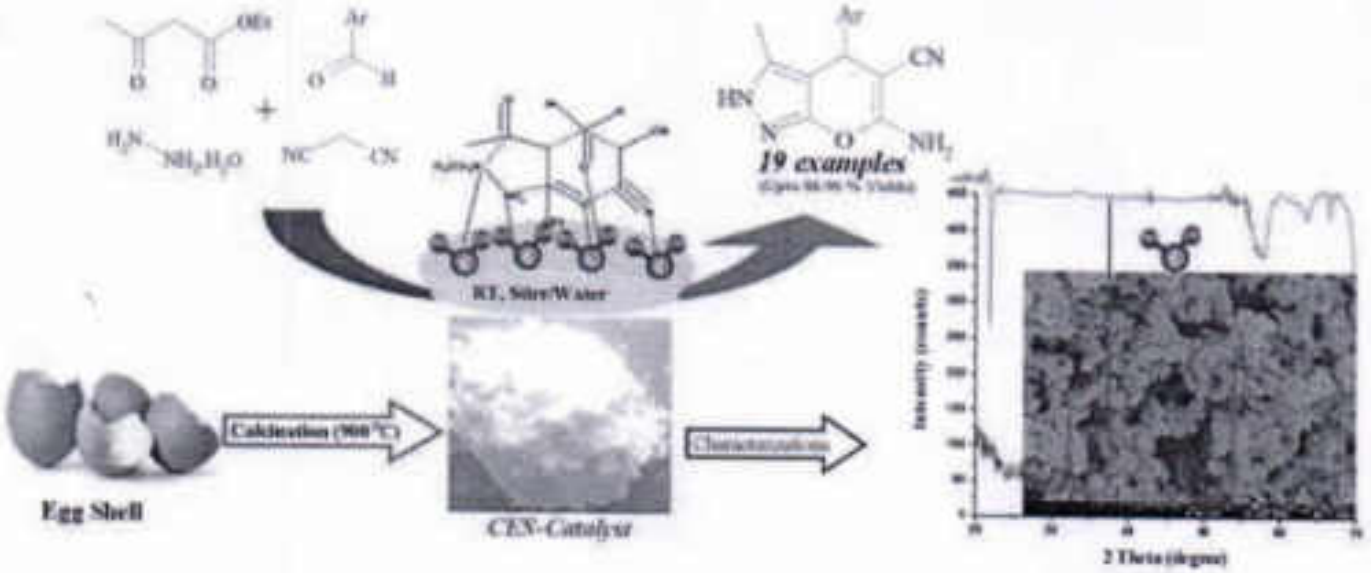

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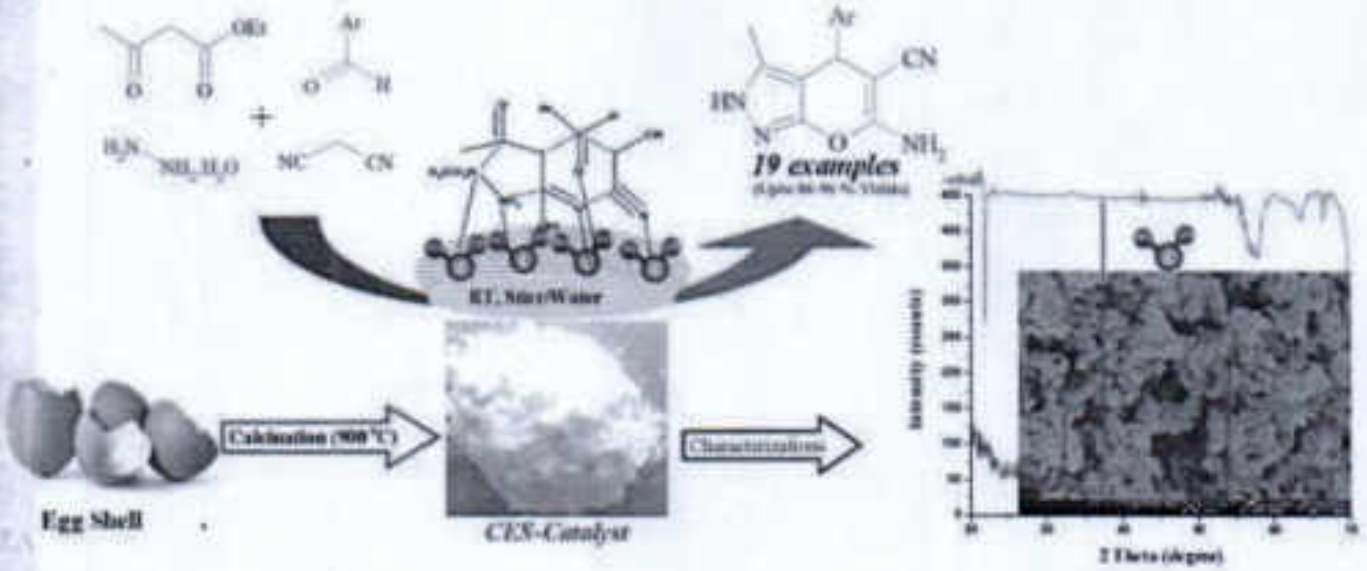

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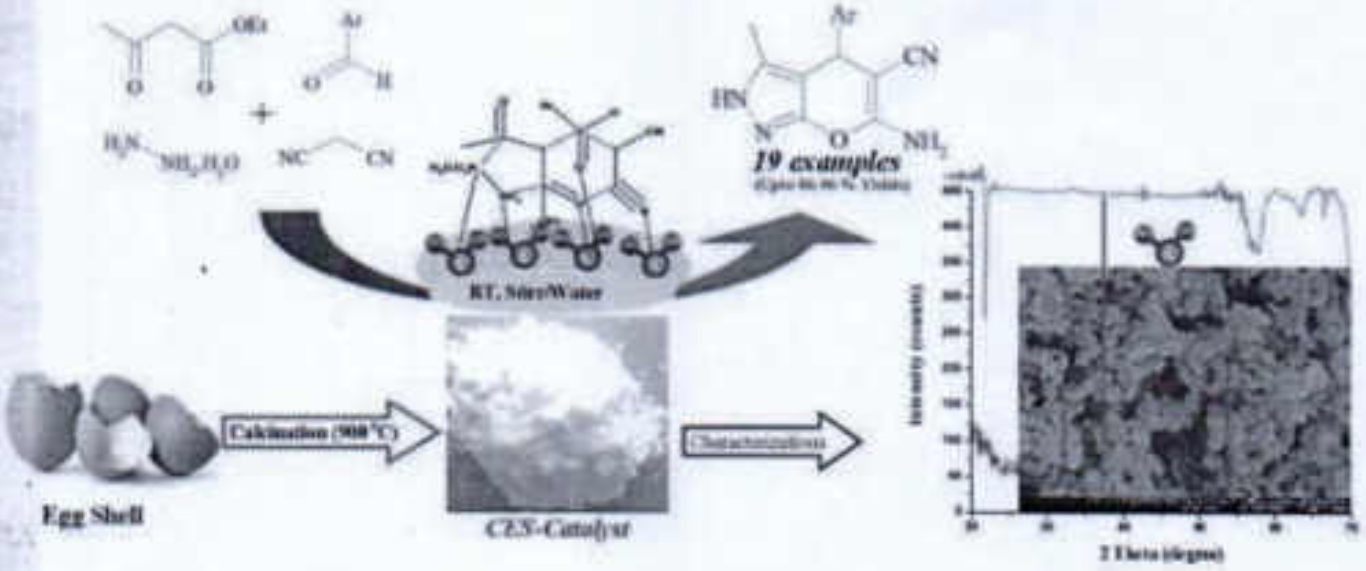

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2-amino-4H-chromenes *Calotropis gigantea*, ZnO nanoparticle, heterogeneous base catalyst, green protocole.

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An Eco-friendly Catalytic System for One-pot Multicomponent Synthesis of Diverse and Densely Functionalized Pyranopyrazole and Benzochromene Derivatives

U. P. Patil,[a]* Rupesh C. Patil,[b] and Suresh S. Patil[b]

[a]Department of Chemistry, ACS College (Affiliated to Shivaji University), Palus, Sangli, Maharashtra 416310, India
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*E-mail: uppatil4143@rediffmail.com

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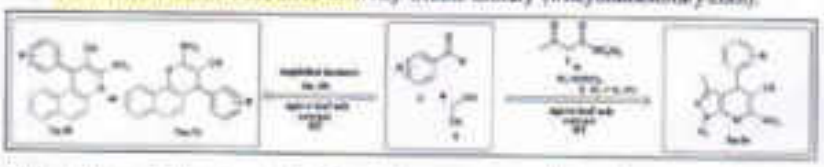

An external base-free, efficient, cost-effective, and environmentally benign protocol has been developed for the one-pot multicomponent synthesis of highly functionalized pyranopyrazoles and benzochromenes using water extract of *Agave americana* (century plant) leaf ash, a waste-derived catalyst, at room temperature. Mild reaction conditions, high yield, easy isolation of products, eco-friendly standards, and no chromatographic separation are the salient features of this protocol.

J. Heterocyclic Chem., **56**, 1898 (2019).

INTRODUCTION

Pyrano[2,3-*c*]pyrazoles exhibit significant biological activities such as anticancer [1], anti-inflammatory [2], and analgesic [3] and also serve as potential inhibitors of the human chk1 kinase [4]. They also find applications as pharmaceutical ingredients and biodegradable agrochemicals [5–8]. The benzochromene heterocyclic compounds also show significant biological and pharmacological activities such as antimicrobial [9], antiviral [10], anti-inflammatory [11], antioxidant [12], antitubercular [13], antitumor [14], anticonvulsant agents [15], and central nervous system activity [16]. Figure 1 represents a glimpse of some bioactive pyrano[2,3-*c*] pyrazoles [3,4,17,18] and benzochromenes [19–22] exhibiting a diverse kind of pharmaceutical potentials.

The synthesis of this heterocyclic system involves four-component coupling of ethyl acetoacetate with hydrazine hydrate or phenylhydrazine, aldehydes, and malononitrile in the presence of homogeneous and heterogeneous catalysts such as L-proline [23], amberlist A21 [24], γ-alumina [25], piperidine [26], triethylamine [27], cocamidopropyl betaine [28], basic ionic liquids [29], sodium benzoate [30], meglumine [31], silica-supported tetramethylguanidine [32], choline chloride–urea [33], cupreine [34], visible light irradiation [35], and supported molybdenum on graphene oxide/Fe_3O_4 [36]. Although these methods have their own merits, the implication of hazardous reagents and solvents, lengthy process, energy investment for heating purpose, and complications in the separation of products are the problems associated with these methods.

Owing to the numerous applications and bioactivity, the development of efficient, environmentally benign synthetic methodology for the preparation of these heterocyclic compounds using cost-effective, safe reagents, and solvents is highly desirable. Considering these aspects, herein, we wish to report a simple, efficient, eco-friendly process for the room temperature synthesis of pyranopyrazole and benzochromene derivatives using water extract of agave leaf ash, a waste-derived catalyst (Scheme 1). In our previously reported work, bael fruit rind ash extract was used as a catalyst for the synthesis of heterocycles in ethanol at room temperature [37]. We employed this catalytic system for the synthesis of pyranopyrazoles and benzochromenes in the absence of ethanol solvent; however, expected results were not obtained. Continuing our ongoing research with the aim to develop the novel catalytic system from the natural feedstock material, we turned our attention to agave leaf ash extract.

In this process, water extract of *Agave americana* leaf ash acts as both the catalyst and the solvent. This catalytic system provides an alkaline medium (pH = 12.9) and promotes the reaction efficiently. An *A. americana* L. (century plant, family: Agavaceae) is native to Mexico and the United States and naturalized in the West Indies, India, Africa, China, Australia, and Thailand [38]. Nowadays, it is cultivated worldwide as an ornamental plant [39]. It has numerous medicinal applications [40]. The fibers of leaves are used for the production of the fabrics and paper [41,42]. Literature report showed that there is a higher concentration of K and Ca elements while a lower concentration of Mg, Na, Zn, and P elements

Month 2019

An Eco-friendly Catalytic System for One-pot Multicomponent Synthesis of Diverse and Densely Functionalized Pyranopyrazole and Benzochromene Derivatives

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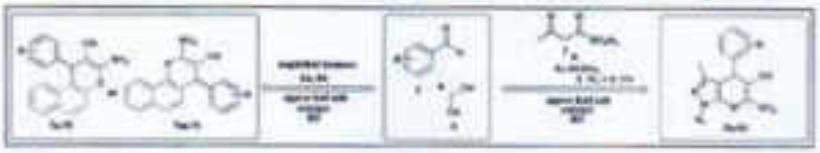

An external base-free, efficient, cost-effective, and environmentally benign protocol has been developed for the one-pot multicomponent synthesis of highly functionalized pyranopyrazoles and benzochromenes using water extract of *Agave americana* (century plant) leaf ash, a waste-derived catalyst, at room temperature. Mild reaction conditions, high yield, easy isolation of products, eco-friendly standards, and no chromatographic separation are the salient features of this protocol.

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INTRODUCTION

Pyrano[2,3-c]pyrazoles exhibit significant biological activities such as anticancer [1], anti-inflammatory [2], and analgesic [3] and also serve as potential inhibitors of the human chk1 kinase [4]. They also find applications as pharmaceutical ingredients and biodegradable agrochemicals [5–8]. The benzochromene heterocyclic compounds also show significant biological and pharmacological activities such as antimicrobial [9], antiviral [10], anti-inflammatory [11], antioxidant [12], antitubercular [13], antitumor [14], anticonvulsant agents [15], and central nervous system activity [16]. Figure 1 represents a glimpse of some bioactive pyrano[2,3-c] pyrazoles [3,4,17,18] and benzochromenes [19–22] exhibiting a diverse kind of pharmaceutical potentials.

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Mizoroki–Heck cross-coupling reactions using palladium immobilized on DABCO-functionalized silica

Sanjay Jadhav[1] · Seema Patil[2] · Arjun Kumbhar[2] · Santosh Kamble[3] · Rajashri Salunkhe[1]

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Abstract
A heterogeneous palladium catalyst supported on silica modified by DABCO has been prepared by post-synthetic modification of silica gel. This heterogeneous catalytic system exhibits high activity and stability in the Mizoroki–Heck cross-coupling reaction of various aryl halides with olefins. The reaction proceeds efficiently under efficiently under mild mild reaction conditions and high yield, with the formation of *E*-isomers selectively. Moreover, we successfully established a gram-scale synthesis, and the catalyst was reused for up to ten catalytic cycles.

Introduction

An important part of modern chemistry is based on the use of precious platinum group metal (PGM) catalysts [1–9]. In particular, Pd, which is an active metal with high demand, has been most widely used for the fabrication of carbon–carbon and carbon–heteroatom bonds for the production of intermediates of biologically active compounds, natural products and fine chemicals [10–13]. The Pd-catalyzed coupling of olefins with aryl or vinyl halides [14] to form a C–C bond is known as the Mizoroki–Heck cross-coupling reaction and has been widely used for the synthesis of important compounds like flavoring agents, pharmaceuticals, agrochemicals and UV absorbents [15, 16].

Though the Mizoroki–Heck cross-coupling reaction has been most widely applied with homogeneous catalysts [17–20], it suffers from various disadvantages such as tedious workup procedures, lack of reusability and contamination of residual metals in the desired product. These disadvantages can be overcome by using heterogeneous catalysts, via immobilization of Pd on various solid supports such as polymers [21], activated carbons [22], metal oxides [23], biopolymers and zeolites [24]. Recently, it has been found that Pd complexes with various ligands supported on silica have considerable utility in various cross-coupling reactions including Mizoroki–Heck cross-coupling reaction [25, 26], as silica displays many advantageous properties such as excellent chemical and thermal stability, good accessibility and porosity. In addition, the organic groups can be easily grafted on the silica surface by simple post-synthetic modifications [27].

As amines are less toxic, inexpensive, easy to handle and less air sensitive, catalytic systems based on DABCO might be ideal to carry out the Mizoroki–Heck cross-coupling reaction under phosphine-free conditions [28–31]. DABCO is a cage-like, small diazabicyclic molecule with medium steric hindrance and has received considerable attention as an organocatalyst for various organic transformations [32–35]. In 2014, Li et al. [36] reported the first use of DABCO as a ligand in Pd-catalyzed phosphine-free cross-coupling reactions, while our research group reported [37] Pd–DABCO supported on SiO_2 as an effective reusable catalyst system for Suzuki–Miyaura cross-coupling in aqueous ethanol using K_2CO_3 as a base at 80 °C. The results showed that the catalyst could be used to convert a variety of aryl bromides and boronic acids to the desired coupling products in good-to-excellent yields, which encouraged us to use this catalytic system for Mizoroki–Heck cross-coupling reactions. As a matter of fact, we succeeded in obtaining a very rapid and quantitative conversion of various aryl bromides with different olefins into a variety of coupling products in DMF using K_2CO_3 as a base at 100 °C temperature and with high selectivity.

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Green protocol for the synthesis of 1,8-dioxo-decahydroacridines by Hantzsch condensation using citric acid as organocatalyst

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Herein we describe a clean and sustainable, one-pot, multi-component protocol for the synthesis of 1,8-dioxo-decahydroacridines by Hantzsch condensation of cyclic 1,3-dicarbonyl compound and NH_4OAc with diverse aryl aldehydes using citric acid as an inexpensive green additive in ecological safe solvent. Utilization of cheaper and safer catalyst, cleaner reaction profile, straightforward work-up procedure and good to excellent yields of the desired product are the noteworthy aspects of this method.

Keywords: Acridines, citric acid, organocatalysts, green protocol, multi-component reactions.

OUR environment needs to be protected from the growing amounts of waste and toxic by-products that sequentially lead to chemical pollution. Therefore, synthetic chemists are interested to develop relatively safer technologies which play a vital role in green chemistry. Establishing newer chemical transformations should satisfy the green principles such as non-toxic, non-flammability, eco-friendly medium, and separation as well as recycling of the catalysts. Since the last decade, efforts have been made towards the design and synthesis of an environment-friendly method with respect to reagents, catalysts and solvents that could be easily biodegradable[1,2]. Multi-component reaction (MCR) strategies have been widely used in the convergent synthesis of complex organic entities. The MCRs uses simple and easily available starting materials and provide high atom economy and selectivity. It is one of the important synthetic tools available to achieve both economic and environment-friendly goals. Therefore, the synthesis of heterocyclic compounds using significant bioactivities with MCR support is an important pursuit in organic synthesis.

Synthesis of acridines is a growing area of interest due to polyfunctionalized groups with a wide range of biological activities[3]. Among them, 1,8-dioxo-decahydroacridines is an important class of aza-heterocycles in which a phenyl-substituted pyridine ring is fused with two cyclohexanone rings. These structures contain 1,4-dihydropyridine (1,4-DHP) as a parent core, which acts as fluorescent probes in bioanalytical chemistry[4] and also used as potential drug candidates for the treatment of cardiovascular diseases. Some of these compounds are used in dye-sensitized solar cells and in the preparation of blue light-emitting devices[5,6]. In addition, 1,8-dioxo-decahydroacridines have been widely employed as DNA intercalators, SIRT1 inhibitors, and calcium and potassium channel modulators[7,8]. Several studies have revealed that these heterocycles exhibit numerous medicinal applications which include antitumour, calcium-channel blockers, antileukemic, antifungal, anticancer, anti-atherosclerotic and bronchodilator[9–11]. They are also used as laser dyes, chemosensors and initiators in the photopolymerization process. These derivatives are highly important due to their structural similarities with coenzyme nicotinamide adenine dinucleotide (NADH), which plays an important role in biological systems.

The most common route for the synthesis of 1,8-dioxo-decahydroacridines is the condensation of a diverse range of aryl aldehydes, dimedone or cyclic 1,3-dicarbonyl compounds with various nitrogen sources such as ammonium acetate, urea, ammonium hydroxide, ammonium bicarbonate and hydroxylamine[14–18]. A variety of catalysts such as sulphonated polyethylene glycol ($PEG–OSO_3H$), silzic ($SiO_2–ZnCl_2$), silica boron–sulphuric acid, proline, $Zn(OAc)_2$, nano nickel cobalt ferrite ($Ni_{0.5}Co_{0.5}Fe_2O_4$), carbon-based solid acid, Bronsted acidic imidazolium salts, ascorbic acid, acetic acid, tris(pentafluorophenyl) borane/$B(C_6F_5)_3$, silica-supported polyphosphoric acid, ammonium chloride, silica-supported Preyssler nanoparticles have been employed in this reaction[19–32]. However, most of these reported methods have certain drawbacks such as use of toxic and corrosive solvents, expensive reagents, tedious preparation of catalyst, prolonged reaction times, complicated work-up procedure, harsh reaction

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CHEMICAL SCIENCE TRANSACTIONS

Acceptance Letter

Date: 21/06/2019 05.50.18

To: "Chemdept2019" sanyujapatil@yahoo.com

From: "Dr. N.A.Mohamed Farook" editor_ejc@yahoo.com

Subject: Decision on your manuscript **#CST-1589**

Dear **Suresh Patil:**

I am pleased to inform you that your manuscript, **"Bael Fruit Ash Water Extract (BFAWE): A greener benchmark for the synthesis of tetrahydrochromeno[4,3-8]chromene-6,8-diones and benzylpyrazolylcoumarins"** has been accepted for publication in Chemical Science Transactions.

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Thank you.

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Close

Bael Fruit Ash Water Extract (BFAWE): A greener benchmark for the synthesis of tetrahydrochromeno[4,3-B]chromene-6,8-diones and benzylpyrazolylcoumarins

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Abstract A simple and environmental-friendly synthetic protocol has been developed for the synthesis of tetrahydrochromeno[4,3-b]chromene-6,8-dione derivatives by condensation of 4-hydroxycoumarin with aromatic aldehydes and dimedone in the presence of bael fruit ash water extract (BFAWE) in aqueous medium. This green protocol was further extended for structurally diverse benzylpyrazolylcoumarins by condensation of equimolar quantity of ethylaceto acetate, hydrazine hydrates, 4-hydroxycoumarin and aromatic aldehydes in good to excellent yields. The advantage of this method includes a mild, efficient and highly economical protocol under aerobic conditions at very short reaction time, under ligand/external catalyst/external promoter-free conditions. This protocol is better and more practical alternative to the existing protocols for green processes.

Keywords green protocol, natural catalyst, bael fruit, tetrahydrochromeno[4,3-b]chromene-6,8-diones, benzylpyrazolylcoumarin, 4-hydroxycoumarin.

Bael Fruit Ash Water Extract (BFAWE): A greener benchmark for the synthesis of tetrahydrochromeno[4,3-B]chromene-6,8-diones and benzylpyrazolylcoumarins

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X-RAY DIFFRACTION ANALYSIS OF Ni-Cu-Zn NANO-FERRITE SYNTHESIZED BY WET CHEMICAL ROUTE

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ABSTRACT: *Ni-Cu-Zn nano-ferrite with composition $Ni_{0.7}Cu_{0.1}Zn_{0.2}Fe_2O_4$ was synthesized by wet chemical rout. The structural parameters such as lattice constant (a), crystallite size (D), bond lengths (A-O, B-O), ionic radii (r_A, r_B), X- ray density (ρ_x), hopping lengths (L_A, L_B) were obtained from X- ray diffraction analysis. The presence of allowed planes in the X- ray diffraction pattern confirms the formation of single phase cubic spinel structure. It was found that the values of lattice constant and X-ray density of the ferrite are similar than that reported for ferrite prepared by citrate precursor method followed by microwave sintered technique. Crystallite size of the ferrite lies in nano-size range and which is much lower than that reported for ferrites prepared by ceramic as well as citrate precursor methods. Bond length (B-O) and ionic radii (r_B) on octahedral site are higher than that of observed for tetrahedral site. Hopping length of ferrite on tetrahedral (A) site is higher than that of octahedral (B) site.*

Keywords: *nano-ferrite; wet chemical route; Ni-Cu-Zn ferrite; X-ray diffraction*

1. Introduction

Recently researchers in different fields are engaged in the development of nano-materials in the form of nano-ferrites. A nano-ferrite material has excellent and improved properties as compared to that of reported for bulk materials. These materials are technologically important and used in many applications such as including magnetic recording media and magnetic fluids for the storage and or retrieval of information, magnetic resonance imaging (MRI) enhancement, magnetically guided drug delivery, catalysis, sensors and pigments [1-3]. Recently instead of Ni-Zn and Mg-Zn nano-ferrites, there is a growing interest on the synthesis of copper substituted nano-ferrites because of its growing applications.

Various chemical methods such as reverse micelle method, auto-combustion method, oxalate based precursor method, microwave sintering method, sol-gel method etc were used to prepare Ni-Cu-Zn nano ferrites. Ghasemi et al. [4] prepared copper substituted Ni-Zn nano-crystalline ferrites by reverse micelle process. They reported that the saturation magnetization of Ni-Zn ferrites decreases with increasing copper content. Ni-Cu-Zn nano-ferrites prepared by auto-combustion method utilized for the fabrication of multilayer chip inductor [5]. Raghavender et al. [6] studied structural and dielectric properties of Ni-Cu-Zn ferrites synthesized by oxalate precursor method. They reported that the dielectric constant and loss of these ferrites are lower than that of reported by other synthesis methods. The structural, magnetic and electrical properties of Ni-Cu-Zn ferrites followed by microwave sintering technique have been reported by Reddy et al. [7]. They revealed that ferrite material obtained by microwave technique has improved electro-magnetic properties. They also suggested that these ferrite materials are suitable for the fabrication of multilayer chip inductors used in the electronic devices.

In present communication, we discuss structural parameters of Ni–Cu-Zn ferrite prepared by wet chemical method.

2. Experimental

2.1 Synthesis of Ni-Cu-Zn ferrite.

Ni-Cu-Zn nano-ferrite with composition $Ni_{0.7}Cu_{0.1}Zn_{0.2}Fe_2O_4$ was prepared by wet chemical method using sulphates as the starting materials. AR grade ammonium oxalate was used as a precipitating reagent. The required sulphates were weighed in desired proportion with the help of higher accuracy digital micro-balance and poured in the double distilled water. The dropwise conc. sulphuric acid was added in the solution of mixture with continuous stirring. The magnetic stirrer was used for stirring. Ammonium oxalate solution was added in the solution until precipitation process was completed. The precipitated solution was filtered and washed several times. The precipitate was dried and pre-sintered at 400°C for 2 hours. The pre-

PERMEABILITY AND MICROWAVE ABSORPTION PROPERTIES OF DYSPROSIUM SUBSTITUTED MAGNESIUM FERRITE

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Abstract: $MgDy_{0.03}Fe_{1.97}O_4$ ferrite material prepared by chemical combustion method. Frequency and thermal variation of complex permeability and loss tangent of the prepared ferrite materials was studied by using a Hioki LCR-Q meter. The real part of initial permeability increases where as imaginary part of initial permeability and loss factor of the ferrites material decreases with increasing frequency. Also the permeability of the resulting ferrites increases while loss factor decreases with increasing sintering temperature. The microwave absorption properties of dysprosium substituted magnesium ferrite have been carried out by using Field Fox vector network analyzer in frequency range 2MHz to 6GHz.The prepared ferrite material shows reflection loss of -17.15dB and voltage standing wave ratio (VSWR) is 1.37 at 4.08 GHz.

Keywords: Dy-Mg ferrite, Combustion, Permeability

1. Introduction

Magnesium ferrite is soft magnetic semiconducting materials have number of applications in magnetic technology, adsorption sensors and catalysis [1]. The performance of magnesium ferrites at higher frequencies is good due to its high resistivity, low magnetic and electric losses [2, 3]. Effect of rare earth ion doping into spinel structure produces structural distortions which induces strains and hence modifies its magnetic as well as electrical properties [4-7]. Recently researchers have synthesized nano-sized ferrite material due to its important structural, electrical and magnetic properties for different applications in sensors,magnetic storage, electronic and microwave devices.

V. Naidu etal [8, 9] have been reported physical properties of metal ion substitutions such as Sm-Gd, Ce-Gd on magnesium ferrite. The structural and magnetic properties of dysprosium substituted magnesium ferrite were reported by Bamzai etal [10]. They have studied magnetic hysteresis loop and explain the ferromagnetic nature of dysprosium doped magnesium ferrite. Rezlescu etal [11] have studied the effect of rare earth ions on magnetic and electrical properties of nickel zinc ferrite. They have showed that the substitutions of iron ions by rare earth ions provide clearly improved temperature characteristics of the initial permeability. A. Loganathan etal [12] prepared pure and Sr-substituted $MgFe_2O_4$ by co-precipitation method and showed that structural, optical and magnetic properties of prepared ferrite strongly dependent on calcination temperature. Juhua Luo etal [13] studied magnetic and microwave absorption properties of rare earth ions doped strontium ferrite. They have shown that Er doped strontium ferrite got better microwave absorption performance at frequency 13.8GHz. Alagarsamy etal [14] synthesized Mg doped ferrite with Samarium, Dysprosium through sol-gel method. They have showed that prepared ferrite material used for microstrip patch antenna had an acceptable microwave performance with VSWR ≤ 2, return loss of 9.799 dB at frequency 3.5 GHz. The main objective of present work to study frequency and thermal variation of permeability as well as microwave absorption performance of dysprosium substituted magnesium ferrite material.

2. Experimental

The composition $MgDy_{0.03}Fe_{1.97}O_4$ was synthesized by chemical auto combustion route, in which metal nitrates are used as an oxidizing agent and fuel glycine as a reducing agent [15].The as-burnt powder was mixed with small amount of polyvinyl alcohol and uniaxially pressed at 6 tones/inch to form torroid shaped sample with inner diameter 1cm, outer diameter 2cm and thickness 15mm. The samples were sintered at 950°C and 1050°C for 1hour respectively. Powders acquired after combustion and sintering were characterized by X-ray powder diffraction using an X-ray diffractometer. The microstructural aspects were studied with a scanning electron microscope. The initial permeability and complex permeability with temperature and frequency variation were calculated by using Ls and Q factor values obtained from Hioki

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ORIGINAL RESEARCH

Effect of La^{3+} substitution on structural and magnetic parameters of Ni–Cu–Zn nano-ferrites

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Abstract
The ferrite material with compositions $Ni_{0.7}Cu_{0.1}Zn_{0.2}La_xFe_{2-x}O_4$ (where $x = 0$, 0.015, 0.025, and 0.035) was synthesized by oxalate co-precipitation method. The ferrite samples were characterized by thermo-gravimetric and differential temperature analysis (TG–DTA), energy-dispersive X-ray analysis (EDAX), X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), field-emission scanning electron microscopy (FE-SEM), and vibrating sample magnetometer (VSM) techniques. The EDAX analysis confirmed the formation of required stoichiometric ferrite samples. The formation of cubic spinel structure with the presence of weak ortho-ferrite phases was confirmed from X-ray diffraction analysis. The lattice constant of all the ferrites was found to be increase with increase in La^{3+} content. The presence of main two recognized strong absorption bands in the frequency range 400–600 cm^{-1} in the FTIR spectra shows the formation of well spinel ferrite. Morphological study shows that grain size of the ferrites lies in the range 16.23–24.21 nm. It is observed that the saturation magnetization and magnetic moment of Ni–Cu–Zn ferrites decrease with La^{3+} content.

Keywords Ni–Cu–Zn nano-ferrite · XRD · FTIR · FE-SEM · VSM

Introduction

Soft-ferrite materials are mostly useful material because of its technological and industrial applications. These applications are depending on their properties such as high resistivity, moderate permeability, low dielectric loss, low permittivity, etc. These properties play an important role in the fabrication of components such as a transformer core, antenna rods, multi-layer chip inductor, micro-inductors, electromagnetic filters, etc. [1–4]

Recently, researchers synthesized ferrites in the form of nanoscale range because of its growing applications such as production of bio-diesel [5], nano-catalyst [6], humidity sensor [7], gas sensor [8], super-capacitor [9], electrode material for Li-ion battery [10], etc. Various methods such as sol–gel auto-combustion, co-precipitation, citrate precursor, wet chemical route, hydrothermal [11–15], etc. were used for the preparation of nano-ferrite materials.

In the last decade, researchers investigated various properties of Ni–Zn ferrites due to their interesting properties such as high resistivity, high permeability, and low eddy current losses. Recently, Ni–Zn ferrite material was used in high-frequency applications such as multi-layer chip inductors and electromagnetic interference filters. Das and Singh [16] investigated the structural, magnetic, and dielectric properties of Cu-substituted Ni–Zn ferrites. They reported that the coercivity and saturation magnetization of Ni–Zn ferrites improved by substituting Cu content. Avati et al. [17] illustrated that the poor

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Thermal and Frequency Variation of Permeability for Samarium–Dysprosium–Magnesium Ferrite

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Samarium–dysprosium–magnesium ferrite materials have been prepared by chemical combustion method. The effect of samarium–dysprosium rare earth ions on loss factor, real and imaginary part of permeability has been studied for $Mg[(Sm)_{0.x}(Dy)_{0.x}]_xFe_{2-x}O_4$ ($x = 0.01$ and $x = 0.03$) ferrite materials with temperature and frequency by using a Hioki LCR-Q meter. From thermal variation of loss factor of prepared ferrite materials, it is revealed that ferrite must be used below Curie temperature for low loss factor. The real part of initial permeability initially increases with frequency and for higher frequency its value almost remains constant. The loss factor and an imaginary part of permeability of the ferrite materials decreases with increasing frequency.

1. Introduction

Magnesium ion plays an important role in the densification and grain growth during the formation of ferrite material.[1] With rare earth ion substitution electrical as well as magnetic properties of ferrites are influenced.[2] Due to larger ionic radii, rare earth ions have limited solubility and hence there will be limitations on their concentration of substitition/doping into the spinel of the ferrite.[3] Several researchers[4–7] observed secondary phase formation in addition to cubic spinel structure of rare earth substituted ferrites. They reported that secondary phase formation in the spinel structure is may be due to Re–Fe interaction. It is found that, for smaller percentage of rare earth, secondary phase does not exist. But substitutions of large amount of rare earth ions into the spinel structure form the orthoferrite phase, producing structural distortion and thereby induce strain, which modifies structural, magnetic, and electrical properties.[8] Reddy et al.[9] studied XRD pattern of composite materials and confirmed the biphasic nature of materials. Sattar et al.[10] synthesized rare earth ions (Sm, Dy, La, Nd, Gd) doped Cu–Zn ferrites by ceramic technique and found that magnetization and permeability of Sm and La doped ferrites become higher, whereas Dy and Gd doped ferrites become lower. They observed higher permeability and lower magnetization for Nd doped Cu–Zn ferrites as compared to undoped ferrites. Loganathan et al.[11] showed that structural, optical, and magnetic properties of Sr-substituted magnesium ferrites strongly depend on calcination temperature. Effect of thermal processing on the tribological of nanocrystalline Ni/TiO_2 coatings have been reported Cooke and Khan.[12]

The aim of present work is to investigate magnetic properties of rare earth substituted Mg ferrites in the form of permeability and loss factor with thermal and frequency variation.

2. Experimental Section

2.1. Materials

Magnesium, ferrous, samarium, and dysprosium nitrates were used as oxidizing agents and fuel glycine as a reducing agent.

2.2. Synthesis

Ferrite with composition $Mg[(Sm)_{0.x}(Dy)_{0.x}]_xFe_{2-x}O_4$ for $x = 0.01$ and 0.03 were synthesized by chemical combustion route. The magnesium nitrate ($Mg(NO_3)_2$), ferrous nitrate ($Fe(NO_3)_2$), samarium nitrate ($Sm(NO_3)_2$), and dysprosium nitrate ($Dy(NO_3)_2$) were weighed in required proportion and dissolved in double distilled water. The soultion was heated until ignition process of the material is completed.[13] The resulting powder was decomposed in air at 600 °C and finally sintered at 1000 °C for 1 h. The toroidal shaped samples were prepared by using dye with the help of hydrolic press. Torroidal samples were sintered at 1000 °C for 1 h.

2.3. Characterization and Magnetic Properties

X-Ray diffractometer was used to characterize the ferrites. The thermal and frequency variation permeability and loss factor parameters of magnetic properties were obtained by measuring La and Q-factor values by using LCR-Q meter (42 Hz to 5 MHz).

3. Results and Discussion

The typical X-ray diffraction pattern of the $Mg[(Sm)_{0.x}(Dy)_{0.x}]_xFe_{1.99}O_4$ system is shown in Figure 1. The presence

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CORRELATION ANALYSIS OF ATPADI RESERVOIR OF SANGLI DISTRICT, MAHARASHTRA

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ABSTRACT

This paper describes the physico- chemical profile and correlation matrix of Atpadi perennial reservoir of Sangli in Maharashtra where limnological studies were conducted from August 2016 to July 2018. The physico-chemical parameters varied seasonally. The Secchi disc values varied from 11.4 to 66.9 cm. The pH remained alkaline between 7.9 to 8.8 in both years. The dissolved oxygen varied from 4.2 to 8.2 mg/l during both years. The total alkalinity values ranged between 114.6 and 247.6 mg/l. The total hardness values varied from 111.3 to 365.6 mg/l for both reservoirs. Calcium content was fluctuated from 41.6 to 65.0 mg/l. The magnesium values are ranged between 29.6 to 36.5 mg/l. The values of total dissolved solids were observed from 210.3 to 521. Chlorides and total dissolved solids were maximum during summer and minimum in winter season. The reservoir may be placed under the category of oligotrophic in winter season. In correlation matrix free carbon di-oxide is negatively correlated with all parameters.

Key words: Physico-chemical parameters, Correlation coefficient, Perennial reservoirs.

INTRODUCTION

India has vast fresh water resources in the form of both lentic and lotic ecosystems. The lentic ecosystems include ponds, lakes, tanks and reservoirs. The perennial reservoirs play an important role as a valuable water resource for domestic, agriculture and aquaculture. The lentic ecosystems have long attracted attention of ecologists, both for their importance as a source of drinking water and the development of fisheries.

Several limnological studies have been carried out in this region, notable among these are of Kamat (1965), Goel *et al* (1988) and Bhosale *et al* (1994). Most of the studies were carried out in water bodies of urban area. Few of studies from rural area are reported by Hujare (2008) and Jadhav *et al* (2009).

The study has been designed to understand the hydrobiological features of reservoir, to assess water quality which will state the potability, suitability for fish culture and irrigation purpose.

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Water Quality Status Of Fresh Water Of Bhakuchi Wadi From Sangli District Of Maharashtra (India)

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Abstract:

The study represents on influence of environmental parameters on water quality at Bhakuchi wadi reservoir in Khanapur tahsil of Sangli district on the basis of water quality (WQI). WQI was determined on the basis of various parameters like pH, dissolved oxygen, total alkalinity, total hardness, calcium, magnesium, chlorides, total dissolved solids (TDS) and biological oxygen demand (BOD) for which no earlier reports are available on this water body.

During this investigation, it was observed that some parameters are within the range prescribed by WHO, ICMR, BIS etc. But some parameters are beyond the permissible limit.

Key Words: *Bhakuchi wadi reservoir, WQI, Sangli district, Maharashtra.*

Introduction:

Fresh water has become a scarce commodity due to over exploitation and pollution of water. Increasing population and its necessities has lead to the deterioration of surface and subsurface water.

Water is the prime natural resource, a basic human need and a precious national asset. The quality of water is of vital concern for mankind since it is directly linked with human welfare. Water is utilized for domestic purpose, for industrial applications, agriculture purpose, as well as for inland fishery.

Water and life are two sides of the same coin. Life initiates and grows in the lap of water. Water is very vital to all forms of lives from very small organisms to very complex systems of plants, animals and human being. The purity of water varies from place to place in nature.

Water Quality Index (WQI) is one of the most effective tools to communicate information on the quality of water to concerned citizens and policy makers (WHO 1993, APHA 1992, ICMR 1975).

The WQI evaluates the values to each water quality parameter relative to its objective value. WQI is based on some important parameters that can provide a simple indicator of water quality. It gives the public a general idea of the possible problems with water in a particular region. Nine parameters were taken for WQI calculations namely, pH, dissolved oxygen, total alkalinity, total hardness, calcium, magnesium, chlorides, total dissolved solids and biological oxygen demand. The water quality index is unit less single dimensional number between 0 and 100.

Material And Methods:

Study Area:

The Bhakuchi wadi is small village located at northern part of Khanapur tahsil and northern part of district 70 km away from district place. The village is known for its minor reservoir. In 1988-91 Irrigation Department has constructed earthen dam riveted with stones. The water is used for irrigation also for washing, batting and fishing activities. The reservoir is much influenced by human activities and weeds.

The total catchment area is 261.24 sq. miles, the total capacity of storage is 680.33 Mcft and dead storage is 59.96 Mcft. Length of dam including slipway is 150 meter having clear overflow type of slipway. The height of dam is 19.70 meter and is of eathern type. The submergence area is 108.80 hectare. The bottom of reservoir is rocky. Hence reservoir shows very less macrophytes.

During rainy season i.e. from mid June, July, August and September the farmers allow their buffallows grazing on lush green grasses in catchment area. Very less macrophyte occur in the reservoir.

The reservoir stores rain water received from adjoining catchment area and is much influenced by anthropogenic activities.

The sampling sites were selected by considering the inflow, outflow and anthropogenic

Awareness of Health in College Girls

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Abstract:

Health is an asset to human being, his community and has come to be regarded as prerequisite to socio economic development. The health of Indian women is intrinsically linked to their status in society. There is a strong male child preference in India, as sons are expected to care for parents as they age. The son preference, high dowry costs for daughter, low level of education, under the control of first their father, then husband, and finally sons. All these exert the negative impact on health status of Indian women. Women in poor health affect household, economic wellbeing, less productive in labour force and gynaecological problems.

The study was conducted from June 2016 to June 2017 in our college (B.Sc. girl's students) to analyze the haemoglobin count and associated their health problems. The data was collected from 100 girls with the help of questionnaires for same. The identify problems are weakness, anaemic condition, low Hb count, menses problem, vertigo and gynaecological problems.

Key Words: Hb Count, Health problems.

Introduction

Health is an asset to human being. The health care in rural areas is low as compared to urban areas. Under these circumstances, it is considered worthwhile to take a stock of health status of rural girls in the age of 16 to 22 years. The haemoglobin concentration of the blood is widely used as a tool in assessment of health. In these respect children from 6 years and women provides much attention. The state of knowledge concerning haemoglobin level in this age group is still unsatisfactory because majority of girls are suffered from number of deficiency systems and anaemia. Undoubtfully, this may shows adverse effect on growth of body and create future problems. They ignore the nutrition necessities of the girls even when they are married, pregnant and need most. The household responsibilities of female and lack of nutritious food causes no. of health hazards to rise among them.

The iron needs are highest in growing girls because of increased requirements for expansion of blood volume associated with growth spurts and onset of menstruation. (Beard JL, 2000). Thus growth spurts, menarche, poor diet, no added iron supplementation puts them into the high risk category of iron deficiency anaemia. These girls after marriage subjected to added demands for iron during pregnancy hence they need to have better status of haemoglobin. Regulation of iron balance occurs mainly in the gastrointestinal tract through absorption. Iron in diet is present in heme and non heme forms. These two forms are absorbed differently. Heme form is present in meat, chicken and is absorbed two to three times faster than the non heme form which is found in plant based foods and iron fortified foods. (Mangels R, 2000) Enhancers of iron absorption are heme iron and vitamin C; inhibitors of iron absorption include polyphenols, tannin and calcium. (Siengenberg D et al, 1991)

EFFECT OF BIOFERTILIZERS ON PHENOLOGY OF MAIZE (ZEA *MAYS* L.) VARIETY - GANGA

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ABSTRACT

An attempt has been made to study the effect of *Azotobacter* and *phosphate solubilizing bacteria* (*PSB*) on Phenology of Maize (*Zea mays* L). variety –Ganga at farmland of Dhavali Dist.Sangli, Maharashtra. The experiment was carried out in a randomized complete block design with three replications. The phenological parameters like plant height, number of leaves per plant, length of leaves, stem and cob diameter and length of cob are measured. It is revealed from the experiment that, there is considerable enhancement in Phenological parameters. The value of 'treatment means' were compaired using least significance difference ($p<0.05$).It is evident from the results biofertilizer treatment producing high yeild in maize variety Ganga.

KEYWORDS – Maize (Zea mays L.) variety –Ganga, Phenology, etc.

INTRODUCTION –

Maize (*Zea mays* L.) is a most important cereal crop after wheat and rice. Every part of the maize plant has economic value which the grain, leaves, stalk, tassel and cob can all be used to produce large variety of food and non food production (IITA, 2006). Apart from this, corn is an important industrial raw material and provides large opportunity (Paroda, 2000).Maize is a C_4 mode of carbon fixation plant efficiently utilizes inputs because of its rapid growth and high biomass (Miller *et al*.2010).Beyranvand *et al* 2013 suggested that effect of nitrogen and phosphate biofertilizers were evaluated positively, there were an increase in plant height, ear weight, ear length and grain yield. The productivity of maize is dependent on its nutrient requirement and management particularly that of nitrogen, phosphorus and potassium (Arunkumar, 2007). The extensive research programme over the years on beneficial bacteria and fungi has resulted in the development of a wide range biofertilizer which not only fulfill the nutrient requirement of various crop species but increase the crop yield and nutrient composition. *Azotobacter* species besides playing a role in nitrogen fixation, it has the capacity to synthesize and secrete considerable amounts of biological active substances like vitamins, gibberellins and auxins (Suhag, 2016)

Maize seeds used for human food and animal fodder. Selected and applied methods of biofertilizer increasing integration in production and also coexist environment free from pollution.

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Effect of Biofertilizers on Chlorophyll contents of Maize (*Zea mays* L.) Variety Eco-92

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Abstract: **An attempt has been made to study the effect of different biofertilizers such as Azotobacter and *Phosphate solubilizing bacteria, (PSB)* on chlorophyll content on maize (*Zea mays* L.) variety Eco-92. The experiments were carried out in a randomized complete block design with three replications. The biofertilizers used were Azotobacter (A), phosphate solubilizing bacteria (P) and combine treatment Azotobacter + phosphate solubilizing bacteria (A +P), without treatment was control. The comparative extraction of chlorophylls (Chlorophyll a, chlorophyll b and total chlorophyll) And carotenoids from Eco-92 by 80% acetone as extraction method (Arnon, 1949) was studied. The study relates to the amount of concentration of chlorophyll and carotenoids between the control and treated of maize crop. Investigation revealed that method of Arnon (1949) [1], is simpler method for extracting the pigment molecules along with other methods used for extraction and results showed higher content of chlorophyll-a, Chlorophyll-b, total chlorophyll and Carotenoids in the treated plants in comparison with the control plants. By the application of biofertilizers treatment levels were corresponding to (TA_1), (TP_1),($TA+P_1$) respectively to the treated fodders, little amount of differences were observed in the concentrations of pigments between treated and control plants selected for present study.**

Keywords: **Chlorophyll, carotenoids Azotobacter, *PSB*, Eco -92 etc.**

I. INTRODUCTION

Maize is an important staple food crop, occupies a prominent place among cereals and first rank in terms of productivity and third in total area and production after wheat and rice, while in India it strands fourth ranks next to rice, wheat and Jowar in terms of area and production. Total pigment molecules present in the leaf, are chlorophyll-a, chlorophyll-b and total chlorophyll, carotenoids which are essential for photosynthesis[10],[11]reported that the chlorophyll coloration is related to the amount of nutrients absorbed by the plant from soil, This crucial Pigment also plays role as an index of plant growth and production of organic matter. Biofertilizers contain micro-organism that increases or promotes the important nutrients crucial for overall production the soil [9]. Biofertilizers applied to the soil supply of plant nutrients for crop growth and serve as important instruments in yield development and physiological processes. Moreover, they play important roles in photosynthesis capturing light energy which is converted into chemical energy [3], [15]. Most plants possess chlorophyll a and chlorophyll b which are the main photosynthetic pigments. Chlorophylls and carotenoids are essential pigments of higher plant assimilatory tissues and responsible for variations of color from dark-green to yellow. Carotenoids provide bright coloration, serve as antioxidants, and can be a source for vitamin A activity [4]. N is a key element in chlorophyll, therefore is usually a high correlation between them [13]. Positive correlation of nitrogen and chlorophyll is previously reported by some researchers [7]. The distribution of chlorophyll is the key indicator of crop

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RESEARCH ARTICLE

EFFECT OF BIOFERTILIZERS ON YIELD AND YIELD COMPONENTS OF MAIZE (*ZEA MAYS* L.)VARIETIES ECO-92 AND AFRICAN TALL

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ABSTRACT

An attempt has been made of study the effect of different biofertilizers such as *Azotobacter* and *Phosphate Solubilizing Bacteria* (*PSB*) on yield and yield components of Maize (*Zea mays* L.) varieties viz.Eco-92 and African tall. The experiments were carried out in a randomized complete block design with three replications. The yield parameters like weight of cob, diameter of cob, length of cob, number of rows per cob, weight of grains, number of grains per cob, weight of 100 grains, grain yield Kg/ha . Result showed that, maize yield and yield components were significantly different at ($p \leq 0.05$) higher in application of biofertilizers treatments. However, treatment with combined application of *Azotobacter+PSB* biofertilizer (A+P) biofertilizers had the highest weight of cob and grain yield Kg/ha as compared to control. Overall, *Azotobacter* and *PSB* biofertilizers improved the quality and quantity of yield.

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INTRODUCTION

Maize (*Zea mays* L.) being an important staple food crop after Rice and Wheat throughout the world (FAO, 2002), Maize originated from Mexico. Every part of the maize plant has economic value and cob can all be used to produce a large variety of food and non-food production (IITA 2006).Apart from the soil the fertility and productivity issues, use of chemical fertilizers are also becoming more and more difficult for the farmers due to their high costs. Large amount of chemical fertilizers and pesticides are being used for its higher yield production, but the problem is, they influence human and environmental health. To get rid off from the problems, we required to alter ways of increasing yield production by applying biofertilizers (Shevananda, 2008).Nitrogen and phosphorus are essential nutrients for plant growth and development in Maize.N_2-fixing and P-*solubilizing bacteria* are important for plant nutrition by increasing N and P uptake by the plants and playing a significant role as that like biofertilizer, so *Azotobacter* and *Phosphate solubilizing bacteria* are used in this study.

Though nitrogen and phosphorous are essential nutrient for plant growth and development in corn, biofertilizers are able to fix atmospheric nitrogen in the available form of plants (Chen, J.2006). For highest grain yield in agriculture in addition to both, the nitrogen and phosphate fertilizer are very important (Shahsin.2013 a.b). Biofertilizers include mainly the nitrogen fixing, phosphate solubilizing and growth promoting microorganisms (Goel *et al.*, 1999). Among biofertilizers benefitting the crop production are *Azotobacter, Azospirillum*, Blue green algae, *Azolla* (Hegade *et al.*, 1999) Application of biofertilizer provides effective implementation of biological mechanisms of plant nutrition, growth promotion and protection (Bashan and Levanony, 1990, Doeberiner, 1995).In Maize the present positive effect of biofertilizers on growth, yield and yield component was revealed because of the increasing demand for food and livestock feed. The similar results are concurved in case of barley (Azimi *et al.*2013). *Azotobacter* species besides playing a role in nitrogen fixation it has the capacity to synthesize and secrete considerable amounts of biological active substances like vitamins, gibberellins and auxins (Subag, 2016).

Allelopathic Influence of *Celosia argentea* L. on Photosynthetic Pigments of Wheat (*Triticum aestivum* L.)

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ABSTRACT

Celosia argentia L. is dominant alien weed reported from crop field of Islampur in Walwa taluka of Sangli district of Maharashtra, India. It has been scrutinized for its allelopathic potentiality of *C. argentea* against photosynthetic pigments such as chlorophyll- a, b and carotenoids in wheat. The laboratory pot assay experiments were conducted to assess photosynthetic pigments. The healthy seeds of wheat were soaked in different concentrations of leachates of *C. argentea* L separately. The concentrations of leachate were, 5, 20, 40, 60, and 80%. The seed were sown in earthen pots containing the mixture of garden soil and manure (3:1). The seeds supplied with distilled water were used as control. The aqueous leachates of *C. argentea* L. were applied with respective concentrations regularly up to 25th day of growth to both plants. Analysis photosynthetic pigments were carried out on the 25th day of growth. The amounts of chlorophyll a and b were enhanced after leaf leachate treatments in wheat while inhibited after inflorescence and root leachates of *C. argentea*. It was recorded that the amounts of total chlorophyll and carotenoids were enhanced only after leaf leachate treatments in wheat but after 5 to 60% treatments. The photosynthetic pigments were increased after treatment of leachates of C. argentea showed significance in crop productivity. The present study indicated that the allelochemicals are present in weed, *C. argentea*. It needs further screening of allelochemicals and their characterization for detailed study.

KEY WORDS: Allelochemicals, *Celosia argentea* L., Photosynthetic pigment, Wheat (*Triticum aestivum* L.)

INTRODUCTION:

Weeds are unplanted, unwanted and redundant plant that hampers the growth of main crop through releasing chemical substances, called as allelochemicals (Batish *et al.*, 2007). They often affect growth and development of crop plants (Kadiolgue *et al.*, 2005). They released allelochmicals that affects on metabolic functions including mineral nutrition, photosynthesis, respiration, and many others (Saxena *et al.*, 2004) through allelopathic mechanism (Benyas *et al.*, 2010). Allelopathy is the complex phenomenon concerns with the effects of neighboring life on plants through breakdown products of their metabolites. Biochemical compounds were released from the neighboring plants / weed plants by the various biological and

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RESEARCH ARTICLE

Phytochemical Analysis of Selected Medicinal Plants of India

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ABSTRACT

The present study has revealed the presence of phytochemicals considered as active medicinal chemical constituents. Important medicinal phytochemicals such as terpenoids, flavonoids, phenols, tannins, steroids, glycosides were studied in the collected samples. Plant *Aegle marmelos* Corr. having all these phytochemicals. Saponin was found only in two plants out of nine plants i.e. *Achyranthes aspera* Linn. and *Semecarpus anacardium* Linn. Terpenoids was found in *Aegle marmelos* Corr., *Calotropis gigantea* Linn.R.Br., *Mimosa pudica* Linn. Terpenoids are reported to have anti-inflammatory, anti-viral, antimalarial, inhibition of cholesterol synthesis and antibacterial. Cardiac glycosides content was found in *Achyranthes aspera* Linn., *Aegle marmelos* Corr., *Mimosa pudica* Linn., *Tribulus terrestris* Linn., *Calotropis gigantea* Linn.R.Br., *Ricinus communis* Linn.. Cardiac glycosides have been used for over two centuries as stimulant in case of cardiac failure. The flavonoids was found in *Achyranthes aspera* Linn., *Aegle marmelos* Corr., *Calotropis gigantea* Linn., *Mimosa pudica* Linn., *Cissus quadrangularis* Linn.Marc., *Tribulus terrestris* Linn. The biological functions of flavonoids apart from its antioxidant properties include protection against allergies, inflammation, free radicals, platelet aggregation, microbes, ulcers, hepatotoxins, viruses and tumors.

Keywords: Medicinal plants, Phytochemicals, Secondary metabolites, Anti-inflammatory drug plants.

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BIOCHEMICAL CHANGES IN BENOMYL SENSITIVE AND RESITANT ISOLATES OF *FUSARIUM SOLANI* (MART.) SACC CAUSING ROOT ROT OF CHICKPEA (*CICER ARIETINUM* L.)

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ABSTRACT

chickpea (*Cicer arietinum* L.) is an important pulse crop grown for its vegetable, fodder and medicinal value. It was infected by *Fusarium solani* (Mart.) causing root rot disease to chickpea. Benomyl was used for management of the disease. The benomyl sensitive and resistant isolates show biochemical variation when assessed against untreated healthy ones. Biochemical constituents like Carbohydrates, starch, reducing sugar, DNA, RNA as well as Iron. Zinc, Copper, Manganese, and Magnesium contents were seen to be reduced due to infection of *Fusarium solani* in sensitive and resistant isolates as compared to healthy plant, while Calcium, total ash and polyphenol contents were increased in both of the isolates.

KEYWORDS: Root rot chickpea (*Cicer arietinum* L.), *Fusarium solani* (Mart.) Sacc sensitive and resistant, biochemical constituents.

INTRODUCTION

Pulses are an important part of the daily diet for most indians as they contain 2 to 3 times more protein than cereals. Chickpea (*Cicer arietinum* L.) is the most important pulse food crop among major rabi pulses of India and belongs to family Leguminosae. Chickpea is not only important human food but also used in traditional farming systems. According to (Chiranjeevi *et al*., 2002) in the dry land it fixes atmospheric nitrogen in the soil and increases soil fertility. It has very great nutritional value. According to (Cook, 1967) after dehulling chickpea is valued for its nutritive seeds with protein content 25.3 to 28.9 percent.

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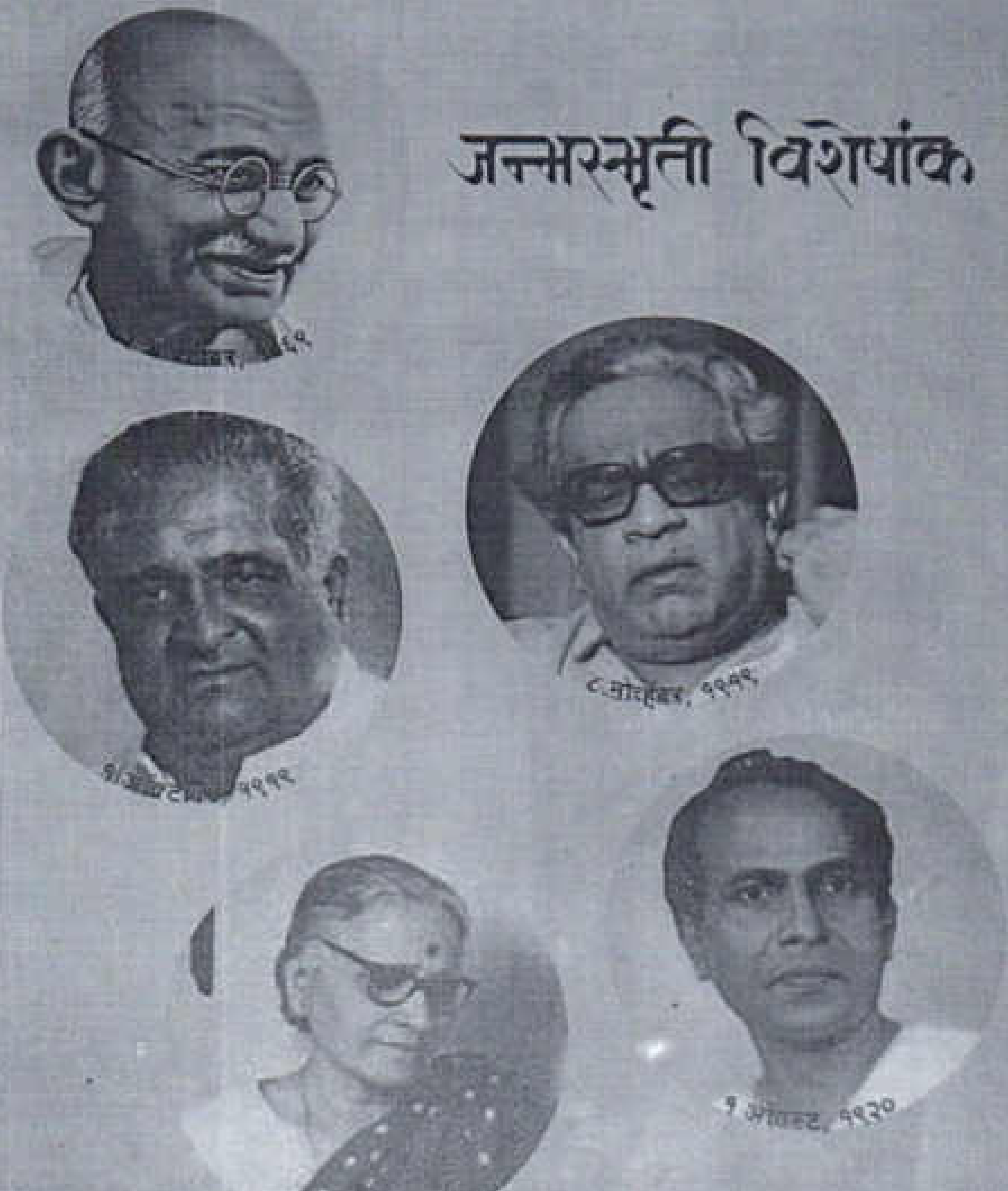
वर्ष–आठवे : अंक विसावा । ऑक्टोबर ते डिसेंबर २०१९

जन्मस्मृती विशेषांक



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सद्गुरु गाडगे महाराज कॉलेज, कराड

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मध्ययुगीन मराठी वाङ्मयातील विविध संप्रदाय

प्रकाशक
अध्यक्ष, शिवाजी विद्यापीठ मराठी शिक्षक संघ, कोल्हापूर
अनुराज, ७/ब, सूर्यवंशी कॉलनी, सानेगुरुजी वसाहत, कोल्हापूर ४१५०११

मुद्रक
श्रीधर मुद्रणालय, कराड
३३८, सोमवार पेठ, कराड ४१५११०
मोबा. ९८९०४९८४९७

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ही संशोधन पत्रिका प्रकाशक डॉ. शिवकुमार सोनाळकर यांनी शिवाजी विद्यापीठ मराठी शिक्षक संघ, कोल्हापूर यासाठी श्रीधर मुद्रणालय, कराड येथे छापून अनुराज, ७/ब, सूर्यवंशी कॉलनी, सानेगुरुजी वसाहत, कोल्हापूर ४१५०११ येथे प्रकाशित केली. या पत्रिकेत प्रकट झालेल्या मताशी संपादक, प्रकाशक, सल्लागार व मुद्रक सहमत असतीलच असे नाही.

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पु. ल. देशपांडे यांचे वाङ्मयीन व्यक्तिमत्त्व

डॉ. तातोबा बदामे

प्रास्ताविक :

मराठी वाङ्मयाच्या क्षेत्रात लोकप्रियतेच्या शिखरावर पोहोचलेले, 'मलाव्य' अशी उपाधी मिरविणारे व्यक्तिमत्त्व म्हणजे पु. ल. देशपांडे. 'मलाव्य' म्हणजे 'महाराष्ट्राचे लाडके व्यक्तिमत्त्व.' ही बिरुदावली त्यांना महाराष्ट्रातील जनतेने दिली. शासन स्तरावरील पद्मश्री, पद्मभूषण, साहित्य अकादमी, महाराष्ट्र भूषण असे नामांकित पुरस्कार त्यांना मिळाले. जनतेने पुलंसारख्या लेखकाला इतकी लोकप्रियता आणि प्रेम दिले त्याचे कारण म्हणजे पुलंनी निरागस नजरेने समाजाचे निरीक्षण करून विनोदी शैलीत व्यक्त केले हे होय.

अष्टावधानी असलेले पु.ल. हे साहित्याबरोबरच, संगीत, नाटक, चित्रपट अशा विविध क्षेत्रात लीलया विहार करणारे, विदग्ध वाङ्मयीन व्यक्तिमत्त्व होते. त्यांच्या बहुआयामी व्यक्तिमत्त्वातील विविध पैलूंचे दर्शन त्यांच्या साहित्यातून व त्यांच्याबद्दलच्या इतरांच्या लेखनातून घडते.

पुलंची वाङ्मयीन जडणघडण :

पुलंचा जन्म मुंबईतील गावदेवी भागातील गोरेगावकर रस्त्यावरील कृपाळ हेमराज चाळीत शनिवार दि.८ नोव्हेंबर १९१९ साली झाला. आई लक्ष्मीबाई ही वामन मंगेश दुभाषी उर्फ ऋग्वेदी यांची कन्या. ऋग्वेदींचे पूर्वज मूळचे गोव्याचे नंतर ते कारवारला गेले. ते कारवाहून उपजीविकेसाठी मुंबईला आले. ते शिक्षक, समाजसुधारक आणि साहित्यिकही होते. त्यांना मराठी, हिंदी गुजराती, कन्नड, संस्कृत, बंगाली इत्यादी भाषा येत होत्या. टागोरांच्या 'गीतांजली'चा मराठी अनुवाद त्यांनी केला होता. पुलंना साहित्याचा वारसा ऋग्वेदींकडून मिळाला. वडील लक्ष्मणराव देशपांडे मूळचे कोल्हापूर जिल्ह्यातील चंदगड जवळील जंगमहट्टीचे वतनदार घराण्यातील होते. जंगमहट्टीच्या कलानिधीगडाची वतनदारी या देशपांडेंकडे होती. लक्ष्मणराव मॅट्रिकची परीक्षा पास होऊन जे. बी. अडवानी या कागद कंपनीत सेल्समन म्हणून नोकरीस लागले. वडिलांना संगीताची मनापासून आवड होती, ते बालगंधर्वांच्या गायकीचे चाहते होते.

पुलंना विनोदबुद्धीची देणगी मिळाली ती त्यांच्या 'बाय'कडून. बाय ही पुलंच्या वडिलांची आई (आजी) होय. या बायला नकला करायची भारी हौस होती. मंदिरात कीर्तनाला जाऊन आल्यानंतर घरी कथेकरी बुवांची ती हुबेहूब नक्कल करी. बालगंधर्वांची बरीच नाटके तिने पाहिल्यामुळे तिची अभिनयाची जाण वाढली होती.

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डॉ. [illegible]
सहाय्यक प्राध्यापक, मराठी विभाग
पद्मभूषण डॉ. वसंतरावदादा पाटील महाविद्यालय,
तासगाव, जि. सांगली मो.नं. [illegible]
Email Id :- [illegible]

प्रास्ताविक

भारतीय समाज हा हजारो वर्षांपासून जाती-जमातींमध्ये विभागलेला समाज आहे. येथे अनेक जातीसमूह आपापल्या बोलीभाषा, संस्कृतीसह अस्तित्वात आहेत. बहुधार्मिक, बहुसांस्कृतिक, बहुजातीय त्या समूह [illegible] भाषावार प्रांतरचनेमुळे भाषिक अस्मिता जपणारी बहुभाषिकता असा भिन्न सांस्कृतिक वारसा जपणारा देश म्हणजे भारत देश होय. महाराष्ट्रातील [illegible] महाराष्ट्रातही अनेकविध जाती-जमातींचा समूह आढळतात. भारतीय संविधानाने जाती-जमातींचे वर्ग करून त्यांचे अनुसूचित जाती, अनुसूचित जमाती, इतर मागास वर्ग जाती असे वर्ग तयार केले. महाराष्ट्रात इतर मागास जाती प्रवर्गाचे विभाजन करून भटक्या विमुक्त जातींचे स्वतंत्र वर्ग तयार करण्यात आला. या भटक्या विमुक्त जाती या नावाने संबोधल्या गेलेल्या समाजाच्या विविध प्रश्नांचा आणि त्या प्रश्नांच्या सोडवणुकीसाठी करावयाच्या उपायांचा विचार प्रस्तुत शोधनिबंधात करावयाचा आहे.

भटके- विमुक्त आणि भारतीय समाज-

'Nomad' या इंग्रजी शब्दाचा मराठी अर्थ " भटके " असा होतो. उदरनिर्वाहासाठी सतत भटकणारी जमात म्हणजे 'भटकी जमात' होय. तर विमुक्त जाती म्हणजे पूर्वाश्रमीच्या गुन्हेगार जाती होय. इंग्रजी राजवटीत सन 171 साली ब्रिटिश प्रशासनाने क्रिमिनल ट्राईब्ज ॲक्टनुसार ज्या गुन्हेगार जमाती म्हणून संबोधले, त्यांना सन 1972 साली भारत सरकारने या जाचक कायद्यापासून मुक्त केले म्हणून त्यांना ' विमुक्त जाती' या संबोधनाने ओळखले जाऊ लागले. या भटक्या विमुक्त जाती, जमातींचे वेगवेगळे वर्गीकरण खालीलप्रमाणे करता येईल.

1. भविष्य कथन करणाऱ्या जाती, जमाती-

कुडमुडे जोशी, बेडा, वासुदेव, पांगुळ, नंदीवाले, बैरागी, गोसावी, [illegible], इत्यादी जमाती भविष्यकथन अथवा ज्योतिष सांगून आपला उदरनिर्वाह भागवतात.

लोकरंजन करणाऱ्या जाती, जमाती-

डोंबारी, कोल्हाटी, [illegible], मदारी, जादुगर, [illegible], दरवेशी, चित्रकथी इत्यादी जाती जमाती विविध कला व पारंपरिक खेळ करून लोकांचे मनोरंजन करून त्यावर उदरनिर्वाह करतात.

पशुपालक जाती, जमाती-

[illegible], [illegible], दरवेशी, गोसावी, नंदीवाले, [illegible] इत्यादी जाती जमातींचा समावेश पशुपालक जातीत होतो.

अंगमेहनत करणाऱ्या जाती, जमाती-

वंजारा, बेलदार, वडार, माती वडर, [illegible], [illegible] इत्यादी जमाती अंगमेहनतीची कामे करून आपला उदरनिर्वाह करतात.

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RACISM IN JEWISH AMERICAN LITERATURE IN THE CONTEXT OF SELECTED SHORT STORIES OF BERNARD MALAMUD

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P. D. V. P. College,
Tasgaon.

ABSTRACT

The present paper tries to analyze, interpret and discuss in details the term of racism in Jewish American literature in the context of selected short stories of Bernard Malamud. The American English literary tradition is wide range in the history of English literature. Jewish racism is the most prominent topic reflected in their writing as they face many problems in it. The American literature demands separate world in the main stream of literature, which at the same time is the part and parcel of the culture and a separate and distinct identity in it. This illustrious identity is maintained as the handle the problem and prospects of the Jewish community. Jewish literature deals with the problems and frustration of American cultural and problems of racism. In a view of this significance study, the present paper seeks to provide a vital statement on racism in Jewish American literature in the context of selected short stories of Bernard Malamud. So, the present paper will help to understand the racism in Jewish American literature in the context of selected short stories of Bernard Malamud for all researchers as well as to all community of the society.

Key-words:-*Racism, Jewish American Literature, Identity, Culture, Discussion, Etc.*

1. Introduction

Bernard Malamud was one of the most promising writers of the mid-twentieth century in American literature. He was the author of eight novels and fifty-five short-stories. He was the recipient of the National Book Award for his short stories collection *The Magic Barrel* in 1952 and also won both of Pulitzer Prize and National Book Award for his fourth novel *The Fixer* in 1967. The present paper is an attempt to analyze the racism in Jewish American literature in the selected short stories of Bernard Malamud's first short story collection *The Magic Barrel*. His short stories touch lightly upon mystic elements and explore themes like racism, rootlessness, search for identity, social realism, ethnic identity, political ideology, national identity, orthodox social system, religious, love, sex and struggle of individual. Malamud was always depicts his heroes in his short stories a general quality of human being. His characters always represent the common men who have lived and are now living. It is found that his heroes suffer from racism, discrimination, ethnic identity, national identity, orthodox social system, religious, love, sex and struggle of individual.

2. Scope of the study

His short stories hold out tremendous appeal to several generation of reader in different literary (cultures) traditions. Bernard Malamud is major writer not only in the history of the

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Environment and Literature

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Environment and literature studies commonlycalled ecocriticism or environmental criticism. Ecocritcism is the study of literature and literature from an interdisciplinary point of view where literature scholars analyze texts that illustrate environmental concerns and examine the various ways literature react the subject of nature. Environment is everything that is around us it can be living and non- living things. It includes physical, chemical and other natural forces. Living things live in their environment. They constantly interact with it and adopt themselves to condition in their environment. Environment plays an important role in the healthy living of human beings. Healthy ecosystems clean our water, purify our air, maintain our soil, regulate our climate, recycle nutrients and provide us with food. They provide row material and recourses for medicines and other purposes. They are at foundation of all civilization and sustain our economies. Literature and the arts have been drawn to portrayals of physical environment and human – environment interactions. The environmentalist movement as it emerged in the nineteenth century. It gave rise to reach array of fictional and non-fictional writing concerned with human changing relationship to the natural world.

Environment and literature studies commonly called ecocriticism or environmental criticism in analogy to the more general term literary criticism- comprise an eclectic, pluriform and cross-disciplinary initiative that aim to explore the environmental dimensions of literature and other creative media in a spirit of environmental concern not limited to any one method or commitment. The art of imagination and the study thereof- by virtue of their grasp of the power of word, story and image to reinforce, enliven and direct environmental problems. Literature and environment has become a more worldwide movement with chapters throughout Europe east and south Asia and Australia, New Zealand, The United states and United Kingdom.

Wordsworth and Coleridge had consciously decided to write poetry of a particular kind. Wordsworth chose to write about themes from "common life" and in "a selection of a language really used by men" that lived in the company of nature. Love of nature is an important quality. The poet not only sing of the sensuous beauty of nature, but also see into the heart of things and reveal the soul that lies behind. Poetry from nineteenth century stands for simplicity in theme and treatment. Wordsworth's poem 'The Education of Nature' shows to us how a child is certain to grow into a perfect specimen of humanity, if it is left to the care of Nature. It shows Wordsworth love for nature.

Three years she grew in sun and shower;
Then, Nature said, "A lovelier flower
On earth has never sown:
This child I to myself will take;
She shall be mine and I will make
A lady of my own".

Global Environmental Problems And Commercial Societal Responsibility

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Abstract:

This Research papers dresses the concerned relationship between the concept of commercial societal responsibility (CSR) and global environmental change. By way of mapping the drivers of global environmental turn down, we highlight the problems associated with devising effective management responses under the poster of commercial societal responsibility. We present a critical discussion on the ecological efficacy of contemporary commercial societal responsibility (CSR) approach, addressing also broader theoretical questions about the suitability of commercial societal responsibility for commerce with confused and increasingly difficult environmental problems

KEY WORD: *Sustainability, commercial, Societal Responsibility, Global Environment, CSR*

Introduction:

The world is changing at an increasing. The acceleration of globalization, innovation and development has transformed the market place but also affected the work of government, social dynamics and environmental integrity. In this sense, the commerce environment has become more varied and difficult. Particularly, non-economic issue creates a difficult challenge for commercial managers who are charged with the invidious responsibility to achieve high financial returns whilst needing to demonstrate civic virtue by being law-abiding, ethical, good corporate citizens. Not only is company probable to be beneficial but also to be sensitive to the societal, cultural and environmental aspects of their operation.

Global environmental changes which have become more in evidence and critical in recent decades, are the focal point of this Research paper. We will explore current attempts to address global environmental problems under the poster of CSR and judge their effectiveness.

Objectives:

- To identify global environment problems.
- To study global Commercial Societal Responsibility.

Globalization:

Since nineteen seventy globalization has been the subject of greatly dispute and contestation, financial Commission for Latin America and the Caribbean, although a excess of definitions seeking to describe globalization, much debate continues to be had in the literature about its dimensions and character. Broadly speaking, globalization reflects a complex process towards a widening, increasing and increasingly faster world-wide inter connectedness.

Financial globalization has been the engine of this development, characterized by the global expansion of multinational and transnational firms. Global institutions such as the the *World Bank (WB)*, and the *World Trade Organization (WTO) International Monetary Fund (IMF)*, have been in key actors in shaping today's global economic system. The interplay of these institutions over the last decades has brought about the coalescence of many economical markets the humanity we live in today entails a progressive march towards the development of a global economy – that is, what happens in Tokyo today impacts markets in London tomorrow. Multinational corporations have expanded their operations to include every angle in the world, with few limitations on how they go about defining new, undiscovered markets.

Global Environmental Problems:

The global environmental governance, however, is problematical as the general revaluation of the international and local tier often seems to create a political blankness. This is because the necessary political structures and processes needed to function effectively on these global and limited stages are not yet in position. The need to clear competences and political powers, for instance in dealing with environmental

Global Environmental Problems And Commercial Societal Responsibility

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Environmental Issues

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Abstract

In this attempt researcher tried well to highlight the different environmental issues caused by lot of different interference of human being. In the world of modernization many activities had done by human being leads to imbalance in the environment such as industrialization Urbanization, Desertification, Deforestation use of green house, over exploitation of resources. Some of the solutions also mentioned to control the depletion of Environment.

Key Words: *environmental issues, imbalance, depletion.*

Objectives

1. To know the environmental Issues
2. To understand the environmental Issues

Methodology

The present research paper is informative the required information collected through various secondary sources of information.

The list of environmental problems has grown to a great extent in the past few years. It has become very important to get these problems fixed before it is too late.

Following are some of the major and grave problems being faced by the world.

Global Warming

Global warming is directly connected to the increase in percentage of CO here in the earth's environment. The earth gets its warmth from the green house effect. But due to the increasing percentage of greenhouse gases, the temperature of the earth is increasing day by day. This has resulted in the collapse of glaciers which in turn are responsible for the rising sea level. If the temperature keeps increasing at such a rate, then slowly the entire land will be go under water very shortly.

Deforestation

Forests are an important part of the ecological cycle, but it is continuously destroyed for agriculture, settlements, roads, railway tracks reservoir and huge industries, they are a good source of oxygen, rainfall, moisture, etc. But deforestation has brought about a drastic change in the ecological balance of the earth. It takes years for a tree to grow and every year approximately 16 million hectares of forests are cut down for various purposes.

It leads to in a climate shift, less rainfall, soil erosion and very dangerous to wild animals.

Energy Crisis

Today, there are many options of energy sources such as petroleum, bio-fuel, coal etc. But all these sources are non-renewable sources and will get depleted in the coming years if their consumption is not checked. Apart from the energy crisis, resources such as coal and petroleum are contributing to the emission of greenhouse gases. Due to the excess usage of these energy sources, not only are the sources getting depleted, but they are also adding to the greenhouse gases which in turn are adding to the global warming conditions.

So, many countries are searching for alternative energy sources such as wind energy, solar energy, nuclear energy, etc., which may help in the future. But to get totally dependent on these resources and ensure their proper functioning may take some time.

A Quantitative Analysis of Rural Settlements in Una Taluka of Junagadh District (GJ) - A Remote Sensing and GIS Approach

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S. R. T. M. U. Nanded.

Dr. A. K. Hange
Research Guide,
Shivaji College, Renapur.

Abstract:

The spacing distribution of rural settlements was studied for 156 settlements in the Una tehsil of Junagadh district in central India using high declaration satellite imageries available in 'Google Earth'. Spatial statistical technique of 'nearest neighbor analyses was used to study the randomness in the delivery of settlements. The methodology used in the study demonstrates cost useful and correct means to study the spacing of settlements in rural surrounding area. The results of the study provide essential inputs for growing a development model for rural settlements by the local developmental establishment.

The investigative study of rural settlements with respect to spacing of settlement has large significance in terms of regional development and spatial included arrangement inputs.

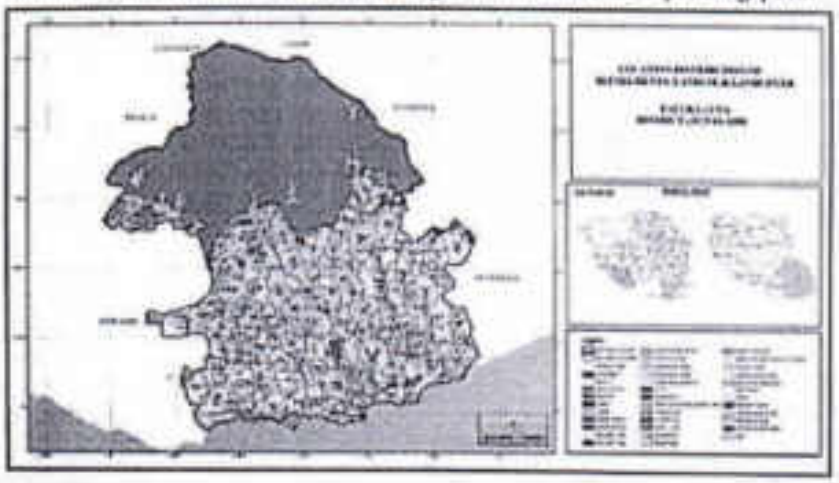
Introduction:

Rural settlements are the mainly feature form of the cultural landscape. It is artificial habitation on the earth's surface and study of the distribution of rural settlements has taken an important situation in the historical growth of geography. It is important that judgment makers concerned in rural development have at their disposal particular information to identify impact locations for concentration of services, nodes of transportation outline, development centers, etc. which mostly control the cost of services.

Una is located on the bank of Machchundririver. It has an average elevation of 14 meters (46 feet). *Kodinar* is located on the west, Diu is on the south. *Una* has the highest number of villages of all the Talukas in Gujarat state. The study area cover 156 settlements is located inside the *Una tehsil* of Junagadh district and covering an area of 775 sq. km. The area is fundamentally an agrarian, thickly populated and well connected with major roads and railway. Though there are big portions of forested areas and a few water bodies in the study area. (Fig.1). The general topography in the area is represented by an undulating plateau typical of the Deccan traps with altitude unstable from about 600m to 260m above msl.

The word distribution refers to the way in which human being settlements are extending over the landscape. The pattern may be individual of isolated homes, each divided by big distances, and the pattern can be random, regular or clustered. There are a variety of factors and situation responsible for different types of rural settlements. These are: physical features nature of topography, height above sea level, type of weather and accessibility of water, cultural and ethnic factors societal structure, caste and religious conviction, and defense factors, defense against theft and robberies. Once formed, settlements may continue for centuries, long after the original advantages of the situated have become unrelated. However, it is particularly improbable that the pattern of distribution of settlements will stay behind the same settlement disappear and grow up, some disappear completely even as completely fresh ones are recreated.

Five major types of spacing patterns can be easily identified as clustered, agglomerated or nucleated, semi-clustered or fragmented, helmeted, and ditpersed or isolated. A statistical technique i.e. quantitative technique of *'Nearest- neighbor statistics'* is used for influential the randomness of distributional pattern of rural settlements. Its principle is based on a assessment of the in a straight line distances separating point from their nearest neighbor points with the distances which strength be expected if these points be scattered in a random manner within the similar area.



Objective:

The main objective of this study is first of all to identify the spatial distribution randomness of rural settlement and factor influence it and secondly demonstrate the effectiveness method used in related studies of rural settlements.

A Geographical Study of Rurality In Sangli District Using Selected Demographic Parameters

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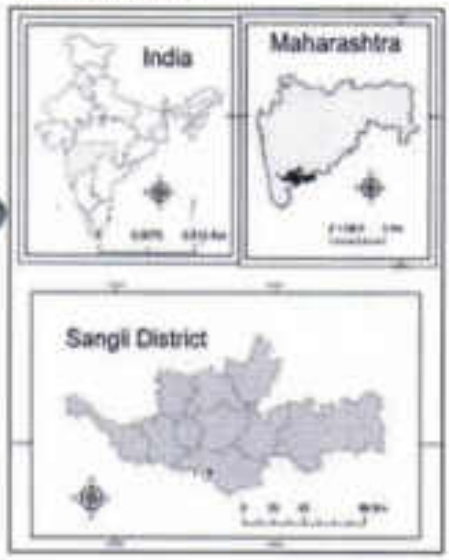
Abstract: Rurality is an indistinct concept. rurality is an index of agricultural rural economy, more working population engage in agricultural activities as well as high female population, low literacy rate, population density etc, these demographic parameters helps to measure the rurality in particular geographic area. In 2009 United Nation declared that in 2007 majority of people were not living in rural areas. Some scholars define "rural" in socio-cultural terms, while others suppose there are no differences between rural and urban. In spite of this, there are researchers trying to create a rurality index, which delineate the term "rural". In the study area rurality causes to increases disparity among the region in this context the present study examines the level of rurality in Sangli district using some demographic parameters. For this purpose, population data of 2011 is taken as base and use Z score method and composite index (statistical methods) for to measure level of rurality. The present research work totally focuses on rural demographic environment and its relation to regional rurality.

Index Terms – Rurality, Demography, Rural.

I. Introduction: 'India lives in villages' the village in India holds a distinctive place, both in the social and economic spheres. There were 212.6 million people living in rural areas in 1901, in 2001 rural population has increased to 721.1 million naturally the density of population has increased, land under agriculture has diminished, affected the forests and evacuation to urban areas accelerated agricultural labor continued to be exploited. It deserves mentioning that 2 percentage of rural population in comparison to total population has been gradually declining. Due to this regional disparity among the region has been increased. The working agricultural population, female population as well as literate population has indicated that rurality of particular geographic area. There are many scholars are try to define rurality but it's very complicated concept to explain because it changes country to country. In rural country like India, the census of India defines rural as 'An area which is marked by non-urban style of life, occupational structure, social organization which is noticeably agricultural, its settlement system consists of villages." The Cloke (1977) paper represents the first effort at creating a rurality index; Cloke developed the index for England and Wales in the United Kingdom (Cloke, 1977). Sangli district has 10 tehsils which more predominate of rural activities. The rural demographic environment is mainly depending on their local economical activities. Among the 10 thesils there were 5 thesils has more rural based environment.



II. Study Area: The Sangli district located in west of Deccan plateau of Maharashtra Nearly 75.49 percent in rural and 24.51 percent people live in urban area It is situated between 16°43' and 17°38' north latitude and 73° 41' and 75°41' east longitude. It has an area of 8,572 sq. Km. and population of 28, 20,575 according to the 2011census. There are 735 villages and 07 urban locations in Sangli district.

III. Objectives: The objectives of the present study are:
To analyze the level of rurality in study region.
To study the variation in rurality among the thesils in study region.

IV. Database and Methodology:

The present study is descriptive research. The data is gathered through secondary sources like the table of socio-economic abstract of Sangli district, census of India and other sources related to population. Collected data calculated with the help of simple statistical techniques. Z score method and composite index has been used for to measure level of rurality. The analyzed data presented in tables and maps.

V. Results and Discussion:

Traditionally, the number of inhabitants in a geographical area or population density has been considered variable in attempt to measure rurality. Both these indicators, however, have been considered as inappropriate to measure such a complex, multidimensional concept as the rural setting (Martin, 2000) Population density in rural area of Sangli district is varies considerably, ranging between 146 inhabitant /km2 and 573.05 inhabitant /km2. The means is 293.89 inhabitant /km2 with a high standard deviation (Table. I). The literacy among the rural population ranging from 61.17 to 77.39 person per 100 inhabitants.

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Performance Evaluation of IQAC: The Responsibility of The Principal And Coordinator

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ABSTRACT

Quality assurance and enrichment is the continuous process for which Internal Quality Assurance Cell (IQAC) has been constituted in many college. The functions of IQAC and the sufficiency of college administration being interconnected, depend on the degree of transference of power and authority with high-leveled interest through division of work via the participatory and positive association of every member in the institution. It is expected that the Principal should implement the innovative ideas suggested by IQAC. But, in some cases it may be difficult for the Principal to work on any other's orders though they have come from a independent organized mechanism of IQAC. The coordinator keeps on ahead of you for the orders of the Principal even for conducting the meetings of the IQAC and writing the AQAR. Academic superiority is a result of democratic, unidirectional targeted team work of all the stakeholders together.

Key Words: IQAC, Quality Culture, Stakeholders, Innovative ideas, benchmarks.

Introduction:

In November 1956, The University Grants Commission was established as a statutory body of the Government of India through an Act of Parliament. University Grants Commission is the only grants giving agency in our country. Main two responsibilities of University Grants Commission are providing and co-ordinating finances , and maintaining the standar in institutions of higher education. The university Grants Commission's mandate involves Promoting and coordinating university level education, influencing and maintaining standards of teaching, examination and research in Universities, framing regulations on minimum standards of higher education. In the field of college and university education monitoring is a necessity. UGC disburses available grants to the universities and affiliated colleges and also serves as a mid way between the Union and State Government and institutions of higher learning. UGC advises the Central and State Government on the procedures necessary for enhancement of academic standards of universities.

To scrutinize values of the higher educational institutions, it established the National Assessment and Accreditation Council as an autonomous body in September1994 under the Act Section 12(ccc). National Assessment and Accreditation Council is entrusted with the task of performance evaluation, assessment and accreditation of all Universities and affiliated Colleges in the Country. The philosophy of National Assessment and Accreditation Council is ameliorative and enabling rather than corrective or critical, so that all constituencies of institutions of higher learning are empowered to maximize their resources, opportunities and capabilities. National Assessment and Accreditation Council has been instilling a force of quality consciousness amongst institutions of higher education aiming for constant upgrading. National Assessment and Accreditation Council is triggering a quality culture between the various constituents of the higher educational institutes as well as enhancing the awareness of Institutional Quality with all stakeholders. The main outline of National Assessment and Accreditation Council is to Assess and Accreditate Institutions of higher learning with an objective of helping them to work constantly to improve the quality of education.

Assessment is a performance evaluation of an HEI and /or its units and is accomplished through a process based on self-study and peer review using defined criteria. Accreditation refers to the certification given by NAAC which is valid for a period of five years. NAAC accredits UGC 2(f) & 12B as well as non 2(f) & 12B HEIs. All stakeholders have to be fully engaged in the endeavour of quality assurance of the HEIs. Therefore, it is essential that higher educational institutions are forced to establish their individual internal mechanisms for sustenance, assurance and enhancement of the quality culture of education imparted by them. The efficacy of external quality assessment would therefore be determined by the effectiveness of such institutional internal quality systems and processes.

Objectives:

1. To understand the role of Internal Quality Assurance Cell in maintaining overall excellence standards in a college.
2. To examine the role of Principal and coordinator of IQAC in quality culture.

Research Methodology: The present study is totally based on secondary data. This is collected from journals, books and various websites.

Internal Quality Assurance Cell (IQAC) : Many institutions have established the Internal Quality Assurance Cell as a post accreditation quality promotion activity. The practice of National Assessment and Accreditation Council

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Self Employment Opportunities in Food Processing Sector

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Abstract:

Today this movement for sustainable agro base industries development is garnering increasing support and acceptance within mainstream agriculture. Agro based enterprises contribute extremely to the socioeconomic development of Maharashtra. The sector accounts for more than 95% of the industrial units and contributes 45% of the manufacturing output and 40% of the export (Ministry of MSME, 2014). As a result sustainable agriculture address many environmental and social concerns, but it offers innovative and economically viable opportunities for growers, laborers, consumers, policymakers and many others in the entire food system.So consequently, small enterprises play a vital role in creating employment and helping in the industrialization of rural and backward areas.

Key words: Agro processing, Employment, Government

Introduction:

The food-processing sector in India has a significant presence in the country's industrial scene. The sector contributed 12.5% share of manufacturing GDP during 2000-01 at 1993-94 prices and 26.9% of the total employment in manufacturing sector during 2000-01. The estimate of employment in different food processing sub- sectors is given at Table no. 1.1. The share of number of enterprises in food processing sector, as percentage of total number of enterprises in manufacturing sector is 30% during 2000-01. Food Processing constitutes a high share of unorganized sector and also has a high rural share.

Expansion of food processing sector

1. Creating new employment opportunities in quantitative terms.
2. Improving the quality of employment so that traditional low quality, low income, employment opportunities is gradually replaced by higher income, better quality employment.

Government support to promote growth of food processing sector

Various measures taken by the government to promote growth in food processing industry and initiate modernization in it during the nineties include

- No government permission is now required for setting up of rice mills
- All food processing industries, except beer, potable alcohol and wines and reserved items for SSIs have been exempted from the purview of licensing.
- Most food processing industries, which were hitherto considered as luxury industries have been, accorded priority industry status.
- Automatic approval for foreign investment up to 51 per cent has been allowed practically in all sectors of food processing except for those that are reserved for small-scale sector and also for which an industrial license is required.
- Fiscal relief provided to a large number of processed food items by reducing custom duties on various plants and equipment.
- Removal of the requirement of specific approvals for labels for every packed food product is an additional incentive.

DEVELOPMENT OF RURAL ENTREPRENEURSHIP IN INDIA

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Introduction:

The term entrepreneur is a relatively new term and concept used in economic subject. Because of its increasing relevance in economic subject over the period it has become the buzzword in the economic literature. However it has been defined differently by different writers and thinkers. An entrepreneur is an individual who, rather than working as an employee, founds and runs a small business, assuming all the risks and rewards of the venture. The entrepreneur is commonly seen as an innovator, a source of new ideas, goods, services and business or procedures. Rural entrepreneurs are those who carry out entrepreneurial activities by establishing industrial and business units in the rural sector of the economy. In other words, establishing industrial and business units in the rural areas refers to rural entrepreneurship. In simple words, rural entrepreneurship implies entrepreneurship emerging in rural areas. Or, say, rural entrepreneurship implies rural industrialization. Thus, we can say, entrepreneurship precedes industrialization.

Objectives

1. To study the concept of rural development.
2. To study the development of rural entrepreneurship in India.
3. To study the need for rural entrepreneurship
4. Methodology: The present study is based on secondary data. The data is collected from books,
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Rural Development

The term is used to mean 'organizing things' so as to change existing conditions in favour of a better state. There may be many variants of development drawing their nomenclature from the sphere of activity where the change is managed or the type of change or the 'method' how the desired change is attained. For several decades the term was used, solely, for economic change, inclusive of the conditions which affect betterment. The concept was later extended to its wider meaning to embrace 'changes' of political, social, cultural, technological, economic and also the psychological frame of society. In its current meaning 'development' is used to express animated change for reaping utmost human potential. Technically, development is the name of a 'Policy' and its 'Consequent programmes', designed to bring about a desired change' in social, economic, political, or technological spheres of life. It is concerned with the promotion of human capacities : Physical or mental, to attain the cherished social goals. Development is potential-related, and it can be attained to the extent of the existing development potential, which is measured by the 5 unexploited resources, talents, margin of sophistication and the 'will power' which implements development policy. Development is the conditioning of Process, and when efforts are laid towards the use of Growth potentials in rural economy and Society, it is rural development.

Religious Tourist Centre Oriented Rural Settlement Pattern

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S. R. T. M. U. Nanded
** Dr. A. K. Hange (Research Guide)
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Abstract:

Tourism is one of the new emerging activities not only in India's well developed destinations but also some districts and tehsils completely depend upon tourism. It is possible only because of reality of Indian physiographic, Culture and Historical factors. Navapur tahsil is one of them this tahsil well known for the large Ukai Dam is near the city of Navapur.

Amongst the temples in the areas are the Rokadia Hanumaan at Wankipada Bridge, Dutt mandir and Rang Avdhoot Paduka Mandir near the Juni post office, Ramji Mandir in Sardar Chawk, Aashapuri Mandir in Shroff Falia, Sai Baba temple in the Prabhakar colony and Shabri Mata Mandir, located in Subir village. Mission Tekdi and Tulsyo donger are place of interest for many.

Therefore present challenge is made here to study distribution and spacing of new rising tourism centers. Calculation is complete by using primary as well as secondary data. Collected data will be analyzed by using nearest neighbor technique of Evans and Clark. As per this method the all rural tourist centers spacing clustered in pattern and has vast scope for development.

Keywords: Tourism, Neurest Neighbor Technique, Deomogra mata yatra. Etc.

Introduction:

Today, tourism is known as the fast developing activity of the world. The world accepted the significance of tourism in the economy of that place, so day by day various tourist places are immerging all the way through the world. To preserve and protect the tourist centers are necessary for the tourism development. In Navapur tahsil there are various rural tourist places are situated this all places have its own historical, cultural, geographical as well as religious importance. These all destination are not uniformly distributed all over the tahsil. And to study of these tourist destinations and its circulation is very necessary for the future planning.

Surrounded by the temples in the areas are the Rokadia Hanumaan at Wankipada Bridge, Dutt mandir and Rang Avdhoot Paduka Mandir near the Juni post office, Ramji Mandir in Sardar Chawk, Aashapuri Mandir in Shroff Falia, Sai Baba temple in the Prabhakar colony and Shabri Mata Mandir, located in Subir village. Mission tekdi and Tulsyo donger are place of interest for many.

Nandurbar district is rich socio-cultural establishment and religious historical background. Also it is bounded by religious centers; such as Prakasha, one of the famous religious places, also known as Dakshin Kashi, temples of God Shree Ganesha (Heramb), Shri Datta temple, Umaj Mata temple, Ashwashthama and Shanimanda, Dandapaneshwar Ganesh Mandir, Devi Dev Mogra Mata(Yahamogi mata) is mother goddess of Adivasis community. Toranmal,Gaumukha,Aaikuvali mata. The weekly bazaar is called Shanivari (*Navapuryo*) i.e. held on each Saturday.

Objectives:

- To study the sorting and division of rural tourist centers.
- To study the spacing of rural tourist Centers.
- To introduce the new rising tourist destination.

Methodology:

This study is based on primary as well as secondary data sources. Primary data regarding the distribution and classification of tourist spot obtained through participatory field visit while secondary data is collected by various sources like book, journals, maps, news papers etc. For the analysis of data nearest neighbor technique has been used.

Study Region:

Navapur tahsil is the south most tahsil of the Nandurbar district. Navapur has its history of It was earlier on the Mughal trade route going to Agra and a few ruins of the Serai and Caravan sentry forts still survive. This tahsil bounded from south by Rangavali River and Dang district Gujarat state to the north Uchhal tahsil, the east sakri, to the west songadh. Tahsil bounds this tahsil. It lies between the 21 10 12North and 73 46 48East longitudes. This tahsil covers area about 976.68sq.km, some of

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Irrigation System in Nandurbar District

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Introduction

Water is the most important factors for the growth of crops. Irrigation is the application of controlled amounts of water to plants at needed intervals. Irrigation helps grow agricultural crops. If water is available in adequate quantities crops can be grown successfully water supply is available an adequate quantity than the increases security of life and yields of crops but also compare states for uncertainty and induct of normal rainfall.

Irrigation is an artificial application of water to land by human effort to assist the growth of crops. Irrigation has assumed an increasing importance of india agricultural in the context of few technology. Where high yielding verities and multiple cropping is being practical.

Irrigation can do more than just support farming activities the efficient use of water permits the applications of modern agricultural altogether, use in right combination can lead to very successful agriculture as demonstrated by the success achieved by the used of high yielding varieties ,with helps of irrigation farmers can change cropping pattern ,increase per hectares yield maximum agriculture irrigation can bring prosperity in socio- economic change that state motion the productive forces in the sectors of agriculture

Objectives:

- To study irrigation sources in the study region.
- To study irrigated area under irrigation projects in the study region.

Methodology:

The present study is based on Secondary data which is collected from various department like department of irrigation of Jilha Parishad, Bhumi Abhilekh Office, Nandurbar, Socio-economic abstract and district census handbook of Nandurbar district.

Study Region:

Akrani Tehsil lies in the North Western part of Nandurbar district. Akrani Tehsil extends between 21°49'27'' to 21° 82' North latitude and 74°13'01'' to 74°21' East longitude. The Satpura Mountain and piedmont plain stretches from east to west, Northern part of the study area is occupied by Satpura Mountain and central part of the area is occupied by piedmont plain. Satpura hills, the Narmada Valley Region.

Location Map: Nandurbar District

Result and discussion:

Table No. 1: Irrigation Sources in Nandurbar District

Sr. No.	Tahsil	Medium project	Small project	Open wells	Tub/bore lift irrigation	Kolhapuri bandhare
1	Akkalkuva	01	10	1240	114	10
2	AKRANI	-	12	225	142	12
3	Taloda	-	01	2610	25	-
4	Shahade	03	04	4505	29	04
5	Nandurbar	01	08	12675	07	07

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Keywords: Brønsted acid, SO_3H, Bifunctionalized ionic liquid, Pyrazolopyranopyrimidine, Reusable catalyst.

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Pyrazolopyranopyrimidines are a nitrogen and oxygen containing heterocyclic compounds and are useful in organic synthesis and medicinal chemistry because pyrazolopyrano-pyrimidines contain both pyranopyrimidine and pyranopyrazole as biological active nucleous [16]. Pyranopyrazoles derivatives have occupied a unique position in medicinal chemistry because of their biological and pharmacological activities [17], analgesic, antiinflammatory activity and act as vasodilators as well as hypotensive and hypoglycemic agents [18], antidepressant [19] and antitumor agents [20]. In addition, fused heterocycles systems like pyrazolopyridines, pyranopyrazoles and pyrazolopyrido-pyrimidines present interesting biological properties such as anticancer [21], cytotoxic [22] and antimicrobial activities [23].

However, these methods show varying degrees of success as well as limitations such as lower yields, use of expensive catalysts, prolonged reaction times, use of toxic organic solvents, and harsh reaction conditions. Therefore, we developed a new protocol for the synthesis of pyrazolopyranopirimidine using -SO_3H bifunctionalized Brønsted acidic ionic liquids. Herein, we wish to report a synthesis of series of novel -SO_3H bifunctionalized Brønsted acidic ionic liquids [BBSA-DBU][X]in aqueous solution and their application in organic synthesis. The Brønsted acidity strengths were determined by Hammett acidity function method performed on UV/visible spectra. This prepared ionic liquid used as catalyst for the pyrazolopyrano-pyrimidine synthesis in high yields (**Scheme-I**).

EXPERIMENTAL

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Synergistic effect of natural chickpea leaf exudates acids in heterocyclization: a greener protocol for benzopyran synthesis

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Without using any toxic or hazardous reagent, ligand, acid, transition metal catalyst, additives/promoters and organic solvent, green Knoevenagel condensation and tandem Knoevenagel–Michael reactions have been successfully carried out by using *chickpea leaf exudates* as a naturally sourced Brønsted acid type bio-catalyst. The reaction proceeds in neat *chickpea leaf exudates* at room temperature in aqueous conditions in very short reaction times, and therefore, it is an evergreen and environmentally sound alternative to the existing protocols for benzopyran synthesis. In comparison to the conventional methods, this synthetic pathway complies with several key requirements of green chemistry principles such as the utilization of biodegradable catalyst obtained from renewable feedstock, auxiliary aqueous conditions, along with waste prevention. The same protocol was also extended to the synthesis of 2*H*-xanthene-1,8-diones by condensation of aromatic aldehydes with dimedone achieving excellent yields. Thus, the reported protocol offers an attractive option because of its ecological safety, environmental acceptance, sustainability, low-cost straightforward work-up procedure and with excellent values of green chemistry metrics as compared with other reported methods.

1. Introduction

While considering the increasing environmental pollution and its intensive impact on living systems, developing chemical processes using more environmentally acceptable chemicals, catalysts, solvents, atom-efficient methods and energy-efficient

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Review

Functionalized nitrogen ligands (C–N) for palladium catalyzed cross-coupling reactions (part II)

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ABSTRACT

In recent years, considerable effort has been focused in Pd catalyzed cross-coupling reactions, especially the use of less reactive and economically viable substrates like aryl chlorides. Unfortunately, Pd complexes containing the ligands having only N as a donor atom has some limitations, as it couples, mostly aryl iodides and bromides with different nucleophiles, and shows less activity towards aryl chlorides. This restriction can overwhelm by the use of Pd complexes containing N in combination with the C as a donor atom such as palladacycles, pincers, PEPPSI and carbene ligands. The advantages of these ligands include high activity with enhanced selectivity, less toxicity, moisture, air as well as thermal stability. Most importantly, such complexes have broad applications in catalysis under ambient conditions. This part of compressive review highlights the results of the highly active C–N based Pd complexes and their applications in cross-coupling reactions. In the next part, we will cover all ligands and complexes containing N in combination with P, O and S as a donor atoms (Pd catalysts based on C–P, C–O and C–S ligands). Though, the number of C–N based Pd complexes containing Ferrocene and Buchwald ligands were reported for Pd catalyzed cross-coupling reaction, these complexes will be covered in the next part of the article.

Contents

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Synthesis and characterization of new quaternary ammonium surfactant [C_{18}-Dabco][Br] and its catalytic application in the synthesis of spirocarbocycles under ultrasonic condition

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Abstract
A novel DABCO-based cationic surfactant [C_{18}-Dabco][Br] has been easily synthesized by the reaction of DABCO and octadecyl bromide in acetonitrile at room temperature in excellent yield. The synthesized surfactant was fully characterized by various techniques like FT-IR, ^{1}H NMR, ^{13}C NMR, LC–MS and TGA-DTA analysis. Furthermore, the critical micelle concentration of the surfactant was determined by the conductivity measurement method. The activity of the [C_{18}-Dabco][Br] has been demonstrated for the one-pot synthesis of spirocarbocycles under ultrasonic conditions in water. The presence of the long alkyl chain acts as the hydrophobic part while the free tertiary nitrogen site in the surfactant acts as a base and enhances the overall catalytic activity.

Keywords DABCO-based cationic surfactants · [C_{18}-Dabco][Br] · Spirocarbocycles · Water medium · Ultrasound

Introduction

The development of novel synthetic routes, especially cleaner ones that satisfy increasingly stringent environmental constraints, are in great demand by the pharmaceutical and chemical industries [1]. Multi-component reactions (MCRs) are one

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ATRAZINE MEDIATED HEPATHOLOGICAL DISABILITIES IN FRESH WATER FISH *AMEIURUS MELAS*

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ABSTRACT:
In present investigation the fish *Ameiurus melas* was exposed to the acute(96hours) toxicity of Atrazine. The LC50 was found to be 120µg/L. The control group was run simultaneously. After 96hrs the fish were dissected and the liver tissue was taken out and processed for routine HE technique. It was found that Atrazine is hepatotoxic to *Ameiurus melas*.. In the liver of control fish, no pathological alteration and no vacuolation of the hepatic cell was recorded. The liver shows vacuolar degeneration of hepatocytes and disintegration of the sinusoids and ruptured veins are also reported.
Keywords: *Ameiurus melas*, Atrazine, Liver.

INTRODUCTION:

In the agricultural fields the use of herbicides to protect the crops from the attack of unwanted plants has been considered as an integral part of modern agricultural practice in the World. But indiscriminate use of this is dangerous to aquatic ecosystems as well as fish farm which are close to agricultural field. They ultimately reach to aquatic bodies and cause harmful effect on non target aquatic animals such as fishes. Herbicides are most commonly used pesticides in agriculture. Thus it causes adverse impact on aquatic biota. A high concentration of herbicides reduces the survival, growth and reproduction rate of fishes and produces many adverse effects (Rahman et.al2002).

Atrazine is a widely used herbicide in many countries for controlling grassy weeds in agricultural crop. Prolonged use of Atrazine and its persistence involves the risk of its retention in crop and soil. This compound also passes from surface to ground water (Mundiamet.al, 2011). Atrazine (2-chloro-4-ethylamino-6-isopropylamino-1,3,5-triazine) is a herbicide first approved for use in US in 1958, where it is used primarily in the field of corn, sorghum and sugarcane(Solomon et.al; 1996). Atrazine inhibit electron transport in photosynthesis II which result in disruption of photosynthesis and in turn leads to death from starvation in broad leaf plant (Gidding et.al2004).

Several recent laboratory studies have shown that environmentally realistic concentration of Atrazine have significant toxic effect on fish. For example - low concentration of Atrazine (1µg/l) altered olfactory mediated endocrine function in male Atlantic Salmon (Moore and Lower, 2001). At 100µg/l Atrazine altered the Na, K and ATP are activity in common carp held in fresh water, indicating osmoregulatory disturbances (Hanke et.al, 1983). In recent years considerable histopathological studies have been conducted on fish exposed to sub lethal concentration of different pesticides and herbicides (Alazemi B.M., Lewis J.W. and Andrews.E.B., 1996). As a result the tissue changes are the functional responses of organisms which provide information on the nature of toxicant. Fishes are the most useful bio-indicator of environmental quality because of their close contact with water (De flora et.al, 1993). Thus toxicity studies are essential for determining sensitivity of animals to toxicants and also useful for evaluating the degree of damage to target organs and the consequent physiological, biochemical and

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RESEARCH ARTICLE

Carbon Sequestration by Standing Trees at the Amrai Park of Sangli City (Maharashtra) - India

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ABSTRACT

Plants are known to absorb the atmospheric carbon by photosynthesis. This absorbed carbon is stored in various organic forms and helps to produce the biomass. The absorption of the atmospheric carbon is depend on the structure and life form of the plants. Trees dominate this process. Greater and taller is the size of the tree more is the amount of carbon fixed. Hence trees are the major plant forms to absorb maximum atmospheric carbon and biomass production. Thus, the present investigation was carried out to calculate the carbon sequestration of 22 standing tree species in Amrai Park of Sangli city. The biomass and total organic carbon of standing trees is estimated by the non-destructive method. The population of *Swietenia mahagoni* (Cl) Jacq is more in the campus and it sequestrates the 77500.25 lbs carbon/year.

Keywords: Carbon sequestration, Amrai Park Sangli, Standing trees

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Effect of Biofertilizers on seed germination of Maize (*Zea mays* L.) varieties Eco-92 and African tall

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Abstract :

An attempt has been made of study the effect of biofertilizers (Azotobacter and Phosphate Solubilizing Bacteria) on the seed germination of Maize (Zea mays L.) varieties Eco-92 and African tall. The biofertilizers were applied in concentration of [100gm each packet per 10Kg of seeds].Seed and Filter paper treatments were used in the experiments, completed with autoclaves biofertilizers treatment. The seed and filter paper treatment of biofertilizers were applied to seeds of Eco-92 and African tall. It is revealed from the experiment that, there is considerable enhancement of seed germination and also in length of root and shoot of Eco-92 as compared to control. These biofertilizers treatments are found to be stimulate the seed germination and growth performance of root and shoot.

Keywords– Biofertilizers, Maize seed, filter paper, germination

Introduction:

Maize originated from Mexico .Maize is one of the three most important cereal crops in the world. Every part of the maize plant has economic value and cob can all be used to produce a large variety of food and non-food production (IITA 2006).It is cultivated on over 13% of world's croplands (Leff *et al*,2004). Seed germination is a basic growing skill that involves causing a seed to sprout. It is the process of reactivation of metabolic machinery of the seed resulting in the emergence of radical and plumule .Various sources of biofertlilizer include nitrogen fixers, Phosphate solubilizing bacteria, plant growth promoting rhizobacteria (shekh,2006) Application of biofertlilizer became a great necessity to get a yield of high quality and to avoid the environmental pollution(Shevananda,2008).

Though nitrogen and phosphorous are essential nutrient for plant growth and development in corn, biofertilizers are able to fix atmospheric nitrogen in the available form of plants (Chen, J.2006). Positive response to maize to nitrogen fertilizer has been reported by (Aflakpui *et al*). Biofertlilizer contain micro-organism, that increases or promotes the important nutrients crucial for overall production the soil (Karthick *et al* 2014) .In maize application nitrogen and phosphate biofertlizer increased yield components of maize (Beyranvanv and *et al* 2013) .It has been revealed that ,the effect of nitrogen fixation induced by nitrogen fixers is not only significant for legumes, but also non-legumes (Doebereiner and Pedrosa, 1987).One of the ways to improve germination is' to use seed priming'. A major aim of seed priming is to partially hydrate the seed to a point where germination process starts but does not end. Several ways to seed priming exists, such as hydro priming, solid matrix priming and biopriming (Ashraf, M. *et al* 2005). Various priming treatments have been developed to increase the seed and synchrony of seed germination.

Material and Methods –

In present study the healthy seeds of Maize (*Zea mays* L.) variety Eco-92 and African tall, procuved from Eco Agriseeds pvt.Ltd.Hyderabad and Biofertilizers *Azotobacter* and phosphate solubilizing bacteria respectively from Mahatma Phule krishi vidyapeeth, Rahuri. In these experiments direct seed treatment method was used. Germination was tested in filter paper. Filter

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An Account of Desmid Diversity from Kolhapur Distric(Maharashtra), India.

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ABSTRACT:

Desmids are the most beautiful conjugal members of Chlorophyceae as they represent the unicellular conjugales among the green algae. Desmids have played an important role in the phytoplankton biodiversity of major and minor water bodies. Present survey is the outcome of thorough screening of water bodies from Kolhapur district. During the systematic investigations on the desmid biodiversity of Kolhapur district, Maharashtra, authors recorded 86 taxa belonging to 13 genera viz., *Actinotaenium* (Nageli) Teiling, *Closterium* Nitzsch ex Ralfs, *Cosmarium* Ralfs, *Desmidium* C. Agardh, *Euastrum* C.G. Ehrenberg ex Ralfs, *Micrasterias* C. Agardh, *Netrium* (Nageli) Itzigsohn & Rothe, *Pleurotaenium* Nageli, *Spondylosium* Brebisson ex Kutzing, *Staurastrum* (Meyen) Ralfs, *Staurodesmus*, *Triploceras* J.W. Bailey, *Xanthidium* C.G. Ehrenberg ex Ralfs. The survey revealed the dominance of *Cosmarium* in the study area.

KEYWORDS: Desmids, Kolhapur, Conjugales, diversity.

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Original Research Article

OCCURENCE OF MYCOFLORA ON ONION (*ALLIUM CEPA* L.) BULBS

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Abstract

For present investigation onion (*Allium cepa* L.) red and white varieties were selected to study occurence of mycoflora in fields and storage conditions, because onion bulbs are highly damaged due to number of fungal pathogens in field as well as in storage condition. For isolation of fungi dilution plate and humid chamber methods were applied. Total twelve fungal species were isolated from onion bulbs. *Botrytis cinerea, Rhizoctonia solani, Cladosporium alli, Botrytis allii, Sclerotium rolfsii, Colletotrichum circinans* and *Urocystis cepulae* showed high frequency occurence on the bulbs from fields where as fungi like *Aspergillus niger, Aspergillus flavus, Curvularia lunata, Fusarium oxysporum* and *Rhizophus stolonifer* were showed high frequency occurance on bulbs from storage condition. *Colletotrichum circinans* and *Sclerotium rolfsii* were not found on red variety of onion.

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Introduction

Onion (*Allium cepa* L.) is very important bulb crop cultivated in irrigated conditions all over India. The crop is affected by various fungal pathogens causes yield loss both in field as well as storage conditions. Due to rough handling , wrong agricultural practices and poor storage bulbs are infected by number of fungal pathogens.The present investigation deals with identification of mycoflora associated with onion bulbs from field as well as storage.

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Original Article

Effect of passage on the development of Benomyl resistance in *Fusarium udum* (Butler) causing wilt in Pigeon pea

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Abstract

By culturing the sensitive *Fusarium udum* (Butler) isolate on fungicide Benomyl, continuously for eight consecutive passages significantly showed increase in resistance. Whereas use of Benomyl altering fungicide Blitox and Kocide reduced the resistance while fungicides Kavach and Roko helped in complete inhibition of the pathogen. When fungicides were used in mixture there was complete inhibition of radial mycelial growth, hence effect of all fungicides together will prove to be promising for inducing resistance in Pigeon pea.

Key words: Pigeon pea wilt, *Fusarium udum*, Benomyl, Fungicides.

1. Introduction

Pigeon pea (*Cajanus cajan* L.) Millsp. a member belonging to family Fabaceae is one of the most essential leguminous food crop cultivated in tropical and subtropical countries like, Madagascar, India, Myanmar, Philippines, Australia. India, Myanmar, Malawi, Tanzania and Kenya are the top 5 producers of this crop. Amongst them India holds a major contribution of 90% of total world production. India engages an area of 3.85 million hectare with an annual production of 2.68 million tonnes (Anonymous, 2002). The plant helps in re-establishing soil productivity by atmospheric nitrogen fixation (Reddy et al., 1990). Pigeon pea is a commercially important neutraceutical crop as it contains high level of amino acids like methionine, lysine tryptophan, vitamin B and proteins. The content of protein in seeds is almost similar to Soybean (*Glycine max*) which ranges from 21-28 % (Phatak et al., 1993). Inspite of this, *Cajanus cajan* is affected by various serious diseases and leads to heavy destruction. Pigeon pea is bombarded by numerous bacteria, viruses, fungi but amongst them just a few of them cause a negative impact on the plant. The wilt caused by *Fusarium udum*, is the most destructive disease (Kannaiyan et al., 1984). Genus *Fusarium* account to the most significant group of ascomycetous fungi, whose members are liable for enormous economic loss due to depletion in yield, quality and quantity of pea (Nelson et al., 1983; Leslie and Summerell, 2006)' Many members of *Fusarium* produces type A and B trichothecene mycotoxins that cause toxicosis in humans and animals (Mali et al., 2015). Several *Fusarium* species cause catastrophic diseases on cereal grains (White, 1980; Parry et al., 1995; Nyvall et al., 1999; Goswami and Kistler, 2004), some are responsible for vascular wilts or root rots on many important vegetable, ornamental and field crops (Kraft et al., 1981; Linderman, 1981) while cankers are produced by others on soft and hardwood trees (Bloomberg, 1981; Dwinell et al., 1981, 2001; Wingfield et al., 2008).

2. Material and Methods

Collection of material

Fifteen isolates of infected pigeon pea plants were collected from Kolhapur, Sangli districts of Maharashtra and Dharwad, Vijapura (Bijapur) and, Belgavi (Belgaum) districts of Karnataka. The infected plant materials were brought to the laboratory and were cut into small pieces (0.5-1.0cm length) along the symptomatic region of stem, root, leaves and subsequently surface sterilized by sequential dipping in 70% ethanol for 30 s and in 0.1% $HgCl_2$ for 1 min., rinsed in sterilized distilled water, and then cultured on Czapek Dox agar (CDA)/ Potato dextrose agar (PDA) amended with 25 mg/L of streptomycin sulphate (Patil et al. 2012; Jadhav et al., 2010). Plates were incubated at 25± 2°C for 6 days. A *Fusarium* sp. was consistently isolated from infected tissues, and was purified by single-spore culture (Mali et al., 2015).The plates were observed for fungal outgrowth through the symptomatic parts of plants. After 5-6 days of culture, white cottony fungal mass was observed. On the basis of visual

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Full Length Research Article

ISOLATION AND IDENTIFICATION OF *PENICILLIUM* SPP., FROM KRISHNA RIVER, DISTRICT- SANGLI

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ABSTRACT

The mycoflora from the bed of river Krishna at Sangli was studied at three different locations viz., Right Bank, Center and Left Bank from January 2014 to December 2015. Twenty six soil samples were collected from surface, 10, 15, and 25 cm depth. The mycoflora were isolated by using soil dilution and soil plate method. Out of the 75 strains of fungi isolated 10 species of *Penicillium* viz., *Penicillium funiculosum* (32.66) and *P. semitectum* (03.88%), *P. expensum* (2.33%), *P. chrysogenum* (16.33%), *P. Lilacinum* (09.63%), *P.notatum* (15.66%), *P. roseum* (1.62%), *P. turbum* (23.67%), *P. citrinum* (09.66%) *and P. rubrum* (2.67%), were identified. Greater number of species were isolated on soil plate technique as compared to dilution plate technique. Higher number of species were obtained from right bank as compared to left bank and very low frequency were obtained from centre.

INTRODUCTION

Soil is a very complex environment in which the biological activity is mostly influenced by microorganisms. There are number of beneficial effects of soil microbes which includes nitrogen fixation and organic matter decomposition to breakdown of metabolic by-products and agrochemical, enhancing the bioavailability of nitrates, sulphates, phosphates and essential metals (Bridge & Spooner, 2001). Mycoflora is an important constituent of the soil microbiota typically constituting more of the soil biomass as compared to bacteria, depending upon the soil depth and nutrient conditions (Ainsworth & Bisby, 1995). The role of fungi in the soil is much complex one and fundamental to the soil ecosystem. They perform ecological services that highly impact on the quality of human welfare and give enormous potential for providing economic benefits, e.g., the isolation and identification of the soil fungus *Penicillium* led to a large pharmaceutical industry of antibiotics (Diana, 1994). It is recorded that there are 1.5 million fungal species on earth and out of which only about 70,000 have been described up to now (Hawksworth and Rossman, 1997). The present investigation is an attempt to study the variability of mycoflora from different depths at three locations of river Krishna at Sangli.

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Apparently no report is available for fungi recorded from this site. This paper concentrates only on species of *Penicillium*.

Description of the research site: The study area is located at longitude 58.°21'E, latitude 21.°21'N. Air temperature ranges between 11°C to 44.7°C. There are significant variations in rainfall in the basin. The rainy months are from June to September end and the driest months are November to March end, during which the average monthly rainfall rarely exceeds 25 mm. The soil texture ranges from coarse to fine which is mostly favourable for irrigated agriculture. The pH value normally ranges from 7.5 to 8.30.

MATERIALS AND METHODS

The analysis of soil samples done in this study were collected from three different sites viz Left Bank, Right Bank and Center from the bed of river Krishna. Vertical samples were collected from surface, 10, 15 and 25cm depths with presterilized screw-cap vials. Vials were dipped perpendicularly to the vertical surface of the water. Three samples were collected from each depth. The samples were kept in pre-sterilized polythylene bags surrounded by ice crystals until they brought to the laboratory. The samples were analysed by using the soil dilution plate (Waksman, 1922) and soil plate method (Warcup, 1950).

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Research Paper

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Nonparametric Moving Average Control Charts Using Sign and Signed-Rank Statistics

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Abstract- In this paper, we provide two nonparametric moving average control charts based on well-known nonparametric statistics namely sign and signed-rank statistic. These control charts are useful in detecting shifts in the median of the symmetric process distributions. Average run length of these control charts has been studied for various symmetric process distributions. These include the normal, double exponential and Cauchy distributions. Performance of the proposed nonparametric moving average control chart based on the sign statistic is compared with the nonparametric sign chart and the Shewhart X-bar chart. Also, the performance of the proposed nonparametric control chart based on signed-rank statistic is compared with the Shewhart X-bar chart and the 2-of-2 control chart based on the signed-rank statistic. The study reveals that the proposed nonparametric moving average control chart based on sign statistic perform significantly better than the nonparametric sign chart and Shewhart X-bar chart. Also, the performance of the proposed nonparametric moving average control chart based on the signed-rank statistic perform significantly better than the Shewhart X-bar chart and the 2-of-2 chart based on the signed-rank statistics. The gain in the performance is substantial for heavy-tail distributions as compared to light-tail distribution. Robustness study against contamination by outliers for both the proposed charts show satisfactory performance. These charts can be used in practice, since they are simple to use and do not need any distributional assumptions, except symmetry.

Keywords- Nonparametric, Sign Statistic, Sign-Rank Statistic, Average Run Length.

I. INTRODUCTION

Control charts are useful tools for monitoring/controlling a manufacturing process. Nonparametric control charts are becoming important tools in the field of process control since their application does not require the assumption of any specific probability distribution for the underlying process. Nonparametric control charts are used for detecting the changes in the process median (or mean) or changes in the process variability. The nonparametric control charts are used for monitoring the process median (or mean). These nonparametric control charts are based on the signs computed within samples and used in place of sample means in the Shewhart chart. The chart is labeled to be the nonparametric chart if in-control average run length (*ARL*) does not depend on the underlying process distribution. In case of charts based on signs, the ARL will be the same for all distributions for which median equal to the target value. In nonparametric control charts, the assumption of normality is not necessary for calculating the control limits. The nonparametric control charts are to be less impacted by outliers. Some of these are based on sign and/or signed-rank statistics by assuming a known in-control target value for process location.

In the literature review, Abid et al. presented an efficient nonparametric EWMA Wilcoxon signed-rank chart for monitoring location [1]. Amin and Searcy proposed a nonparametric EWMA control chart using the Wilcoxon signed-rank statistic [2]. Amin et al. proposed the control charts based on sign test statistic to monitor the process location and variability [3]. Bakir developed a distribution-free Shewhart control chart for monitoring process center based on the signed-ranks of grouped observations [4]. Bakir proposed the distribution-free quality control charts based on signed-rank-like statistics [5]. Bakir and Reynolds developed a nonparametric cumulative sum control chart

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A Nonparametric Control Chart for Process Variability Based on Quantiles

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ABSTRACT

Most of the control charts are based on assumption of normality. Control charts for non-normal process distributions have also been reported in literature. In absence of any knowledge about the process distribution, nonparametric chart is a good alternative. In the recent past number of nonparametric control charts have been studied. In the present work we propose a control chart for monitoring process variability, which is based on in-control quantiles. The chart is motivated from a nonparametric control chart based on in-control quartiles due to Amin et al. (1995). The proposed chart has been studied for its performance for various process distributions to monitor change in variability and has been compared with the existing nonparametric and parametric charts. It has attractive out-of-control Average Run Length performance and is very simple to use. We illustrate the chart through an example and recommend use of this chart to monitor process variability. Generalization of the chart will also be discussed in view to further improve its detection ability.

Key-words: *Nonparametric, control chart, quantiles, process variability and average run length.*

Mathematical Subject Classification: *62G86, 62P30*

1. INTRODUCTION

In the course of process monitoring it is required to monitor variation in the process, in addition to monitor process location. It is likely that the location of the underlying process is not changed, but there is an increase in the process spread. In such situation quality characteristic will suffer and process output will have larger number of defectives. Thus quality of the production process will be hampered. In other words, the process capability will be decreased. Therefore it is required to monitor process spread over the time. In practice control charts based on sample range or sample variance are used to monitor process spread. These charts are based on some distributional assumption. The effects of non-normality are more severe for control charts for variability than in case of control charts for location. One of the limitations of the existing parametric control chart to monitor process variation is that these charts require estimating process standard deviation. An alternative to the parametric chart is a

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Analysis of Herbal Product: A Case study of Patanjali Product

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ABSTRACT

A well-known yoga guru Baba Ramdev started an association Patanjali Ayurved in 2007. The main aim of the company is to bring awareness among Indian people towards swadeshi products. Also the profits earn by the company will be either plough back or profits will be used for social welfare. The firm, to increase its sales, also provides its products at discount. Patanjali is also said that it will be very beneficial for consumer to shift in their preferences towards herbal and Ayurveda products which are deemed to be healthy and also closure to nature. The Patanjali Products have rightly been placed at advantage by the very concept of Marketing through Spirituality. Considering the popularity of these products, in the present article researcher has analysed the consumers those who are using these products by using different statistical tools. For this study a sample survey was conducted and information is collected from 200 respondents residing in Sangli City. The conclusions are drawn by using the statistical tests based on Normal and chi-square distribution.

Key Words: Patanjali, Product, Consumer, Analysis.

1. *Introduction:*

We know, India is a hub of herbal. In ancient time the people was using only herbal in medicine and other daily use products. Herbal products are medicines and are used as supplement to improve health and well being, and used for other therapeutic purposes. Herbal products are available in the form of tablet, capsule, powder, extract, teas and so on. Herbal medicines are considered safe as it is natural, but in fact it can cause serious adverse effects and dealings with other drugs and supplements. Now-a-days, we have too many products made by a chemical which affects the health. Herbal is a natural product which is made by plants and which doesnt have any side effects. Basically Word Ayurveda has been formed by "ayus" means life and "Veda" means knowledge. So we can say that Ayurveda is about to know more about life.

It is fact that, world is turning towards the herbal products. So, in the present paper one of the herbal, Patanjali products, are analysed and studied. The aim of the present study is to know the factors affecting consumer behavior and also to know about the satisfaction level of consumers regarding Patanjali products.

Patanjali Ayurved was formed in January, 2006 as a private limited company by yoga guru Baba Ramdev and his partner Sri Acharya Balkrishnaji. In June, 2007, it was converted to a Public Ltd. Company. It is registered under the Companies Act, 1956 and has its registered office in Bijwasan, New Delhi and three other offices in Haridwar. The company was started with the vision of uplifting the life of Indian farmers by locally sourcing the raw materials from them and making their lives better while at the same time provide an opportunity to the Indian masses to move towards healthy lifestyle by promoting Ayurveda and herbal products. Baba Ramdev started as a yoga trainer and was promoted by Aastha and Sanskaar channels on TV. Hence, Indians realised that they have forgotten Indian tradition and art forms- one of them being yoga. He got wide acceptance and word of mouth publicity helped him to reach to a wider audience. He projected Yoga as a solution or remedy for all difficulties or diseases. Patanjali Ayurved in its first year of operations, 2008, generated revenue of over 60 crores. Almost 10 years later, the homegrown venture has grown to be a 5000 crore company and is posing a threat to the well-established companies in the Fast Moving Consumers goods domain.

Patanjali has a wide range of products with the theme of Ayurvedic/herbal being common across all categories. It has four business divisions: Food and Beverages, Cosmetics and Health, Health drinks and home care. The highest revenue grossing products are Patanjali Cow Ghee, Dant Kanti, Kesh Kanti, Patanjali Atta noodles and Patanjali Aloe Vera juice and gel. The customer base of Patanjali is very huge and day by day is going on increasing. A major ramp-up came when Patanjali was re-launched by Baba Ramdev in 2014. The company is finding it difficult to cater to the demand of all the customers. It has increased

. Steady-State Behavior of Nonparametric Synthetic Control Chart Using Signed-Rank Statistic

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Abstract

The article studied the steady-state behaviour of the synthetic control chart using signed-rank statistic for shifts in the process median. The steady-state ATS (Average Time to Signal) values are computed using Markov chain approach. To compute steady-state ATS, the performance of the synthetic control chart and two-of-L+1 control chart can be made identical over all samples with head start features. When subgroup sample size n=10, the steady-state performance of the synthetic control chart is worth for small to moderate shifts under all considered symmetric distributions. When subgroup sample size n=5, steady-state ATS values are larger under normal and double exponential distributions only for small shifts. However, under the Cauchy distribution zero-state ATS values are larger but not significantly larger as compared to steady-state ATS values. Usefulness of proposed control chart explored using numerical example. Proposed control chart is simple and easy to use for practitioners.

Keyword: Nonparametric, signed-rank, synthetic, runs rule, steady-state and average time to signal.

1. Introduction

A control chart is one of the most useful tools for monitoring quality of the characteristic of an interest in a manufacturing process. Most of the control charts are based on the assumption that the process characteristic follows a normal distribution. Many researchers have pointed out that all the processes are not normally distributed; see for example (Chou et al. 2001) and the references cited therein. The standard control charts do not perform well, if the assumption of normality is not satisfied. The effects of non-normality on the $\overline{X}$ chart have been studied in the literature and includes among others (Schilling and Nelson 1976, Bradley 1973). This demands the construction of nonparametric control charts. A chart is said to be nonparametric if the run length distribution of the chart does not depend on the underlying process distribution, when there is no shift in the process parameter under study. Hence, the in-control Average Time to Signal (ATS) of nonparametric control chart does not depend on the underlying process distribution.

In the review of literature related to the nonparametric control charts, (Bakir and Reynolds 1979) provided a control chart based on within group ranking. (Hackl and

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A Geographical Study Of Gaumukh Religious Tourist Center in Navapur (Mh), Songadh (Gj) Tahsil.

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Abstract :

Todays the most important and fast growing industry is tourism. Tourism Mean the largest sector of international trade, earning, foreign currency and income source. Some countries and states economy totally depends upon tourism. In India importance of religious tourism in ancient period as well as modern period. The diversity of physical, social, cultural, historical and also religious factors is main attractions of the tourist's centers. In India as well as Maharashtra major scope for religious tourism because India has various background, history, magnificent culture and religious places as well as the Geographical condition is favorable for development of tourism. There are same problems face by tourist present study has view the real situation, condition, facilities and services related problems and its solution by the view of Geographical perspective.

Key Words: Tourism industry, religious tourism, socio-cultural-historic aspects.

Introduction:

Tapi district is one of the 33 districts of Gujarat state in western India. It has seven tahsils tapi, Songadh, Nizhar, Valod, Uchhal Dolvan Kukarmunda . vyara city is the district headquarters. Tapi district was formed in 2007 out of some Tahsil that were separated from Surat district. Tapi(Vyara) District shares Purna Wildlife Sanctuary with the Districts of Dang and Nandurbar, the latter of which is in Maharashtra. Purna Wildlife sanctuary is a part of the Dangs' Forest. Some of the important tourist center in Tapi(vyara) District are: Songadh Fort, Gaumukh Mahadev templeand waterfall , Hindustan Bridge, Tapi River, and Ukai Dam. Songadh Fort. Other religious tourist destinations are: Kokadia Hanuman Mandir, Parsuramji and Suryatapeshwar Mandir, Kalyanraiji Mandir, Gayatrimata Mandir, Saibaba Mandir, Firangi Mataji - Jalaram Mandir, Mari Mata Mandir. Gaumukh 24km from navapur, around 13 km from songadh,about 33km from vyara(tapi) about 51 km from dang(ahwa) and near about 132km from Nandurbar

This is the oldest temple of Gaumukh mahadev. The place is surrounded by the forest. The atmosphere of this place is peaceful and pleasant. The temple is surrounded by forest.

Nandurbar district is rich socio-cultural establishmentand religious historical background. Also it is bounded by religious centers; such as Prakasha, one of the famous religious places, also known as Dakshin Kash, emples of God Shree Ganesha (Heramb), Shri Datta temple, Unaj Mata temple, Ashwatthama and Shanimandir, Dandapaneshwar Ganesh Mandir, Devi Mogra Mata is mother goddess of Adivasis, Devi Mogra Mata is mother goddess of Adivasis.Toranmal.Gaumukha. The Gaumukh temple is situated near Don town in Navapur Songadh(Gujarat) border tapi district. The Gaumukh temple is oldest temple of shiva. The temple is surrounded by forest. So it's quite famous in people. For tourist it's the best place for hangout. The Gujarat government declare this place as a tourist place few years ago. Some renovation work also done there. Gaumukha is the oldest temple of Gaumukh mahadev. The place is surrounded by the forest. The atmosphere of this place is peaceful and pleasant. During month of shravana its best time to visit any shiv temple.

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"A Geographical Study of Forest Settlement in Dhadgaon Tahsil" (Nandurbar District)

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Abstract:

The researcher article focuses at A Geographical Study of forest settlement in Dhadgaon (Akrani) Tehsil. Tribals are those people, who are living in forest. The Tribes are depending upon the resources obtained from forest. The geographical location of Dhadgaon particularly 73 forest villages' fails to provide proper educational facilities to running schools. The researcher has gone through forest settlement and surveyed of 10 villages of Dhadgaon tehsilat. A study region concern to the Satpura Mountain and Narmada River bank. Field observation of the study region. Relief is the chief constraint against the development the development of settlement.

The distribution of settlement is mainly governed by slope absolute relief, relative relief to understand the distributional pattern of forest settlements and their relationship with forest. The topsheet of the study area 1:50000 scale with contour interval 50 Meter have been consider.

Keywords: Akrani, forest villages, River bank, Relief, slope, Pattern.

Introduction:

Mountainous region is a residence of tribal people. That is why they are called 'Vanvasi', or 'Girijan'. The Settlement of tribal's of hilly region are scattered or dispersed. Their festivals are celebrated in the company of nature. During these festivals the musical instrument and the objects made by handicraft artists are used. These instrument materials available by surrounding environment. Lifestyle of tribal people changes according to differences of regions. But their is similarity in culture, customs and tradition. Primary occupation of tribal people is totally depend upon forest. They collect fruites, edible roots and flowers form forest. They also do the occupation like cattle raising and farming. They spend their all life in the accompiment of nature. The tribal people building material using the forest. They make various items from wood, soil and bamboo. By this they get some economical benefits. Standard of education of tribal's has been lessed. Mostly it is so in the forest villages of hilly region. Forest villages are found in the thick forests of hilly region. That is why there is lack of educational facilities and means of transpiration. So they prefer the occupation depend on the forest. That is why many trees of forest are cut down. Satpura is a mountainous region in the Dhadgaon tahsil of Nandurbar district.

Their residency differs as per catchment area but their culture and tradition remains same. These people totally live on forest normally on different types of roots, fruits collection and hunting. Animal husbandry and farming are the major occupation of these people. Entire life they live in forest. They make different types of things by different types of wood. They sell these objects in the nearest market and get more economic output with it.The rating of education occurred lack of there tribal people mainly in forest area where the forest villages are located. The forest villages located in dence forest lack management,

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GOVERNMENTS STEPS FOR POVERTY ALLEVIATION IN INDIA

Arjun Wagh and Rani Shinde

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ABSTRACT:

Alleviation of poverty remains a major challenge before the Government. While there has been a steady decline in rural poverty over the last two decades, there were 244 million rural poor in the country in 1993-94, as per the latest available estimates. Acceleration of economic growth, with a focus on sectors which are employment-intensive, facilitates the removal of poverty in the long run. However, this strategy needs to be complemented with a focus laid on provision of basic services for improving the quality of life of the people and direct State intervention in the form of targeted anti-poverty programmes. While growth will continue to be the prime mover, anti-poverty programmes supplement the growth effort and protect the poor from destitution, sharp fluctuations in employment and incomes and social insecurity. The specifically designed anti-poverty programmes for generation of both self-employment and wage-employment in rural areas have been redesigned and restructured in 1999-2000 in order to enhance their efficacy/impact on the poor and improve their sustainability. These schemes along with Area Development Programmes, Rural Housing, Land Reforms and institutional mechanisms of delivery mentioned.

Keywords: - Alleviation, poverty, Acceleration, employment, social insecurity

Introduction

The poverty alleviation programmes in India can be categorized based on whether it is targeted for rural areas or urban areas. Most of the programmes are designed to target rural poverty as prevalence of poverty is high in rural areas. Also targeting poverty is challenging in rural areas due to various geographic and infrastructure limitations. The programmes can be mainly grouped into

1. Wage employment programmes
2. Self-employment programmes
3. Food security programmes
4. Social security programmes
5. Urban poverty alleviation programmes.

The five year plans immediately after independence tried to focus on poverty alleviation through sectoral programmes. The first five-year plan focused on agricultural production as a way of addressing poverty while second and third plans focused on massive state led investments for employment generation in public sector. While these policies did some policy generation, they did not have enough strength to have a sweeping effect.

Objectives –

1. To understand the poverty alleviation programme of government.
2. To know the present scenario of poverty alleviation programme.

Methodology –

The present research paper is informative the required information collected through various secondary sources.

Jawahar Gram Samridhi Yojana

Jawahar Gram Samridhi Yojana(JGSY) is the restructured, streamlined and comprehensive version of the Jawahar Rozgar Yojana (JRY). It was started on 1 April 1999. The main aim of this programme was development of rural areas. Infrastructure like roads to connect the village to different areas, which made the village more accessible and also other social, educational (schools) and infrastructure like hospitals. Its secondary objective was to give out sustained wage employment. This was only given to BPL (below the poverty line) families and fund was to be spent for individual beneficiary schemes for SCs and STs and 3% for the establishment of barrier free infrastructure for the disabled people. The village panchayats were one of the main governing bodies of this programme. Rs. 1841.80 crore was used and they had a target of 8.57 lakh works. 5.07 lakh works were completed during 1999-2000.

National old age pension Scheme

This scheme came into effect on 15 August 1995. The scheme provides pension to old people who were above the age of 65 (now 60) who could not find for themselves and did

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ENVIRONMENTAL SUSTAINABILITY AND ITS IMPORTANCE

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ABSTRACT

Sustainatality is a broad discipline, giving students and graduates insights into most aspects of the human world from business to environment and the social sciences. The core skills with which a graduates leaves college or university are highly sought after, especially in a modern world looking to drastically reduce carbon emissions and discover and develop the technologies of the future. Sustainability draws on politics, economics and, philosophy and other social sciences as well as the hard sciences. Sustainability skills and environmental awareness is a priority in many corporate jobs at graduate level and over as businesses seek to adhere to new legislation.

Keywords- Sustainability, technology, environment, awareness

Introduction

Sustainability graduates will go into many fields but most commonly civic planning, environmental consultancy, agriculture, not for profit, corporate strategies, health assessment and planning, and even into law and decision making. Entry-level jobs are growing and over the coming years, bachelor's graduates can expect more and more options and opportunities.

Sustainability is one the newest degree subjects that attempts to bridge social science with civic engineering and environmental science with the technology of the future. When we hear the word "sustainability" we tend to think of renewable fuel sources, reducing carbon emissions, protecting environments and a way of keeping the delicate ecosystems of our planet in balance. In short, sustainability looks to protect our natural environment, human and ecological health, while driving innovation and not compromising our way of life. Because of this growing requirement, a master's will not necessarily be required for most jobs as bachelor's programs prepare people for a career in sustainability. Read more about the various sustainability degrees and education.

Objectives

1. To know the concept Environmental Sustainability
2. To understand the importance of Environmental Sustainability

Methodology

The present research paper is informative the required information collected through various secondary sources

What is Sustainability?

The definition of "sustainability" is the study of how natural systems function, remain diverse and produce everything it needs for the ecology to remain in balance. It also acknowledges that human civilization takes resources to sustain our modern way of life. There are countless examples throughout human history where a civilization has damaged its own environment and seriously affected its own survival chances. Sustainability takes into account how we might live in harmony with the natural world around us, protecting it from damage and destruction.

We now live in a modern, consumerist and largely urban existence throughout the developed world and we consume a lot of natural resources every day. In our urban centres, we consume more power than those who live in rural settings and urban centres use a lot more power than average, keeping our streets and civic buildings lit, to power our appliances, our heating and other public and household power requirements. That's not to say that sustainable living should only focus on people who live in urban centres though, there are improvements to be made everywhere - it is estimated that we use about 40% more resources every year than we can put back and that needs to change. Sustainability and sustainable development focuses on balancing that fine line between

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An Impacts of Tourism in India

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Abstract:

The present study makes an attempt to highlight the development of Tourism and initiatives taken by Government to promote Tourism in India and its impact .The main theme of paper is to analyze positive and negative impacts of Tourism Industry on the Economy, Tourism Industry in India is growing and it has vast potential for generating employment and earning large amount of foreign exchange besides giving a fillip to the country's overall economic and social development. Data were collected through the websites and various research articles. The study implies to the depth of social, economical and environmental effects of the tourism industry Most of the works that are focused on tourism industry in India.

Keywords: Foreign exchange, Tourism Industry, Development, Impact of Tourism, Constrains

Objectives

The following objectives are considered to highlight the theme

1. To know the tourism
2. To understand the Positive and Negative impact concern with various aspect

Data Collection and Methodology

Present research article is informative. The required information is collected through secondary sources of information.

Introduction

Tourism becomes the fastest growing service industry in the country with great potentials for its further expansion and diversification. Tourism is defined as the business of providing services for people who are travelling for their holiday. It is also defined as travel for recreational, leisure or business purposes. The statistical terms defined tourism as the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited. Over the decades, tourism has experienced continued growth. Tourism Industries is one of the fastest growing economic sectors in the world. Tourism has become a thriving global industry with the power to shape developing countries in both positive and negative ways. No doubt it has become the fourth largest industry in the global economy. Similarly, in developing countries like India tourism has become one of the major sectors of the economy, contributing to a large proportion of the National Income and generating huge employment opportunities.

Development of Tourism

The development of tourism was taken up in a planned manner in 1956 coinciding with the Second Five Year Plan. The approach has evolved from isolated planning of single unit facilities in the Second and Third Five Year Plans. The Sixth Plan marked the beginning of a new era when tourism began to be considered a major instrument for social integration and economic development. But it was only after the 80's that tourism activity gained momentum. The Government took several significant steps. A National Policy on tourism was announced in 1982. In 1988, the National Committee on Tourism formulated a comprehensive plan for achieving a sustainable growth in

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A Study of Indian Society and Changes in Social Institution

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Shivaji University, Kolhapur.

Introduction:

The first step in the expansion of western culture and modernization in India began, when East India Company established its rule in the beginning of the eighteenth century and later on the British rule was established in the country by the middle of the eighteenth century. India is a hierarchical civilization. Whether in north India or south India, Hindu or Muslim, urban or village, nearly all things, people, and social groups are ranked according to various necessary behaviors. Societal hierarchy is manifest in caste groups, amongst individuals, and in family and similarity groups.

In its basic sense, social change means change in social structure (Johnson) Social change occupies a dominant place in the consciousness of humanity. Change is the basic nature of society and change is universal. ''Social change may be defined as the process which is discernible in the alteration of the structure and functioning of a particular social system''. (Kuppuswamy, B.1979). Social patterns, social interaction within a social organization. Social changes and variations from the accepted modes of life, whether due to geographical conditions, in cultural equipment, composition of the population or ideologies and whether brought about by diffusions or inventions within the group. (Gillin&Gillin 1950.). The nature and pace of social change are not consistent in each age or period in the same society. There is no natural law in social change according to which it assumes definite forms. It is difficult to make any prediction about the exact forms of social change. An institution is an organized system of social relationship which embodies certain common values and procedures and meets certain basic needs of society (Horton and Hunt). The present research study focuses on changes in particular social institution like education, family and marriage etc.

Objectives:

1. To study changes in education, family and marriage of Indian society

Data Base and Methodology

The database has been arranged for the study from various sources. They include Governmental reports and records Newspaper, Magazine and other unpublished reports are the main source of the present study. The present work is fully theoretical manner and based on secondary data. The collected materials are fully studied and evaluate.

Society is the web of social relationship (Machlver and Page.) Indian society is very old, intricate and plural and it has a long history. It is composed of different religious groups, racial groups and groups having cultural differences. In the long span of Indian history various groups from" different parts of the world entered into India with their own socio-cultural and racial features. The best example is Indus valley civilization

Changes in the Institution of Education:

India has stand 34th rank in quality education (world Economic forum) Education is a sub-system of the society. It is related to other sub-systems. Various institutions or sub-systems are a

A Study of Indian Society and Changes in Social Institution

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In its basic sense, social change means change in social structure (Johnson) Social change occupies a dominant place in the consciousness of humanity. Change is the basic nature of society and change is universal. "Social change may be defined as the process which is discernible in the alteration of the structure and functioning of a particular social system". (Kuppuswamy, B.1979). Social patterns, social interaction within a social organization. Social changes and variations from the accepted modes of life, whether due to geographical conditions, in cultural equipment, composition of the population or ideologies and whether brought about by diffusions or inventions within the group. (Gillin&Gillin 1950.). The nature and pace of social change are not consistent in each age or period in the same society. There is no natural law in social change according to which it assumes definite forms. It is difficult to make any prediction about the exact forms of social change. An institution is an organized system of social relationship which embodies certain common values and procedures and meets certain basic needs of society (Horton and Hunt). The present research study focuses on changes in particular social institution like education, family and marriage etc.

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कवठेएकंद गावातील दसरा : संस्कृती आणि परंपरा

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प्रास्ताविक :

भारतामध्ये प्रत्येक सण विशिष्ट पद्धतीने साजरा केला जातो. तसेच सर्व सणांना काही पौराणिक आधार असलेले दिसून येतात. यामध्ये विजयादशमी किंवा दसरा सणाला विशेष महत्व आहे. भारतामध्ये प्रत्येक ठिकाणी विजयादशमी विविध पद्धतीने साजरी केली जाते. महाराष्ट्रातील कवठेएकंद (तालुका- तासगाव,जि –सांगली) या गावामध्ये विजयादशमीच्या रात्री शोभेची आतिषबाजी केली जाते. ग्रामदैवत श्री.सिद्धराज देवस्थानाची पालखीसमोर रात्रभर शोभेच्या आतिषबाजीचा कार्यक्रम होत असतो. यावेळी आतिषबाजी पाहण्यासाठी संपूर्ण देशभरातून भाविक येत असतात. महाराष्ट्रातील शिवकाशी म्हणून कवठेएकंद गावाचि ओळख आहे. दसऱ्या दिवशी सुमारे दोनशेहून अधिक मंडळ या शोभेच्या आतिषबाजीमध्ये सहभाग घेतात आणि ग्रामदैवतेच्या पालखी समोर रात्रभर आतिषबाजी करतात. महाराष्ट्रातील सांगली जिल्ह्यातील कवठेएकंद हे गाव सांगली पासून वायीस किलोमीटर अंतरावर उत्तरेला आणि तासगाव पासून सहा किलोमीटर दक्षिनेला आहे. प्राचीन काळापासून या गावामध्ये दसऱ्यादिवशी शोभेची आतिषबाजी केली जाते कवठेएकंदला महाराष्ट्राचे म्हैसूर म्हणूनही ओळखले जाते.

उद्दिष्टे :

कवठे एकंद गावातील दसरा सणाच्या आतिषबाजीचा अभ्यास करणे.

संशोधन पद्धती :

प्रस्तुत संशोधनासाठी संशोधकाने वर्णनात्मक संशोधन पद्धतीचा अवलंब केलेला आहे. गावातील दसरा सण साजरा करण्याची परंपरा जाणून घेण्यासाठी तसेच आतिषबाजीचे स्वरूप समजून घेण्यासाठी आतिषबाजी करण्याऱ्या मंडळाकडून माहिती घेण्यात आली. तसेच दसऱ्या दिवशी आतिषबाजीचे प्रत्यक्ष निरीक्षण करण्यात आले.

ऐतिहासिक पार्श्वभूमी :

कवठे एकंद गावातील ग्रामदैवत श्री.सिद्धराज मंदिर हे सुमारे १२५० वर्षांपूर्वी असल्याचे पुरावे पद्मपुराण केदारविजय या ग्रंथामध्ये आढळते. पूर्वी या सिद्धराज मंदिराभोवती दंडकारण्य होते. राणीचे वेळी श्रींच्या पालखीच्या मार्गावर जंगलातील प्राण्यांचा धोका होता. अशा प्राण्यांना हुसकून लावण्यासाठी आणि संरक्षणासाठी मशाली, दिवट्या तसेच आवाज आणि प्रकाश निर्माण करणारी आतिषबाजीचि सुरवात झाली. ग्रामदैवत सिद्धराज देवस्थान म्हणजेच कपिलमुनीचे समाधी स्थळ मानले जाते. या समाधी स्थळावर महादेवाची पिंड आहे. विजयादशमीच्या दिवशी श्री.सिद्धराज महाराज आपल्या बहीनीची भेट घेण्यासाठी निघतात.

आतिषबाजी चे स्वरूप :

- या आतिषबाजीची पूर्वतयारी घटस्थापनेपासून सुरु होते.

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वस्तू आणि सेवाकर (जी.एस टी) : एक मूल्यमापन

प्रा.जे.ए.यादव,
सहयोगी प्राध्यापक
अर्थशास्त्र विभाग,
पी.डी.व्ही.पी. महाविद्यालय, तासगांव

प्रस्तावना :-

करप्रणाली सुधारण्याच्या दृष्टीकोनातून हे बील फारच महत्वाचे आहे. २००६-०७ च्या अंदाजपत्रकात कॉंग्रेसच्या राजवटीत प्रथम जी.एस.टी. चा उल्लेख केला गेला होता. जी.एस.टी हा एक अप्रत्यक्ष कराचा एक प्रकार आहे. हा कर गुड्सचे उत्पादन, विक्री, आयात आणि सेवा या सर्वांवरील राष्ट्रीय पातळीवरील सर्वसमावेशक अप्रत्यक्ष कर असेल. निर्यात-आयात कर आणि कार्पोरेट टॅक्स या कराच्या कक्षेत बाहेर आहेत. केंद्र सरकार आणि राज्य सरकार जे निरनिराळे अप्रत्यक्ष कर लावतात त्या सर्व करांची जागा जी.एस.टी घेणार आहे. सध्या व्हॅट एक्साईज, आणि सर्विस टॅक्स असे तीन कर लावण्याऐवजी एकच जी.एस.टी हा कर लावला जाईल.

GST (वस्तू आणि सेवाकर) म्हणजे काय?

GST म्हणजे वस्तू व सेवा कर असून तो वस्तू किंवा सेवांवर हा एकच कर लागू असेल (केंद्र सरकार व राज्य सरकार) असा हा एक गंतव्य स्थान आधारीत वस्तू आणि सेवा यांच्या उपभोगावरील कर आहे. यामध्ये निर्मिती/उत्पादनापासून ते अंतिम उपभोगापर्यंत प्रत्येक टप्प्यावर कर आकारणी करण्याचे प्रस्तावित केले आहे. सारांश असा की केवळ वर्धित मूल्यावर कर आकारला जाईल आणि अंतिम उपभोगक्त्या/ग्राहकाला कर द्यावे लागणार. GST (वस्तू व सेवाकर) हा एक अप्रत्यक्ष कराचाच एक प्रकार आहे. हा कर मालाचे उत्पादन, विक्री, आयात आणि सेवा या सर्वांवरील राष्ट्रीय पातळीवरील सर्वसमावेशक अप्रत्यक्ष कर असेल. केंद्र सरकार आणि राज्य सरकार जे निरनिराळे अप्रत्यक्ष कर लावतात या सर्व करांची जागा GST घेणार आहे.

सध्या VAT (Value Added Tax) मूल्यवर्धित कर उत्पादन शुल्क, सेवा कर असे तीन कर लावण्याऐवजी एकच असा हा कर लावला जाईल.

अभ्यासाची उद्दिष्टेय

१. वस्तू आणि सेवा कर या संकल्पनेचा अभ्यास करणे.

२. विविध क्षेत्रातील कंपन्या ज्यांना जी.एस.टी. मुळे फायदा होणा-या अभ्यास करणे

संशोधन पध्दती आणि तथ्य संक लन

प्रस्तुत शोधनिबंध तयार करण्यासाठी दुय्यम सामग्रीचा वापर करण्यात आला आहे. यामध्ये प्रामुख्याने संदर्भग्रंथ,वर्तमान पत्रे,मासिके,इंटरनेट इत्यादींचा वापर करण्यात आला आहे.

जी.एस.टी.चे फायदे :-

१) कर भरणे सोपे जाईल कर भरण्याच्या, आकारण्याच्या पध्दतीत सहजता आणि सुलभता येईल.

२) देशाचे ग्रॉस डोमेस्टिक प्रॉडक्ट वाढेल. प्रगतीचा वेग वाढेल.

३) संपूर्ण देशात सामान खरेदी करण्यासाठी एकच कर आणि एकाच दराने कर द्यावा लागेल. पूर्ण देशात एकाच किंमतीला एक प्रकारचे सामान खरेदी करता येईल.

४) वेगवेगळ्या प्रकारचे कर भरण्यापासून सुटका होईल.

५) टॅक्स या रचनेत पारदर्शकता येईल. राज्यांना मिळणारा व्हॅट, करमणूक कर, लक्झरी कर, एन्ट्री कर लॉटरी कर, आणि राज्य आकारीत असलेला विक्री कर बंद होतील. सामान खरेदी करताना किंवा कोणत्याही सेवेचा आस्वाद घेताना एकूण सर्वकर मिळून ३० टक्के ते ३५ टक्के कर द्यावा लागतो तो २० ते २५ टक्के इतका द्यावा लागेल.

६) त्यामुळे भारताच्या प्रगतीचा दर १ ते १.५ टक्केने वाढेल.

७) जी.एस.टी. कर वस्तू आणि सेवा व केवळ लावला जाईल.

८) गुड्स आणि सेवा ज्या वेळेला एकत्र पुरवल्या जातात त्यासाठी आता एकच जी.एस.टी. लावला जाईल.

९) जी.एस.टी. अंतर्गत विविध प्रकारच्या गुड्सचे वर्गीकरण सोपे आणि साधे केले आहे. त्यामुळे कर लावण्यासाठी कोणत्याही गुड्सचे वर्गीकरण वादग्रस्त ठरणार नाही.

१०) रिटेल सेक्टर साठी लिज रेंटल आणि इन्व्हेंटरी खर्च कमी होईल.

११) भरलेल्या जी.एस.टी. साठी सप्लाय चेन मधील घटकांना क्रेडीट देणे सोपे होईल.

१२) जी.एस.टी. मुळे असंघटीत कोणत्याही कराच्या जाळ्यात येईल. त्यामुळे सरकारचे उत्पन्न वाढेल आणि संघटीत आणि असंघटीत क्षेत्रातील दरी कमी होईल संघटीत क्षेत्राला जास्त

१५. कर चोरण्यासाठी कंपन्या अधले उत्पादन राज्यातल्या राज्यातच विकत असत. राज्याबाहेर विकल्यास केंद्रीय विक्रीकर व प्रवेश कर लागत असे. कारण असे कर उत्पादनाच्या पेढीस लावले जात नाहीत. चांगली उत्पादने जी देशाच्या एका भागात मिळतात ती देशात सर्वत्र मिळायला लागतील. त्यामुळे ग्राहकांना निवड करायला जास्त वाव मिळेल. तसेच कंपन्यांचे मार्केटही सर्व देशभर वाढेल.

१६. विविध राज्ये एकाच वस्तूवर वेगवेगळ्या दराने कर लावत असे, त्यामुळे एकाच वस्तूची वेगवेगळ्या राज्यांत वेगवेगळी किंमत असे, असा तसे होणार नाही , सर्व राज्यांत एकच किंमत राहील.

१७. व्यापारी व उद्योगधंद्यास हिशेब ठेवणे सोपे होईल कारण अनेक कर कायद्यांपैकी एकच कर कायदा लागू राहणार आहे.

१८. GST व्यवस्था एकाच सर्वसमावेशक माहिती तंत्रज्ञान व्यवस्थेवर आधारीत आहे त्यामुळे करपालन सोपे व पारदर्शक होईल.

निष्कर्ष : -

GST म्हणजे वस्तूच्या आणि सेवेच्या पुरवठ्यावर मूल्य वर्धित कर स्थापण्याची पध्दत आहे. १९७६ मध्ये केंद्रीय अबकारी कराला तर २००५ मध्ये राज्य विक्री कराला व्हॅट लागू करण्यात आला. आता व्हॅट प्रणाली बहुतेक अप्रत्यक्ष करांना लागू करून GST हा एकच कर सुरू केला आहे. या पध्दती मध्ये मालाच्या उत्पादना पासून शेवटच्या विक्रेत्यापर्यंत होणाऱ्या पुरवठ्यांच्या मूल्यवर्धनावर कर लावण्यात येतो. त्याचप्रमाणे सेवेच्या किमतीवर कर आकारणी होते. या प्रक्रियेत कर लावताना वस्तू व सेवा प्राप्त करताना भरलेल्या करांची पूर्ण वजावट देण्यात येते. म्हणजेच GST हा बहु बिंदु कर असल्याने कराचा सर्वभार ग्राहकांवर पडणार नाही.

थोडक्यात, करप्रणाली सुधारण्याच्या दृष्टीकोनातून वस्तू व सेवा कर हा फार महत्त्वाचा आहे. GST हा वस्तूचे उत्पादन, विक्री, आयात तसेच सेवा यावरील राष्ट्रीय पातळीवरील सर्वसमावेशक अप्रत्यक्ष कर आहे. केंद्र सरकार व राज्य सरकार जे निरनिराळे अप्रत्यक्ष कर लावतात त्या सर्व करांऐवजी GST हा एकच कर आहे. उदा. सेवा कर, उत्पादन शुल्क, व्हॅट तीन कर लावण्याऐवजी एकच GST हा कर लावला जाईल. १९४७ नंतरचे सर्वात महत्त्वाचे करसुधारणा विधेयक म्हणून वस्तू व सेवा कर विधेयकाचे महत्व आहे.

संदर्भसूची : -

१. वस्तू व सेवा कर - एक दृष्टीक्षेप, वित्त विभाग, महाराष्ट्र शासन.
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४. देसले किरण , वित्तसंभ अर्थशास्त्र, २०१७.

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जी.एस.टी. आणि भारतीय शेतकरी

प्रा.के.एस.पाटील
विभाग प्रमुख
अर्थशास्त्र विभाग
पी. डी. पी. महाविद्यालय, तासगांव

प्रस्तावना :-

केंद्र सरकारने १ जुलै रोजी संपूर्ण देशात एक करप्रणाली अस्तित्वात आणून वस्तू व सेवा कर अर्थात गुड्स अॅन्ड सर्व्हिस टॅक्स किंवा जी.एस.टी.लागू केला. याबरं अनेक तज्ञांची मतमतांतरे आहेत. केंद्राने ५ टक्के पासून ते २८ टक्के पर्यंत उत्पादित मालावर जी.एस.टी. लागू केला आहे. जी.एस.टी. करांची विभागणी (शून्य टक्क्यापासून) पाच प्रकारांत करण्यात आली असून करमुक्त वस्तू सेवांपुढच्या पहिल्या प्रकारातील सेवांना ५ टक्के दुसऱ्या प्रकारातील सेवांना १२ टक्के तिसऱ्या प्रकारातील सेवांना १८ टक्के तर चौथ्या प्रकारातील सेवांना चैनी २८ टक्के कर लावण्यात आला आहे. अजूनही अनेक लोक याबर संभ्रमात आहेत. मुळात शेतीवर कोणताही कर लावलेला नाही. असा सरकारचा दावा आहे. तो सार्थिकच आहे. कारण वर्षानुवर्षे देशातील शेतकरी लोटलाची शेतीच करत आले आहेत. त्याला सरकारी धोरण जबाबदार आहे. देशात आजवर तीन लाखांहून अधिक शेतकऱ्यांनी आत्महत्या केल्या आहेत. भारताची ६२ टक्के लोकसंख्या ही शेतीवर अवलंबून आहे. हा व्यवसाय सकल देशांतर्गत उत्पादनांच्या (जीडीपी) सुमारे एक पंचमांश योगदान होते. आणि एकुण निर्यात उत्पन्नात सुमारे १० टक्के भागवते आणि मोठ्या प्रमाणात उद्योगांना कच्चामाल पुरवितो. ग्रामीण भागातील अर्थव्यवस्था ही प्रामुख्याने शेतीवर अवलंबून आहे.

GST (वस्तू आणि सेवाकर) म्हणजे काय?

जीएसटी म्हणजे वस्तू व सेवा कर असून तो वस्तू किंवा सेवांवर हा एकच कर लागू असेल (केंद्र सरकार व राज्य सरकार) .जीएसटी हा एक गंतव्य स्थान आधारीत वस्तू आणि सेवा यांच्या उपभोगावरील कर आहे. यामध्ये निर्मिती/उत्पादनापासून ते अंतिम उपभोगापर्यंत प्रत्येक टप्प्यावर कर आकारणी करण्याचे प्रस्तावित

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वस्तू आणि सेवा कर आणि स्थानिक सरकारे

डॉ. बंदू जयसिंग कदम
सहाय्यक प्राध्यापक,
अर्थशास्त्र विभाग,
पी. डी. को. पी. महाविद्यालय, तासगांव

प्रस्तावना :-

भारतात १ जुलै २०१७ पासून वस्तू व सेवा कर लागू झाल्यामुळे देशाच्या इतिहासात वस्तू व सेवा कर ही प्रणाली क्रांतीकारी पाऊल म्हणून ओळखली जात आहे. योग्य कर धोरणे ही कोणत्याही देण्याच्या मजबूत प्रशासन आणि शाश्वत विकासाचे निदेशक मानली जातात. यासाठी अगदी इतिहासकालीन दाखल देता येतील. उत्तम प्रशासक म्हणून ज्यांचे इतिहासात नाव घेतले जाते. वस्तू व सेवा करामुळे सध्या कर पंक्तीत ही स्थिती बदलणार आहे. संपूर्ण देशभरात आता कोणत्याही वस्तू अथवा सेवेसाठी एकदाच कर भरावा लागेल. इंटिनेशन टॅक्स असे नांव देण्यात आलेल्या वस्तू व सेवा करामुळे आता वस्तू अथवा सेवा जिथे पुरवली जाणार आहे. अशाच ठिकाणी कर आकारला जाईल. त्यामुळे सामान्य नागरीकांसाठी नवी कर लाभदायक ठरणार आहे. या करपंक्तीची रचना पारदर्शक असल्यामुळे सरकारला त्यावर देखरेख ठेवणे ही सुलभ होणार आहे.

कर हे सार्वजनिक महसुलाचे एक महत्त्वाचे आणि खात्रीचे साधन आहे. कारण एकुण सार्वजनिक उत्पादनातील करांचा हिस्सा अधिक असतो. त्या बरोबरच करांचे स्वरूप जसे कि प्रत्यक्ष आणि अप्रत्यक्ष यांचाही परिणाम अर्थव्यवस्थेच्या आर्थिक विकासाबरोबरच लोकांच्या जीवनमानावर आणि सामाजिक कल्याणावर ही होत असतो. त्यामुळेच भारतात स्वातंत्र्योत्तर काळात अनेक कर विषयक सुधारणा करण्यात आल्या. आणि त्यांची गती आणि त्यांची व्याप्ती १९९१ नंतर वेगाने वाढत आहे. केंद्र सरकारने १ जुलै २०१७ पासून वस्तू आणि सेवा कर लागू केला आहे. हि खूप महत्त्वाची किंवहुना क्रांतीकारक कर सुधारणा आहे. ती केंद्र आणि राज्य पातळीवर एकदाच राबवली जाणार आहे. या कराचा परिणाम सरकारच्या उत्पन्नावर आणि स्थानिक सरकारांच्या वित्तीय स्वायत्तेवर काय होईल ते पाहणे आवश्यक आहे.

अभ्यासाची उद्दिष्टेय

१. वस्तू आणि सेवा कर या संकल्पनेचा अभ्यास करणे.
२. वस्तू आणि सेवा करामध्ये अंतर्भूत करांचा अभ्यास करणे.
३. वस्तू आणि सेवा करावरील घटनात्मकतेचा अभ्यास करणे.
४. वस्तू आणि सेवा कराचा सरकारच्या उत्पन्नावर आणि स्थानिक सरकारच्या वित्तीय स्वायत्तेवर होणा-या परिणामांचा अभ्यास करणे.

संशोधन पध्दती आणि तथ्य संकलन

प्रस्तुत शोधनिबंध तयार करण्यासाठी दुय्यम सामग्रीचा वापर करण्यात आला आहे. यामध्ये प्रामुख्याने संदर्भग्रंथ,वर्तमान पत्रे,मासिके,इंटरनेट इत्यादींचा वापर करण्यात आला आहे.

GST (वस्तू आणि सेवाकर) म्हणजे काय?

GST म्हणजे वस्तू व सेवा कर असून तो वस्तू किंवा सेवांवर हा एकच कर लागू असेल (केंद्र सरकार व राज्य सरकार) .म्हणजे हा एक संपूर्ण स्थान आधारीत वस्तू आणि सेवा यांच्या उपभोगावरील कर आहे. यामध्ये निर्मिती/उत्पादनापासून ते अंतिम उपभोगापर्यंत प्रत्येक टप्प्यावर कर आकारणी करण्याचे प्रस्तावित केले आहे. सारांश असा की केवळ वर्धित मूल्यावर कर आकारला जाईल आणि अंतिम उपभोगकर्ता/ग्राहकाला कर द्यावे लागणार. GST (वस्तू व सेवाकर) हा एक अप्रत्यक्ष कराचाच एक प्रकार आहे. हा कर मालाचे उत्पादन, विक्री, आयात आणि सेवा या सर्वांवरील राष्ट्रीय पातळीवरील सर्वसमावेशक अप्रत्यक्ष कर असेल. केंद्र सरकार आणि राज्य सरकार जे निरनिराळे अप्रत्यक्ष कर लावतात या सर्व करांची जागा हा कर घेणार आहे.

सध्या VAT (Value Added Tax) मूल्यवर्धित कर उत्पादन शुल्क, सेवा कर असे तीन कर लावण्याऐवजी एकच हा कर लावला जाईल.

(वस्तू आणि सेवाकर)कायांन्वित :-

केंद्र शासन व राज्य शासन द्वारे सामाईक करपात्रांवर एकाच वेळी येणारा दुहेरी कर असेल.

केंद्र शासनाद्वारे आंतरराज्य वस्तू/माल पुरवठा आणि सेवापूर्ती वर आकारण्यात येणाऱ्या GST ला केंद्रीय GST(CGST) असे संबोधित केले जाईल.

राज्य शासनाद्वारे आकारण्यात येणाऱ्या GST ला असे GST(SGST) संबोधित केले जाईल.

तसेच केंद्र शासनाद्वारे प्रत्येक आंतर राज्य वस्तू पुरवठा आणि सेवापूर्ती व एकात्मिक (IGST-Integrated GST) कर

Interdisciplinary National Conference on Language Skills and Personality Development
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अभिवाचन: पूर्वतयारी व तत्त्वे

डॉ. तातोबा बदामे,
पद्मभूषण डॉ. वसंतरावदादा पाटील
महाविद्यालय, तासगाव, जि.सांगली,
शिवाजी विद्यापीठ, कोल्हापूर

प्रास्ताविक:

मानवाचा विचार करणारा मेंदू हा सृष्टीतील इतर प्राणीमात्रांपासून मानवाला वेगळा ठरविणारा घटक आहे. अहोरात्र मनुष्य विचार करत असतो. विचार मनुष्याचे व्यक्तिमत्व घडवीत असतात. चांगले विचार मनुष्याच्या प्रगतीचे कारण ठरतात, तर वाईट विचार त्यास अधोगतीस नेतात. मनात चांगले विचार यावेत यासाठी वाचनाशिवाय दुसरा पर्याय नाही. उत्कृष्ट ग्रंथांचे वाचन वाचकाचे व्यक्तिमत्व समृद्ध करतेच तथापि त्याची भाषाही समृद्ध करते. विशेषतः भाषा विषयाच्या विद्यार्थ्यांनी वाचनाची सवय लावून घेतल्यास त्यास केवळ वाचनाचेच नाही तर अभिवाचनाचे कौशल्यही विकसित करता येऊ शकेल.

अभिवाचन म्हणजे काय?

कलाकाराने लेखक अथवा कवीने लिहिलेला मजकूर समजून घेऊन त्याच्या भावार्थासह शब्दातील आरोह – अवरोह तसेच चढ उतार साधून ध्वनिमुद्रणे केलेले प्रभावी प्रकट वाचन म्हणजे अभिवाचन. वाचन या सामान्य शब्दास 'अभि' हा उपसर्ग लावून अभिवाचन हा शब्द तयार झाला असून, त्याचा सरळ अर्थ प्रकट वाचन असा होतो. कलाकाराचे अभिवाचन हे श्रोत्यांचे लक्ष वेधून घेत असते. विविध कला व माध्यमे, सभा – समारंभ तसेच दैनंदिन जीवन जगताना विविध प्रसंगी व्यक्तीस अभिवाचनाचा उपयोग होत असतो. अभिवाचन ही एक कला असली, तरी ते प्रयत्न साध्य कौशल्यही आहे. अभिवाचनासाठी व्यक्तीने कोणती पूर्वतयारी करणे आवश्यक आहे याचा विचार करणे गरजेचे आहे.

अ. अभिवाचनाची पूर्वतयारी

भाषेच्या विद्यार्थ्याने अभिवाचन हे कौशल्य अंगीकारण्यासाठी विशिष्ट पद्धतीची पूर्वतयारी करण्याची आवश्यकता असते. मौलिक ग्रंथांचे वाचन, नियमित वृत्तपत्रवाचन, आकाशवाणीवरील कार्यक्रमांचे श्रवण, दूरदर्शनवरील निवडक कार्यक्रम पाहणे, सभा-संमेलनातील व्याख्याने ऐकणे, विविध समारंभातील सूत्रसंचालकाच्या भाषाशैलीचे श्रवण करणे, पर्यटन करणे, बहुश्रुतता इत्यादी पूर्वतयारी आदर्श अभिवाचनासाठी भाषेच्या अभ्यासकाने करावी. हे सर्व घटक विस्ताराने पाहता येतील.

१. **मौलिक ग्रंथांचे वाचन:** वाचनाचे महत्त्व लोकांना पटलेले असते परंतु काय वाचावे हे अनेकांना उमगत नसते. आदर्श अभिवाचनाच्या पूर्वतयारीसाठी कोणत्या प्रकारचे वाचन गरजेचे आहे याचा विचार करीत आहोत. भरतमुनींचे नाट्यशास्त्र, ज्ञानेश्वरी, तुकाराम गाथा, मोरोपंतांच्या आर्या, बालकवी, गोविंदाग्रज, कुसुमाग्रज, बा.भ.बोरकर, बहिणाबाई, शांता शेळके, गजानन मुक्तिबोध, बा.सी.मर्ढेकर, विंदा करंदीकर, नारायण सुर्वे, नामदेव ढसाळ, भालचंद्र नेमाडे इत्यादींचे काव्यग्रंथ, किर्लोस्करांचे संगीत सौभद्र, मामा वरेरकर, वसंत कानेटकर, आचार्य अत्रे, पु.ल. देशपांडे, विजय तेंडुलकर, रत्नाकर मतकरी, दत्ता भगत, संजय पवार त्याचप्रमाणे तेंडुलकरांनी अनुवादित केलेली गिरीश कर्नाड यांची नाटके, याबरोबरच कथा, कादंबरी, ललित व वैचारिक निबंधलेखन लिहिणारे थोर लेखक जसे हरिभाऊ आपटे, श्री.व्यं.केतकर, आनंद यादव, बाबुराव बागुल, व्यंकटेश माडगूळकर, जी.ए. कुलकर्णी, भालचंद्र नेमाडे, भाऊ पाध्ये, राजन गवस, भास्कर चंदनशिव इत्यादी, तसेच थोर विचारवंत महात्मा जोतीराव फुले, डॉ.बाबासाहेब आंबेडकर, डॉ. आ.ह. साळुंखे अशा थोर विभूतींचे मौलिक ग्रंथ वाचल्यास आपले शब्दभांडार इतके समृद्ध होईल की अभिवाचन करताना शब्दोच्चाराच्या वेळी कोणतेही शब्द अभिवाचकास अपरिचित वाटणार नाहीत. शब्दांचे अर्थ व त्याची ताकद त्यास नेटपणे लक्षात येऊ शकेल.

A STUDY OF ENVIRONMENT AWARNESS AMONG PASS-OUT STUDENTS IN B.A. AND B.COM. PART-II AT ARTS AND COMMERCE COLLEGE, NAGTHANE DIST SATARA (MAHARASHTRA)

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INTRODUCTION

The environmental education is the study of nature, natural resources, the interrelationship with man, human activities, disturbances of the environment and the attempts to improve the environment. It is an application of knowledge from different disciplines to study and manage the environment. It is also study of the conditions, circumstances and influences that affect life and how life in turn responds. Life requires the expert balance of environment condition to survive. Environmental study is based upon a comprehensive views of various environmental systems. It aims to make the citizens competent to do scientific work and to find out practical solution to current environmental problem.

This study finds out the awareness and implementation of environmental education in society through graduate students.

IMPORTANCE OF STUDY

Environment is main base of human growth and living life. Human being is direct and indirect depending on a environment because environment plays vital role in every activity of human. Hence the environmental education is a need to young generation of India. The University Grant Commission has formed a committee of expert on environmental studies. This was followed by framing of the core module syllabus of environmental studies for all undergraduate courses. The University Grant Commission has made it compulsory to all universities and colleges in India as per the directives of the Hon'ble Supreme Court of India.

Hon'ble vice-chancellor has endorsed the scheme to the Dean of social science faculty for designing the course curricula. According it has been studied thoroughly and the scheme of it's implementation has been prepared and forwarded to the college.

The course vision is the importance of environmental studies cannot be disputed. The need of sustainable development is a key to the future of mankind, continuing the problem of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The united nation conference on world summit on sustainable development at Johannesburg in 2002 have draw the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizens of the earth can afford to be ignorant of environmental issues. Environmental management has captured the attention of health can managers, managing environmental hazards has become very important. For the development of environment awareness among student.

GOODS AND SERVICE TAX IN INDIA

Sanawale Amol Gawardhan

&

Gurav Dipak Uddhav

Assistant Professor

Arts & Commerce College, Nagbhane

1. Introduction:

The recently introduced Goods and Service Tax is undoubtedly the biggest tax reform in the monetary history of India. Goods and Service Tax introduced from 1st July 2017 in India. Implementation of Goods and Service Tax leaves behind an inefficient complicated and fragmented indirect tax system. Goods and Service Tax has subsumed a profusion of Central and State indirect taxes to create a single unified market. It is stated to make India a seamless national market, boosting trade and industry and in turn growth rate. Goods and Service Tax is expected to represent a leap forward in creating a much cleaner dual Value Added Tax. Common base and common rates across goods and services and across States and between Centre and States will facilitate administration and improve compliance while also rendering manageable the collection of tax on inter State sales. Switching over to Goods and Service Tax is fraught with many problems administrative and technical. However such problems are endemic to any change of revolutionary proportions. It is a new tax shrouded in mystery. Stakeholders, State Governments, tax officials, manufacturers, traders, third parties and consumers are apprehensive, anxious and uncertain about its implication. Goods and Service Tax is like an elephant amidst blind men, each holding a part of it and wondering what it is.

2. Objectives:

1. To know objectives of Tax Policy
2. To understand concept of GST
3. To study future challenges facing Goods and Service Tax.

3. Research Methodology

The present study will concerned with the study of Goods and Service Tax. So the required data for the study will be collected from Secondary Sources. The secondary data necessary for the investigation was collected mainly from the various Government publish sources as well as the Internet, (web sites relating to the study) several Books and magazines.

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Synergetic effects of naturally sourced metal oxides in organic synthesis: a greener approach for the synthesis of pyrano[2,3-c]pyrazoles and pyrazolyl-4*H*-chromenes

Sachin K. Shinde[1] · Megha U. Patil[1] · Shashikant A. Damate[1] · Suresh S. Patil[1]

Received: 10 May 2017 / Accepted: 4 November 2017 / Published online: 30 November 2017

Abstract A clean and more economic protocol for the synthesis of pyrano[2,3-c]pyrazoles and pyrazolyl-4*H*-chromenes has been carried out using bael fruit ash (BFA) as a non-conventional natural catalyst in aqueous condition at ambient temperature. The catalyst was obtained from renewable resources by simple thermal treatment to dry rind of *Aegle marmelos* (Bael) fruit and formation of its active phase was confirmed by AAS, DSC-TGA, XRD, FT-IR, and SEM techniques. The BFA catalyst was found to be a green, highly active, easily biodegradable, and recyclable without loss of activity after the fifth run. The methodology provides an alternative platform to the conventional catalyzed process.

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Letters in Organic Chemistry, 2017, *14*, 000-000

RESEARCH ARTICLE

Natural Bio-surfactant for Pseudomulticomponent Synthesis of 2-aryl-1-aryl Methyl-1*H*-benzimidazoles

Smita T. Morbale[1], Sachin K. Shinde[1], Shashikant A. Damate[1], Madhukar B. Deshmukh[2] and Suresh S. Patil[1,*]

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Abstract: Green chemistry emphasizes the development of environmentally benign chemical processes and technologies. Pseudo-multicomponent synthesis of 2-aryl-1-arylmethyl-1*H*-benzimidazoles using o-phenylenediamine and aromatic aldehydes is carried out by Brönsted acid type bio-surfactant as a catalyst. The green features of this method include the use of biodegradable catalyst obtained from renewable resource *i.e. Citrus Limonium* extract as bio-surfactant type Brönsted acid, which provides a micellar media for effective cyclocondensation. The critical micellar concentration (cmc) of biosurfactant was determined by conductivity method and visualized by light microscopy measurement. Identity of all pure compounds was ascertained on the basis of FT-IR, ^{1}H NMR and ^{13}C NMR spectroscopic techniques.

Keywords: Bio-surfactant, Brönsted acid, *Citrus limonium*, benzimidazole.

1. INTRODUCTION

Heterocycles play important role for the design and discovery of new compounds of pharmaceutical applications [1]. Benzimidazoles are important structural motif exhibiting significant activity against several viruses such as HIV [2], herpes (HSV-1) [3], RNA [4]. Benzimidazoles act as DNA minor groove binding agents with antitumor activity [5], anticancer activity [6]. Their diverse applications comprise their role as potential angiotensin II inhibitors [7], 5-lipoxygenase inhibitors for use as novel anti-allergic agents [8], factor Xa (FXa) inhibitors [9], and ADP-ribose polymerase (PARP) inhibitors [10]. Some recently reported methods regarding benzimidazole synthesis are use of catalyst such as $VO(acac)_2$ [11], β-cyclodextrin (ZrO_2-β-CD) [12], KOBu^t [13], Amberlite IR-120 [14], bnmim-HSO_4 [15], MoO_3/CeO_2-ZrO_2 [16], CAN [17], ([Hbim]BF_4) [18], L-Proline [19], $SnCl_2.2H_2O$ [20], Co-SBA–15 [21]. Although all these reactions can be efficient and selective but they often involve expensive reagents, drastic reaction conditions and tedious work up procedures. Therefore, it was thought that there is scope for improvement especially towards developing a green protocol for synthesis of benzimidazoles. Pseudomulticomponent reactions are multicomponent reactions in which at least one of the two reactants take part in two or more reaction steps. When two of the three or more components are identical, the reaction is better designated as pseudo-MCRs. Even though incoeporation of two identical components in the product of a pseudo-MCR exhibits severe limitation in terms of scope and functional flexibility, these transformations follow advantage of being very time-efficient, allowing for the rapid, sometimes spectacular, generation of molecular complexity. Particularly valuable are pseudo-MCRs involving successive but distinct and complementary reactivity's of the same component [22].

Biosurfactants being natural and promising surfactants because have certain advantages over chemical surfactants, such as their lower toxicity, their biodegradable nature, and their ecological acceptability. Some surfactants are biologically produced by yeasts or bacteria and are grouped as glycolipids, lipopeptides, fatty acids, polymeric and particulate compounds [23, 24]. One of the fundamental properties of surfactants is there self-association into organized molecular structure such as micelles, vesicles, microemulsions, bilayers, membranes and liquid crystals [25]. The simplest class of association colloids is the micelle. Micellisation characteristics of surfactant are determined by micellization parameters such as critical micellar concentration(CMC), aggregation number *etc*. Combined Brønsted acid surfactant catalysts have also been employed in several organic reactions [26]. Considering the significance of surfactants, in this communication, *Citrus limonium* extract (CLE) was chosen as catalytic media without using any external promoters, external acids, ligands, biphasic media and ionic liquids. The catalytic medium is sourced from the direct extraction of

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RESEARCH ARTICLE

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RESEARCH ARTICLE

BENTHAM SCIENCE

Natural Bio-surfactant for Pseudomulticomponent Synthesis of 2-Aryl-1-aryl Methyl-1*H*-benzimidazoles

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Abstract: Green chemistry emphasizes the development of environmentally benign chemical processes and technologies. Pseudo-multicomponent synthesis of 2-aryl-1-arylmethyl-1*H*-benzimidazoles using *o*-phenylenediamine and aromatic aldehydes is carried out by Brönsted acid type bio-surfactant as a catalyst. The green features of this method include the use of biodegradable catalyst obtained from renewable resource *i.e. Citrus Limonium* extract as bio-surfactant type Brönsted acid, which provides a micellar media for effective cyclocondensation. The critical micellar concentration (cmc) of biosurfactant was determined by conductivity method and visualized by light microscopy measurement. Identity of all pure compounds was ascertained on the basis of FT-IR, ^{1}H NMR and ^{13}C NMR spectroscopic techniques.

Keywords: Aromatic aldehydes, bio-surfactant, Brönsted acid, biodegradable catalyst, *Citrus limonium*, benzimidazole.

1. INTRODUCTION

Heterocycles play important role for the design and discovery of new compounds of pharmaceutical applications [1]. Benzimidazoles are important structural motif exhibiting significant activity against several viruses such as HIV [2], herpes (HSV-1) [3], RNA [4]. Benzimidazoles act as DNA minor groove binding agents with antitumor activity [5], anticancer activity [6]. Their diverse applications comprise their role as potential angiotensin II inhibitors [7], 5-lipoxygenase inhibitors for use as novel anti-allergic agents [8], factor Xa (FXa) inhibitors [9], and ADP-ribose polymerase (PARP) inhibitors [10]. Some recently reported methods regarding benzimidazole synthesis are use of catalyst such as $VO(acac)_2$ [11], β-cyclodextrin (ZrO_2-β-CD) [12], KOBut [13], Amberlite IR-120 [14], bmim-HSO_4 [15], MoO_3/CeO_2-ZrO_2 [16], CAN [17], ([Hbim]BF_4) [18], L-Proline [19], $SnCl_2.2H_2O$ [20], Co-SBA-15 [21]. Although all these reactions can be efficient and selective but they often involve expensive reagents, drastic reaction conditions and tedious work up procedures. Therefore, it was thought that there is scope for improvement especially towards developing a green protocol for synthesis of benzimidazoles. Pseudomulticomponent reactions are multicomponent reactions in which at least one of the two reactants take part in two or more reaction steps. When two of the three or more components are identical, the reaction is better designated as pseudo-MCRs. Even though incorporation of two identical components in the product of a pseudo-MCR exhibits severe limitation in terms of scope and functional flexibility, these transformations follow advantage of being very time-efficient, allowing for the rapid, sometimes spectacular, generation of molecular complexity. Particularly valuable are pseudo-MCRs involving successive but distinct and complementary reactivity's of the same component [22].

Biosurfactants being natural and promising surfactants because have certain advantages over chemical surfactants, such as their lower toxicity, their biodegradable nature, and their ecological acceptability. Some surfactants are biologically produced by yeasts or bacteria and are grouped as glycolipids, lipopeptides, fatty acids, polymeric and particulate compounds [23, 24]. One of the fundamental properties of surfactants is there self-association into organized molecular structure such as micelles, vesicles, microemulsions, bilayers, membranes and liquid crystals [25]. The simplest class of association colloids is the micelle. Micellisation characteristics of surfactant are determined by micellization parameters such as critical micellar concentration(CMC), aggregation number *etc.* Combined Brønsted acid surfactant catalysts have also been employed in several organic reactions [26]. Considering the significance of surfactants, in this communication, *Citrus limonium* extract (CLE) was chosen as catalytic media without using any external promoters, external acids, ligands, biphasic media and ionic liquids. The catalytic medium is sourced from the direct extraction of

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RSC Advances

PAPER

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A facile, one-pot three-component protocol for the synthesis of 2-amino-4*H*-chromene derivatives has been demonstrated using Bael Fruit Extract (BFE) as a natural catalyst in a green reaction medium. This method offers a mild, efficient and highly economical protocol since the reaction proceeds in natural BFE-catalyst at room temperature under aerobic conditions with a very short reaction time (30 min) under ligand/external catalyst/external promoter-free conditions and, therefore, it is a green and environmentally sound alternative to the existing protocols. The catalyst was obtained by thermal treatment followed by water extraction of the rind of *Aegle marmelos* (bael) fruit. It was also found to be clean, high-yielding and has the capacity for large scale synthesis.

Introduction

The concept of green chemistry plays an important role in meeting the fundamental scientific challenges of shielding the environment. One of the thrust areas for achieving this target is to investigate alternative reaction media and reaction conditions to carry out the desired chemical transformation with negligible by-products and waste generation as well as elimination of the use of volatile and toxic organic solvents. It is, therefore, of utmost importance to evolve a simple and effective methodology for the different organic transformations that cover the concept of green chemistry.[1]

Multi-component reactions (MCRs) have gained increasing attention for the construction of novel and complex molecular structure because of their environmental-friendly, atom-economy and single-step product formation. This variety can be achieved simply by changing reaction substrate only. For many decades, chemists have been devoting themselves to secure environment by developing new environmental-friendly MCRs for the synthesis of many important biologically active compounds.[2]

In modern organic chemistry, the improvement of reaction efficiency, the avoidance of toxic reagents, the reduction of waste, and the responsible utilization of our resources have become critical objectives.[3,4] By keeping these ideas in mind, a simple and green approach for the synthesis of 4*H*-benzochromenes and 4*H*-chromenes has been developed. Bael Fruit Extract (BFE) as a catalyst, ethanol as a solvent and room temperature conditions are enough to afford the 4*H*-chromene in nearly quantitative yields. Most important of all, the purification procedure is just followed by filtration, washing and drying, and so the waste can be reduced effectively.

4*H*-Benzochromene and 4*H*-chromene derivatives have received significant attention in organic chemistry due to their biological and pharmaceutical properties such as antimicrobial,[5] antiviral,[6] sex pheromone,[7] antitumor,[8] anti-inflammatory,[9] anti-tubercular,[10] and cancer therapy.[11] Indeed, vegetables and edible fruits are the food resources that are being characterized by natural products, containing chromene moiety in their structure.[12]

Synthesis of 4*H*-benzochromenes has been achieved by condensation of aromatic aldehyde, malononitrile and α/β-naphthols in presence of various acid catalysts such as methanesulphonic acid,[13] $TiCl_4$,[14] $H_{14}[NaP_5W_{30}O_{110}]$,[15] *p*-TSA,[16] as well as basic catalysts such as γ-alumina,[17] Na_2CO_3,[18] K_2CO_3,[19] piperidine,[20] nano sized MgO[21] and NaOH.[22] This reaction was also reported by employing PTCs such as 1-butyl-3-methylimidazolium hydroxide([bmim]OH),[23] hexadecyltrimethylammonium bromide (HTMAB),[24] cetyltrimethylammonium bromide (CTAB) coupled with ultrasound,[25] triethylbenzylammonium chloride (TEBA),[26] cetyltrimethylammonium chloride (CTAC),[27] and *N*,*N*-dimethyl aminoethyl benzyl dimethyl ammonium chloride.[28]

Several procedures for the multi-component preparation of 2-amino-4*H*-chromenes have been reported by employing salicylaldehydes and malononitrile or ethylcyanoacetate over the

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Trifluoroethanol and liquid-assisted grinding method: a green catalytic access for multicomponent synthesis

Trushant Lohar[1] · Ananda Mane[1] · Siddharth Kamat[1] · Arjun Kumbhar[1] · Rajashri Salunkhe[1]

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Abstract An efficient and versatile mechanochemical route for the synthesis of chromene and isoindolo[2,1-*a*]quinazoline scaffolds has been developed via a simple mortar and pestle liquid-assisted grinding method using 2,2,2-trifluoroethanol (TFE) as an efficient catalyst. The present protocol is very efficient as it offers reaction in mild reaction condition, cleaner reaction profiles, effortless work-up step with excellent purity, and high yield of the desired products with short reaction time.

Keywords Liquid assisted grinding · Trifluoroethanol · Chromenes · Isoindolo[2,1-*a*]quinazolines

Introduction

Over the last few years, fluorinated compounds have attracted great interest in organic synthesis due to their favorable properties like low boiling points and high melting points compared with their non-fluorinated counterparts. In addition, they have high polarity and strong hydrogen bond donation which increase their ability to solvate water molecules [1]. Special attention has been paid to 2,2,2-trifluoroethanol (TFE) as its strong electron-withdrawing CF_3 group affects the course of reactions when it is used as a solvent. As TFE is acting as a Brønsted acid, the organic reactions in TFE are generally selective and carried out without using any catalysts.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s11164-017-3206-y) contains supplementary material, which is available to authorized users.

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MCAT

Research Paper

Palladium supported ionic liquid phase catalyst (Pd@SILP-PS) for room temperature Suzuki-Miyaura cross-coupling reaction

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ABSTRACT

A new Pd-SILP based on amino functionalized imidazolium ionic liquid immobilized on Merrifield resin (Pd@SILP-PS) has been synthesized. The catalyst was characterized by different techniques like FT-IR, SEM-EDS, TEM, TGA-DTA and XPS. The catalyst has shown to be highly active in Suzuki-Miyaura cross-coupling reaction of various aryl halides and aryl boronic acids in ethanol at room temperature. The activity of catalyst and the nature of product were highly dependent on the type of the solvent used, as well as the substituents present on the aryl halides. The protic polar solvent ethanol gave desired cross-coupling product in good to excellent yields at room temperature. However the aprotic polar solvent THF gave homocoupling product. The catalyst showed at least five times recyclability without a decrease in product yield.

1. Introduction

The past few decades have seen rapid development in the area of Pd catalyzed cross-coupling reactions [1,2]. Especially Suzuki-Miyaura cross-coupling reaction [3,4] has been studied more widely owing to the importance of this reaction in the synthesis of many natural products, pharmaceutical intermediates and organic-polymers [5]. As compared to analogous cross-coupling reactions, the Suzuki-Miyaura reaction can be carried out under mild reaction conditions. This reaction has been widely catalyzed by homogeneous catalysts as these catalysts are highly active [6]. However, the high price of Pd metal and its possible contamination in the final product still overwhelm its use in large-scale applications. To avoid these problems, air-stable, recyclable heterogeneous catalysts based on suitable solid supports like carbon, biopolymer, silica, zeolites, organic polymers have been developed [7–11].

In recent years, ionic liquids (ILs) have been engrossed considerable interest in transition metal catalysis as a green, non-volatile, recoverable and recyclable reaction media for biphasic reactions, because of the ease of product and catalyst separation [12,13]. There are many reports cited in literature in which IL itself acts as a ligand in the form of 'N-Heterocyclic Carbene' (NHC) complexes [14]. Nevertheless, due to the substantial amount of ILs are required for biphasic separation and its high preparation cost, many of these ILs are used in very small amounts, in the form of 'Supported Ionic Liquid Phase' (SILP).

Though the 'Supported Liquid Phase Catalysts (SLPC)' have been reported previously [15], in recent years there is an upsurge in the application of SILP catalysts in many catalytic reactions [16,17]. The concept of SILP involves a formation of thin films of ILs containing metal catalysts, on the surface of a suitable solid support. This system leads to a significant decrease in the amount of IL as well as it increases the contact area between the two phases that enhances efficiency of the catalysts. The SILP concept also allows ease of catalyst separation and recycling. This ability of SILP catalysts can permit its potential use mainly in fixed-bed reactors [18]. In recent years only few numbers of Pd-SILP catalysts based on organic polymers and silica have been reported for various cross-coupling reactions [19–26]. While only one report mentioned by Gruttadauria et al. [27] for Pd supported on multi-layered, covalently supported ionic liquid phase (mlc-SILP) catalyst for the Suzuki-Miyaura cross-coupling reaction in aqueous medium.

Recently we reported applications of amine functionalized ligands [28] supported on silica [29] as well as alumina-cellulose composite [30] for phosphine-free Suzuki-Miyaura cross-coupling reaction. In this link, we proposed to design highly efficient Pd supported on amine functioned SILP based on Merrifield resin. The conceptual picture of catalyst is represented in Fig. 1. We specu-

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Review

Functionalized nitrogen ligands for palladium catalyzed cross-coupling reactions (part I)

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ABSTRACT

The Pd catalyzed cross coupling reactions of compounds containing C-X bonds (C-I, C-Br, C-Cl, C-N, C-O and C-H) with a variety of nucleophiles is one of the most efficient and reliable approachs for the construction of new C-C and C-heteroatom bonds. In recent years, great achievements have been made in this field, and many powerful catalytic systems based on ligand design have been developed. This comprehensive review covers recent effort made in the constructions of C-C and C-heteroatom bonds through Pd complexes based on the N ligands. We divided this topic into two parts. In present part we have focused on the applications of the ligands containing only N as a donor atom. In the next part we will cover all ligands and complexes containing N in combination with C, P, O and S as a donor atom.

Contents

1. Introduction

Since the early 20th century the transition metal catalyzed reactions have been indispensable to all facets of modern chemical synthesis [1]. It is difficult to imagine the reactivity and selectivity of all known homogeneous metal catalysts. But from the last few decades, advances in ligand design bridged this divide, such that today many of the C-C and C-heteroatom bond forming reactions have been well understood. Over the past 50 years a great number of contributions have emerged from a wide range research groups with vast improvements on the Pd catalyzed cross coupling reactions [2].

Special advances have been made in the way of reaction scope including;

(1) The use of different substrates like aryl halides, triflates, tosylates, mesylates, diazonium salts and many more.
(2) Direct activation of C-H bonds selectively by proper selection of functional groups containing N as a donor atom (directing group).
(3) The ability to conduct the coupling reactions at very low metal catalyst loadings.
(4) Reactions at comparatively low temperatures.
(5) Use of environmentally benign solvents like water or mixture of solvents containing water.
(6) Easily recoverable and recyclable catalysts.
(7) The procedures that utilize "ligand-free" conditions and

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Transition metal-free Suzuki type cross-coupling reaction for the synthesis of dissymmetric ketones

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ABSTRACT

A simple, efficient and metal-free route for the synthesis of dissymmetric ketones through Suzuki type cross-coupling reaction has been established. This strategy signifies an attractive, cost-effective and operationally convenient tool for the synthesis of a wide range of dissymmetric ketones. Although conventional routes for the synthesis of ketones have been widely used, the potential challenge with these methods is functional group tolerance. The reported metal-free method represents a reaction with moderate functional group tolerance. The procedure is operationally convenient and shows broad substrate scope with good to excellent product yields.

In the last few decades, a massive effort has been devoted to the advancement of transition metal catalyzed cross-coupling reactions for the synthesis of many important bioactive compounds using a diverse range of electrophiles and nucleophiles.[1] Such a transition metal catalyzed cross-coupling reactions have endorsed chemists to construct complex molecular frameworks containing specific functional groups covering total synthesis of natural products, active pharmaceutical ingredients as well as structurally important compounds.[2] These reactions are considered as the most reliable, reproducible, and straight forward synthetic tool that enables a wide number of applications in chemical industries. Recently, different research groups circumvent the transition metal catalysts from many organic transformations,[3] as most of the transition metal catalysts are expensive, require ligands and are toxic. Additionally, removal of even a trace amount of metal from the final product is quite challenging, costly and crucial, especially in the pharmaceutical active compounds.

The dissymmetric ketones are exists as a common structural motif in many natural products and pharmaceutical important compounds[4] and have been synthesized from various routes (Fig. 1). Friedel-Crafts acylation reaction (Fig. 1, pathway 1) is one of the fundamental methods used for the synthesis of such dissymmetric ketones,[5] nevertheless this reaction have many inherent limitations. Recently, Pd catalyzed Suzuki type acylation (Fig. 1, pathway 2) of organoboranes by carboxylic acid derivatives such as acid chlorides, esters, anhydrides and dimethyl dicarbonates[6] have been reported as one of the alternatives to classical Friedel-Crafts acylation. In addition the dissymmetric ketones are also prepared by Pd catalyzed carbonylation (Fig. 1, pathway 3) of aryl halides with carbon monoxide in the presence of organometallic reagents.[7] Recently, transition-metal-catalyzed *ortho* C–H acylation has been performed as an efficient and direct method for synthesis of aryl ketones.[8]

In continuation of our interest in the development of environmentally benign reaction conditions for organic transformation,[9] we report here metal-free synthesis of dissymmetric ketones through Suzuki type cross-coupling reaction. Our goal was to carry out the coupling of benzoyl chlorides with arylboronic acids by metal-free, base induced conversions, that otherwise would not be possible without Lewis acid (Fig. 1, pathway 4). By using this method we can totally bypass the transition metals as well as Lewis acids. An additional feature of this methodology is, it permits to prepare ketones which contains acid sensitive functional groups, which otherwise not conceivable by Friedel-Crafts reaction conditions.

For the development of metal-free acetylation, 4-nitrobenzoyl chloride and phenylboronic acid were used as a model reaction partners. Initially, the effect of nature and the amount of bases were studied in toluene under heating (100 °C) and the results are shown in Table 1.

Initially, when the model reaction was carried out without base, no product was detected even after extended reaction time to 6 h, indicating that role of base is vital (Table 1, entry 1). The base plays crucial role in activation of phenyl boronic acid similar to that in Pd

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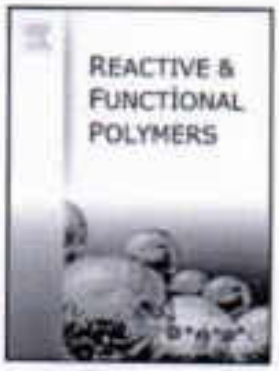

Facile Suzuki-Miyaura cross coupling using ferrocene tethered N-heterocyclic carbene-Pd complex anchored on cellulose

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Real and Complex Permeability of Ni- Zn-Ti Ferrite

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Abstract

Titanium substituted nickel zinc ferrite was prepared by standard ceramic technique. The prepared ferrites were presintered at750^{0}C and powdering of the formed product was final sintering at 1200^{0}C. Powder x-ray diffraction study shows the formation of single phase spinel structure. The frequency variation of real part of initial permeability (μ') and complex part of initial permeability (μ") were studied by using Hioki LCR-Q meter. The frequency variation of initial permeability clearly indicates the low frequency dispersion which may be attributed to domain wall movements. The compositional variation of permeability of titanium substituted nickel zinc ferrite decreases with increase of titanium substitution.

Keywords: Real permeability, ceramic method, x-ray diffraction

1. INTRODUCTION

Ni-Zn ferrite are useful for making antenna rod, high frequency inductors, transformers, cores and read write heads for high speed digital tape or disc recording. Despite the fact that Ni – Zn ferrites are very good microwave absorbers. The magnetic properties of ferrites depend upon chemical compositions, porosity, grain size, and microstructure. Parvatheeswara et al [1] synthesized Ni-Zn-In-Ti ferrite nanoparticles using classical ceramic method. Also they have studied complex permeability and power loss measurements of Ni-Zn-In-Ti ferrites. They have showed

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Dielectric Behavior of Dysprosium Substituted Magnesium Ferrite

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Abstract

Dysprosium substituted Magnesium ferrite were successfully prepared by chemical combustion method. The as synthesized powder was presintered in air at 600 °C for 1hr and finally sintered at 950 °C for 1hr. From X-ray powder diffraction pattern of $MgDy_{0.03}Fe_{1.97}O_4$, confirmed single phase structure. Crystalline size of synthesized material was obtained from X-ray powder diffraction (311) peak, it is found to be 46.38nm. The frequency and temperature variation of dielectric constant, dielectric loss and loss tangent were determined by using instrument Hioki LCR meter. The frequency variation of dielectric constant shows normal dielectric properties of ferrites. The loss tangent with frequency shows similar properties as dielectric constant.

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Introduction

Nanocrystalline ferrites have very good electric, dielectric and magnetic properties and number of applications from radio frequencies to microwave frequencies. The dielectric constant, dielectric loss, loss tangent and resistivity of ferrites are necessary to know for high frequency electrical applications[1]. The properties of electrical insulating materials are depends upon preparation method, chemical composition and type of additives[2]. Magnesium ferrite is a soft magnetic n - type semiconducting material, have high Curie temperature, high resistivity and environmental stability; hence it is most suitable for sensing applications[3]. Magnesium ferrites are widely used as catalysts have many applications in adsorption sensors, electric and magnetic technologies[4,5].

Rare earth element substituted into spinel type structure of ferrite, which can modify electrical as well as magnetic parameters of ferrites[6]. Rare earth doped ferrite material have high resistivity

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Original Research Article

Detection of seed borne mycoflora from different categories of Chickpea (*Cicer arietinum*) L.

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Abstract

During present investigation Seed borne mycoflora of chickpea was studied by using blotter and agar plate methods as recommended by ISTA. Total 15 fungi were recorded from different categories of seeds. Among all categories of seeds, injured seeds of chickpea showed maximum seed mycoflora.

Key words: Chickpea, seed mycoflora, injured seeds.

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INTRODUCTION

Chitkpea (*Cicer arietinum*) L. is important pulse food crop in India. It belongs to Fabaceae. It is native of Turkey. Nutritionally, it contains 17.21% proteins, 62% carbohydrates, fats. It has rich source of calcium, iron and vitamin C (Green stage) and vitamin B. Leaves contains malic acid and citric acid important for stomach ailments and important for blood purification.

India ranks first in the world in terms of the acreage cultivate with this crop (7.49 mha) and the annual yield of about 6.33 mnts (Anon.,2007). The crop is affected by many fungal and bacterial pathogens but black root rot of chickpea caused by *Fusarium solani* is very serious fungal disease in India which causes 70 to 80 percent yield loss in field (Nene and Reddy 1987).

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HISTOPATHOLOGY OF MACROPHOMINA STEM CANKER DISEASE IN PIGEONPEA (*CAJANUS CAJAN* L.)

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ABSTRACT

Macrophomina phaseolina, causal agent of stem canker disease has recently emerged as an agriculturally important plant pathogen. Macrophomina stem canker disease (MSD), caused by *Macrophomina phaseolina* is a potentially serious disease in pigeonpea that occurs when reaches physiological maturity i.e., during flowering. The fungus incites necrotic lesions on stem and girdles the plant at the base leading to premature flower drop leading to complete witling and finally death of the entire plant. The mechanisms of infection remain to be fully elucidated. The present study investigated histopathology of MSD caused by *M. phaseolina* in pigeonpea seed and seedlings using light microscopy. Pigeonpea variety 'Bahar' was used in this study. Histopathological sections of seed, stem, root, and leaves were prepared and stained with safranin and trypan blue. Histopathology of the infected plant parts showed the presence of intercellular mycelia and microsclerotia in the cortex and vascular tissues. The germ tube colonized the plant with growth of seedlings following seed coat, cotyledon, stem, root and leaves. According to the results, the pathogen can penetrate and invade the seeds within 24 h post inoculation.

Keywords: Histopathology, *Macrophomina phaseolina*, pigeonpea, stem canker.

INTRODUCTION

Pigeonpea (*Cajanus cajan* L.) is an important grain legume crop of rainfed agriculture in the semi-arid tropics. Besides Indian sub-continent, it is widely grown in Eastern Africa and Central America. It is not only an important source of protein, but also plays an important role in atmospheric nitrogen fixation into soil. It is reported that a long duration pigeonpea cropping could fix up to 200 kg N /ha and the residual effect for next crop remains 40 kg N/ha.

Pigeonpea is affected by more than 100 diseases but only few cause economic losses. Recently, *Macrophomina phaseolina* (Tassi) Goid has emerged as one of the important pathogen of different agricultural crops including pigeonpea (Kaur *et al.*, 2012a). *M. phaseolina* is an anamorphic fungus in the ascomycete family Botryosphaeriaceae (Crous *et al.*, 2006). The fungus has a wide geographical distribution from tropics to subtropics ranging from arid to semi-arid climates in Africa, Asia, Europe, and north and South America (Diourte *et al.*, 1995; Wrather *et al.*, 2001). It has a wide host range, infecting about 500 cultivated and wild plant species from more than 100 families around the world (Mihail & Taylor, 1995). Macrophomina is primarily soil and seed-borne fungal pathogen that incites the disease by producing microsclerotia/pycnidia (Pun *et al.*, 1998). *Macrophomina* exhibits high morphological, pathogenic, physiological and genetic variability (Jana *et al.*, 2005; Kaur *et al.*, 2013). Stem canker disease has become one of the most devastating diseases of pigeonpea (*Cajanus cajan* (L.)). The disease incidence and severity of up to 70 and 55% were reported in a survey from regions of eastern Uttar Pradesh in India (Kaur *et al.*, 2012b).

Macrophomina stem canker is a sporadic disease and causes dry root rot, stem canker, and stalk rot or charcoal rot of plant. The symptoms of the disease appear on the stem as the charcoal like appearance which starts from the base and proceeds upward towards the branches. Under conditions of high temperature and water stress, the disease symptoms are more severe (Short *et al.*, 1980). Although, disease

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Original Research Article

Isolation and identification of house dust micro-algae from sangli district

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Abstract

During present investigation 50 dust samples were collected from houses of those patients who suffers from nasobranchial allergy. Dust samples were collected with the help of vaccum cleaner and packed in sterilized polythene bags and cultured on Bolds basal medium (BBM) ammended with agar powder.The result showed that the members of Cyanophyceae are predominant on all micro-algae, followed by Chlorophyceae and Bacillariophyceae. *Aphanothece nidulans* were most dominant algal species over all which observedin 32 dust samples and causes several respiratory disorders to immuno depressed peoples.

Keywords- House dust samples, micro-algae, immuno depressed peoples.

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INTRODUCTION

House dust is mixture of diver's components that can cause different type of allergies. Micro-algae is important bio-component among that. The air borne microalgae constitute a source of respiratory hypersensitivity reaction in immuno depressed peoples (Schwimmer and schwimmer,1968). Except few researchers, very less attaintation has been paid towards house dust micro-algae. Berstein and safferman (1970) isolated viable 41 algal members from home dust. Lustgraff (1979) has studied the seasonal variation and frequency distribution of micro

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Full Length Research Article

ANTIFUNGAL ACTIVITY OF SOME COMMON MEDICINAL PLANT EXTRACTS AGAINST SOIL BORNE PHYTOPATHOGENIC FUNGI *FUSARIUM OXYSPORUM* CAUSING WILT OF TOMATO

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ABSTRACT

Biopesticides are mostly used to control fungal plant diseases because of their ecofriendly nature and their cost effectiveness. The present study focused on antifungal activity of solvent based plant extracts of common medicinal plants *Azadirachta indica ,Tinospora cordifolia, Ocimum sanctum, Justicia adhanoda , Catharanthus roseus, Aegle marmelos, Aloe barbadensis, Tithonia diversifolia, Hyptis suaveolens* and *Pongamia pinnata* were observed against soil borne phytopathogenic fungus *Fusarium oxysporum* by modified poisoned food technique. The methanol, ethyl acetate, benzene, acetone and chloroform extracts were evaluated for present study. The extracts of *Azadirachta indica* and *Ocimum sanctum* were most effective against *Fusarium oxysporum*. The present investigation suggests that acetone and chloroform extracts of *Azadirachta indica* and methanol extract of *Ocimum sanctum* acts as stong biopesticides and completely inhibit the growth of pathogen. This study reveals that these extracts contains amazing fungicidal properties and may be used as botanical biopesticides.

INTRODUCTION

A major reason for the application of medicinal plants is their ability to control pests and pathogens in their surrounding environment. So, they could be effective source of antimicrobial agents and their identification is very important to produce ecofriendly and cost effective pesticides. Biopesticides are gaining growing interest because of their ecofriendly attributes (Dwivedi and Singh, 1998; Karnwal and Singh, 2006). Phytopathogenic fungi are the chief infectious agents which causes malfunctioning during developmental stages and also in post-harvest.Now a days, infection due to fungal pathogens has become more common incidence. Tomato (*Lycopersicon esculentum* Mill) is perennial herb and belongs to family Solanaceae. Tomato is the second most important vegetable crop next to potato and generally used in soups and stews. *Fusarium* wilt is most destructing disease of tomato (Singh *et.al*; 1980). The disease is seed and soil born shows yellowing and wilting symptoms. According to Sherf and Macnab, 1986 *Fusarium oxysporum* causes root rot and wilt of tomato. Fungal species of the genera *Fusarium* and *Aspergillus* are major plant pathogens world wide (Gafoor and Khan, 1976; Mirza and Kureshi, 1978).

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Fusarium is very common fungal pathogen which cause wilt and rot symptom in plants. Controlling *Fusarium* wilt is very difficult because it spreads so fast and it is estimated that nearly 80% of the crop damage worldwide is causeddue to this busy fungi (Agrios, 2000). The most effective method of protecting the plants from fungal pathogens is the application of fungicides. The continuous application of any fungicide may lead to develop resistance in target pathogen and such resistance is acquired by the pathogen. There are so many fungicides available in market which are non-biodegradable and they accumulate in the soil which causes lethal effects on human and other organisms in surrounding environment through food chain. Therefore, there is need to use some ecofriendly cost effective substitutes for management of plant diseases. Natural products are very effective solution to the environmental problems caused by the synthetic fungicides and many investigators are trying to know the effective natural products to replace the synthetic pesticides (Kim *et al.*, 2005). The use of botanical biopesticides for the control of disease in plants is accepted as an substitute source to synthetic pesticides due to their lower negative impacts on the surrounding environment. The botanical biofungicides are cheap, easily available, non toxic and biodegradable (Singh *et.al.*, 1986; Dubey, 1991; Alam *et al.*, 2002).

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ASSESSING WATER BASED RECREATIONAL ACTIVITIES TO ECOTOURISM POTENTIALS IN DROUGHT PRONE REGION OF SANGLI DISTRICT, MAHARASHTRA

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Abstract:
Reservoirs demonstrate a fundamental home to biodiversity and attractive features to recreationists in many villages, towns. They prevent potentials for water dependent recreational activities like bathing, washing cloths, automobiles, traditional fishing and some ceremonial functions.Reservoirs are unique aquatic ecosystem. The ecosystem services provided by the lake include recreational ecotourism which is widely practised by local community. However there are challenges of degradation at various adverse levels due to pollution and mismanagement.The main objective was to examine trends of water based activities in relation to ecotourism. This paper presents discussion on observed scenarios that characterise water based recreational activities for appreciating relationship that enhance or hamper ecotourism development.Interestingly, local people who engage in activities are not aware that are actually local eco-tourists. Yet a greater percentage of wastes are generated and disposed in the waters and these activities might not have sufficient economic gains.

Key words: Reservoirs, ecotourism, anthropogenic activities.

Introduction:

Sangli district is situated between 16.46 to 17.1° N and 73.43 to 75.0° E latitudes. The total geographical area of the district is 8601.5 sq. km. Geographically, Sangli district is divided into two zones viz. area adjoining Krishna river basin and eastern drought prone area away from basin with low rainfall and typical arid geographical set up. The overall water level is up to 6 meters down but varies according to geographical area, strata and location of the particular village. The eastern part of the district shows low fertile soil because of natural set up where man-made reservoirs have become source of irrigation besides the well. This region includes Khanapur, Atpadi, Kavathe- Mahankal, Jath and eastern part of Tasgaon tahsil. This eastern region shows scarcity of water leading to general dry climate. The present work is restricted for the study of man-made reservoirs of the drought prone eastern part of the Sangli district.

All reservoirs (major and minor) are surveyed and total six reservoirs are chosen for the study as a representative of each tahsil. They are 1) Bhambarde and 2) Lengre from Khanapur tahsil, 3) Atpadi reservoir from Atpadi tahsil, 4) Sidhewadi from of Tasgaon tahsil, 5) Borgaon reservoir from Kavathe-Mahankal tahsil and 6) Bimal reservoir from Jath tahsil.
From each tahsil single reservoir is selected however, from Khanapur tahsil two water bodies are selected. It was observed during survey that Bhambarde and Lengre are two big reservoirs of this tahsil having water throughout the year. Initially it was observed that fruit crops like import quality grapes, sugarcane are cultivated by direct or indirect use of these water resources. Therefore, to know the details about agricultural productivity attempt is made for two water bodies from Khanapur tahsil. These minor and medium reservoirs store rain water received from adjoining areas through smaller channels. It is being utilized for drinking and irrigation purposes through scheme. These reservoirs are mainly constructed for irrigation purpose. Irrigation is an age old art as old as human utilization. The fishing activity is undertaken by the fishermen community and local inhabitants of adjoining villages have become the source of an additional income. Thus, increasing human activities over the recent past years imposing a greater stress on this ecosystem. It is well known that almost all human activities change the quality of water reservoirs. The causative factors responsible for degradation water quality need to be evaluated so as to take proper steps before the situation becomes uncontrollable.

Material and Methods:

Six reservoirs were visited monthly for the period of two consecutive years (August 2014 to July 2016).Three sampling sites for each reservoir were selected for monthly analysis. The water samples were collected approximately 10-15 meters from border line of each wetland. Therefore, sampling sites were constant through out the annum. Water

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Phytosociology OF DODDANALA RESERVOIR of Sangli District, Maharashtra (India)

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ABSTRACT:

The wetlands are important and suitable habitats for variety of animals, birds and many aquatic plants, which form a typical food web. They play an important role in providing food to fish and other aquatic animals; provide support, shelter to algae and habitat to some animals, important in cycling of nutrients in the water body.

A total number of 07 macrophytes were reported from Doddanala reservoir out of them 6 species of emergent and one was of submerged type. The phytoplankton play an important role as of primary producers. The Chlorophyceae is dominant group represented by 16 genera and 22 species where, Cyanophyceae showed 7 genera and 11 species. Bacillariophyceae recorded with 4 genera and 5 species. Euglenophyceae, with only Euglena acus. Dinophyceae recorded with 4 species of 2 genera.

The reservoir is also secondarily being used for capture fishery. Important major carps, common carp, Chinese carp fish and one local species occurred in this reservoir.

17 species of aquatic birds were reported in the vicinity of Doddanala reservoir.

Attempts have been made to observe the sociology of macrophytes, phytoplankton, fish and bird diversity to obtain the baseline data from June 2013 to May 2015.

Key Words: .Phytosociology, wetland, Doddanala reservoir, Sangli district, macrophytes, Phytoplankton, fishes and birds.

INTRODUCTION:

Aquatic biodiversity has a lot of aesthetic and economic value and is largely responsible for maintaining and supporting overall environmental health of that respective region and ecosystem. The wetlands are suitable habitats for variety of animals, birds and many aquatic plant forms, which form a typical food web and all responsible for several biological products. Patil Alaka (2014) studied biodiversity of Borgaon Wetland of Maharashtra.

Most of the area of the tahsil is hard, rocky with small hills and bare plateaus of several kilometers with xeric habitat. The annual rainfall is also scanty since last many years. The average annual rainfall is 501 mm. The agriculture is either rain-fed or well water irrigated. Since last few years the numbers of the bore wells are tremendously increased for agriculture and drinking water, the under ground water table has considerably decreased. All these conditions are increased day by day and the importance of man-made reservoirs in the tahsil.

Attempts are made to collect the information and update the biological data of Doddanala reservoir as untouched water body in respect to macrophytes, phytoplankton, fishes and birds which will be of use in studying and conserving the fresh water resources of our country.

The Doddanalais small village of Jath and 145 km away from district place. In 1977-80 Irrigation Department has constructed earthen dam riveted with stones. The water is used for irrigation also for washing, batting and fishing activities. The reservoir is much influenced by human activities.

MATERIALS AND METHODS:

STUDY AREA:

Southern Maharashtra includes Sangli, Satara and Kolhapur districts. Out of these three districts, Sangli district is one of the most important district as far as agricultural development is concerned. Sangli district is situated between 16.46 to 17.1° N and 73.43 to 75.0° E latitudes.

Geographically, Sangli district diversified into two zones viz. area adjoining Krishna river basin and eastern drought prone area away from basin with low rainfall and typical arid geographical set up. The overall water level is up to 6 to 7 meters down but varies according to geographical area, strata and location of the particular village. The eastern part of the district shows low fertile soil because of natural set up where man-made reservoirs have become source of irrigation besides the well.

Several limnological studies have been carried out in this region, Some among these are of Hujare (2005), Goel *et. al.*(1988) and Bhosale *et al.*(1994). Most of the studies were carried out in water bodies of urban area. Sustainable development is only possible with proper management of wetlands.

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LITERARY TOURISM: A GLOBALLY DEVELOPING GENRE

AJIT PACHORE
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Abstract:

Tourism implies a more purposeful journey. It is travel for recreational, leisure or business purpose. There are various types of tourisms e.g. Educational, Medical, Agricultural, Environmental, Adventurous, Sports, Historical, Management, Heritage, Ecological, Religious and Literary etc. Nowadays 'Literary Tourism' is mostly discussed among the writers, poets, critics, students and readers. It is a type of cultural tourism. It deals with places, events of the fictional texts and lives of their authors. Visit their homes and their graves also. It is a new type of secular pilgrimage. Dr. Mallikarjun Patil's travelogue titled "In Shakespeare's England—" is a literary tourist guide for the lovers of English literature in which we find vivid description of Oxford and Cambridge University, Stratford, Shakespeare's birthplace, Lake District, Canterbury etc. The sites like Indo-Tibetan road, forest guest houses where Rudyard Kipling stayed are also frequently visited by the tourist of overseas. Annual Literary festival of Jaipur is of great attraction for the lovers of literature. Noted literary figures used to appear in the festival. Ramesh Mantri's 'Bengaluru to Budapest' a travelogue in Marathi is his experiences with great South Indian writers. 'Panipat' a novel in Marathi literature by Vishwas Patil is the output of his frequent visits to Panipat city in Haryana. Thus literary tourism is developing as world-wide genre.

Introduction:

The terms tourism and travel are sometimes used interchangeably. Tourism implies a more purposeful journey. It is travel for recreational, leisure or business purpose. It has become a popular global leisure activity. The word "tour" is derived from Latin 'tornare' and the Greek 'tornos' meaning, 'a lathe or circle', the movement around a central point or 'axis'. This meaning changed in modern English to represent 'one's turn'. A circle represents starting points, which ultimately return back to its beginning. There like a circle, a tour represents a journey that is a round trip, i.e. the act of leaving and then returning to the original starting point, and therefore one who takes such a journey can be called a tourist. In this way "Tourism is temporary, short term movement of people to destination outside the places where they normally live and work and their activities during the stay at each destination. It includes movements for all purposes". This definition of tourism is made by Tourism Society of England in 1976. In 1981 the International Association of Scientific Expert in Tourism defined tourism in terms of particular activities selected by choice and undertaken outside the home.

There are various types of tourisms e.g. Educational, Medical, Agricultural, Environmental, Adventurous, Sports, Historical, Management, Heritage, Ecological, Religious and Literary etc. There are essential requirement for tourism. They are time, money, mobility and motivation.

Nowadays 'Literary Tourism' is mostly discussed among the writers, poets, critics and readers all over the world of various languages spoken by them. Literary tourism is a type of cultural tourism. It deals with places and events from fictional texts as well as the lives of their authors. It includes a fictional character, visit to a place associated with a novel or novelist, such as their home, or visiting poet's grave. According to various scholars and critics literary tourism is a contemporary kind of secular pilgrimage. There is also long distance walking routes associated with writers, such as Thomas Hardy Way. Thomas Hardy (1840-1928), 19th century novelist's fictional work is considered as into 'Wessex Novels'. He immortalized his native Wessex by giving a landscape of a beautiful panorama of places, people, history, clusters, conventions, and superstitions etc. Literary tourists are specifically interested in how places have influenced writing and at the same time how writing has created place. In order to become a literary tourist we must love books and we should develop inquisitive mindset. There are various literary guides, maps, tours to help the tourist on his or her way. There are also many museums associated with writer's birth or literary career, and their home also.

Generally the most literary tourism is focused on famous works, more modern works. They are written to specifically promote tourism are called tourism fiction. Modern tourism fiction can include travel guides within the story showing readers how to visits the real places in the fictional tales.

The author like Dr. Mallikarjun Patil wrote a travelogue titled as 'In Shakespeare's England' — Dr. Patil, being a professor of English literature visited England as a journey into the literary tourist. Dr. Patil's encounter with England is reminder for the generations

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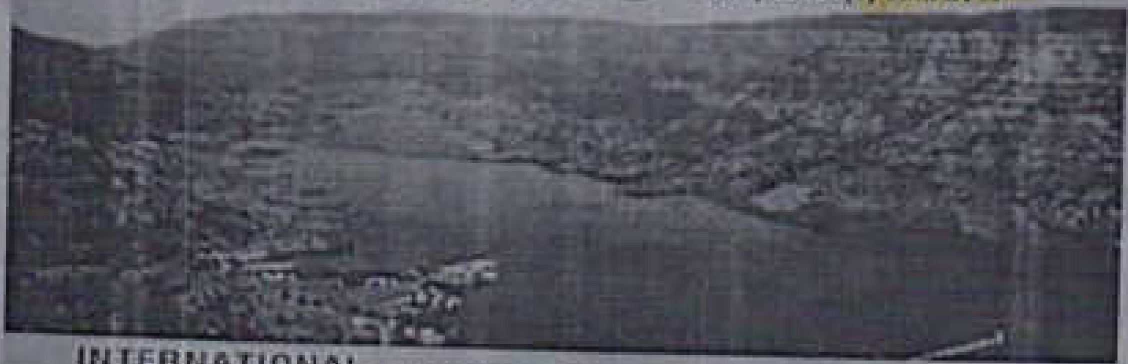

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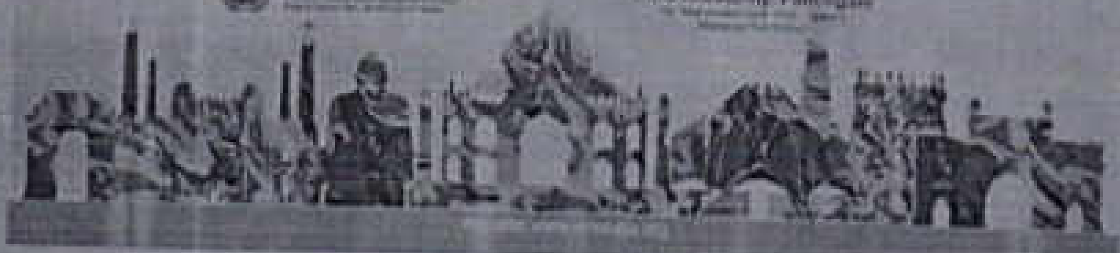

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सांस्कृतिक व साहित्यिक पर्यटनासाठी पूर्वाभ्यासाची आवश्यकता

टी. के. कदमे

मराठी विभाग, [illegible] महाविद्यालय,

[illegible], जिल्हा [illegible], महाराष्ट्र, भारत

drtatoba@gmail.com

प्रास्ताविक

पर्यटन हा जगातील महत्त्वाचा व्यवसाय मानला जातो. [illegible]

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संशोधन पद्धती

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संशोधनाचे स्वरूप

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महाराष्ट्रातील लेखी सांस्कृतिक - साहित्यिक पर्यटन

८. कर चुकवेगिरीचे प्रमाण कमी होईल.

९. जीएसटी करामुळे भारतीयांची एकसंघ बाजारपेठ अशी प्रतिमा निर्माण होईल.

१०. जीएसटी करामुळे प्रादेशिक असमतोल कमी होईल.

सारांश

वस्तू व सेवा कर प्रणालीमुळे व्यवसाय वृध्दी होण्यास मदत होईल. तसेच हा कर ज्या राज्यात वस्तूची विक्री होणार आहे. त्या राज्याला कर मिळणार असल्याने अनेक राज्यांच्या महसुला मध्ये वाढ होणार आहे. तसेच संपूर्ण देशात एकच अप्रत्यक्ष कर पध्दती राहणार आहे. या करामुळे ग्राहकांना बहुसंख्य वस्तू व सेवा स्वस्त मिळतील. सरकारला कर प्रशासन करणे सोपे होणार आहे. कारण ही कर पध्दती ऑनलाईन पध्दतीने राबवली जाणार आहे त्यामुळे कर चुकवेगिरी कमी होईल. एकंदरीत ग्राहक, उद्योजक व सरकार अशा सर्वांच्या दृष्टिने वस्तू व सेवा कर पध्दती लाभदायक ठरेल.

संदर्भ –

१. http://www.cbec.gov.in
२. योजना मासिक, ऑगस्ट २०१७
३. उद्योजक मासिक, ऑगस्ट २०१७
४. स्पर्धा परीक्षा मासिक, जुन २०१७

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Financial Inclusive Development and Village Panchayats: A Micro Study

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Introduction

In India, the inclusive approach is not a new concept as Indian development strategies relied on the socialistic pattern of society through economic growth with self reliance, social justice and alleviation of poverty. However, in 2007, India moved to a new strategy focusing on higher economic growth, making it more inclusive. As the economy achieved 5 percent growth rate per annum, the policy makers were anxious about the inclusive growth. As a result, the primary objective of the 11th Five Year Plan was to achieve inclusive growth with development. The Indian economy has entered into the 11th Plan period with an impressive record of economic growth at the end of the 10th Plan. A major weakness of the economy is that the growth is not sufficiently inclusive because it does not cover many groups. Gender inequality persists in India and has an adverse impact on women. The percentage of people living below the poverty line has decreased but the rate of decline in poverty was at a slower pace than the GDP growth rate. Besides, human development indicators such as literacy, education, health, maternal and infant mortality rates have shown steady improvement but with sluggish rates. The present research papers focus on role of village panchayats in the economical inclusive development special reference to Panhala Taluka of Kolhapur district.

2. VILLAGE PANCHAYATS AND INCLUSIVE DEVELOPMENT IN PANHALA TALUKA OF KOLHAPUR DISTRICT

Dr. Bandu Jayshing Kadam[1]

Abstract

In India, the inclusive approach is not a new concept as Indian development strategies relied on the socialistic pattern of society through economic growth with self-reliance, social justice and alleviation of poverty. However, in 2007, India moved to a new strategy focusing on higher economic growth, making it more inclusive. As the economy achieved 5 percent growth rate per annum, the policy makers were anxious about the inclusive growth. As a result, the primary objective of the 11th Five Year Plan was to achieve inclusive growth with development. The Indian economy has entered into the 11th Plan period with an impressive record of economic growth at the end of the 10th Plan. A major weakness of the economy is that the growth is not sufficiently inclusive because it does not cover many groups. Gender inequality persists in India and has an adverse impact on women. The percentage of people living below the poverty line has decreased but the rate of decline in poverty was at a slower pace than the GDP growth rate. Besides, human development indicators such as literacy, education, health, maternal and infant mortality rates have shown steady improvement but with sluggish rates. The present research papers focus on role of village panchayats in the economical inclusive development special reference to Panhala Taluka of Kolhapur district.

Key words: Inclusive Development, Human Development, Village Panchayat, Poverty Alleviation

I. INTRODUCTION:

In India, the inclusive approach is not a new concept as Indian development strategies relied on the socialistic pattern of society through economic growth with self-reliance, social justice and alleviation of poverty. However, in 2007, India moved to a new strategy focusing on higher economic growth, making it more inclusive. As the economy achieved 5 percent growth rate per annum, the policy makers were anxious about the inclusive growth. As a result, the primary objective of the 11th Five Year Plan was to achieve inclusive growth with development. The Indian economy has entered into the 11th Plan period with an impressive record of economic growth at the end of

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FUTURE OF CO-OPERATIVES IN A GLOBALISED ENVIRONMENT

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1. INTRODUTION

In the prevailing liberalized economic environment it is being recognized that success of co-operative movement is dependent on the attitude, mind set and dedication of co-operative leaders, members and staff engaged in them. Under this framework of globalised environment, the socio-economic conditions of co-operatives have changed significantly. This change in environment is reflected by new technology parameters; cutthroat competition and high expectations of staff for better services, etc. The private sector concentrates on the maximization of 'profits', while the co-operative sector lays emphasis on maximization of the 'welfare' of the members and are guided by seven co-operative principles and value system.

The approach paper for the 11th five Year Plan highlights the need to restructure policies to achieve a new vision based on faster, more broad based and inclusive economic growth. The approach paper aims at to keep the Indian economy on a high sustained growth rate of about 10% by the year 2012 along with a target for an annual growth rate of 4% for the agriculture sector.

2. GLOBALISATION AND ITS IMPACT

Various studies have shown that under the prevailing globalised environment, socio-economic inequalities have increased among classes and sections of society over a period of years. A study by Asian Development Bank has estimated that rural inequalities as measured by Gini coefficient have increased in India. From 0.3183 in 1993 to 0.3502 in 2004. This scenario is indeed, disturbing particularly for the co-operative leadership which have all along been advocating for an equitable distribution of rising incomes and wealth among all sections of society. In the context of increasing economic and social inequalities, questions are being asked about globalization at what cost ? Here cost implies loss of employment opportunities due to mergers and acquisition of firm and companies and doption of capital intensive technology with a bias for replacement of labour by capital.

3. EVOLVING A STRATEGY BY CO-OPERATIVES

Under the prevailing scenario of corporate governance, co-operative leadership has to chalk out an innovative strategy to face the emerging challenges of globalization. At the same time they have to work out a promotional strategy for a faster, broad based and an inclusive growth rate. The broad components of such a strategy could incorporate the following elements :

1. Promotion of professionalism among various tiers of an organization through appropri ate education and training programmes;
2. Building up of a strong financial resource base including its capacity for raising financial resources from members and various institutions;
3. Implementation of information technology;
4. Control on unwanted management and transaction costs;
5. Evolving financial and managerial incentives for the employees in the from of promotions, compensation and career advancement;
6. Expansion of the organization within the parameters of legal provisions;
7. Need to bring strong internal control system as also rist management.
8. The co-operatives should not impose income tax on their profit. The co-operative

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CHALLENGES BEFORE CO-OPERATIVE MOVEMENT AFTER GLOBALIZATION ERA

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INTRODUCATION :-

Co-operation occupies an important place in the Indian economy. Perhaps no other country in the world is the co-operative movement as large and as diverse as it is India. There is almost no sector left untouched by the co-operative movement. The successive Five-year plans looked upon the co-operation movement as the balancing sector between public sector and the private sector. And the success is evident. Almost 50 percent of the total sugar production in India is contributed by sugar co-operatives and over 60 percent of the total fertilizer distribution in the country is handled by the co-operatives. The consumer co-operatives are slowly becoming the backbone of the public distribution system and the marketing co-operatives are handling agriculture produce with an outstanding growth rate. The National Co-operative Development Corporation(NCDC), a statutory body was set up in 1963 by the Union ministry of Civil Supplies and Co-operation, to promote the co-operative movement in India. Further there is the Indian Farmers Fertilizer Co-operative LTD (IFFCO), which has been successful in setting up an effective marketing network in most of the states for selling modern farming technology instead of fertilizers alone. The operations of IFFCO are handled through its more than 30,000 member Co-operative Marketing Federation (NAFED) has over 5000 marketing societies. These societies operate at the local wholesale market level and handle agricultural produce. Thus the farmers have a market for their produce right at their door-step. A market which assures them reasonable returns and guaranteed payments. In India we find that the states of Maharashtra and Gujarat are Well Developed. Whereas the states of Andhra Pradesh, Rajasthan and Karnataka have shown remarkable progress in the Co-operative movement and there is a vast potential for the development of Co-operative in the remaining states. Co-operatives today are committed to securing an improvement in the quality of life of a vast majority of Indian people.

DEFINITION OF CO-OPERATIVE MOVEMENT :-

Co-operative movement can be define as a "Voluntary movement of the people, carried out democratically by pooling together their resources or carrying on the given activity, with the purpose of achieving or securing certain benefits or advantage which given to people cannot get individually and with the purpose of promoting certain virtue and values such as self help, mutual help, self reliance and general goods of all."

HISTORICAL PROFILE OF CO-OPERATIVE MOVEMENT IN INDIA :-

Around the world modern co-operatives have developed for over 200 years. Co-operative institutions exist all over the world providing essential services which would otherwise be unattainable. In many Third World countries, Co-operatives such as credit unions and agricultural organizations have been very successful in helping people to provide for themselves where private and other corporate capitals do not see high profitability. In 90 countries of the world, over 700 million individuals are members of Co-operative institutions. Globally, Co-operatives have been able to elevate its position as a powerful economic model. In some countries they are a sizeable force within the national economy. During the British rule Nicholson a

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वस्तू व सेवा कर (GST) : भारत

प्रा. जालींदर आनंदराव यादव,
सहयोगी प्राध्यापक,
अर्थशास्त्र विभाग,
पद्मभूषण डॉ. वसंतराव दादा पाटील महाविद्यालय,
तासगाव.

१.१. प्रास्ताविक :-

भारत हा जागतिक महासत्ता बनण्याची क्षमता असणारा देश असून त्या दिशेने देशाची वाटचाल सुरु आहे. स्वातंत्र्योत्तर काळात भारत सरकारने जलद आर्थिक विकासासाठी पंचवार्षिक योजनांचा अवलंब केला. प्रत्येक योजनेत वेगवेगळ्या विकास प्रतिमानांचा अवलंब करुन देशाच्या विकासाची गती कशी वाढविता येईल याचा विचार केला. त्याचबरोबर देशाच्या शेती, उद्योग व सेवा क्षेत्रात आमूलाग्र बदल घडवून आणण्याचा प्रयत्न केला. त्यासाठी सरकारला अनेक क्रांतीकारी धोरणात्मक निर्णय घ्यावे लागले. १९९१ च्या आर्थिक सुधारणेनंतरची एक ऐतिहासीक सुधारणा म्हणून वस्तू व सेवा कर सुधारणा विधेयकाचा उल्लेख करावा लागेल. भारत सरकारने १ जुलै २०१७ पासून वस्तू व सेवा कर प्रणाली संपूर्ण देशासाठी सुरु केली. प्रस्तुत शोधनिबंधात जीएसटी मुळे भारतीय अर्थव्यवस्थेत होणा-या परिवर्तनाचा अभ्यास करण्याचा प्रयत्न करण्यात आला आहे.

१.२ संशोधनाची उद्दिष्टे :-

१. वस्तू व सेवा कर (GST) प्रणालीची संकल्पना समजावून घेणे.

२. भारतात वस्तू व सेवा कर पध्दतीचा इतिहास जाणून घेणे.

३. वस्तू व सेवा कराच्या वैशिष्ट्यांचा अभ्यास करणे.

४. वस्तू व सेवा कर प्रणालीच्या गुणदोषांची चर्चा करणे.

५. वस्तू व सेवा कर पध्दतीतील उणीवा दूर करण्याचे उपाय स्पष्ट करणे.

१.३ अभ्यास पध्दती :-

भारत हा खंडप्राय देश आहे. देशात २९ घटक राज्ये व ९ केंद्रशासीत प्रदेश आहेत. आता पर्यंत प्रत्येक राज्यातील कर हे वेगवेगळे होते त्यामुळे एकाच देशात एकाच वस्तूचे वेगवेगळ्या राज्यात वेगवेगळे दर होते. एकसंघ भारताच्या दृष्टीने हा तसा विचार करता विरोधाभास होता. तेव्हा संपूर्ण देशभर एक देश एक कर या उक्ती प्रमाणे भारत सरकारने कर सुधारणेतील एक क्रांतीकारी पाऊल टाकून वस्तू व सेवा कर प्रणाली सुरु केली आहे. ही कर पध्दती भारताच्या संदर्भात काय परिवर्तन करु शकेल तसेच त्याचे गुण व अवगुण यांचा अभ्यास करण्याच्या हेतूने हा शोध निबंध तयार करण्यात आला आहे. देशाच्या कर रचनेच्या इतिहासातील एक क्रांतीकारी सुधारणा व त्यातून एक संघ भारताची अनुभूती हे या अभ्यासाचे गृहीतक आहे. प्रस्तुत शोध निबंधात प्रामुख्याने दुय्यम साधन सामग्रीचा वापर केला असून अर्थशास्त्रातील पुस्तके, संदर्भ ग्रंथ, नियतकालीके व विविध वर्तमानपत्रातील लेखाचा आधार घेवून तयार करण्यात आला आहे.

१.४ भारतीय कर पध्दती :-

सध्याच्या कल्याणकारी राज्याच्या कल्पनेत सरकारला अनेकविध कार्ये पार पाडावी लागतात. त्यामुळे सरकारच्या कार्यांचा व्याप दिवसेंदिवस वाढत असलेला दिसून येतो. परिणामी सरकारच्या खर्चातही वाढ होत आहे व हा खर्च भागविण्यासाठी उत्पन्न वाढविण्याचा वा मिळविण्याचा प्रयत्न करावा लागतो. कर हे सरकारच्या उत्पन्नाचे प्रमुख साधन आहे. आजही सरकारच्या एकूण उत्पन्नापैकी ८०% उत्पन्न हे करापासून प्राप्त होत आहे. कर आकारणी करीत असताना ग्राहक केंद्रीभूत मानून कर प्रणाली तयार करावी लागते. तसेच कर रचना आदर्शवत असावी. त्यामध्ये समता, सोयीस्करता, निश्चितता व मितव्ययता या तत्त्वाचा अंगीकार केलेला असावा. अन्यथा कर चुकवेगिरी वाढते. भ्रष्टाचार, काळापैसा यामध्ये वाढ होण्याची शक्यता असते.

भारतीय कर रचनेत प्रत्यक्ष व अप्रत्यक्ष करांचा समावेश होतो. सरकारने अप्रत्यक्ष कर सुधारणा करण्यासाठी वस्तू व सेवा कर विधेयक मंजूर करुन हा कर लागू करण्यात आला त्यापूर्वी अप्रत्यक्ष करात केंद्र सरकारचे अबकारी कर, सेवा कर, अतिरिक्त अबकारी कर, अतिरिक्त आणि विशेष सीमा कर केंद्रीय अधिभार इ. करांचा समावेश होता हे सर्व कर रद्द होणार आहेत. तर राज्य सरकारचे विक्रीकर अथवा मूल्यवर्धित कर (व्हॅट), करमणूक कर, स्थानिक स्वराज्य संस्था कर (एल.बी.टी.) त्याशिवाय प्रवेश कर, ऐषाराम कर, लॉटरी-मटका, जुगारावरील कर, जाहिरातीवरील कर आकारणी आणि विविध अधिभार इ. करांचा समावेश होतो. हे सर्व रद्द होवून जीएसटी हा एकमेव पर्याय असेल.

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Human Resource Development In Nandurbar District, Maharashtra.

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ABSTRACT:

Human is the main impact factor of natural resources and natural resources has need the qualitative human resource for the proper utilization and better management of natural resources and also be affected the development of economical condition of the specific country. This paper is based on secondary data collected from census of India (2011), population of Nandurbar district. The study highlighted that, the human resource development is uneven distributed in the Nandurbar District due to the uneven distribution of natural resources and also shows that, co-relation of human resource development in collaboration with natural resources.

INTRODUCTION:

Human resource is more important for the economic development as well as sustainable development. The word 'Development' also implies of 'growth' and 'change' for the betterment as soon as improvement in regional level. There are so many indicators and it is very difficult to take all the indicators of human resource development. It is found that the planning for development is generally done at the macro level. The quality of human resource is determined on technological, social, cultural and economical condition. The human resource development is presented with improving productivity with quality development an achieving aims in a dynamic economical as well as social environment. This will be also enable to get a proper human resource development plan.

STUDY AREA:-

Nandurbar district is located in the Northern part of Maharashtra state, lies between 21°00 to 22°03 degree North latitude and 73°31 to 74°32 degree Eastern longitude. The district comprises of 6 tehsils namely Nandurbar, Navapur, Akkalkuva, Shahada, Taloda and Akrani. Under the Nandurbar Zilla Parishad jurisdiction, 956 villages are covered through 6 panchayat Samities and 501 Gram Panchayats. The variation in relief ranges from the pinnacles and high plateaus of main Satpuda range having height over 3000 feet above mean sea level to the subdued basin of the Nira river in Phaltan tahasils with the average height of about 1000 feet above mean sea level. The climate of the district is hot and dry having average annual rainfall of 872 mm.

AIMS AND OBJECTIVES:

The present paper has main objective to find the levels of human resource development and some objectives are fallows.

1) To highlighted the human resources in terms of quality and quantity in the study region.
2) To find out the levels of human resource development in the study region at the tahsil level.
3) To suggest the planning strategies for improving the level of human resource development in the study region.

DATABASE AND METHODOLOGY:

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WONDERFUL PLACES IN SATARA DISTRICT OF MAHARASHTRA: TOURISM POTENTIAL

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AGRO TOURISM: A SUSTAINABLE DEVELOPMENT FOR RURAL AREAS OF INDIA; WITH SPECIAL REFERENCE TO MAHARASHTRA

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Abstract:
The urbain population having roots in villages always have had the curiosity to learn about sources of food, plants, animals, raw materials like wood, handicrafts, languages, culture, tradition, dresses and rural lifestyle. These changes have generated new ideas as well as approaches to leisure and recreation. These ideas and approaches have paved path towards rural and agro tourism development. Agro tourism is complimentary to traditional agricultural activities. It is an opportunity for farmers to use the available resources in a diversified and innovative way. It creates a win -win situation to farmers as well as tourists. Farmers earn better from innovative use of available resources and the tourist can enjoy village life and nature in an affordable prices. Not only is this, the villages also benefited due to the development of agro tourism. In spite of growing agro tourism, the fact remains that the government support through appropriate and conducive policies for agro tourism development is lacking and government should give priority to agro tourism business in Maharashtra through appropriate policy measures

Key words - Agro tourism, rural life, rural recreation

Introduction:

Tourism is termed as an instrument for employment generation, poverty alleviation and sustainable human development. During 1999-2000, direct employment created by tourism was 15.5 million. Besides, tourism also promotes national integration, international understanding and supports local handicrafts and cultural activities. During 2000, the number of foreign tourists that visited India was 26.41 lac. India's share in world tour market is just 0.38 percent. With this major share, foreign exchange earned is Rs.14,475 crores. The urban population having roots in villages always have had the curiosity to learn about sources of food, plants, animals, raw materials like wood, handicrafts, languages, culture, tradition, dresses and rural lifestyle. Agro-Tourism which revolves around farmers, villages and agriculture has the capacity to satisfy the curiosity of this segment of population.

Busy urban population is leaning towards nature. Because of natural environment is always away from busy life. Birds, animals, crops, mountains, water bodies, villages provide totally different atmosphere to urban population in which they can forget their busy urban life. Villages provide recreational opportunities to all age groups i.e. children young, middle and old age, male, female, in total to the whole family at a cheaper cost. Rural games, festivals, food, dress and the nature provides variety of entertainment to the entire family. Agro tourism, in which tourists see and participate in traditional agricultural practices without destroying the ecosystems, the host bases. Promotion of Agro-tourism involves some more important stakeholders namely Ministry of Agriculture and line departments at state and central governments and farmers. Promotion of Agro-Tourism needs conceptual convergence with Rural Tourism, Eco-Tourism, Health Tourism, Adventure Tourism and culinary adventures Some of the important advantages of Agro – Tourism are it brings major primary sector agriculture closer to major service sector tourism. This convergence is expected to create win-win situation for both the sectors. Tourism sector has potential to enlarge. Agriculture sector has the capacity to absorb expansion in tourism Sector.

Scope of Agro - Tourism:

Agro-Tourism has great scope in the present study for the following reasons:

1. An inexpensive gateway
2. Curiosity about the farming industry and life style
3. Strong demand for wholesome family oriented recreational activities
4. Health consciousness of urban population and finding solace with nature friendly
5. Desire for peace and tranquillity
6. Interest in natural environment
7. Rural recreation

Objectives:

1. To examine the importance of agro-tourism development in Maharashtra.
2. To study challenges before agro tourism in Maharashtra

Methodology:

- The research is will be mainly carried through desk research i.e., secondary sources like maps, photographs, books, internet web sites,

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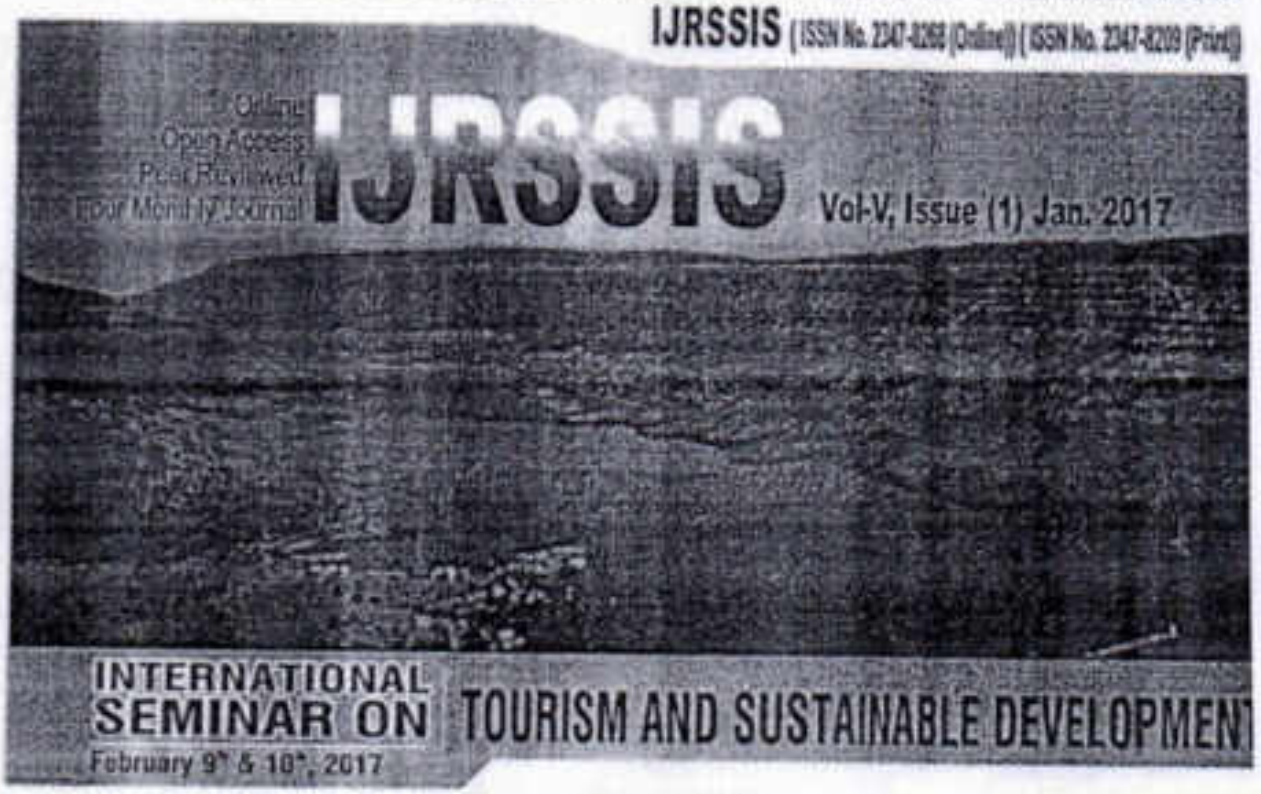

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प्रा. जी. के. पाटील

पद्मभूषण डॉ. वसंतरावदादा पाटील महाविद्यालय तासगांव

आज भारतातील नव्या पिढीला धकाधकीच्या जीवनाची सवय लागली आहे त्याला मोकळा श्वास घ्यायला मिळतो तो उन्हाळ्याच्या दिवसात अशा सर्व धकाधकीच्या जीवनावरील रामबाण उपाय म्हणजे साहसी निसर्ग पर्यटन आणि दुर्गभ्रमंती यासाठी 1980 च्या सुमारास महाराष्ट्र शासनाने सुरु केले ईको टुरीझम आणि साहस टुरीझम ही कल्पना गेल्या पंधरा वर्षात खऱ्या अर्थाने रुजु लागली आहे. या निसर्ग दर्शन अथवा किल्ले पर्यटनातुन समाजाला मिळते विचारांची समृध्दी एक अनोखा दृष्टीकोन, धाडसीपणा, स्वयंशिस्त आणि संवेदनशीलता एके काळी महाराष्ट्रातल्या मराठी माणसानं शिवछत्रपतींच्या नेतृत्वाखाली हिंदवी स्वराज्याचा जयघोष केला आणि उभा महाराष्ट्र छत्रपतींच्या पाठीशी उभा राहिला. याचे कारण छत्रपती शिवाजी महाराजांच्या जन्माच्या अगोदरचा 350 वर्षांचा इतिहास पाहिला, वाचला तर आजही त्या घटनांबद्दल मनात तिरस्कार निर्माण होतो. यवनीसत्ताधिशांने अन्याय आणि अत्याचाराची परिसीमा गाठली होती. देव, धर्म आणि मानव यांची स्थिती अत्यंत शोचनीय झाली होती. वास्तविक यवनी सत्ता मराठी माणसांच्या पराक्रमांवर चालल्या होत्या असे म्हटले तरी वावगे होणार नाही. आपापसातले शुल्लक दुराव्यासाठी यादवी होत होती आणी आपले स्वत्व हरवून गुलामगिरी स्विकारली होती. ज्या काही हातांच्या बोटावर मोजण्याऱ्या पराक्रमी सरदारांना जो सन्मान मिळत होता. तो वेगळी आणि बादशाहच्या मर्जीवरचा होता. बादशाहाची गैरमर्जी झाली तर त्यांना बादशाहसाठी पराक्रमाची शर्थ करावी लागली त्याखाली प्रसंगानुरूप त्यांच्या वतनाच्या पाट्याखाली माना घ्याव्या लागत होत्या त्यांना एक तर मरण यातना किंवा मृत्यूस सामोरे जावे लागे तेव्हा ही स्थिती बदलावी म्हणून छत्रपतींनी हिंदवी स्वराज्य उभारले.

या हिंदवी स्वराज्याचा जयघोष महाराष्ट्राच्या दऱ्या खोऱ्यात तीनशे वर्षांपूर्वी छत्रपतींचा जय घोष करीत घुमला या स्वराज्याच्या मुळाशार होता डोंगरी आणि सागरी दुर्ग आज महाराष्ट्रात असलेल्या 361 हुन अधिक गड कोट किल्ले आजही ते छत्रपतींच्या प्रयत्नसिद्धीची आणि मर्द मावळ्यांच्या अजोड पराक्रमाची साक्ष आपणासमोर उभी करत आहेत महाराष्ट्रातील या विविध दुर्गांचे, दुर्गम भौगोलिक स्थान आणि भक्कम रचना पाहुन शिवकालीन स्थापत्य शास्त्राची विस्मयचकीत करणारी दुरदृष्टी जाणवते या ऐतिहासिक दुर्गांची भ्रमंती करणारी आजची तरुणाई त्यांच्यापासून मिळणारी स्फुर्ती घेत असल्याचे दिसते आज इतिहास झालेल्या एकेकाळच्या या बुलंद दुर्गांनीच एके काळी आमचा इतिहास घडविला होता त्याची साक्ष देणारे एक एक चित्र देत राहतो आहे.

पर्यटनासाठी प्रेरीत करतो आहे. सांगली जिल्हयातील दुर्गम दर्शनासाठी हे विवेचन 'आपल्या भारतावर प्रेम करण्यावर सदैव प्रेरीत करेल यातील काही किल्ले बेलाग, बुलंद आणि मजबुत आहे दर दहा-दहा कोसावर एखादा तरी किल्ला आढळतोच सहज आढळत नाही तो किल्ल्यांचा इतिहास पेंढार मोडी आणि त्याच स्वराज्याचा योगदान' हे नव्या पिढीला कळायचे असेल आणि त्यांचे जीवन समृध्द व्हायचे असेल तर त्याने पर्यटन करुन राजा शिवछत्रपतींची स्फुर्ती घ्यावी यासाठी किल्ले पर्यटन आवश्यक आज आपणाला संपुर्ण किल्ल्यांची भ्रमंती करता येणं शक्य नाही तेव्हा किमान – सांगली जिल्हयातील किल्ल्यांची आपण भ्रमंती करावी व या किल्ल्यावर कशी पोहचता येते, तो प्रदेश किती महत्वाचा होता त्याकडे मराठ्यांनी छत्रपतींच्या हक्कांवरती प्रामाणिक येणाऱ्या संकटांना यशाचं पालीत करी लढत असतील त्याची माहिती कळेल आणि आपणाला राष्ट्र स्वराज्यासाठी प्रोत्साहन मिळेल या किल्ल्यांचे महत्व सांगताना रामचंद्रपंत अमात्य लिहतात, संपुर्ण राज्याचे सार ते दुर्ग (किल्ले) दुर्ग नसता मोकळा देश परचक्र येताच निराश्रय, प्रजाभग्न होऊन देश उध्वस्त होतो, देश उध्वस्त झाल्यावर राज्य कोणास म्हणावे या करिता पुर्वी थोरले राजे झाले त्यांनी अवघी देशांसाठी दुर्ग बांधून तो तो देश शाश्वत करुन घेतला आणि आले परचक्र संकट दुर्गाश्रयावर परिहार केले शिवकालीन किल्ले म्हणजे प्राणरक्षण ही भावना सर्वत्र होती म्हणुनच छत्रपतींनी किल्ले बांधताना

Dr. V. D. Kumbhar

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सेंद्रीय शेतीची संकल्पना व सेंद्रीय शेतीसमोरील आव्हाने

विनोदकुमार धोंडीराम कुंभार,
सहाय्यक प्राध्यापक,
समाजशास्त्र विभाग,
पी.डी.व्ही.पी.महाविद्यालय,तासगांव.
मोबाईल: ८२७५३७७९२२, ९९७५५६४६२२

प्रास्ताविक:–

पूर्वी भारतात सेंद्रीय शेतीसाठी पूरक परिस्थिती होती परंतु हरित क्रांतीनंतर भारतामध्ये रासायनिक शेती करण्याकडे शेतक–यांचा कस वाढला व या रासायनिक शेतीचा मानवाच्या आरोग्यावर दुष्परिणाम होऊ लागला. मानवाची रोगप्रतिकारक क्षमता कमी होऊन त्याला अनेक रोगांना बळी पडावे लागत आहे. हे संकट टाळण्यासाठी सेंद्रीय शेती ही काळाची गरज बनली आहे. अमेरीकेमध्ये १९८० पासून सेंद्रीय शेतीवर भर दिला जातो. त्याचप्रमाणे जर्मनी, फ्रान्स, जपान, इटली हे देशही यावरती लक्ष केंद्रीत करीत आहेत. सिक्कीम हे १०० : सेंद्रीय शेती करणारे भारतातील पहिले राज्य आहे. सेंद्रीय शेती ही एक चळवळ होणे आवश्यक आहे. सेंद्रीय शेतीमध्ये शेतीमधील परिस्थिती सकारात्मक करण्याची क्षमता आहे. इंटरनॅशनल फेडरेशन ऑफ ऑर्गेनिक एग्रीकल्चर मूव्हमेंट ;ध्व्डद्ध यां सेंद्रीय शेतीची संकल्पना पुढीलप्रमाणे सांगता येईल.

१.आरोग्याचे तत्व
२.पर्यावरणीय तत्व
३.निष्पक्षतेचे तत्व
४.संगोपनाचे तत्व

या चारही तत्वांचा वापर सेंद्रीय शेतीमध्ये आवश्यक आहे.

उद्दीष्टे–

१.सेंद्रीय शेतीची संकल्पना अभ्यासणे.
२.सेंद्रीय शेतीची गरज व महत्व अभ्यासणे.
३.सेंद्रीय शेतीसमोरील आव्हानांचा शोध घेणे.

संशोधनपध्दती–

प्रस्तुत संशोधन लेखासाठी वर्णनात्मक संशोधन पध्दतीचा वापर करण्यात आला आहे. तसेच तासगाव व खानापूर तालुक्यातील सेंद्रीय शेती करणा–या ३ शेतक–यांच्या मुलाखती घेण्यात आल्या आहेत. कारण सदयस्थितीत सेंद्रीय शेती हा महत्वाचा विषय असला तरी संशोधनकाला सेंद्रीय शेती करणारे खूपच कमी

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Liquid–liquid extraction of thorium(IV) with *N*-*n*-heptylaniline from acid media

Rupali R. Pawar[1] · Vishal J. Suryavanshi[1] · Suresh T. Salunkhe[1] · Suresh S. Patil[2] · Ganpatrao N. Mulik[1]

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Abstract The extraction behavior of thorium(IV) from sulphuric acid medium with *N*-*n*-heptylaniline in xylene. Various parameters like reagent concentration, acid concentration, equilibration time, diverse ions and effect of diluents were studied. Thorium(IV) was selectively extracted and separated from many metal ions. The nature of the extracted species was determined. Thorium(IV) was analyzed from monazite ore and gas mantle.

Keywords Thorium(IV) · Liquid–liquid extraction · H_2SO_4 · *N*-*n*-Heptylaniline

Introduction

Thorium is a naturally occurring, radioactive metal. Nowadays thorium is used in nuclear power generation. So it is the need of time that it should be extracted and finally in pure form. Vary many amines have been used for the extraction of thorium(IV) like Amberlite LA-1 or LA-2 [1], *N*-*n*-octylaniline [2], mixture of *N*-*n*-octylaniline and trioctylamine [3], 2-octylaminopyridine [4] and various extractants like di-(2-ethylhexyl) 2-ethylhexyl phosphonate [5], bis(2,4,4-trimethylpentyl) phosphinic acid (Cyanex 272) [6], organo phosphoric compounds from various media [7–15], TODGA in ionic liquids have been successfully employed for the recovery of thorium(IV) in industry [16]. Extraction of uranium(VI) and thorium(IV) by triphenylarsine oxide from salicylate media has been carried out [17]. Liquid–liquid extraction of uranium(VI) and thorium(IV) by two open-chain crown ethers with two terminal quinolyl groups in chloroform were studied [18].

Extraction of uranium(VI), zirconium(IV) and thorium(IV) by PC-88A from perchlorate media have been carried out [19]. Extraction of thorium(IV) from nitrate solution by bis-2-(butoxyethylether) was reported [20]. The extraction studies of uranium(VI) and thorium(IV) with TBPO in toluene from sodium salicylate medium were studied [21]. The extractive separation of thorium(IV) and praseodymium(III) with Cyanex 301 and Cyanex 302 from nitrate medium were studied [22]. The extraction behaviors of uranium(VI), thorium(IV) and lanthanides were studied using Cyanex 923 in toluene from different mineral acid media [23]. Further, high molecular weight amines are also used for the extraction and determination of a variety of other metal ions [24–26].

Previously we have reported the solvent extraction methods for the quantitative extraction of platinum group metals with amines [27–30]. In the present study extraction behavior of thorium(IV) from sulphuric acid media by *N*-*n*-heptylaniline is undertaken. Various parameters such as reagent concentration, acid concentration, effect of diluents, phase ratio, shaking period, loading capacity and diverse ions were studied. Separation of thorium(IV) from binary as well as multicomponent mixtures was achieved and also from associated elements in geological and real samples. The proposed method is relatively simple, rapid and selective used for the separation from many metal ions successfully.

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DABCO functionalized dicationic ionic liquid (DDIL): A novel green benchmark in multicomponent synthesis of heterocyclic scaffolds under sustainable reaction conditions

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ABSTRACT

A novel DABCO functionalized dicationic ionic liquid (DDIL) has been synthesized using diazabicyclo[2.2.2]octane (DABCO), 1,3-dichloro-2-propanol and $NaBF_4$ in acetonitrile. The IL was fully characterized by IR, NMR and mass spectroscopic techniques. The presence of BF_4^- anion in IL was confirmed by ^{19}F NMR and also supported by mass analysis. The TGA analysis showed that the IL is thermally stable up to 180 °C temperature. We demonstrated that the presence of the tertiary nitrogen sites and hydroxyl group in the DDIL network enhances the overall activity of DDIL. These make them compatible for basic catalyzed one pot multicomponent synthesis of ortho-amino carbonitriles and 3-methyl-4-arylmethylene-isoxazol-5(4*H*)-ones under grinding without solvent. In addition the activity of DDIL was also studied for synthesis of tetrahydrobenzo[b]pyrans under ultrasound irradiation in water. Furthermore the DDIL was easily recoverable and recyclable many times with modest decrease in activity.

1. Introduction

In the annals of heterocyclic chemistry, the academic and industrial research groups have been increasingly focused on the development of multicomponent reactions (MCRs). MCRs can lead to green and robust synthetic methodologies to afford rapid synthesis of small drug-like molecules with several degrees of structural diversity [1–2]. This technique simultaneously engage three or more components in one pot, resulting in formation of complex frameworks that incorporate the elements of all the starting materials with good synthetic efficiency [3].

Nowadays, solvent-free reactions have become paradigms of synthetic chemistry [4]. These reactions utilizes alternative energy inputs such as mechanical grinding, ultrasound and microwaves. Among these, mechanical grinding is simple and efficient method of synthesis which combines economic aspects with environmental concerns. The reactions initiated by grinding involves transfer of very small amount of energy through friction [5]. In the mechanical grinding, solid-state reactions occur more efficiently and more selectively than in the solution phase reactions [6]. This methodology facilitates the organic reactions with high yields, requires stoichiometric amount of reactants, avoids the use of volatile organic solvents, short reaction time, and better energy balance with straightforward work-up. The above mentioned benefits offered by mechanical grinding have also been widely used in the field of ionic liquid (ILs) catalyzed MCRs [7].

ILs have been recognized as potential new green alternatives to conventional organic solvents for a wide range of synthetic, catalytic, and electrochemical applications [8]. The ILs are characterized by their unique properties, including non-volatility, low inflammability, tunable hydrophobicity, environmental friendly nature, easy recoverability and recyclability [9].

Moreover, it is well known that physical and chemical properties of an IL can be changed by varying the structure of constituent cations and anions. This modification of ILs can dramatically influence the outcome of various reactions [10]. During the past few years a number of dicationic and polycationic ILs, with a large variety of tunable properties, have been explored [11]. The dicationic ILs contain two head groups, linked by a rigid or flexible spacer [12]. This kind of ILs demonstrate unique features than monocationic ILs and other traditional solvents [13]. Besides the change in the length of the spacer, and the incorporation of functional groups such as thiol, ether, hydroxyl and amino groups in the cations allow the physical properties of the dicationic ILs to be tailored for specific applications [14]. The poly(ethylene glycol)-linked dicationic neutral IL (PEG-DILs) [15] and poly(ethylene glycol)-linked dicationic acidic ILs (PEG-DAILs) [16] have been explored as a powerful catalysts for various transformations.

The synthesis of ILs is complicated and often suffers from halogen impurities but hydroxide based ILs now offers the simplest synthetic tool for the preparation of large number of halogen free ILs [17]. Recently we have demonstrated the application of this methodology for the synthesis of multicationic ILs and its applications for MCR under MW [18]. There are several reports for monocationic DABCO based ionic

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REVIEW

Palladium Catalyst Supported on Zeolite for Cross-coupling Reactions: An Overview of Recent Advances

Arjun Kumbhar[1]

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Abstract Over the last 30–40 years, Pd-catalyzed C–C bond-forming reactions have gained immense importance for their use in synthesis of biologically and pharmaceutically important organic fragments. Heterogeneous Pd catalysts supported on porous materials, especially zeolites, have many advantages as they have high surface area with tunable acidity and basicity, hydrophobic and hydrophilic character, shape and size selectivity, as well as chemical and thermal stability. They also offer very easy recovery and reusability. This review covers the literature published on the synthesis and characterization of Pd catalysts supported on zeolites and their applications in various organic transformations.

Keywords Palladium · Heterogeneous catalysis · Supported catalysts · Zeolites · Coupling reactions

1 Introduction

In the last few decades, a new paradigm for the construction of carbon–carbon bonds [1] has enhanced considerably, which has increased the ability of synthetic organic chemists to assemble complex molecular frameworks for many important applications. The transition metal catalysts have the ability to forge carbon–carbon bonds selectively within functionalized and sensitive substrates under comparatively mild reaction conditions [2]. Such catalytic processes have opened new opportunities, particularly in total synthesis of medicinally and biologically important compounds [3]. Among these processes, the Pd-catalyzed cross-coupling reactions such as Mizoroki–Heck [4], Suzuki–Miyaura [5], Negishi [6], Stille [7],

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FULL PAPER

Cellulose-supported N-heterocyclic carbene silver complex with pendant ferrocenyl group for diaryl ether synthesis

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A cellulose-supported *N*-heterocyclic carbene Ag(I) complex has been synthesized by covalent grafting of ferrocenyl ionic liquid in the matrix of cellulose followed by metallation with silver oxide. The complex was employed as a heterogeneous catalyst in the synthesis of diaryl ethers. Reactions of a variety of phenols with aryl halides afford corresponding diaryl ethers in moderate to good yields. Recyclability experiments were executed successfully for five consecutive runs.

KEYWORDS
diaryl ether, ferrocene, N-heterocyclic carbene, reusability

1 | INTRODUCTION

N-Heterocyclic carbenes (NHCs) are a versatile class of ancillary ligands that have garnered tremendous attention for their ability to effect various C–C, C–N and C–O bond formations.[1] This outstanding class of ligands has high activity and selectivity with increased stability towards air and moisture. NHCs allow manipulation of the catalytic performance through adjustment of electronic and steric parameters.[2] Compared to phosphorus-containing ligands, NHCs tend to bind more strongly with metals leading to stable metal–carbon bonds thereby avoiding the necessity for the use of excess ligand in catalytic reactions.[3] NHC–metal complexes have displayed superior catalytic activities in many useful organic transformations.[4] Insight into homogeneous NHC–metal complex catalytic systems has revealed some basic problems in terms of separation and recycling. This factor coupled with their ability to induce contamination of the ligand residue in products has triggered a flourishing interest in heterogenization of homogeneous NHC-based catalytic systems.[5] The built-in heterogeneous nature of NHCs allows for a robust recycling and provides excellent opportunity to prevent the contamination of the ligand thereby decreasing the environmental pollution caused by residual metals in the waste. The field of heterogeneous NHCs has witnessed impressive progress during the past few years.[6] Despite tremendous strides, a major driver of current ground-breaking research is the development of new heterogeneous NHCs with different properties and reactivities.[1]

The recent quest towards green and sustainable development has spurred an extensive interest in the use of renewable bioresources in catalytic technology.[7] Cellulose is the most abundant renewable and biodegradable biopolymer with an annual world production of around 500 billion metric tons. Being abundant and outside the human food chain, it represents the most attractive and economic natural feedstock as per green chemistry principles. It is a long-chain linear polymer made up of repeating units of β-D-glucose linked by 1,4-glycosidic bonds. It has an unusual structure in which every other glucose monomer is flipped over and packed tightly as extended long chains which imparts rigidity and high tensile strength.[8] It is insoluble in water and most common solvents due to strong intramolecular and intermolecular hydrogen bonding between the individual chains.[9] In addition to the aforementioned properties, its high surface area, non-toxicity, stability in common organic solvents, unlimited availability as a renewable agro-resource and excellent biodegradability make cellulose an excellent renewable biopolymeric support for synthesis of heterogeneous catalysts.[10] The interesting properties of cellulose spurred us to investigate its feasibility in the synthesis of heterogeneous NHC–transition metal complexes with catalytic potential.

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PAPER

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Application of novel multi-cationic ionic liquids in microwave assisted 2-amino-4*H*-chromene synthesis†

Arjun Kumbhar,*[a] Sanjay Jadhav,[b] Rajendra Shejwal,[c] Gajanan Rashinkar[b] and Rajshri Salunkhe*[b]

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Novel multi-cationic ionic liquids containing a mesitylene backbone with acetate and methane sulphonate anions have been synthesized. These ionic liquids were used for the synthesis of 2-amino-4*H*-chromenes under microwave heating. The effects of nature and amount of ionic liquids on the yield and reaction time were thoroughly investigated. The ionic liquids showed a considerable level of reusability without a significant decrease in catalytic activity. We have successfully combined the advantages of microwave technology with ionic liquids to facilitate the rapid construction of chromene skeletons from readily obtainable and inexpensive materials via a multicomponent strategy.

Introduction

Multi-component reactions (MCRs) play an important role in modern synthetic chemistry. As MCRs generally occur in a single pot, exhibit a high atom economy and good selectivity, they provide a powerful tool towards the synthesis of diverse and complex compounds as well as small heterocycles.[1] Molecules with the chromene structure constitute one of the most interesting class of compounds in organic chemistry due to their biological and pharmacological importance such as antimicrobial,[2] antiviral,[3] antiproliferation,[4] antitumor[5] and central nervous system activities.[6] These compounds are also employed in cosmetics, pigments and used as potential biodegradable agrochemicals.[7] Generally, 2-amino-4*H*-chromenes are synthesized by heating aldehydes, malononitrile and phenols in presence of organic bases like piperidine in organic solvents[8] and also by several modified procedures using Triton B,[9] Phase Transfer Catalysts (PTCs),[10] γ-alumina,[11] Preyssler type heteropolyacid ($H_{14}[NaP_5W_{30}O_{110}]$),[12] K_2CO_3,[13] $TiCl_4$,[14] *p*-toluenesulfonic acid,[15] nanostructured diphosphate $Na_2CaP_2O_7$,[16] and nanosize MgO.[17] Due to the environmentally benign nature of electro-organic synthesis,[18] Elinson *et al.*[19] reported the electrocatalytic chain procedure for the preparation of 4*H*-chromenes by the combined electrolysis of salicylaldehydes and alkyl cyanoacetates in ethanol in an undivided cell. In order to avoid some of the drawbacks of reported methods, the discovery of a new and efficient catalyst with high potential, short reaction time, recyclability and simple workup procedure is highly desirable.

The research in the field of ionic liquids (ILs) has grown exponentially over the last few decades due to their environmentally friendly nature, non-volatility, recyclability, thermal stability and easy workup.[20] One of the most attractive features offered by IL is both the cationic and anionic components can be varied and modified so that liquid properties can be tailored for specific applications. This modification of ILs can result in unique solvent properties that can dramatically influence the outcome of various reactions. The multi-cationic ILs are superior to mono-cationic ILs as they provide more opportunities to tune their physical and chemical properties. Conventional synthesis of IL is complicated and often suffers from halogen impurities. Hydroxide based ILs now offers the simplest synthetic tool for synthesize large number of halogen free ILs. An exchange reaction of the acid with an aqueous hydroxide solution of ILs affords the desired "Task Specific Ionic Liquids (TSILs)".

Since last few years the microwave heating becomes one of the widely used alternative technique to carry out organic transformations efficiently.[21] Due to the ionic character, IL absorb microwave radiations extremely well and transfer of energy is quick by ionic conduction. The transfer of energy is more efficient with increase in temperature. Hence, when ILs are coupled with MW they exhibit dramatic effect on rate enhancement due to synergistic couple.[22] In view of the emerging importance of the ILs as reaction media and our general interest in microwave as an energy source for chemical processes,[23] we decided to build up a new class of mono, bis and tris imidazolium based ILs containing 1,3,5 alkylidene 2,4,6 trimethyl benzene linkers, where the alkyl arm could be

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Palladium nanoparticles supported on a titanium dioxide cellulose composite (PdNPs@TiO_2–Cell) for ligand-free carbon–carbon cross coupling reactions†

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Well-dispersed non-spherical PdNPs with a diameter of 39–45 nm supported on a TiO_2–cellulose composite (PdNPs@TiO_2–Cell) can be synthesized by a simple and clean route. The catalyst was well characterized by XRD, FE-SEM, EDS, and TEM techniques. The PdNPs have good dispersity on the TiO_2–Cell support. This results in excellent catalytic activities for the synthesis of biphenyls, acrylates, acetylenes and prochiral ketones using low Pd loading (1 mol%) at comparatively low temperature. The effects of the nature and amount of bases, nature of solvents, amount of catalyst and the reaction temperature on the activity of PdNPs@TiO_2–Cell were thoroughly investigated. The catalyst showed at least four times reusability without decrease in catalytic activity.

1. Introduction

Transition metal catalysis especially palladium catalyzed cross coupling reactions of aromatic halides in the presence of various nucleophiles is strategically important in organic synthesis. It has been widely used for the synthesis of a diverse array of biphenyls, acrylates, acetylenes and prochiral ketones by C–C cross coupling reactions. These compounds have profound importance in chemical, pharmaceutical and biochemical industries.[1] Additionally, such compounds are also present in many natural as well as biologically active compounds,[2] and are especially interesting in applications for organic light-emitting diodes and chemiluminescence detection systems.[3] These compounds have been mostly synthesized by palladium catalyzed Suzuki–Miyaura,[4] Mizoroki–Heck,[5] Heck–Matsuda,[6] Sonogashira–Hagihara,[7] and carbonylative cross-coupling reactions.[8] Recently, this area of research has attracted great interest because of its high compatibility to a wide variety of functional groups under mild reaction conditions.

Though, most of these transformations have been extensively investigated by homogeneous palladium complexes in solution.[9] The separation of metal catalysts from the reaction mixture and their reuse is highly desirable from economical and environmental point of view.[10] Additionally, the homogeneous Pd complexes also undergo deactivation due to the aggregation of Pd during the reactions. In this context, heterogeneous catalysts particularly, the PdNPs supported on suitable solid support has found immense importance for many cross coupling reactions.[11] This strategy increases the catalytic activity of Pd and also reduces the amount of metal required for the reaction.[12] Several oxides have been used as a support for PdNPs,[13] because moderate to high dispersions was obtained on these oxides due to favorable metal–support interactions.[14] Out of these oxides TiO_2 based materials have found potential applications across many different areas.[15] In recent years much like the noble metal nanoparticles, PdNPs supported TiO_2 and Pd supported TiO_2 core shell catalysts have seen an extensive amount of research in methanol reforming,[16] hydrogenation,[17] and photocatalysis.[18]

Biopolymers such as alginate, chitosan, starch, and cellulose has been developed as a most attractive support for immobilization of many Pd catalysts.[19] The extensive number of –OH groups present in cellulose can facilitate the complexation of TiO_2 to the molecular matrix, and play a significant role in guiding the organization of TiO_2 among cellulose molecules. In addition to this, the use of cellulose has several key advantages, like no additional reducing agents are required.[20] Cellulose also avoids the aggregations of PdNPs, as it acts as the protecting agent similar to other biopolymers.[21] There is binding interaction between cellulose and the metal nanoparticles which provides a platform to PdNPs and helps to stabilize Pd as that of

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Full Length Research Article

DIVERSITY OF DUDHEBHAVI RESERVOIR IN SANGLI DISTRICT, MAHARASHTRA (INDIA)

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ABSTRACT

The wetlands are suitable habitats for variety of animals, birds and many aquatic plants, which form a typical food web. A total number of 13 macrophytes were reported from Dudhebhavi reservoir out of them 8 species of emergent and 5 were of submerged type. In aquatic ecosystem, the phytoplankton play an important role of primary producers. The Chlorophyceae is dominant group represented by 15 genera and 20 species where, Cyanophyceae showed 5 genera and 5 species. Bacillariophyceae reported with 7 genera and 8 species. Euglenophyceae, with only *Euglena acus*. Dinophyceae recorded with 2 species of 2 genera. The reservoir is secondarily being used for reservoir capture fishery. Important major carps, common carp, Chinese carp fish and 2 local species occurred in this reservoir. There were 20 species of aquatic birds were observed in the vicinity of Dudhebhavi reservoir. Attempts have been made to observe the diversity of macrophytes, phytoplankton, fish and bird diversity to obtain the baseline data from June 2013 to May 2015.

INTRODUCTION

The word bio-diversity is a biological diversity, which refers to the diversity and variation among all living organisms on the earth. Sangli district is one of the most important districts as far as agricultural development in Maharashtra. Sangli district is situated between 16.46 to 17.1° N and 73.43 to 75.0° E latitudes. Geographically, Sangli district shows two zones viz. area adjoining Krishna river basin and eastern drought prone area away from basin with low rainfall and typical arid geographical set up. The overall water level is up to 6-7 meters down but varies according to geographical area, strata and location of the particular village. The eastern part of the district shows low fertile soil because of natural set up where man-made reservoirs are source of irrigation besides the well. Dudhebhavi reservoir is major irrigation reservoir in Kavthe-Mahankal tahsil. It is about 80 km from district place. It is constructed during 1984. It is constructed during 1984 by the Irrigation Department. Purposely it is constructed for irrigation but now-a-days it is used for fishing activities and for other human activities.

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MATERIALS AND METHODS

Study Area: The total catchment area is 51.76 sq. km. the total capacity of storage is 630.90 Mcft and dead storage is 18.63 Mcft. Length of dam including slipway is 330 meter having clean overflow type of slipway. The height of dam is 19.33 meter and is of earthen type. The submergence area is 152 hectare. The bottom of reservoir is rocky. Hence reservoir shows very less macrophytes. Reservoir was visited monthly for the period of two consecutive years (June 2013 to July 2015).

Aquatic macrophytes: During every visit, aquatic macrophytes and marginal macrophytes were studied, photographed and collected from reservoir. In laboratory they were identified by using Cooke's "The Flora of Presidency of Bombay" (1967), Flora of Kolhapur district (Yadav and Sardesai 2002) and other relevant published literature.

Phytoplankton: The phytoplankton were collected using plankton net. It was prepared by using bolting silk No. 125. Total 100 liters of water sample was filtered and concentrate was collected in 200 ml plastic bottle. Two separate sets of concentrated samples were preserved by adding 4% formalin and 1 ml of Lugol's Iodine and observed under Olympus

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FAITHFUL PORTRAYAL OF A CONTEMPORARY SOCIETY IN ARAVIND ADIGA'S *THE WHITE TIGER*

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ABSTRACT

Aravind Adiga is one of the most famous Novelists of India. He became famous with the publication of his very first novel "The White Tiger". He has won the Man Booker Prize Award for the year 2008. It is a fictional work in which he tries to highlight the grave issues of the contemporary society. He shows disparity between the society in rural and urban parts of India and he is mainly concern with the causes that create huge gap between the societies in rural and urban parts of India. He handles the theme very cleverly. The novel is written in epistolary form, where narrator writes a letter to Chinese Premier Wen Jiabo, who is expected to visit India. According to the novelist corruption, traditionalism, and age-old social norms are responsible for the disparity in the contemporary society.

Key Words: - TWT- The White Tiger, Dark India, Light India, Black Money, Corruption, Politics, Medical Care, Human Values and Police Department, and Contemporary Society.

INTRODUCTION

Aravind Adiga's *The White Tiger* (2008) made its appearance on the literary arena of Indian English literature, when Indian society is transforming from age-old set up to its modern version. Its values, loyalty and social norms are changing with the passing time. The novelist tries to highlight the grave current issues of society and the progress our country making in various aspects. He tries to compare the both sides of every aspect very sarcastically. According to *The Sunday Telegraph*, the novel is "Blazingly Savage and Brilliant" and yes, it is. The novelist here tries to present the darkest reality of today's Indian society. It is very hard to accept the facts put-forth by the writer due to its sense of respect for own society and country. But if we take it impartially, we might be agreeing with the writer Aravind Adiga, who presents the facts through the protagonist, Balaram Halwai alias Munna, the son of common rikshaw puller of Laxmangarh, who narrates his own experiences of his life in the novel. Topic of narration is how common rikshaw puller's son reuse to become the successful entrepreneur in Bangalore one of the metro city in south India. Through the life journey of Balram Halwai, the novelist puts the real picture of the Indian society, which is hard to digest but we cannot refuse. We still get some glimpses of all those facts today also, which are expressed by the novelist with great concern for the betterment of the society. The writer's main aim seems to be to contribute in building flawless society that could give

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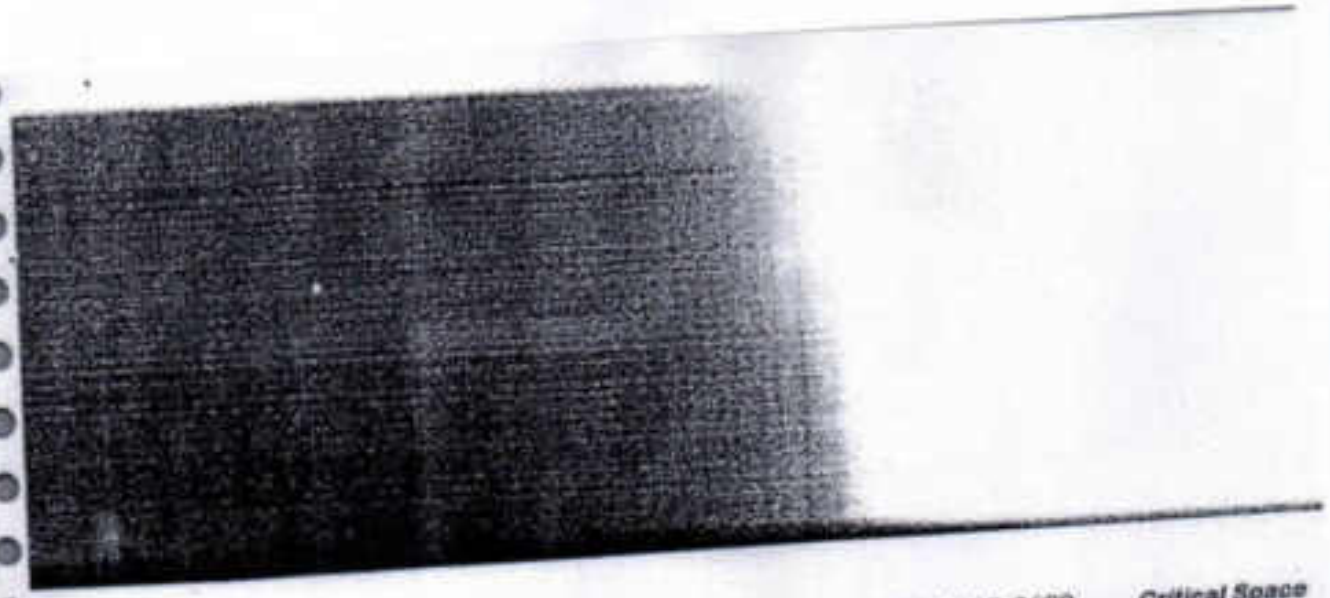

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मानवी हक्क आणि शिक्षणाची उपयुक्तता

प्रा. जी. के. पाटील*
डॉ. पाटील बाबुराव मल्हारी**

प्रस्तावना :

मानवी हक्क म्हणजे काय असा प्रश्न प्रथम पडतो. हक्क व प्रतिष्ठा या दृष्टीने जगातील सर्व माणसे समान आहेत.त्यामुळेव्यक्तीचे हक्क आणि प्रतिष्ठा ही स्वाभाविकपणेच त्या व्यक्तीचे अविभाज्य घटक आहेत. आंतरराष्ट्रीय पातळीवर कागदांची निर्मिती करून हे मानवी हक्क तयार करण्यात आले. जे कायदेशीर हक्क आहेत. त्यांनाच मानवी हक्क असे संबोधले जाते. थोडक्यात सर्व मानवातील प्रतिष्ठा आणि समता ही मूल्ये, मानवी हक्कांच्या मूळाशी असलेल्या इतर मूलतत्वांप्रमाणे प्रत्येक संस्कृती, धर्म आणि तात्विक परंपरेत आढळतात. अशा मूल्यांनाच मानवी हक्क असे संबोधले जाते. संयुक्त राष्ट्रसंघात १९४५ मध्ये मानवी हक्क आयोगाची स्थापना करण्यात आली. १० डिसेंबर १९४८ साली सर्व राष्ट्रे आणि मानवसमूह यांनी साध्य करण्याचे आदर्श तत्व म्हणून मानवी हक्कांच्या जागतिक घोषणापत्रास मान्यता देण्यात आली. हा दिवस 'आंतरराष्ट्रीय मानव अधिकार दिन' म्हणून पाळला जातो. १९६६ मध्ये संयुक्त राष्ट्राच्या आमसभेने आर्थिक, सामाजिक व सांस्कृतिक अधिकारांची आंतरराष्ट्रीय प्रमाणका प्रमाणे भारताने १९९३ मध्ये राष्ट्रीय मानव अधिकार स्थापन करण्यात आला. मानवाधिकारांच्या जागतिक जाहिरनाम्यात अनेक महत्वाच्या अधिकारांचा समावेश आहे. यामध्ये भाषण स्वातंत्र्य, संचार, स्वातंत्र्य, व्यक्तिगत स्वातंत्र्ये, समानतेचा अधिकार, धर्म स्वातंत्र्य, यांचा समावेश आहे. याशिवाय कामाचा अधिकार विश्रांतीचा अधिकार आणि फुरसतीचा अधिकार, शिक्षणाचा अधिकार यासारख्या व्याप अधिकारांचाही त्यात समावेश आहे. प्रत्येक व्यक्तिचा समतोल विकास आणि सर्व व्यक्तींची सम प्रतिष्ठा हा या अधिकारांच्या मागचा उद्देश आहे. आपल्या सर्वांसाठी प्रतिष्ठा आणि न्याय हे जाहिरनाम्याचे घोष वाक्य आहे.

मानवी हक्कविषयक जागतिक घोषणापत्रानुसार काही कलमे महत्वाची आहेत ती पुढ

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