



Pune District Education Association's  
**Annasaheb Magar Mahavidyalaya**  
**Hadapsar, Pune- 411028**

Affiliated to Savitribai Phule Pune University, Pune



## Self Study Report: 2024 (4<sup>th</sup> Cycle)



### **Criterion – 3** **Research, Innovation and Extension**

#### Key Indicator 3.3- Research Publication and Awards

#### **Metric: 3.3.1(QnM)**

Number of research papers published per teacher in the Journals as notified on UGC CARE list during the last five years



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# Research Paper

## A.Y. 2019

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# 1. Title of Paper: Metal Ion Doped Nano-Bio-Ceramic Thick Films for Dielectric Properties

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## Metal Ion Doped Nano-Bio-Ceramic Thick Films for Dielectric Properties

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**Abstract:** Fe ion exchanged hydroxyapatite (HAp) thick films have been utilized to improve its dielectric properties. HAp nano powder is synthesized by chemical precipitation process and ion exchange route is employed for exchange of Ca ions with Fe ions in HAp matrix. The structural and functional group identification of pure and metal ion doped HAp thick film is examined by means of X-ray diffraction and FTIR spectroscopy. Moreover, surface morphology is visualized by means of SEM analysis. Dielectric properties such as dielectric constant (K) and dielectric loss (tan δ) of pure as well as Fe modified HAp thick films are carried out as a function of frequency (10 Hz-1 MHz). It is observed that, Fe doped HAp thick film improves the dielectric characteristics as compared to pure HAp.

**Index Terms** - Nano-Bio-Ceramic Thick film, Dielectric spectroscopy, hydroxyapatite, chemical precipitation

### 1. Introduction

Hydroxyapatite [Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>(OH)<sub>2</sub>, abbreviated as HAp], is of considerable interest owing to its potential usefulness as biomaterials, adsorbents, ion-exchangers and gas sensors [1-3]. Synthetic HAp, is analogous to natural apatite, the major inorganic component of bone and teeth [4]. HAp has extensively been studied as filler for bulk bone regeneration and for improving osteointegration of biomedical implants due to its bioactive and osteoconductive properties.[5]. Recently, HAp has found interesting applications in other areas such as a support for adsorption of bacteria or viruses, for ammonia catalysis, as a catalyst support material, support bone ingrowth and osseointegration when used in orthopaedic, dental and maxillofacial applications.[6-8]. An investigation of the dielectric properties is of interest for biomedical applications. This has several causes. First, the application of electrical fields can accelerate the healing of fractures in bones [9-11]. Furthermore, an electrical stimulation enhances the rate of bone growth for bone grafts in spinal fusion [12-13] and is also used to treat osteoarthritis and osteonecrosis [14]. Finally, the electric poling of HAp enhances its bioactivity [15]. For all these reasons and because bone is a composite of fluids, collagen and the HAp matrix, especially the electric and dielectric properties of HAp are very important.

Accordingly, the present study focuses on the structural, morphological properties of Fe doped HAp thick films and to examine doping effect of Fe ion in HAp matrix for its dielectric properties.

### 2. Experimental details

#### 2.1 Material synthesis:

Nano-ceramic HAp, used in the present study, is synthesized by wet chemical process. Calcium nitrates (Ca(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O), and di-ammonium hydrogen phosphate ((NH<sub>4</sub>)<sub>2</sub>HPO<sub>4</sub>) are used as starting precursors as a source of calcium and phosphate. The detail synthesis process of HAp is reported in our earlier work [16]. The ion exchange process is carried out by the addition of known amount of the synthesized nano-HAp powder in variable molar concentrations (0.008, 0.01 and 0.05M) of Fe(NO<sub>3</sub>)<sub>3</sub>·6H<sub>2</sub>O batch solution. All the samples are thoroughly shaken for 5 hours and are allowed to settle for 12 hrs. After the ion-exchange treatment, the particles are filtered off, washed with double distilled water and finally dried in air oven at 100 °C for 10 hours. Thick films are prepared by screen printing technique using ion exchanged Fe-HAp powders as reported earlier [16-20].

#### 2.2 Dielectric measurements:

In the present study, the dielectric measurements are carried out for pure and Fe doped HAp thick films. For dielectric measurements, the films are prepared in the form of sandwich type structure (Ag-HAp-Ag). The bottom electrode (Ag) is screen printed on glass substrate and dried at 100 °C for 20 min under IR lamp and further fired at 500 °C for 1 h. On the fired electrode a layer of dielectric material (HAp) is deposited by using screen printing and dried at 100 °C for 20 min under IR lamp and further fired at 750 °C for 1 hour. After firing the dielectric layer, the upper electrode (Ag) is deposited, and after that for drying and firing, same temperature-time regime is carried out as used for the bottom electrode. Dielectric loss, capacitance and resistance are obtained directly from LCR meter. The parameters such as dielectric constant, ac electrical conductivity are calculated by

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**2. Title of Paper: A study of Role of Infrastructural Facilities in the Development of Pilgrimage Destination Ozar in Pune District, Maharashtra State**

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**20. A Study of Role of Infrastructural Facilities in the Development of Pilgrimage Destination Ozar in Pune District, Maharashtra**

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**Abstract**

Tourism is the largest fastest growing industry of the world. It is the temporary and short-term movement of people to destinations outside the place where they normally live and work a tourist is a temporary visitor to a place. There are various types of tourism according to the purpose of tourists. tourism is broadly divided in to Natural tourism, Health tourism, Disaster tourism, Sports tourism, Agro- tourism, Ecotourism, Ethnic tourism and Religious tourism etc. Religious tourism is also known as a pilgrimage or spiritual tourism. Tourism Infrastructure includes all facilities, which will make the trip comfortable and memorable. The basic public services such as water, electricity, sanitation, health, security, communication roads and public transportation etc. needed for developing tourism. In this study an attempt has been made to understand the views of the pilgrims regarding various facilities in Ozar like Dev Darshan, transportation, accommodation, Local Security, food & Drinking Water, Medical Facilities, Cleanliness and Conservation of Surrounding Area, Darshan Que Facilities, Tourist information Board and Guide, Parking, Custom and Traditions and Pollution Control Majors. These were classified as excellent, good, satisfactory and unsatisfactory, and noted in the percentage. Dev Darshan, Pollution Control Majors, Parking, Transportation, Cleanliness and Conservation of Surrounding Area, Custom and Traditions, Darshan Que, Local Security are recorded as excellent or good facilities. Pilgrim is well satisfying about these facilities.

**Key Words:** Pilgrim, Religious, Impact, facility, Infrastructure, faith tourism.

**Introduction**

Tourism is the largest fastest growing industry of the world. It is the temporary and short-term movement of people to destinations outside the place where they normally live and work. It

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### **3. Title of Paper: In Vitro Activities of *Lawsonia inermis* L. (Henna) Leaves Extract**



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## **In Vitro Activities of *Lawsonia inermis* L. (Henna) Leaves Extract**

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Received: 14 Mar 2019 / Accepted: 12 Apr 2019 / Published online: 1 Jul 2019  
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#### **Abstract**

*Lawsonia inermis* (henna) is the medicinal plant. The study has been done to evaluate the preliminary phytochemical, proximate analysis and the bioactive potential of *L. inermis*. Phytochemicals viz., flavonoids of flavonoid, phenol, steroids, resins, tannins and carbohydrates were found to be present. Thin layer chromatography was also done for the phytochemical analysis. Total phenol content by using Folin-Ciocalteu reagent and total flavonoid content were determined by using Woisky and Salatino method. Phenol and flavonoid content found to be 1158mg/g and 322.5mg/g respectively. In fluorescent analysis acetone, ethanol, methanol, glacial acetic acid, chloroform, diethyl ether, petroleum ether and benzene gave characteristic red fluorescence under long UV<sub>365</sub> nm. Methanol extract of henna leaves found to have antimicrobial activity against *Pseudomonas aeruginosa* and *Bacillus subtilis* using disc and well diffusion method. Extract was used to evaluate antiarthritic potential. In which soxhlet water extract showed remarkable inhibition of protein denaturation and was found to be  $71.41 \pm 0.01$ . In thrombolytic activity aqueous extract was found to be significant which showed maximum about  $52.62 \pm 0.017$  of clot lysis. The free radical scavenging by DPPH method of methanolic extract of henna leaves showed  $71.7 \pm 0.02$  antioxidant activity. The soxhlet methanol extract of henna leaves showed  $1101 \pm 0.02$  µg/ml antioxidant activity.

#### **Keywords**

Anti-arthritis, antidiabetic, antioxidant, Bioautography, *Lawsonia inermis*, phytochemical, proximate analysis, Thin Layer Chromatography.

\*\*\*\*\*

#### **1. INTRODUCTION:**

*Lawsonia inermis* L. belongs to Lythraceae family is commonly called as Henna. It is a medicinal plant and also a popular dye plant [24]. *Lawsonia inermis* is a shrub mainly found in Asian origin and also in warm temperature regions [31]. Since a long time, henna has been used as herbal dye to color hands, nail, feet etc. For this coloring purpose the leaves of henna are mainly utilized. It is also used as deodorant, excellent conditioning agent and also used as an ingredient in

shampoos, hair dyes and rinses [31]. The dye is also used in staining leather hides in various industry and also important in commercial uses.

*L. inermis* also shows medicinal application, it is used as an astringent, anti-hemorrhagic, intestinal antineoplastic activity, cardio-inhibitor, hypotensive, sedative and anti-inflammatory [31]. It is also used against amoebiasis, soothe fevers, nervous disorder, hysteria and also leprosy [31]. The lower concentration of plant leaves used for body pain, skin

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**Author Name: Dr. Gandhile G. D.**

**4. Title of Paper: A study of Physical, Economic and Socio - Cultural Impact of Pilgrimage Centre in Pune District, Maharashtra State**

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AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

**8. A Study of Physical, Economic and Socio - Cultural Impact of Pilgrims on Host Population in Khed - Shivapur pilgrim Centre in Pune District of Maharashtra**

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**Abstract**

Tourism is the world's largest and fastest growing industry. According to the WTTC tourism generates more than 230 million's jobs directly and indirectly. In Indian economy tourism contribute 6.23% to the national GDP, its provide 8.78% of the total employment. On the basis of the purpose of tourist's tourism is classified as Natural tourism, Health tourism, Disaster tourism, Sports tourism, Adventures tourism, Agro- tourism, Ecotourism, Ethnic tourism, and Religious tourism etc. The tourism development in any area is responsible for positive as well as negative impacts on any tourist destination. It helps to develop region by adding national income, development in hotel industry, transportation, marketing and to improve infrastructural facilities in tourists' places. Besides these advantages, tourism industry is also responsible for many disadvantages like adverse effect on socio-cultural setup of the region, creates shortage of day to day required things, raise the prize of land, accommodation, food, cloths, traffic congestion, loss of natural habitats, pollution and degradation of environment etc. Religious tourism as a special interest event has a highly complex impact on local communities. The impact study is an attempt to examine empirically the impact of pilgrimage on local population. It is an investigation of residents' perception of impacts of tourism rather than a measure of actuary impacts. The procedure adopted in this method is very simple. For each statement in a Likert Scale the respondent is asked to indicate not only the direction (agree, disagree) of his or her response but also degree of commitment to that response (Strong-moderate or slight). People's attitude is represented by his or her scores across all items in the

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## **5. Title of Paper: An Empirical Study of Indian Monetary Policy**

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### **20. An Empirical Study of Indian Monetary Policy**

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#### **Abstract**

Monetary policy is the policy of the Central Bank to control over the money supply for the realization of general economic goals. The country uses many monetary policies tools to achieve a balance between its goals of price stability and higher growth. The goal is to stabilize inflation at low level and maintaining growth rate. The paper aims to examine the monetary policy of the Reserve Bank of India for achieving the objectives using interest rate as a tool. The few statistical tools are used for to know the monetary policy behavior. The result advocates that the growth criterion is the most significant factor which affects the interest rate policy of the central bank. It also finds reduced interest is sign of developing economy. It is hypothesized that, the fiscal parameter turns out to be insignificant.

**Keywords:** Monetary Policy, Fiscal Deficit, Current Account Deficit, Budget, RBI

#### **1. Introduction**

Monetary policies analyzed in the context of maximization of welfare. This also stabilizes inflation at low level and maintain growth rate. Keynesian, Monetarists, New-Classical and New Keynesian and others contributed to the study of optimal monetary policy. Keynesian, Taylor rules have specified about the central banks role in adjusting the nominal interest rate in response to changes in inflation gap and output gap, and compared the Federal Reserve's actual path of interest rate to the rule-based interest rate.

Monetary policy is the policy of the Central Bank ie, Reserve Bank in India for maintaining its control over the money supply for the realization of general economic goals in the country. However this policy should not be restricted only to controlling the supply of money. It is also to accelerate economic development in an environment of reasonable price stability. The functions of the Reserve Bank are expanded from merely discharging the traditional central banking functions to performing an active, developmental and promotional role in meeting the demands of the expanding Indian economy.

The excess of money supply results in consistent inflationary pressure in the economy. RBI has the power of using instruments of monetary policy. RBI uses the variable reserve requirements to have control over the economy. RBI put conditions on commercial banks to

## 6. Title of Paper: Metal Ion Doped Nano-Bio-Ceramic Thick Films for Dielectric Properties

### Metal Ion Doped Nano-Bio-Ceramic Thick Films for Dielectric Properties

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**Abstract :** Fe ion exchanged hydroxyapatite (HAp) thick films have been utilized to improve its dielectric properties. HAp nano powder is synthesized by chemical precipitation process and ion exchange route is employed for exchange of Ca ions with Fe ions in HAp matrix. The structural and functional group identification of pure and metal ion doped HAp thick film is examined by means of X-ray diffraction and FTIR spectroscopy. Moreover, surface morphology is visualized by means of SEM analysis. Dielectric properties such as dielectric constant (K) and dielectric loss (tan  $\delta$ ) of pure as well as Fe modified HAp thick films are carried out as a function of frequency (10 Hz-1 MHz). It is observed that, Fe doped HAp thick film improves the dielectric characteristics as compared to pure HAp.

**IndexTerms** - Nano-Bio-Ceramic Thick film, Dielectric spectroscopy, hydroxyapatite, chemical precipitation

#### 1. Introduction

Hydroxyapatite [ $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ , abbreviated as HAp], is of considerable interest owing to its potential usefulness as biomaterials, adsorbents, ion-exchangers and gas sensors [1-3]. Synthetic HAp, is analogous to natural apatite, the major inorganic component of bone and teeth [4]. HAp has extensively been studied as filler for bulk bone regeneration and for improving osteointegration of biomedical implants due to its bioactive and osteoconductive properties.[5]. Recently, HAp has found interesting applications in other areas such as a support for adsorption of bacteria or viruses, for ammonia catalysis, as a catalyst support material, support bone ingrowth and osseointegration when used in orthopaedic, dental and maxillofacial applications.[6-8]. An investigation of the dielectric properties is of interest for biomedical applications. This has several causes. First, the application of electrical fields can accelerate the healing of fractures in bones [9-11]. Furthermore, an electrical stimulation enhances the rate of bone growth for bone grafts in spinal fusion [12-13] and is also used to treat osteoarthritis and osteonecrosis [14]. Finally, the electric poling of HAp enhances its bioactivity [15]. For all these reasons and because bone is a composite of fluids, collagen and the HAp matrix, especially the electric and dielectric properties of HAp are very important.

Accordingly, the present study focuses on the structural, morphological properties of Fe doped HAp thick films and to examine doping effect of Fe ion in HAp matrix for its dielectric properties.

#### 2. Experimental details

##### 2.1 Material synthesis:

Nano-ceramic HAp, used in the present study, is synthesized by wet chemical process. Calcium nitrates ( $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ ), and di-ammonium hydrogen phosphate ( $(\text{NH}_4)_2\text{HPO}_4$ ) are used as starting precursors as a source of calcium and phosphate. The detail synthesis process of HAp is reported in our earlier work [16]. The ion exchange process is carried out by the addition of known amount of the synthesized nano-HAp powder in variable molar concentrations (0.008, 0.01 and 0.05M) of  $\text{Fe}(\text{NO}_3)_3 \cdot 6\text{H}_2\text{O}$  batch solution. All the samples are thoroughly shaken for 5 hours and are allowed to settle for 12 hrs. After the ion-exchange treatment, the particles are filtered off, washed with double distilled water and finally dried in air oven at 100 °C for 10 hours. Thick films are prepared by screen printing technique using ion exchanged Fe-HAp powders as reported earlier [16-20].

##### 2.2 Dielectric measurements:

In the present study, the dielectric measurements are carried out for pure and Fe doped HAp thick films. For dielectric measurements, the films are prepared in the form of sandwich type structure (Ag-HAp-Ag). The bottom electrode (Ag) is screen printed on glass substrate and dried at 100 °C for 20 min under IR lamp and further fired at 500 °C for 1 h. On the fired electrode a layer of dielectric material (HAp) is deposited by using screen printing and dried at 100 °C for 20 min under IR lamp and further fired at 750 °C for 1 hour. After firing the dielectric layer, the upper electrode (Ag) is deposited, and after that for drying and firing, same temperature-time regime is carried out as used for the bottom electrode. Dielectric loss, capacitance and resistance are obtained directly from LCR meter. The parameters such as dielectric constant, ac electrical conductivity are calculated by



**Author Name: Prof. Waghmode M. S.**

**8. Title of Paper: Synthesis of Silver Nanoparticles and Phytochemical Analysis of Benincasa hispida Peel Extract**



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**Synthesis of Silver Nanoparticles and Phytochemical Analysis of *Benincasa hispida* Peel Extract**

**Yadav Shweta S<sup>1</sup>, Kalbhor Shweta D<sup>1</sup>, Waghmode Meghmala S<sup>1</sup> and Patil Neha N\***

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**Abstract**

*Benincasa hispida* is a member of family cucurbitaceae it has nutritional and medicinal properties. *Benincasa hispida* is considered as one of the sacred fruit in India. This fruit found to have wide applications. Current research was carried out on the evaluation of *in vitro* activities and silver nanoparticle synthesis of *Benincasa hispida* peel extract. The phytoconstituents of *Benincasa hispida* fruit peel includes alkaloids, steroids, resin and vitamins. *Benincasa hispida* fruit peel gives red florescence at 365nm (under long UV) in Benzene, Diethyl ether, Chloroform, Ethanol and acetone. Proximate analysis which includes ash value, moisture content, extractive values, total solid content and crude fiber content of fruit peel powder was determined. The pharmacological activities such as anti-arthritis, thrombolytic, anti-oxidant, anti-diabetic showed high economic value of fruit peel. The extract was found to have antifungal activity against *Trichophyton* spp., fungi responsible for athlete's foot infection. Herbal soap was prepared using *Benincasa hispida* peel extract found to be effective for the treatment of athlete's foot infection. Green synthesis of silver nanoparticles using peel extract of *Benincasa hispida* is a rapid and ecofriendly method. The characterization of silver nanoparticles, was done using FTIR, SEM, XRD, and UV-Visible spectrophotometer. The silver nanoparticles found to have maximum absorbance at 350nm and the size of nanoparticles found to be in the range 28-38nm with irregular shape. Antifungal activity against *Trichophyton* sp. (Causing Athletes foot infection) showed by silver nanoparticles. The H<sub>2</sub>O<sub>2</sub> detecting ability of silver nanoparticles was found.

**Keywords**

*Benincasa hispida* peel, florescence analysis, H<sub>2</sub>O<sub>2</sub> detection, pharmacological activities, phytochemicals, proximate analysis, Silver nanoparticles.

\*\*\*\*\*

**1. INTRODUCTION:**

*Benincasa hispida* (synonym: *Benincasa cerifera*) [1] which commonly called as (winter melon, ash gourd,

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**9. Title of Paper: A Study on Disclosure of Selected Accounting Policies in LS & IS**



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**A Study on Disclosure of Selected Accounting Policies in IL&FS**

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**ABSTRACT**  
*The Infrastructure Leasing and Financial Services Limited (IL&FS) is an Indian infrastructure development and finance company functions through its more than 250 subsidiaries in India. Its mission is to develop world class infrastructure in India. It is founded in 1987 as RBI registered core Investment Company and having headquartered at Mumbai, Maharashtra. IL&FS is an essential core investment company with the RBI and it is also involved in the operations of giving loans and advances to its subsidiaries. In 2018, IL&FS fail to pay to lenders starting anxiety in market. The present study is focused on disclosure of three accounting policies in financial statements of IL&FS for eight years. The study aimed at checking consistency in disclosure of accounting policies in financial statements and checking the conformity with accounting standards.*

**KEYWORDS-** accounting standard 1, disclosure of accounting policies, conformity, IL&FS

**INTRODUCTION**  
The Infrastructure Leasing and Financial Services Limited (IL&FS) is an Indian infrastructure development and finance company functions through its more than 250 subsidiaries in India. Its mission is to develop world class infrastructure in India, it includes power, transportation, area development, environment, education, cluster development, e-governance, finance, urban infrastructure, water and health initiative and tourism etc. It is founded in 1987 as RBI registered core Investment Company and having headquartered at Mumbai, Maharashtra. Its major shareholders includes Life Insurance Corporation of India (25%), IL&FS welfare trust (12%), HDFC Ltd (9%), Central Bank of India (7%), State Bank of India (12%) and Japanese venture ORIX corporation (23%). In 2018, IL&FS fail to pay to lenders starting anxiety in market. The present study is focused on disclosure of three accounting policies in financial statements of IL&FS for eight years.

The study has scope of assessing company's disclosure of accounting policies in notes to accounts as mandatory by accounting standard 1- disclosure of accounting policies. The study is limited to three accounting policies. Accounting policies are methods, procedures that is followed while preparing and finalizing financial statements. It provides transparency, reliability and comparability to users of financial statements. Hence, study of disclosure of accounting policies becomes necessary for getting idea about company's disclosure about accounting policies.

**OBJECTIVES**  
The present study has the following objectives.

1. To check the consistency of disclosure of selected accounting policies in financial statements.
2. To check the conformity of disclosure of accounting policies with accounting standards.

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## 10. Title of Paper: Structural Analysis and Dielectric Properties of (x) BaTiO<sub>3</sub> + (1-x) Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> Magnetolectric Composites

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### Structural Analysis and Dielectric Properties of (x) BaTiO<sub>3</sub> + (1-x) Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> Magnetolectric Composites

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**Abstract :** Magnetolectric phenomena have been observed in two phase layered, laminated, bulk composites. Composites with varying magnetic Phase (Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> ferrite) and electric phase (BaTiO<sub>3</sub> ferroelectric) were prepared by using Chemical and Solid State Method. From XRD pattern it is clear that, there are presence two phases; cubic structure of piezomagnetic phase and perovskite tetragonal crystal structure of piezoelectric phase. No third phase coexists in the prepared magnetolectric composites. The lattice parameters and crystallite size can be calculated from XRD. From Scanning Electron Microscope, It is observed that there are two dissimilar particle shapes corresponding to the two different phases. The variation of the dielectric constant with frequency ranging from 10 Hz to 1 MHz at room temperature has been studied. It shows dispersion due to Maxwell-Wagner type interfacial polarization.

#### I. INTRODUCTION

In magnetolectric composites, induced polarization takes place with respect to magnetic field that gives rise important parameter i.e. ME voltage. ME composites have large technological application such as storage data device, sensor, transducer etc. The effect was first found in antiferromagnetic material such as Cr<sub>2</sub>O<sub>3</sub> single phase compound at room temperature ( $\alpha = 20\text{mV/cm.Oe}$ ). To enhance magnetolectric (ME) response of several orders of magnitude higher than that in those single phase compounds even above room temperature, Magnetolectric composites were prepared by combining piezoelectric and magnetic phases [1]. In such composites, the individual phases like ferrite and ferroelectric interact with one another mechanically, so that a strain-induced ME coupling in magnetolectric composites can be produced. The resulting effective ME couplings in composites, which are not present in their individual phases which defined by product properties [2]. In case of a bulk composite the electro-mechanical coupling of the ferroelectric phase has to be poled in order to allow for significant strain-induced interactions.

In present paper the magnetolectric bulk composite such as (1-x) Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> + (x) BaTiO<sub>3</sub> composites were prepared by Solid state Ceramic method. This ceramic method is simple and properties of composites depend upon constitute phases, particle size and processing parameters [3]. Due to the microscopic interactions between the individual phases, the arising ME coefficient strongly depends on the microstructure of the composite. Characterization of ME composites has been done by XRD and SEM. The polarization state of the ferroelectric phase strongly influences the ME coupling. The electric measurement such as dielectric constant with respect to frequency was carried out.

#### II. EXPERIMENT

##### A) Preparation

The piezomagnetic phase Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> were prepared by taking starting material carbonates of nickel, cobalt, manganese and iron oxides were mixed and grounded in agate mortar and presintered at 950°C and 8hr. Similarly Piezoelectric phase BaTiO<sub>3</sub> were prepared by barium carbonate and titanium oxide were mixed and presintered at 1000°C and 10 hr. ME Composites (1-x) Ni<sub>0.94</sub>Co<sub>0.01</sub>Mn<sub>0.05</sub>Fe<sub>2</sub>O<sub>4</sub> + (x) BaTiO<sub>3</sub> were prepared by mixing 10%, 15%, 20%, 25% ferrite phase with 90%, 85%, 80% and 75% ferroelectric phase respectively. These composites were finally sintered at 1200°C for 12hr.

##### B) Characterization

X-ray diffraction of all the samples was carried out for to confirm the phase formation and crystal structure of the individual phases. Microstructural analysis of the sample were performed by Scanning Electron Microscope (SEM). The variation of dielectric constant ( $\epsilon$ ) will be measured at room temperature in the frequency range from 1kHz to 1MHz.

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## 11. Title of Paper: Economical Fruit Dye Sensitized Nanocrystalline TiO<sub>2</sub> Photoanode for Solar Cell Fabrication

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### Economical Fruit Dye Sensitized Nanocrystalline TiO<sub>2</sub> Photoanode for Solar Cell Fabrication

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**Abstract:** Dye sensitized solar cell (DSSC) proposed by O'Regan and Grätzel has attracted considerable interest in research since 1991. In present work, solar cell characteristics of pomegranate fruit dye sensitized TiO<sub>2</sub> photoanode is presented. The TiO<sub>2</sub> powders were prepared by using titanium tetra-isopropoxide (TTIP) as Ti precursor at temperatures of 300, 400 and 500 °C. As-prepared powders were characterized by using X-ray diffraction (XRD), UV-visible spectroscopy and field emission scanning electron microscopy (FESEM). The effect of annealing temperature on structural and optical properties of TiO<sub>2</sub> powders was studied. The pomegranate fruit dye sensitized solar cell (DSSC) characteristics of TiO<sub>2</sub> thick films deposited on FTO coated glass substrates by using Doctor's Blade method were studied by using solar simulator and with polyiodide as an electrolyte. The characterization studies revealed that as-prepared TiO<sub>2</sub> powders were nanocrystalline with anatase phase symmetry. The crystalline sizes of as-prepared TiO<sub>2</sub> powders obtained at 300 and 500 °C were found to be 12 and 18 nm respectively. The optical band gap of as-prepared TiO<sub>2</sub> powders obtained at 300 and 500 °C were found to be 3.34 and 3.22 eV respectively. The absorption coefficient of resultant was noted to be of the order of 10<sup>4</sup> cm<sup>-1</sup>. The morphological analysis of resultant powders using SEM revealed spherical TiO<sub>2</sub> particles with sizes between 10 to 50 nm. The pomegranate fruit dye sensitized TiO<sub>2</sub> photoanode showed the solar properties: short circuit current (I<sub>sc</sub>) = 0.412 mA, open circuit voltage (V<sub>oc</sub>) = 0.628 V, fill factor (FF) = 39.11 % and photo-conversion efficiency (η) = 0.139 %.

**Index Terms** - Nanocrystalline, Anatase TiO<sub>2</sub> film, TTIP, DSSC, Pomegranate fruit dye.

#### 1. INTRODUCTION

A new type of solar cells: dye-sensitized solar cells (DSSCs) developed by O'Regan and Grätzel in 1991 have been attracting much attention over last decade as potential low-cost alternative to the commercial silicon based solar cells due to their ease of fabrication and high photo-conversion efficiencies [1],[2],[3]. Titanium dioxide is one of the most promising materials for photochemical energy conversion processes. However, its wide band gaps of 3.0 eV and 3.2 eV for the rutile and anatase phases respectively require UV light for the excitation of electron-hole pairs. This limits its applicability to efficient solar energy conversion because only 5-7 % of the solar spectrum lies in the UV range accessible by pristine TiO<sub>2</sub>. TiO<sub>2</sub> nanoparticles exhibit the following special properties: (i) greatly enhanced surface area giving effective exposure to light and facilitates the photochemical reactions on the surface, and (ii) enhanced photoinduced charge transport useful for harvesting and donating of photo induced electrons [4],[5]. In literature, the conversion efficiencies are reported in the range of 0.06 to 0.09 % by using natural dye for different materials and no depletion layer formation on the surface, which profoundly changes the photo electrochemical properties [6],[7]. In view of this, the main objective of present work was to fabricate DSSCs based on TiO<sub>2</sub> films and pomegranate and strawberries fruits dyes for their better photovoltaic performance. For this purpose, the nanocrystalline TiO<sub>2</sub> powders were synthesized by simple hydrolysis route followed by annealing treatment. The nanocrystalline TiO<sub>2</sub> powders were characterized by using XRD, Raman spectroscopy, FESEM and UV-Visible spectroscopy. TiO<sub>2</sub> films of these powders were prepared on Indium tin oxide (ITO) substrates by using Doctor's Blade method. The resultant films were used as photoanodes for pomegranate and strawberries fruits dyes sensitized solar cell applications. The results obtained with respect to the above mentioned objective are presented in this paper. The data pertaining to this is presented in this communication.



Author Name: Dr. Shelke P. N.

## 12. Title of Paper: Comparative NH<sub>3</sub> gas Sensing Characteristics of DC Electrochemically Deposited Co<sub>3</sub>O<sub>4</sub> films by Using Different Co-based Precursors

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### Comparative NH<sub>3</sub> gas sensing characteristics of DC electrochemically deposited Co<sub>3</sub>O<sub>4</sub> films by using different Co-based precursors

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**Abstract:** Herein, a comparative study of NH<sub>3</sub> gas sensing characteristics of DC electrochemically deposited Co<sub>3</sub>O<sub>4</sub> films by using different Co-based precursors is reported. The Co<sub>3</sub>O<sub>4</sub> films are deposited by using DC electrochemical deposition technique on thoroughly cleaned stainless steel (SS) and copper (CU) substrates. The Co<sub>3</sub>O<sub>4</sub> films are deposited by using three water soluble Co-based precursors: (CH<sub>3</sub>COO)<sub>2</sub>Co, Co(NO<sub>3</sub>)<sub>2</sub> and CoCl<sub>2</sub> with CoSO<sub>4</sub>. All as-deposited Co-based films are annealed at 350 °C for 2 hr. All resultant cobalt oxide films are characterized by using X-ray diffraction (XRD) and scanning electron microscopy (SEM). The NH<sub>3</sub> gas sensing characteristics of all resultant films are measured at room temperature by using static gas sensing system at different concentrations between 25 to 350 ppm of NH<sub>3</sub> gas. The structural studies using XRD showed that resultant films contain pure Co<sub>3</sub>O<sub>4</sub> phase with cubic spinel symmetry. The topographical studies using SEM indicated different particle morphology like kite, spherical and interlinked nano-wires of Co<sub>3</sub>O<sub>4</sub> films generated by using the CoCl<sub>2</sub> with CoSO<sub>4</sub>, Co(NO<sub>3</sub>)<sub>2</sub> and (CH<sub>3</sub>COO)<sub>2</sub>Co precursors. The NH<sub>3</sub> gas sensing properties of resultant films showed lowest response time for the films generated by using (CH<sub>3</sub>COO)<sub>2</sub>Co precursor. Further, recovery time is found to be lowest for the films generated by using (CH<sub>3</sub>COO)<sub>2</sub>Co precursor on copper substrate. However, sensing studies of resultant films showed that the sensitivity factor (S.F.) is maximum for the films obtained by using the CoCl<sub>2</sub> with CoSO<sub>4</sub> precursor on both SS and CU substrates. For all resultant films, the response time (2 - 5 min.) is found to be higher than the recovery time (25 - 45 sec.). The repeatability and reproducibility in gas sensing characteristic is noted for all films. The highest NH<sub>3</sub> sensing performance of CoCl<sub>2</sub> precursor derived Co<sub>3</sub>O<sub>4</sub> films is linked with morphological characteristics of corresponding films.

**Index Terms** - Co<sub>3</sub>O<sub>4</sub> film; DC Electrochemical deposition; NH<sub>3</sub> sensing; Sensitivity factor.

#### 1. INTRODUCTION

The gas sensor is important domain for the field of research in material science. For human health and public safety, the sensor is playing very important at industrial sector and house household level [1- 4]. The NH<sub>3</sub> and LPG sensors are smaller in size, highly sensitive, cheap and easy in manufacturing [5-8]. The NH<sub>3</sub> and LPG sensors have number of applications in environmental, household and industrial problems. The low operating temperature, high stability, fast response, fast recovery, better selectivity, and most importantly high sensitivity are significant characteristics for the development of good sensors [9]. The Co<sub>3</sub>O<sub>4</sub> is an important material for LPG and NH<sub>3</sub> sensing at low operating low temperature [10 - 12]. In view of this, the main objective of present research work was to study the NH<sub>3</sub> sensing response of Co<sub>3</sub>O<sub>4</sub> films. Further, another important objective of present research work was to study the effect of morphology of particles of films on the gas sensing characteristics of Co<sub>3</sub>O<sub>4</sub> films. Hence, for this purpose, cost effective, ease in operation and cheap DC electrochemical deposition technique was used for the preparation of the Co<sub>3</sub>O<sub>4</sub> films. The resultant films were characterized by using X-ray diffraction (XRD) and scanning electron microscopy (SEM) techniques. The NH<sub>3</sub> gas sensing properties were studied by using home-built static gas sensing characterization system. The results obtained related to the materials and NH<sub>3</sub> gas sensing characterization of DC electrochemically deposited Co<sub>3</sub>O<sub>4</sub> films are presented in this communication.

#### 2. EXPERIMENTAL DETAILS

##### 2.1. Substrate cleaning

The stainless steel and copper substrates were used for the deposition of Co<sub>3</sub>O<sub>4</sub> films. The 0.5 mm thick stainless steel (SS) substrates (area = 2 cm<sup>2</sup>) were cleaned by dipping them for 30 min. in a solution having 50 % HNO<sub>3</sub> and 10 % chromium. Then substrates were cleaned by dipping them for 10 min. in a solution having 10 % H<sub>2</sub>SO<sub>4</sub>. After this substrates were rinsed with acetone to remove effects of prior cleaning. The 0.3 mm thick copper (CU) substrates (area = 2 cm<sup>2</sup>) were cleaned by dipping them for 30 min. in a solution having 670 ml orthophosphoric acid, 100 ml H<sub>2</sub>SO<sub>4</sub> and 270 ml double distilled water (DDW). Then substrates were cleaned by using a solution of salt and lemon in DDW. After this SS and CU substrates were cleaned by using soap solution in DDW. This is followed by rinsing of SS and CU substrates with acetone by dip method. Finally, both substrates were cleaned with dilute detergent and warm water. All the substrates were kept in acetone prior to the deposition of films.

##### 2.2. Deposition of cobalt based films

On thoroughly cleaned SS and Cu substrates, the cobalt based films were prepared by using the DC electrochemical deposition technique and different water soluble Co-precursors.

(a) cobalt sulphate [CoSO<sub>4</sub>.7H<sub>2</sub>O] and cobalt chloride [CoCl<sub>2</sub>.4H<sub>2</sub>O] precursors

The CoSO<sub>4</sub>.7H<sub>2</sub>O (0.98 M) and H<sub>2</sub>BO<sub>3</sub> (0.30 M) were dissolved in 500 ml of DDW and solution was filtered using Whatman 41 filter paper. The pH of solution was kept at 4.5 by using NaOH / HCl in solution. It was the deposition bath. The films were deposited at 0.28 M concentration of cobalt chloride (CoCl<sub>2</sub>) in deposition bath. The films were deposited by using the

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## 13. Title of Paper: Formulation of Antidandruff Shampoo by Using Fermented Product of *Cajanus cajan*



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### Formulation of Antidandruff Shampoo by Using Fermented Product of *Cajanus cajan*

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#### Abstract

Dandruff is the common problem of people. The aim of this study was to isolate dandruff causing microorganism, testing the efficacy of fermented product of *Cajanus cajan* against pathogens using and formulation of antidandruff shampoo. The dandruff causing isolates were identified as *Rhodotorulla*, *Cladosporium*, *Rhizopus*, *Acinetobacter*, *Streptococcus*, *Aspergillus fumigates*, *Fusarium oxysporium* and *Malassezia*. Among them *Malassezia* is one of the main causative agent for dandruff, which was isolated on international medical university – *Malassezia furfur* (IMU-Mf). Fermented product of *Cajanus cajan* showed more antimicrobial activity against *Malassezia spp.*, *Fusarium oxysporium*, *Aspergillus fumigates* and *Rhodotorulla*. The genera of *Staphylococcus* and *Lactobacillus* were found to be associated with the fermentation of *Cajanus cajan*. Fermented product was tested for total protein content, vitamin B<sub>1</sub>, vitamin B<sub>2</sub>, vitamin B<sub>3</sub>, vitamin C and amino acids content. Fermented product contains all the essential nutrients required for hair growth; hence it was used for the formulation of shampoo, which will not only reduce dandruff but also encourages hair growth.

#### Keywords

Antidandruff shampoo, *Cajanus cajan*, dandruff causing microorganism, fermentation, *Malassezia*.

\*\*\*\*\*

#### 1.0 INTRODUCTION

Dandruff is a skin condition that mainly affects the scalp. Dandruff is a common chronic scalp condition marked by flaking of the skin on scalp. In order to clean the scalp, remove dandruff and oil from scalp it is necessary to wash hair by using shampoo. In market, most of commercial shampoos are available which causes scalp problem, allergy, hair loss, irritation. Another leading cause of dandruff problem is abundance of *Malassezia* species, affects sensitive skin and causes scalp irritation. *Malassezia globosa* is naturally present on scalp. During

dandruff, the level of *Malassezia spp.* increased by 1.5 to 2 times its normal level. It feed on sebum and releases oleic acid. Some people are sensitive to oleic acid. It penetrates in skin and causes inflammation and in response to inflammation, the skin shed large number of skin cells in higher rate. This cells then join together in white flakes this causes dandruff. *Rhodotorula*, *Acinetobacter*, *Streptococci*, *Propionibacterium*, *Cladosporium*, *Aspergillus* etc, are also responsible for dandruff problem. So, to deal with this dandruff problem, in India fermented product was used since ancient times. Asian women

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## 14. Title of Paper: Bioactive Potential of *Parthenium Hysterophorous* Cytotoxicity of Parthenin



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Research Article | Biological Sciences | Open Access | MCI Approved

UGC Approved Journal

### Bioactive Potential of *Parthenium hysterophorus* and Cytotoxicity Assay of Parthenin

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#### Abstract

*Parthenium hysterophorus* belongs to the family Asteriaceae. It is rich in hormones, carbohydrates, alkaloids, steroids, tannins, saponins etc. and hence can be used as traditional medicine. Solvent extracts of leaves was tested against pathogenic bacteria and fungi, by using Disk Diffusion method. Qualitative analysis of aqueous leaf extract was studied for the phytochemical screening. Phytochemical analysis shows the presence of steroids, phenol, saponins, tannin, flavonoids, terpanoids, carbohydrates etc. Fluorescence analysis of leaf powder was carried out. Parthenin compound was extracted from *Parthenium hysterophorus* and was tested for used for cytotoxicity activity using MBMD231, breast cancer cell line. Further studies were carried out on detection of anti-diabetic activity by two ways i.e.  $\alpha$ -amylase inhibition which showed  $75 \pm 1.04$  % activity and glucose diffusion inhibitory study showed 20% relative movement. *Parthenium* leaf extract have  $74.3 \pm 0.3$  % anti-oxidant activity using DPPH method while  $0.81 \pm 0.04$  mg of Trolox equivalent/ gram using FRAP assay. But only  $18.18 \pm 0.02$  % of anti-arthritis and  $52.72 \pm 0.018$  % thrombolytic activity. Cytotoxic assay was on MDMB231 cell line showed that parthenin have very low cytotoxicity. Anti-helminthic activity was done using *Asonia putida* earthworm. No paralysis or death of earthworm was found within 24 hours by aqueous leaf extract of *P. hysterophorus*.

#### Keywords

Anti-arthritis and thrombolytic, Anti-diabetic, Anti-oxidant, Anti-helminthic, Cytotoxicity assay, Fluorescence analysis, Parthenin.

\*\*\*\*\*

#### 1. INTRODUCTION:

*Parthenium hysterophorus* is an aggressive ubiquitous annual noxious weed. It is usually known as carrot grass, white top, congress grass, star weed, santa-maria feverfew, bitter weed. This harmful weed is frequently spotted on road sides, parks,

drainage lines, water supply canals and mostly in fields with crops. Some allergic respiratory problems, contact dermatitis, mutagenicity in humans and livestock can caused due to regular contact with this weed [1]. This weed was introduced in India as a contagion in PL 480 Wheat (Public Law 480) passed

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## 15. Title of Paper: An Explorative Study of Marketing Strategies of Agrochemical Companies: Indian Perspective



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### An explorative study of marketing strategies of agrochemical companies: Indian Perspective

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**Abstract** - It has to be mentioned that, the present paper is neither literature review nor metadata analysis but in fact it can be classified as an explorative theoretical paper employing deductive reasoning approach based on the relativism of ontology. Per hectare consumption of agrochemical companies is growing, it can be treated as positive sign to the industry. Though there is a lot of untapped market is available in industry.

The present discusses and explores the marketing strategies suitable for this industry involving explorative study of certain parameters, namely, demand for agrochemical products, capacity of production, details of consumption and marketing aspects such as price, promotion, place and products. Finally, paper offers probable strategic consideration to be adopted by industry in tabular form while marketing of agrochemical products.

**Keywords:** Indian Economy, Marketing strategies, Agrochemical companies

#### I. INTRODUCTION

Indian economy is witnessing rapid continuous growth in terms of economic activities highlighted by gross domestic products. As a thumb rule, economy is expected to be progressing by observing increasing share of service sector in entire gross domestic products (GDP). Though, agricultural activity is essential in economic sense of Indian perspective as it has been intended to satisfy very basic need of the population. But the share of agricultural and allied services into GDP of India is witnessing diminishing behavior. This aspect has been highlighted with the help of Table No. 1.1 below.

Table No. 1.1: GDP and its sectoral share (1999-2000 price)

	Agriculture and allied	Industry	Services
1950-51	55.9	14.9	29.2
1970-71	45.2	21.7	33.1
1990-91	38.1	25.9	36.0
1990-91	33.2	25.2	41.6
2006-07	20.5	24.7	54.8
2007-08	19.4	24.9	55.7

(Source: <http://www.economicdiscussion.net/indian-economy/changes-that-have-taken-place-in-the-indian-economy-after-1951/14150>)

It would be seen from the table that, since 1950-51 Indian agricultural sector has witnessed overall 36.5 per cent reduction in the GDP share. This may not be attributed to the diminishing development of agricultural activity in

India; since 1950-51 to 2002-03 agricultural output has been considerably increased<sup>1</sup>. This has been reflected from the Table No. 1.2, below.

Table No. 1.2: Per hectare agricultural productivity in India

Crops	(Kgs. per hectare)		
	1950-51	1990-91	2002-03
Rice	468	1336	1934
Wheat	463	1630	2613
Maize	547	1159	1638
Cotton	88	106	193
Sugarcane (Tones)	33	58	65
Jute	1,043	1130	2154

The table 1.2 furnishes six crops and their details to provide understanding on the statement made above. On an average, the agricultural output per hectore of land has been (near about) three times higher in the year 2002-03 as compared to the year 1950-51. There are several reasons attached for this incremental growth but role of agricultural products cannot be neglected.

In this view of matter present paper focuses its attention on the role of agro chemical companies in this achievement of growing productivity of Indian agricultural sector. Second aspect of this paper is to explore futuristic scope for the agrochemical companies in Indian agricultural sector. Finally, paper examines strategic decisions to the extent of marketing perspectives of the agrochemical companies to exploit the marketing opportunities in Indian agricultural segment.

Author Name: Dr. Jagtap S. B.

## 16. Title of Paper: A Study of Factors Influencing Marketing Strategy of Agrochemical Companies a Comparative Case Study Approach



International Journal for Research in Engineering Application & Management (IJREAM)  
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### A study of factors influencing marketing strategy of Agrochemical companies: a comparative case-study approach

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**Abstract** - The present paper has been entirely based on the primary data collected from four companies operative in Maharashtra State in the industry of agrochemicals. Agrochemical products are essentially important and having direct contact with the larger segment of Indian society that is farmers. It has been assumed that, social, economic and educational factors of the customers (in this case those are average traditional farmers) needs to be considered before lining up of marketing strategy for this kind of products which having direct impact on the health of the society. Keeping this in mind, present study puts an effort on understanding fundamental aspects of marketing strategies adopted by agrochemical industries in Pune Region. In fact, this is a part of findings, extracted from the data collected from agrochemical companies, for the purpose of doctoral research of the author and presented in the form of comparative aspects for major four companies selected randomly.

This entire study thus, can be regarded as an empirical research, investigating seven different aspects necessary for marketing strategy; such as, (a) products; (b) marketing channels; (c) methods of marketing; (d) advertisement preferences; (e) marketing challenges; (f) market coverage strategies; and (g) strategic move in marketing .

**Keywords:** Factors of Marketing, Marketing strategies, Agrochemical companies.

#### I. INTRODUCTION

In a broader way the present study has been concluded with the statement such as, full market coverage and differentiated market coverage are the major strategies for market expansions

In agrochemical industries designing marketing strategies involve major decisions considering various factors<sup>1</sup>. It has having impact of multifold parameters including government policy to culture of the customers. In current scenario marketing strategy is consider to defeat competitor and to curb its market share by adopting expansion policies. The above assumption may be assumed to be true as India has a great potential for agrochemical companies. It can be revealed from the data that, since 1950-51 Indian agricultural sector has witnessed overall 36.5 per cent reduction in the GDP share<sup>2</sup>. Thus to fetch his market potential into revenue, agrochemical companies need to design comprehensive marketing strategy. In this view of matter present study has been intended to investigate

current trends of marketing strategies in Indian agrochemical companies. The basic intention of this study is to investigate various factors impacting on decisions of the marketing strategies. Importantly need to be noted that only seven factors have been analyzed in this study.

Now, before going into the further details certain concepts need to be discussed in this section for better understanding of the research problem.

A plan of action designed to promote and sell a product or service is initially called as **marketing strategy** at very outset<sup>3</sup>. **Products** in this study have been defined as fertilizers, pesticides, herbicides and insecticides only<sup>4</sup>. **Marketing channels**<sup>5</sup> is the people, organizations, and activities necessary to transfer the ownership of goods from the point of production to the point of consumption<sup>6</sup>. It is

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<sup>3</sup> Soren W.L., El-Ansary A., Andersso E. & Couglat A. (2006) *Marketing Channels* (7th ed.), Upper Saddle Creek, NJ: Prentice-Hall

<sup>4</sup> Frazier, G. L. & Summers, J. D. 1986, *Perceptions of Inseffire Potter and Its Use*

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**Author Name: Dr. Danai-Tambhale S. D.**

## **17. Title of Paper: Effect of Storage Containers on the Percent Incidence of Aspergillus Species**

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### **EFFECT OF STORAGE CONTAINERS ON THE PERCENT INCIDENCE OF ASPERGILLUS SPECIES**

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#### **ABSTRACT:**

The aim of present study is carried out to know the effect of storage containers on the percent incidence of *Aspergillus* species. Association of different species of *Aspergillus* with the seeds has been reported to cause decrease in percent germination of seeds, seed discoloration, heating and mustiness, loss of seed weight, seed rotting, biochemical changes, production of mycotoxins, etc. Storage containers play an important role in preventing or multiplying the original seed mycoflora in stored seeds of different crops. In order to confirm the seeds were stored in irrespective containers at room temperature for the period of three months. The seeds were analysed for their load of *Aspergillus* species by using Potato Dextrose Agar plates. Different *Aspergillus* species, isolated from seeds of jowar and groundnut. The seeds of both the crops (jowar and groundnut) showed maximum incidence of *Aspergillus* species that were stored in the tin boxes followed by polythene bags while, the seeds stored in cloth bags and gunny bags yielded less number of *Aspergillus* species.

**KEY WORDS:** *Aspergillus species*, Potato Dextrose Agar, stored containers, stored seeds

#### **INTRODUCTION:**

The isolation and identification of species of *Aspergillus* for which seeds of cereals, pulses, oil seeds, etc. were collected both from fields as well as from various market places. In all 14 species of *Aspergillus* with numerous strains were isolated by using both blotter and agar medium as recommended by ISTA (1966). The species like *A. flavus*, *A. niger*, *A. ruber*, *A. fumigatus* were found to be very common on all types of seeds used for isolation. While, species like *A. sulphureus*, *A. glaucus* and *A. japonicus* exhibited their association only with the seeds of some particular crops. The number of *Aspergillus* species appeared more on storage seeds than on the freshly collected seeds. Many *Aspergillus* species on the seeds showed their association with the other moulds like species of *Alternaria*, *Dreschleria*, *Fusarium*, *Curvularia* and *Cladosporium* while, poor incidence of *Aspergillus* was noted on the seeds which showed of *Rhizoctonia*, *Syncephalostrum*, *Penicillium*, *Trichoderma* and *Chaetomium*. Seeds of most plant

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**Author Name: Dr. Danai-Tambhale S. D.**

**18. Title of Paper: Comparative Growth Pattern  
Studies of *Aspergillus* sp. On Various Solid Agar  
Media**

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**COMPARATIVE GROWTH PATTERN  
STUDIES OF *ASPERGILLUS* SPECIES ON  
VARIOUS SOLID AGAR MEDIA**

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Mahavidyalaya, Pune-411028, India.**

**Abstract:**

The aim of the present work is to study the comparative growth patterns of *Aspergillus* species grown on various solid media. In order to understand growth and physiological behaviour, all the species of *Aspergillus* were grown on the Potato Dextrose Agar, Capex's Dox Agar and Glucose Nitrate Agar solid media. This has helped to understand and classify the different group of *Aspergillus* occurring on different seeds. Regarding morphology of the colony it was found that *A. flavus* produced zonate growth on PDA and GNA and zonation was absent on CZA. While, *A. ornatus* shows zonate of growth on all the three media. Similarly all other species produced growth with zonation (smooth and uniform) irrespective of medium.

**Key Words:** *Aspergillus* species, Growth patterns, Plant seeds, Solid media

**INTRODUCTION:**

14 species of *Aspergillus* were isolated from different crops were grown on three commonly used solid media, GNA, PDA, CZA for comparative growth. A wide range of media are used for isolation of different groups of fungi that influence the vegetative growth and colony morphology, pigmentation and sporulation depending upon the composition of specific culture medium, pH, temperature, light, water availability and surrounding atmospheric gas mixture (Northolt and Bullerman, 1982; Kuhn and Ghannoum, 2003; Kumara and Rawal, 2008). Different concepts have been used by the mycologists to characterize the fungal species, out of which morphological (phenetic or phenotypic) and reproductive stages are the classic approaches and baseline of fungal taxonomy and nomenclature that are still valid (Davis, 1995; Guarro et al., 1999; Diba et al., 2007; Zain et al., 2009). It seems evident that in near future, modern molecular techniques will allow most of the pathogenic and opportunistic fungi to be connected to their corresponding sexual stages and integrated into a more natural taxonomic scheme. filamentous fungi, where significant morphological and physiological variations exist (Meletiadiis et al., 2001). Hence, the present study was undertaken to observe the influence of three different culture media on the mycelial growth, colony characters and sporulation patterns of fourteen dominant fungi isolated from stored plant seeds.

**METHODS AND MATERIALS:**

**Isolation of *Aspergilli***

**1) Collection of Seed Samples:**

The methods described by Neergaard (1973) have been adopted for the collection of seed samples. Accordingly seed samples were collected from field, store houses and market places and from farmers. A composite sample was prepared by mixing the individual sample together, preserved in cloth bags at room temperature during the studies.

**2) Detection of Seed Mycoflora:**

The procedure for blotter test and agar plate methods was followed as described by International Seed Testing Association, ISTA (1966) De Tempe (1970), Neergaard (1973) and Agarwal (1976).

**i) Blotter Test Method:**

A pair of white blotter paper of 8.5 cm diameter was jointly soaked in sterile distilled water, placed in pre-sterilized coming Petriplates of 10 cm diameter. Ten seeds per plate were placed at equal distance on the

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**19. Title of Paper: Determination of Amylase Activity of Rhizoctonia Isolated from Soybean *Glycine max* Seeds**

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**DETERMINATION OF AMYLASE ACTIVITY OF  
*RHIZOCTONIA SOLANI* ISOLATED FROM  
SOYBEAN (*GLYCINE MAX* L.) SEEDS**

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**ABSTRACT**

The present study was aimed to determine the production and activity of amylase enzyme of *Rhizoctonia solani* isolated from the soybean seed. The *R. solani* was isolated from 0.1% HgCl<sub>2</sub> treated soybean seeds. The effects of pH, temperature, incubation time, sources of carbon and nitrogen were tested in submerged fermentation process in production of amylase by *R. solani*. The production medium without addition of starch and with provision of maltose as carbon source, peptone as nitrogen source, incubated for 120 h, maintained with pH of 6.5 at 30°C, was found optimal for production of amylase by *R. solani*.

**Key words:** Amylase, Carbon, Nitrogen sources, *Rhizoctonia solani*, Soybean seeds

**INTRODUCTION**

Amylase is an important metabolic enzyme which hydrolyzes starch molecules to give diverse products including dextrin. Amylases are group of enzymes that have been found in several microorganisms including fungi (Fadel 2000). It is commercially important enzyme in the starch bioprocessing and brewing industries responsible for breakdown of starch or glycogen into simple sugar constituents. Starch-degrading amylolytic enzymes are of great significance in biotechnological applications ranging from food, fermentation, textile to paper industries (Lin et al., 1997; Pandey et al., 2000). Mass production of extracellular alpha amylase was reported by fungi like *Aspergillus awamori* (Castro et al 2010). Extracellular amylase produced by several filamentous fungi has been used in baking, detergent, paper, textile & food industry (Emmanuel & Saleh 2004; Mishra & Dadhich 2010).

With the help of new frontiers in biotechnology, the amylase application has used in many other fields. Many new areas have opened for their utilization as raw materials for the production of value added fine products (Pandey et al., 2000; 2000 a). The increasing demand from modern biotechnological industries for enzymes can fulfilled with increased survey of microorganisms producing enzymes. Different types of fungi were isolated from soybean seeds on potato dextrose agar. Further *R. solani* selected and studied for amylase production and optimization of cultural conditions also done.

**MATERIALS AND METHOD**

**Determination of seed mycoflora** (Boukhout & Robert 2003)

Different types of fungi were isolated from soybean seeds obtained from various locations by Sabouraud Glucose Agar with an antibiotic (Chloramphenicol 0.1 g l<sup>-1</sup>) after surface sterilization by HgCl<sub>2</sub>. The fungus, *Rhizoctonia solani* was selected for further study.

**Chemicals**

All analytical reagents and media components were purchased from Hi-Media (Pune, India) and Sigma chemicals (Pune, India).

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Author Name: Dr. Giramkar S. V.

## 20. Title of Paper: Recycling of Solid Waste By Vermicomposting In Campus Of B. G. College, Sangvi, Pune (M/S), India

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### Recycling Of Solid Waste By Vermicomposting In Campus Of B. G. College, Sangvi, Pune (M/S), India.

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**Abstract:** Solid waste management has become one of the biggest problems in urban areas. Improper dumping and fire to solid waste mainly cause water, soil and air pollution. Vermicomposting is one of the recycling technologies which is time reducing and effective process accelerating the composting of solid waste. The species of earthworm used in present study was *Eudrilus eugeniae*. Two separate beds were made in the college campus. One bed was used for semi composting of solid waste and other main bed was used for actual vermicomposting purpose. Solid waste generated in college campus was recycled by vermicomposting. Vermicompost was prepared and used as bio-fertilizer to garden plants.

**Key words:** Solid waste, Recycling, Vermicomposting, B. G. College Sangvi.

#### I. INTRODUCTION:

The biodegradable solid wastes are generated in college campus includes garden waste, canteen waste, papers waste etc. Generally compost pits are constructed in the backyard of many colleges. These composting pits produces long time odour, flies, flies and rodents along with a threat of infiltration of nitrate and other contaminants to groundwater (Primo et al., 2009; Sawyer, 1978). Normal process of composting is long lasting may causes health issues in society. Many methods are available for degradation of the solid wastes but these methods can make hazard to public health and create environmental problems by emission of various pollutants in air, water and soil. Thus vermicomposting is considered for degradation of solid waste generated in college campus because it is the time reducing and effective process to accelerate the composting of solid waste (Abbasi, T., et al 2009). Three top ways in the solid waste management were applied in the college campus i.e. Reduce, Reuse and Recycle. The recycling of organic solid waste is considered in present study.

Vermicomposting technology is world widely used for solid waste management. It is the bioconversion of organic waste into a bio-fertilizer by the action of earthworms (Manyuchi, M .M et.al. 2013). The earthworms feed on the organic waste and the gut of earthworms acts as a bioreactor whereby the vermicast are produced [Ansari, A. et. al. 2010].

#### II. MATERIAL AND METHODS:

The species of earthworm used in present study was *Eudrilus eugeniae* (Ritu Nagar et.al. 2017). Two separate beds (5 X 3 X 3 feet length, width and depth respectively) were made (Niño A. et.al. 2015) in the south west corner of college campus (Baburaoji Gholap College (18°34'37.6"N 73°48'33.6"E). One bed was used for semi composting of solid waste and other main bed was used for actual vermicomposting purpose. Both the beds had one common brick wall for easy shifting of semi decomposed waste into the vermicomposting bed (Fig: 1). Floor of the beds were made by cement plasters to prevent leakage of water. The composting bed was layered with 4 inch brickbats, 3 inch coarse gravels, 4 inch coconut coir and 4 inch biodegradable campus solid waste including small pieces of garden waste, small pieces of papers, canteen waste etc. and covered with the slurry of 50 kg fresh cow dung treated with *Trichoderma* culture. Agitated after every 3 days for aeration and watered to maintain moisture. It was allowed for further degradation. After 20 -25 days of semi decomposed waste was shifted in vermicomposting bed.

The vermicomposting bed was made ready with layering of 4 inch brickbats, 3 inch coarse gravels (Fig: 2), 4 inch coconut coir and 4 inch semi-decomposed waste taken from the composting bed, 6 inch treated aerobic bedding, 2kg of *Eudrilus eugeniae* species of Earthworms (Fig: 3), covered with the slurry of 100 kg fresh cow dung. Watering of all above layers had been done. (Fig: 4). The vermicomposting tanks was covered with wet jute cloth to maintain the moisture. The vermicomposting bed was covered with wiremesh lid to protect from rats, bandicoots, birds, cats, dogs and other animals. Proper fabricated shed was made on above the tanks to protect it from heavy rainfall and sunlight (Fig: 1). The outlet pipe of vermicomposting bed was covered with wire-mesh lid to prevent the entry of rats and bandicoots. Daily water was sprayed on vermicomposting bed to keep moisture. Aerobic condition was maintained in both the beds throughout the study by providing 5mm diameter holes at 100mm c/c spacing all along the width and the length of walls of the beds. The vermicompost bed was covered with wet gunny bags to to provide darkness and earthworms were allowed to settle on bottom. The vermicomposting bed was kept undisturbed till the surface appears black and granular, it indicated process almost completed. Watering was stopped before one week of harvesting. The top layer of granular vermicompost was collected without disturbing bottom layer (Fig: 5). Collected vermicompost was sieved to get fine and uniform vermicompost (Ritu Nagar et.al. 2017). The nutrient composition of collected vermicompost was tested in the laboratory and used as bio-fertilizer to garden plants (Fig: 6).

Author Name: Dr. Giramkar S. V.

## 21. Title of Paper: Sustainability of Water Bodies In And Around Sangli-Miraj-Kupwad Industrial Area – A Review

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### Sustainability Of Water Bodies In And Around Sangli-Miraj-Kupwad Industrial Area – A Review.

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**Abstract:** Present case study was emphasized on the availability of the water bodies in the study area. The initial sampling of water bodies shows that 86% of samples have excessive turbidity and 48% have excessive total dissolved solids (TDS). The accumulated aquatic weeds, depleted oxygen in water bodies and day by day decreasing quantity of fishes in aquatic ecosystems of study area clearly indicates that water has been polluted. The initial survey was carried out to assess the impact of drinking water quality. It was observed that people complained about hair fall, premature graying of hairs, yellowish teeth, typhoid, joint pain, diarrhea and constipation, which were major diseases prevailing in the study area. Further detail study is required to find out exact cause, effect and remedy on disturbed aquatic ecosystem.

**Key words:** Sustainable water bodies, Sangli-Miraj-Kupwad industrial area, human health.

#### 1. INTRODUCTION

The improper disposal of industrial effluents is a major problem even when these are technologically handled for particular standards. These effluents are not always passed with pretreatment and with applicable toxic-pollutant-effluent limitations or prohibitions. The consequence of these improperly treated effluents is a high degree of environmental pollution, leading to serious health hazards (Okereke et al., 2016).

Natural water sources are exposed to contamination with faecally-contaminated items. Water from these sources are not usually treated at all or treated insufficiently to ensure acceptability according to international guidelines (WHO, 1983). Natural waters are therefore never pure; and as water being a universal solvent it dissolves many chemical substances and carries many impurities in suspension (WHO, 1998). A large proportion of the rural population in the developing world takes water from natural sources directly for drinking (Okereke & Nnoli, 2010).

This paper is aimed at reviewing the environmental impacts of untreated or inadequately treated industrial wastewater effluents in Miraj MIDC area.

Concentration of water samples of wells (bore well and dug well) from Kupwad MIDC region and Miraj MIDC region are exceeding BIS Standard limits for EC, TDS, chloride, sulphate, BOD, COD, Copper, Mercury, Lead, Arsenic. Surface industrial drain shows high TDS, Sulphates, BOD, COD, Ferrous, Lead, Total hardness values. The contaminants from industrial effluent further on percolation in soil may mix with the ground water aquifer causing contamination of ground water (Pawar P.R. et al., 2015). Ground water quality of Sangli-Miraj-Kupwad industrial area shows exceeding concentration of Sodium, Chloride, Nitrate, DS and heavy metals (like mercury, lead, cadmium and Arsenic) than the standard limits. The correlation analysis results shows that EC and TDS are highly correlate with DS, magnesium and chloride. The regression method for analysis of ground water quality for Sangli Miraj Kupwad Industrial area is shown in the form of mathematical equation between EC and TDS, TDS and Chloride in and Ferrous and Mercury. (Sadamate et al. 2015). Comparison of Physico-chemical parameters of groundwater under study with pH, conductivity, TDS, total alkalinity, total hardness, Calcium hardness, Chloride, Nitrate, Sulphate, Phosphate, DO, free CO<sub>2</sub> for March 2012 and March 2017 reveals that the groundwater quality of Savali village nearby Kupwad MIDC is slowly declining, mainly due to industrial effluent, which is percolated through ground and proper waste water management by the industries is the only solution to avoid future water pollution disaster (Kupwade R. 2017).

Collected water samples from specified location of Krishna river like Sangli city, Miraj city, Bhillwadi, Walwa, Bahe and analyzed for various physicochemical properties. It has been observed that water in River Krishna is highly polluted and it is unfit for drinking purposes (Patil M. V. et al., 2015). Groundwater samples from Sangli-Miraj Kupwad Industrial Area MIDC, Maharashtra, India were collected from 17 different borewells and analyzed for various parameters. It was observed that mercury content was exceeding limit at some sampling points and Dissolved Solids (DS) exceeding limit at all sampling points (Jadhav V.B. et al., 2017). There is mixing of domestic and industrial effluent in Miraj MIDC area, which results into dilution of industrial effluent to extent and hence proper treatment of industrial effluent does not take place (MITRA 2014).

#### Current status of Krishna river pollution:

Discharge of untreated 5 Crore 65 liters of sewage and one Crore litres of effluent everyday from Sangli-Kupwad city and nearby villages into river Krishna which depletes the dissolved gases from water body resulting into death of fishes. Hazardous chemical containing effluent enters into water body and kills useful bacteria from water (Feb 2018 Loksetta)

**Author Name: Prof. Waghmode M. S.**

**22. Title of Paper: In Vitro Activities of *Lawsonia inermis* L. (Henna) Leaves Extract**



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Research Article | Biological Sciences | Open Access | MCI Approved

UGC Approved Journal

***In Vitro* Activities of *Lawsonia inermis* L. (Henna) Leaves Extract**

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**Abstract**

*Lawsonia inermis* (henna) is the medicinal plant. The study has been done to evaluate the preliminary phytochemical, proximate analysis and the bioactive potential of *L. inermis*. Phytochemicals viz., flavonoids of flavonoid, phenol, steroids, resins, tannins and carbohydrates were found to be present. Thin layer chromatography was also done for the phytochemical analysis. Total phenol content by using Folin-Ciocalteu reagent and total flavonoid content were determined by using Woisky and Salatino method. Phenol and flavonoid content found to be 1158mg/g and 322.5mg/g respectively. In fluorescent analysis acetone, ethanol, methanol, glacial acetic acid, chloroform, diethyl ether, petroleum ether and benzene gave characteristics red fluorescence under long UV<sub>365</sub> nm. Methanol extract of henna leaves found to have antimicrobial activity against *Pseudomonas aeruginosa* and *Bacillus subtilis* using disc and well diffusion method. Extract was used to evaluate antiarthritic potential. In which soxhlet water extract showed remarkable inhibition of protein denaturation and was found to be 71.41 ± 0.01. In thrombolytic activity aqueous extract was found to be significant which showed maximum about 52.62 ± 0.017 of clot lysis. The free radical scavenging by DPPH method of methanolic extract of henna leaves showed 71.7 ± 0.02 antioxidant activity. The soxhlet methanol extract of henna leaves showed 1101 ± 0.02 µg/ml antioxidant activity.

**Keywords**

Anti-arthritis, antidiabetic, antioxidant, Bioautography, *Lawsonia inermis*, phytochemical, proximate analysis, Thin Layer Chromatography.

\*\*\*\*\*

**1. INTRODUCTION:**

*Lawsonia inermis* L. belongs to Lythraceae family is commonly called as Henna. It is a medicinal plant and also a popular dye plant [24]. *Lawsonia inermis* is a shrub mainly found in Asian origin and also in warm temperature regions [31]. Since a long time, henna has been used as herbal dye to color hands, nail, feet etc. For this coloring purpose the leaves of henna are mainly utilized. It is also used as deodorant, excellent conditioning agent and also used as an ingredient in

shampoos, hair dyes and rinses [31]. The dye is also used in staining leather hides in various industry and also important in commercial uses.

*L. inermis* also shows medicinal application, it is used as an astringent, anti-hemorrhagic, intestinal antineoplastic activity, cardio-inhibitor, hypotensive, sedative and anti-inflammatory [31]. It is also used against amoebiasis, soothe fevers, nervous disorder, hysteria and also leprosy [31]. The lower concentration of plant leaves used for body pain, skin

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**Author Name: Prof. Dr. Patil N. N.**

**23. Title of Paper: Synthesis of Silver Nanoparticles and Phytochemical Analysis of *Benincasa hispida* Peel Extract**



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UGC Approved Journal

**Synthesis of Silver Nanoparticles and Phytochemical Analysis of *Benincasa hispida* Peel Extract**

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Received: 14 Mar 2019 / Accepted: 12 Apr 2019 / Published online: 1 Jul 2019  
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**Abstract**

*Benincasa hispida* is a member of family cucurbitaceae it has nutritional and medicinal properties. *Benincasa hispida* is considered as one of the sacred fruit in India. This fruit found to have wide applications. Current research was carried out on the evaluation of *in vitro* activities and silver nanoparticle synthesis of *Benincasa hispida* peel extract. The phytoconstituents of *Benincasa hispida* fruit peel includes alkaloids, steroids, resin and vitamins. *Benincasa hispida* fruit peel gives red florescence at 365nm (under long UV) in Benzene, Diethyl ether, Chloroform, Ethanol and acetone. Proximate analysis which includes ash value, moisture content, extractive values, total solid content and crude fiber content of fruit peel powder was determined. The pharmacological activities such as anti-arthritis, thrombolytic, anti-oxidant, anti-diabetic showed high economic value of fruit peel. The extract was found to have antifungal activity against *Trichophyton* spp., fungi responsible for athlete's foot infection. Herbal soap was prepared using *Benincasa hispida* peel extract found to be effective for the treatment of athlete's foot infection. Green synthesis of silver nanoparticles using peel extract of *Benincasa hispida* is a rapid and ecofriendly method. The characterization of silver nanoparticles, was done using FTIR, SEM, XRD, and UV-Visible spectrophotometer. The silver nanoparticles found to have maximum absorbance at 350nm and the size of nanoparticles found to be in the range 28-38nm with irregular shape. Antifungal activity against *Trichophyton* sp. (Causing Athletes foot infection) showed by silver nanoparticles. The H<sub>2</sub>O<sub>2</sub> detecting ability of silver nanoparticles was found.

**Keywords**

*Benincasa hispida* peel, fluorescence analysis, H<sub>2</sub>O<sub>2</sub> detection, pharmacological activities, phytochemicals, proximate analysis, Silver nanoparticles.

\*\*\*\*\*

**1. INTRODUCTION:**

*Benincasa hispida* (synonym: *Benincasa cerifera*) [1] which commonly called as (winter melon, ash gourd,

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[www.ijpbs.com](http://www.ijpbs.com) or [www.ijpbsonline.com](http://www.ijpbsonline.com)

Author Name: Prof. Waghmode M. S.

24. Title of Paper: Formulation of Antidandruff Shampoo by Using Fermented Product of *Cajanus cajan*



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Research Article | Biological Sciences | Open Access | MCI Approved  
UGC Approved Journal

## Formulation of Antidandruff Shampoo by Using Fermented Product of *Cajanus cajan*

Gupta Kajal S.<sup>1</sup>, Bhadale Shraddha S.<sup>1</sup>, Wagh Tejaswini U.<sup>1</sup>, Patil Neha N<sup>1</sup> and Waghmode Meghmala S.<sup>1\*</sup>  
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Received: 14 Mar 2019 / Accepted: 12 Apr 2019 / Published online: 1 Jul 2019  
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### Abstract

Dandruff is the common problem of people. The aim of this study was to isolate dandruff causing microorganism, testing the efficacy of fermented product of *Cajanus cajan* against pathogens using and formulation of antidandruff shampoo. The dandruff causing isolates were identified as *Rhodotorulla*, *Cladosporium*, *Rhizopus*, *Acinetobacter*, *Streptococcus*, *Aspergillus fumigates*, *Fusarium oxysporium* and *Malassezia*. Among them *Malassezia* is one of the main causative agent for dandruff, which was isolated on international medical university – *Malassezia furfur* (IMU-Mf). Fermented product of *Cajanus cajan* showed more antimicrobial activity against *Malassezia* spp., *Fusarium oxysporium*, *Aspergillus fumigates* and *Rhodotorulla*. The genera of *Staphylococcus* and *Lactobacillus* were found to be associated with the fermentation of *Cajanus cajan*. Fermented product was tested for total protein content, vitamin B<sub>1</sub>, vitamin B<sub>2</sub>, vitamin B<sub>3</sub>, vitamin C and amino acids content. Fermented product contains all the essential nutrients required for hair growth; hence it was used for the formulation of shampoo, which will not only reduce dandruff but also encourages hair growth.

### Keywords

Antidandruff shampoo, *Cajanus cajan*, dandruff causing microorganism, fermentation, *Malassezia*.

\*\*\*\*\*

### 1.0 INTRODUCTION

Dandruff is a skin condition that mainly affects the scalp. Dandruff is a common chronic scalp condition marked by flaking of the skin on scalp. In order to clean the scalp, remove dandruff and oil from scalp it is necessary to wash hair by using shampoo.

In market, most of commercial shampoos are available which causes scalp problem, allergy, hair loss, irritation. Another leading cause of dandruff problem is abundance of *Malassezia* species, affects sensitive skin and causes scalp irritation. *Malassezia globosa* is naturally present on scalp. During

dandruff, the level of *Malassezia* spp. increased by 1.5 to 2 times its normal level. It feed on sebum and releases oleic acid. Some people are sensitive to oleic acid. It penetrates in skin and causes inflammation and in response to inflammation, the skin shed large number of skin cells in higher rate. This cells then join together in white flakes this causes dandruff. *Rhodotorula*, *Acinetobacter*, *Streptococci*, *Propionibacterium*, *Cladosporium*, *Aspergillus* etc, are also responsible for dandruff problem. So, to deal with this dandruff problem, in India fermented product was used since ancient times. Asian women

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Waghmode Meghmala S<sup>\*</sup> et al 282

[www.ijpbs.com](http://www.ijpbs.com) or [www.ijpbsonline.com](http://www.ijpbsonline.com)

**Author Name: Dr. Mulay P. P.**

**25. Title of Paper: Role of ICT in Student Assessment**

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AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

**5. Role of Information and Communication Technology (ICT) in Students Assessment**

**Dr. P.P. Mulay**

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A. M. College, (SPPU Pune), Maharashtra, India.



**Abstract**

Assessment plays a major role in how students learn, their motivation to learn, and how teachers teach. Assessment should be supportive and appropriately balanced to cater student's learning process. Technology based assessment assist understanding and optimizing learning process. Information and Communication Technology has facilitated computer based evaluation. Computer Adaptive Tests (CAT) which are based on Item Response Theory (IRT) are the products of advancement in ICT which allows personalized assessment. Enhanced Question Types, Real-Time Feedback, Increased Accessibility, Estimation of learners Ability and Knowledge can be achieved through ICT enabled assessment. In India there is bright future for the ICT based education system provided that digital divide should be taken care of. ICT based assessment is at primary stage and yet to pickup pace.

**Keywords:** ICT, Assessment, Teaching and Learning, CAT, CAA

**1. Introduction**

Teaching, Learning and Evaluation are the main attributes of the education system. Good Performance of the student in the Evaluation or Assessment is the ultimate goal of the Teaching and Learning process. In view of the fact that the learners learn at different paces, there is no reason, other than administrative convenience, to test them at a certain fixed interval in all courses simultaneously. Now days there are enormous methods of assessment are used worldwide. These methods are designed to measure the relevance of the different Learning processes and the final product of the Learning process. In India also there is an emphasis on continuous and comprehensive evaluation of students' learning.

Advancement in Information and Communication Technology (ICT) has reformed not only Teaching and Learning process but also Evaluation process. ICT has influenced evaluation

**Author Name: Prof. Jagdale M. N.**

**26. Title of Paper: Paradigm Shift in Education in India: Journey from Gurukul to E-Learning**


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SANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

**17. Paradigm Shift in Education in India: Journey from Gurukul to E-Learning**

**Prof. Smt. Jagdale M. N.**  
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Assistant Professor, Annasaheb Magar College.

**Dr. Mulay P. P.**  
Assistant Professor, Annasaheb Magar College.



**Abstract**  
The education system has changed the way of learning from ancient Gurukul to the present e-Learning system. There has been a gradual transition in education system from the traditional method of teaching and learning, to e-Learning. The changing method of learning from classroom to virtual class room and black board to smart board has booned in education system. Now days Learning Management System is being used in some of higher educational institutions in India. e-Learning initiatives by the government are a great step towards encouraging ICT in education.

**Key words:** Gurukul, e-Learning, ICT, LMS, Education.

**Introduction**  
Education is very important for social political and economic development of any nation. It is thus necessary to have effective teaching which will help the children to progress. They should be provided the right guidance (atmosphere) so that they can learn independently. Effective refers to bringing out the best in students. With the advent of modern technology e-learning has become a new trend in teaching, but its effectiveness still remains a question. This paper is an attempt to study the change in the education system from the Gurukul times to this modern era of e-Learning.

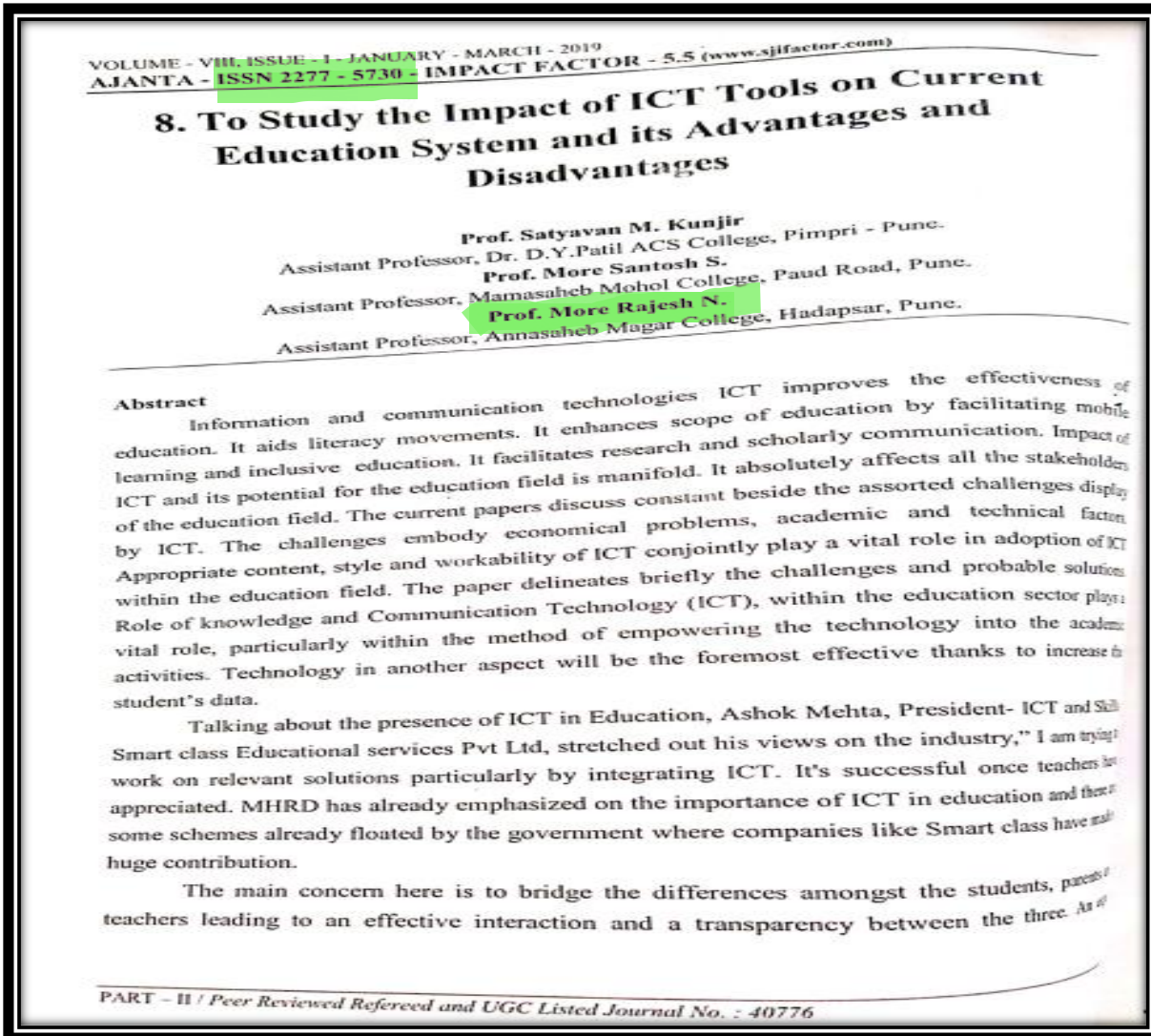
**Concept of Education**  
According to Scholars the word "Education" has been derived from the Latin term "Educatum" which means the act of teaching or training.

According to some educationists it has been derived from another Latin word "Educare" which means "to bring up" or "to raise".[1]

SANTA - 1 / Peer Reviewed / Refereed and UGC Listed Journal No. : 40776 105

**Author Name: Prof. More R. N.**

**27. Title of Paper: To study the Impact of ICT tools on Current Education System and its Advantage and Disadvantage**





**Author: Prof. Syakar S. J.**

**28. Title of Paper: Use of ICT in Teaching Learning and Evaluation with Special Reference to SPPUA study**

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AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)


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**18. Use of ICT in Teaching, Learning and Evaluation with Special Reference to SPPU - A Study**

**Sunita J. Saykar**  
Asst. Prof., A.M College, Hadapsar, Pune.

**Vinita B. Kadlag**  
Asst. Prof., A.M College, Hadapsar, Pune.

**Dr. Prashant P. Mulay**  
Asst. Prof., A.M College, Hadapsar, Pune.



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**Abstract**

Use of ICT in Teaching, Learning and Evaluation has changed the focus of education from teaching to learning. It has enhanced the quality of education and made it student centric. ICT provides the knowledge to the students 24 X 7. In India advancement in technology has gave boost to the usage of ICT in education. Central and State governments have taken various initiatives to facilitate ICT based education.

Savitribai Phule Pune University (SPPU) also taking active part in implementation of ICT. It has made available e-resources to the students. SPPU has also taken initiative in assessment process. Some of the entrance as well as practical examination are conducted online. Examination management is one of the major part of evaluation process in which SPPU has done creditable work.

**Keywords:** Teaching, Learning, Evaluation, Information and Communication Technology.

**Introduction**

ICT Stands for "Information and Communication Technologies," that provide access to information through telecommunications. It is similar to Information Technology (IT), but it mainly focuses on communication technologies, telecommunication technologies such as the satellite, the cable, mobile phones radio and TV, digital technologies such as computer, internet.

ICT in education is the mode of education that uses information and communications technology to support, enhance, and optimize the actual information. it improved student learning and better teaching methods. ICT has changed the role of the teacher from disseminator of information to learning facilitator; it helps students as they actively engage with information and data to reconstruct their own understandings. It enhances the quality of education and

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PART - 1 / Peer Reviewed Refereed and UGC Listed Journal No. : 40776 111

**Author Name: Dr. Nimbalkar A. B.**

## **29. Title of Paper: Analysis of Data Mining Classification Based Algorithms in Health Care Sector**

<b>RJSET</b>	<b>Volume 9 Issue 3 [Year 2019]</b>	<b>ISSN 2454-3195 (online)</b>
<b>Analysis of Data Mining Classification Based Algorithms in health care sector</b>		
		<b>Dr. Mrs. Y. V. Bhapkar</b> <i>Asst. Professor, Yashwantrao Mohite College of Arts, Science and Commerce Pune 38</i>
		<b>Dr. A. B. Nimbalkar</b> <i>Asst. Professor, Annasaheb Magar College Pune 28</i>
<hr/>		
<b>Abstract</b>		
<p>Data Mining is a way towards analyzing data findings covered up or obscure examples in extremely large datasets that are possibly helpful and logical. The objective of data mining is to extract meaningful data from tremendous informational repositories. Data mining provides different views and summary operations into useful information. Data mining is the process of discovering hidden or unknown patterns from the huge datasets, these patterns are potentially valuable and eventually understandable. The goal of data mining is to develop an understandable and structured model by applying different data mining techniques for future use. These techniques are based on statistics, machine learning and database management theory. Data mining plays important role in all the domains including science, commerce, health care industries, marketing, banking, telecommunication, government organizations, agriculture, educational sectors, weather forecasting, web applications and many more. This study is based on data mining case study in health care sector. In this sector data mining plays important role to predict a disease at early stage for future diagnosis. The main objective of this study is to predict diabetes depending on few given attributes. Diabetes is a unceasing disease caused due to the increased level of sugar in the blood. Various automated information systems were developed which utilizes the various classifiers to anticipate and diagnose the diabetes. In this case body does not properly process food for use as energy. The pancreas, make a hormone called insulin to help glucose get into the cell of our bodies. If diabetes is not processed and disclosed at earlier stage then many complications may occur. Early diagnosis can save individual's life and can manage over the diseases. Diabetics identifying processes results in visiting of a patient to a diagnostic center and consulting doctor. Using machine learning approaches we may solves this problem. The motive of this study is to design a model which can predict the likelihood of diabetes in various patients with maximum accuracy. We have proposed the use of Naïve Bayes, J48, Random forest and Multi layer perseptron classifiers for developing diabetics detection models. And then compared the models for the best accuracy.</p>		
<b>Keywords</b> Data Mining, Naive Bayes, Multilayer perseptron, Decision Tree J48, Random Forest.		
<hr/>		
<b>I. INTRODUCTION</b>		
<p>The two most important techniques in data mining are Classification and Clustering, that are often called as supervised and unsupervised learning technique respectively. Supervised learning is the machine learning task of learning a function from labeled training datasets consisting of a set of training examples, that consists of input-output pairs, this function or a rule maps an input to desired output.</p> <p>Classification is the data mining method to develop a set of models that describe and distinguish data classes and concepts, for the reason of being able to use the model to predict the class membership whose label is unknown. Classification is a two step process, first, it build</p>		
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<b>RESEARCH JOURNAL OF SCIENCE ENGINEERING AND TECHNOLOGY</b>		
<b>www.rjset.com</b>		<b>Page 6</b>

**Author Name: Dr. Nimbalkar A. B.**

**30. Title of Paper: An implementation and Security Analysis of Swati Verma's Digital Signature Scheme for very large Prime Numbers National**

© 2018 IJRAR January 2019, Volume 06, Issue 1 (E-ISSN 2348-1269, P-ISSN 2349-5138) *UGC Approved Journal 2017 5-87*  
www.ijrar.org

## An implementation and Security Analysis of Swati Varma's Digital Signature Schemes for very large prime numbers.

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**Abstract—**  
A Digital Signature is a cryptographic method used to identify individual, process, computer system, or any other entity. It is much the same way as a handwritten signature verifies the identity of a person. Digital signatures use the properties of asymmetric key cryptography to produce small information that verify the origin of the data. There are various digital signature schemes have been proposed which uses the factorization, discrete logarithm and elliptical curve problems. We analysis the Swati Varma and Birendra Kumar Sharma digital signature scheme which combines both hard problems factorization and discrete logarithm. So it is difficult for solving two hard problems from the hackers point of view. This paper presents the Implementation of Swati Varma Digital Signature Scheme for large Prime number, probably more than 500 digit long. same, with the help of different tools and further analyzes them from different attacks perceptions.

**Keywords**  
Cryptography, Digital Signature, Integer Factoring, Discrete Logarithm.

### 1. INTRODUCTION

Now-a-days, internet is widely used for communication and business purpose. We require security and trust when we deal with E-Commerce. In this communication, the person may be unknown or we don't have document to prove his identity. To achieve the security and trust the Digital Signature is used. It is a mathematical scheme for achieving the authenticity of digital documents; it is also known as electronic signature.

Digital signatures employ public key cryptography. The complexity of any cryptographic algorithm is based on solving hard problem. The conventional cryptographic algorithms are either based on integer factorization or discrete logarithm. Most of the existing digital signatures are based on single hard problem like factoring, discrete logarithm, residuosity or elliptical curve cryptography. Although these schemes are secure, in near future if an adversary manages to solve this problem.

The Digital Signature is divided into three phases. First is- Key generation or Initializations phase. It includes the choice of two large prime numbers and generation of public and private keys. Second phase is signature generation in which messages, keys and modular arithmetic are used to form the signature. The third phase is signature verification, where the message is verified against the original message using the verification equation, if equation holds then verifier believes that message is indeed an authenticated message else message is considered to be altered.

We have analyzed and implement the Swati Varma's Signature scheme, which based on Two Hard Problems that are integer factorization and discrete logarithm. As day by day Computing power of machines are increasing. So it is possible to break the signature for small prime numbers, so we are

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**Author Name: Dr. Nimbalkar A. B.**

**31. Title of Paper: Role of ICT in Student Assessment**

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AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

**5. Role of Information and Communication  
Technology (ICT) in Students Assessment**

**Dr. P.P. Mulay**  
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**Author Name: Prof. Gadekar M.J**

**32. Title of Paper: Paradigm Shift in Education in India: Journey from Gurukul to ELearning**


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SJIFACTOR - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

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**Concept of Education**  
According to Scholars the word "Education" has been derived from the Latin term "Educatum" which means the act of teaching or training.  
According to some educationists it has been derived from another Latin word "Educare" which means "to bring up" or "to raise".[1]

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**Author: Prof. Kadlag V.**

**33. Title of Paper: Use of ICT in Teaching Learning and Evaluation with Special Reference to SPPUA study**

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AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)


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**18. Use of ICT in Teaching, Learning and Evaluation with Special Reference to SPPU - A Study**

**Sunita J. Saykar**  
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**Dr. Prashant P. Mulay**  
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**Abstract**

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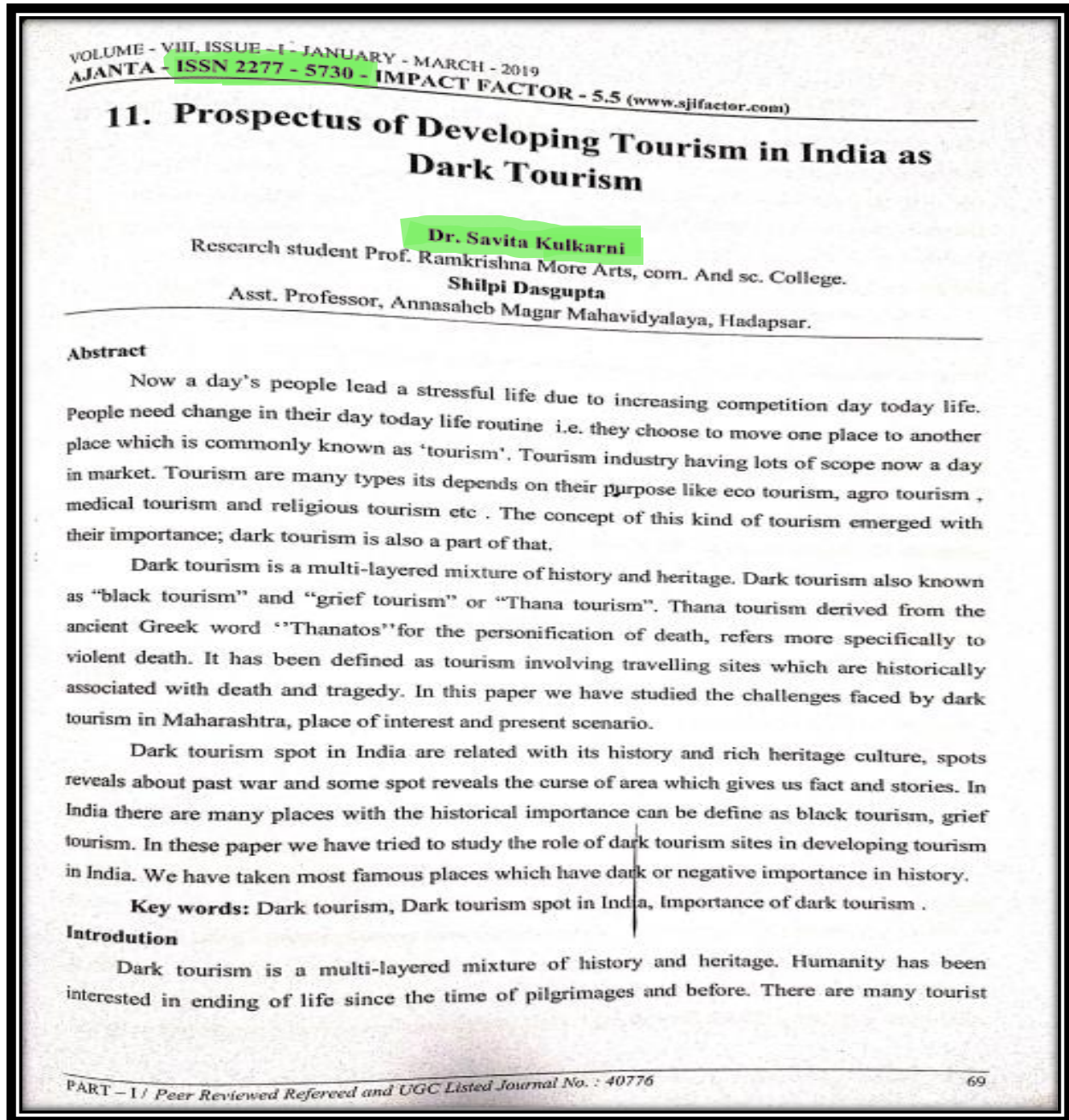
ICT in education is the mode of education that uses information and communications technology to support, enhance, and optimize the actual information. it improved student learning and better teaching methods. ICT has changed the role of the teacher from disseminator of information to learning facilitator; it helps students as they actively engage with information and data to reconstruct their own understandings. It enhances the quality of education and

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PART - 1 / Peer Reviewed Refereed and UGC Listed Journal No. : 40776 111

**Author Name: Dr. Kulkarni S. S.**

**34. Title of Paper: Prospectus of Developing Tourism in India as Dark Tourism**



Author Name: Dr. Nikam L. K.

# 35 Title of Paper: Fragmented Lignin-Assisted Synthesis of a Hierarchical ZnO Nanostructure for Ammonia Gas Sensing

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## Fragmented lignin-assisted synthesis of a hierarchical ZnO nanostructure for ammonia gas sensing†

Kanchan M. Joshi,<sup>ab</sup> Dnyaneshwar R. Shinde,<sup>a</sup> Latesh K. Nikam,<sup>b</sup> Rajendra Panmand,<sup>c</sup> Yogesh A. Sethi,<sup>c</sup> Bharat B. Kale<sup>a,c</sup> and Manohar G. Chaskar<sup>a,d</sup>

In the present study, we demonstrated the use of fragmented lignin in the synthesis of a hierarchical-type structure of ZnO nanorods. Lignin was isolated from bagasse by the microwave assisted method and its fragmentation was achieved in alkaline conditions along with hydrogen peroxide. Lignin and fragmented lignin were purified by crystallisation followed by column chromatography and characterized by UV-visible spectroscopy, Frontier infra-red spectroscopy (FTIR), <sup>1</sup>H-NMR and high resolution mass spectroscopy (HRMS). Fragmented lignin was utilized as a template for the synthesis of ZnO nanorods, which were characterized by powder XRD, scanning electron microscopy (SEM), transmission electron microscopy (TEM), and UV-DRS for the determination of crystal structure, particle morphology and band gap. XRD of the ZnO samples revealed a hexagonal wurtzite structure. The morphology of ZnO without fragmented lignin showed agglomerated nanoparticles and with fragmented lignin, a self-assembled hierarchical nanostructure due to nanorods of 30 nm diameter and 200–500 nm length was observed. The fragmented lignin showed a pronounced effect on the particle size and morphology of ZnO nanoparticles. We measured the response of the hierarchical ZnO nanostructure (50 ppm) for sensing NH<sub>3</sub> in terms of change in voltage across known resistance. We observed the response and recovery upon introduction of the analyte ammonia gas at 175 °C.

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rsc.li/rsc-advances

### 1. Introduction

Lignin is a biopolymer found in the cell wall of plants. It is an amorphous three-dimensional substance with a high molecular weight.<sup>1</sup> It is difficult to determine the molecular weight of lignin because it is a highly polydisperse material. Phenylpropane is the basic unit in the three-dimensional network of a lignin polymer. It is one of the main components of the lignocellulosic biomass of plants.<sup>2</sup> Biomass is a natural source of lignin.<sup>3</sup> In industries, most bio-based chemicals are produced from aliphatic and cycloaliphatic materials, which are derived from cellulose, starch, or triglycerides. However, the key chemicals are the aromatic compounds and they are derived from petroleum components. Lignocelluloses constitute 70% of the total plant biomass present on the earth with a yearly production of 200.10 tons. Lignin is nontoxic and economical.<sup>4</sup> Lignocellulosic feedstock includes straw, switch grass, hybrid poplar, corn stover, agricultural residues, forestry residues, paper and municipal wastes.<sup>5</sup> Lignocellulosic materials are another nominally valuable source of aromatic compounds. The structure of lignin is based on phenylpropane units; however, the presence of lignin as lignocellulose is a major impediment for fermentation. There are three general methods to fractionate biomass. The first method involves extracting lignin at a high pressure and high temperature with dioxane and 1% alkali, which is then separated out as a cellulose-rich pulp. In the presence of dioxane and 1% alkali, the core of lignin structure cannot be changed.<sup>6</sup> The second method involves depolymerisation of the lignocellulose structure and the third method includes the dissolution of cellulose followed by re-precipitation of lignin using ionic solvents. The ionic solvent 1-ethyl-3-methylimidazolium xylenesulfonate produced 93% extraction yield and the weight of the acetylated product was found to be 2220 g mol<sup>-1</sup>.<sup>7</sup> With alkali and peracetic acid, it simultaneously undergoes saccharification and fermentation, which gives two types of lignins: alkali lignin and PAA lignin.<sup>8</sup> Extraction of lignin with alkali gives a product with high oxygen content, which is a natural source of antioxidants.<sup>9</sup> Using another ionic solvent 1-butyl-3-methylimidazolium chloride gives 10.51% of lignin from 54.62% of original lignin of plant biomass.<sup>10</sup>

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† Electronic supplementary information (ESI) available. See DOI: 10.1039/c8ra05814a

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Author Name: Dr. Nikam L. K.

## 36. Title of Paper: Paper Templated Synthesis of Nanostructured Cu–ZnO and its Enhanced Photocatalytic Activity Under Sunlight

Journal of Materials Science: Materials in Electronics  
https://doi.org/10.1007/s10854-019-01020-w



### Paper templated synthesis of nanostructured Cu–ZnO and its enhanced photocatalytic activity under sunlight

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**Abstract**  
Cu-doped zinc oxide (Cu–ZnO) nanostructure was prepared using Whatman filter paper as a template by combustion method. For the synthesis of porous Cu–ZnO nanostructures the stoichiometric amount of precursors were impregnated in the filter papers and processed, thermally. The formation of wurtzite phase having crystallite size in the range of 20–24 nm was confirmed by X-ray diffraction (XRD) analysis. The morphological study by field emission scanning electron microscopy (FESEM) and field emission transmission electron microscopy (FETEM) shows size of nanoparticles in the range of 25–50 nm. The optical study shows red shift i.e. extended absorbance in the visible region due to Cu doping. The photoluminescence study of Cu–ZnO results quenching in the photoluminescence peak as effect of Cu doping in ZnO lattice. Considering the extended band gap in the visible region of as synthesized Cu–ZnO, the photocatalytic dye degradation activity of methylene blue (MB) was executed in presence of sunlight irradiation. The effect of salt concentration and pH on dye degradation activity also studied. The highest photocatalytic activity was observed for Cu–ZnO with 4% doping as compared with other Cu–ZnO and ZnO nanostructure. The photocatalytic performance of Cu–ZnO shows complete degradation of MB dye within 30 min for 4% Cu–ZnO nanostructure. The photocatalytic activity obtained is much higher as compare to earlier reports. The synthesis of Cu doped ZnO by paper templated method and its photocatalytic activity is hitherto unattempted.

### 1 Introduction

Now a days due to industrialization different types of pollution is the major problem, so clean environment is the basic requirement of world. Among the air and soil pollution, water pollution is the major challenge for human being and main source of this is, textile industry, paper, pulp and dyeing industry. This industry introduces different pollutant in to natural resources of water [1]. In the last few decades, semiconductor photocatalyst have been used extensively in order to solve energy and environmental problems, such as solar light to chemical energy conversion, artificial photosynthesis, photocatalytic dye degradation and so on. Many researchers have developed newer photocatalytic systems to address the pollution as well as energy issues [2]. Also

efforts have been taken to find more effective semiconductor photocatalyst for various applications using direct solar light [3, 4]. Recently, semiconductor materials such as TiO<sub>2</sub> [5], ZnO [6], ZnS [7, 8], SnO<sub>2</sub> [9, 10] and Cu(WO<sub>4</sub>) [11] etc., have been used for various applications. The band gap of ZnO and TiO<sub>2</sub> are quite similar, both are used as photocatalyst for environmental applications.

Among all semiconductor catalysts reported to date, the ZnO is one of the most efficient transition metal oxide catalyst for photocatalytic organic pollutant dye degradation, due to its excellent physical and chemical properties [1, 12]. However, the major shortcoming with ZnO is, it requires UV light for activation due to its wide band gap. In solar spectrum only 5% UV light presents resulting its lower photocatalytic activity under visible light. In case of pristine ZnO, photogenerated electrons and holes pairs recombine, this limit the availability of it for degradation reaction under normal conditions [13, 14]. Furthermore, there are attempts on development of nitrogen doped ZnO nanomaterials in order to harvest the visible light, but there is some thermal stability issues [1]. Some researcher reported doping of noble metal like Ag [15, 16] and Au [17, 18] on the metal oxide surface in order to improve the photocatalytic

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Published online: 15 March 2019



**Author Name: Prof. Dr. Gadve K. M.**

**37. Title of Paper: Synthesis and characterization of Mg(II)&Ca(II)complex with2-hydroxy-1,4-naphthoquinone dioxime**

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## Synthesis and Characterization of Mg(II) & Ca(II) complexes with 2-hydroxy-1,4-naphthoquinone dioxime

Article · March 2019

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**Author Name: Dr. Mulay P. P.**

**38. Title of Paper: Paradigm Shift in Education in India: Journey from Gurukul to E-Learning**


Volume - VIII, Issue - I, January - March - 2019  
SJIFACTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

## 17. Paradigm Shift in Education in India: Journey from Gurukul to E-Learning

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Assistant Professor, Annasaheb Magar College.

**Prof. Ms. Gadekar M. J.**  
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**Dr. Mulay P. P.**  
Assistant Professor, Annasaheb Magar College.



**Abstract**  
The education system has changed the way of learning from ancient Gurukul to the present e-Learning system. There has been a gradual transition in education system from the traditional method of teaching and learning, to e-Learning. The changing method of learning from classroom to virtual class room and black board to smart board has boomed in education system. Now days Learning Management System is being used in some of higher educational institutions in India. e-Learning initiatives by the government are a great step towards encouraging ICT in education.

**Key words:** Gurukul, e-Learning, ICT, LMS, Education.

**Introduction**  
Education is very important for social political and economic development of any nation. It is thus necessary to have effective teaching which will help the children to progress. They should be provided the right guidance (atmosphere) so that they can learn independently. Effective refers to bringing out the best in students. With the advent of modern technology e-learning has become a new trend in teaching, but its effectiveness still remains a question. This paper is an attempt to study the change in the education system from the Gurukul times to this modern era of e-Learning.

**Concept of Education**  
According to Scholars the word "Education" has been derived from the Latin term "Educatum" which means the act of teaching or training.  
According to some educationists it has been derived from another Latin word "Educare" which means "to bring up" or "to raise".[1]

ART - 1 / Peer Reviewed Refereed and UGC Listed Journal No. : 40776 105

**Author Name : Dr. Mulay P. P.**

**39. Title of Paper: Use of ICT in Teaching Learning and Evaluation with Special Reference to SPPUA study**

VOLUME - VIII, ISSUE - 1 - JANUARY - MARCH - 2019  
AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)


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**18. Use of ICT in Teaching, Learning and Evaluation with Special Reference to SPPU - A Study**

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Asst. Prof., A.M College, Hadapsar, Pune.

**Vinita B. Kadlag**  
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**Dr. Prashant P. Mulay**  
Asst. Prof., A.M College, Hadapsar, Pune.



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**Abstract**

Use of ICT in Teaching, Learning and Evaluation has changed the focus of education from teaching to learning. It has enhanced the quality of education and made it student centric. ICT provides the knowledge to the students 24 X 7. In India advancement in technology has gave boost to the usage of ICT in education. Central and State governments have taken various initiatives to facilitate ICT based education.

Savitribai Phule Pune University (SPPU) also taking active part in implementation of ICT. It has made available e-resources to the students. SPPU has also taken initiative in assessment process. Some of the entrance as well as practical examination are conducted online. Examination management is one of the major part of evaluation process in which SPPU has done creditable work.

**Keywords:** Teaching, Learning, Evaluation, Information and Communication Technology.

**Introduction**

ICT Stands for "Information and Communication Technologies." that provide access to information through telecommunications. It is similar to Information Technology (IT), but it mainly focuses on communication technologies, telecommunication technologies such as the satellite, the cable, mobile phones radio and TV, digital technologies such as computer, internet.

ICT in education is the mode of education that uses information and communications technology to support, enhance, and optimize the actual information. it improved student learning and better teaching methods. ICT has changed the role of the teacher from disseminator of information to learning facilitator; it helps students as they actively engage with information and data to reconstruct their own understandings. It enhances the quality of education and

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PART - 11 Peer Reviewed Refereed and UGC Listed Journal No. : 40776 111

**Author Name: Prof. Dasgupta S.**

**40. Title of Paper: Prospectus of Developing Tourism in India as Dark Tourism**

VOLUME - VIII, ISSUE - I - JANUARY - MARCH - 2019  
AJANTA - ISSN 2277 - 5730 - IMPACT FACTOR - 5.5 (www.sjifactor.com)

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## 11. Prospectus of Developing Tourism in India as Dark Tourism

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Research student Prof. Ramkrishna More Arts, com. And sc. College.  
**Shilpi Dasgupta**  
Asst. Professor, Annasaheb Magar Mahavidyalaya, Hadapsar.

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**Abstract**

Now a day's people lead a stressful life due to increasing competition day today life. People need change in their day today life routine i.e. they choose to move one place to another place which is commonly known as 'tourism'. Tourism industry having lots of scope now a day in market. Tourism are many types its depends on their purpose like eco tourism, agro tourism , medical tourism and religious tourism etc . The concept of this kind of tourism emerged with their importance; dark tourism is also a part of that.

Dark tourism is a multi-layered mixture of history and heritage. Dark tourism also known as "black tourism" and "grief tourism" or "Thana tourism". Thana tourism derived from the ancient Greek word "Thanatos" for the personification of death, refers more specifically to violent death. It has been defined as tourism involving travelling sites which are historically associated with death and tragedy. In this paper we have studied the challenges faced by dark tourism in Maharashtra, place of interest and present scenario.

Dark tourism spot in India are related with its history and rich heritage culture, spots reveals about past war and some spot reveals the curse of area which gives us fact and stories. In India there are many places with the historical importance can be define as black tourism, grief tourism. In these paper we have tried to study the role of dark tourism sites in developing tourism in India. We have taken most famous places which have dark or negative importance in history.

**Key words:** Dark tourism, Dark tourism spot in India, Importance of dark tourism .

**Introduction**

Dark tourism is a multi-layered mixture of history and heritage. Humanity has been interested in ending of life since the time of pilgrimages and before. There are many tourist

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PART - I / Peer Reviewed Refereed and UGC Listed Journal No. : 40776 69

Author Name: Prof. Dr. Shinde B. M.

## 41. Title of Paper: Review of Literature on Dry Flowers



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Volume 9, Issue 2

www.stmjournals.com

### Review of Literature on Dry Flowers

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#### Abstract

*Dry flowers have been used in the artistic creation and ornamentation for many years. There is also an immense market of dry flowers throughout the world. The handiness of abundant plant material is one of the driving forces to nurture your hobby of preparing, crafting and developing dried plant material. Unlike fresh flowers, that easily slack their appeal and market value dried flowers prevail for longer periods if properly preserved; hence, dry flowers and foliages have great potential as alternative for fresh flowers. The present paper describes the commercial importance of dry flowers and the introduction of new techniques for the enhancement of dry flower industry.*

**Keywords:** Dry flowers, capitalization, vein skeletons

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#### INTRODUCTION

A review of literature plays an important role in depicting the amount of work done in the related area of study. Dry flower production has already drawn the attention of many workers and entrepreneurs due to its vast number of economic importance. A brief review of study and its market potential may be helpful for grasping the existing scenario of capitalization of dry flowers.

Flowers are associated with mankind from the dawn of civilization and in the modern times, these have become an inseparable part of human life. Love for flowers is a natural instinct. The sight of growing flowers in all their grandeur makes one to wish for the season to continue and never end, but this is not possible. The answer for it could be by producing long lasting flowers, which are now becoming a favorite with the adventurous flower lovers across the world. The beauty and fresh look of cut flowers can be retained only for few days even by using the best techniques of post-harvest technology but the charm and beauty of dried flowers and foliage can be maintained from few months to years with lesser cost. Moreover, fresh flowers and foliages are not available all-round the year in all places [1].

Dried flowers are highly popular because of its benefits. Unlike fresh flowers used in a vase, dried flowers require little maintenance they look great and can last for longer. Beautifully arranged dried flowers may be a little bit more expensive, but they are quite long lasting and can even last for many years. They are tolerant of high temperatures and offer a variety of beautiful colours which could not be seen in cut flowers. Dried flowers are good standby for the florists, since designs can be made up during the slack periods and arrangements can be displayed where fresh flowers are unsuitable from the grower's point of view and the price is less than for equivalent fresh flowers [2].

India is fortunate with the affluent biodiversity. The Indian flora has a wide variety of ornamental trees, shrubs, climbers, herbaceous plants, fleshy fungi, lichens, mosses etc. Many of these ornamental plants with their variety of flowers, foliage, fruits, cones seeds, roots, stems, shoots/twigs, bark, lichens and fleshy fungi have attracted the tourists, naturalists, environmentalists and amateur gardeners. These plants cannot be retained as cut flower or cut foliage for longer duration and the masses residing in the metropolitan and other large cities who cannot visit countryside or Himalayan region remain deprived of the beauty of these plants.

**Author Name: Prof. Dr. Shinde B. M.**

## **42. Title of Paper: Dry Flowers and Floral Craft: for Better Subsistence and Women Empowerment**

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www.ijrar.org (E-ISSN 23481269, P- ISSN 2349-5138)

### **Dry Flowers and Floral Craft: For Better Subsistence and Women Empowerment**

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#### **Abstract**

The preservation of flowers and maintaining their natural form is an interesting art. The various flowers, leaves and other botanicals can be dried for ornamentation and decoration purposes. Unlike fresh flowers that easily slack their charm and beauty, dried flowers are cheaper more lasting and can be maintained from few months to years with a little or no care. Dry flower industry is a leading unit of floriculture industry and shares 71% of total floriculture export. The dry flower industry in India includes dehydrated flowers, foliages and seeds etc. The need for dry flowers amongst masses is rapidly increasing, thus creating job opportunities for people in abundance especially to rural women's and housewives. The present paper describes the techniques for the dehydration of various flowers/neglected plant species and the conversion of same into economically useful products.

**Key Words:** Dry Flowers, Floral craft, Drying techniques, Women Empowerment

#### **Introduction**

Dry flowers have been used since a long time ago for the aim of embellishment. There is also a huge market of dry flowers throughout the world. Dried plant materials equilibrate any home or office decor in all the arrangements. Dried flowers can be used for making variety of floral items for commercial exploitation. The industry projected annual turnover as of 2003 was more than 150 crores (Singh D.B. 2003)<sup>1</sup>. Potpourris are the major segment of dry flower industry valued at Rs 55 crores in India alone (Murugan P.A et al., 2007)<sup>2</sup>.

The export market of flowers in India is composed of 71% of dry flowers exported mainly to U.S.A, Japan, Australia, Europe and Russia (DE et al., 2016)<sup>3</sup> Exporting companies at Kolkata in West Bengal, Tuticorin in Tamil Nadu, Mumbai in Maharashtra and Hyderabad in Andhra Pradesh are earning 10-15 times higher returns than domestic markets (Verma et al., 2012)<sup>4</sup>. Dry flower industry is a promising business in India since past four decades and was initially introduced by British in Calcutta due to its proximity to north east and eastern regions where exotic and various plants were easily accessible (Bhattacharjee and Dee, 2003)<sup>5</sup>.


The market of dry flowers is growing very fast across the globe as the people has become more eco-conscious and choose eco-friendly and biodegradable substitute to fresh flowers (Datta and Roy, 2011)<sup>6</sup>. Various aesthetic products such as greeting cards, segments, wall hangings, landscapes, calendars, potpourris etc. can be easily made by using these dried flowers or foliages (Bhutani, 1990)<sup>7</sup>. The dry flower industry is labour dependent and could empower thousands of unemployed men and women. Thus there are huge possibilities to establish the dry flower industry and to provide employment especially to physically handicapped, house wives and to rural women.

#### **Materials and Methods**

Dehydration of flowers is a technique by which flowers can be preserved for longer periods, or the method of removal of moisture from the selected flowers and foliages, in present study dehydration of different flowers and other plant parts were done by various dehydration methods such as by Press drying and Embedding drying.

**Author Name: Dr. Sasane A. N.**

**43. Title of Paper: E-Banking**

	<b>'RESEARCH JOURNEY' International E- Research Journal</b>	ISSN : 2348-7143
	Impact Factor - (SJIF) - 6.261, (CIF) - 3.452(2015), (GIF)-0.676 (2013) Issue No. 104(B) : Indian Banking Sector : Issues & Challenges UGC Approved Journal	January-2014

**E-Banking**

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**Introduction-**

Banking has been considered as an important aspect of our day to day life. It becomes necessary to accept the modern technologies in banking business. The benefits provided by e-banking medium have resulted into swift growth of banking sector worldwide. E-banking is advanced technology use of internet facility number of people are adopted technological advancement for online transaction that it can be utilized to facilitate growth through its advantages information and technology transfer. The importance of e-banking is growing day by day as it maximizes the advantages for banks and its client. Information technology is one of the most important facilitators for the transformation of the Indian banking industry in terms of its transaction processing as well as for various other internal systems and processes. They are faster remittance facilities, Automatic Teller Machine, Telephone banking, Home banking, credit card facility, Personal loans including car loans, housing loan and internet banking. The various technological platforms used by banks for the conduct of their day to day operation, their manner of reporting and the way in which of reporting and the way in which interbank transaction and clearing is affected has evolved substantially over the years.

Indian banks are also opening branches in many countries. Thus, Indian's external financial transaction are bound to increase manifold to USA, Europe, South Asian countries, Japan, and East countries. With adoption of the new economic policy in 1991, Indian economy is being opened by removing restriction on flow of goods and finance. They have to go in for e-mail facility, networking, satellite based clearing system. Indian banking is now on the threshold of any time anywhere banking area.

**What is the E-Banking?**

Electronic banking can be defined as the use of electronic delivery channels for banking products and services and is a subset of electronic finance. The most important electronic delivery channels are the internet, wireless communication networks, automatic teller machine and telephone banking.

**Objective :**

1. Modern Technology helps to provide easy information, use, contact and service.
2. To improve Facilities of Customers.
3. To reduce time and Efforts.
4. To Provide easy Usage of mobile banking.
5. To provide quick information has become possible due to developed technology.
6. To make available banking service 24\*7 hours through ATM machine.
7. To provide quick services.
8. E-Banking provides facilities to send quick message.

**Importance of E-Banking :**

1. **Handling of Information :**  
Creation of up-to-date monitoring and information system and strengthening internal control and housekeeping and reporting functions are provided, sorting of information becomes easy.
2. **Accuracy :**  
The clearing of cheques, pass book entries, Inter-branch and inter-bank reconciliation and such other functions can now be carried out quickly, correctly and legibly with modern technology.
3. **Customer Service :**  
With internet facility, the customers need not go to the bank office. All banking transaction and updating of accounts can be done while at home or in transit. Networking means sharing of information, giving messages and being in face to face contact even when apart. It is the meeting without moving.

44 | Website - [www.researchjourney.net](http://www.researchjourney.net) Email - [researchjourney2014@gmail.com](mailto:researchjourney2014@gmail.com)



Author Name: Dr. Sasane A. N.

## 44. Title of Paper: Maharashtratril Sahkar Chalval

'RESEARCH JOURNALS' (www.researchjourney.net) is an international research journal  
Impact Factor - (SIIF) - 6.261 (CIF) - 3.452(2015). (GIF)-0.626 (2013)  
Special Issue 90 (B): महाराष्ट्रातील प्रादेशिक विपक्वता  
UGC Approved Journal

महाराष्ट्रातील सहकार चळवळ  
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अनंतराव पवार कॉलेज पिरबुट तालुका -मुळशी, जिल्हा -पुणे  
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मोबाईल नंबर - ९८८१२४७८२४

ISSN:2348-7143

प्रस्तावना :  
महाराष्ट्रातील सहकारी चळवळ हे आज महाराष्ट्राचे अकिम्यवान बनने आहे. महाराष्ट्राच्या  
औद्योगिक अर्थव्यवस्थेचा पाया अधिक मजबूत किंवा भक्कम करण्यात सहकाराचा वाटा मोठा आहे.  
राज्यात सहकाराचाही यश प्राप्त होण्यासाठी पन्नास वर्षांपेक्षाही जास्त काळावधी लागला आहे. महाराष्ट्र  
सहकारी चळवळीबाबत इतर राष्ट्रांपेक्षा देशात अद्येपर समजणे जाणे. अर्थात देशाप्रमाणे राजकीय  
चळवळीने अनेक धडे सहन केले आहेत.  
महाराष्ट्रातील सहकारी चळवळीला चांगले नेतृत्व मिळाल्याने या चळवळीची प्रगती उत्तरी  
सहकारने सहकारी चळवळीच्या विकासाम हातभार लावला. महाराष्ट्रात १९४९ मध्ये सहकारी  
कारखाना अहमदनगर जिल्ह्यातील प्रवरानगर (लोधी) येथे सुरु करण्यात आला. त्यानंतर राज्यात  
माखर कारखान्यांची मोठ्या प्रमाणात वाढ झाली.

महाराष्ट्रात सहकारी चळवळीस सुरुवात :  
भारतात १९०४ साली सहकारी संस्था कायदा समंत होऊन सहकारी संस्थाना कायदेहीन  
देण्यात आले. या कायद्याने सहकारी पंतपुरवठा संस्थांची स्थापना करता येऊ लागली. १९१२ साली  
संस्था कायद्यात दुरुस्ती करण्यात येऊन अन्य प्रकारच्या सहकारी संस्थांच्या विकास होऊ. त्याचा १९१८  
चेम्सफोर्ने मून्विलेच्या सुधारणांम अनुसरून सहकार हा विषय प्रांतिक सरकारकडे सोपविल्यात.  
महाराष्ट्र राज्यात सहकारी चळवळीची सुरुवात होण्याच्या दृष्टीने हि एक महत्त्वाची घटना होती.  
सरकारच्या ताब्यात सहकारच्या ताब्यात सहकार हा विषय आल्यानंतर तत्काचीन मुंबई सरकारने  
मध्ये सहकारी संस्थानाठीचा कायदा समंत केला.

सहकारी चळवळीच्या विकासाचे टप्पे :-

1. पहिला टप्पा - (१९०४ ते १९११)
2. दुसरा टप्पा - (१९१२ ते १९१८)
3. तिसरा टप्पा - (१९१९ ते १९२९)
4. चौथा टप्पा - (१९२९ ते १९३९)
5. पाचवा टप्पा - (१९३९ ते १९४६)

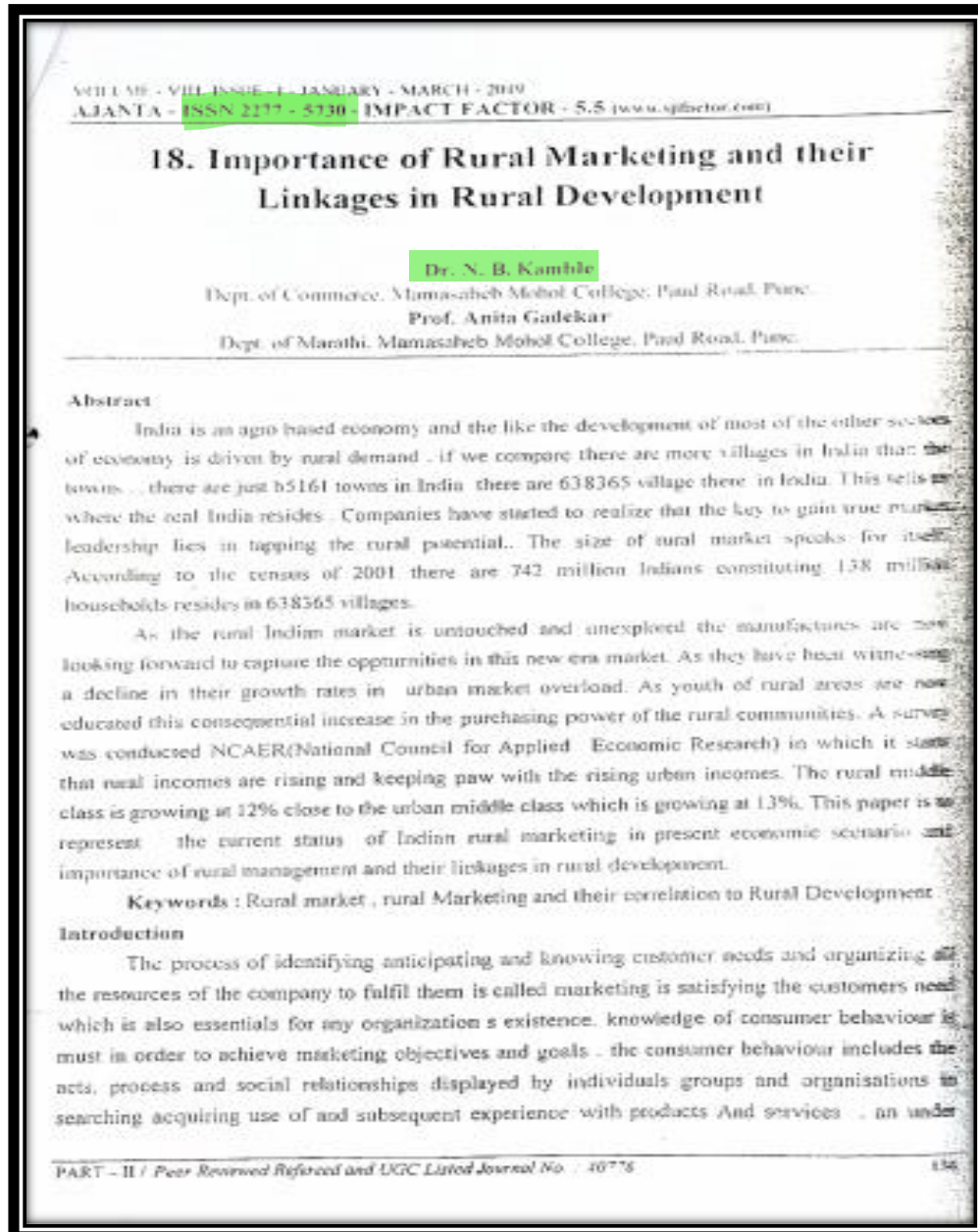
महाराष्ट्रातील प्रमुख सहकारी संस्था : ( लाघात )

अ.क्र.	सहकारी संस्था	२०१६	२०१७
		संस्था	संस्था
१	जिल्हा मध्यवर्ती सहकारी बँक	३१	३१
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**Author Name: Dr. Kamble N. B.**

**45. Title of Paper: Importance of Rural Marketing and their Linkages in Rural Development**



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**46. Title of Paper: Sustainable Development Management and Solution to the Problems**

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**Sustainable Development Management and Solution to the Problems**

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**Abstract:**  
*The paper shows that setting is one amongst the essential public assets of a person's system, and it should be so specially protected. According to our gift data, the property is critical for all human systems and it's necessary to involve the property development principles all told human system assets. Sustainable development is understood as a development that does not erode ecological, social or politic systems on which it depends, but it explicitly approves ecological limitation under the economic activity frame and it's full comprehension for support of human wants. The paper summarises the conditions for property development, tools, methods and techniques to solve the environmental problems and the tasks of executive governance in the environmental segment*

**Key words:** Environment, Human System, Sustainability, Sustainability Management, Methods and Tools

**Introduction**  
The paper summarizes the results of the systematic study of setting within the recent thirty years. It starts from noesis of the studied subject on the current level and summarizes the conditions and limits of property development, as well as the tools, methods and techniques used to solve the setting issues and tasks of gov governance within the environmental section.  
The environment itself is a system of systems that, from the viewpoint of human existence and development, is a part of the superior system of systems, the human system. From the given proven fact that it's apparently not possible to elevate the setting existence and come back to original state underneath the interests connected with human existence and development, but, simultaneously, it is impossible to damage the environment irresponsibly, because it creates the medium necessary for human existence itself. Therefore, we've to introduce the compromises that respect human wants and setting into the observe, based on our knowledge and experience. Their impact and advantages square measure monitored within the manner that permits finishing up the corrective measures if they appear to be necessary. Based on recent cognition, sustainability (sustainable development), is not only related to the environment, but also to the entire human system and it basic assets (i.e. public assets) on that the human lives square measure dependent. Basic human system assets square measure human lives, health and security, environment, property and public welfare; infrastructures and technologies, particularly those who belong to the vital ones . The property assessment generally sense is that the formalised method for identification, prediction and assessment of potential impact of discretionary inputs as well as the variants for society property development (e.g. legal rules, ordinances, laws, political intent, plan, program, and project). From the viewpoint of present cognition of human system and its assets, the mentioned assessment might be performed always at good governance of territory.

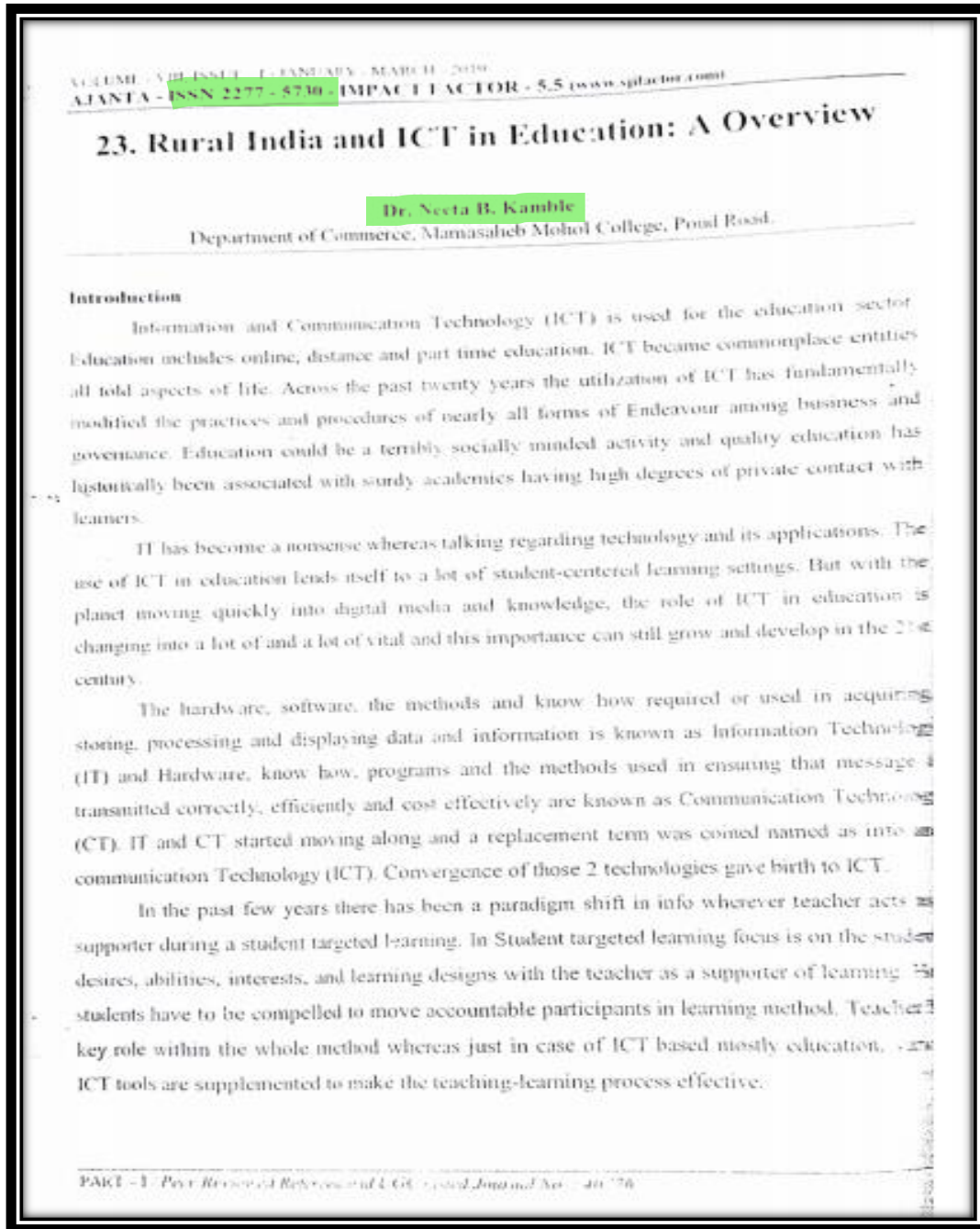
**Conditions for property development**  
From the system viewpoint, the property system has attributes as productivity, resilience, ability and vulnerability, and therefore, sometimes it is not easy to find a suitable reference state or conditions:

- The reference of property may be a demanded future state (scenarios, techniques and foresight).
- The reference points square measure, on the one hand, inputs and, on the other hand, outputs of system processes (ecological trace, product life times etc.). We can so assume the context given in

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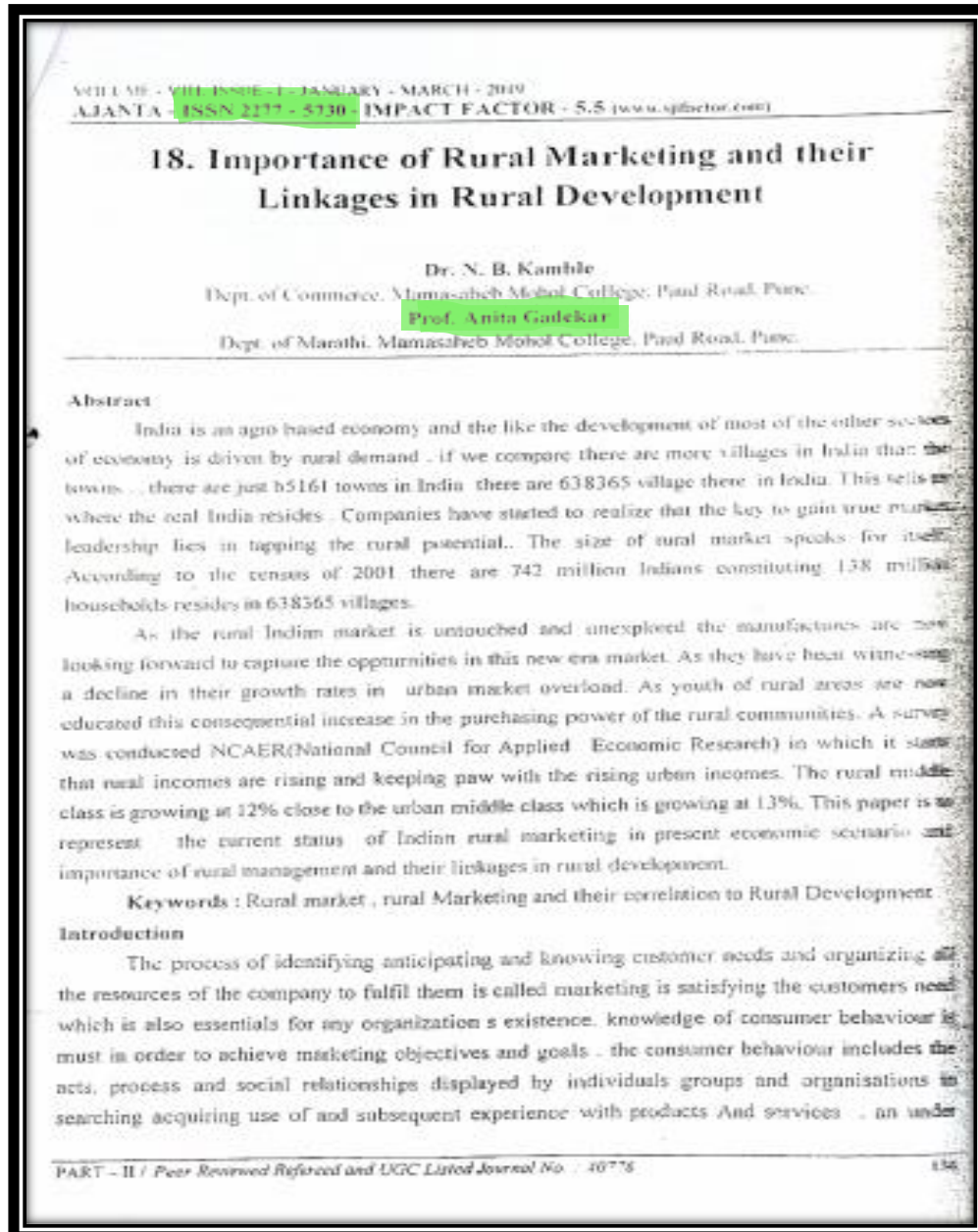
**Author Name: Dr. Kamble N. B.**

**47. Title of Paper: Rural India and ICT in education on overview**



**Author Name: Prof. Gadekar A.**

**48. Title of Paper: Importance of Rural Marketing and their Linkages in Rural Development**



Author Name: Prof. Waghmode M. S.

## 49. Title of Paper: Bioabsorption of Cadmium & Nickel by Retreated Biomass of *Aspergillus* Sp.

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### Biosorption of cadmium and nickel by pretreated *Aspergillus* spp. biomass

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Industrial effluents contaminated with the heavy metals pose threat to the environment and its habitants. Biosorption is an effective and eco-friendly method for sequestration of heavy metals from such effluents. Fungi, with their remarkable metabolism-independent metal uptake systems, are efficient natural biosorbents of heavy metals. Therefore, we explored fungal biomass (*Aspergillus* spp.) pretreated with formaldehyde (solvent) and sodium hydroxide (alkali) for sequestration of metals cadmium (Cd) and nickel (Ni) from the aqueous solutions contaminated with heavy metals. The results have shown significant increase in the sequestration of Cd and Ni by the *Aspergillus* spp. biomass pretreated with formaldehyde and sodium hydroxide and thereby demonstrated its potential in cleaning the environment polluted with heavy metals.

**Keywords:** Bioremediation, Compost, Degradation, Heavy metals, Lignocellulose, Sequestration

Increased industrialization and human activities have contaminated the environment with heavy metals through waste disposal. Mine drainages, metal industries, refining, electroplating, dye and leather industries, domestic effluents, landfill leachate, agricultural runoff, and acid rain contribute to such contamination<sup>1</sup>. Heavy metals such as copper and cadmium are reported to induce production of reactive oxygen species, and negatively affect the population growth of ciliates<sup>2</sup>. Cadmium intake is reported to cause oxidative stress and have adverse effect on neural tissues<sup>2,3</sup>. On the other hand, in nature, microorganisms viz. algae, bacteria, fungi and yeast are capable of accumulating the heavy metals and thereby make the environment relatively clean and better<sup>4-6</sup>. They act as efficient biosorbents.

Biosorption, non-directed physicochemical interaction that occurs between metals and microbial cells, is

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reportedly a better ecofriendly alternative over the conventional physical and chemical methods<sup>6,7</sup>. It is reported to be influenced by various factors and processes, such as temperature, pH, initial concentration of the metal ions, biosorbent dose, and speed of agitation<sup>7</sup>. The cadmium uptake capacity of green algae biomass from the aqueous solutions has been shown to be affected by pH, temperature, biomass dosage and initial metal concentration<sup>8</sup>. Further, the biosorption capacity of biomass can be modified by physical and chemical pretreatment<sup>7</sup>. Potential of filamentous fungi in bioremediation of heavy metals from the industrial effluents and wastewaters has been reported from different parts of the world<sup>9</sup>. Bioaccumulation of heavy metals from aqueous solution using *Aspergillus flavus* and *Rhizomucor pusillus* has also been reported<sup>10</sup>. Cai *et al.*<sup>11</sup> have demonstrated removal of heavy metals from the aqueous solutions using immobilized biomass of *Penicillium janthinillum*. Works on bioaccumulation of cadmium by green algae<sup>8</sup> and *Aspergillus flavus*<sup>12</sup>; and Cd, lead and nickel accumulation by *Spirulina maxima*<sup>13</sup> are also available.

The specific mechanisms of uptake differs with the species; the origin of the biomass and its processing<sup>14</sup>. The hyphal wall is the primary site of metal ion accumulation. This accumulation is attributed to various chemical groups (the acetamido group of chitin, amino and phosphate groups in nucleic acids, amino, amido, sulfhydryl and carboxyl groups in proteins, and hydroxyls in polysaccharides) that sequester the metal ions<sup>15</sup>. Biomass of fungi, viz. *Absidia*, *Cunninghamella*, *Mucor*, *Penicillium chrysogenum*<sup>16</sup>, *Streptomyces pimprina* and *Rhizopus* exhibit excellent metal ion uptake due to the high chitin and chitosan cell wall content<sup>17</sup>. Fungi have been proven more efficient and economical for sequestration of toxic metals because of their filamentous morphology and cell wall composition<sup>18</sup>.

Fermentation industries all over the world generate huge amounts of waste biomass which are used in animal feed or organic manure if not incinerated. The food and beverage industries, chemical industries (e.g., citric acid), enzymes industries that produce array of enzymes and pharmaceutical industries involved in steroid transformation, generate large

Author Name: Prof. Waghmode M. S.

## 50. Title of Paper: Studies on the Titanium dioxide nanoparticles Biosynthesis, Application and Remediation



Review Paper

### Studies on the titanium dioxide nanoparticles: biosynthesis, applications and remediation

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**Abstract**  
Nanoparticles have wide applications in various fields due to their small size. Titanium dioxide nanoparticles are bright with high refractive index ( $n = 2.4$ ) which makes them suitable for industry dealing with toothpaste, pharmaceuticals, coatings, papers, inks, plastics, food products, cosmetics and textile. Three crystalline phases of titanium dioxide, are anatase (tetragonal), rutile (tetragonal), and brookite (orthorhombic) in which brookite has no commercial value. Due to their self cleaning and antifogging property, they are used in the preparation of cloths, windows, tiles and anti-fogging car mirrors. Titanium dioxide nanoparticles also serve as environment sanitizing agent. Sol-gel route, flame hydrolysis, co-precipitation, impregnation and chemical vapor deposition like techniques are used for the synthesis of  $\text{TiO}_2$  nanoparticles. Biosynthesis of titanium dioxide nanoparticles has gained wide interest among researchers due to its cost effective, eco-friendly and reproducible approach. The sol-gel route remediation of the titanium dioxide from the environment is an important step and it can be achieved by using physical processes like sedimentation and filtration. The biosynthesis of titanium dioxide nanoparticles can be used in comparison to chemical synthesis. The titanium dioxide nanoparticles have wide applications, viz., reducing toxicity of dyes and pharmaceutical drugs; waste water treatment; reproduction of silkworm; space applications; food industries; etc., and so have immense industrial importance. The applications of nanoparticles synthesized by biological approach will be advantageous for the industries; environment and agriculture.

**Keywords** Sedimentation · Filtration · Antifogging · Refractive index · Titanium dioxide nanoparticles

### 1 Introduction

India is the reservoir of two chief minerals of titanium viz., ilmenite ( $\text{FeO} \cdot \text{TiO}_2$ ) and rutile ( $\text{TiO}_2$ ). Titanium dioxide ( $\text{TiO}_2$ ) exists in rutile, anatase (octahedrite) and brookite form. Brookite is not found in abundance, it is an altered product of some titanium minerals. The reservoirs of  $\text{TiO}_2$  in different states are shown in Table 1. The  $\text{TiO}_2$  nanoparticles have many merits viz., high specific-surface area, proper electronic band structure, high quantum efficiency, chemical innerness and stability [1]. The research is gaining immense interest for the synthesis of  $\text{TiO}_2$  on a large-scale by biological way which will be cost-effective.

There is report on  $\text{TiO}_2$  nanoparticles synthesized using microbes viz., *Lactobacillus* sp. and *Saccharomyces cerevisiae* which is low-cost [3, 4]; using *Aspergillus flavus* TFR7 [5, 6], *Chromohalobacter salexigens* strain PMT-1 [7]. There is a report on biologically synthesized of  $\text{TiO}_2$  nanoparticles using *Bacillus subtilis* (FJ-460362) for the study of photo catalytic activity in controlling aquatic biofilm [8]. Nanoparticles have wide applications specially the  $\text{TiO}_2$  particles viz., cosmaceutical, pharmaceutical, optical, commercial applications [9].

There are reports on applications of  $\text{TiO}_2$  nanoparticles. Cyanide annual world production is 1.4 million tons and is mainly used for gold mining. But, most of the cyanide from

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Zalelya Sahityakruti Aakalan va Aaswad



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इतर भाषेतून मराठीत अनुवादित झालेल्या साहित्यकृती : आकलन व आस्वाद  
(‘डॉलर व्हू’ व ‘द बाॅय इन द स्ट्राइड पायजमाज’)

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प्रास्ताविक :-

जागतिकीकरणाच्या प्रक्रियेमध्ये अनुवाद प्रक्रियेला चालना मिळाली. मराठीत इतर भाषेतून विविध वाङ्मय प्रकारातील साहित्य अनुवादीत होताना दिसत आहे. परंतु एखाद्या मजकूर एका भाषेतून दुसऱ्या भाषेत घेऊन जाताना एका मोठ्या प्रक्रियेतून जावे लागते. अनुवाद प्रक्रिया जितकी सहज, सोपी वाटते तितकी ती प्रक्रिया जटिल व गुंतागुंतीची आहे. ‘स्वतः भाषेतून लक्ष्य भाषेत निशिष्ट मजकूर अनुवादित करताना जी क्रिया होते, तिला ‘अनुवाद प्रक्रिया’ असे म्हणतात. ती एक भाषिक प्रक्रिया आहे.

आधुनिक युगामध्ये अनुवादाला फार महत्त्व प्राप्त झाले आहे. संत ज्ञानेश्वरांनीही भगवद्‌गीतेचा मराठीत ‘ज्ञानेश्वरी’ हा अनुवाद केला आहे, संस्कृतमधील रामायण महाभारत या महाकाव्याचाही जगातील अनेक भाषांमध्ये अनुवाद झालेला आहे.

जगभर अनेक भाषा बोलल्या जातात. प्रत्येकाची संस्कृती वेगळी आहे. जीवनानुभव वेगळा आहे. आधुनिक काळातील दळणवळणाच्या क्रांतीमुळे मानवाचा परस्परशील संपर्क वाढला. परस्परंच्या गरजा, भावभावना जाणून घेण्याची जिज्ञासा निर्माण झाली. परंतु भाषेची अडचण होती. कारण जगभर अनेक भाषा बोलल्या जातात. परंतु ही अडचण अनुवादाने संपुष्टात आणली. म्हणूनच अनुवादाचे महत्त्व दिवसेंदिवस वाढत आहे. अनुवादातून भाषेत नव्या जाणिव, नवे शब्द, नवे वाङ्मय प्रकार रूढ होतात.

‘अनुवाद ही व्यापक संज्ञा असून भाषांतर ही तिथ्यात सामावणारी तिच्या एका प्रकारचा निर्देश करणारी संज्ञा आहे असे. डॉ. कल्याण काळे म्हणतात, अनुवाद आणि भाषांतर यात काहीसे भेद करता येतात. अनुवाद ही संज्ञा तशी भाषांतर या संज्ञेपेक्षा व्यापक आहे. अनुवाद म्हणजे एखाद्याच्या मागून बोलणे, पुन्हा-पुन्हा सांगणे, स्पष्ट बोलणे, पाठ करणे असे अर्थ सांगता येतात. ‘अनुवाद म्हणजे एक प्रकारचे पुनर्सर्जनच असते. अनुवादांच्या माध्यमातून सांस्कृतिक देवाणघेवाण होत असते. अनुवाद सर्व प्रकारच्या साहित्यकृतीचे केले जाऊ शकतात, कथा, कविता, कादंबरी, नाटक, आत्मचरित्र, चरित्र इ. साहित्य प्रकाराबरोबरच वैचारिक लेखनाचेही अनुवाद केले जातात. प्रत्येक साहित्य प्रकाराची एक प्रकृती असते, त्याची विशिष्ट अशी निर्मिती प्रक्रिया असते. साहित्यकृतीत शब्द किंवा वाक्य नसतात. तर ती भाषिक कृती आपल्यामध्ये संदर्भाची गुंफण राखून असते. अनुवादकाला ज्या भाषेत अनुवाद करायचा आहे. त्या भाषेवर प्रभुत्व असायला हवे आणि ज्या भाषेचा अनुवाद करायचा आहे त्या भाषा संस्कृतीचे चांगले ज्ञान असायला हवे. कारण अनुवादातून खूप दूरच जग वाचकाला आपल्या भाषेतून कळते. अनुवाद करताना अनुवादकाला आपल्या बोलीभाषेपासून मुक्त राहावं लागते. कारण ज्या भाषेत अनुवाद करायचा आहे त्याच भाषेत लेखन होणे आवश्यक असते. अनुवाद करताना अनुवादित कलाकृतीत येणाऱ्या संवादातील प्रवाहीपण कोणताही आशय न टिकून वगळता आले पाहिजे. मग उत्तम अनुवादाचे निर्मिती स्थान हे श्रेष्ठ आस्वादात असल्याचे आढळेल. आस्वाद प्रक्रिया ही साहित्य व्यवहाराला पूर्णत्व देणारी प्रक्रिया आहे. ती वाचकामुळे जिवंत होत असते. कारण आस्वादात कलाकृतीच्या सर्व

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## **52. Title of Paper: Opportunities and Challenges in Service Sector (Self Employment)**

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**ISSN 2394 - 7780**

### **OPPORTUNITIES AND CHALLENGES IN SERVICE SECTOR (SELF EMPLOYMENT)**

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#### **ABSTRACT**

*In alignment with the global trends, Indian service sector has witnessed a major boom and is one of the major contributors to both employment and national income in recent times. The activities under the purview of the service sector are quite diverse. Trading, transportation and communication, financial, real estate and business services, community, social and personal services come within the gambit of the service industry. They are vital for the country's economic stability. This paper is indented with an aim of gathering the contribution of different service sector contribution and it's their effect on the growth of Indian Economy along with the challenges faced and opportunities available for self employment.*

*Keywords: Indian Economy, Economic Growth, Economic Survey Report, International markets.*

#### **INTRODUCTION**

Service sector is the lifeline for the social economic growth of a country. It is today the largest and fastest growing sector globally contributing more to the global output and employing more people than any other sector. For most countries around the world, services are the largest part of their economy. The real reason for the growth of the service sector is due to the increase in urbanization, privatization and more demand for intermediate and final consumer services. Availability of quality services is vital for the well being of the economy. In advanced economies the growth in the primary and secondary sectors are directly dependent on the growth of services like banking, insurance, trade, commerce, entertainment, social and personal, etc.

The services sector is not only the dominant sector in India's GDP, but has also attracted significant foreign investment flows, contributed significantly to exports as well as provided large-scale employment. India's services sector covers a wide variety of activities such as trade, hotel and restaurants, transport, storage and communication, financing, insurance, real estate, business services, community, social and personal services, and services associated with construction.

India is a major proponent of liberalizing services both in the World Trade Organization and in its bilateral trade agreements. However, there are some concerns. In the recent past, economic growth and growth of the services sector has slowed down. Growth in employment in services has not been commensurate with the share of the sector in GDP. The Indian economy expanded 7.7 percent year-on-year in the first three months of 2018, higher than a downwardly revised 7 percent advance in the previous quarter and beating market forecasts of a 7.3 percent growth. It is the highest growth rate since the second quarter of 2016, boosted by a jump in investment. Nov 30, 2018

#### **RESEARCH METHODOLOGY**

The study focus on Secondary data collected from various books, national & international journals, government reports etc.

#### **MARKET SIZE**


The services sector is the key driver of India's economic growth. The sector contributed around 66.1 per cent of its Gross Value Added growth in 2015-16, thereby becoming an important net foreign exchange earner and the most attractive sector for FDI (Foreign Direct Investment) inflows. According to a report by leading research firm Market Research Store, the Indian telecommunication services market is expected to grow by 10.3 per cent year-on-year to reach US\$ 103.9 billion by 2020.

The Indian digital classifieds industry is expected to grow three-fold to reach US\$ 1.2 billion by 2020, driven by growth in horizontal classifieds like online services, real estate and automobiles. Out of overall services sector, the sub-sector comprising financial services, real estate and professional services contributed US\$ 305.8 billion or 20.5 per cent to the GDP. The sub-sector of community, social and personal services contributed US\$ 188.2 billion or 12.6 per cent to the GDP.

The Services sector, with a share of 55.2% in India's Gross Value Added (GVA), continued to be the key driver of India's economic growth contributing almost 72.5% of GVA growth in 2017-18, as stated in the Economic Survey 2017-18 tabled in the Parliament by the Union Minister for Finance and Corporate Affairs, Arun Jaitley.

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## **53. Title of Paper: E-Transaction**

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**E-Transactions**

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The term 'transaction' is used by most people to describe everything from a stock trade to the transfer of money or goods involving people, businesses, accounts, or applications such as ATMs & POS terminals. But when the word transaction is used by an ATM or IT operations support team it takes a more complex meaning.

In India November 2015, the electronic payment methods have again accounted for more transactions than the traditional method like drafts & cheques. This is a green signal to government is plan to incentivize paper less transactions in the country Via the upcoming budget

According to RBI such a reversal in payment modes was first witnessed in September 2015. In November last year a total of Rs 6,32,587 crore was transferred through electronic payment methods in contrast to ;Rs 6,17,845 crore transferred Via paper clearances. This can be seen as a result of union Ministry's draft proposes to shift to non – cash transactions in the country Via Suitable incentives. The government is also expected to introduce such an incentive structure for the public to push electronic transaction in the country & they will come into effect from April.

Making payment via electronic media not only save time but also helps in easy book keeping. Online payment aloud also help keep a check on black money & that's why cashless transactions was one of the suggestions from books & financial institutions to the finance minister at a pre- budget meeting. Government could offer various incentive structures for promoting cashless transaction in the country. It could also be something like a person getting more monetary gains by transacting online than by withdrawing cash.

Indian economic environment is witnessing path breaking reform measures. The Banking Industry is the largest player has also been undergoing a metamorphic change Today we are having a fairly well developed banking system with different classes of bank public sector banks foreign banks, private sector banks. In the banking field there has been an unprecedented growth & diversification of banking industry has been so stupendous that is has no parallel in the annals of banking anywhere in the world. During the last 41 years since 1969, tremendous changes have taken place in the banking industry.

**The history of Indian banking can be divided into three main phases.**

Phase I (1736-1969) Phase-II (1969-1991) Phase – III (1991 onwards) With the reforms in Phase III the Indian banking sector having clean, strong & transport balance sheets. The year 2010-11 was a difficult period for the global banking system.

Today we are having a fairly well developed banking system with different classes of banks. Some of them have engaged in the areas of consumer credit, credit cards, merchant banking internet & phone banking, leasing, mutual funds etc. A few banks have already set up subsidiaries for merchant banking leasing & mutual funds & many more are in the process of doing so.

**Technology in Banks:**

To be futuristic And have 'Time' 'Value' in all its Dealing with customers.

- Improved management / Accountability
- Minimal Transaction Cost
- Improved Financial Analysis Capabilities

**IT Enables:-**

Sophisticated Product Development –

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**54. Title of Paper: Nationalization of Banks of India**

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**Nationalization of Banks of India**  
**Prof. Ananda Ramrao Sarange**  
Annasaheb Magar College, Hadapsar, Pune.

The year 1949 marked the beginning of a new era in the economic history of India. The history of bank nationalization, therefore starts with the nationalization of Reserve Bank of India from 1<sup>st</sup> January 1949.

In the second phase of bank nationalization the Imperial Bank of India was nationalized and the State Bank of India was set up on 1<sup>st</sup> July 1955. In the third phase, 7 State associated banks were nationalized in 1959 and attached with the State Bank of India as its subsidiaries. In 1969 marked the Fourth phase when 14 major banks were nationalized. The final phase in the history of bank nationalization in India was the nationalization of six other commercial banks on 15 April 1980.

**Objectives of Nationalization :-**

1. Mobilisation of savings and their use for productive purposes.
2. Meeting all genuine credit needs of private sector industries.
3. Ensuring that banks operate for a larger social purpose and the subject to close public regulation and scrutiny.
4. Meeting the needs in a large measure of priority sectors specially small industries, selfemployed groups and farmers.
5. Fostering the growth of new entrepreneurs and neglected and backward areas.
6. Checking the misuse of bank credit.
7. Developing professional management and promoting the use of modern technology and practices in banking operations.
8. Making provision of training and providing reasonable terms of service to the bank staff.
9. Expanding branch network all over the country.
10. Reducing regional and sectoral imbalances.

**Achievements of Nationalization :-**

In India there has been a tremendous progress since nationalization of banks. The nationalized banks have also introduced some non-traditional programmes. A number of facilities are being provided to the customers. Some of these banks have also opened offices in foreign countries. The banks after nationalization have started playing a developmental role in the interest of the country. After nationalization, banks have started investing in government and other approved securities with the result that there is a flow of fund for implementing the economic plans of the country.

After nationalization, these banks have started care of priority sectors. After nationalization these banks have increased the flow of their credit to the weaker sections of the society. After nationalization, the commercial banks have started extending finance for promoting exports at concessional rates and terms.

**Failures of Nationalization :-**

Despite above achievement the public sector banks have failed in more than one respect. After nationalization regional disparities increased in different states. More importantly the rural

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Karyakram: Ek Abhyas



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स्त्री रोजगार प्रशिक्षण कार्यक्रम : एक अभ्यास  
(मासूम संस्था, पुणे संदर्भ)

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प्रस्तावना

विविध देशांमध्ये प्राचीन काळापासून स्त्रियांची कुटुंबाच्या पालनपोषणामध्ये महत्त्वाची भूमिका गहिलेली आहे. घरातील पुरुष युध्दावर व इतरकार्येसाठी जात असत तेव्हा उर्वरित कुटुंब सदस्यांना शैलीकाम करून पालनपोषणाची जबाबदारी स्त्रिया स्वीकारित असत. इतिहासाच्या कुठल्याही वळणावर नजर टाकली तरी आपल्याला सामर्थ्यान, धैर्याशील, बुध्दीमान स्त्रियांची उदाहरणे दिसतात. म्हणजेच स्त्रियांनी जैद्विक घरकामामध्येच नाही तर विविध क्षेत्रात आपले सामर्थ्य सिध्द केले आहे. एकोणिसाव्या शतकात स्त्रियांचे जीवन पुर्णपणे परावलंबी, दुय्यम दर्जाचे होते. त्यांना शिक्षणाचा अधिकार नव्हता. किंबहुना, आयुष्यातील कोणताही निर्णय घेण्याचा अधिकार नव्हता. घरातील किंवा समाजातील निर्णय प्रक्रियेत त्यांना स्थान नव्हते. परातील किंवा समाजातील निर्णय प्रक्रियेत त्यांना स्थान नव्हते. आर्थिक दृष्ट्या स्वालंबन तर त्या काळात खूप दुरचा विचार मानवा लागेल. परंतु, विविध समाजसुधारकांच्या प्रयत्नातून स्त्रियांना शिक्षणाचा अधिकार कालांतराने प्राप्त झाला पण त्याचबरोबर समाजसुधारकांच्या प्रयत्नांची परिणती स्त्रियांच्या उच्च शिक्षणातील सहभागात झाली. शिक्षण आणि व्यवसायाच्या क्षेत्रात स्त्रियांनी पुरुषांची मक्तेदारी समजली जाणारी कितीतरी क्षेत्रे काबीज केली. जितुद व चिकीट्याच्या जोरावर उच्चशिक्षण, तांत्रिक व व्यावसायिक शिक्षणातही पुरुषांच्या बरोबरीने स्थान पटकाविलेले दिसून येते. स्त्रिया जितक्या मोठ्या प्रमाणात शिक्षण प्रक्रियेत सहभागी झाल्या तितक्याच विविध क्षेत्रातील नोकरीच्या संधी त्यांना प्राप्त झाल्या. त्यातूनच स्त्रियांच्या आर्थिक स्वालंबनाची गरज हा विषय महत्त्वपूर्ण होत गेला. प्रामुख्याने दुसऱ्या महायुध्दानंतर जागतिक आर्थिक मंदीच्या कालावधीत (१९२९-१९३३) प्रथमच स्त्रियांना नोकरीची संधी मिळाली खास पुरुषांची मानली गेलेली क्षेत्रे स्त्रियांसाठी मोकळी झाली. नंतर वाढत्या महागाईमुळे स्त्रियांची नोकरी ही कुटुंबाचे आर्थिक सधनतेसाठी स्विकारलेली आहे.

जर चालू सध्याच्या काळाचा विचार केला तर कोणत्याही कुटुंबात मग ते मध्यमवर्गीय, उच्चवर्गीय किंवा सर्वसाधारण किंवा दरिद्र रेषेखालील कुटुंब असले तरी स्त्रियांचे आर्थिक स्वालंबन गरजेचे झाले आहे. जर कुटुंबात प्रतिष्ठेचे स्थान मिळवायचे असेल आणि आपल्या कुटुंबाचा राहणीमानाचा स्तर उंचावण्याचा असेल तर घरातील स्त्री-पुरुष दोघांनीही आर्थिकदृष्ट्या हातभार लावणे काळाची गरज आहे. सुशिक्षित स्त्रियांनी आपल्या शिक्षणाचा उपयोग कुटुंबाचा आर्थिक स्तर उंचावण्यासाठी केला पाहिजे हा विचार पुढे येत आहे. स्त्रियांचे आर्थिक स्वालंबन हे स्त्रियांच्या स्वतःच्या व्यक्तीमत्त्व विकासासाठी गरजेचे आहे.

आज उच्चशिक्षित स्त्रिया नोकरी व्यवसायाच्या माध्यमातून आर्थिक स्वालंबी होण्याचा प्रयत्न करित आहेत. तर अशिक्षित, गरीब कुटुंबातील स्त्रिया शेतकी व संबधित व्यवसायात काम मिळवून अंगमेहनतीची कामे करून आर्थिक स्वालंबन मिळविण्याचा प्रयत्न करित आहेत. म्हणजेच स्त्री मग ती सुशिक्षित असो की अशिक्षित, श्रीमंत वर्गातील असो की गरीब प्रत्येक स्त्रीने अर्थउत्पादक कार्यात सहभाग घेवून आर्थिक स्वालंबन प्राप्त केले तर अशा स्त्री कुटुंबात स्वतःचे स्थान निर्माण करू शकेल. निर्णय घेण्यास सक्षम समजली जाईल. स्त्रिया स्वतःचा व्यक्तीमत्त्व विकास घडून येईल. त्याचबरोबर कुटुंबाचा आर्थिक स्तर उंचावण्यास हातभार


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**56. Title of Paper: Overview of E Banking in India.**



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### Overview of E-Banking in India

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**Abstract:**  
*Now a day's demand for rapidly growth of Banking Sector so old Banking Services it should adopt electronic banking it's called as E-Banking. E-Banking is the most pioneering trend among the customers in present era of thrust for more expeditious and secured financial services. E-banking is a most important invention in Banking Sectors with the introduction of computers in Indian banks and with the advent of ATM's. The banking Services are provided across the banks. Customers need not necessarily visit the branch to do banking transactions, when the banks provide them with tele-banking or remote-banking facility. That type of banking is called electronic banking. E-banking invention designed for the purposes of online banking it is a safe, fast, easy and efficient. Electronic service 24 hours a day and 07 days a week. Revolution in communications technology has sought to change the face of Banking as it directly affects the speed of transfer of money. Technology in Banking Sector is the most crucial economic reform since 1991. This particular paper presents an overview of E- Banking in India, Concept of E-Banking, Services Covered Under E-banking and advantages and disadvantages of E- Banking.*

**Keyword:** E- Banking, ATMs, Credit Card, Tele Banking, Net Banking, HSBC, NEFT

**Introduction:**  
Old methods of banking is 'On the Counter' (OTC) Means, every bank customer has to enter in bank Premises for banking purpose like a cash withdrawal, cash deposit, Cheque book and DD issue, lone, funds transfer and passbook updating. Now a day's Internet revolution led to e-commerce, e-banking. E- Banking also known as Internet Banking, Online banking is an electronic payment system that enables customers of bank to conduct range of financial transactions through banks website. E-banking or Online banking is a generic term for the delivery of banking services and products through the electronic channels such as the telephone, the internet, the cell phone etc.

**Definition of E-banking:**  
"E-banking is a method of banking in which transactions are conducted electronically using computer and Mobiles with the help of Internet."  
E-banking is an Easy, safe, fast & efficient electronic service that enables you access to bank account and to carry out online banking services, Twenty hours a day and seven days a week also electronic confirmation for all transactions executed by E-banking.

**Objectives of the study:**  
The following are the objectives of the study:

1. The First objective of the paper is to study the concepts of E-banking.
2. The Second objective of the paper is to highlight the Services Covered Under E-banking.
3. The Third Objective of the paper is to study the advantages and disadvantages of E-Banking and suggest recommendation Challenges of E-Banking.

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**57. Title of Paper: Satisfaction Index Analysis of Bhimashankar Pilgrime Centere in Pune District in Maharashtra**

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**Satisfaction Index Analysis of Bhimashankar Pilgrime Centere in Pune District in Maharashtra**

**Gandhile Ganesh. D.**  
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**Abstract:**  
*Tourism is one of the fastest growing industry regarding little capital investment which is made it different to other industries. There are various types of tourism in which Religious tourism is more important since the ancient period. The Rajgurunager tehsil of Pune district has a great potential to develop the tourism industry because of geographical components like geographical location, beautiful landscape, pleasant waterbodies and waterfall as well as ancient religious places.*  
*Satisfaction of the pilgrims with existing facilities in tourist centre is important for development of pilgrim tourist destination. The aim of present study is to assess the satisfaction of pilgrim at Bhimashankar one of the jyotirlinga among the twelve jyotirlinga situated all over the India. Present study has been conducted to understand the satisfaction about the facilities provided them at pilgrim destination.*  
**Key Words:** Pilgrim, Religious, Satisfaction, Facilities ,Tourism ,Destination.


**Introduction: -**  
Tourism has major economic significance for any country. Today tourism is one of the fastest growing industry in India. Earning of foreign exchange is more than any other commodity export. Tourism industry has great potential for creating job opportunities.  
Pune District in the state of Maharashtra has history of tourism from many centuries. The pilgrimage in Pune district can be traced back to many centuries. Pune is cultural capital of Maharashtra because of number of the forts, religious places and temples are located in and around Pune.  
Pilgrimages at various centers are responsible for changes in morphology of religious tourist's centers. Increasing in Pilgrimages made socio-economic and cultural impact on religious centers. In this research paper an attempt has been made to study satisfaction Index analysis of Bhimashankar. Satisfaction is a condition mind, which varies from person to person and place to place. Bhimashankar is one of the ancient famous pilgrim centre not only in Pune district but all over the India.

**Study Area:**  
Bhimashankar is located at **Bhorgiri** village which is 50 km north west from **Khed**. It is 110 km away from Pune city in the western **ghat region of the Sahyadri mountain, in Rajgurunag taluka of Pune district**. It's located in 19°4'00"North latitude and 73°32'00"East longitude. has an average elevation of 1034 meters from mean sea level.  
Bhimashankar known as a pilgrim paradise and one of the God's choicest creation. Through the year pilgrim has visited Bhimashankar from all over the India. Mahashivratri and Monday

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**Author Name: Dr. Gunjal T. D.**

**58. Title of Paper: Study of Pre & Post Scenario of GST in India**

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**The Study of Pre and Post Scenario of GST in India**

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**Abstract:**  
*This paper is an analysis of what the effect of GST (Goods and Services Tax) will be on Indian Tax Situation. Goods and Services Tax — GST — is an indirect tax and is an all-inclusive tax duty on manufacture, sale and consumption of goods and services at a national level. Through a tax credit instrument, this tax is collected on value-added goods and services at each platform of sale or purchase in the supply chain. India's alarming phenomenon in the new regime is Goods & Service Tax ("GST"). It is a modern tax reform which will conduct in growth and opportunities for businesses in India. It is a tax generator, which will lead to business transformation for the industry. It will have a long term impact on production time, supply chain, compliance, business avenues, compelling organizations to realign bottlenecks such as production cost, logistics etc. with changing indirect tax structure. This research paper will discuss in detail the concept of GST, its need, its impact and pre and post scenario of GST in India.*

**Keywords:** - GST, Indian Economy, Pre and Post Scenario

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**Introduction:**  
India's alarming phenomenon in the new regime is Goods & Service Tax ("GST"). It is a modern tax reform which will conduct in growth and opportunities for businesses in India. It is a tax generator, which will lead to business transformation for the industry. There are 3 types of GST: CGST which is collected by Centre SGST which is collected by State IGST which is applicable on inter-state sales. The Goods and Services Tax would be a very noteworthy step in the field of indirect tax reforms in India. The biggest advantage for consumer would be in terms of reduction in the overall tax burden on goods and services. The prices of products and services would reduce, thus this system would prove to be beneficial for the people who are fed up of paying high prices. Last but not the least, this tax, because of its transparent character, would be easier to administer. However, once implemented, the system holds great promise in terms of sustaining growth for the Indian economy.

**Objective of the study:**

- 1) To study the concept and features of GST in present scenario.
- 2) To study the global scenario and Indian Scenario of GST.
- 3) To point out pre and post scenario and impact of GST model in Indian Economy.
- 4) To provide necessary suggestions for better implementation of GST in the context of Indian Economy.

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Structural, morphological and 6 MeV energy electron dosimetric properties of Cu doped SnO<sub>2</sub> phosphor

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Keywords: SnO<sub>2</sub>, hydrothermal method, electron irradiation, thermoluminescence, Microtron Accelerator  
Supplementary material for this article is available online

**Abstract**  
Cu doped SnO<sub>2</sub> (SnO<sub>2</sub>:Cu) nano phosphor (NP) was successfully synthesized by one-step simple hydrothermal method and it was characterized by XRD (x-ray Diffraction) for structural, FESEM (Field Emission Scanning Electron Microscopy) for morphological and EDS (Electron Dispersive Spectroscopy) for elemental analysis. NP was annealed at 700 °C for 2 h and its crystallinity for tetragonal phase was confirmed through XRD. The crystallite size was ~10.39 nm for un-annealed and ~18.16 nm for annealed samples which has been calculated using Scherrer equation. The particle size was estimated to be ~43 nm and the elemental composition of Sn, O, Cu was obtained by EDS. In addition, to study the dosimetric properties, the SnO<sub>2</sub>:Cu phosphors were irradiated with 6 MeV electron beam at fluences ranging from  $10 \times 10^{11} \text{ e cm}^{-2}$  to  $20 \times 10^{12} \text{ e cm}^{-2}$  which is equivalent to the 1.55 kGy to 31 kGy. The irradiated sample showed Thermoluminescence (TL) dosimetric glow peaks at 170 °C, 263 °C and 303 °C. SnO<sub>2</sub>:Cu NP was found to be sensitive enough for energetic electrons. Further, it has been noticed that the TL dose response found sensitive upto  $10 \times 10^{12} \text{ e cm}^{-2}$  (15.50 kGy) with fading of 5.1% for 2 months. Hence, SnO<sub>2</sub>:Cu can be used for the measurement of electron doses.

**1. Introduction**  
Numerous applications have been provided by metal-oxide semiconductor because of their suitable band gap which varies between 2.6 to 4.2 eV [1, 2]. Among several metal-oxides, SnO<sub>2</sub> has unique physiochemical properties [3, 4]. It is a n-type semiconductor materials provides great importance in broad range of applications, viz. gas and UV sensing [5–7], anode of lithium-ion battery [8–10], waste water purification [11], solar cell, and photo catalyst [12–14] etc. On the other hand, in the field of luminescence, efforts are being made to develop phosphors to change their optical and electronic properties by reducing the dimension of materials particle [15, 16].  
Different doping of SnO<sub>2</sub> (nanosized phosphor) shows numerous applications like orange-red-emission for white light LEDs [17], energy transfer mechanism [18], thermoluminescence dosimetric (TLD) areas [19–21] etc. Some of the cases pure SnO<sub>2</sub> (without doping) also shows excellent characteristics of luminescent devices [22]. To prepare SnO<sub>2</sub> compounds, there are various routs adopted for different morphologies which can be used for various applications [5, 8, 23–25]. To mentioned few, Bajpayi *et al* [26] and Bhadane *et al* [15] have studied TLD properties through  $\gamma$ -irradiation on SnO<sub>2</sub>:Eu nanoparticles. Zeferino *et al* [21] proposed a dose enhancing properties using  $\beta$ -irradiation for the radiotherapy applications. Dosimetry (D) is tool to measured the absorbed ionizing radiation and Thermoluminescence (TL) is the system to emits the light during heating the previously irradiated material i.e. insulator or semiconductor, with uniform heating temperature [27–29].

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## 60. Title of Paper: Solar Light Active Mesoporous Cr-TiO<sub>2</sub> for Photo Degradation of Spent Wash: An in Depth Study Using QTOF LC-MS

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### Solar-light-active mesoporous Cr-TiO<sub>2</sub> for photodegradation of spent wash: an in-depth study using QTOF LC-MS†

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A dark-coloured effluent called "spent wash" is generated as an unwanted product in sugarcane-based alcohol distilleries. Most distilleries discharge this effluent into soil or water without any treatment, causing water and soil pollution. Herein, we report chromium-doped TiO<sub>2</sub> (Cr-TiO<sub>2</sub>) as a photocatalyst for the degradation of spent wash colour under natural sunlight. Cr-doped TiO<sub>2</sub> nanoparticles were prepared using an aqueous titanium peroxide-based sol-gel method with titanium isopropoxide as the Ti precursor and chromium nitrate as the Cr precursor. To observe the effect of dopant on sol-gel behaviour and physicochemical properties, the Cr concentration was varied in the range 0.5–5 wt%. The crystallization temperature and time were optimized to obtain the required phase of Cr-TiO<sub>2</sub>. The physicochemical characteristics of the Cr-doped TiO<sub>2</sub> catalyst were determined using X-ray diffraction, FE-SEM, FETEM, TG, XPS, the Brunauer-Emmett-Teller (BET) method, FT-IR, Raman, PL, ICP-MS, and UV visible spectroscopy. A shift in the absorption edge of TiO<sub>2</sub> by doping with chromium suggested an increase in visible light absorption due to a decrease in the effective band gap. The application potential of the Cr-TiO<sub>2</sub> catalyst was studied in the degradation of sugar-based alcohol distillery waste under natural sunlight, and the results were compared with those of undoped TiO<sub>2</sub> and Degussa P25 TiO<sub>2</sub>. Degradation of the spent wash solution was monitored using UV-visible, gel permeation chromatography (GPC), and QTOF LC-MS. GPC and LC-MS showed significant changes in the molecular weight of spent wash colour-forming compounds due to the degradation reaction. QTOF LC-MS analysis suggested that acids, alcohols, glucosides, ketones, lipids, peptides, and metabolites were oxidized to low-molecular-weight counterparts. From the results, 5% Cr-TiO<sub>2</sub> showed the highest degradation rate among all Cr-TiO<sub>2</sub> samples, undoped TiO<sub>2</sub>, and Degussa P25 TiO<sub>2</sub> under identical reaction conditions, with nearly 68–70% degradation achieved in 5 h.

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### 1. Introduction

An adequate supply of fresh and clean water is a basic need of all humans. Without clean water, neither humans nor the environment can survive. The demand for water has increased over the years, which has led to water scarcity in many regions. Furthermore, agricultural land loses its fertility due to the disposal of spent wash directly into rivers. Distilleries use different raw materials, such as sugarcane juice, sugarcane molasses, sugar beet molasses, cereals, and other agricultural products to produce alcohol and other beverages. The production of fermented and distilled beverages worldwide is based on materials that can be grown locally and are best suited to prevailing climatic conditions. During the distillation process, an average of 12–15 L of effluent is generated per litre of ethanol produced. Molasses is fermented by yeast after suitable dilution. The unwanted bottom part of the distillation is known as stillage, spent wash, or alcohol distillery waste. In addition to being coloured, this discharged distillery effluent contains high amounts of total dissolved solids, contributed to by an acidic pH and other pollutants. These solids are complex polymers containing heterocyclic nitrogenous aldehyde-amine compounds, various heavy metals, phenolic compounds, and plant-derived resins and fatty acids. The polluting strength of the effluent is very high owing to the presence of biodegradable organic materials, such as sugars, lignin, hemicellulose, dextrin, resin, and organic acid. In addition to its overall composition, distillery waste possesses a strong foul smell at high temperatures. The dark brown colour of spent wash is due to the presence of melanoidin, a natural condensation

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**61. Title of Paper: Development of Bioinsecticides Against *Spodoptera frugiperda* using Chitinolytic Bacteria**

Int. J. Life Sci. Pharma Res. 2018 July; 8(3): (L) 9-15		
Original Research Article	Microbiology	
	International Journal of Life science and Pharma Research	ISSN 2250-0480
<b>DEVELOPMENT OF BIOINSECTICIDES AGAINST <i>SPODOPTERA FRUGIPERDA</i> USING CHITINOLYTIC BACTERIA</b>		
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<b>ABSTRACT</b>		
<p>Actinomycetes play an important role in the biological control of insects by producing insecticidal active compounds against various insects. They are predominantly found in soil, in the silt of water bodies, in the air and in plant remains. Chitinase is increasingly finding applications in various fields such as biomedicine, in ultra-structural studies, in the preparation of chitooligosaccharides, in single-cell protein production, biocontrol agents, agriculture, etc. Chitinase is originally an enzyme used by insects to degrade the structural polysaccharide of insects. Chitinase brings about hydrolysis of chitin which is widely distributed in cell wall of fungi, plants and insects. An attempt has been made to use chitinase producing bacteria for the development of bioinsecticides against <i>Spodoptera frugiperda</i>, which feeds on over more than 60 species of plants and it is periodic. The <i>Spodoptera frugiperda</i> armyworm (Lepidoptera) is a serious pest of cabbage and other crop. It is also major pest of maize, rice, sorghum, turf grasses, cotton, and peanuts, etc. In this attempt enrichment and isolation of chitinase producing bacteria from soil was carried out. Chitinolytic activities of the three isolates were tested against larvae of <i>Spodoptera frugiperda</i>. Three isolates were individually applied against <i>Spodoptera frugiperda</i>. The isolates named A1, A2 and A3 were found to be more effective against <i>Spodoptera frugiperda</i>. The insecticidal activity of isolate A1 was tested and control within 5 hours. Isolate A2 was treated with larvae <i>Spodoptera frugiperda</i> killed after 8 hours whereas, isolate A3 controlled after 24 hours. The evaluated insecticides provided a significant reduction in the infestation level, for variable periods.</p>		
<b>KEYWORDS:</b> Biological Control, Bioinsecticides, Chitinase, <i>Spodoptera frugiperda</i>		
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This article can be downloaded from <a href="http://www.ijlpr.com">www.ijlpr.com</a>		
L-9		

Author Name: Dr. Khisti U. V.

## 62. Title of Paper: Isolation and Identification of *Saccharomyces cerevisiae* from Caterpillar Frass and their Probiotic Characterization

BIOSCIENCES BIOTECHNOLOGY RESEARCH ASIA, March 2019. Vol. 16(1), p. 179-186

1324 2456

### Isolation and Identification of *Saccharomyces cerevisiae* from Caterpillar Frass and their Probiotic Characterization

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Probiotics are live microorganisms which upon ingestion confer health benefits to the host and are widely applied for human and animal welfare. The present study reports the isolation of yeast cells from caterpillar frasses and its probiotic characterization. Out of four yeast cultures isolated, all found to be non-hemolytic and cultures designated as CV-I, CV-II, CV-III and CV-IV showed good bile tolerance at 1.2%. These cultures possessed the ability to grow pH range of 1.5 – 10, exhibited auto-aggregation and co-aggregation capabilities, which are essential for growth in alimentary canal and reduction of pathogen adherence on the intestinal epithelial cells. All cultures exhibited good tolerance to temperature up to 42°C. Isolate CV-I showed wide range of antimicrobial activities against pathogenic bacteria and fungi. This study is the first report of isolation and characterization of probiotic yeast from caterpillar frass. The isolate CV-I has been identified as *Saccharomyces cerevisiae* by molecular methods. This culture is an ideal candidate for further probiotic exploration.

**Keywords:** *Azadirachta indica*, caterpillar frass, *Saccharomyces cerevisiae*, probiotic yeast.

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According to FAO/WHO 2001 reports, probiotics are stated as live micro-organisms which when administered in adequate amounts, confer a health benefit on host, such as production of antimicrobial compounds, modulation of immune response, confer resistance to food antigens, assimilate cholesterol, prevent autoimmunity etc<sup>1</sup>. They also possess the ability to enhance digestion and utilization of nutrients<sup>2</sup>, along with production of precursors of aroma compounds such as free amino acids, free fatty acids etc<sup>3</sup>. Considering these benefits, probiotics are increasingly used in commercial animal production, thereby improving animal health and productivity. According to ICMR-DBT, WHO and world gastroenterology organization reports a probiotic strains should not be toxic, it should tolerate wide range of pH and temperature and should be able to tolerate the gastric and intestinal environment. Although many yeasts and bacteria are characterized as a probiotic organism, still there is scope for exploring different sources for probiotic microorganisms. Gut microflora is very critical for the health and survival for any organism. It helps the organism to digest the food, detoxify the alkaloids and improve the immunity<sup>4</sup>. Hence, it is likely to isolate a beneficial microorganism from the gut of a healthy organism. This study reports for the first time the isolation of probiotic yeast from the frass of caterpillar of *Indarbela guardinotata* collected from bark of

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Author Name: Dr. Patil N. N.

## 63. Title of Paper: Bioabsorption of Cadmium & Nickel by Retreated Biomass of *Aspergillus* Sp.

Indian Journal of Experimental Biology  
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### Biosorption of cadmium and nickel by pretreated *Aspergillus* spp. biomass

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Industrial effluents contaminated with the heavy metals pose threat to the environment and its habitants. Biosorption is an effective and eco-friendly method for sequestration of heavy metals from such effluents. Fungi, with their remarkable metabolism-independent metal uptake systems, are efficient natural biosorbents of heavy metals. Therefore, we explored fungal biomass (*Aspergillus* spp.) pretreated with formaldehyde (solvent) and sodium hydroxide (alkali) for sequestration of metals cadmium (Cd) and nickel (Ni) from the aqueous solutions contaminated with heavy metals. The results have shown significant increase in the sequestration of Cd and Ni by the *Aspergillus* spp. biomass pretreated with formaldehyde and sodium hydroxide and thereby demonstrated its potential in cleaning the environment polluted with heavy metals.

**Keywords:** Bioremediation, Compost, Degradation, Heavy metals, Lignocellulose, Sequestration

Increased industrialization and human activities have contaminated the environment with heavy metals through waste disposal. Mine drainages, metal industries, refining, electroplating, dye and leather industries, domestic effluents, landfill leachate, agricultural runoff, and acid rain contribute to such contamination<sup>1</sup>. Heavy metals such as copper and cadmium are reported to induce production of reactive oxygen species, and negatively affect the population growth of ciliates<sup>2</sup>. Cadmium intake is reported to cause oxidative stress and have adverse effect on neural tissues<sup>2,3</sup>. On the other hand, in nature, microorganisms viz. algae, bacteria, fungi and yeast are capable of accumulating the heavy metals and thereby make the environment relatively clean and better<sup>4,5</sup>. They act as efficient biosorbents.

Biosorption, non-directed physicochemical interaction that occurs between metals and microbial cells, is

reportedly a better ecofriendly alternative over the conventional physical and chemical methods<sup>6,7</sup>. It is reported to be influenced by various factors and processes, such as temperature, pH, initial concentration of the metal ions, biosorbent dose, and speed of agitation<sup>7</sup>. The cadmium uptake capacity of green algae biomass from the aqueous solutions has been shown to be affected by pH, temperature, biomass dosage and initial metal concentration<sup>8</sup>. Further, the biosorption capacity of biomass can be modified by physical and chemical pretreatment<sup>7</sup>. Potential of filamentous fungi in bioremediation of heavy metals from the industrial effluents and wastewaters has been reported from different parts of the world<sup>9</sup>. Bioaccumulation of heavy metals from aqueous solution using *Aspergillus flavus* and *Rhizomucor pusillus* has also been reported<sup>10</sup>. Cai *et al.*<sup>11</sup> have demonstrated removal of heavy metals from the aqueous solutions using immobilized biomass of *Penicillium janthinillum*. Works on bioaccumulation of cadmium by green algae<sup>8</sup> and *Aspergillus flavus*<sup>12</sup>; and Cd, lead and nickel accumulation by *Spirulina maxima*<sup>13</sup> are also available.


The specific mechanisms of uptake differs with the species; the origin of the biomass and its processing<sup>14</sup>. The hyphal wall is the primary site of metal ion accumulation. This accumulation is attributed to various chemical groups (the acetamido group of chitin, amino and phosphate groups in nucleic acids, amino, amido, sulfhydryl and carboxyl groups in proteins, and hydroxyls in polysaccharides) that sequester the metal ions<sup>15</sup>. Biomass of fungi, viz. *Absidia*, *Cunninghamella*, *Mucor*, *Penicillium chrysogenum*<sup>16</sup>, *Streptomyces pimprina* and *Rhizopus* exhibit excellent metal ion uptake due to the high chitin and chitosan cell wall content<sup>17</sup>. Fungi have been proven more efficient and economical for sequestration of toxic metals because of their filamentous morphology and cell wall composition<sup>18</sup>.

Fermentation industries all over the world generate huge amounts of waste biomass which are used in animal feed or organic manure if not incinerated. The food and beverage industries, chemical industries (e.g., citric acid), enzymes industries that produce array of enzymes and pharmaceutical industries involved in steroid transformation, generate large

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## 64. Title of Paper: Studies on the Titanium dioxide nanoparticles Biosynthesis, Application and Remediation



Review Paper

### Studies on the titanium dioxide nanoparticles: biosynthesis, applications and remediation

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**Abstract**

Nanoparticles have wide applications in various fields due to their small size. Titanium dioxide nanoparticles are bright with high refractive index ( $n = 2.4$ ) which makes them suitable for industry dealing with toothpaste, pharmaceuticals, coatings, papers, inks, plastics, food products, cosmetics and textile. Three crystalline phases of titanium dioxide, are anatase (tetragonal), rutile (tetragonal), and brookite (orthorhombic) in which brookite has no commercial value. Due to their self cleaning and antifogging property, they are used in the preparation of cloths, windows, tiles and anti-fogging car mirrors. Titanium dioxide nanoparticles also serve as environment sanitizing agent. Sol-gel route, flame hydrolysis, co-precipitation, impregnation and chemical vapor deposition like techniques are used for the synthesis of  $\text{TiO}_2$  nanoparticles. Biosynthesis of titanium dioxide nanoparticles has gained wide interest among researchers due to its cost effective, eco-friendly and reproducible approach. The sol-gel route remediation of the titanium dioxide from the environment is an important step and it can be achieved by using physical processes like sedimentation and filtration. The biosynthesis of titanium dioxide nanoparticles can be used in comparison to chemical synthesis. The titanium dioxide nanoparticles have wide applications, viz., reducing toxicity of dyes and pharmaceutical drugs; waste water treatment; reproduction of silkworm; space applications; food industries; etc., and so have immense industrial importance. The applications of nanoparticles synthesized by biological approach will be advantageous for the industries; environment and agriculture.

**Keywords** Sedimentation · Filtration · Antifogging · Refractive index · Titanium dioxide nanoparticles

### 1 Introduction

India is the reservoir of two chief minerals of titanium viz., Ilmenite ( $\text{FeO} \cdot \text{TiO}_2$ ) and rutile ( $\text{TiO}_2$ ). Titanium dioxide ( $\text{TiO}_2$ ) exists in rutile, anatase (octahedrite) and brookite form. Brookite is not found in abundance, it is an altered product of some titanium minerals. The reservoirs of  $\text{TiO}_2$  in different states are shown in Table 1. The  $\text{TiO}_2$  nanoparticles have many merits viz., high specific-surface area, proper electronic band structure, high quantum efficiency, chemical innerness and stability [1]. The research is gaining immense interest for the synthesis of  $\text{TiO}_2$  on a large-scale by biological way which will be cost-effective.

There is report on  $\text{TiO}_2$  nanoparticles synthesized using microbes viz., *Lactobacillus* sp. and *Saccharomyces cerevisiae* which is low-cost [3, 4]; using *Aspergillus flavus* TFR7 [5, 6], *Chromohalobacter salexigens* strain PMT-1 [7]. There is a report on biologically synthesized of  $\text{TiO}_2$  nanoparticles using *Bacillus subtilis* (FJ460362) for the study of photo catalytic activity in controlling aquatic biofilm [8]. Nanoparticles have wide applications specially the  $\text{TiO}_2$  particles viz., cosmaceutical, pharmaceutical, optical, commercial applications [9].

There are reports on applications of  $\text{TiO}_2$  nanoparticles. Cyanide annual world production is 1.4 million tons and is mainly used for gold mining. But, most of the cyanide from

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## 65. Title of Paper: Bioactive Potential of *Parthenium Hysterophorus* Cytotoxicity of Parthenin



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### Bioactive Potential of *Parthenium hysterophorus* and Cytotoxicity Assay of Parthenin

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#### Abstract

*Parthenium hysterophorus* belongs to the family Asteriaceae. It is rich in hormones, carbohydrates, alkaloids, steroids, tannins, saponins etc. and hence can be used as traditional medicine. Solvent extracts of leaves was tested against pathogenic bacteria and fungi, by using Disk Diffusion method. Qualitative analysis of aqueous leaf extract was studied for the phytochemical screening. Phytochemical analysis shows the presence of steroids, phenol, saponins, tannin, flavonoids, terpanoids, carbohydrates etc. Fluorescence analysis of leaf powder was carried out. Parthenin compound was extracted from *Parthenium hysterophorus* and was tested for used for cytotoxicity activity using MBMD231, breast cancer cell line. Further studies were carried out on detection of anti-diabetic activity by two ways i.e.  $\alpha$ -amylase inhibition which showed  $75 \pm 1.04$  % activity and glucose diffusion inhibitory study showed 20% relative movement. *Parthenium* leaf extract have  $74.3 \pm 0.3$  % anti-oxidant activity using DPPH method while  $0.81 \pm 0.04$  mg of Trolox equivalent/ gram using FRAP assay. But only  $18.18 \pm 0.02$  % of anti-arthritis and  $52.72 \pm 0.018$  % thrombolytic activity. Cytotoxic assay was on MDMB231 cell line showed that parthenin have very low cytotoxicity. Anti-helminthic activity was done using *Asonia putida* earthworm. No paralysis or death of earthworm was found within 24 hours by aqueous leaf extract of *P. hysterophorus*.

#### Keywords

Anti-arthritis and thrombolytic, Anti-diabetic, Anti-oxidant, Anti-helminthic, Cytotoxicity assay, Fluorescence analysis, Parthenin.

\*\*\*\*\*

#### 1. INTRODUCTION:

*Parthenium hysterophorus* is an aggressive ubiquitous annual noxious weed. It is usually known as carrot grass, white top, congress grass, star weed, santa-maria feverfew, bitter weed. This harmful weed is frequently spotted on road sides, parks,

drainage lines, water supply canals and mostly in fields with crops. Some allergic respiratory problems, contact dermatitis, mutagenicity in humans and livestock can caused due to regular contact with this weed [1]. This weed was introduced in India as a contagion in PL 480 Wheat (Public Law 480) passed

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**66. Title of Paper: An implementation and Security Analysis of Swati Verma's Digital Signature Scheme for very large Prime Numbers National**

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**An implementation and Security Analysis of Swati Varma's Digital Signature Schemes for very large prime numbers.**

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**Abstract—**  
A Digital Signature is a cryptographic method used to identify individual, process, computer system, or any other entity. It is much the same way as a handwritten signature verifies the identity of a person. Digital signatures use the properties of asymmetric key cryptography to produce small information that verify the origin of the data. There are various digital signature schemes have been proposed which uses the factorization, discrete logarithm and elliptical curve problems. We analysis the Swati Varma and Birendra Kumar Sharma digital signature scheme which combines both hard problems factorization and discrete logarithm. So it is difficult for solving two hard problems from the hackers point of view. This paper presents the Implementation of Swati Varma Digital Signature Scheme for large Prime number, probably more than 500 digit long. same, with the help of different tools and further analyzes them from different attacks perceptions.

**Keywords**  
Cryptography, Digital Signature, Integer Factoring, Discrete Logarithm.

**1. INTRODUCTION**  
Now-a-days, internet is widely used for communication and business purpose. We require security and trust when we deal with E-Commerce. In this communication, the person may be unknown or we don't have document to prove his identity. To achieve the security and trust the Digital Signature is used. It is a mathematical scheme for achieving the authenticity of digital documents; it is also known as electronic signature.  
Digital signatures employ public key cryptography. The complexity of any cryptographic algorithm is based on solving hard problem. The conventional cryptographic algorithms are either based on integer factorization or discrete logarithm. Most of the existing digital signatures are based on single hard problem like factoring, discrete logarithm, residuosity or elliptical curve cryptography. Although these schemes are secure, in near future if an adversary manages to solve this problem.  
The Digital Signature is divided into three phases. First is- Key generation or Initializations phase. It includes the choice of two large prime numbers and generation of public and private keys. Second phase is signature generation in which messages, keys and modular arithmetic are used to form the signature. The third phase is signature verification, where the message is verified against the original message using the verification equation, if equation holds then verifier believes that message is indeed an authenticated message else message is considered to be altered.  
We have analyzed and implement the Swati Varma's Signature scheme, which based on Two Hard Problems that are integer factorization and discrete logarithm. As day by day Computing power of machines are increasing. So it is possible to break the signature for small prime numbers, so we are

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