



## FREE RADICAL SCAVENGING ACTIVITY OF *LEPIDIUM SATIVUM* SEED EXTRACT IN HFD/STZ INDUCED DIABETES.

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### ABSTRACT

Oxidative stress is the major cause of diabetes and its associated complications. The present study aims to evaluate the antioxidative potential of *Lepidium sativum* seed extract (LSE) on streptozotocin induced diabetic mice. *Lepidium sativum* seeds have been used to treat a variety of human ailments like bronchial asthma, local and rheumatic pain and diabetes due to presence of large number of alkaloids like lepidin and semilepidine, so to study its free radical scavenging activity we have selected these seeds. Adult albino male mice (*Mus musculus* L.) were divided into three groups viz. i) control group ii) diabetic group iii) recovery group. Diabetes was induced in mice by feeding with high fat diet (two weeks) followed by intraperitoneal injection of streptozotocin (STZ) (40 mg/kg body weight). The diabetic mice were administered orally with LSE (200 mg/kg body weight) for 28 days. After the completion of treatment, liver and pancreas were removed and used for the estimation of oxidative stress parameters namely superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx). The results showed that the level of all three antioxidative enzymes i.e. SOD, CAT and GPx were reduced in diabetic group as compared to control group but after the treatment of LSE, significant rise in antioxidative enzymes in recovery group was observed. These findings suggest that LSE had increased the antioxidant enzymes by scavenging free radicals which significantly manage diabetes and its associated complications.

**KEYWORDS:** *Lepidium sativum* seed extract (LSE), oxidative stress, antioxidative enzymes, Diabetes



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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 Bronsted 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

## RESEARCH ARTICLE

# Texture profile analysis of Sonaka and Thompson seedless raisins

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## ABSTRACT

Texture Profile Analysis (TPA) is a well developed and reliable method for measuring firmness of fruits and dehydrated products. In the present investigation, an attempt has been made to study texture profile of raisins of Sonaka and Thompson seedless treated with  $MgCO_3$ ,  $K_2CO_3$ ,  $CaCO_3$  and Sulphur and coated with Zein protein. Results indicated that hardness of raisins of both varieties was increased due to Zein protein coating and sulphur treatment. The adhesiveness of sulphur treated and Zein coated raisins was reduced in Thompson seedless variety. The raisins of Sonaka and Thompson seedless variety had the least cohesiveness under sulphur, Zein protein coating indicated that both treatments improved durability of and deformation of raisins during post harvest storage. From these results it is concluded that application of sulphur and Zein protein coating on raisins of Sonaka and Thompson seedless is beneficial for maintenance of overall texture of raisins during storage and transport.

**Keywords:** Raisins, Sonaka, Sulphur, Thompson seedless, TPA, Zein protein

**Citation:** Patil, V.A. and Naik, V.N. 2018. Texture profile analysis of sonaka and thompson seedless raisins. *Journal of Postharvest Technology*, 6(4): 75-81.

## INTRODUCTION

Grape (*Vitis vinifera* L.) belonging to family Vitaceae is a commercially important fruit crop of India. Grapes are eaten as raw or they can be used for making wine, raisins, jam, and jelly, which are very nutritious and rich source of minerals like potassium, phosphorus, calcium, magnesium and other micronutrients and different vitamins. The dried grapes, commonly known as raisins, have a great importance in economy of the country and considered as one of the nutritious most popular dry fruits in the world. Raisins are dried fruits of certain varieties of grapevines with a high content of sugar and solid flash (Khair and Shah, 2005). The important raisin grape varieties are Thompson seedless and their selections like Tas-A-Ganesh, Sonaka and Manikchaman. The increased production of table grapes has a great potential to produce raisins with minimum losses of fresh fruits (Telis et al., 2004).

Texture profile analyses (TPA) is a well developed and reliable method for measuring firmness of fruits and dehydrated products (Harker et al., 2006) and has been utilized for measuring the physical properties of plant tissue (Bourne, 2002 and Roudot, 2006) mostly from wide range of food and vegetables (Chang et al., 2012, Kulamarva et al., 2009 and Cardoso et al., 2009). TPA provides sensory signals to consumers (Civille, 2011) and thus it stands as one of the measures in the food chain used to estimate the quality of different cultivars at technological ripeness and during storage (Paoletti et al., 1993 and Johnston et al., 2000).

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

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**Authors:** Morbale, Smita T.; Shinde, Sachin K.; Damate, Shashikant A.; Deshmukh, Madhukar B.; Patil, Suresh S.

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Abstract



References



Citations



Supplementary Data

Green chemistry emphasizes the development of environmentally benign chemical processes and technologies. Pseudo-multicomponent synthesis of 2-aryl-1-arylmethyl-1H-benzimidazoles using o-phenylenediamine and aromatic aldehydes is carried out by Bronsted 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 Bronsted 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, 1H NMR and 13C NMR spectroscopic techniques.

**Keywords:** Aromatic aldehydes; Bronsted acid; Citrus limonium; benzimidazole; bio-surfactant; biodegradable catalyst

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Suresh Patil

## 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

Authors Sachin K Shinde, Megha U Patil, Shashikant A Damate, Suresh S Patil

Publication date 2018/3

Journal Research on Chemical Intermediates

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Description 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.

Graphical Abstract

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SK Shinde, MU Patil, SA Damate, SS Patil - Research on Chemical Intermediates, 2018  
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# Studies on cyanobacteria: *Spirulina* isolated from Satara district, Maharashtra

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**Abstract:** The aim of this work is to study occurrence of genus *Spirulina* and biochemical composition of *Spirulina subsalsa* isolated from various localities of Satara district, Maharashtra. Four species of *Spirulina* were recorded from the study area viz., *Spirulina subsalsa* Oersted ex Gomont, *Spirulina meneghiniana* Zanardini ex Gomont, *Spirulina major* Kutzing ex Gomont and *Spirulina gigantea* Schmidle. Out of these *Spirulina subsalsa* was cultured in conical flasks under lab conditions. Algal biomass was harvested at its exponential phase. Fresh as well as dried biomass was subjected to biochemical analysis. The metabolites considered for biochemical analysis were pigments viz., chlorophyll a, carotenoids and Phycobiliproteins; carbohydrate, protein, lipids, Nitrate reductase (NR) activity, Total flavonoid content (TFC), Total Phenolic content (TPC), Total antioxidant capacity (TAC) and Vitamin C. It showed significant amount of chlorophyll- a i.e. 6.510(mg/ml) with 3.800 (mg/ml) carotenoid content. Total phycobiliproteins recorded was 5.60 (mg/ml) with 0.800 (mg/ml) Phycoerythin, 1.800 (mg/ml) Phycocyanin and 3.00(mg/ml) allophycocyanin respectively. It showed 8.00 % (dry wt.) Carbohydrates, 49.00 % (dry wt.) proteins and 25.00% (dry wt.) lipids which makes it superfood. In addition Total flavonoid content (TFC) recorded was 3.970 (mg./g equivalent of Rutin); Total Phenolic content (TPC) 0.305(mg./g GAE), Total antioxidant capacity (TAC) 0.525(mg./g AAE), and Vitamin C 0.452(mg./g). *Spirulina subsalsa* have been found with promising biochemical characterization which may be exploited further in future.

**Keywords:** Biochemical analysis, Cyanobacteria, Satara, *Spirulina subsalsa*.

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## 1. INTRODUCTION

Blue green algae which are now famously called as “Cyanobacteria” are diverse group of Gram negative organism which have originated 3.5 billion years ago. Since then they are serving us by means of their photosynthetic activity, nitrogen fixing ability and by producing number of valuable biomolecules. *Spirulina* is filamentous edible blue green micro alga belonging to family Oscillatoriaceae. It has typical spiral filamentous thallus with typical blue green colour. It has received much attention all over the world as potential source of food because of nutritional value of its biomass [14]. *Spirulina* is with high protein and fiber content and therefore used as food source [2], [3]. In addition to the high contents of proteins, it is rich in vitamins, polyunsaturated fatty acids and phycocyanin,  $\beta$  carotene and chlorophyll pigments that have been used as food and drink, cosmetic and pharmaceutical colorants [7], [11], [36]. Diversity in its biological and chemical properties have promoted this genus as food for future [5], [6], [20], [29].

There is great interest of scientists all over the world in culturing microalgae and cyanobacteria even though it is estimated that very few algal species have been studied for their physiology and their potential as producers of biocompounds [34]. But cultivation and processing of *Spirulina* is a difficult task. In this present research an attempt has been made to cultivate and biochemical analysis of *Spirulina subsalsa*. Cyanobacteria are very sensitive to fluctuations in environmental conditions such as light, salinity, temperature and nutrient limitation in natural habitats [40]. Growth and cellular composition of *Spirulina* is affected by cultural conditions.

# Biodiversity of unicellular cyanobacteria from some rice field soils of Satara District (MS)

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## ABSTRACT

Blue Green Algae which are also called as cyanobacteria are one of the most important nitrogen fixing photoautotrophs present on the earth since 3.5 billion years. They are known to be found in almost all photic habitats including water bodies, glaciers as well as all terrestrial ecosystems. Paddy fields represent one such habitat. Because of their autotrophic and diazotrophic nature they flourish in rice fields and known to sustain the fertility of this ecosystem. They vary in their morphology. Some of them are unicellular while some are multicellular filamentous. An attempt has been made to document unicellular cyanobacteria from rice fields of Satara district in Maharashtra State. As many as 18 species of unicellular cyanobacteria were recorded from the study area. Order Chroococcales has been reported by nine of genera and 18 species. The genera *Aphanocapsa*, *Aphanothece* and *Gloeocapsa* were frequently reported.

**Keywords:** Biodiversity, Chroococcales, Cyanobacteria, Rice fields, Unicellular.

## INTRODUCTION

The Blue Green Algae are unicellular or filamentous that sometimes form structures recognizable with naked eye, but usually requires a microscope for identification, they differ from other groups in this flora in that they are prokaryotes.

Their cell contents are not differentiated in to membrane bound structures such as the nucleus, chloroplast, and mitochondria. The popular name for the group Blue Green Algae comes from the color of the cells seen under the microscope. The pigments in their cells like chlorophyll-a, phycocyanin, phycoerythrin express their colour (Kondo and Yasuda 2003). This is because many species have a sheath around individual cells or the whole filament and this sheath is often golden or dark brown, though sometimes a shade of red. The capacity of several cyanobacteria to fix the atmospheric nitrogen is a significant biological process of economic importance (Anand 1989). These



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# Characterization and Gas Sensing Properties of Spin Coated WO<sub>3</sub> Thin Films

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## Abstract

The WO<sub>3</sub> thin films have been synthesized on to the glass substrates by a simple and easy spin coating method at different deposition cycles and their sensor responses towards various concentrations of NO<sub>2</sub> gas were investigated. The WO<sub>3</sub> films were spin coated at a spinning rate of 2500–3000 rpm for 5, 10 and 15 deposition cycles, respectively. Then the films were annealed at 400 °C for 1 h in a furnace. The structural, morphological, optical and electrical properties of WO<sub>3</sub> films were studied by different characterization techniques such as X-ray diffraction (XRD), Scanning Electron Microscopy (SEM), FT-RAMAN Spectroscopy and electrical resistivity measurements by laboratory made two probe method respectively. It reveals a spherical grain – like morphology with a pure monoclinic phase of WO<sub>3</sub>. The FT-RAMAN spectra also confirm the pure monoclinic phase of WO<sub>3</sub>. The WO<sub>3</sub>-10 film sensor exhibits maximum gas sensitivity 21.93 and 102.4% to 5 and 100 ppm NO<sub>2</sub> at 200 °C, respectively. The WO<sub>3</sub>-10 thin film sensors is highly sensitive and selective to NO<sub>2</sub> over other gases.

**Keywords:** NO<sub>2</sub> gas sensor; sensitivity; spin coating; WO<sub>3</sub> nanograins

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## A new species of genus *Bonnaya* (Linderniaceae) from the Western Ghats of India.

**Author(s)** : [Shimole Vinod](#) ; [Sardesai Vinayak](#) ; [Sathe Sanjay](#)

**Author Affiliation** : Department of Botany, The New College, Kolhapur, Maharashtra, 416 012, India.

**Journal article** : [Phytotaxa](#) 2019 Vol.399 No.4 pp.291-295

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**Abstract** : *Bonnaya milindi* (Linderniaceae), a new species from the Western Ghats of India is described and illustrated. The species is similar to *Bonnayasarpabloensis* but differs in its petaloid staminodes and glabrous corolla.

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## *Bonnaya sanpabloensis* (Linderniaceae): An addition to the flora of India

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**Abstract:** *Bonnaya sanpabloensis* (Linderniaceae) previously reported from South China, Thailand and Philippines, is newly reported for the flora of India from Maharashtra. The species is distinct from other species of the genus in having flowers in terminal racemes, pedicels almost vertical in fruiting and densely pilose staminodes.

**Keywords:** *Bonnaya sanpabloensis*, India, Linderniaceae, Maharashtra, New Record.

### Introduction

The genus *Bonnaya* Link & Otto was segregated from *Lindernia* All. by Fischer *et al.* (2013) on the basis of molecular and morphological evidences. The presence of a single pair of staminodes, narrow lanceolate entire or denticulate leaves, pinnate venation with clearly visible lateral veins and narrow linear capsules are the characteristic features of this genus (Bentham, 1846, 1876; Hooker, 1884; Fischer *et al.*, 2013). During a taxonomic revision of the family Linderniaceae for the state of Maharashtra, the authors collected some interesting specimens of genus *Bonnaya* from the forest areas of two different districts. Laboratory studies showed a few character differences by which these specimens are distinct from all the hitherto described species from India. Therefore, the authors have approached Prof. Jenn-Che Wang, National Taiwan Normal University, Taiwan for his expert opinion and, the specimens were identified as *Bonnaya sanpabloensis* Y.S. Liang & J.C. Wang, a recently described species from South China, Thailand and Philippines (Liang & Wang, 2014). This species was previously been confused with *B. antipoda* because of its similarities

in morphological characters, but differs from *B. antipoda* by having 8–16 pairs of teeth on the leaf margins, a racemose inflorescence, densely pilose staminodes and fruiting pedicels held almost vertically. As the species is added for the first time to the flora of India, a detailed description, photo plate and notes on its distribution are presented here.

***Bonnaya sanpabloensis*** Y.S. Liang & J.C. Wang, Australian Systematic Botany 27: 192. 2014. *Type:* PHILIPPINES, Luzon, Laguna Province, San Pablo City, 23.11.2007, Y.S. Liang 1534 (holo PNH; iso TAIF, TNM, TNU) **Fig. 1**

Annual, erect to ascending (sometimes creeping) herbs, 25–30 cm long (rarely upto 1 m); rooting at lower nodes. Stems branched, usually quadrangular, glabrous, green to brown; internodes 2–4 cm long. Leaves sessile or subsessile, oblong-obovate to elliptic, 2–4 × 0.5–1 cm, obtuse or rarely acute at apex, acute at base, margins serrate with 7–15 pairs of teeth, glabrous on both surfaces, pinnately veined, secondary veins 9–11 pairs. Racemes lax, glabrous. Flowers 8–15 on each peduncle, with a subtending bract; bracts linear-lanceolate, 2–4 mm long in flowers, 6–8 mm in fruiting; pedicels ascending in flowers, almost vertical in fruits, 3–20 mm long in flowers, 10–20 mm long in fruits. Calyx deeply 5-lobed; lobes linear-lanceolate, acute to acuminate, glabrous, appressed in fruiting, 3–5 × c. 1 mm in flower, 4–6 mm long in fruiting. Corolla bi-lipped, 9–12 mm long, abaxially sparsely glandular, blue to purple, upper 2-lobed, 4–5 × 2–3 mm, lower 3-lobed, 3–4 × 3.2–4 mm, middle lobe elongated, with a white mark at the base. Stamens 2; filaments 1.3–2.2 mm long, pale blue to pale purple; anther 1.2–1.6 mm long. Staminodes 2, clavate, 5–6 mm long, lower half white and pilose, upper half glabrous and yellow. Ovary cylindrical, c. 2 mm long, c. 0.8 mm wide; style 5–6 mm long;

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### गोपवाच :-

औद्योगिक क्रांतीनंतर आजतागायत बहुसंख्य देशांचा विकासासाठी विकास झालेला दिसून येतो. परंतु, या विकासाबरोबरच हवामानामध्ये अनेक नवनवीन समस्या निर्माण झालेल्या आहेत. त्यापैकीच जागतिक तापमानवाढ ही एक होय. जागतिक तापमानवाढ ही समस्या म्हणजे हरितगृह वायूंचा परिणाम होय. कार्बन-डाय-ऑक्साईड, मिथेन, नायट्रस ऑक्साईड, पाण्याची वाफ ही हरितगृह वायू आहेत. परंतु मानवाच्या विविध क्रियांमध्ये या वायूंमध्ये मोठ्या प्रमाणात वाढ झालेली आहे. याचा परिणाम म्हणजे क्लोरोफ्ल्युरो कार्बन, हायड्रोफ्ल्युरो कार्बन, सल्फर हेक्झाफ्ल्युरोईड या सारखी अनेक जागतिक हरितगृह वायूंची निर्मिती झाल्यामुळे पृथ्वीचे तापमान आणखीनच वाढले आहे. यामुळे तापमान वाढ ही जागतिक समस्या निर्माण झालेली आहे. पृथ्वीचे तापमान भविष्यात याच पद्धतीने वाढत गेल्यास अनेक भयंकर समस्या निर्माण होतील आणि याचा वाईट परिणाम या ठिकाणच्या भूभागावर, महासागरावर व त्याचबरोबर मानव व जीवसृष्टीवर होईल. म्हणून योग्य ती दखता घेणे आताच गरजेचे आहे. त्यासाठी हरितगृह वायूंचे उत्सर्जन व निर्मिती

खण्वून त्यांचे प्रमाण कमी करणे अत्यंत आवश्यक आहे.

### १.१. प्रस्तावना :-

पृथ्वीवरील हवामानात सातत्याने बदल घडून येत आहे. लाखो वर्षांपूर्वीचे पृथ्वीवरचे हवामान आणि आजचे हवामान यामध्ये खूप बदल झालेला आहे. राजाणे, लाखो वर्षांपूर्वी हवामानात जे बदल घडून आले, ते वातावरणातील विविध वायूंच्या प्रमाणात झालेल्या बदलांमुळे व त्यासारख्या इतर नैसर्गिक कारणांमुळे घडून आले. वर्तमान काळातील बदलांसाठी मानवाच्या विविध कृती करणीभूत ठरलेल्या आहेत. आणि हा कृती भविष्यकाळातील हवामान बदलांही देखील करणीभूत ठरू शकतील. त्यासाठी वेळीच दखता घेणे गरजेचे आहे. मानवाच्या प्रत्यक्ष किंवा अप्रत्यक्षरित्या नैसर्गिक प्रवाहांमध्ये जे बदल घडून येत आहेत ते अनुमानात महत्त्वपूर्ण बदल घडवून आणत आहेत. मानवामुळे जे बदल घडवून आणले जातात ते हरितगृह परिणामांचाच एक भाग आहेत. हरितगृह परिणाम म्हणजेच पृथ्वीच्या भूपृष्ठावरील वातावरणाची पृथ्वीकडून उत्सर्जित केलेली किरणे किंवा उष्णता वारण करणाऱ्याच्या धमनेत झालेली वाढ होय. यामुळे पृथ्वीच्या वातावरणाच्या खालच्या वरत तापमान वाढण्याचे वाढत आहे. यामुळे जागतिक तापमान वाढ यासारखी भयानक मानवनिर्मित समस्या निर्माण झालेली आहे.

### १.२. अभ्यासाचे महत्त्व :-

औद्योगिक क्रांतीनंतर आजतागायत बहुसंख्य देशांचा विकासासाठी विकास झालेला दिसून येतो. परंतु या विकासाबरोबरच हवामानामध्ये अनेक नवनवीन समस्या निर्माण झालेल्या आहेत. त्यापैकीच 'जागतिक तापमान वाढ' ही एक होय. औद्योगिक क्रांतीनंतर औद्योगिकीकरण, नागरीकरण, जागतिकीकरण, पृथ्वीच्या तापमानात वाढ कधी झाली हे कधी कळलेच नाही. जागतिक तापमान वाढ कधी झाली, जागतिक तापमान वाढीचे परिणाम कोणते आहे, आणि ही तापमान वाढ वेळीच थांबविली नाही तर भविष्यात याचे परिणाम काय होतील याचा अभ्यास करणे महत्त्वाचे आहे. म्हणून हा लेखी लेख लिहिणे महत्त्वपूर्ण ठरेल.

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**संक्षेप**

समग्र पर्यावरण संवर्धनासाठी सर्व फलदायी अनेक उपाययोजनां आखल्या जात आहेत. परंतु डिसेम्बेरस पर्यावरणाचे संतुलन बिघडण्यासाठी इतर घटकांप्रमाणेच ई-कचरा देखील तेवढ्याच प्रमाणात कारणीभूत ठरत आहे. आपण आपल्या वारंतील टाकाऊ वस्तू, कचरा नेहमीच घराबाहेर फेकून देतो. सोसायटीच्या आवापत, सार्वजनिक रस्त्यांवर आम्ही कुठेही कचरा टाकलेला आढळतो. या कचऱ्यात ई-कचराही असतो. पण त्याबद्दल आपल्याला कोणी प्रश्न विचारत नाही किंवा बंदी कात नाही. सर्वात मोठी त्रिकेची बाब म्हणजे देशामध्ये विविध नोपारा हजारों टन ई-कचरा पारंपारिक संगोळावेलेच खरोबा करतात. त्यामुळे पुणे-मुंबईसह देशातील प्रमुख शहरातील ई-कचऱ्याची समस्या आगोत्याच्या दृष्टीने गंभीर बनत चाली आहे. त्याच देशामध्ये मानवाने गाड्यांच्या परंतु प्रकियेसाठी व्हून गाड्यांच्या १० टक्के ई-कचऱ्याची विक्रीसाठी कमी लाभासाठी याबाबत जाणवत नसताना नगरिकांपासून शारीरिक प्रशासनापर्यंत सर्वाने गोष्टीची स्थिती आहे. त्यामुळे ई-कचरा ही एक गंभीर पर्यावरणीय समस्या निर्माण झालेली असून याच दृष्टी परीक्षण पर्यावरणावर आणि सजीवजन्तू आरोग्यावर खेळत विखत आहे. या कचऱ्याचे प्रमाण डिसेम्बेरस वाढत असून पर्यावरण रक्षणासाठी आता ई-कचऱ्याची व्यवस्थापन करून विक्रीसाठी लागणे आवश्यक असून याबाबत शासनामध्ये उत्तमगतीने लोण्याची आवश्यकता आहे. त्याच मानव फलदायी ई-कचऱ्याचे पुनर्वापर करणे देखील तेवढेच फलदायी आहे.

**प्रस्तावना:**

ई-कचरा म्हणजे फेकून दिलेला किंवा जरात आलेली इलेक्ट्रिकल व इलेक्ट्रॉनिक उपकरणे येथे - जगणान इलेक्ट्रॉनिक व इलेक्ट्रिक उपकरणांच्या नाशामध्ये मोठ्या प्रमाणात वाढ झालेली असल्याने ई-कचऱ्याचा पण गंभीर तसेच तालला आहे. बिघडलेले किंवा जरात आलेले मोबाइल फोन, लॅपटॉप, टेलिव्हिजन वच आणि पॅनलस संगणका इ-कचऱ्यामध्ये अनेक सार्वजनिक प्रश्न आणतात. हे सार्वजनिक प्रश्न मानव आरोग्य, जैवविविधता किंवा पर्यावरणास सार्वजनिक तसेच तालला. त्यामुळे मानवी आरोग्य आणि पर्यावरणाच्या समस्या निर्माण होत आहेत. मानवसंधान इलेक्ट्रॉनिक उपकरणांचा नाशाला लागत आहे. त्याच ई-कचऱ्याची वेळोवेळी आवण ई-मुळे मानवतातील विमान लोणाच्या ई-कचऱ्याने प्रमाण पुढे जात आहे.

**उद्दिष्टे:**

१. मानवतातील ई-कचऱ्याचे प्रमाण व प्रमाणात अभ्यास करणे.
२. ई-कचऱ्याचा मानवी आरोग्य व पर्यावरणातील परिणामांचा अभ्यास करणे.
३. मानवतातील ई-कचरा व्यवस्थापन व व्यवस्थापनातील पर्यावरणाचा अभ्यास करणे.

**वैयक्तिक संशोधन व संशोधन पध्दती:**

असून शोध विवेक हा निर्वाचक, नव्य पद्धताना आधीच आहे. निर्वाचक, मानवी संशोधन करण्यासाठी विवेक, शोध, इतरांचे, कृतज्ञता, शोधक ई. या आधार घेण्यात आलेला आहे.



# Study of Honey as a Sweet Remedy against Fungal Supremacy

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**Abstract:** Different honey samples i.e. Dabur, Himalaya, Patanjali and Madhuban pure organic honey; available in local market examined to study their antifungal property against different fungal strains including *Candida albicans*, *Candida tropicalis* and *Rhizopus oryzae* with Agar well diffusion method. In the present study all honey samples showed inhibitory activity against *Candida albicans*, In case of *Candida tropicalis* Dabur and Madhuban honey showed antifungal property. Surprisingly all honey sample failed to resist growth of *Rhizopus oryzae*. Such difference in inhibitory action may be due to variation in antimicrobial components, source of honey or processing and packaging of honey. In case of *Rhizopus oryzae* there may need of further dilution of honey samples. Most importantly all honey samples are best as natural remedy against *Candida albicans* associated infections or diseases.

**Keywords:** Honey, *Candida albicans*, *Candida tropicalis*, *Rhizopus oryzae*, Agar well diffusion method.

## I. INTRODUCTION

Honey is a sweet food made by bees (including: *Apis andreniformis*, *A. florea*, *A. dorsata*, *A. cerana*, *A. koschevnikovi*, *A. mellifera*, *A. nigrocincta*) [1]. Honey exports from India grew 19% year-on-year in 2018-19 to \$105 million. The U.S. is the largest importer of honey in the global market and also a top destination for Indian honey (<https://economictimes.indiatimes.com/>). Worldwide business with bee keeping and honey production including global giant manufactures mainly distributed in Brazil, India, Oceania, Europe and other developing countries. The Europe takes the market share of 39%, followed by North America with 31%. China's consumption market has a quicker growing speed of CAGR 16.4% (<https://www.marketwatch.com/press-release/global-organic-honey-market-2019-to-2024-analysis-includes-key-developments-market-share-and-size-2019-05-21>).

The Indian market have a lot of honey brands that sell honey, including key players at national as well as state level market including; Hitkari, Dabur, Beez, Apis Himalaya, Zandu pure honey, 24 Mantra honey, Patanjali and Madhuban pure organic honey etc. The raw honey proved most beneficial because of loads of nutrients and without added sweetness and preservative (<https://www.grabon.in/indulge/health/best-pure-organic-honey-brands-india/>). Honey is generally evaluated by a physicochemical analysis of its constituents which influence the storage quality, granulation, texture and flavour, nutritional and medicinal quality of honey. The International Honey Commission (IHC) has therefore proposed certain constituents as quality criteria for honey. These constituents include: moisture content, electrical conductivity, reducing sugars, sucrose content, minerals, free acidity etc. [2]. Besides the testing of these physicochemical parameter; no doubt they are concern with purity and durability of honey, the analysis of comparative medicinal properties of honey is also most important and fruitful. There are number of branded manufactures of honey standing with the promise of being pure, natural, affordable and health benefits aspects, and obviously they are leading at national and international levels. Beside this consumers getting confused regarding choosing honey for specific health benefits. As honey is prominent antimicrobial natural medicine, everyone should know about which honey is specific for particular antimicrobial activity as a basic home remedy.

According to the Ahamad and co-workers, 2017[3] fungal diseases exert burden on the healthcare of developing and underdeveloped regions. Antibiotics treatment failed against the fungal diseases, due to increased drug resistance to commercially available anti-fungal drugs. To overcome this there is a need to develop effective and cheap antimicrobials from natural sources. These facts led us to investigate antifungal activity of different honey samples against different fungal species. According to the World Health Organization (WHO) [4] statistics, about 80% of the people prefer natural product high potential and low toxicity [5]. Honey is one of the best natural products are mostly researched now a days [6]. According to Cruz and his co-workers (2019) [7] in ancient Egypt, beekeeping has been practiced for more than 4000 years, and honey has been used as a medicine in the treatment of wounds, ulcers, burns, abscesses, gastrointestinal diseases, inflammations, rigid joints, and even as a contraceptive method. Honey composed of complex supersaturated sugar with variable 181 substances [6]. Basically substances categorised in major compounds

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# Ash of pomegranate peels (APP): A bio-waste heterogeneous catalyst for sustainable synthesis of $\alpha,\alpha'$ -bis(substituted benzylidene)cycloalkanones and 2-arylidene-1-tetralones

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*Research on Chemical Intermediates* **46**, 3527–3543 (2020)

**348** Accesses | **22** Citations | [Metrics](#)

## Abstract

$\alpha,\alpha'$ -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-

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

[U. P. Patil](#) , [Rupesh C. Patil](#) & [Suresh S. Patil](#)

[Reaction Kinetics, Mechanisms and Catalysis](#) **129**, 679–691 (2020)

**182** Accesses | **10** Citations | [Metrics](#)

## 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-arylidene malononitrile, 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

## दुष्काळ - एक नैसर्गिक आपत्ती

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निसर्गापासून संपूर्ण सजीवसृष्टीचा उगम झाला आहे. आदिम कालखंडापासून या निसर्गात अनेक प्रकारचे बदल झालेले दिसून येतात. सुरुवातीच्या कालखंडात हे निसर्गातील बदल चमत्कार, दैवी प्रकोप अशा स्वरूपात मानले गेले. नंतर मानवाला अग्नि, हत्यारे यांचा शोध लागला. मानव शेती करू लागला, मानवाच्या हा विकासाच्या टप्प्यात मानवाची निसर्गाकडे दृष्टी बदलत गेली. निसर्गातील घडामोडींची कारणमीमांसा होऊ लागली. या सर्व घडामोडीत कधी भूकंप, अवर्षण, जंगलातील घणवे, अनेक प्रकारची वादळे, सु-नर्मीत हालचाली, अवकाशातून पडणाऱ्या उल्का, भूस्खलन, हिमस्खलन, आकाशातील बिजांचा कडकडाट, इत्यांचा सहसाट ..... अशा एक ना अनेक या निसर्गातील घडामोडी घडताना दिसतात. या सर्वांपैकी "दुष्काळ" या विषयावर बरे विचारसंधन मांडावयाचे असून आजच्या विज्ञान युगातील मानवाने दुष्काळ ही एक नैसर्गिक आपत्ती म्हणून रूपा स्विकार केला आहे. तसेच दुष्काळ विषयक कारणे, दीर्घकालीन उपाययोजना यांचा सविस्तर विचार या शोधनिबंधाच्या अनुषंगाने करावयाचा आहे.

संशोधन विषयाची उद्दिष्टे -

- 1) दुष्काळ ही संकल्पना दुष्काळाच्या विविध व्याख्यांच्या अनुषंगाने स्पष्ट करणे.
- 2) दुष्काळ ही संकल्पना स्पष्ट करताना दुष्काळाचे बहुविध स्वरूप अभ्यासणे.
- 3) दुष्काळाचा इतिहास अभ्यासणे.
- 4) दुष्काळविषयक विविध कारणांचा ऊहापोह करणे.
- 5) दुष्काळविषयक समस्यांवर दीर्घकालीन उपाययोजना कोणत्या यांचा ऊहापोह करणे.
- 6) दुष्काळविषयक चित्रणातून जीवनजाणिवेचा स्पष्ट करणे व जीवन जाणिवे समृद्ध करण्यासाठी या अभ्यास विषयाचा विचार होणे आवश्यक वाटते.

संशोधन विषयाची व्याप्ती -

दुष्काळ ही एक नैसर्गिक आपत्ती आहे. इतर अनेक नैसर्गिक आपत्तींपैकी दुष्काळाचे अभ्यास विषयाच्या अनुषंगाने वेगळेपण लक्षात घेणे महत्वाचे वाटते. निसर्गात ही प्रक्रिया पुन्हा पुन्हा घडताना दिसून येते. निसर्गाचा असमतोलपणा या दुष्काळामुळे साधला जातो. दुष्काळामुळे अनेकदा सजीवसृष्टीवर संकट आले असून अवर्षणामुळे बाही बाही झाल्याची उदाहरणे सापडतात. सृष्टीच्या उत्पत्तीपासून ते आजपर्यंत या अवर्षणाची तीव्रता कमी-अधिक स्वरूपात जाणवली आहे. या जीवनजाणिवेचा देखाटताना या विषयाची सखोलता लक्षात घेत राहते. "दुष्काळ-एक नैसर्गिक आपत्ती" याचा विचार करताना हा अभ्यासविषय म्हणजे स्वतंत्र संशोधनाचा भाग असल्याचे जाणवते. या अनुषंगाने या विषयाचा अभ्यास राष्ट्रीय व आंतरराष्ट्रीय स्तरावर होणे महत्वाचे वाटते.

दुष्काळ - व्याख्या व संकल्पना

दुष्काळ म्हणजे अशी अनावृष्टी तसेच अतिवृष्टी म्हणजे सुध्दा दुष्काळच होय. "एखाद्या गोष्टीची कमतरता असणे" अशी अर्थच्छेदा दुष्काळ या शब्दामध्ये मागावलेली आहे. जसे की ज्ञानाचा दुष्काळ, निवोजनाचा दुष्काळ, सुखाचा दुष्काळ इ. अनेक वास्तविक "दुष्काळ" या शब्दाला विविध अर्थच्छेदा असल्यातरी दुष्काळ म्हणजे पावसाचा अभाव किंवा कोरडा दुष्काळ असाच अर्थ घेतला जातो. कारण कोरड्या दुष्काळाच्या झळा अधिक तीव्र असतात.



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## [BBSA-DBN][HSO<sub>4</sub>]: a novel –SO<sub>3</sub>H functionalized Bronsted acidic ionic liquid for easy access of quinoxalines

[Megha U. Patil](#), [Sachinkumar K. Shinde](#), [Sandip P. Patil](#) & [Suresh S. Patil](#) 

[Research on Chemical Intermediates](#) **46**, 4923–4938 (2020)

**204** Accesses | **9** Citations | [Metrics](#)

### Abstract

A novel –SO<sub>3</sub>H difunctionalized Bronsted acidic ionic liquid (BAIL) 1, 5-bis (butanesulphonic acid)-diazobicyclo [4,3,0] non-5-enium hydrogen sulphate [BBSA-DBN][HSO<sub>4</sub>] 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



## IMPACT OF HUMAN CAUSES FOR RIVER POLLUTION OF INDIA WITH SPECIAL REFERENCE TO PANCHAGANGA RIVER NEAR ICHALKARANJI MAHARASHTRA

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**Abstract:** River Panchaganga is one of the important sources of water supply to agriculture and urban area. The urban and industrial load of the city has increased many folds making the river unfit for every purpose. Physico-chemical and biological aspects of water pollution of Pancha ganga river were analyzed seasonally with respect to physico-chemical parameters from July 2017 to May 2018. The sampling sites were Ichalkaranji Bridge, Shiradwad, and Abdul Lat, near Pancha ganga river in Ichalkaranji. The paper highlights the alarming condition of Eutrofiering of river in various seasons with respects to the parameters and if immediate action is not taken for restoration of the river it will have deadly effect on not only the human habitat surrounding the river but also on the flora, fauna and agricultural land, hence report is to be submitted to WHO, UNESCO-IHE, IWWA, SIDA, University Grant Commission of India, etc. for restoration help.

**Keywords:** Eutrophication; Human Impact; Panchganga river; Pollution.

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## INTRODUCTION

The Panchganga river flows through the borders of Kolhapur. It starts from Prayag Sangam (Village: Chikhli, Taluka: Karveer, Dist.-Kolhapur). The Panchganga is formed, by four streams, the Kasari, the Kumbhi, the Tulsi and the Bhogawati. Local tradition believes in an underground stream Saraswati which together with the other four streams make the Panchganga. The Prayag Sangam confluence marks the beginning of the Panchganga river proper which after receiving the waters of the four tributaries continues in a larger pattern with the flow of waters received from the rivers. From North of Kolhapur, it has a wide alluvial plain. After developing this plain the river resumes its course eastwards. Most of the rivers and their tributaries are being used as site for disposal of

domestic and industrial waste in India which impairs their water quality. With rapid growth of the Ichalkaranji city both in urban and industrial areas, the pollution load from sugar and textile industries in the river has increased. The discharge of the effluents and industrial waste by the nearby industries has led to pollution of the Panchganga river which has turned the water green, mainly near Ichalkaranji where there are many textile processing houses which had discharged their effluents without proper treatment. *Eichhornia crassipes* has grown on the river nearby Ichalkaranji. Not much efforts were taken by the local government bodies to control the growth of it, in monsoon the water level rises and it is washed out and seen nowhere until November, in December it starts to grow again and by April the river is covered by it. Many researches have been carried out in order



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

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## 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<sub>3</sub>O<sub>4</sub> 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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## Life-style and Buying Behaviour of Rural Women 'A Psychographic Approach with Activities, Interest and Opinion (AIO)' (A case Study)

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**Abstract:** The concept of lifestyle and buying behaviour a psychographic approach with AIO explains different dimension of psychographic factors. The lifestyle dimensions are activities, opinion and interest. Activity can be one, how one spends her money, it represents the behavioural option of lifestyle. The activities include purchased goods and studying activities. Interest denotes a person's priorities, preferences and degree of excitement. Interests are good predictors of the activities. These opinions indicate how one feels about a wide variety of events and they formed when people evaluate the importance of things. This research paper focuses on AIO parameters and mindset of rural women customers.

**Keywords:** lifestyle, buying behaviour, psychographic parameters AIO, rural women consumer and rural market.

### 1. INTRODUCTION

The concept of consumer behaviour is as old as introduction of the subject Economics. It is known as basic principles of this subject. Afterwards it became at the center in the study of Business Economics and recently in marketing wings. Consumer behaviour is being studied throughout the world by Academicians, researchers, experts and policy makers. Understand the concept of lifestyle and buying behaviour and psychographic approach. In short in this research paper psychographic and demographic factors are considered together for reasonable rational and logical study of the consumer behaviour. Without it, understanding of life style concept is not complete. The AIO explains different dimension of psychographic factors along with demographic factors as age, education, occupation of the women respondents.

In the context of the chapter research methodology, the lifestyle dimensions are activities, opinion and interest. Activity can be one, how one spends her money. It represents the behavioural option of lifestyle, because the ranges of human activities are limitless. Such human activities include purchased goods and studying activities. Interest denotes a person's priorities, preferences and degree of excitement. Interests are good predictors of the activities. These opinions indicate how one feels about a wide variety of events and they formed when people evaluate the importance of things.



# 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

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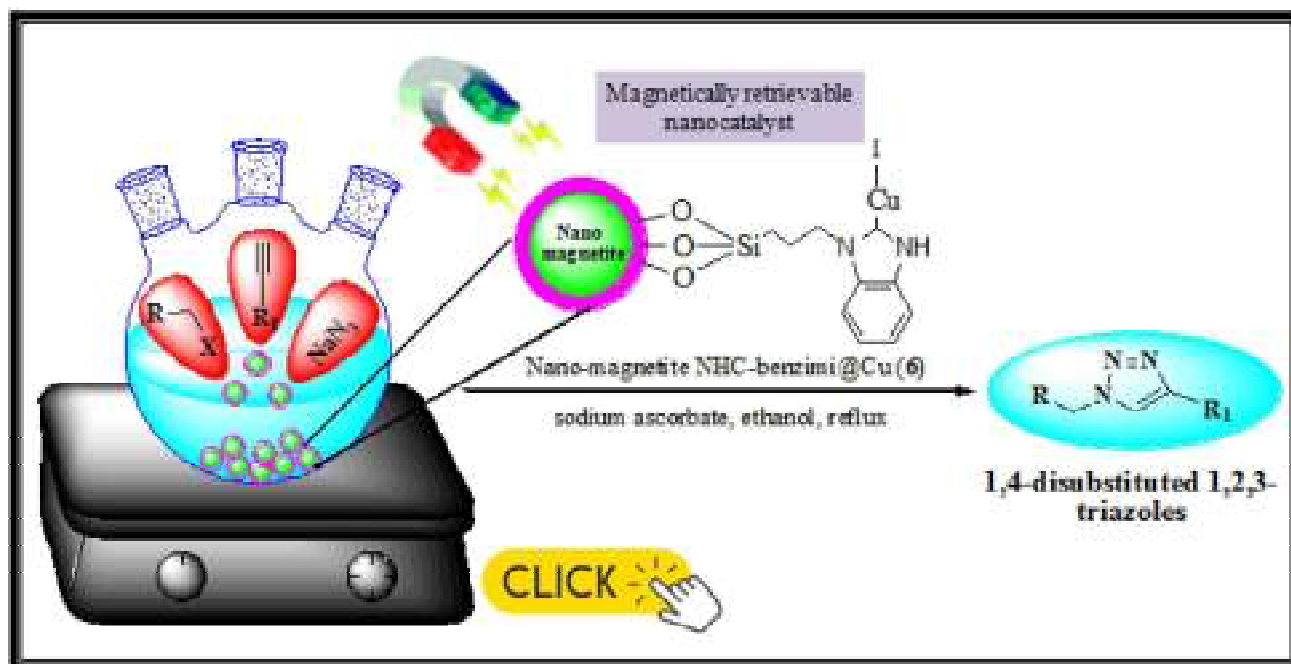
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## Abstract

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 various 1,4-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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# Sulfated tin oxide (SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub>): an efficient heterogeneous solid superacid catalyst for the facile synthesis of 2,3-dihydroquinazolin-4(1*H*)-ones

[Wilson Chandane](#), [Shivanand Gajare](#), [Raju Kagne](#), [Mahesh Kukade](#), [Arvind Pawar](#), [Gajanan Rashinkar](#) & [Bhaskar Tamhankar](#) 

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## Abstract

A novel methodology for the facile synthesis of 2,3-dihydroquinazolin-4(1*H*)-ones by using sulfated tin oxide (SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub>) as a heterogeneous solid superacid catalyst is reported. SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub> has been characterized by various spectroscopic techniques. The surface area of mesoporous SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub> was found to be 32.015 m<sup>2</sup> g<sup>-1</sup> with a pore diameter of 7.10 nm and pore volume of 0.056838 cm<sup>3</sup> g<sup>-1</sup> by using BET analysis. The crystallite size of 6.58 nm with the loading of 1.21 mmol g<sup>-1</sup> sulfate groups was analyzed by XRD





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### OPTIMIZATION OF NATURAL DYE EXTRACTION FROM COCONUT HUSK

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#### KEYWORDS

Dye yield

RSM

Box-Behnken approach

Fibrous husk

#### ABSTRACT

Coconut is used throughout worldwide in various rituals, festivals and in food. A huge amount of unused parts of coconut such as fibrous husk and shells are thrashed every day. The present study illustrates the sustainable use of fibrous husk as a source of natural dye. Hence, in order to improve the dye yield, various dye extracting factors were optimized with the help of statistical software. The RSM based Box Behnken approach for optimization was found effective which increases dye yield up to 37%. The analysis of the model implies that the model fits well for all the four factors and found to be significant. All the factors M: L ratio, temperature, Time and pH were found influential in the dye extracting process. The system also helps to improve the yield for desired pH to obtain multiple hues. The optimized parameters to improve dye yield were M:L ratio of 1:130, temperature 80°C, time 250 minutes, pH 9.3.

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# A STUDY OF SUSTAINABLE ECOTOURISM FOR WOMEN'S EMPOWERMENT IN INDIA

**Dr. SANJAY SHAMRAO KAMBLE**

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## **Abstract**

*India is the developing countries in the world. This country made new development policy and practices toward economic growth. Traditional India society showing that unequal power relation and limitation in between man and women. India policy focused on such an ecotourism new industry could be tools for fostering economic growth, conservation of natural resources with women empowerment. It is a necessary development because a traditional mass tourism has neglected the issues of ecological sustainable development through women empowerment. However, ecotourism can reduce negative impact of the mass tourism and thus contributed in the conservation for sustainable development. This tourism could be developed the positive impact of employment opportunity, income growth and education for host communities. This paper mainly aims to understand the concept of ecotourism interlink with conservation of natural development. To examine the ecotourism policy and practices for women empowerment in India. This paper applied eco-feminist theoretical framework of Vandana Shiva for understanding women empowerment through ecotourism development. This related data collected from secondary sources like newspapers, books, magazines and internet. This paper concludes that the ecotourism development policies have developed to instate promoted expectation sustainable conservation of natural resources and helping women economic development as a promising.*

**Keywords:** *women empowerment ecotourism, natural resource, conservation, policies, mass tourism*

## **Introduction**

Tourism is the main path of development which has contributed to the national income growth in many countries. Tourism industry development has constructed socio-economic mobilization of people, but several studies focused on critical assessments of traditional mass tourism made self destruction and its contributed in the environmental destruction. Several tourist development has increased major

issues quality of life and upgrading environmental problems like ecological balance, declining air quality, biodiversity loss and water policy. Therefore, International conservation of nature in 1992 has focused on the issue of ecotourism development protect. Its carefully grow and sustainable development manner. This paper mainly aims to understand the concept of ecotourism interlink with conservation of natural development.

# REVISITING THE PANI PANCHYAT MOVEMENT: A STUDY OF AN ENVIRONMENT MOVEMENT IN MAHARASHTRA

**Dr. SANJAY KAMBLE**

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## Abstract

*This paper focused on a contribution of Pani Panchyat in the context of equitable distribution of minor irrigation. This study, based on field material collected from the Purandartaluka Pune district. It examines the revisiting the Pani Panchyat as environment movement, its replication on a wider scale. Its analysis of the local people struggle of farmers within the theoretical framework of new social movement, also with delineating the movement's ideology trends, leadership structure and present status. It addresses such questions how effects on drought eradication and equal water distribution in way irrigation and explain and effective function. This paper explores present status the process and underlying dynamics of Pani Panchyat in Purandartaluka.*

**Keywords:** water resources, equitable, Pani Panchyat, new social movement environmental movement

## Introduction

Several scholars writing in the collective and voluntary groups are working in the environmental movement, it greater attention on natural resource based on alternative sustainability equity in the present context. The center for science and environment report (1984) showing that the natural resources are degradation of the environment in countries. In this context, we see the human consequences of such degradation and shortage of natural resource based upon the equitable, alternative and sustainable development issues take by new environmental movements.

This new environmental movement's contribution on the manifestation of the consequences of environmental crisis related to the social conflicts. This

conflicts between competing groups of resource access of rich farmers and landless Labors caste, tribes and genders in social structure. This conflict related to spread this issue handled by the environmental movement in this country (Baviskar A 1995) this localized movement worked on voluntary based in way conservation of natural resource with alternative sustainable development in the society.

The privies study of the environmental movement like *Chipko* or *Narmada Bachao Andolan* have been well documented in environmental study. However the new social movement of environmental have unexplored or explained as claiming on natural resources such as an equitable water distribution with the sustainable

## REVIEW ON WATER ACCESS OF CASTE AND GENDER IN INDIA

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### Abstract

*The present research paper is consistent with the historical loss of equality in the location of caste and gender based water access in India, which is showing existing previous studies and research review of relevant literature. This paper's main aim has to understand social relations of water in the location of caste and gender as cultural and social structures in policy and institutionalization process in this previous study. It is articulated through the understanding conceptual, theoretical and methodological procedure., how its reflection and representation of the social relations of water and equal distribution of water as rights to all people. It also refers to several research books and published prior research reports, which has made significant contributions to issues and debates concerning the present research. This review outlines the literature, mostly by following thematic and empirical content, much more research has been carried out on caste and gender based social relation of water and relevant literature on water access. This current issue is how much is described and studied by Indian and foreign scholars. This undertaken previous literature also how it can be shown that the conditions of caste, gender and marginalized commodities in view of social relations of water access.*

**Keywords:** social relations, water, caste, gender, marginalization

### Introduction

The present research paper is consistent with the historical loss of equality in the location of caste and gender based water access in India, which is showing existing previous studies and research review of relevant literature. This paper's main aim is to understand the social relations of water in the location of caste and gender as cultural and social structures in policy and institutionalization process in this previous study. It is articulated through the understanding of conceptual, theoretical and methodological procedure. The present debate and discourse deals

with the review of relevant literature outlining the current issue and debate related to research on locations of caste and gender relations with regard to equal rights in India, Deepa Joshi (2009) argued that caste and gender based created disparities and arrangement in institutional and policy implementation level they reproduced and managed from institution to state to new liberal institutional arrangement in India.

We see the previous research work on caste and gender in water access in India. It shows the multiplication factor determining water equality in different

# **ROLE OF THE COMMUNITY RADIO IN EDUCATIONAL DEVELOPMENT OF TRIBAL COMMUNITY IN INDIA DURING COVID 19 PANDEMIC**

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Dist. Sangli

## ***Abstract***

*The present research consistent has focused on the role of community radio in the improvement of tribal community educational status in India during Covid- 19. Which are showing the role of community radio using educational tools for participatory community social development with the right to education of marginalized community in the present context. The community radio contributed in the development of socioeconomic, political, agricultural, occupational mobility among tribal community development. The paper main aims have to understand community radio for tribal education development. To examine the role of community development in the preservation of traditional culture, knowledge, and fundamental education through local language, new agricultural, technical and occupational knowledge, higher education in tribal communities. Discuss the concept Community radio is based on constructing an approach which provides knowledge built up collectivities participatory methods in both content production and management of the radio station in the tribal area. In this study to examine the operational conceptual framework of community radio and the theory of the network society in the role of community radio in tribal educational development. This research employed qualitative research methodology to interpretive analysis through the case study method as stories of participatory communication contribution of community radio needs to more utilize full potential as a medium of tribal education in India in the new information age.*



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# NiZnFe<sub>2</sub>O<sub>4</sub>: An eco-compatible and magnetically separable catalyst for multicomponent synthesis of 2-amino-4*H*-chromenes

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## Research Article

**Keywords:** 2-amino-4*H*-chromene, magnetically separable Nickel-Zinc ferrite, Knoevenagel condensation, Multi-component reaction

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# Potential of IRNSS/NavIC L5 signals for ionospheric studies

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## Abstract

Indian Space Research Organization (ISRO) has developed an indigenous system named Indian Regional Navigation Satellite System (IRNSS) or NavIC (Navigation with Indian Constellation), that consists of 7 satellites and transmits navigation signal in L and S bands. ISRO, for validation of the system, has installed many IGS (IRNSS/GPS/SBAS) receivers scattered over the Indian region. Using preliminary data from two geographically widely separated stations over India, this paper presents the results on studies on parameters of IRNSS signal quality and discusses how these parameters may be used to study the ionospheric behavior over the Indian region. The results show the importance and advantages of using IRNSS data for such studies.

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*Keywords:* IRNSS/NavIC; GNSS; Navigation; Carrier to noise ratio; TEC

## 1. Introduction

The Indian Regional Navigation Satellite System or IRNSS with an operational name NAVIC (NAVigation with Indian Constellation) is an independent regional satellite based navigation system that is developed by Indian Space Research Organization (ISRO), India. This system is used to provide accurate real-time positioning and timing services over the primary service area consisting of India and the region extending to 1500 km around India. It com-

prises a constellation of 3 satellites in Geostationary orbit (GEO: IRNSS/NavIC 1C, 1F and 1G) and 4 satellites in Geosynchronous orbit (GSO: IRNSS/NavIC 1A, 1B, 1D and 1E). The three GEOs are located at 32.5°E, 83°E and 131.5°E and the four GSOs have their longitude crossings 55°E and 111.75°E (Rethika et al. 2015). The secondary service area extends over a region from Latitude 30° South to 50° degree North and Longitude 30° East to 130° East. This system will provide two types of services—standard positioning service (SPS) that will be open for civilian use, and a restricted service (an encrypted one) for authorized users. The NavIC SPS service is transmitted on L5 (1164.45–1188.45 MHz) and S (2483.5–2500 MHz) bands (Ganeshan et al., 2015). The system can provide an absolute position accuracy of better than 10 m throughout the Indian landmass and better than 20 m in the Indian Ocean as well as a region extending approximately

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## Pollution Index and Air Ion Variation in Different Vegetation area at the Rural Station Bhilawadi ( $16^{\circ}59'N$ , $74^{\circ}28'E$ )

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**Abstract:** All are surrounded by air ions which shows the good and bad impact on us. These airborne particles have charge and conductivity. These are positive and negative air ions. The negative air ions have a positive effect on human health. We feel happy, relaxed, and breathe easily due to them. But positive air ions are responsible for discomfort, headache, high blood pressure, nervousness in human life. The air ion concentrations in Grape, Sugarcane, Chickpea, and Onion vegetation in rural area Bhilawadi ( $16^{\circ}59'20''N$ ,  $74^{\circ}28'2''E$ ) is measured with the help of a Gerdien condenser-based air ion counter developed and designed at A.C.S. College, Palus. Temperature, humidity, transpiration, radon exhalation, wind speed is responsible for variation in air ions. Onion, sugarcane, grapes, and chickpea have a higher concentration of negative air ions than positive air ions. Ionization by cosmic rays and gamma radiation is almost constant in daily cycles. Air ion concentration near the ground varies mostly with the exhalation of  $^{222}Rn$  and its progenies. Due to ionization, photosynthesis, transpiration, and radon exhalation process of vegetations ion concentration are different. The pollution index and air ion assessment coefficient show good air quality of sugarcane and onion as a natural air ionizer.

keywords: Air ions, exhalation radon, Ionization, transpiration, aerosol.

### Introduction

Air ions are classified as small, medium, and large air ions depending upon their size and mobility. Radioactive material, cosmic rays, ultraviolet rays, hydrolysis of water molecules, plant tips discharge, the photovoltaic effect of green plants, volcanic eruptions, lightning, thunderstorms, snow and storms, corona discharge, radiation are sources of air ions [1]. The production of cosmic rays and other elements is nearly constant. Mainly uranium, thorium decay series have radioisotopes producing gamma rays of sufficient energy [2] and produces positive or negative air ions. Out of this negative air, ions have a positive effect on human and animal health. And they are said to be air vitamins. It is a significant important source of energy. Human beings feel happy, relaxed, and can breathe easy which results in good work productivity and mood and peaceful sleep [3].

Headache, insomnia, fatigue, nervousness, joint aches, high blood pressure, discomforts due to the higher number of positive air ions [4]. Radon is the main source of radiation on the ground surface





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### IMPACT OF HUMAN CAUSES FOR RIVER POLLUTION OF INDIA WITH SPECIAL REFERENCE TO PANCHAGANGA RIVER NEAR ICHALKARANJI MAHARASHTRA

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**Abstract:** River Panchaganga is one of the important sources of water supply to agriculture and urban area. The urban and industrial load of the city has increased many folds making the river unfit for every purpose. Physico-chemical and biological aspects of water pollution of Pancha ganga river were analyzed seasonally with respect to physico-chemical parameters from July 2017 to May 2018. The sampling sites were Ichalkaranji Bridge, Shiradwad, and Abdul Lat, near Pancha ganga river in Ichalkaranji. The paper highlights the alarming condition of Eutrofiering of river in various seasons with respects to the parameters and if immediate action is not taken for restoration of the river it will have deadly effect on not only the human habitat surrounding the river but also on the flora, fauna and agricultural land, hence report is to be submitted to WHO, UNESCO-IHE, IWWA, SIDA, University Grant Commission of India, etc. for restoration help.

**Keywords:** Eutrophication; Human Impact; Panchganga river; Pollution.

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## INTRODUCTION

The Panchganga river flows through the borders of Kolhapur. It starts from Prayag Sangam (Village: Chikhli, Taluka: Karveer, Dist.-Kolhapur). The Panchganga is formed, by four streams, the Kasari, the Kumbhi, the Tulsi and the Bhogawati. Local tradition believes in an underground stream Saraswati which together with the other four streams make the Panchganga. The Prayag Sangam confluence marks the beginning of the Panchganga river proper which after receiving the waters of the four tributaries continues in a larger pattern with the flow of waters received from the rivers. From North of Kolhapur, it has a wide alluvial plain. After developing this plain the river resumes its course eastwards. Most of the rivers and their tributaries are being used as site for disposal of

domestic and industrial waste in India which impairs their water quality. With rapid growth of the Ichalkaranji city both in urban and industrial areas, the pollution load from sugar and textile industries in the river has increased. The discharge of the effluents and industrial waste by the nearby industries has led to pollution of the Panchganga river which has turned the water green, mainly near Ichalkaranji where there are many textile processing houses which had discharged their effluents without proper treatment. *Eichhornia crassipes* has grown on the river nearby Ichalkaranji. Not much efforts were taken by the local government bodies to control the growth of it, in monsoon the water level rises and it is washed out and seen nowhere until November, in December it starts to grow again and by April the river is covered by it. Many researches have been carried out in order



# Potential of IRNSS/NavIC L5 signals for ionospheric studies

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## [BBSA-DBN][HSO<sub>4</sub>]: a novel –SO<sub>3</sub>H functionalized Bronsted acidic ionic liquid for easy access of quinoxalines

[Megha U. Patil](#), [Sachinkumar K. Shinde](#), [Sandip P. Patil](#) & [Suresh S. Patil](#) 

[Research on Chemical Intermediates](#) **46**, 4923–4938 (2020)

**204** Accesses | **9** Citations | [Metrics](#)

### Abstract

A novel –SO<sub>3</sub>H difunctionalized Bronsted acidic ionic liquid (BAIL) 1, 5-bis (butanesulphonic acid)-diazobicyclo [4,3,0] non-5-enium hydrogen sulphate [BBSA-DBN][HSO<sub>4</sub>] 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



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

Arvind Pawar<sup>1</sup> · Shivanand Gajare<sup>2</sup> · Audumbar Patil<sup>2</sup> · Rajanikant Kurane<sup>2</sup> · Gajanan Rashinkar<sup>2</sup> · Suresh Patil<sup>1</sup>

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## 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<sub>3</sub>O<sub>4</sub> 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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Kumbhar



Editor In Chief



## Life-style and Buying Behaviour of Rural Women 'A Psychographic Approach with Activities, Interest and Opinion (AIO)' (A case Study)

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Prin. Dr. Yojann V. Jugale,  
Research Guide  
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**Abstract:** The concept of lifestyle and buying behaviour a psychographic approach with AIO explains different dimension of psychographic factors. The lifestyle dimensions are activities, opinion and interest. Activity can be one, how one spends her money, it represents the behavioural option of lifestyle. The activities include purchased goods and studying activities. Interest denotes a person's priorities, preferences and degree of excitement. Interests are good predictors of the activities. These opinions indicate how one feels about a wide variety of events and they formed when people evaluate the importance of things. This research paper focuses on AIO parameters and mindset of rural women customers.

**Keywords:** lifestyle, buying behaviour, psychographic parameters AIO, rural women consumer and rural market.

### 1. INTRODUCTION

The concept of consumer behaviour is as old as introduction of the subject Economics. It is known as basic principles of this subject. Afterwards it became at the center in the study of Business Economics and recently in marketing wings. Consumer behaviour is being studied throughout the world by Academicians, researchers, experts and policy makers. Understand the concept of lifestyle and buying behaviour and psychographic approach. In short in this research paper psychographic and demographic factors are considered together for reasonable rational and logical study of the consumer behaviour. Without it, understanding of life style concept is not complete. The AIO explains different dimension of psychographic factors along with demographic factors as age, education, occupation of the women respondents.

In the context of the chapter research methodology, the lifestyle dimensions are activities, opinion and interest. Activity can be one, how one spends her money. It represents the behavioural option of lifestyle, because the ranges of human activities are limitless. Such human activities include purchased goods and studying activities. Interest denotes a person's priorities, preferences and degree of excitement. Interests are good predictors of the activities. These opinions indicate how one feels about a wide variety of events and they formed when people evaluate the importance of things.





# 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

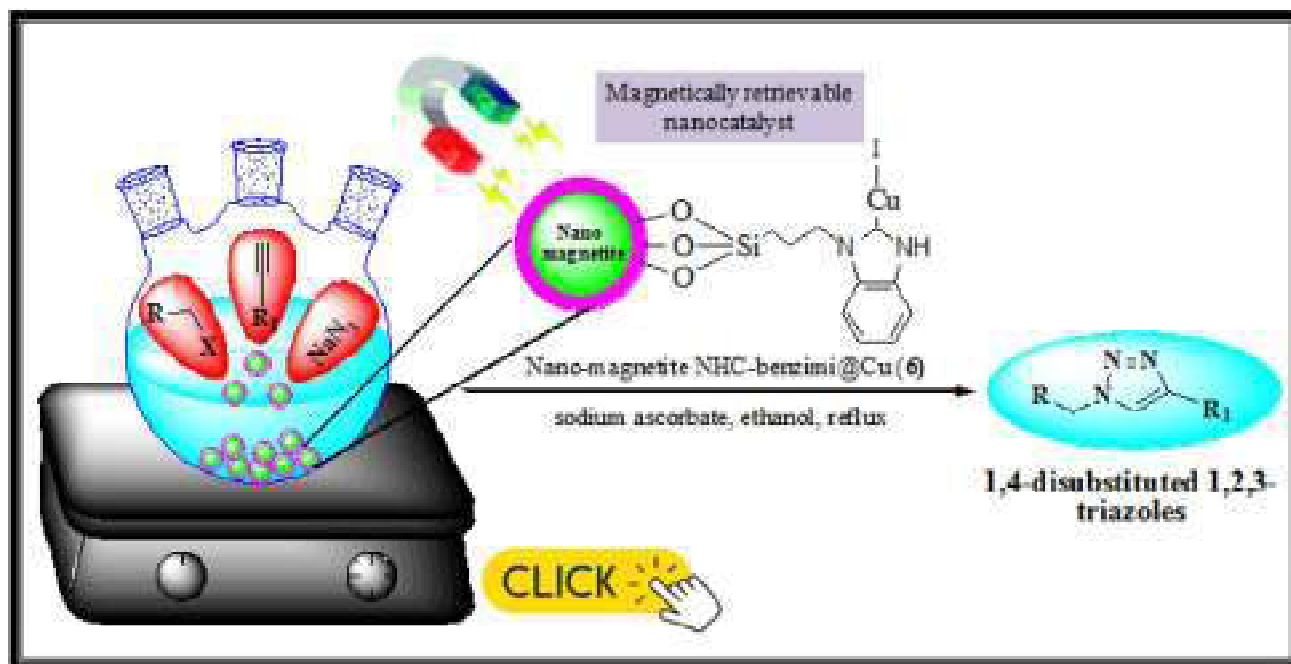
Arvind Pawar<sup>1,3</sup> · Shivanand Gajare<sup>2</sup> · Ashutosh Jagdale<sup>1</sup> · Sandip Patil<sup>1</sup> · Wilson Chandane<sup>2</sup> · Gajanan Rashinkar<sup>2</sup> · Suresh Patil<sup>1</sup>

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## 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 various 1,4-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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# Sulfated tin oxide (SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub>): an efficient heterogeneous solid superacid catalyst for the facile synthesis of 2,3-dihydroquinazolin-4(1*H*)-ones

[Wilson Chandane](#), [Shivanand Gajare](#), [Raju Kagne](#), [Mahesh Kukade](#), [Arvind Pawar](#), [Gajanan Rashinkar](#) & [Bhaskar Tamhankar](#) 

[Research on Chemical Intermediates](#) **48**, 1439–1456 (2022)

**326** Accesses | **4** Citations | [Metrics](#)

## Abstract

A novel methodology for the facile synthesis of 2,3-dihydroquinazolin-4(1*H*)-ones by using sulfated tin oxide (SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub>) as a heterogeneous solid superacid catalyst is reported. SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub> has been characterized by various spectroscopic techniques. The surface area of mesoporous SO<sub>4</sub><sup>-2</sup>/SnO<sub>2</sub> was found to be 32.015 m<sup>2</sup> g<sup>-1</sup> with a pore diameter of 7.10 nm and pore volume of 0.056838 cm<sup>3</sup> g<sup>-1</sup> by using BET analysis. The crystallite size of 6.58 nm with the loading of 1.21 mmol g<sup>-1</sup> sulfate groups was analyzed by XRD



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### OPTIMIZATION OF NATURAL DYE EXTRACTION FROM COCONUT HUSK

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#### KEYWORDS

Dye yield

RSM

Box-Behnken approach

Fibrous husk

#### ABSTRACT

Coconut is used throughout worldwide in various rituals, festivals and in food. A huge amount of unused parts of coconut such as fibrous husk and shells are thrashed every day. The present study illustrates the sustainable use of fibrous husk as a source of natural dye. Hence, in order to improve the dye yield, various dye extracting factors were optimized with the help of statistical software. The RSM based Box Behnken approach for optimization was found effective which increases dye yield up to 37%. The analysis of the model implies that the model fits well for all the four factors and found to be significant. All the factors M: L ratio, temperature, Time and pH were found influential in the dye extracting process. The system also helps to improve the yield for desired pH to obtain multiple hues. The optimized parameters to improve dye yield were M:L ratio of 1:130, temperature 80°C, time 250 minutes, pH 9.3.

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# A STUDY OF SUSTAINABLE ECOTOURISM FOR WOMEN'S EMPOWERMENT IN INDIA

**Dr. SANJAY SHAMRAO KAMBLE**

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## **Abstract**

*India is the developing countries in the world. This country made new development policy and practices toward economic growth. Traditional India society showing that unequal power relation and limitation in between man and women. India policy focused on such an ecotourism new industry could be tools for fostering economic growth, conservation of natural resources with women empowerment. It is a necessary development because a traditional mass tourism has neglected the issues of ecological sustainable development through women empowerment. However, ecotourism can reduce negative impact of the mass tourism and thus contributed in the conservation for sustainable development. This tourism could be developed the positive impact of employment opportunity, income growth and education for host communities. This paper mainly aims to understand the concept of ecotourism interlink with conservation of natural development. To examine the ecotourism policy and practices for women empowerment in India. This paper applied eco-feminist theoretical framework of Vandana Shiva for understanding women empowerment through ecotourism development. This related data collected from secondary sources like newspapers, books, magazines and internet. This paper concludes that the ecotourism development policies have developed to instate promoted expectation sustainable conservation of natural resources and helping women economic development as a promising.*

**Keywords:** *women empowerment ecotourism, natural resource, conservation, policies, mass tourism*

## **Introduction**

Tourism is the main path of development which has contributed to the national income growth in many countries. Tourism industry development has constructed socio-economic mobilization of people, but several studies focused on critical assessments of traditional mass tourism made self destruction and its contributed in the environmental destruction. Several tourist development has increased major

issues quality of life and upgrading environmental problems like ecological balance, declining air quality, biodiversity loss and water policy. Therefore, International conservation of nature in 1992 has focused on the issue of ecotourism development protect. Its carefully grow and sustainable development manner. This paper mainly aims to understand the concept of ecotourism interlink with conservation of natural development.

# REVISITING THE PANI PANCHYAT MOVEMENT: A STUDY OF AN ENVIRONMENT MOVEMENT IN MAHARASHTRA

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## Abstract

*This paper focused on a contribution of Pani Panchyat in the context of equitable distribution of minor irrigation. This study, based on field material collected from the Purandartaluka Pune district. It examines the revisiting the Pani Panchyat as environment movement, its replication on a wider scale. Its analysis of the local people struggle of farmers within the theoretical framework of new social movement, also with delineating the movement's ideology trends, leadership structure and present status. It addresses such questions how effects on drought eradication and equal water distribution in way irrigation and explain and effective function. This paper explores present status the process and underlying dynamics of Pani Panchyat in Purandartaluka.*

**Keywords:** water resources, equitable, Pani Panchyat, new social movement environmental movement

## Introduction

Several scholars writing in the collective and voluntary groups are working in the environmental movement, it greater attention on natural resource based on alternative sustainability equity in the present context. The center for science and environment report (1984) showing that the natural resources are degradation of the environment in countries. In this context, we see the human consequences of such degradation and shortage of natural resource based upon the equitable, alternative and sustainable development issues take by new environmental movements.

This new environmental movement's contribution on the manifestation of the consequences of environmental crisis related to the social conflicts. This

conflicts between competing groups of resource access of rich farmers and landless Labors caste, tribes and genders in social structure. This conflict related to spread this issue handled by the environmental movement in this country (Baviskar A 1995) this localized movement worked on voluntary based in way conservation of natural resource with alternative sustainable development in the society.

The privies study of the environmental movement like *Chipko* or *Narmada Bachao Andolan* have been well documented in environmental study. However the new social movement of environmental have unexplored or explained as claiming on natural resources such as an equitable water distribution with the sustainable

## REVIEW ON WATER ACCESS OF CASTE AND GENDER IN INDIA

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### Abstract

*The present research paper is consistent with the historical loss of equality in the location of caste and gender based water access in India, which is showing existing previous studies and research review of relevant literature. This paper's main aim has to understand social relations of water in the location of caste and gender as cultural and social structures in policy and institutionalization process in this previous study. It is articulated through the understanding conceptual, theoretical and methodological procedure., how its reflection and representation of the social relations of water and equal distribution of water as rights to all people. It also refers to several research books and published prior research reports, which has made significant contributions to issues and debates concerning the present research. This review outlines the literature, mostly by following thematic and empirical content, much more research has been carried out on caste and gender based social relation of water and relevant literature on water access. This current issue is how much is described and studied by Indian and foreign scholars. This undertaken previous literature also how it can be shown that the conditions of caste, gender and marginalized commodities in view of social relations of water access.*

**Keywords:** social relations, water, caste, gender, marginalization

### Introduction

The present research paper is consistent with the historical loss of equality in the location of caste and gender based water access in India, which is showing existing previous studies and research review of relevant literature. This paper's main aim is to understand the social relations of water in the location of caste and gender as cultural and social structures in policy and institutionalization process in this previous study. It is articulated through the understanding of conceptual, theoretical and methodological procedure. The present debate and discourse deals

with the review of relevant literature outlining the current issue and debate related to research on locations of caste and gender relations with regard to equal rights in India, Deepa Joshi (2009) argued that caste and gender based created disparities and arrangement in institutional and policy implementation level they reproduced and managed from institution to state to new liberal institutional arrangement in India.

We see the previous research work on caste and gender in water access in India. It shows the multiplication factor determining water equality in different

# **ROLE OF THE COMMUNITY RADIO IN EDUCATIONAL DEVELOPMENT OF TRIBAL COMMUNITY IN INDIA DURING COVID 19 PANDEMIC**

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## ***Abstract***

*The present research consistent has focused on the role of community radio in the improvement of tribal community educational status in India during Covid- 19. Which are showing the role of community radio using educational tools for participatory community social development with the right to education of marginalized community in the present context. The community radio contributed in the development of socioeconomic, political, agricultural, occupational mobility among tribal community development. The paper main aims have to understand community radio for tribal education development. To examine the role of community development in the preservation of traditional culture, knowledge, and fundamental education through local language, new agricultural, technical and occupational knowledge, higher education in tribal communities. Discuss the concept Community radio is based on constructing an approach which provides knowledge built up collectivities participatory methods in both content production and management of the radio station in the tribal area. In this study to examine the operational conceptual framework of community radio and the theory of the network society in the role of community radio in tribal educational development. This research employed qualitative research methodology to interpretive analysis through the case study method as stories of participatory communication contribution of community radio needs to more utilize full potential as a medium of tribal education in India in the new information age.*



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# NiZnFe<sub>2</sub>O<sub>4</sub>: An eco-compatible and magnetically separable catalyst for multicomponent synthesis of 2-amino-4*H*-chromenes

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## Research Article

**Keywords:** 2-amino-4*H*-chromene, magnetically separable Nickel-Zinc ferrite, Knoevenagel condensation, Multi-component reaction

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## दुष्काळ - एक नैसर्गिक आपत्ती

प्रा.लक्ष्मी नरहरी पवार

शिक्षणमहर्षी डॉ. बापूजी माळुंगे महाविद्यालय मिरज.

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निसर्गापासून संपूर्ण सजीवसृष्टीचा उगम झाला आहे. आदिम कालखंडापासून या निसर्गात अनेक प्रकारचे बदल झालेले दिसून येतात. सुरुवातीच्या कालखंडात हे निसर्गातील बदल चमत्कार, दैवी प्रकोप अशा स्वरूपात मानले गेले. नंतर मानवाला अग्नि, हत्यारे यांचा शोध लागला. मानव शेती करू लागला. मानवाच्या या विकासाच्या टप्प्यात मानवाची निसर्गाकडे दृष्टी बदलत गेली. निसर्गातील घडामोडींची कारणमीमाणा होऊ लागली. या सर्व घडामोडीत कधी भूकंप, अवर्षण, जंगलातील वणवे, अनेक प्रकारची वादळे, भू-नर्मिण हालचाली, अवकाशातून पडणाऱ्या उल्का, भूस्खलन, हिमस्खलन, आकाशातील बिजांचा कडकडाट, दग्यांना गरमसाट ..... अशा एक ना अनेक या निसर्गातील घडामोडी घडताना दिसतात. या सर्वांपैकी "दुष्काळ" या विषयावर वेळे विचारमंथन मांडावयाचे असून आजच्या विज्ञान युगातील मानवाने दुष्काळ ही एक नैसर्गिक आपत्ती म्हणून रूपा स्विकार केला आहे तसेच दुष्काळ विषयक कारणे, दीर्घकालीन उपाययोजना यांचा सविस्तर विचार या शोधनिबंधाच्या अनुषंगाने करावयाचा आहे.

संशोधन विषयाची उद्दिष्टे -

- 1) दुष्काळ ही संकल्पना दुष्काळाच्या विविध व्याख्यांच्या अनुषंगाने स्पष्ट करणे.
- 2) दुष्काळ ही संकल्पना स्पष्ट करताना दुष्काळाचे बहुविध स्वरूप अभ्यासणे.
- 3) दुष्काळाचा इतिहास अभ्यासणे.
- 4) दुष्काळविषयक विविध कारणांचा ऊहापोह करणे.
- 5) दुष्काळविषयक समस्यांवर दीर्घकालीन उपाययोजना कोणत्या यांचा ऊहापोह करणे.
- 6) दुष्काळविषयक चित्रणातून जीवनजाणिवा स्पष्ट करणे व जीवन जाणिव समृद्ध करण्यासाठी या अभ्यास विषयाचा विचार होणे आवश्यक वाटते.

संशोधन विषयाची व्याप्ती -

दुष्काळ ही एक नैसर्गिक आपत्ती आहे. इतर अनेक नैसर्गिक आपत्तींपैकी दुष्काळाचे अभ्यास विषयाच्या अनुषंगाने वेगळेपण लक्षात घेणे महत्वाचे वाटते. निसर्गात ही प्रक्रिया पुन्हा पुन्हा घडताना दिसून येते. निसर्गाचा अगमतीलपणा या दुष्काळामुळे साधला जातो. दुष्काळामुळे अनेकदा सजीवसृष्टीवर संकट आले असून अवर्षणामुळे नाही नाही झाल्याची उदाहरणे सापडतात. सृष्टीच्या उत्पत्तीपासून ते आजपर्यंत या अवर्षणाची तीव्रता कमी-अधिक स्वरूपात जाणवली आहे. या जीवनजाणिवा रेखाटताना या विषयाची सद्योपलब्धता लक्षात घेत राहते. "दुष्काळ-एक नैसर्गिक आपत्ती" याचा विचार करताना हा अभ्यासविषय म्हणजे स्वतंत्र संशोधनाचा भाग असल्याचे जाणवते. या अनुषंगाने या विषयाचा अभ्यास राष्ट्रीय व आंतरराष्ट्रीय स्तरावर होणे महत्वाचे वाटते.

दुष्काळ - व्याख्या व संकल्पना

दुष्काळ म्हणजे अशी अनावृष्टी तसेच अतिवृष्टी म्हणजे सुखा दुष्काळच होय. "एखाद्या मोडीची कमतरता असणे" अशी अर्थच्छेदा दुष्काळ या शब्दामध्ये सामावलेली आहे. जसे की ज्ञानाचा दुष्काळ, नियोजनाचा दुष्काळ, सुखाचा दुष्काळ इ. अनेक वास्तविक "दुष्काळ" या शब्दाला विविध अर्थच्छेदा असल्यातरी दुष्काळ म्हणजे पावसाचा अभाव किंवा कोरडा दुष्काळ असाच अर्थ घेतला जातो. कारण कोरड्या दुष्काळाच्या बाळा अधिक तीव्र असतात.



## RESEARCH ARTICLES

## Flood risk assessment of Panchganga River (Kolhapur district, Maharashtra) using GIS-based multicriteria decision technique

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Flood hazard causes great loss to lives and properties leading to disturbance in human society. Flood is the single most hydrometeorological hazard causing substantial losses. To gain better understanding of the flood phenomena especially for planning and mitigation purposes, flood risk analysis is often required. For the present study, the middle part of Panchganga river of Kolhapur district, Maharashtra was selected. The main objective of the present study was to evaluate the potential flood risk areas of Panchganga river using GIS-based multicriteria decision analysis. The flood scenario across the Panchganga river was analysed using RADARSAT SAR data of 5 August 2005. To remove the speckle of SAR image, a median filtered technique was used. Thresholding technique was applied on RADARSAT SAR data to segregate flooded areas from non-flooded areas. Factors considered for evaluation of the flood risk analysis were flood layer, elevation, infrastructure and land use/land cover analysis. The spatial multicriteria analysis with ranking, rating and analytical hierarchy process (AHP) method was used to compute the priority weights of each criterion. Accuracy assessment reveals that AHP is the most accurate technique to assess flood risk of Panchganga river.

**Keywords:** Flood risk, multicriteria decision, photogrammetry, Radarsat SAR data.

In many parts of the world, flood is a common phenomenon and it invades river plains to become a serious natural hazard. The Indian sub-continent, due to its unique geo-climatic conditions, is quite vulnerable to natural hazards like flood. During 1994–2004, Asia accounted for one third of 1,562 flood hazard worldwide killing nearly 60,000 people<sup>1</sup>. After Bangladesh, India ranks second with respect to flood events and it accounts for one-fifth of global death count due to floods. According to the National Flood Commission, around 4 lakh sq km of land in India is highly vulnerable to floods, and an average of 1.86 lakh sq km of land is affected annually. The annual average affected crop area is approximately 3.7 lakh sq km.

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Every year in India, one third of the area is inundated due to overflowing of rivers. As per the working group of Planning Commission on Flood Control Programme, the total flood prone area of our country is about 4.56 lakh sq km (ref. 2).

Flood inundation in rural India is mainly associated with large scale loss in agriculture production, loss of livestock and sometimes loss of human lives<sup>1</sup>. Human activities in the upstream section of the river system are mainly responsible for enhanced size and frequency of flood<sup>1</sup>. Flood risk is defined as the 'combination of probability of a flood event and of the potential adverse consequences for human health, the environment, culture heritage and economic activity associated with a flood event'<sup>2</sup>.

Remote sensing and GIS are extremely useful and powerful tools in hazard management. Satellite data can provide hazardous footprints with greater accuracy, which are useful for assessing or monitoring the impact of hazard and mitigate flood activities. Remotely sensed data (optical and microwave) can be used effectively for quickly assessing severity and impact of damage due to flooding. In the past two decades, various studies have been carried out using remote sensing data to assess and detect flood inundation areas and to assess the dynamics behaviours of floods.

Two distinctive areas of research, GIS and multicriteria decision making (MCDM) can benefit from each other. GIS techniques and procedure have an important role to play in analysis of MCDM problems through automating, managing and analysing spatial data for decision making. MCDM approach offers various techniques and methods to analyse end-users preference and to integrate them into GIS-based decision making.

Otsubo *et al.*<sup>3</sup> have used RADARSAT-SAR images for mapping of inundated areas around the Lower Mekong basin. Time-series flood maps have been developed to assess flood damage. The analysis reveals that time-series inundation images can be used to create maximum inundation flood maps through overlaying method. Wilson and Rashid<sup>4</sup> have delineated flood boundaries of the 1997 Red River Valley flood with RADARSAT images. They compared hydrologic characteristics with RADARSAT images and observed some inconsistencies between the

## Pollution Index and Air Ion Variation in Different Vegetation area at the Rural Station Bhilawadi (16<sup>0</sup>59'N, 74<sup>0</sup> 28'E)

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**Abstract:** All are surrounded by air ions which shows the good and bad impact on us. These airborne particles have charge and conductivity. These are positive and negative air ions. The negative air ions have a positive effect on human health. We feel happy, relaxed, and breath easily due to them. But positive air ions are responsible for discomfort, headache, high blood pressure, nervousness in human life. The air ion concentrations in Grape, Sugarcane, Chickpea, and Onion vegetation in rural area Bhilawadi (16<sup>0</sup>59'20" N, 74<sup>0</sup>28'2" E) is measured with the help of a Gerdien condenser-based air ion counter developed and designed at A.C.S. College, Palus. Temperature, humidity, transpiration, radon exhalation, wind speed is responsible for variation in air ions. Onion, sugarcane, grapes, and chickpea have a higher concentration of negative air ions than positive air ions. Ionization by cosmic rays and gamma radiation is almost constant in daily cycles. Air ion concentration near the ground varies mostly with the exhalation of <sup>222</sup>Rn and its progenies. Due to ionization, photosynthesis, transpiration, and radon exhalation process of vegetations ion concentration are different. The pollution index and air ion assessment coefficient show good air quality of sugarcane and onion as a natural air ionizer.

keywords: Air ions, exhalation radon, Ionization, transpiration, aerosol.

### Introduction

Air ions are classified as small, medium, and large air ions depending upon their size and mobility. Radioactive material, cosmic rays, ultraviolet rays, hydrolysis of water molecules, plant tips discharge, the photovoltaic effect of green plants, volcanic eruptions, lightning, thunderstorms, snow and storms, corona discharge, radiation are sources of air ions [1]. The production of cosmic rays and other elements is nearly constant. Mainly uranium, thorium decay series have radioisotopes producing gamma rays of sufficient energy [2] and produces positive or negative air ions. Out of this negative air ions have a positive effect on human and animal health. And they are said to be air vitamins. It is a significant important source of energy. Human beings feel happy, relaxed, and can breathe easy which results in good work productivity and mood and peaceful sleep [3].

Headache, insomnia, fatigue, nervousness, joint aches, high blood pressure, discomforts due to the higher number of positive air ions [4]. Radon is the main source of radiation on the ground surface



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# Detection of Macronutrients (NPK) using LED Based Spectroscopy Method

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**Abstract**—The soil is a dominant medium to grow the plants in which the soil nutrients especially macronutrients play a major role to improve the fertility and hence growth of seeds and crops. The traditional geochemical analytical methods to explore macronutrients used in agricultural laboratories give accurate results, but it is more time consuming, so the need for different chemicals and highly skilled workers are required at prior. Instead, the modern methods are beneficial to explore major macronutrients i.e. Nitrogen, Phosphorus and Potassium (Kalium – Latin name) with the help of electronic sensors that give accurate results without the need of chemicals and highly skilled staff. Hence, the farmer himself can explore the macronutrients NPK concentration and deficiencies and then use proper fertilizers to improve the soil fertility with the reference of an ideal ratio for NPK i.e. 4:2:1. This paper reviews the different modern electronic analytical methods to determine NPK concentrations without going into the agriculture laboratory. LED based spectroscopy focused in this research paper is an emerging technology without destruction of target soil matters or particles. It's timely, reliable and less expensive compared to the other methods explained.

**Index Terms**— Macronutrients, NPK, LED Spectroscopy, Soil

## I. INTRODUCTION

Many farming communities such as Indians are still using mundane ways of farming with an increase in demand for food. The customized sensor based analysis may provide precise data quickly rather than the traditional method, which is generalized and not to the targeted area or not to the specific area [1], [2]. That is, quickly and accurately soil data can be analyzed by the precise agriculture practice through electronic systems rather than traditional geochemical analysis. Also, the manual method of measuring the soil nutrients is less accurate because of the time difference of soil samples collected at the field and measured in a laboratory that is not real time. The smarter agriculture practice can be made by the measurement of major macronutrients such as Nitrogen (N), Phosphorous (P) and Potassium (K) through electronic sensors. Also, the unsystematic use of fertilizers may lead to groundwater pollution, hence nutrient management, balanced plant nutrition of crops is necessary [3]. This research work will focus the exploration of major macronutrients – Nitrogen (N), Phosphorous (P) and Potassium (K) by the method of LED spectroscopy. Precision Agriculture (PA) and soil testing are essential to determine nutrients availability in soil before applying any fertilizers nowadays. The conventional soil testing in the laboratory is a time consuming method and requires more cost, highly skilled operators and can't be real time. Since, spectroscopy is an emerging technology which is rapid, simple and can be used in agriculture to explore major macronutrients content.

## II. OTHER DIFFERENT MACRONUTRIENTS EXPLORATION METHODS

Soil is the most important medium for plant growth. The nutrients in soil improvise the fertility and hence the growth of seeds and crops. In agriculture as well as electronics, several researches have been undertaken to improvise the practice in the agricultural field, but due to increase in population, a major disadvantage requires new methods which will grow the crop plantation management methods in dominant ways without expense [4]. Table 1 illustrates various sensors used in agriculture such as electrical, electromagnetic, optical, radiometric, mechanical, acoustic, pneumatic and electrochemical for PA. Meanwhile electric and electromagnetic sensors are widely used today, but other types may be suitable to improve the soil relevant information in future very soon. The food yield globally is based on the presence of nutrients. The Phosphorus (P) is an important nutrient due to its low recovery and finite availability. To obtain the good and healthy growth of a crop, the average sum of macronutrients  $N+P+K=2$  ( $N=0.5$ ,  $P=1.0$ ,  $K=0.5$ ). However, The NPK Ratio of 4:2:1 is considered as an ideal and accepted as a macronutrients level of the soil [5], [6], [7].

Table 1 Sensors Used for Precision Agriculture Practice

| Sr. No. | Sensor Type                  | Measurement Principle                              |
|---------|------------------------------|--|
| 1       | Electrical / Electromagnetic | Resistivity, conductivity, capacitance, inductance |
| 2       | Optical and Radiometric      | Level of energy absorbed / reflected from target   |
| 3       | Mechanical                   | Resulting force from object                        |
| 4       | Acoustic                     | Sound produced / reflected from object             |

|   |                 |   |
|---|-----------------|---|
| 5 | Pneumatic       | Ability to inject air into object                                       |
| 6 | Electrochemical | Ion-selective membrane that produce voltage output by chemical reaction |

Following techniques are being used to explore the major soil macronutrients that is NPK by the method of –

***Sensing ferromagnetic properties, 1997***

In this technique, detection is carried out by the observations of granular soil particles relationally together by sensing the ferromagnetic property of welsh soil granular by Secondary Ferromagnetic Mineral (SFM) method with dependent premature mechanism to explain the observed link between soil magnetism and climate by lowering the temperature below 20 Kelvin. Hence, the effect of depressing values of low field susceptibility in percentage is noticed [8].

***By portable Raman sensor, 2004***

The portable Raman sensor for soil nutrient detection was provided to obtain a significant phosphorus absorption band in soils and thus determines the phosphorus concentration with the use of bulky components – Laser source, Spectrometer, Computer and File storage. In Raman Spectroscopy emission technique, the spectral peaks that are frequency shifted from the incident optical energy by the scattering are processed to know Algal Bloom because of phosphorus present in the soil sample. Algal Bloom is nothing but pollution because of excess phosphorus nutrients [9].

***By image spectral measurement, 2011***

The macronutrients N, P and K can be analyzed by the ground method spectrum data in the laboratory by exploration on spectral measurements, interior diameters and surface treatment of soil roughness and Signal to Noise Ratio (SNR) / Spectra, these compared with standard spectrum. But there was no image data in this method. The second is multispectral remote sensing allows capture of hyper spectral images, not possible in the first method, but poor resolution of images prone to difficulties in extraction of soil information and spectral reflectance relation, so the method is not suitable for quantitative estimation of nutrients in soil. Also a lot of statistical data logging is required [10].

***By Wireless Sensor Network (WSN) and cloud monitoring, 2014***

Real time monitoring of macronutrients NPK by the use of Wireless Sensor Network (WSN) and android phone facilitates the user to view soil fertility at the convenience of his phone through mobile application. Overall system helps farmers to get real time information. The data from sensors is sent to the Cloud. These values are stored in cloud databases [11], [12].

***By electrical conductivity measurement, 2014***

The soil salinity is an important issue, sustaining the productivity and irrigation of agriculture around the world. The salinity analysis gives rise to determination of nutrients present in soil by the use of conductivity sensors. The co-relationship between Electrical Conductivity (EC) and amount of fertilizers required shows that EC is directly related to nutrients concentration but inverted with depth of soil. The overuse of fertilizers can lead to more soil salinity (Salts), hence conductivity is more [13].

***By optical fiber sensor, 2015***

Detection of soil NPK nutrients using fiber optic sensor includes multimode plastic fiber optic sensor. Aqueous solution of the soil under test is illuminated by different light colors. Light gets reflected from solution depending upon its absorbent coefficient of soil. Reflected light is received by another optical fiber which then converts into electrical signals. Then using signal conditioning and microcontroller (MCU), different components of NPK are determined. In this method, NPK deficiencies can be analyzed in terms of ratio based on the principle of absorption of light [14], [15].

***By UV-visible spectroscopy, 2016***

The spectrum analysis can be carried out by characterization of nutrients using Deuterium Halogen Light (DHL) source and Ocean Optic Spectrometer (OOS) to measure the absorbance of macronutrients at 450 nm for N, 750 nm for P and 500 nm for K, in which Deuterium covers UV and Halogen covers visible light spectrum [16].

***By multispectral hyperspectral cameras, 2017***

Ranging and imaging techniques in precision agriculture includes the state of art in optical visible and near visible spectrum sensors and techniques to estimate phenotyping variables from intensity, spectral and volumetric experiments. Hence, these techniques were distributed for plant structural characterization, plant detection and plant physiology assessment that delivers the future innovating sensor methodologies to provide proper fertilizers and pesticides [17].

***By electrochemical sensors with ion selective transistors, 2017***

A system consists of an ion selective membrane and a transducer, which transforms chemical reaction into detectable electrical signals. Two types of sensors – Ion Selective Electrode (ISE) in which the voltage of the second electrode is compared or measured with the reference (first) electrode. Ion Selective Field Effect Transistor (ISFET) chemically modulates the threshold voltage and is measured with the related concentration of a targeted ion. But due to ion selective membrane, measurement of one target ion by electrochemical measurement is possible. However, electrochemical sensors may be integrated onto chips to provide a feasible approach of multi target simultaneous detection of nutrients in soil [18].



## **People's Democratic Movements: A Case Study of Community Radio in South Asia**

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### **Abstract:**

The present research has focused on the role of community radio in the improvement independent people's democratic movement that being globalization context. These movements have located in South Asia. The paper mainly focused on the socio economic cultural and political context for understanding evolution and emergence of community radio. The present research study is formulated the policy and progarmme of community radio in South Asia. The media contributed in making the empowerment of marginalized community status. The community radio contributed in the development of socioeconomic, political, agricultural, occupational mobility among marginalized community development. The main aim Of the paper is to understand community radio for marginalized community development, to understand the conceptual framework of community radio and peoples movement engagement with marginalized community, to explain the status of Community radio in South Asia, to examine the contribution of Community radio on marginalized groups in South Asia, to discuss the concept Community radio which is based on constructing an approach that provides knowledge built up collectivities participatory methods in both content production and management of the radio station in the South Asia. the present study examine the operational conceptual framework of community radio and the theory of the network society in the role of community radio for marginalized development. The present research employed qualitative research methodology to interpret analysis through the case study method as micro stories of participatory communication contribution of community radio needs to more utilize full potential as a medium of marginalized. The present paper is mainly focused on contributions of community radio which has contributed in marginalized community inclusive developments as people democratic movement in contemporary context. The study concludes that the role of community radio more utilized in the development of tools for development of marginalized community in South Asia.

(**Keywords:** People's Movements, community radio, networking society, community participation, right to education, marginalization.)

### **Introduction**

The present research consistent has focused on the role of community radio in the improvement of independent people's democratic movement that being globalization context. These movements have located in South Asia. The paper mainly focused on the socio-economic cultural and political context for understanding evolution and emergence of community radio. The present study formulated the policy and progarmme of community radio in South Asia. These media contribute to empower marginalized community status. The community radio contributed in the development of socioeconomic, political, agricultural, occupational mobility among marginalized community development.

The present study is important to understand the current status of community radio in the South Asia. It provides information regarding hoe the community radio which has transacted in this country. Community radio is useful to encourage to up-liftmen of South Asia status. It throws light on community participation, discussion and activities that may be helpful in promoting community radio, it has also discussed of inclusive and alternative development policy level.

### **The conceptual framework of Community Radio and peoples movements**

This media has been working in different sectors of human development. Community radio has medium of wider spectrum and scope in the field of community development and distance education. A recent Rockefeller foundation report asserts that community radio is "one of the best ways to reach excluded or marginalized communities targeted and give them a voice that matters most in development communication. (Dagron, 2001) This media work more dynamic medium as per the other media. It is in wider reach, accessibility, effective cost, immediate as a tool for community development. The nature of community radio is like small radio station, low power transmitter used,



work on the frequency modulation band and tower light in maximum 30 meters, etc. On the other hand, The special community radio is the basic communication medium to reach the marginalized community at the grassroots level. It is an active and effective relation that has brought some social welfare development, development in education, women empowerment, health, natural resource conservation and agriculture in the revolutionary changes in South Asia. The facilities are provided at local level to identify and priorities need. It is liberating platform as a collective participation and alternative development model.

Peoples' movements have been a view as possible way in which people participate or empowerment of marginalized may be achieved (Niloshree Bhattacharya and Vinod K Jairtah.2012). Peoples movements are symbolized people's power (Mirza Asad, 2021) the peoples movement as community radio role play in political sate, political parties support groups and transnational networking with marginalized communities. Peoples' participation in consider to be beneficial so called development involving people local government and discussion making such as it empowerment marginal community. It entitles a critical consciousness and awareness of the people regarding the structural oppression.

### **Theoretical framework**

In the present research paper sociologist used theoretical framework for Manual Castel's Network society to explain the contribution of community radio for the tribal educational development. Castell's argued that "The definition in terms of a network society is a society where the key social structures and activities are organized around electronically processed information networks. So it's not just about networks or social networks, because social networks have been very old forms of social organization, it's about social networks, which process and manage information and are using micro-electronic based technologies" (Castells, 1996, 34). The theoretical framework is using the study of Community radio which is the most important contribution in South Asia. Once the community radio move in, they start creating network of their own voice on community radio by including their local people from their place of origin, to create a voice for the voiceless, contribution of community to spread out awareness and conscience among the marginalized community development. Due to educationally backward, poor living standards and lower income opportunity in the South Asia there people attracted to the call from the South Asia. In the present paper, network society theory used to determine overall appearance.

### **Review of literature**

The researcher form various academic that grabbed the attention on development of community radio in various countries of South Asia which analyze the existing status of community radio policies and issues in this country. This review made by Kanchan K. Malik And Vinod Pavarala 2020 in his book on Community Radio in South Asia: Reclaiming Airwaves, They argued that state of community radio contributed a media movement in different part of South Asia beginning last two decades ago. They find out that to understand,evaluation and functioning of community radio is in an increasingly globalized media context. The study stated that the various countries in South Asia have formulated policies that enabled the emergence in the third sector of broadcasting. Preeti Rahunatha (2020) in his book Community Radio Policies in South Asia is focused on the state of community radio which has contributed a significant independent media movement that began about two decade ago in different parts of South Asia. He examined the critical media policy studies applied in principal and performances of policies and policy making for community radio in four countries of Sri Lanka, Nepal, India and Bangladesh concern South Asia.

Pavarala Vinod and Malik Kanchan (2007) in his book The Struggle for Community Radio in India, focused on the struggle for community in India. The development of community radio in state's reluctance to open up the airwaves, it focused on appropriate frameworks for policy-making, using the a comparative study of the policies related to community radio in India.

Udupa Sahaand McDowel (2017) in his edited book of Meia as Politics in South Asia focused on the friest overview of media development and its political ramification in the South Asia during these year of economic development.

Astana Sanjay (2019) in his book India State run Media: Broadcasting, Power and Narrative examines the intertwined genealogies of sovereignty, public, religion, nation and spatiotemporal dynamics of broadcasting.