

# **INTERNATIONAL RESEARCH JOURNAL OF MULTIDISCIPLINARY STUDIES**

**MONTHLY DOUBLE-BLIND PEER REVIEWED REFERRED OPEN ACCESS INTERNATIONAL JOURNAL**

**[www.irjms.in](http://www.irjms.in)**

**E-mail : [irjms2015@gmail.com](mailto:irjms2015@gmail.com) [irjms.in@gmail.com](mailto:irjms.in@gmail.com)**

**Volume V, Special Issue II Part -I ISSN: 2454-8499**

**JANUARY 2020**

**Impact Factor: 1.89(GIF), 0.679(IIFS)**

## **SPECIAL ISSUE ON Impact of GST on Economy, Commerce and Industry**



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**"Effects of GST on Indian Economy"**

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**Abstract:**

Goods and Services Tax is popularly known as GST. This is a single tax on the supply of goods and services, right from the manufacturer to the consumer. Credits of input taxes paid at each stage be available in the subsequent stage of value addition, which makes GST essentially a tax only on value addition at each stage. This research paper highlights the positive and negative impact of the GST on Indian Tax System. 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 average, compelling organizations to realign bottlenecks such as production cost, logistics etc. with change in indirect tax structure. Most countries have a unified GST system. However India is opted for a dual system prevalent in Brazil and Canada. Under this Model both the centre and states have the right to levy and collect tax on the sale of Goods and Service. It is a single tax on the supply of goods and services, right from the manufacturer to the consumer. GST will replace the current taxes such as excise and service tax and excise. It will bring uniform taxation system across the country. It will also allow for tax credit from the procurement of capital goods and inputs. It can later be set off against GST output tax liability. This reform gives equal footing to the big enterprises as well as SMEs. The main object of GST is to simplify present tax barriers for the entire economy. This research paper will discuss in detail concept of GST, its need, its impact i.e. both positive and negative impact on Indian Economy

**Keywords:** - GST, Effects, Need, Indian Economy.

**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 will be 3 types of GST: CGST- Collected by Centre, SGST- Collected by State, IGST- Applicable on inter-state sales. It will help in smooth transfer between states and the Centre. The Goods and Services Tax would be a very noteworthy step in the field of indirect tax reforms in India. From the consumer point of view, the biggest advantage 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. Thus, the impact of GST on Indian Economy is going to be very significant.



**Objective of the study:**

- 1) To study the concept of GST and its related aspects.
- 2) To study the need of GST in Indian Scenario.
- 3) To point out positive and negative impact of GST model in Indian Economy.
- 4) To provide necessary suggestions for better implementation of GST in the context of Indian Economy.

**Research Methodology:**

The present research is Descriptive Research. For present research, data have been collected through secondary sources such as reference books, journals, articles published on internet websites etc.

**Need of the study:**

This study will elaborate the GST impact on various sectors of economy after its implementation, it will point out the gap between current indirect taxes and new tax system i.e. GST. Also the study will show positive and negative impact of GST after implementation. It will prove to be of great help to a common man to understand the concept the GST. In addition to that it will eradicate the unnecessary fear of GST from among the business community members.

**Features of GST:**

- 1) Goods and Service Tax is one indirect tax for the entire nation, it will make India "one unified common market".
- 2) There are four types of GST namely:
  - a) SGST – State GST, collected by the State Govt.
  - b) CGST – Central GST, collected by the Central Govt.
  - c) IGST – Integrated GST, collected by the Central Govt.
  - d) UTGST – Union Territory GST, collected by the Union Territory
- 3) It will replace multiple taxes like VAT, CST, Excise Duty, Entry Tax, Octroi, LBT, Luxury Tax ect.
- 4) Tax Payers with an aggregate turnover in a financial year up [ Rs. 20 Lakhs & Rs. 10 Lakhs for North Eastern States and Special Category States] would be exempted from tax.
- 5) GST slabs are pegged at 5%, 12%, 18% & 28%.
- 6) Through GST the government receives more amount of Tax revenue which will be utilized for the services to the public
- 7) As there is more transparency in the system of GST and since it is a system of single taxation, the chances of corruption will be very low.
- 8) The main reason behind introducing GST is to improve the economy of the nation.
- 9) VAT rates and regulations differ from state to state. It is also seen that states often choose to slash these rates for attracting investors. This results in loss of revenue for both the Central as well as State government.

## Impact of GST on Small Scale Enterprises (Rural Sector)

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### 1. Abstract

*The direct tax and indirect tax are the wheels of our economy, both are equally vital for the development and growth of our country. The basic difference between direct tax and indirect tax is direct tax is directly paid by individual to the Government and Indirect tax paid indirectly to the Govt. In brief the direct tax is levied to individual on his individual income it means that higher income then higher amount of tax is charged and paid by individual whereas indirect tax collected from the ultimate consumer and paid to the govt. on behalf of consumer. Now a day's Indirect Tax Act is turned into GST Act. An indirect tax there are many taxes are insist which is charged by Central Government like central excise duty, duties of excise (medicinal and toilet preparations), Additional duties of excise (goods of special importance), Additional duties of excise (textile and textile product), Additional duties of customs (CVD), Special duties of custom (SAD), Service tax whereas State Govt. charged VAT or Sales Tax, Central Sales Tax, Luxury tax, Octroi and entry tax, entertainment tax, Taxes on advertisement, Purchase tax, Taxes on lotteries, betting and gambling, state surcharges, additional taxes. When central government took decision to implement the GST Act (Goods and Service Tax Act 2017) in India then it affect on the hampering the growth of Small Scale Enterprises.*

**Keywords** -Indirect Tax, Direct Tax, GST, Small Scale Enterprises.

### 2. Introduction

On the midnight of 1<sup>st</sup> July 2017 the Prime Minister Mr. Narendra Modi announces the GST model in the parliament in the presence of president of India Mr. Pranab Mukharji. The historical moment is recorded in India to bring the One Tax One Nation dream in to force. Goods and Service tax gained the advantages to the customer, to the shareholder, trader and to the entrepreneur. Now approximately GST is currently existed in 160 countries. The France is the first county in the world to accept the GST model. Due to the GST immense changes may be happen in the economy. In India GST bill far ago pending from 2000 in the regime of ex-prime minister Mr. Atalbihari Vajpayee. When the concept of GST is taken birth in India that time finance minister of West Bengal is appointed as chief of GST committee. In 2003 the government of Atalbihari Vajpayee appointed Mr. Vijay Kelkar to make the revision in GST model. In 28<sup>th</sup> Feb 2006, present finance

minister announce the implementation GST from 1<sup>st</sup> April 2010 in the Budget of 2006-07 central Government officer and state government officer jointly study the different angles of GST model and present the report. After the far discussion Authorization committee published the first discussion paper in November 2009.

In India implementation of GST model amendment in constitution is necessary. The current Mr. Narendra Modi Government takes the fast steps in implementation of GST model. Therefore the GST bill is kept in parliament for amendment in constitution on 19<sup>th</sup> December 2014 (122th amendment) and May 2015 the parliament accept this bill. Then this bill is kept in Rajyasabha and on 14<sup>th</sup> may 2015 this bill had kept in front of joint committee of parliament and Rajyasabha. This committee has submitted the report on 22th July 2015 revised amendment in bill presented on 1<sup>st</sup> August 2016 and this bill is permitted in Rajyasabha 3<sup>rd</sup> August 2016 and parliament on 8<sup>th</sup> August 2016. After the permission of state assemblies and president of India on 8<sup>th</sup> September 2016. Amendment Act 2016 is passed and way of implementation of GST model all over the India is clear. Amendment Act 2016 gives the right for collection of tax on goods or services or on both to the central government and state government i.e. CGST (central Goods and Service Tax), SGST (State Goods and Service Tax), IGST (Integrated Goods and Service Tax). Goods and Service tax is levied on all goods and services excluding alcohol, and petroleum goods like crude oil, high speed diesel, natural gas etc.

2.1 Meaning:-

- a) Goods and service tax means taxes on goods or services or on both excluding alcohol and petroleum goods.
- b) Small scale enterprises means those industries whose capital is more than 25 lakh but less than 5 Crore.

In GST model is dropout to those small scale enterprises whose annual turnover is below 20 lakh.

### 3. Impact of GST on Small Scale Enterprises.

A) Positive Impact

❖ Registration-

Online registration system helps to get timely receipt of certificate of registration and minima bureaucracy interface.

❖ Ease of Doing Business

Due to the GST, to launch a new business or concern is a simple task because in earlier of GST Act it is very difficult or brings obstacle to start new enterprises as like different laws, variation in registration process, VAT Registration in each state. Now GST Act removes these entire barriers because of centralize registration process.

❖ Reduction in Logistic Cost

GST assist to erase all multiple entry taxes which are imposed at regional toll booths. In earlier year (Before GST Act) it is required to incurred tremendous cost on transportation in different stste of the Country whereas long queue at stste border are a thing of past.

❖ **Payment**

GST birth allows only Electronic Payment which is bring transparency and also helps to reduce cost compliance.

❖ **Refund**

Electronic system helps to get early refund and increase the liquidity for industry.

❖ **Returns**

All the returns are necessary to be filled electronically and input tax credit and tax liability adjustment will occur automatically on the basis of their returns.

where Khurram's true nature is revealed to Haider.

Though the films deal with different settings and cultures and are made in different language, still there are stark similarities between them. Whenever a ghost is evoked in the Shakespearean play, in its Bollywood counterpart, *Maqbool* and *Haider* are either hallucinates or is visibly disturbed, but never sees ghosts. Bhardwaj makes certain changes in the beginning of the story, climax and nature of some of the characters to give the story Indian touch. What Shakespeare did verbally, Bhardwaj did visually. In short, the present paper has analyzed the ways through which Shakespeare has been adopted and adapted in Bollywood films by Vishal Bhardwaj.

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[http://movies.monstersandcritics.com/indiancinema/features/article\\_1183279.php/Shakespeare\\_gets\\_his\\_due\\_in\\_Bollywood](http://movies.monstersandcritics.com/indiancinema/features/article_1183279.php/Shakespeare_gets_his_due_in_Bollywood)

## CHALLENGES OF FILMING LITERATURE AND SCREENING ARTISTIC ENDEAVOUR

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#### Abstract:

The present paper aims at exploring the adaptations of the films as an instructional tool in the teaching of literature. It has been an extended form of literature to impart the ideas of the literary works through the world of media. The innovative and progressive texts on adaptation theory make an extreme impact in form of the attraction of the subjects to grasp the wider knowledge of the divergent academic disciplines to incorporate new methodologies and approaches. The media creates a kind of visual culture outside the classroom with the avenues available to equip with the film adaptations. The interplay of the literature through films has certain limitations but it makes the audience to be more acute observer of the artistic influences. The pedagogical purpose is influential on illuminating students' perception of literature, or to better understand cinema's artistic qualities via its association with other media such as films

**Keywords:-** Pedagogy, Film Adaptation, Literature, Media

The present paper aims at exploring the adaptations of the films as an instructional tool in the teaching of literature. It has been an extended form of literature to impart the ideas

of the literary works through the world of media. The innovative and progressive texts on adaptation theory make an extreme impact in form of the attraction of the subjects to grasp the wider knowledge of the divergent academic disciplines to incorporate new methodologies and approaches. The media creates a kind of visual culture outside the classroom with the avenues available to equip with the film adaptations. The interplay of the literature through films has certain limitations but it makes the audience to be more acute observer of the artistic influences. The pedagogical purpose is influential on illuminating students' perception of literature, or to better understand cinema's artistic qualities via its association with other media such as films.

The film screening of a novel or play would rarely oblige an interest in the totality of the work, or even in its overall structural shape. The brevity of each exhibited film requires effect, to produce cinematically animated, brief, visual quotations from a literary work. Thomas Letich and Kyle Meikle point out that the studies of cinematic adaptations on material originally presented in another medium are scarcely a century old. Even so, particular studies of adaptation, the process by which texts in a wide range of media are transformed into films, cannot be properly understood without reference to the specific period they were produced in. Each generation of adaptation studies has produced its own principles and orthodoxies, typically by attacking the orthodoxies and principles of the preceding generation. DeWitt Bodeen, co-author of the screenplay for Peter Ustinov *Billy Budd* (1962), claims that: 'Adapting literary works to film is, without a doubt, a creative undertaking, but the task requires a kind of selective interpretation, along with the ability to recreate and sustain an established mood' (Bodeen, 'The Adapting Art', *Films in Review*, 1962).

The filmmakers integrate text into the

film so cleanly that a viewer could watch a film without paying much attention to the fact that the reading is involved. The text appeals the conventions and imparts more standard information than the films. The viewers and the readers may find the difference between spoken and expository titles. The narrative while reading the text imparts an artistic pleasure but one may find the dialogues in the cinematic arts with the adoption of synchronized sound. The characters from the text replacing in the film in a dialogic form seem simply make the inter titles replacing all the functions. The text 'speaks' more lively with the readers in such situations where the readers can attribute to the imaginative sights of the setting or emotional situations. The film adaptation of the text 'reels out' the narrative space and the productive emotional insights in an artificial manner. The film adaptation is a guided by the conventional wisdom to project a story in a limited span by ignoring the time and action. It is a dynamic side of the literature to keep the readers vibrant in moving images rather than screening the images moving. The absurdity in the cinema while adapting the text cannot have much impact as it will have an impact in the dialogue or narration. The film adaptation of such situations leads the monotonous impact on the viewers instead of making them to enjoy the artistic beauty of the writer. Christian Metz, discussing film narratives, writes that the 'Film tells us continuous stories; it "says" things that could be conveyed also in the language of words; yet it says them differently. There is a reason for the possibility as well as for the necessity of adaptations.' (Metz, 1974:P.44) The film adaptation is an art that occupies the certain perspectives of screening the text in lively manner which relates the narration, dialogues and action in accordance with the emotions and artistic effects.

The basics of film adaptation is concerned with the transferring the textual





# Studies of Plant Growth Promoting Rhizobacterial Inoculants on Sugarcane in Saline Soil

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Received: 30 Jan 2019 / Accepted: 20 Feb 2019 / Published online: 01 Apr 2019

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## Abstract

Salinity of soil is an emerging problem of the agriculture that reduces plant growth and yield. Use of plant growth promoting rhizobacteria (PGPR) inoculant in saline soil improves fertility and induces plant growth promotion. These beneficial microorganisms colonize the rhizosphere /end-rhizosphere of plants and impart saline tolerance. Halo tolerant PGPR cultures were isolated from saline soil fields based on soil's physico-chemical properties from Baramati region. The selected isolates *Azotobacter* spp., *Rhizobium* spp. and *Azospirillum* spp. were characterized on the basis of morphological and biochemical tests. These cultures were salt tolerant up to 2 % NaCl and having nitrogen fixation, alkaline phosphatase, indole acetic acid (IAA) and exopolysaccharide production activity. We assessed PGPR inoculants on sugarcane grown in saline soil by pot assay method. This method carried out by giving treatment to saline soil with halo tolerant PGPR inoculants. Sugarcane plantlets germination rate, shoot length, chlorophyll content of leaf and percent nitrogen content of leaf improved in pots inoculated with of halo tolerant PGPR inoculants. Simultaneously, all halo tolerant PGPR inoculants improved saline soil health in treated pot soil over control, with respect to available nitrogen, phosphorus, potassium and organic carbon also decreasing electrical conductivity, pH and sodium adsorption ratio of saline soil. The present article focuses on evaluation of halo tolerant bacterial strains to stimulate saline tolerance and promote growth of sugarcane in saline soil. It inferred that PGPR inoculants are applicable in promoting plant growth under salt stress.

## Significance Statement:

Sugarcane is the major crop of farmers. Salinity of soil affects growth and productivity of sugarcane. This study was conducted in an attempt to isolate and characterize halo tolerant PGPR from saline soil habitat and its efficacy in it.

## Keywords

Saline soil, halo tolerant PGPR, sugarcane, pot assay.

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## INTRODUCTION:

Salinity of agriculture soil is one of the most common environmental stress factors that adversely affect

plant productivity by retarding plant growth and development. The overuse of water and chemical fertilizers has plays significant role in increasing

salinization of soil. One of the major complications in this process is the increase in the concentration of soluble salts in the root zone of soils, which affects the rhizospheric populations thereby affecting plant productivity [1]. Soil salinity limits the lands capability for supporting optimum plant growth therefore growing demands of expanding population for various biomass products have necessitated an exploitation of these soils [2]. A new biological approach of plant microbe interaction to conquer salinity troubles has recently gained a great interest from many workers throughout the world. Use of rhizobacteria is one of the most acceptable approach to reduce the effect of salt stress on plants by mechanisms which either modulate or ameliorate the salt stress [3]. Soil organic matter and beneficial soil microbes have been recognized as key factor in maintaining soil quality and crop production. Bioinoculants contain beneficial microbes that enhance plant growth when applied in soil by nutrient solubilization, nitrogen fixation, phytohormones production resulting in available forms of nutrients in soil which improved soil properties and productivity [4,5]. To make agriculture sustainable and less dependent on chemical fertilizers it is important to know how to use PGPR that can biologically fix nitrogen, solubilize phosphorus and induce IAA that can contribute to improvement of crop growth.

Plant growth promoting rhizobacteria (PGPR) can protect plants from deleterious effects of environmental stresses including drought, salinity, heavy metal and phytopathogens. Many plant growths promoting rhizobacteria (PGPR) facilitate plant growth indirectly by reducing plant pathogens or directly by facilitating the uptake of nutrients from environment. PGPR influence the plant hormonal balance by producing compound such as phytohormone indole acetic acid. They can mobilize nutrients to plants such as phosphorus by solubilization of soil insoluble phosphates. Some rhizobacteria produce microbial inhibitory compounds such as siderophore Fe chelating molecules that inhibit growth of phytopathogen in soils with low content of this ion promoting indirectly the plant growth. PGPR fixes nitrogen from environment that becomes available to plants [3]. To rescue plant growth in saline conditions, PGPR have been known to play an essential role in the growth and metabolism of plants [6]. Certain varieties

of PGPR *Bacillus*, *Burkholderia*, *Acenitobacter*, *Alcaligenes*, *Arthrobacter*, *Azospirillum*, *Azotobacter*, *Beijerinckia*, *Flavobacterium*, *Rhizobium* and *Serratia* are now being used worldwide as biofertilizer to enhance crop productivity [5,7]. Strains from *Azospirillum*, *Bacillus*, *Azotobacter* are commercialized as biofertilizers for non-legumes plants. There is no commercial biofertilizer for non-legumes based on *Rhizobium*. But *Rhizobium* has potential as non-legume plant growth promotion by producing IAA, phosphate solubilization, exopolysaccharide production and siderophore production. *Rhizobium* promotes the growth of non-leguminous plants like sunflower, canola, tomato, pepper shown in other reports [8, 9]. So, we selected *Rhizobium* as PGPR inoculants in this study.

Today, much of agriculture land in Maharashtra has become saline due to faulty irrigation practices and overuse of chemical fertilizers. Sugarcane is the major crop of farmers. Salinity of soil effect on growth and productivity of sugarcane. This study was conducted in an attempt to isolate and characterize halo tolerant PGPR from saline soil habitat and to evaluate their ability of improvement in saline soil properties and sugarcane plant growth promotion in saline soil by pot assay method.

#### MATERIAL AND METHODS:

##### Sample collection:

Baramati Tehsil region, Maharashtra, India was chosen for sample collection. The locations were Dorlewadi, Zargardwadi, Malegaon, Medad, Shardanagar, Krishi Vigyan Kendra Malegaon, Songaon. A total of 50 saline sites were chosen from the locations mentioned. Soil with pH higher than 8.5 and electrical conductivity above 2.5 dS/m were chosen for the study. From each saline site at least 60cm deep soil was taken. Soil samples were collected from the rhizosphere area of plants. The soil samples were placed in plastic bags and stored at room temp. At selected point in the trial area without bulking sample, because soil is spatially variable. For *Rhizobium* strains roots of leguminous plants were removed. All the samples were taken in different polythene bags and brought to the laboratory [10].

##### Isolation and identification of PGPR cultures

Enrichment of organism carried out in Ashby's broth and yeast extract mannitol broth. All bacteria were

isolated on yeast extract mannitol agar and Ashby's mannitol agar media. Isolates biochemically characterized by Gram's staining, motility and biochemical tests like catalase, oxidase, sugar utilization, ammonia production, amylase test and citrate utilization tests were performed as per standard methods [11]. All isolates were identified as per the Bergey's Manual of Determinative Bacteriology 9<sup>th</sup> Edition [12]. Specific medium for *Azotobacter* spp. Ashby's mannitol media, *Rhizobium* spp. yeast extract

mannitol media and *Azospirillum* spp. medium for *Azospirillum* used for inoculants production.

#### Determination of salt tolerance

Isolated cultures were screened for salt tolerance. These cultures were grown in specific medium broth supplemented with NaCl so to give 0.4-2% NaCl concentration. Each tube was then added with actively growing selected PGPR and incubated on rotary shaker at 30 °C. Bacterial growth was determined as OD<sub>540</sub> to find out NaCl tolerance.

Abbreviations: PGPR=Plant Growth Promoting Rhizobacteria, IAA=Indole Acetic Acid, AN= Available Nitrogen, AP= Available Phosphorus, AK= Available Potassium

#### Characterization of PGPR for plant growth promotion traits

##### Production of Indole acetic acid

The isolates were tested for production of growth hormone i.e. auxins (IAA). The bacterial cultures were inoculated in Jenson's broth (0.5g of Tryptophan for 100ml media). Incubation was done at 28°C for 7 day at 100 rpm on orbital shaking incubator. After completion of incubation days the broths were centrifuged at 10,000 rpm for 15min at 4°C. 2 ml supernatant was taken and 2 drops of orthophosphoric acid and 4ml of Salkowsky's reagent was added. Pink color production indicated IAA production. Absorbance was measured at 530nm. The absorbance was compared with standard curve and the concentration of IAA produced was calculated accordingly [13].

##### Phosphate solubilization in liquid culture (Alkaline phosphatase activity):

Isolates were grown in selective media. One ml of culture supernatant was incubated at room temperature with 1.0 ml of 25 mM q-nitro phenyl phosphate and 4.0 ml modified universal buffer, pH 11, alkaline phosphatase. After 1 hour the reaction was terminated by adding 1.0 ml of 0.5 M CaCl<sub>2</sub> and 4 ml of 0.5 M NaOH. The assay mixtures were filtered through a Whatman No. 2 filter paper and the yellow color measured at 410 nm. A standard curve drawn from known concentration of q-nitrophenyl phosphate was used to quantify alkaline phosphatase activity present in the culture supernatant.

#### Nitrogen fixation

PGPR cultures were tested for nitrogen fixation in Ashby's broth nitrogen free medium. Inoculation of PGPR culture in Ashby's broth incubated at 28°C-30°C for 7-8 days then observed it for turbidity formation.

#### Exopolysaccharide production

PGPR isolates were grown on selective media broth. Cell mass was removed from 30 days old cultures broth by centrifugation (10,000 rpm) for 10 min at 20°C. In 20 ml supernatant, double volume ice cold isopropanol was added and kept overnight at 4°C. The precipitated polysaccharides were separated by centrifugation (10,000 rpm) and dried in pre weighed porcelain dish which were kept in the oven. Extracellular polysaccharide content (mg/ml) was determined from the dry weights of cell extract.

#### Soil physicochemical analysis

Saline soil samples were analyzed for physicochemical parameters like pH, electrical conductivity, total organic carbon, total nitrogen, phosphorus content and potassium content by standard methods [14].

#### Pot assay

PGPR liquid inoculants of *Azotobacter* spp., *Rhizobium* spp. and *Azospirillum* spp. were prepared in their specific medium with the cell population adjusted to 1×10<sup>8</sup> - 1×10<sup>9</sup>cfu/ml determined by standard plate count method. Efficacy of inoculants was studied by pot assay with sugarcane variety co-86032(*Saccharum officinarum*) as a test crop. Eight treatments in triplicate were used. Three bacterial cultures which are *Azotobacter* spp. (AZT), *Rhizobium* spp. (RZB) and *Azospirillum* spp. (AZSP) were used treatments are AZT+RZB, AZSP+RZB, AZT+AZSP, AZT+RZB+AZSP and control [5]. Saline soil collected from salt affected field

used for pot assay. 5 kg saline soil was added in each earthen pot and saline soil was treated with PGPR inoculants as per the treatment given in the table, 300ml per 5 kg soil or 100 ml of each inoculant for consortia treatment kept it for one day. Sugarcane eye

buds surface sterilized with 0.1%  $HgCl_2$  and washed with water before using. In each pot sugarcane eye buds sown at 5 cm depth as four buds in each pot. The moisture content maintained by irrigating pots 1-day interval.

**Table 1 Details of the treatments for sugarcane pot assay**

Sr. No.	Treatment code	Treatment forms	Short	Treatments details
1	T1	SS		Saline soil as a control
2	T2	SS+AZT		Saline soil + <i>Azotobacter</i> spp.
3	T3	SS+RZB		Saline soil + <i>Rhizobium</i> spp.
4	T4	SS+AZSP		Saline soil + <i>Azospirillum</i> spp.
5	T5	SS+AZT+RZB		Saline soil + <i>Azotobacter</i> spp. + <i>Rhizobium</i> spp.
6	T6	SS+AZSP+RZB		Saline soil + <i>Azospirillum</i> spp. + <i>Rhizobium</i> spp.
7	T7	SS+AZT+AZSP		Saline soil + <i>Azotobacter</i> spp. + <i>Azospirillum</i> spp.
8	T8	SS+AZT+RZB+AZSP		Saline soil + <i>Azotobacter</i> spp. + <i>Rhizobium</i> spp. + <i>Azospirillum</i> spp.

#### Sugarcane pot assay



**Figure 1: T1**



**Figure 2: T2**



**Figure 3: T3**



**Figure 4: T4**

ISSN: 2249-894X Impact Factor : 5.7631(UIF)

Volume - 8 | Issue - 9 | June - 2019

# REVIEW OF RESEARCH

International Online Multidisciplinary Journal



Journal No.: 48514

## SCREENING AND ISOLATION OF IMIDACLOPRID DEGRADING MICROORGANISMS FROM PESTICIDES CONTAMINATED SOIL



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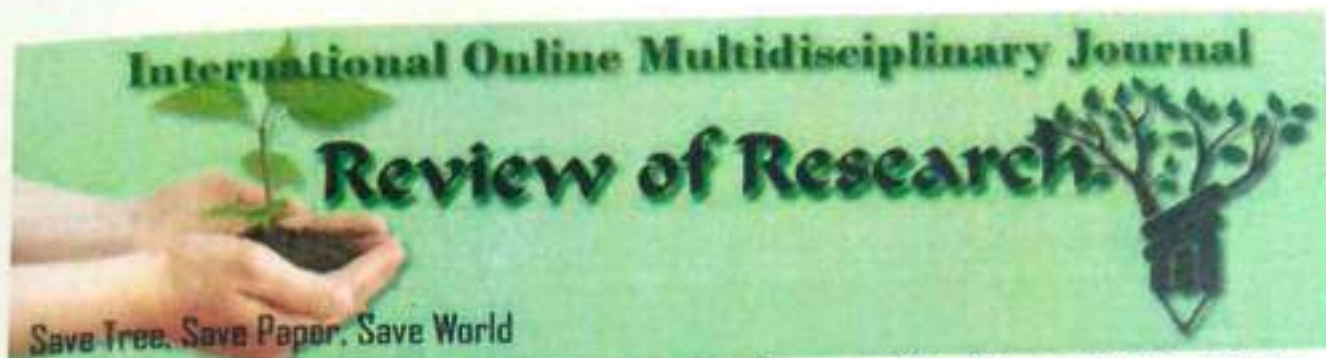
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*Vishakha N. Ganvir*

ABSTRACT: Pesticides are the chemical substances that prevent, kill and repel any pest. Repeated use of same pesticide, bulky handling or accidental release results .....

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**Editor - In - Chief - Ashok Yakkaldevi**



ISSN NO:- 2249-894X

Impact Factor : 5.7631(UIF)

Vol.- 8, Issue -9, June -2019

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## SCREENING AND ISOLATION OF IMIDACLOPRID DEGRADING MICROORGANISMS FROM PESTICIDES CONTAMINATED SOIL

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### ABSTRACT:

Pesticides are the chemical substances that prevent, kill and repel any pest. Repeated use of same pesticide, bulky handling or accidental release results in accumulation of pesticides residues or its metabolites in soil or water streams. The persistent nature of pesticides carries potential hazards to man and show lethal effects on living system. Imidacloprid (1-[[6-chloro-3-pyridinyl]-methyl]-N-nitro-2-imidazolidinimine), is a second generation neonicotinoid pesticide (chloronicotinyl insecticide). It is used to treat a wide range of pests on rice, maize, potatoes and vegetables. Imidacloprid has been reported as a stable compound in the environment with a half life over 100 days. There are scanty reports on imidacloprid degrading soil microorganisms. In an effort to find active microbial strains over the problem of commonly used pesticides like imidacloprid, a study was carried out. The objectives of this study were to screen, isolate and characterize the efficient imidacloprid degrading microorganisms from the contaminated agricultural soil. Imidacloprid degrading strains were enriched and isolated from vegetable farms of Harni and Jogawadi, Maharashtra. The minimal salt medium (MSM) was used for testing the imidacloprid degrading ability of the isolates. Among 20 soil isolates, four isolates showing maximum imidacloprid degrading ability were characterized on their morphological, cultural and biochemical characteristics. The characterized isolates were *Bacillus* spp., *Azotobacter* spp, *Actinomycetes* spp. and *Pseudomonas* spp. Imidacloprid was degraded by *Actinomycetes* spp up to 500 mgL<sup>-1</sup> and *Bacillus* spp., *Pseudomonas* species and *Azotobacter* species were upto 200 mgL<sup>-1</sup>. Detection of presence of NO<sub>2</sub><sup>-</sup> in the inoculated broth was the indication of imidacloprid degradation by the microorganisms. These findings suggest that these strains may be the promising organisms for bioremediation of imidacloprid contaminated soils.



**KEYWORDS:** Biodegradation, bioremediation, Imidacloprid and insecticide.

### 1.INTRODUCTION:-

The use of pesticide has become important in agriculture as pests destroy 30% of the agricultural product. India is the largest consumer of pesticide [1]. Pesticides are large and varied group of substances that

are specifically designed to kill biological organisms including weeds, insects and rodents. Pesticides include insecticides, fungicides, herbicides, rodenticide, molluscicides, nematocide and plant growth regulators [2]. Classification of

pesticides can be done on the basis of chemical structure, physical state and target organism. The indiscriminate use of pesticides leads to the potential hazards to man and show lethal effects on living system [3]. Chronic pesticide

# Effective Synergetic Catalytic System For The Efficient Synthesis Of Multicomponent Biginelli-Type Pyrimidinone Derivatives

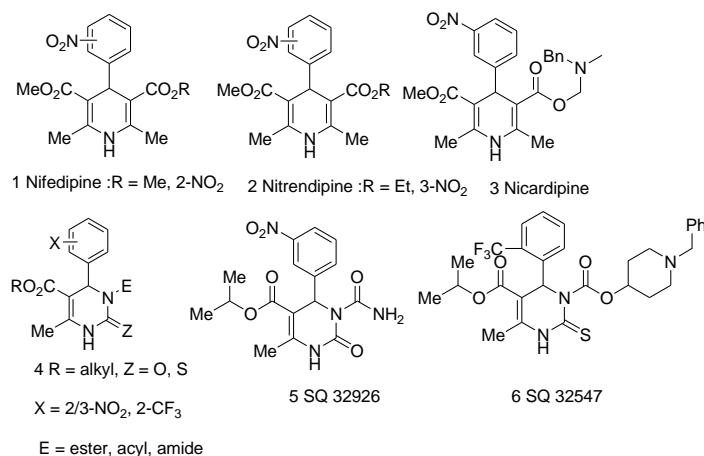
Hari R. Pawar, Narendra R. Kamble, Vinod T. Kamble

**Abstract:** A simple, clean and efficient Biginelli-type reaction was reported towards single-pot synthesis of pyrimidinone derivatives using cyclopentanone, aryl aldehyde and urea/thiourea. In this transformation niobium pentachloride acts as excellent catalyst in presence of silver salt. Under identical experimental conditions, thiourea exhibited similar behavior as compared to urea.

**Key Words:** Multicomponent reaction, Niobium pentachloride, Cyclopentanone, Aryl aldehyde, Pyrimidinone

## INTRODUCTION

The growing significance of Multicomponent reactions (MCRs) in organic and medicinal chemistry in recent times pave the way to speed up the construction of diverse molecules in efficient manner in the field of drug discovery. MCR methodologies propose major advantages over conventional linear syntheses. In such methods, many reactants molecules collide in one reaction vessel to bring about new products that conserves atom economy of all the components which proves green credentials of the process. These protocols present several advantages such as easy availability of individual building blocks which covers a wide variety of structural diversities. MCR produces new products with diverse structural and functional attributes that are desirable for the discovery of new lead molecules or their optimization that are based on combinatorial chemistry. MCRs help in designing of several bioactive heterocyclic scaffolds with beneficial medicinal activities. This method predominantly valuable for the construction of diverse chemical libraries of drug molecules for biological screening. The blend of three or more small organic molecules as building blocks in one step enhances the chances of high combinatorial efficacy. In recent years, academic and industrial researchers have designed significant MCR strategies as one of the highly efficient robust as well as cost-effective tools for parallel and combinatorial synthesis. The Biginelli reaction has attracted widespread attention because many dihydro pyrimidinones and their derivatives have been found to possess various biological activities of 4-Aryl substituted 1,4-dihydropyridines (DHPs) like nifedipine type (**Fig. 1**) are one of the most studied group of calcium channel modulators, however their applications into clinical medicine have turn into highly essential for the cardiovascular treatments against hypertension angina or cardiac arrhythmias<sup>2</sup>. After the induction of nifedipine **1** as drug, several analogues DHP's have been made and variety of second-generation products has introduced in the market **2**, **3**<sup>3</sup>. Recently researchers are interested in aza analogues of dihydro pyrimidines of type **4** (DHPM's) which exhibits identical.



**Fig. 1** Biologically active DHPMs derivatives

Pharmacological profile like dihydropyridine<sup>4-6</sup>. Over the years various lead molecules have been reported such as SQ 32926<sup>5</sup> and SQ 32547<sup>6</sup> which are better in effectiveness and efficacy of antihypertensive activity as compared to traditional DHP drugs, and evaluated constructively through succeeding generation analogues. For example nicardipine and amlodipine<sup>7-8</sup>. These intrinsically chiral derivatives of dihydro pyrimidine (DHPM's) are highly powerful calcium channel modulators as well as most studied towards structure activity associations to get additional insight towards intramolecular connections at the receptor level.<sup>9-10</sup> It is of interesting to note that particularly functionalized pyrimidinone may exhibits specific biological activity. For instance, it has been recently established that fused pyrimidinones **4a-n** having an arylidene group (Scheme 1) are prospective anticancer drugs shown by antitumor screening data reported in literature<sup>11</sup>. A few of its structural analogues also exhibits the wide-spectrum anticancer activity. In addition a distinct prototype of selectivity is also shown towards peculiar cell line such as leukemia. In order to corroborate our proposition, we have attempted the reaction between various substituted benzaldehyde **1**, cyclopentanone **2**, urea/thiourea **3** to determine the excellent promoter. Numerous catalyst are reported in literature such as HCl<sup>12</sup>, BF<sub>3</sub>.OEt<sub>2</sub><sup>13</sup>, polyphosphate ester<sup>14</sup>, LaCl<sub>3</sub><sup>15</sup>, InCl<sub>3</sub><sup>16</sup>, ZrCl<sub>4</sub><sup>17</sup>, BiCl<sub>3</sub><sup>18</sup>, NH<sub>2</sub>SO<sub>4</sub>H<sup>19</sup> and Cu triflates<sup>20</sup> were employed towards Biginelli-reaction, but these protocols has some lacunas such use of hazardous reagents, generation of secondary wastes and moderate to poor yields. However, a





## Research Article

### AN EFFICIENT ONE-POT SYNTHESIS OF BENZIMIDAZOLES USING MAGNETICALLY RECOVERABLE CATALYST CHROMIUM DOPED NICKEL COPPER ZINC SPINEL FERRITE

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Article Received on: 22/04/19 Approved for publication: 14/06/19

DOI: 10.7897/2230-8407.1008245

#### ABSTRACT

An efficient synthesis of benzimidazoles has been developed via one-pot two-component condensation reaction of o-phenylene diamine and aromatic aldehydes by using magnetic Cr<sup>3+</sup> doped Ni-Cu-Zn spinel ferrite as catalyst in ethanol. The products obtained with high yields in shorter reaction time. The Cr<sup>3+</sup> doped Ni-Cu-Zn spinel ferrites synthesized by sol gel auto combustion method and characterized by XRD, IR, TEM and VSM. The XRD patterns confirmed single phase of cubic spinel structure of catalyst. Lattice constant of catalyst decreased from 8.418 Å to 8.406 Å, while percentage porosity increases from 25.4 % to 27.7 % with increase in Cr<sup>3+</sup> content. The crystallite size decreased from 30.3 nm to 19.1 nm with increase in Cr<sup>3+</sup> content. Cr<sup>3+</sup> doped Ni-Cu-Zn spinel ferrites were soft magnetic materials. The catalyst can be robust and easily recoverable using external magnetic field and reused five times with almost the same catalytic activity. The proposed method is advantageous due to its small catalyst loading, short reaction time, magnetically catalyst recovery, catalyst reusability and better yields.

**Keywords:** Spinel Ferrite, One pot reaction, Benzimidazoles, Aromatic aldehydes

#### INTRODUCTION

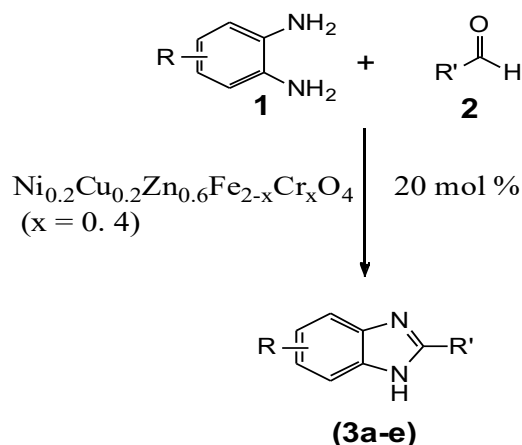
One-pot multi component reactions have more advantages over traditional reactions due to their rapidity, simplicity, atom-economy and shorter synthetic route for the synthesis of biologically active compounds.<sup>1</sup> Multicomponent reactions (MCRs) are the one pot methods in which three or more reactants react to form a single product that includes most or all atoms of the reactants used.<sup>2</sup> Now days, the use of heterogeneous catalysts has established significant interest in various disciplines, i.e. organic synthesis using heterogeneous catalysts have great advantage of catalyst recycle as compared to homogeneous catalyst.

Magnetite nanoparticles have been immobilized on different catalyst supports, including carbons, silicas, and polymers because of easily retrievable and reusable heterogeneous catalyst they are still have high demand. Iron oxide nanoparticles catalyst is that easily separated using an external magnet, which achieves a simple separation of catalyst without filtration.<sup>3</sup> Iron oxides not only show more catalytic activities but also a high degree of chemical consistency and not dissolve in organic solvents. Especially the ferro-spinels have been shown to be selective and active catalysts<sup>4</sup> and exhibit extra stability under various reaction conditions.<sup>5</sup> Now a days, functionalized magnetic nanoparticles used as effective catalyst in different chemical reactions including synthesis of 1,1 diacetates<sup>6</sup>, diazepine derivatives<sup>7</sup>,  $\alpha$ -amino acids<sup>8</sup>, 1,4-dihydropyridines<sup>9</sup>, etc. For these applications of metal oxides as heterogeneous catalysts, high surface area and accessible porosity are relevant properties. Spinels have been conveniently used as catalysts for a variety of industrially important reactions.

Benzimidazole is a heterocyclic aromatic organic compound, consists of the fusion of benzene and imidazole. Benzimidazoles and their derivatives form a significant class of compounds in organic chemistry attributing to their massive applications in biological and medicinal field. Several benzimidazole derivatives have been reported to exhibit biological activities and wide applications in Medicinal chemistry such as anticancer<sup>10</sup>, antihypertensive antiviral<sup>11</sup>, antitumor<sup>12</sup>, anti-allergic agents<sup>13</sup>, antiprotozoal activity<sup>14</sup>, diuretic activity<sup>15</sup>, selective neuropeptide YY1 receptor antagonists<sup>16</sup> etc. By considering their various biological functions<sup>17</sup>, they are used in clinical medicine<sup>18</sup>, as anti-ulcer, antitumor and antiviral agent<sup>19</sup>.

Because of their wide applications in industrial, pharmacological activity and synthetic fields, different methods have been reported for the synthesis of substituted benzimidazoles by condensation of o-phenylenediamine, and its derivatives with carboxylic acids, or aldehydes. For synthesis of benzimidazole derivatives different Lewis acid catalysts used such as InBr<sub>3</sub><sup>20</sup>, ZrCl<sub>4</sub>, SnCl<sub>4</sub>, TiCl<sub>4</sub>, HFCl<sub>4</sub><sup>21</sup>, ZrOCl<sub>2</sub>.9H<sub>2</sub>O<sup>22</sup> etc. Conventionally, the synthesis of benzimidazoles involves the condensation of o-phenylenediamine with aldehydes, or carboxylic acid or their derivatives in the presence of catalysts.<sup>23-26</sup>

In the present work, we are reporting our investigations on Cr<sup>3+</sup> doped Ni-Cu-Zn spinel ferrite as magnetically recoverable and reusable catalyst for the synthesis of benzimidazoles. An efficient synthesis of benzimidazoles carried via one-pot two-component condensation reaction of o-phenylenediamine, aromatic aldehydes in high yields and short reaction times by using Cr<sup>3+</sup> doped Ni-Cu-Zn spinel ferrites with as a green, robust and easily recoverable catalyst (Scheme 1).



**Scheme 1:** Synthesis of substituted benzimidazole (**3a-e**) using o-phenylenediamine (**1**), aromatic aldehydes (**2**), using 20 mol %  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  ( $x = 0, 0.2, 0.4$ ) spinel ferrites as catalyst

## MATERIALS AND METHODS

### Synthesis of the Catalysts

The  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  ( $x = 0.0, 0.2$  and  $0.4$ ) spinel ferrites were prepared by reported sol gel auto combustion method.<sup>27</sup> Analytical grade chromium nitrate, nickel nitrate, copper nitrate, zinc nitrate, iron nitrate and citric acid, were used as raw materials. The metal nitrate solution was prepared in double distilled water, mixed with citric acid solution and ammonia added to adjust pH to 7. The mixed solution was heated on a hot plate at  $100^\circ\text{C}$  with constant stirring. The solution turns into viscous gel after evaporation of water. The viscous gel starts frothing on more heating, which gets ignited automatically after few minutes and it burnt through glowing flints. The black colored ash (precursor) formed after completion of auto combustion. The formed precursors then sintered at  $500^\circ\text{C}$  for 4 hour to obtain spinel ferrite catalyst.

### Characterization of Catalyst

The crystallographic structures were studied by X-ray powder diffraction with  $\text{Cu-K}\alpha$  radiation ( $\lambda = 1.5405 \text{ \AA}$ ) by Phillips X-ray diffractometer (Model 3710). The infrared spectra of all the samples were recorded at room temperature in the range  $300$  to  $800 \text{ cm}^{-1}$  using Perkin Elmer infrared spectrophotometer. The surface morphology was studied by Philips transmission electron microscope (model CM 200). The magnetic measurements were performed at room temperature using a commercial PARC EG and G VSM 4500 vibrating sample magnetometer.

### General Procedure of Synthesis of Benzimidazoles

All the reagents used were of AR grade and were used without further purification. A mixture of o-phenylenediamine (1 mmol) and aldehyde (1.1 mmol) was well stirred with  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  ( $x = 0, 0.2, 0.4$ ) (20 mol %) at room temperature for 10 min. After completion, the reaction mixture was diluted with dichloromethane (25 mL) and washed with water. The catalyst removed by fixing the catalyst magnetically at the bottom of the flask with a strong magnet, after which the solution was taken off. The organic phase was separated, dried ( $\text{Na}_2\text{SO}_4$ ) and concentrated in vacuum to get the crude compound. The crude compounds were purified by silica gel column chromatography (60-120 mesh silica gel) using methanol: chloroform as eluent.

The purity of the synthesized compounds was confirmed by TLC. Melting points of purified compounds were measured in capillary tubes and are uncorrected.  $^1\text{H-NMR}$  spectra of purified compounds were recorded using Varian-Gemini spectrometer (400 MHz) and Mass spectra were recorded using Micromass - QUATTRO-II of WATER mass spectrometer.

**Spectral Data of 2-Phenyl-1H-Benzimidazole(3a):** M.p.  $290$ - $292^\circ\text{C}$ ;

$^1\text{H-NMR}$  (300 MHz,  $\text{DMSO-d}_6$ )  $\delta$  12.7 (singlet, 1H, NH), 7.95 (multiplet, 2H), 7.25-7.35 (multiplet, 5H), 7.05 (multiplet, 2H); Mass (ES/MS):  $m/z$  193 (M-H, 100%).

## RESULTS AND DISCUSSION

### Characterization of Catalyst

X-ray diffraction (XRD) patterns of the  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  Spinel Ferrite with  $x = 0.0, 0.2$  and  $0.4$  are shown in Figure 1. The XRD patterns confirmed single phase of cubic spinel structure with the corresponding (220), (311), (222), (400), (422), (333) and (440) planes [JCPDS cards No's (00-52-0277) and (00-74-0444)] without additional peaks corresponding to any other phases.<sup>28</sup> Lattice Constant (a) and crystallite size were calculated for each sample using equation discussed elsewhere.<sup>29</sup> It is observed that Lattice constant (a) decreases from  $8.418 \text{ \AA}$  to  $8.406 \text{ \AA}$ , while percentage porosity increases from 25.4 % to 27.7 % with increase in  $\text{Cr}^{3+}$  content x. Also crystallite size decreases from  $30.3 \text{ nm}$  to  $19.1 \text{ nm}$  with increase in  $\text{Cr}^{3+}$  content x.

The IR spectra as shown in Figure 2 shows that the higher frequency band ( $\nu_1$ ) is appeared in the range of  $570$ - $600 \text{ cm}^{-1}$  due to the stretching vibration of tetrahedral sites whereas lower frequency band ( $\nu_2$ ) is appeared in the range of  $375$ - $480 \text{ cm}^{-1}$  due to the stretching vibration of octahedral sites.

The TEM micrograph of  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  spinel ferrites are shown in Figure 3(a)  $x = 0.0$ . These images clearly indicate that the distribution of the particle is homogenous, consisting of well crystalline particles. Agglomeration was observed in all samples up to certain extent. Particle size for spinel ferrites calculated from TEM images using image J software and particle size distribution shown in Figure 3(b)  $x = 0.2$ . Average particle size found between  $30 \text{ nm}$  to  $19 \text{ nm}$ .

Figure 4 shows the hysteresis loops of  $\text{Cr}^{3+}$  doped Ni-Cu-Zn spinel ferrites, illustrates narrow loops, with a behavior characteristic feature of soft magnetic materials. It is observed that Saturation magnetization ( $M_s$ ) decreases from  $14.0 \text{ emu/g}$  to  $4.5 \text{ emu/g}$  and Remanant magnetization ( $M_r$ ) decreases from  $32.8 \text{ emu/g}$  to  $15.9 \text{ emu/g}$  with the substitution of  $\text{Cr}^{3+}$  ions.

### Synthesis of Benzimidazoles Using $\text{Cr}^{3+}$ doped Ni-Cu-Zn Spinel Ferrite as Catalyst

We decided to optimize the one pot two-component reaction of o-phenylene diamine and benzaldehyde as a model reaction for study. The reaction conditions were optimized on the basis of catalysts. The product of this model reaction is 2-Phenyl-1H-benzimidazole (**3a**) (Scheme 1). Firstly, to obtain the best catalyst for the synthesis of substituted benzimidazole (**3a**), the model reaction study was carried out in the presence of three prepared spinel ferrite catalytic systems  $\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.6}\text{Fe}_{2-x}\text{Cr}_x\text{O}_4$  ( $x = 0.0, 0.2, \text{ and } 0.4$ ).



# *Cosmos Multidisciplinary Research E-Journal*

Recognized International Indexed & Peer Reviewed Journal

**ISSN 2456-1665**

**IMPACT FACTOR 4.94**

**VOLUME VI | ISSUE II | FEBRUARY 2021**



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Website: [www.cmrj.in](http://www.cmrj.in)

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## Problems and Prospects of Agro Tourism Industry in Maharashtra

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### Abstract

Agro Tourism industry in India is one of industry having a lot of potential to develop the rural India. This report gives an overall perception of Agro Tourism, its opportunities, challenges and the role of Extension & Advisory services in promoting Agro Tourism in India, Especially in Maharashtra. There are some problems in the process of agro-Tourism development in Maharashtra however proper training and awareness among farmers regarding Agro Tourism Industry are best solutions for growth of this industry. No doubt like any other newly developing field, Agro Tourism sector has some challenges and hurdles to face. The major issues like sustainability, economic feasibility, guest host relationship are some of them. Many developing countries has adopted Agro Tourism sector as prime source of earning foreign exchange income. This sector has a direct impact on the host culture and rural community as a whole. But Agro-Tourism Industry is facing many problems. Proper training and awareness among farmers regarding Agro Tourism Industry are best solutions for growth of this industry.

*Keywords: Agro Tourism, Maharashtra, Opportunities, Problems*

### Introduction:

Agriculture is a most important occupation in the India including in Maharashtra. But today it's becomes unprofitable due the irregular monsoon, prices fluctuations of Agro-products and a few internal weakness of the agriculture sector. Agro Tourism represents a significant form of strategy that supports the rural communities and enhancing the sustainable rural development. Over the years, technology has changed the character of business transactions between the consumers and suppliers of products and services. As within the other industry, changes driven by technology pose a serious challenge in Agro Tourism especially to farmers that don't have access to and knowledge about available technologies in Agro Tourism.

# Impact of Lockdown on Libraries and Library Professionals: A Case Study of Maharashtra

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## Abstract

Covid-19 Pandemic is an infectious disease that has affected the routine life of humans. Similarly, the education system including teaching and learning process has dramatically changed. This has impacted the routine of teachers and students. In the education system, role of librarians and libraries is crucial, in terms of providing quality services to meet the information needs of users. This study surveyed impact of 'Pandemic COVID-19' on Library Professionals. The Study also attempted to understand their experience about working from home, technologies and tools used, as well as, to identify social contributions in this crisis by library professionals. This study has considered 162 responses from various districts of Maharashtra state. The study also discusses the problems such as lack of Internet connection, difficulties, challenges faced by Library Professionals.

**Keywords:** Challenges, Covid-19, Difficulties, Library Professionals, Work from Home

## 1. Introduction

Due to the Covid-19 worldwide almost all countries declared a lockdown which affected the economy, personal, professional life and academic institutes worldwide. Many organizations opted to allow 'Work from Home' to provide services. In India, the Government has temporarily taken a decision to close education institutes for safety. In the period of lockdown academicians have tried to complete their task by working from home and experimented with many ways to deliver lectures, conduct objective type exams, and take assignments for the students via virtual classrooms. They have also attended various trainings and completed courses through webinars.

## 2. Literature Review

The COVID-19 is an infectious disease caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) (World Health Organization, 2020). By the first week of the April it had spread to over 210 countries with more than 25 million cases (Corona Update, n.d.). Muhammad Yousuf and Peter (2020) have raised awareness through public health education, provided links to useful resources

to their users including medical staff and researchers in the lockdown period. And they suggested WhatsApp is a reliable source of current information in the period of Covid-19 and they have shared a WhatsApp link with their library users to warn about rumours and fake news (Muhammad and Peter, 2020). Ken Cai, Jianna He and Peter KK Wong, *et al.* (2020) have found that teaching and research is a challenging task for the faculty of all universities and found difficulties for MD research projects due to the pandemic of Covid-19. Many faculty have used ICT tools for online teaching, delivering tutorials, lectures and providing updates regarding their academic curriculum through emails, websites and webinars (Ken, Jianna, & Peter, *et al.*, 2020). Crawford, Butler-Henderson and Rudolph, *et al.* (2020) have highlighted in their research that Covid-19 Pandemic has created challenges worldwide in higher education. Pradeep (2020) has found that universities have taken decisions to prevent their students and staff from infectious disease covid-19 and faculty members choose an online platform for delivering lectures and providing notes. The study highlighted impact of Covid-19 on education as well as health of students and staff (Pradeep, 2020). Khan, *et al.* (2020) studied the impact on the world economy, and on Colleges, Universities and Schools.

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**Table 1.** Summary of different questions asked is shown in the following table

Sr. No.	Data Collection: Sections
1.	<b>Q. 1 Gender &amp; Q.2 Age group</b>
2.	<b>Q.3 Geographical Responses</b>
3.	<b>Use of ICT tool</b> Q.4 Rate your experience about Zoom or online training/meeting Apps Q.5 Please specify ICT tools used by you Q.6 Please specifies the platform you used to train or share your knowledge as a resource person, (if any)?
4.	<b>E-resource Services</b> Q.7 Have you provided e-Resource services to your users?
5.	<b>Online Trainings and Courses</b> Q.8 Please specify the kind of professional course/ trainings attended by you, if any? Q.9 Rate the usefulness of professional course/ trainings for upgrading the knowledge/skill?
6.	<b>Research Work or Publications</b> Q. 10 Please specify Research Work or publication you worked on in this period, if any?
7.	<b>Work From Home: Activities</b> Q.11 What are activities assigned to you to perform work from home in this period? Q.12 Are the required facilities provided by college or Institute for Work from Home?
8.	<b>Q.13 General reading during Lockdown</b>
9.	<b>Social Contribution</b> Q.14 Have you contributed any social activity in Covid-19? Tick as applicable.
10.	<b>Health related general awareness</b> Q.15 In the Lockdown Period, you felt..... (Stressed or Relaxed) Q.16 Do you follow the instructions of the government and take necessary precautions to Fight against Covid-19? Q.17 Hope you are not affected with virus Covid-19. Please share, what suits you better?
11.	<b>Challenges and Difficulties</b> Q.18 Please specify the difficulties to implement or use technologies (if any)

### 3. Objectives

1. To identify the ICT tools used by library professionals,
2. To know the duties performed by the library professionals from home, due to lockdown, and
3. To review the way library professionals faced the challenges and difficulties and responded to the situation.

### 4. Methodology

Web based survey of Library professionals of Maharashtra was conducted. A questionnaire was used for the survey and distributed through social media such as WhatsApp, Facebook, Blogs etc. A questionnaire with open-ended questions was framed to understand the current status as well as challenges and difficulties faced by library professionals in lockdown period.

### 5. Data Analysis

The researcher has received total 162 responses from Library Professionals. As per the Table 1 collected data were framed and categorized in the tabular form for the interpretations.

### 6. Gender and Age

Figure 1 presents Gender wise and Age wise distribution of respondents. As per the tabular form it is shows that 62% male and 38% female responded (n=162). It also shows that 44% respondents are in the Age group of 30-40, 35% respondents are in the 40-50 Age group and very less percentage of the respondents are in 20-30 & 50-60 Age group.

### 7. Geographical Responses

The geographical distribution of the respondents is shown in Figure 2. It is seen that responses have been received from every part of the state.

### 8. Use of ICT tools

ICT-based Services Provided use of ICT Tools is depicted in Figure 3. Ratings about online platforms for training



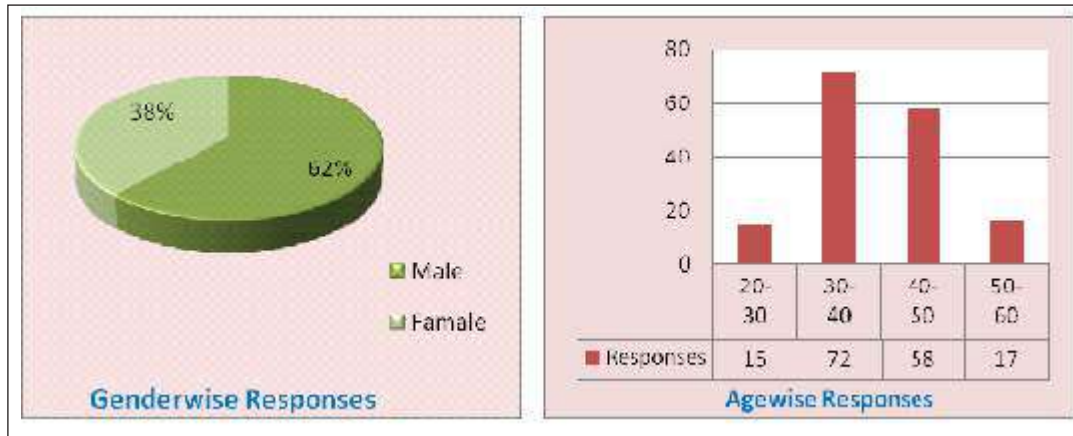


Figure 1. Graphical presentation of summary values of gender and age.

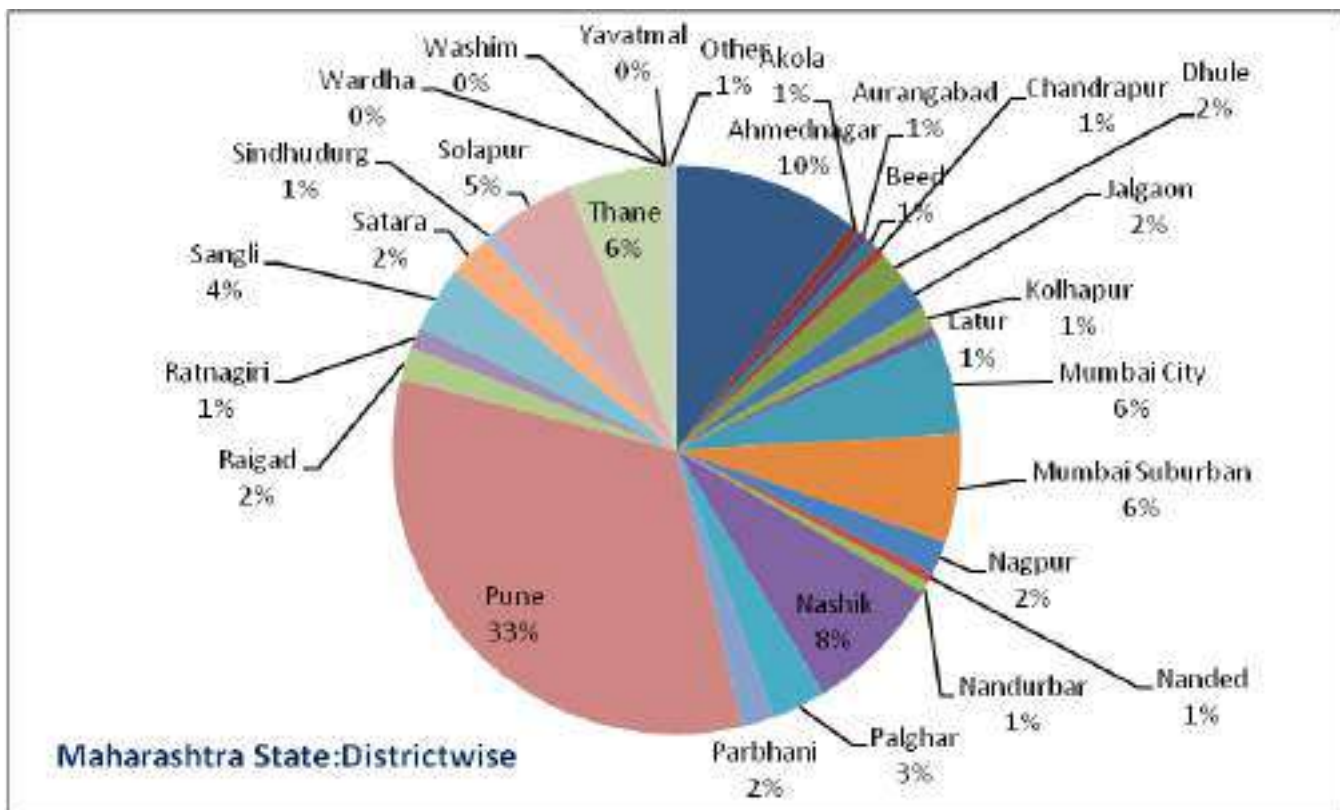


Figure 2. Geographical distribution of survey population.

and knowledge sharing such as Zoom, YouTube Live, and Telegram are derived from respondents. As per the graphical presentation 72 % respondents have used Microsoft PowerPoint to develop e-contents, while 48% respondents have used YouTube channel to share e-contents or knowledge. 36% respondents have developed

and posted e-resources on the library web portal. 20% of respondents have created Information literacy modules for the user community. 22% respondents have used Blog and 10% respondents have used audio recording tools. Only 10% respondents failed to use any type of ICT tools.

## **MGNREGA – AN ALTERNATIVE TO MIGRATION CASE STUDY ON IGATPURI BLOCK**

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### **Abstract**

The present study on Mahatma Gandhi National Rural Employment Guarantee act (MGNREGA) is alternative to seasonal rural to urban migration in the context of paddy farmers in Igatpuri MG-nrega Block. And this study of Rural to urban Migration in Igatpuri Block has given to some interesting conclusion. As far as Rural to Urban migration is concerned, insignificant numbers of paddy farmers in igatpuri block. In India there is rapid change in the migration due to the different reasons but in India their no migration policy yet, in India context there are Pull and Push factors are affecting to migration i.e. migration is a function of push and pull factors the push factors are unemployment lack of land holding of infrastructure development poverty unemployment low wages these are the first factor are seen in the rural economy let's see the push factors which pulling the people in the urban areas like standard of living city life demonstration effect child future these are the full factor created by urban areas which leads to the urbanization in the

### **Introduction**

Migration is the natura phenomenon. Indian context we will see in the trends of internal migration rapidly increase after the We discuss

the migration defect on the people who migrate and also see the policy making for the internal migration what should be step for government should be taken into consideration in case study we will see how seasonal migration can we control by the MG-NREGA scheme after implementation it give their positive effect in the economy for creating a job but it is not the solution for the internal migration because migration is the natural.

In india the large number of rural to urban migration done, but still there is no migration policy for rural to urban migration. and MG-nerga is shows the positive impact on seasonal rural to urban. In Igatpuri mainly the farmers are depending on the monsoon. and their livelihood are fishing farming and animal husbandry, handicraft. They are busy in kharif season for snowing the paddy crops. After kharif season off the paddy farmers are searching work in urban area. This phenomenal cause due to forces seasonable migration. This is called as force full migration which is lead to rural to urban migration in India. Here the push factors are more dominant as compare to pull factors.

### **Research Methodology**

This present study of Rural to urban Migration in Igatpuri Block of has been carried out with the help of collection of the Primary and secondary data. The primary survey is mainly of

the interviews and observations through the questionnaire methods. In the questionnaire that there are 12 questions about 221 people are Register in MG-nerga in Igatpuri Block, gender of the respondent, age of the respondent, current job, educational qualification, area of specialization, addiction, monthly expenditure, the living and working condition, with other related questions of the MG-NREGA works.

To study the impact of migrated people from rural to urban researcher selected to study the socio-economic status in Igatpuri district with the authorized data from Registered People in MG-NREGA Scheme . The sample are collected from MG-NREGA Scheme labors who currently residing in Igatpuri block . The selective method of stratified sampling Method is adopted to keep the representation of all Igatpuri block as far as possible to avail the data. The researcher will use both primary as well as secondary source of data. And different method has been used for the analysis of data. For showing the work distribution, expenditure, addiction ,and livelihood activity of paddy farmers in MG-NREGA it shown in bar and pie diagram has been prepared.

### Selection of Block

To study the impact of Migrated tribal people from rural to urban researcher selected to study the socio-economic status of Igatpuri Block in Nashik district with the authorized data from Registered People in MG-NREGA Scheme

No.	Name of Tehsil	Number of villages	Selected villages for sample size	No of Registered families	Total Registered People in MG-NREGA Scheme	Selected People in MG-NREGA for sample size
1.	Igatpuri Block	152	26	21580	36928	221
<b>Total</b>	-	<b>152</b>	<b>26</b>	<b>21580</b>	<b>3,6928</b>	<b>221</b>

### Objective

1. To study the paddy farmers causes of migration.
2. find out is really MG-NREGA – An Alternative To Migration.
3. To Examine socio and economic causes of rural-urban migration of tribal people in Igatpuri Block.
4. To find out problem of Migration and suggest major suggestion.

### Data Analysis

**Figure: 1 Workers (Gender wise)**

Workers (Gender wise)	No. of Workers	Percentage wise (%)
Male	158	71.49%
Female	63	28.51%
<b>Total</b>	<b>221</b>	<b>100 %</b>

**Source: primary survey**

நவீனத் தமிழாய்வு (பன்னாட்டுப் பன்முகத் தமிழ் காரணங்கு ஆய்விதழ்) 23-24 டிசம்பர் 2021 - சிறப்பிதழ் (ISSN : 2321-984X)  
 Modern Thamizh Research (A Quarterly International Multilateral Thamizh Journal) 23-24 December, 2021 - Special Issue (ISSN : 2321-984X)  
 Third International Multi-Disciplinary Conference On "Emerging Trends in Humanities, Commerce, Management, Science and Technology 2021. (IMCET – 2021)" Organized by: Rayat Shiksan Sanstha's Balwant College, Vita, Maharashtra.



## In Vivo Antidiabetic Activities of Polyherbal Extracts against Streptozotocin-Nicotinamide Induced Type 2 Diabetic Mice Model

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Received 9 May 2021, Revised 11 Jul 2021, Accepted 20 Jul 2021, Published Aug 2021

DOI: <https://dx.doi.org/10.4314/tjs.v47i3.1>

### Abstract

Diabetes mellitus is a chronic metabolic disorder and rapidly increasing cases of diabetes throughout the world are major concerns in both developed and developing countries. Currently available oral antidiabetic medicines have limitations in efficacy and safety, which in conjunction with the emergence of diabetes mellitus as a global epidemic have aided the popularity of alternative therapies to manage the disease safely and more efficiently. Herbal medicines are accepted as alternative therapies for blood sugar control. *Gymnema sylvestre*, *Boerhavia diffusa*, *Tinospora cordifolia*, and *Argyreia nervosa* are some potent herbs used for the management of diabetes. Mixing of these plants in different ratios may produce synergistic antidiabetic actions which may have greater antidiabetic activity. Hence, the present study aimed to determine the antidiabetic activities of polyherbal extracts in streptozotocin-nicotinamide induced type 2 diabetic mice. The administration of polyherbal extract orally at doses of 100, 200 and 400 mg/kg significantly decreased the blood glucose levels compared to the control diabetic mice. The polyherbal extract significantly lowered the elevated total cholesterol, triglycerides and low-density lipoprotein levels, while increased the high-density lipoprotein indicating antihyperlipidemic activity. The present study reveals that polyherbal extract at a dose of 400 mg/kg body weight resulted in a significant decline ( $p < 0.001$ ) in blood glucose level.

**Keywords:** Polyherbal extracts, diabetes mellitus, Oral glucose tolerance test, Streptozotocin-Nicotinamide.

### Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycaemia caused by reduced insulin secretion, decreased glucose utilization and increased glucose production (Undale et al. 2014, Mouri and Badireddy 2019). Glucose homeostasis is a balance between hepatic glucose production and peripheral glucose uptake and utilization. Insulin is the most

important regulator of glucose homeostasis (Simon and Wittmann 2019, Yari et al. 2020). Diabetes mellitus is classified into general categories like type 1, type 2, gestational diabetes, among other specific types of diabetes. Type 1 diabetes is caused by B-cell destruction, usually leading to absolute insulin deficiency. Type 2 diabetes is a result of progressive insulin secretory defects in conjunction with insulin resistance. Gestational

diabetes mellitus (GDM) is a diabetes type usually diagnosed in the second or third trimester of pregnancy and is not clearly evident in diabetes. Other uncommon diabetes types include monogenic diabetes syndromes such as neonatal diabetes, maturity-onset diabetes of the young (MODY), diabetes resulting from diseases of the exocrine pancreas (such as cystic fibrosis), and drug or chemical induced diabetes such as in the treatment of HIV/AIDS or after organ transplantation (American Diabetes Association,

<https://www.diabetes.org/diabetes>). Diabetes mellitus is a serious metabolic disease that has significant impacts on the health, quality of life and life expectancy of patients (Sancheti and Seo 2009). According to the reports of the World Health Organization, the rapid increase of diabetes in India is indicative of a potential epidemic with over 62 million individuals currently diagnosed and future projections indicating a rapid increase in numbers (Wild et al. 2004). In 2000, India had the highest number of people with diabetes mellitus (31.7 million) followed by China (20.8 million) and United States (17.7 million) in second and third places. The global prevalence of diabetes is predicted to double from 171 million in 2000 to 366 million in 2030 with India seeing the highest increase with numbers nearing 80 million (Wild et al. 2004).

There are various synthetic drugs used for the treatment of hyperglycaemia. The synthetic drugs have various side effects such as causing hyperglycaemia at higher doses, dermatological reactions, liver problems, nausea, vomiting, generalized hypersensitivity reactions, lactic acidosis and diarrhoea. These anti-diabetic drugs also cause weight gain which may further contribute to the progression of type 2 diabetes. The secondary complications arising from the use of synthetic

drugs lead to limitations in their uses and potentially create issues in the management of diabetes (Chaudhuri and Sharma 2016). So, there is a need to develop safe and economic alternative treatments for diabetes mellitus. Therefore, there is considerable interest in the field of medicinal plants due to their natural origins and fewer side effects (El-Shafey et al. 2013). The World Health Organization also recommended and encouraged the practice of herbal medicines especially in countries where access to the conventional treatments of diabetes is inadequate.

The pharmacological activity of a single plant is less when compared to polyherbal formulations that contain combinations of various plants. Polyherbal formulations produce synergistic actions which are more potent and also diminish the concentrations of individual herbs, thereby reducing adverse effects (Shah et al. 2019).

In the present study, polyherbal formulations which consisted of extracts of *Gymnema sylvestre*, *Boerhavia diffusa*, *Tinospora cordifolia*, and *Argyreia nervosa* were used to determine hypoglycaemic activities. The herbs used in the formulations are reported in traditional medicines to treat diabetes mellitus and their active phytoconstituents like gymnemic acids, gymnosides a, b, c, d, e, and f and gymnosaponins (Kanetkar et al. 2007, Mishra et al. 2014), punarnavine-1,  $\beta$ -sitosterol (Sharma et al. 2019), tinosporin (Galani et al. 2010), quercetin and kaempferol (Gosh 1984) etc. Their details are given in Table 1. Therefore, in the present investigation, the polyherbal formulations were evaluated for hypoglycaemic activity in streptozotocin-nicotinamide (STZ-NIC) induced diabetes in mice.

**Table 1:** Phytoconstituents of polyherbs used for polyherbal extract preparation

Sr.No.	Plant name	Phytochemical constituents
1	<i>Gymnema sylvestre</i> R. Br.	Gymnemic acid I-IV, Gymnemasaponins, Gymnemosides a, b, c, d, e, and f, Kaempferol 3-O- $\beta$ -D-glucopyranosyl-(1-4)- $\alpha$ -L-rhamnopyranosyl-(1-6)- $\beta$ -D-galactopyranoside, Stigmasterol, Conduritol A and Quercitol (Kanetkar et al. 2007)
2	<i>Boerhavia diffusa</i> L.	Punarnavine-1 & 2, Boeravinone A-I, 9-O-Methyl-10-hydroxy coccineone E, 10-dimethyl boeravinone C, Coccineone E, $\beta$ -Sitosterol $\beta$ -Sitosterol-D-glucoside, $\beta$ -Sitoseryl oleate, Sitoseryl palmitate, Liriodendrin, Stringarsionol and Mono-D-glucoside and $\beta$ -D-glucoside (Mishra et al. 2014)
3	<i>Tinospora cordifolia</i> (Thunb.) Miers	Tinosporide, Furanolactone diterpene, Furanolactone clerodane diterpene, furanoid diterpene, Tinosporaside, Giloinsterol, $\beta$ -Sitosterol, 20a- Hydroxy ecdysone, Giloin, Tinosporan acetate, Tinosporal acetate, Tinosporidine, Heptacosanol, Octacosanol, sinapic acid, Tinosponone, and 2- phytoecdysones (Sharma et al. 2019)
4	<i>Argyreia nervosa</i> (Burm.f.) Bojer	1-Triacontanol, Epifriedelinol Acetate, Epifriedelinol and $\beta$ -Sitosterol, N-Triacontanol, B-Sitosterol, P-Hydroxycinnamoyl Octadecanolate, Caffeic acid, p-Hydroxycinnamate, Hexadecanyl p-hydroxycinnamate, L-Ester coumarin and Tetradecanyl palmitate (Galani et al. 2010, Gosh 1984)

## Materials and Methods

### Plant materials

The leaves of *Gymnema sylvestre* (Asclepiadaceae), whole plant of *Boerhavia diffusa* (Nyctaginaceae), stem and leaves of *Tinospora cordifolia* (Menispermaceae) and whole plant of *Argyreia nervosa* (Convolvulaceae) were collected from local regions around Purandar town in Maharashtra and Pune University campus. Freshly collected plants were pressed in a herbarium press and dried plant specimens mounted on herbarium sheet. All the information provided and herbaria were submitted to the Botanical Survey of India (BSI) Herbarium in Pune for authentication; the corresponding voucher numbers are VP-11, VP-10, VP-9 and VP-7. The plant parts were washed with distilled

water to remove dirt and soil, and then shade dried.

### Preparation of extracts

The selected parts of plants were washed and dried under shade for 20 days. The dried plants were pulverized using a mechanical grinder and powdered for further studies and extracted with 80% absolute ethanol using Soxhlet apparatus for 6 hours. The extracts were evaporated to dryness (resinous material) under reduced pressure at 60 °C and stored at 4 °C until use. The polyherbal formulation was developed by combining the dried extracts of the plant extracts (Mandlik 2008, Maurya et al. 2011).



## INDUCTION STUDIES FOR CHLOROPHYLL PIGMENTS AND PROTEINS CONTENT IN *LABLAB PURPUREUS* (L.) SWEET THROUGH ETHYL METHANESULPHONATE AND GAMMA RAYS

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### ABSTRACT:

In the present investigation the estimation of total chlorophyll content, and protein content were estimated for the improvement of the nutritive value of the *Lablab purpureus* (L.) Sweet. The chlorophyll 'a' and 'b' content was estimated of the leaves, and protein content of the pods and seeds were estimated in the M<sub>4</sub> generations. The highest chlorophyll content was estimated in late flowering mutant and lowest in early flowering mutants. The highest protein content was estimated in dark green leaf mutant and lowest at the dwarf mutants. Promising results were observed in tall, spreading, dark green, luxuriant and early flowering mutants as far as bio chemical content is concerned.

**Keywords:** Mutation; EMS, Gamma rays, Mutant, Chlorophyll content; protein content

### INTRODUCTION:

Pulses are the important source of the proteins, vitamins and minerals. By products of the Pulses are fed to the animals as a dry and fresh fodder. *Lablab purpureus* is grown as a pulse crop in Asia, Africa and Caribbean. The immature seeds, pods and young leaves are edible and cooked as vegetables. *Lablab purpureus* is used as a forage, hay and silage crop. As forage it is grown with sorghum and millet.<sup>12</sup>The nitrogen fixing legume is valuable as a green manure.<sup>5,2</sup> It is also used as a stimulant to reduce fever flatulence to stimulate digestion and as an antispasmodic<sup>18</sup>, in Namibia the root has been used to treat heart condition<sup>15</sup> Mutation breeding is a novel technique to impart biochemical changes in plants. This method may bring out many

positive results leading to crop improvement<sup>4, 8, 9</sup>.

### MATERIAL AND METHODS:

The Experimental genotype selected for the present investigation was Dolichos bean *Lablab purpureus* .L (Sweet). It is commonly known as a Wal in Marathi. The experimental seed material was collected from College of Agriculture, MPKV, Shivajinagar, Pune, Maharashtra, India. Physical Mutagen Gamma Rays and Chemical Mutagens Ethyl Methanesulphonate was employed for induction of mutation.

### Mode of the Mutagenic Treatment:

1. Gamma rays- Healthy and uniform size of dry seeds of the Dolichos bean variety *Phule suruchi* were treated with CO<sup>60</sup> irradiation. The seed samples were exposed to doses of 100Gy, 200Gy, 300Gy, and 400Gy of Gamma rays.



**Editor**

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“Printed by: **Harshwardhan Publication Pvt.Ltd.** Published by **Ghodke Archana Rajendra** & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor **Dr. Gholap Babu Ganpat.**



**Harshwardhan Publication Pvt.Ltd.**

Reg.No.U74120 MH2013 PTC 251205

At.Post.Limbaganesh,Tq.Dist.Beed  
Pin-431126 (Maharashtra) Cell:07588057695,09850203295  
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## EXPLORING ISSUES OF IMMIGRATED INDIAN WOMEN IN GUPTA'S MEMORIES OF RAIN AND KANPUR'S THE IMMIGRANT

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### Abstract

The issues of immigrated Indian women are reflected in the form of dislocating from their own identity after their marriages. Their quest for identity either compounds or, occasionally, suppresses the internal conditions. The hybrid culture after migration of these Indian women makes an adjusting appeal to deal with the issues of their identity. The protagonist like Moni in Sunetra Gupta's Memories of Rain (1992) and Nina in Manju Kapur's The Immigrant (2008) are reflected estranged from their motherland after their migration from India to London and Canada respectively. The migration of them is marked by the new culture and new adjustments on the part of their adjustments. It highlights the interface of the traditional culture within the culture of an adopted alien land and brings about a transformation in the inherited tradition and culture of the immigrant. The two novels are depicted with an identity of an immigrant looking back to her mother country with pain and nostalgia. They share the common grievances of their experiences and loneliness to those the new settlers who are provoked by a firm urge for migration. The present research paper focuses on the experience of Indian

MAH/MUL/ 03051/2012

ISSN :2319 9318



July To Sept. 2022  
Issue 43, Vol-06

Date of Publication  
01 August 2022

Editor

Dr. Bapu g. Gholap

(M.A.Mar.& Pol.Sci.,B.Ed.Ph.D.NET.)

विद्येविना मति गेली, मतीविना नीति गेली  
नीतिविना गति गेली, गतिविना वित्त गेले  
वित्तविना शूद्र खचले, इतके अनर्थ एका अविद्येने केले

-महात्मा ज्योतीराव फुले

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“Printed by: Harshwardhan Publication Pvt.Ltd. Published by Ghodke Archana Rajendra & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor Dr. Gholap Bapu Ganpat.



Reg.No.U74120 MH2013 PTC 251205

**Harshwardhan Publication Pvt.Ltd.**

At.Post.Limbaganesh,Tq.Dist.Beed

Pin-431126 (Maharashtra) Cell:07588057695,09850203295

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<http://www.vidyawarta.com/03>


## REFLECTION OF IDENTITY ISSUES IN CLIFF'S 'NO TELEPHONE TO HEAVEN'

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\*\*\*\*\*

### Abstract

The paper aims at exploring Reflection of Identity Issues in Cliff's 'No Telephone to Heaven'. The novel is dealt with a group of guerilla soldiers who are moving through Jamaica in the back of a truck labeled with the words "No Telephone to Heaven". It reflects that Jamaica is torn between two separate identities: its staged identity which fails to recognize its past, and its other identity that contains the dark past which it cannot break free from. The outside world sees Jamaica as a paradise; it's almost an idealistic place where tourists go on vacations and put on the backs of postcards and pictures. But underneath the sandy beaches and blue skies is a past replete with colonization, slavery, violence, and struggle. The contrasting images of Jamaica and America draw the reader in to Clare's conflicting thoughts on passing as white or defending a helpless nation that she eventually calls home. Uniquely, Cliff tells the story of an immigrant family whose physical differences are too distinct to keep them together in the United States, and those who cannot pass as white are forced to return to the hardships they thought they had escaped in Jamaica. Numerous characters throughout the novel provide complex insight into their gender, class and race struggles. Cliff focuses on their journey to discover their identities through the chaos of rac-

ism, class conflict, immigration discrimination and sexism.

**Keywords:-** Identity formation, Racial discrimination, Dislocation, Cultural conflicts.

The paper aims at exploring Reflection of Identity Issues in Cliff's 'No Telephone to Heaven'. The novel is dealt with a group of guerilla soldiers who are moving through Jamaica in the back of a truck labeled with the words "No Telephone to Heaven". It reflects that Jamaica is torn between two separate identities: its staged identity which fails to recognize its past, and its other identity that contains the dark past which it cannot break free from the outside world sees Jamaica as a paradise; it's almost an idealistic place where tourists go on vacations and put on the backs of postcards and pictures. But underneath the sandy beaches and blue skies is a past replete with colonization, slavery, violence, and struggle. The contrasting images of Jamaica and America draw the reader in to Clare's conflicting thoughts on passing as white or defending a helpless nation that she eventually calls home. Uniquely, Cliff tells the story of an immigrant family whose physical differences are too distinct to keep them together in the United States, and those who cannot pass as white are forced to return to the hardships they thought they had escaped in Jamaica. Numerous characters throughout the novel provide complex insight into their gender, class and race struggles. Cliff focuses on their journey to discover their identities through the chaos of racism, class conflict, immigration discrimination and sexism.

Cliff acquaints the readers more about the identity issues of the characters. Clare Savage was born as the daughter of Boy and Kitty Savage. Boy Savage, although physically someone a "black man" came from an upper class, sophisticated lifestyle that was associated with an identity of whiteness. Kitty Savage provided Clare with her Afro-Creole roots due to her traditional Jamaican, working class lifestyle. Clare's



## Critiquing Imperialism and its Effects on Humanity in Science Fiction with Reference to H.G.Wells's *The War of the Worlds*

Article History	
Received:	22.02.2020
Revision:	09.03.2020
Accepted:	18.03.2020
Published:	20.03.2021
Author Details	
Dr Vijaykumar R Punekar	
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Dr Vijaykumar R Punekar	
How to Cite the Article:	
Vijaykumar R Punekar. (2021); Critiquing Imperialism and its Effects on Humanity in Science Fiction with Reference to H.G.Wells's <i>The War of the Worlds</i> . <i>Int Aca J Edu Lite</i> . 2(3); 1-4.	
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**Abstract:** The researcher aims at bringing out the nature of imperialism and how it is highlighted in Science Fiction especially in H.G.Wells's *The War of the Worlds*. The text projects the galactic imperialism. The researcher studies the text from the imperialistic point of view by illustrating the social, geo-political, psychological and cultural relation and also the similarities and difference between the Martian society and the European society depicted in the text.

**Keywords:** Science Fiction, Imperialism, Galaxy, Narration.

### INTRODUCTION

H.G.Wells's *The War of the Worlds* is an impression, taken from life, of the conquest by the European whites of a certain portion of the world, an impression in particular of the civilizing methods of a great European trading company face to face with the non-Europeans. In this story, human life, both Earthmen and Martians, is presented as an unusually serious affair. Wells's art here lies in his catching of the infinite shades of the Martians's uneasy disconcerted and fantastic relations with the Earthmen. The weirdness, the brilliance, the psychological truth of this masterly analysis of two worlds in conflicts, of the deep gulf between the Martians' technologically superior system and the Earthmen's comprehension of its results is conveyed to us through a rapidly moving narrative of war events. The novel begins with Martians visit and attack the Earth with their powerful weapons. They have had specific purpose

behind visiting. The purpose is to conquest. This is exactly the modern symbol of imperial world- 'the conquest of nature'. This symbol is advocated by modern Science Fiction writers in to the form of galactic imperialism. Ironically in the text Martians attack on the nation England which itself is conqueror of the Earth. Man has established a space travel that is why he is very anxious to establish his significance or presence in the universe. Apart from this he actually aspires to dominate the whole Universe by conquering one planet to another by Time Machine or Space aircraft. He has already established Space Stations in the Galaxy.

Galactic empire may be controlled by humanity and threatened or menaced by alien or it may be an alien oppression threatening the earth. H.G.Wells projects the 20<sup>th</sup> Century imperialistic violence, self –assertion and brute facts establishing power in this work. The text presents the concept of 'Galactic imperialistic vision' of the author.

The novelist H.G.Wells embodies the persistent fallacy that science can be made to do everything for man. Wells' work dealt almost always with the actual possibilities of invention and discovery .Many of his ideas of inventions have 'come true'. His works such as *The Time Machine* (1895), *The Invisible Man* (1897) and *The War of the Worlds* (1898) are examples of scientific romances.

The relationship between the theory of imperialism and basic element of science fiction i.e. space travel-an exploration of domination of new world of galaxy has been examined in Wells's *The War of the Worlds*. The projection of 'Galactic imperialism' <sup>1</sup> in the text is very vivid.

**CHALLENGING PATRIARCHY IN MANJU KAPUR'S A MARRIED WOMAN****DIPALI PANDURANG MALUSARE**Department of English  
PDEA's Waghire College  
Saswad, Pune**DR. SANJAY H. ZAGADE**Head, Department of English  
PDEA's Waghire College Saswad, Pune  
SP Pune University, Pune**ABSTRACT:**

*A Married Woman (2002) by Manju Kapur explores issues of repression, marginalization, oppression, subordination of women in the patriarchal society. Manju Kapur's novels depict common issues of the life of women. Her novels deal with the plight and repression of women and their voices against it. The dominant themes of her fiction are marriage, husband-wife relationship, family relationships, mother-daughter relationship, separation, and extramarital relationship. A Married Woman (2002) deals with Indian woman who strives to gain name and space in life and social-cultural domains. Manju Kapur focuses mostly on the woman and her wishes. The protagonist, Astha is dwelling in the conventional and contemporary contextual society. Another character Pipeelika also repressed by society. Both these characters are repressed by their family and society. Astha and Pipeelika are repressed women but they resist against the patriarchal society. This research paper focuses on the theme of repression, subjugation. It aims to point out how women challenge to patriarchy norms and conventions.*

**Keywords:** Repression, Voices, Marginalization, Oppression, Subordination, Patriarchal etc.

**Introduction:**

The present paper aims to analyse the representation of repression, subjugation and the resistance of women in Manju Kapur's *A Married Woman (2002)*. Women, under the patriarchal pressure and control, are repressed, subjugated. They are more discriminated and are biased in their sex. In the patriarchal world women's endeavour for liberation has unnoticed and unheard. Women live and struggle under the oppressive mechanism of a closed society are reflected in Manju Kapur's *A Married Woman (2002)*. It depicts the story of two women, one, Astha, who is married and have all the luxury of life but not satisfied with her husband and on the other side, Pipeelika, a widow, is far away from the luxurious life and searching a long life partner.

Astha, the protagonist, is a daughter of the traditional middle class parents who are conscious and worried about her education and marriage. In the Indian culture, the middle class parents are always anxious about the future of their daughter, her education and marriage. Marriage of a daughter for parents is a burden as they have to find a proper life partner for a daughter. Even after marriage also some problems like dowry, her adjustment in the in-law's family etc. are some of the critical issues for them to solve. In a patriarchal society the girl child from her birth and as she grows up, the more focus is given to marriage of the girl rather than giving importance to her career. Astha is her parents' only child and her

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Volume-IX Special Issue-1

ISSN : 2454-8499

February 2023

Impact Factor : 2.899 (GIF), 0.679 (IIFS)



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# International Research Journal of Multidisciplinary Studies

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Published by  
**IRJMS**

Flat No.301, A Wing, Siddhivihar Housing Society, Matalwadi Phata  
Bhugaon, Tal. Mulshi, Dist. Pune 412115

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Available at [www.irjms.in](http://www.irjms.in)



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**A Study of Skill Based Education in National Education Policy 2020**V. K. Karvande<sup>1</sup>, S. H. Zagade<sup>2</sup><sup>1</sup>Department of English, Anantrao Pawar College, Pirangut<sup>2</sup>Department of English, Waghire College of Arts, Commerce and Science, Saswad

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**ABSTRACT:**

*Education is essential for every human being to achieve its highest potential and develop an equitable and just society, and promoting national development. India as a developing country has potential to be a powerful country in the world and stepping towards it with the help of creating skilled manpower. To create skilled manpower there is need of skill based education. In the new education policy the government has focused on skill based education.*

*This paper aims to find out what kind of skill based education is proposed in the National Education Policy 2020 in Higher Education. This is also an attempt to find out how it is going to impact on growth of employment and entrepreneurship.*

**Keywords:** Skill Based Education, Skill Development, Employability, Entrepreneurship.

**INTRODUCTION:**

The National Education Policy of India 2020 (NEP 2020), the new policy replaces the previous National Policy of Education, 1986. It is a comprehensive framework for elementary education to the higher education as well as vocational training. The new education policy aims to transform India's education system by 2040. The new Education Policy is a path of universal quality education. It is the key to India's continued ascent, and leadership on the global stage in terms of economic growth, social justice and equality, scientific advancement, national integration, and cultural preservation.

India is developing educational institutions with the motto of delivering the young minds with the best quality education. The institution believes that to enable the ambitious minds to grow as per the market demands and make their place in the global professional sphere, it is necessary that they are groomed in the right manner. The focus, hence, shouldn't remain solely on preparing the students to attain excellence in academics but rather should be on making them future-ready for the rising competition by making them skilled.

**REVIEW OF LITERATURE:**

The National Education Policy 2020 has been announced on 29.07.2020. The Education Policy proposes various reforms in school education as well as higher education including technical education. It has a large amount of flexibility in choosing their individual curricula, subjects, skills, and capacities should be learned by all students to become good, successful, innovative, adaptable, and productive human beings in today's rapidly changing world. In addition to it proficiency in languages, these skills include: scientific temper and evidence-based thinking; creativity and innovativeness; sense of aesthetics and art; oral and written communication; health and nutrition; physical education, fitness, wellness, and sports; collaboration and teamwork; problem solving and logical reasoning; vocational exposure and skills; digital literacy, coding, and computational thinking; ethical and moral reasoning; knowledge and practice of human and Constitutional values; gender sensitivity; Fundamental Duties; citizenship skills and values; knowledge of India; environmental awareness including water and resource conservation, sanitation and hygiene; and current affairs and knowledge of critical issues facing local communities, States, the country, and the world.

With various new invention, scientific and technological advances, such as the rise of big data, machine learning, and artificial intelligence, many unskilled jobs worldwide may be taken

over by machines, while the need for a skilled workforce, particularly involving mathematics, computer science, and data science, in conjunction with multidisciplinary abilities across the sciences, social sciences, and humanities, will be increasingly in greater demand. In this quickly changing employment landscape and global ecosystem, it is becoming increasingly critical that children not only learn, but more importantly learn how to learn. Education thus, must move towards less content, and more towards learning about how to think critically and solve problems, how to be creative and multidisciplinary, and how to innovate, adapt, and absorb new material in novel and changing fields. The new education policy promotes skills such as conceptual understanding, creativity and critical thinking, ethics and human & Constitutional values, multilingualism and the power of language, extensive use of technology and life skills such as communication, cooperation, teamwork, and resilience.

The National Education Policy 2020 is a system and planning for the all-over development of every student. It will develop students' skill and make them a good human being, capable of rational thought, possessing compassion and empathy, courage and resilience, scientific temper and creative imagination, with sound ethical moorings and values.

The Policy is primarily divided into the four main part, School Education, Higher Education, Other key Areas of focus( Profession, Adult Education, Lifelong Learning, Language Arts and Culture), and Technology and Integration and Online/ Digital education.

**In the part I Primary and School Education:** school education, up to 18 year age. It is divided in the four stages as follows:

- 1. Stage 1<sup>st</sup> - Foundational Education** (5 years) includes
  - a) Pre-School from the Age-3 to 6 and
  - b) Class 1<sup>st</sup> and 2<sup>nd</sup> (age of 7 to 8).In the foundational education child can learn easily basics through the play/activity based learning in the mother tongue.  
**Skills focused** – Creativity, imagination, and activities.
- 2. Stage 2<sup>nd</sup> - Preparatory Education-** (3 years) age 8 to 11 and Class 3 to 5<sup>th</sup>  
The Preparatory Stage education building on the play, discovery, and activity-based pedagogical, some light text books, aspects of more formal but interactive classroom learning, in order to lay a solid groundwork across subjects, including reading, writing, speaking, physical education, art, languages, science, and mathematics.  
**Skills focused** – Participation, Presentation, and Language Skills
- 3. Stage 3<sup>rd</sup> - Middle** - (3 years ) age between 11 to 14 and Class 6 to 8.  
In this stage education will be based on the pedagogical and curricular style. It will introduce students to learning and discussion, abstract, concepts Sciences, mathematics, arts, social sciences, and humanities. There will be experiential learning and explorations of relations among different subjects. At this stage there will be Introduction of more specialized subjects and subject teachers.
- 4. Stage 4<sup>th</sup> - Secondary** – age 14 to 18/ Class 9 to 12 ( Four Years)  
At this stage there will be multidisciplinary study, building on the subject-oriented pedagogical and curricular style, with greater depth, greater critical thinking, greater attention to life aspirations, and greater flexibility and student choice of subjects.  
Option of exiting after Grade 10 and re-entering in the next phase to pursue vocational or any other courses available in Grades 11-12, including at a more specialized school, if so desired.

**In the part II Higher Education: (1+1+1+1= 4 Years) Bachelor Degree**

Second part of the policy contains details about the Higher education. Which is details of the shift from 3(UG) to 4 years Bachelor Degree (1+1+1+1= 4). There is exit available after every year of education. At the same time there is provision of multidisciplinary education. One can choose any subject from any discipline or there is no faculty barrier. With a special subject the student can choose optional subjects according to his area of interest.

There will be **Choice Based Credit System (CBCS)** and **Academic Bank of Credit**.

Every Higher Education Institute will have the flexibility to offer different designs of Master's programmes:

- (a) **2-years programme** with the second year devoted entirely to research for those who has completed the 3-year Bachelor 's programme.
- (b) **1-years Master's programme**- for the students who has completed a 4-years Bachelor's programme with Research,
- (c) **5-years Bachelor's+Master's an integrated programme**.

Ph.D. shall require either a Master's degree or a 4-year Bachelor's degree with Research.

The M.Phil. programme shall be discontinued.

**MERUs (Multidisciplinary Education and Research Universities)**- attain the highest global standards in quality education.

Higher education institutes are turning to the large multidisciplinary universities and HEI cluster. The flexible and innovative curricula of all HEIs shall include credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based education

**In the part III Other key Areas of focus-** Professional Education, Adult Education, Lifelong Learning, Language Arts and Culture.

**In the part IV Making it Happen- Implementation**

**National Education Policy promotes:**

**Holistic development of learners:** The key overall thrust of curriculum and pedagogy reform across all stages will be to move the education system towards real understanding and towards learning how to learn - and away from the culture of rote learning as is largely present today.

**Enhance essential learning and critical thinking:** Curriculum content will be reduced in each subject to its core essentials, to make space for critical thinking and more holistic, inquiry-based, discovery-based, discussion-based, and analysis-based learning.

**Experiential learning:** In all stages, experiential learning will be adopted, including hands-on learning, arts-integrated and sports-integrated education, story-telling-based pedagogy, among others, as standard pedagogy within each subject, and with explorations of relations among different subjects

**Empower students through flexibility in course choices:** Students will be given increased flexibility and choice of subjects to study, particularly in secondary school - including subjects in physical education, the arts and crafts, and vocational skills - so that they can design their own paths of study and life plans.

**Multilingualism and the power of language**

The three-language formula will continue - Language: Mother tongue/local language/regional language, National Language and International Language, etc. student will be familiar with all.

**Curricular Integration of Essential Subjects, Skills, and Capacities**

There is large amount of flexibility in choosing their individual curricula, certain subjects, skills, and capacities should be learned by all students to become good, successful, innovative, adaptable, and productive human beings in today's rapidly changing world



Peer Reviewed  
Referred and  
UGC Listed Journal  
(Journal No. 47023)



ISSN 2319 - 8508

AN INTERNATIONAL MULTIDISCIPLINARY  
HALF YEARLY RESEARCH JOURNAL

# GALAXY LINK

Single Blind Review / Double Blind Review

Volume - XI, Issue - II, May - October - 2023  
English & Marathi Part - I

Impact Factor / Indexing  
2023 - 7.878 ([www.sjifactor.com](http://www.sjifactor.com))

**AJANTA PRAKASHAN**


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### 3. Cultural Identity: A Critical Analysis of Alice Walker's Novels 'The Color Purple' and 'By the Light of My Father's Smile'

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#### **Abstract**

This paper subjects the representation of cultural identity in Alice Walker's novels '*The Color Purple*' (1982) and '*By The Light of My Father's Smile*' (1998) to critical analysis. Drawing upon the theories of cultural identity, the paper explores how the characters in these novels hammer out their identities in relation to their race, gender, and sexuality. The paper asserts that cultural identity is a complex and dynamic concept that is shaped by both internal and external factors. According to *Stuart Hall's* theory of '*cultural identity*', our sense of self is a continuous process that happens within the context of our social and historical background, and it's subject to constant renegotiation. Furthermore, the paper demonstrates how cultural identity is often intersectional, meaning that it is shaped by multiple factors and how individuals must navigate these intersections in order to form a coherent sense of self.

Overall, this paper offers a nuanced understanding of cultural identity as a dynamic and multifaceted concept that is shaped by a range of factors, and how it is negotiated by individuals in the context of their social and historical environments.

**Key words:** cultural identity, relation, complex and dynamic, intersectional, multifaceted, social and historical environments.

#### **Introduction**

Cultural identity is an important topic in literature because it shows the values, traditions, beliefs, and customs of a society that are passed down from generation to generation. The concept of cultural identity is not only essential in understanding the cultural heritage of a

**CHALLENGES AND OPPORTUNITIES OF MANAGEMENT EDUCATION IN INDIA****Dr. T.D. Gunjal**

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**Abstract:**

Significance of Management education has increased in numerous crowds; hence it's a need of Business directors to modernize their chops due to unforeseen changes in the external terrain. The management education has played an important part in the social uplift and overall development of the society. It's the responsibility of Management Institutes and business schools to give qualitative, applicable, current, and streamlined knowledge to the scholars in the competitive world. Unfortunately the business schools face several challenges in terms of conducting quality education. Moment, in the age of globalization external environmental forces and stakeholders continuously put pressure on the business seminaries to acclimatize the changes passing in the business world. In order to meet the challenges in advanced education, the business schools need to maintain their standard of excellence by paying attention to performance dimension. In order to maintain the quality education, business schools to remain in close contact with the assiduity. It's also important that the Education Institutions need to strive to achieve balance between the education cost and the quality. Management education in India is going through changes. The changing script offers scholars more openings, lesser tone-confidence and out of the box ways to more hone their chops. The current trends include increased focus on transnational hookups, externships, pupil exchange programs, common degrees etc. Also, the use of new technologies in operation tutoring is a trend that's catching up presto. The role of management Education in national development is well established. The objectives of management Education can be achieved only through qualitative change in the system. This paper focuses light on Challenges, Opportunities and Threats of management education in Indian scenario.

**Key words: Management Education, Challenge, Opportunities.**

## Introduction

Management education, nearly unknown in the nineteenth century, has come a dynamic force for change in numerous universities, in the workplace, and in the societies of both industrialized and developing countries. Its part in the professionalization of enterprise operation is extensively honored, though it has been blamed by some for placing emphasis upon short-term profit criteria. Management education is considered as snoots as it attracts youthful men and women who are generally motivated by the positive consequences associated with operation education. In India advanced education especially management education is witnessing an exponential growth in terms of number of institutes conducting operation education which are generally nominated as business academy. Management Education is each about learning different chops and to apply them for collective and multi faceted growth and value creation.

Management education includes undergraduate, post graduate and PhD courses in operation. The courses may be full- time, part time, superintendent, distance literacy or specialized. The subject of focus of this study is post graduate courses in operation. These courses come with a variety of names- Master of Business Administration (MBA), Master of Management Studies (MMS), Master in Finance Control (MFC), Master of Public Administration (MPA), PG Diploma in Operation (PGDIM), PG Diploma in Human Resource Management (PGDHRM), PG Diploma in Financial Management (PGDFM), PG Diploma in Operations Management (PGDOM), PG. Parchment in Marketing Management (PGDMM) etc. Education is developing essential capacities and power of scholars. It's the process by which society designedly transmits its accumulated knowledge, skill and values from one generation to another. Education in the largest sense is any act or experience that has a constructive effect on the mind, character or physical capability of an existent. The current trend in the education is, it offers the actors more openings and lesser tone- confidence to enthrall high managerial positions. Eventually, it enables them to profit from the colorful School networks which can also be a precious support throughout professional life.

## Objectives of Study:

- 1) To study the concept and importance of Management Education in India.
- 2) To study the recent trends in Management Education in India.



## Screening and Isolation of Imidacloprid Degrading Microorganisms from Pesticide Contaminated soils from Saswad Region in Pune, Maharashtra

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### ABSTRACT:

Imidacloprid (IMI), a neonicotinoid-class synthetic organic insecticide, is widely used across the world to control both piercing and sucking insect pests. It can persist in soil and contaminate soil, ground water etc. Microbial bioremediation aids in enhancing the soil's health by transforming dangerous pesticide byproducts into less toxic metabolites. The primary screening and isolation of microbes was done by enriching contaminated soil in a carbon-limited liquid Mineral Salt Medium (MSM) containing 100 ppm IMI concentration. Total eleven bacterial strains were isolated and were screened further for their tolerance to proliferate on MSM agar plate containing possible maximum concentration (50,000 ppm) of IMI. Four bacterial isolates VG5, VG7, VG 10 and VG11 were grown fast at highest IMI concentration and were screened further for growth pattern study in full strength MSM medium. Based on the growth pattern and biomass production isolate VG5 was selected as the most efficient strains for the IMI degradation study. Isolates VG5 was characterized on the basis of morphological, cultural and biochemical characteristics as *Bacillus* sp. by referring Bergey's Manual of Determinative Bacteriology. This potential isolates was identified by 16S rDNA gene sequencing as *Cytobacillus firmus*.

**Keywords:** Bioremediation, Neonicotinoids, Imidacloprid, *Bacillus* sp., Pesticide hazards

Received 20.11.2022

Revised 30.11.2022

Accepted 25.12.2022

### INTRODUCTION:

The use of pesticides in agriculture is essential since the **45% of the annual food production** of the world's agriculture **is lost due to pests**. According to one of the study on the top agricultural pesticide consumers in the world in 2020, the United States was the highest consumer using 407.8 thousand metric tonnes of pesticides, followed by Brazil with 377.2 thousand metric tonnes (1). India shows much less use of pesticides per hectare than the utilization by other Asian and European countries (2). According to statistics from the Ministry of Chemicals and Fertilizers, ICAR-NIAP, and the non-profit Pesticide Action Network (PAN), Maharashtra has consumed the most pesticides in India during the past five years, followed by Uttar Pradesh, Punjab, and Haryana. For all pesticides used in India, insecticides account for the largest portion.

In the history of contemporary insect management, the discovery of neonicotinoid pesticides marked a turning point (3). These neonics stand out for their capacity to selectively target organisms in an effort to reduce any potential undesirable effects. Imidacloprid [IMI; 1-[(6-chloro-3 pyridinyl) methyl] -N-nitro-2-imidazolidinimine] is one of these examples.

Imidacloprid (IMI), a neonicotinoid synthetic organic insecticide, is widely used across the world to control both piercing and sucking insect pests. . Imidacloprid harms the biological nervous system of insects, causes DNA damage, oxidative stress, and mitochondrial malfunction, all of which contribute to biological mortality. According to field research IMI can persist in soil for a half-life of between 27 and 229 days (4, 5). The half-life of imidacloprid in soil varies depending on the type of soil, the usage of organic fertilizers, and the degree to which ground cover is present. Imidacloprid deteriorated more quickly in the presence of vegetation in 48 days as compared to 190 days in the absence of it (6). IMI is photodegraded in soil and has a half-life of 39 days, while field trials showed a half-life of 229 days and laboratory studies found a half-life of 997 days when no light was available (4, 5). Imidacloprid was one of the most widely used pesticides in the globe in 2000, however the European Union restricted its use in 2013 and banned its use on outdoor crops in 2018 (7). Many industry experts mistakenly think imidacloprid has a low threshold of toxicity. However, it has been discovered to be incredibly dangerous to humans, pollinators, and non-target insects through polluted soil, water, air, and food or through direct



## ***In- vitro* study of Plant Growth Promoting Traits (PGP) of *Cytobacillus firmus* strain VG5**

**Ganvir Vishakha<sup>1\*</sup>, Sathe Shivaji<sup>2</sup>, Madbhavikar Bhagyashree<sup>3</sup>, Gajarmal Komal<sup>4</sup> and Waghmode Meghmala<sup>5</sup>**

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### **ABSTRACT:**

Increase in crops and yield productivity is becoming the utmost important for farmers all over the world to fulfil the demands of increasing population. But to achieve this goal, farmers excessively use chemical fertilizers and pesticides in fields which ultimately deteriorate soil fertility and soil quality, soil minerals and nutrients and also pollute ground water. Numerous microorganisms associated with rhizosphere play very important role in sustaining agriculture for long term. Application of such naturally occurring biological agents in fields can control pathogens as well as increase plant growth and crop production. These bacteria can also deal with the biotic and abiotic stress during the crop development. Soil isolate *Cytobacillus firmus* strain VG5 when tested *in vitro* for the PGPR features such as siderophores, ammonia, hydrogen cyanide (HCN), and IAA production, showed the ability to produce these PGPR traits. *Cytobacillus firmus* strain VG5 can be a boon to farmers for the increased growth and rise in production of crop yield. Hence this strain, due to its PGPR traits can be used as a biofertilizers/ biocontrol agent in future.

**Keywords:** Bioinoculants, Biofertilizers, *Cytobacillus* sp., PGPR, Pesticide hazards.

Received 20.11.2022

Revised 30.11.2022

Accepted 25.12.2022

### **INTRODUCTION:**

Many biotic and abiotic factors, extreme temperatures, drought, salinity, plants pathogens and pests severely affect the agricultural products and their productivity. To deal with the adverse conditions of biotic and abiotic factors, organic farming can be a positive ray of hope which not only can help in increasing crop production and yield but can also improve soil quality and fertility and also help in protecting and maintaining environmental conditions (1, 2). Numerous naturally occurring biological agents play very important role in sustaining agriculture for long term. Application of such rhizospheric microorganisms in fields can control pathogens as well as increase plant growth and crop production. Among such microorganisms, bacteria possess multiple plant growth promoting traits are called as Plant Growth Promoting Rhizobacteria (PGPR) commonly used as bio-inoculant. These are capable of enhancing and improving crop production and removing directly or indirectly biotic and abiotic stress. PGPR accelerate uptake of plants nutrients from the surrounding environment by producing many PGPR traits such as siderophores (to seize iron), phosphorus solubilization and/or by nitrogen fixation (3). Along with these PGPR also produce phytohormones such as indole acetic acid (IAA), the most widely studied plant hormone capable of enhancing root growth, also promote other beneficial plant-microbe symbiosis (4, 5). PGPR can reduce ethylene production by the secretion of 1-Aminocyclopropane-1-carboxylate (ACC) deaminase enzyme, also produce cellulose, protease, and antibiotics and cyanide and protect plant from bacteria, fungal and nematodes infection (6, 7).

Researchers' interest in isolating and investigating novel strains of plant growth promoting bacteria (PGPB) has grown **over the recent** years. **Several** PGPB identified globally during the past few years has significantly increased. Numerous bacteria related to *Pseudomonas*, *Klebsiella*, *Enterobacter*, *Burkholderia*, *Bacillus*, *Azospirillum*, and *Serratia* species have already been identified from diverse soils and reported aiding in the growth of various plants (8, 9). *Pseudomonas*, *Glomus*, *Bacillus*, and other strains have already been commercialized. The putative imidacloprid degrading bacteria (*cytobacillus firmus* VG5) was isolated from imidacloprid contaminated soils. Although this bacteria had already been reported earlier



## **Communication of Plant Growth Promoting Rhizobacteria in Agricultural Sustainability: An overview**

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### **ABSTRACT**

Microorganisms in the soil are commonly associated with every plant tissue. Plants control the physical and chemical composition of the soil which can affect colonization capacity of plant growth promoting rhizobacteria (PGPR). The degree of plant influence over the microbial community is highest nearer the root surface. This zone is now generally referred to as a rhizosphere. Rhizosphere soil is normally a moist environment but contains high amount of reduced carbon which supports the growth of these microbes. Plants protect endophytic bacteria from the environment that can colonize and establish plantations. In return, microbes in the soil promote plant growth through nitrogen fixation, phytohormone production, nutrient acquisition (solubilization of minerals, absorption of iron by production of siderophores), the production of antimicrobial substances to lessen or prevent the deleterious effects of phytopathogens on plants, phytoremediation, protection of plants by induced systemic resistance, production of natural products, and by conferring tolerance to various environmental stresses. These mechanisms can increase crop tolerance for the abiotic stresses such as drought, heat and salinity that become more frequent as changes in the climate continue to develop. This review is an update about the potential activities of microorganisms in the rhizosphere of various plant species. It also provides an overview of the endophytic bacteria associated with various plants and benefits that host plants derive from them.

**Keywords:** Rhizobacteria, endophytes, phytohormones, biocontrol agents, tolerance.

Received 28.10.2022

Revised 23.11.2022

Accepted 21.12.2022

### **INTRODUCTION**

PGPR and their host relationships can be classified into two levels of complexity: i) rhizospheric and ii) endophytic. Rhizosphere is the layer of soil under the influence of root exudate, is much richer in bacteria than the surrounding bulk soil. Studies based on culture-independent molecular analysis have found over 4,000 microbial species per gram of soil [1]. In rhizospheric relationships, PGPR can colonize the rhizosphere, root surface, or even superficial intercellular spaces. By definition, plants can alter the physical and chemical composition of the soil, affecting the ability of PGPR to colonize the rhizosphere. In many rhizospheric relationships, PGPR remains attached to the plant surface.

The term endophyte was first coined by De Bary in 1866 [2]. Endophytes are bacterial or fungal microorganisms that spend all or part of their life cycle within healthy tissue inside host plant and show no external signs of host infection or adverse effects on their host [3]. In an endophytic relationship, PGPR is actually located in the apoplastic space within the host plant. There is some evidence that endophytes occupy intracellular spaces, but these reports are rare. Depending on the host plant and the endophyte, PGPR can be found in all plant parts: seeds, roots, stems, leaves, fruits, etc. [4, 5]. There is evidence that endophytes reside in apoplastic intercellular spaces within the parenchyma tissue [6]. Several endophyte species are usually associated with a single plant, and at least one of these exhibits host specificity. There are about 300,000 species of plants in the world, each one hosts several to hundreds of endophytes generating enormous biodiversity [7]. The endophytic niche provides protection from the environment for bacteria that can colonize and establish *in planta*. These bacteria generally colonize the intercellular spaces and are isolated from all plant compartments, including seeds [8]. Endophytic bacteria have been

## A review on Biological Study and Synthetic methods of Quinazoline Derivatives

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**Abstract:** *Quinazoline derivatives plays important role as a bio pharmacologically active compounds therefore researcher synthesized various derivatives of Quinazoline and they evaluate their bio pharmacological activities and various important biological activities shown by synthesized derivatives of Quinazoline like antimicrobial, anti-fungal, anti-cancer, anti-inflammation, anti-bacterial, analgesia, anti-virus, anti-cytotoxin, anti-spasm, anti-tuberculosis, anti-oxidation, antimalarial, anti-hypertension, anti-obesity, anti-psychotic, anti-diabetes, etc. The aim of this review article to provide information about which synthetic methods used by researchers and which biological activities shown by those synthesized derivatives of Quinazoline.*

**Keywords:** Quinazoline, anti-cancer, anti-HIV, anti-tuberculosis, anti-malarial, synthetic methods

### 1. INTRODUCTION

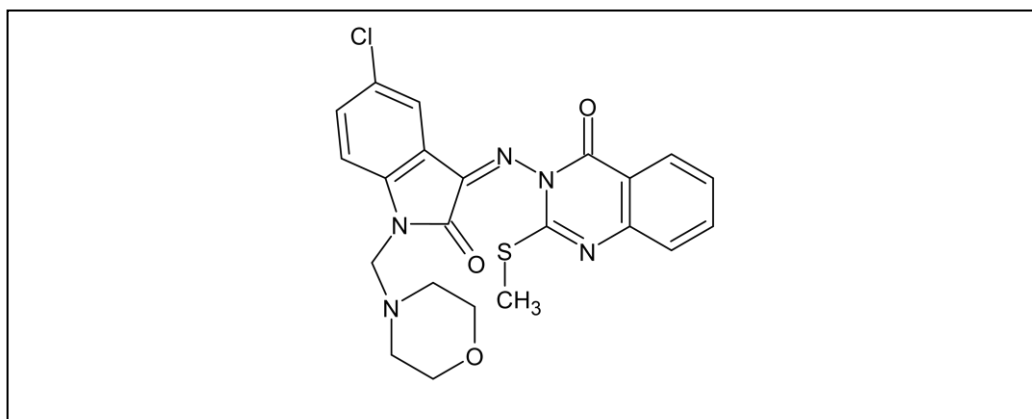
Quinazoline is Nitrogen containing heterocyclic compound and its structure contains two fused six membered rings, first ring is benzene ring and another ring is pyrimidine ring. Researcher inserted different groups to moiety of Quinazoline and they synthesized different derivatives of Quinazoline and after study of biological activities of synthesized derivatives of Quinazoline, researchers found that derivatives of Quinazoline shows important biological activities like antimicrobial, anti-fungal, anti-cancer, anti-inflammation, anti-bacterial, analgesia, anti-virus, anti-cytotoxin, anti-spasm, anti-tuberculosis, anti-oxidation, antimalarial, anti-hypertension, anti-obesity, anti-psychotic, anti-diabetes, etc., therefore we also try to give you information by this review article about synthetic methods and biological activities of derivatives of Quinazoline found by researchers.

### 2. BIOLOGICAL ACTIVITIES SHOWN BY QUINAZOLINE DERIVATIVES AND THEIR SYNTHETIC METHODS

#### 2.1. Quinazoline Derivatives shows antimicrobial activity

##### 2.1.1. 5-chloro-3-(3',4'-dihydro-2'-methyl-mercapto-4'-oxoquinazolin-3'-yl)-1-morpholino methyl imino isatin shows antimicrobial activity [1] :

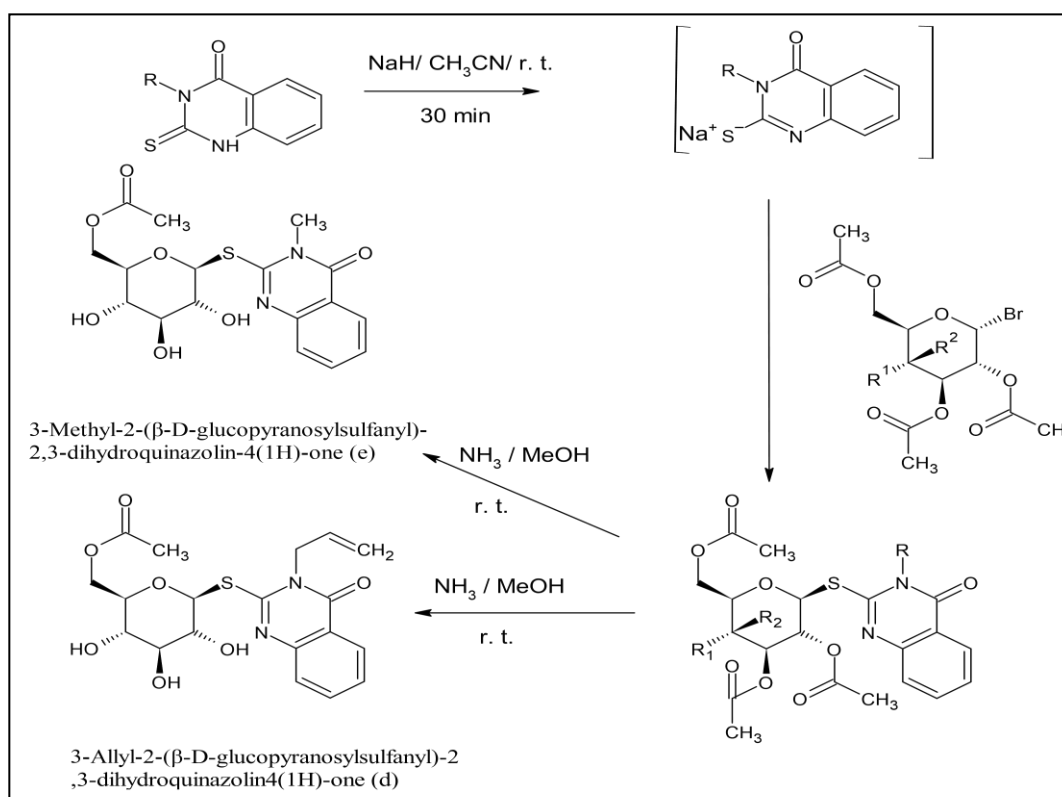
5-chloro-3-(3',4'-dihydro-2'-methyl-mercapto-4'-oxoquinazolin-3'-yl)-1-morpholino methyl imino isatin compound gives strong antimicrobial activity.



**Fig. 1 – Structure of 5-chloro-3-(3',4'-dihydro-2'-methyl-mercapto-4'-oxoquinazolin-3'-yl)-1-morpholino methyl imino isatin**

S.N. Pandeya (1999) investigated antimicrobial activity of synthesized compounds by using agar dilution method against 26 pathogenic bacteria with reference sulfamethoxazol. The synthesized compounds were evaluated for antifungal activity in vitro against *Cryptococcus neoformans*, *Microsporium audouinii*, *Trichophyton mentagrophytes*, *Mi-crosporium gypsum*, *Histoplasma capsulatum*, *Candida albicans* and *Aspergillus niger* using the agar dilution method with Sabouroud's dextrose agar (Hi-Media). Each microorganism suspension were prepared to contain 10<sup>5</sup> cfu/ml and applied to agar plates which have been diluted serially by compounds to be tested, those plates were incubated at 26°C for 48-72 hours and determined their MICs and among all investigated compounds 5-chloro-3-(3',4'-dihydro-2'-methyl-mercapto-4'-oxoquinazolin-3'-yl)-1-morpholino methyl imino isatin shown strong antimicrobial activity.

**Synthesis of Schiff and Mannich bases of isatin derivatives with 3-amino-2-methylmercaptoquinazolin-4(3H)-one which shows antimicrobial activity [1]:**



**Fig. 2 – Synthetic method of Schiff and Mannich bases of isatin derivatives with 3-amino-2-methylmercaptoquinazolin-4(3H)-one which shows antimicrobial activity**





**Shodh-Rityu** तिमाही शोध-पत्रिका  
*PEER Reviewed & Refereed JOURNAL*

ISSUE-29 VOLUME-3 ISSN-2454-6283 July-sept.-2022  
IMPACT FACTOR - (IJIF-7.312) SJIF-6.586, IIFS-4.125,

AN INTERNATIONAL MULTI-DISCIPLINARY RESEARCH JOURNAL

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**34. महानगरीय यांत्रिक सभ्यता के कारण टूटते मध्यवर्गीय परिवार की करुण गाथा- 'समुद्र में खोया हुआ आदमी'**  
**—श्री. अनिल शिवाजी झोळ**  
 सहा. प्राध्यापक,  
 हिंदी विभाग, वाघीरे महाविद्यालय, सासवड, तह. पुरंदर, जि. पुणे

कमलेश्वर द्वारा लिखित 'समुद्र में खोया हुआ आदमी' इस उपन्यास का आधार निम्न मध्यवर्गीय परिवार की कहानी है। कमलेश्वर के अभी तक लिखे हुए लघु उपन्यासों में 'समुद्र में खोया हुआ आदमी' सबसे सफल उपन्यास रहा है। विशेष रूप से यथार्थ की दृष्टि से जैसे जिस मध्यवर्गीय परिवार की कथा इस उपन्यास में कही गई है, वह अकेले ही दिल्ली की नहीं, भारत के किसी भी महानगर की हो सकती है। समुद्र में खोया हुआ आदमी बीरन नहीं स्वयं श्यामलाल है। वह भीषण असमानताओं के समुद्र में खो गया है। उसका परिवार और वह स्वयं भीड़ के सैलाब में कहीं खो गए हैं। यह उपन्यास आजादी के बाद के भारत का उपन्यास है। कथात्मक स्तर पर यह एक टूटते हुए परिवार की कहानी है। बेरहम महानगर में धीरे-धीरे टूटते हुए परिवार की करुण गाथा। आधुनिक जीवन की सामान्य सुविधाओं के लिए हर व्यक्ति लालायित है, पर उसे सुविधाएँ उन छोटे शहरों, कस्बों या गाँवों में नहीं मिल रही है, जहाँ वह रहता है। ऐसी स्थिति में हर आदमी बड़े नगर की ओर भाग रहा है, क्योंकि उसे लगता है कि वहाँ वे सुविधाएँ भी हैं और काम के अवसर भी अधिक हैं। लेकिन इस भागमभाग के पीछे सबसे बड़ा कारण है— भविष्य की अनिश्चितता। कोई भी व्यक्ति भविष्य के प्रति आश्वस्त नहीं है। उसे पता नहीं कि कल क्या होने वाला है। वह नितांत असुरक्षित महसूस करता है और इसी भय को वह साहस का नाम देकर महानगरों की ओर भागता है। यह वे महानगर हैं, जिनकी अतल गहराइयों और तूफानों का पता तब तक नहीं चलता, जब तक आदमी उसमें उतर नहीं जाता।

महानगरीय जीवन के दबाव के नीचे सारे रिश्ते, जिन्हें हम कलेजे से लगाए जीते रहे हैं, भिन्न-भिन्न हो जाते हैं और खून के रिश्ते तक बदलने लगते हैं। यहाँ आकर हर व्यक्ति अकेला हो जाता है और अपने अस्तित्व तथा सार्थकता की खोज करता है। पिता-पुत्र, पति-पत्नी, माँ-बेटी आदि के खून के रिश्ते व्यर्थ होकर भी बने रहते हैं। पर उनके आंतरिक संतुलन बदलने लगते हैं क्योंकि महानगर की संस्कृति मात्र पुरुष आश्रित या पिता आश्रित नहीं है। वह एक-एक अंश पर आश्रित है। यहाँ मशीन का हर पुर्जा महत्वपूर्ण है। यदि छोटा-सा पुर्जा भी टूट जाए या काम न करे तो मशीन ठप हो जाती है। कठिनाई यह है कि भारतीय परिवारों ने इस अर्थार्थ को मन से अभी स्वीकार नहीं किया है। जहाँ-जहाँ मजबूरी में इस नए संतुलन को मंजूर भी किया गया है, वहाँ एक भीतरी संस्कारगत प्रतिरोध अब भी बाकी है। श्यामलाल के परिवार में उनकी पत्नी रमी, दो बेटियाँ तारा और समीरा तथा बेटा वीरेन आदि सदस्य हैं। उनका परिवार

दिल्ली चला तो आया है पर वह इसी स्वीकार-अस्वीकार के मैंगर जाल में चकराता रहता है, क्योंकि श्यामलाल उसे अकेले चलाने का परंपरागत दंभ रखते हैं। वे इस सत्य को स्वीकार नहीं कर पाते कि वे एक नई व्यवस्था के दबाव में हैं। इस व्यवस्था के अनुकूल और अनुरूप बनने के लिए उन्हें अपने दृष्टिकोण, संस्कार और विश्वासों में आमूल परिवर्तन स्वीकार करना होगा। अपनी लड़कियों को लेकर भी वह उसी पुरानी और दकियानूसी परंपरा के गुलाम है, जहाँ लड़कियाँ अपने बाप के इशारों पर चलती हैं और गऊ की तरह अपने अभिभावकों के फँसले को स्वीकार कर जिंदगी भर घुटती ही रहती हैं। कठिनाई यह है कि पिता की सत्ता का जो अनिवार्य विघटन महानगर की संस्कृति में होता है, वह यहाँ नहीं हो पाता और पुराने मूल्यों और परिवार सत्ता का नवीनीकरण अवरुद्ध हो जाता है। श्यामलाल के मन में पुराने के लिए वह आदर है, जो नई महानगर संस्कृति में व्यर्थ हो चुका है, पर श्यामलाल उस पुराने से अपने को तोड़ नहीं पाते। इस बदली हुई स्थिति को श्यामलाल महसूस तो करते थे पर स्वीकार नहीं कर पाते थे। वे इस परिवर्तन को शब्द भी नहीं दे पाते थे। यानी वे यंत्र-सभ्यता द्वारा निरंतर अकेले किए जा रहे व्यक्ति की सत्ता को सह नहीं पा रहे थे। महानगरों का पहला दबाव परिवार नाम की संस्था पर पड़ता है। यह दबाव घर परिवार को तोड़ता है और भावनात्मक संबंधों को व्यापारिक संबंधों में बदल देता है। जिस समय श्यामलाल का परिवार इस आंतरिक परिवर्तन की प्रक्रिया से गुजर रहा होता है उसी समय बीरन के खो जाने की दुर्घटना हो जाती है। चरनजीत सिंह दुखद समाचार देता है, 'सिंगापुर से चलने से पहले हम लोगों ने रात का खाना साथ ही खाया था। सुबह हुई तो उसका कोई पता नहीं लगा। एक खलासी डेक पर गया, तो उसने वीरेंद्र की चप्पलें रेलिंग के पास पड़ी देखी थीं। जब पी. टी. के वक्त वह नहीं आया तब तलाश की गई। जहाज पर नहीं मिला। उसके बाद से उसका कोई पता नहीं है।' बीरन यानी घर का भविष्य और गहराई में जाकर देखें तो सबका भविष्य। क्योंकि यह कहानी सिर्फ श्यामलाल के परिवार की नहीं है। यह निम्न मध्यवर्गीय घरों की कहानी है, वे घर जो भीतर से टूटते जा रहे हैं, जिनके सामने कोई भविष्य था ही नहीं, या फिर जिनका भविष्य बीरन की तरह खो गया है। और सिर्फ एक इंतजार बाकी है। कभी न समाप्त होने वाली दारुण प्रतीक्षा। और ऐसे में श्यामलाल अपनी स्थिति पहचानते हैं कि सचमुच अब वे बिलकुल अकेले हो गए हैं, कि उस महानगर में अब कोई भी ऐसा नहीं है, जो उन्हें सहारा दे सके या किसी किनारे तक पहुंचा सके।

बीरन के खो जाने या मृत्यु के बाद या उसके कभी ना लौट कर आने की सच्चाई को स्वीकार कर लेने के बाद ही श्यामलाल सोचते हैं, कि काश समीरा कुछ बन गई होती। काश उस लड़की ने उन्हें सिर्फ जन्मदाता माना होता, पिता नाम की क्रूर सत्ताने उसका भविष्य न अवरुद्ध कर दिया होता। समीरा ने उन्हें जन्मदाता माना होता और उन्हें पिता न मानकर अगर वह अपनी जिंदगी खोज सकी



**Shodh-Rityu** तिमाही शोध-पत्रिका

*Open Transparent PEER Reviewed & Refereed JOURNAL*

ISSUE-32 VOLUME-7 ISSN-2454-6283 April-June-2023

IMPACT FACTOR - (IJIF-8.712) (COSMOS- 2019-4.649)

Scopus Impact factor (1.25) & Indexed,

Thomson Reuters Edwin Impact Factor-2.88

DOI Number - <https://doie.org/10.0517/shodritu.2023809664>

AN INTERNATIONAL MULTI-DISCIPLINARY RESEARCH JOURNAL

सम्पादक

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9405384672

तकनीकी सम्पादक

अनिल जाधव, मुंबई

पत्राचार हेतु पता-

महाराणा प्रताप हाउसिंग सोसाइटी, हनुमान गढ़ कमान के सामने, नांदेड-431605

### 14. व्यंग्य : एक सैद्धांतिक विवेचन

—श्री. अनिल शिवाजी झोळ

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**प्रस्तावना :** व्यंग्य आरंभ से बोलचाल की भाषा में तो रहा लेकिन साहित्य में इसका प्रवेश बहुत बाद में हुआ। साहित्य सबको साथ लेकर चलने की मंशा रखता है। लेकिन व्यंग्य सबको साथ लेकर नहीं चलता, वह समाज में व्याप्त विरोधाभासों का मज़ाक उड़ाता है। पाखंड पर चोट करता है। छल-प्रपंच और ऊपर से न दिखाई देने वाली विसंगतियों का पर्दाफाश करता है। जब साहित्यकार समाज में व्याप्त विसंगतियों, विद्रूपों, पाखंड को सामाजिक दबावों या राजनैतिक कारणों से, या कभी-कभी अन्यायपूर्ण व्यवस्था का खुद भी जीविका उपार्जन के लिए एक अंग होने की वजह से, प्रत्यक्षतः नहीं रख पाता तो वह उन्हें व्यंग्य के माध्यम से साहित्य को समर्पित करता है।

**व्यंग्य का अर्थ एवं स्वरूप :** हिंदी भाषा और साहित्य में प्रचलित 'व्यंग्य' शब्द संस्कृत भाषा का शब्द है। जो 'वि' उपसर्ग एवं 'ण्यत्' प्रत्यय से 'अञ्ज' योग से बनता है। संस्कृत साहित्य में व्यंग्य का प्रयोग आधुनिक 'व्यंग्य' के अर्थ में न होकर संपूर्ण काव्यशास्त्रीय अध्ययन के परिप्रेक्ष्य में व्यंग्यार्थ (व्यंजित लेने वाला अर्थ) के रूप में प्राप्त होता है। वर्तमान हिंदी में प्रचलित 'व्यंग्य' को अंग्रेजी के 'सटायर' (SATIRE) का पर्याय माना जाता है। 'सटायर' शब्द लैटिन शब्द 'SATURA' से बना है जिसका अर्थ गड़बड़झाला है। सैटूरा के कम से कम दो रूप विकसित हुए थे जिसका एक रूप बाद में प्रचलित रहा और यह रूप पद्य-निबंध के समान था। पुरातन काल में सैटूरा शब्द परनिंदा के अर्थ में प्रयुक्त होता था और ऐतिहासिक अर्थ की छाँटा वर्तमान सटायर शब्द पर भी पड़ी है। अब सटायर में केवल परनिंदा नहीं होती कुछ बातों में हेरफेर होता है। अनिल राकेशी ने सटायर शब्द के अर्थ को इस प्रकार बताया है, 'सटायर शब्द लैटिन शब्द सैटूरा से निकला है जिसका अर्थ था भरपूर और बादे में इसका अर्थ हो गया विभिन्न चीजों का मिश्रण या पालमेल।'<sup>1</sup>

व्यंग्य हमारे अर्थार्थ की अभिव्यक्ति है। व्यक्ति तथा समाज की कमजोरियों, दुर्बलताओं, विषमताओं, कथनी-करनी के बीच के अंतर को व्यंग्य ही सही दिशा में हमारे सामने लाता है। कभी-कभी वह आक्रामक हो जाता है लेकिन इसमें भी नैतिक और सामाजिक हितों का उद्देश्य निहित होता है।

**व्यंग्य की परिभाषा :** भारतीय आलोचकों की परिभाषाएं : भारतीय विद्वानों ने 'व्यंग्य' को ध्वनि वक्रोक्ति में समाहित किया है। आधुनिक विद्वानों ने व्यंग्य की परिभाषा इस प्रकार दी है—**आचार्य हजारी प्रसाद द्विवेदी** ने व्यंग्य को इस रूप में परिभाषित किया है, 'व्यंग्य वह विधा है जहाँ कहने वाला अधरोष्ठ में हँस रहा हो और सुनाने वाला तिलमिला

उठे और फिर भी कहने वाले को जवाब देना अपने आप को और भी उपहासास्पद बना लेना हो जाता है।'<sup>3</sup> **हरिशंकर परसाई** का मानना है कि, 'व्यंग्य जीवन से साक्षात्कार करता है, जीवन की आलोचना करता है। विसंगतियों, मिथ्याचारों और पाखंडों का पर्दाफाश करता है। यह नारा नहीं है। मैं यह कह रहा हूँ जीवन के प्रति व्यंग्यकार की उतनी ही निष्ठा होती है जितनी किसी गंभीर रचनाकार की, बल्कि जादा ही। वह जीवन के प्रति दायित्वों का अनुभव करता है। जिंदगी बहुत जटिल चीज है। इसमें खालिस हँसना या खालिस रोना जैसी चीज नहीं होती, बहुत सी हास्य रचनाओं में करुणा की धारा है। अच्छा व्यंग्य सहानुभूति का सबसे उत्कृष्ट रूप होता है।'<sup>5</sup> **हरिशंकर परसाई** व्यंग्य को जीवन की आलोचना करने वाला बताते हुए सामाजिक दायित्वों का अनुभव कराने वाला बताते हैं वे आचार्य हजारी प्रसाद द्विवेदी तथा डॉ. रामकुमार वर्मा की तरह व्यंग्य में हास्य का होना भी अनिवार्य नहीं मानते हैं। **डॉ. शेरजंग गर्ग** ने व्यंग्य की विभिन्न परिभाषाओं पर विचार करते हुए व्यंग्य की समेकित परिभाषा दी है। जिसमें समाज या व्यक्ति की दुर्बलताओं, विषमताओं आदि को कभी वक्र तो कभी सपाट शब्दों में व्यक्त किया है, 'व्यंग्य एक ऐसी साहित्यिक अभिव्यक्ति या रचना है, जिसमें व्यक्ति तथा समाज की कमजोरियों, दुर्बलताओं, करनी एवं कथनी के अंतरों की समीक्षा अथवा निंदा, भाषा की टेंदी भंगिमा देकर अथवा कभी-कभी पूर्णतः सपाट शब्दों में प्रहार करते हुए की जाती है। वह पूर्णतः अगंभीर होते हुए गंभीर हो सकती है, निर्दय लगते हुए तटस्थ लग सकती है, माखौल लगती हुई बौद्धिक हो सकती है, अतिशयोक्ति एवं अतिरंजना का आभास देने के बावजूद पूर्णतः सत्य हो सकती है। व्यंग्य में आक्रमण की उपस्थिति अनिवार्य है।'<sup>6</sup> उपर्युक्त परिभाषा में व्यंग्य को एक साहित्यिक अभिव्यक्ति कहा गया है। जिसमें आक्रोश एवं आक्रामकता को अनिवार्य तत्व मानते हुए उसे हास्य से अलग करने का प्रयास किया गया है। **नरेंद्र कोहली** के अनुसार, 'कुछ अनुचित अथवा गलत देखकर जो आक्रोश जगता है, वह यदि काम में परिणत हो सकता है, तो अपनी असहायता में वक्र होकर वह अपनी तथा दूसरों की पीड़ा पर हँसने लगता है तब वह विकट व्यंग्य होता है, पाठक के मन को चुनलाता सहलाता नहीं, कोड़े लगाता है। अतः वह सार्थक और सशक्त व्यंग्य कहलाता है।'<sup>8</sup> **नरेंद्र कोहली** भी मानते हैं कि जब सामाजिक बुराईयों को देखकर मन में आक्रोश जगता है तब वाणी द्वारा वह व्यंग्य कहलाता है। **डॉ. बालेंदु शंखर तिवारी** के अनुसार, 'व्यंग्य एक विशिष्ट समानधर्मी, प्रेरणाविधि अथवा एक विशिष्ट मानसिक भंगिमा है, जिसका उद्भव अंतर्विरोधों के कारण होता है और जिसमें व्यक्ति अथवा व्यवस्था विशेष के दौर्बल्य की अपेक्षात्मक अभिव्यक्ति द्वारा परिवर्तन का अभीष्ट पूर्ण होता है।'<sup>9</sup> अर्थात् समाज में अनुचित कार्यों को होता देख मन में उसके प्रति विरोध उत्पन्न होता है और व्यंग्य के माध्यम से ही समाज में हो रहे



## Research Article

# Experimental and computational study of $\text{Cu}_2\text{FeSnS}_4$ : An emerging quaternary semiconductor

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## ARTICLE INFO

## Keywords:

Quaternary semiconductor  
Density functional theory  
Solvothelmal method  
 $\text{Cu}_2\text{FeSnS}_4$   
Power conversion efficiency  
Ideality factor

## ABSTRACT

The quaternary semiconductor  $\text{Cu}_2\text{FeSnS}_4$  (CFTS) has attracted attention of the research community due to its optical and electrical properties, earth abundance and non-toxicity. CFTS powder has been successfully synthesized using solvothelmal technique. X-ray diffraction peaks and Raman spectra confirm structural formation of the compound, and XPS studies determine the oxidation states of Cu, Fe, Sn and S to be +1, +2, +4 and -2 respectively. The scanning electron microscopy images show nanosheet array-like morphology and the stoichiometry ratio of 2:1:1:4 for Cu, Fe, Sn and S respectively is obtained from EDS measurements. Direct band gap of 1.52 eV has been estimated using the Tauc plot. The experimental findings have been supported computationally using density functional theory (DFT) based calculations performed within quantum espresso (QE) software. The stannite phase is observed to be the ground state and is in accordance with the experimental observation. The total density of states (DOS) and projected DOS show the contribution of each elemental species in valence and conduction bands. A direct band gap of 1.51 eV obtained from HSE06 hybrid functional is in good agreement with the Tauc plot result. Further, the cation defect formation calculations show that Cu vacancy is most likely to be formed among the cations. The computationally obtained absorption spectra confirms the application of CFTS as absorber layer in a solar cell. The electrical study of the *p*-CFTS and *n*-CdS junction is carried out using *J-V* response. The calculated ideality factor, series resistance and power conversion efficiency show promising application in photovoltaic industry. The present work fills the existing gap in the published literature of a systematic experimental and computational study of CFTS semiconductor, which has application in varied fields.

## 1. Introduction

The energy requirement of mankind is increasing day by day and fossil fuels alone cannot fulfill the requirement. Solar energy is considered to be the most promising supplementary source of energy due to its availability and various modes of its utilization. Solar photovoltaic (PV) technology harnesses solar energy with highest efficiency and is still under development. With the improvising technology and materials used, various generations of solar cell have been classified. At present, third and fourth generations of solar cells are being explored rigorously. The solar cells having highest efficiency based on silicon (Si), copper indium gallium selenide (CIGS) and cadmium telluride (CdTe) are either

expensive or contain toxic materials or have materials with limited reserves. Hence, the research community is exploring eco-friendly materials with abundant reserves that can be synthesized easily and economically.

The quaternary semiconductor copper zinc tin sulfide (CZTS) having chemical formula  $\text{Cu}_2\text{ZnSnS}_4$  is one such semiconductor with promising electric and optical properties for solar cell applications. After a decade of research, the efficiency of the CZTS solar cell could not match with the well-established competitors and therefore there exists a lot of scope to explore similar materials. One such quaternary semiconductor  $\text{Cu}_2\text{FeSnS}_4$  (CFTS) is proving to be an alternative with similar optical absorption, band gap, electrical conductivity and structural stability.

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## Synthesis and characterization of single crystalline Germanium nanowires

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**Abstract:** One-dimensional (1D) Ge nanostructures such as single crystalline nanowires have attracted intense research zeal in the past decade as compared to its bulk form, owing to their wide range of potential applications in sensing, biology, optoelectronics, solar cells and photocatalysis. In this work, by optimizing the experimental conditions using simple vapor transport method, single crystalline germanium nanowires with lowest diameter were successfully synthesized and characterized.

**Keywords:** Germanium, Nanowires, single crystalline, Nanostructures

**Introduction:**

Nanomaterials are commonly defined as materials designed and produced to have structural features with at least one dimension of 100 nanometers or less. Various types of nanomaterials attract tremendous attention in recent researchers. New physical properties and new technologies both in sample preparation and device fabrication evoke the development of nanoscience. Dimensionality is an important governing factor in the electronic structures of semiconductor nanocrystals. The quantum confinement energies in two-dimensional quantumwells, one-dimensional quantum wires and zero-dimensional quantum dots are quite different [1-8]. Semiconductor nanocrystals, such as quantum dots (QDs) and quantum wires (QWs), are of intense scientific and technological interest. One-dimensional (1D) nanostructures such as wires, rods, belts, and tubes have also become the focus of intensive research owing to their unique applications in mesoscopic physics and fabrication of nanoscale devices [9,10]. It is generally accepted that 1D nanostructures provide a good system to investigate the dependence of electrical and thermal transport or mechanical properties on dimensionality and size reduction (or quantum confinement). 1D nanostructures can now be fabricated using a number of advanced nanolithographic techniques, such as electron-beam (e-beam) or focused-ion-beam (FIB) writing, proximal-probe patterning, and X-ray or extreme-UV lithography. The vapor-liquid-solid method (VLS) is a mechanism for the growth of one-dimensional structures, such as nanowires, from chemical vapor deposition or physical vapor deposition [11]. Growth of a crystal through direct adsorption of a gas phase on to a solid surface is generally very slow. The VLS mechanism circumvents this by introducing a catalytic liquid alloy phase which can rapidly adsorb a vapor to supersaturation levels, and from which crystal growth can subsequently occur from nucleated seeds at the liquid-solid interface. The physical characteristics of nanowires grown in this manner depend, in a controllable way, upon the size and physical properties of the liquid alloy. For the gold-germanium system, eutectic



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**RURAL ENTREPRENEURSHIP IN INDIA :  
CHALLENGES & OPPORTUNITIES**

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**ABSTRACT**

The said research paper is focuses on the challenges and opportunities for rural entrepreneurship in India. Rural Entrepreneur succeeding as an entrepreneur and an innovator in today's world is vastly different from what it was earlier. Beside the existing generation of entrepreneurship also is passing through the transition period. They experience financial resource limitation to promote or to develop a venture and there is also look of research and is also experiencing behavior of entrepreneurial. Aim of most farmers is to earn profits from farming as from any other business, if he determines the objectives. A farm business necessary requires deliberate decision and proper investment, after assessing risk and available resources to maximize profit. There for entrepreneurship is not simply adoption of new activity but it is transformation of a person from traditional of modern India is known as "Home spices" and is in fact the largest producer, consumer and exporter of spices in the world.

To promote entrepreneurs who would take to rural entrepreneurship in utmost earnestness and sincerity is to ensure rural development. Such enterprising people who prefer rural entrepreneurship may or may not themselves belong to rural areas. Entrepreneurship taking to rural entrepreneurship should not only set up enterprises in rural areas but should be also using rural produce as raw material and employing rural people in their production processes.

**KEY WORDS** - Rural Entrepreneurship, Innovation, Social Exchange, Entrepreneurial Development etc.

**INTRODUCTION**

Rural Entrepreneurship can refer to new ventures that happen to be created in rural regions as the result of an intervention, such as a tax subsidy, to attract businesses into an area or via the in-migration of city dwellers that subsequently start businesses. It can also refer to the creation of ventures that result from the unique endowments in rural regions that do not exist in metropolitan areas. Such businesses may involve agriculture, lifestyle, and extraction and knowledge industries. Rural entrepreneurs in developing economies may





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already be living at a subsistence level when making the decision to start the venture. For a sustainable enterprise, production must take place at an efficient scale, which implies capital accumulation and hence, savings beyond subsistence level consumption. New ventures must be rapidly scalable, which implies a high level of capital and technology intensity relative to the share of labor and have access to fast growth demand markets. More importantly, because high value employment opportunities tend to be limited in rural areas, new ventures must be capable of providing employment to family and extended family members.

Such businesses are unique to rural regions since it is the very nature of the destination that attracts the demand market. However, rural regions suffer from their small size and remote access, difficulties in accessing venture capital and technology and lack of technical and managerial know-how to create high-growth businesses. It is now common practice to establish microenterprise programs in rural regions. Maximizing the contribution of microenterprise to sustainable economic development requires policies that achieve macroeconomic stability, high quality physical, legal and communications infrastructures, technical assistance in education and training, access to new or existing markets, financing alternatives and access to capital, and other measures to lower barriers to business creation.

## **CONCEPTUAL BACKGROUND**

Entrepreneurship as a stabilizing force limits entrepreneurship to reading markets disequilibria, while entrepreneurship defined as owning and operating a business, denies the possibility of entrepreneurial behavior by non-owners, employees and managers who have no equity stake in the business, therefore, the most appropriate definition of entrepreneurship that would fit into the rural development context, argued here, is the broader one, the one which defines entrepreneurship as: “a force that mobilizes other resources to meet unmet market demand”, “the ability to create and build something from practically nothing”, “the process of creating value by pulling together a unique package of resources to exploit an opportunity”. This is why entrepreneurship is considered to be a prime mover in development and why nations, regions and communities that actively promote entrepreneurship development, demonstrate much higher growth rates and consequently higher levels of development than nations, regions and communities whose institutions, politics and culture hinder entrepreneurship. An entrepreneurial economy, whether on the national, regional or community level, differs significantly from a non-entrepreneurial economy in many respects, not only by its economic structure and its economic vigorousness, but also by the social vitality and quality of life which it offers with a consequent attractiveness to people.

“Youths in the rural areas have little options”, this is what they are given to believe. This is the reason that many of them either work at farm or migrate to urban land. The need is to plant other options in the minds of rural youth. Entrepreneurship could be the best option. Of planted and nurtured in the minds of rural women and youth, it could result in revolutionizing the Indian economy. It should be emphasized that the projects undertaken by these entrepreneurs should not be constrained by its location in rural area. It should enjoy all the advantages of the location.

October - 2023

E-ISSN - 2348-7143

International Research Fellows Association's  
**RESEARCH JOURNEY**

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### **Published by -**

© **Mrs. Swati Dhanraj Sonawane**, Director, Swatidhan International Publication, Yeola, Nashik  
Email : [swatidhanrajs@gmail.com](mailto:swatidhanrajs@gmail.com) Website : [www.researchjourney.net](http://www.researchjourney.net) Mobile : 9665398258

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## The Influence of Chatgpt and AI Tools on the Academic Performance

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### Abstract:

*The use of charge GPT and other AI tools in education has arise increasingly these days as preceptors see to work the benefit of Technology to better scholar knowledge and academic performance this research paper examines the presence examination on the influence of charge GPT and AI tools on academic performance with an emphasis on the implicit benefit and challenges of these tools while charge GPT and other AI tools have the eventuality to enhance substan literacy feedback and assessment and Commerce they also encourage challenges similar as moral Enterprise lack of world commerce and possible desires as a nutshell this paper emphasized need for the new empirical to completely understand the impact of charge GPT and air tools on academic performance and provides recommendations for preceptors and policy makers on how to use this tools effectively and responsibility educational surroundings*

**Keywords:** AI ,ChatGPT, Education, Academic Performance

### Introduction :

In the end of 2022, ChatGPT application released by Open AI company to the public and millions of people started using in the first month because of its unprecedented level of intelligence and complexity in addition to part of the community claiming it will be the new Google search engine. Educators were amazed by the exceptional abilities of ChatGPT to do in the education field. ChatGPT is a generative AI model and generative AI is a type of machine learning algorithms that could learn from content such as audio, image, and text to generate new content. There are other generative AI models which focused on specific domain like software engineering, such code auto-completion, convert natural language to code, and translate code from a specific programming language to another one . Due to the ability of ChatGPT in generating human-like language and answering many questions in a logical manner even if these questions asking to prepare an assignment, quiz questions or any other academic task. Many academics started using ChatGPT and found it useful to save their time in teaching, assessment and research, so they can spend more time with students on other important activities

### Concept of ChatGPT and Artificial intelligence (AI):

ChatGPT's understanding and potential applications in various disciplines, such as law, the medical domain and finance, is the subject of numerous studies conduct a case study on the implementation of ChatGPT to radiology reports that have been simplified. Ethical concerns



## GENDER AND DIASPORIC IDENTITY IN SALMAN RUSHDIE AND JHUMPA LAHIRI'S LITERARY WORKS

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### **Abstract:**

*This research paper explores the intersection of gender and diasporic identity in the literary works of Salman Rushdie and Jhumpa Lahiri. By analyzing select works from these authors, the paper investigates how gender dynamics are portrayed within the context of the diasporic experience. The study delves into the ways in which Rushdie and Lahiri navigate issues of cultural displacement, identity, and the complex interplay of gender roles within the diaspora. Through a close examination of characters, narrative techniques, and cultural contexts, this research aims to shed light on the nuanced representation of gender in diasporic literature.*

**Keywords:** *Gender, Diaspora, Identity, Cultural Displacement, etc.*

Diasporic literature has emerged as a significant genre that reflects the experiences of individuals living outside their homeland, negotiating multiple identities and cultural influences. Salman Rushdie and Jhumpa Lahiri, both renowned authors of diasporic literature, provide rich material for examining the intricate relationship between gender and the diasporic experience. This paper seeks to explore the portrayal of gender roles, identity formation, and cultural displacement in select works by Rushdie and Lahiri.

### **Gender Dynamics in Salman Rushdie's Works:**

Gender dynamics play a crucial role in Salman Rushdie's literary works, offering a nuanced exploration of how gender roles intersect with the complexities of diasporic identity. From the magical realism of *Midnight's Children* to the controversial *The Satanic Verses* and the historical tapestry of *The Moor's Last Sigh*, Rushdie weaves intricate narratives that delve into the multifaceted nature of gender within the diasporic experience.

In *Midnight's Children*, Saleem Sinai, the protagonist, serves as a lens through which gender roles are examined against the backdrop of post-colonial India and the subsequent diaspora. Rushdie challenges traditional notions of masculinity and femininity, portraying characters that resist societal norms. The character of Amina, Saleem's mother, embodies the struggle of women in a changing society, negotiating both traditional expectations and



newfound aspirations. *The Satanic Verses* amplifies the exploration of gender dynamics in the diaspora. Amidst religious and cultural clashes, the novel delves into the impact of identity crises on gender roles. The characters of Gibreel Farishta and Saladin Chamcha undergo transformations that blur the boundaries of gender, symbolizing the upheaval and disorientation experienced by individuals in diasporic communities. *The Moor's Last Sigh* introduces a historical dimension to Rushdie's exploration of gender. Against the backdrop of the Indian diaspora and the fading Jewish community in Cochin, the novel portrays the protagonist Moraes Zogoiby's relationships with women, reflecting the broader societal shifts in gender dynamics. The character Aurora Zogoiby, Moraes's mother, serves as a powerful representation of the complexities women face in a diasporic setting.

In Jhumpa Lahiri's *Interpreter of Maladies*, gender dynamics are explored within the Indian-American diaspora. Lahiri crafts characters navigating the complexities of cultural identity, and the short story "Sexy" specifically addresses the intricacies of marital relationships and infidelity, highlighting the challenges faced by women in the diaspora. *The Namesake* continues Lahiri's examination of gender within the diaspora, focusing on the experiences of Gogol Ganguli, a second-generation immigrant. The novel captures the evolving nature of gender roles as Gogol navigates cultural expectations and personal aspirations. The character of Ashoke Ganguli, Gogol's father, also contributes to the exploration of masculinity and fatherhood in the diaspora. In *Unaccustomed Earth*, Lahiri further delves into the impact of cultural displacement on familial and gender dynamics. The short story "Hell-Heaven" explores the complexities of love and desire, illustrating the challenges faced by women in reconciling their personal desires with societal expectations within the diasporic community.

### **Narrative Techniques:**

Salman Rushdie and Jhumpa Lahiri employ distinct narrative techniques to convey the intricacies of gender and diasporic identity in their respective works. These techniques, ranging from magical realism to nuanced character development, contribute to a rich exploration of cultural displacement, identity formation, and gender dynamics within the diasporic context.

Salman Rushdie's use of magical realism is particularly evident in *Midnight's Children*. Through Saleem Sinai's telepathic connection with other children born at the moment of India's independence, Rushdie intertwines the supernatural with the historical. This narrative device serves to amplify the complexities of gender dynamics by connecting the characters through a shared experience, creating a metaphorical space for the diasporic community to explore the intersections of gender, identity, and cultural displacement. In *The Satanic Verses*, Rushdie employs a fractured and non-linear narrative structure to mirror the fractured identities of the characters. This technique challenges conventional storytelling, reflecting the disorienting experience of diasporic communities. The novel's dream sequences and surreal elements contribute to a heightened exploration of gender, as characters undergo fantastical transformations that symbolize the fluidity and instability of identity in the diaspora. *The Moor's Last Sigh* showcases Rushdie's ability to weave historical narratives with personal stories. The novel spans several generations and historical periods, allowing for a layered





# Antimicrobial Activity of Plant Extracts Against Pathogenic Microorganisms

Prof. Mrs Manasi Joshi, Pranav Belsare, Kishor Sonawane, Abhijit Kumbhar

\*\*\*\*\*

## ABSTRACT

Antibiotic resistance among pathogenic microorganisms is an escalating global health concern, driving the need for alternative antimicrobial agents. This study investigates the antimicrobial activity of leaf extracts from seven medicinal plant species (*Calendula officinalis*, *Butea monosperma*, *Vitex negundo*, *Argemone Mexicana*, *Lantana camara*, *Bignonia gracilis*, *Calotropis gigantea*) against pathogenic bacteria (*E. coli*, *Streptococcus spp.*, *Vibrio spp.*, *Salmonella spp.*, *Pseudomonas spp.*). The plant extracts were prepared using Soxhlet extraction and tested for antimicrobial efficacy through disc diffusion and minimum inhibitory concentration (MIC) methods. The results indicated significant antimicrobial properties, with *Butea monosperma* and *Calotropis gigantea* showing the highest zones of inhibition and lowest MIC values against the tested pathogens. Phytochemical analysis revealed the presence of bioactive compounds such as alkaloids, phenols, and tannins, which likely contribute to the observed antimicrobial effects. The findings support the potential use of these plant extracts as alternative antimicrobial agents, offering a promising solution to combat antibiotic-resistant infections. Further research is warranted to isolate and characterize the active compounds responsible for these effects.

**Keywords:** Antimicrobial activity, medicinal plants, minimum inhibitory concentration (MIC), pathogenic microorganisms.

## INTRODUCTION

Antibiotic resistance has emerged as one of the most pressing global health challenges of the 21st century. The widespread misuse and overuse of antibiotics in both medical and agricultural settings have accelerated the evolution of resistant strains of pathogenic microorganisms. These resistant pathogens pose a significant threat as they lead to infections that are increasingly difficult to treat, resulting in prolonged illness, higher medical costs, and increased mortality rates (Ikken et al., 1999). The mechanisms by which bacteria develop resistance include genetic mutations and horizontal gene transfer, allowing even non-pathogenic bacteria to acquire and spread resistance genes (Noguchi et al., 1999). This alarming trend underscores the urgent need to discover and develop alternative antimicrobial agents that can effectively combat these resistant strains.

In the quest for new antimicrobial agents, medicinal plants have garnered considerable attention due to their rich reservoir of bioactive compounds. Historically, plants have been integral to traditional medicine systems across various cultures, providing remedies for a multitude of ailments (Reynolds, 1996). The therapeutic potential of plants is largely attributed to their production of secondary metabolites such as alkaloids, flavonoids, tannins, and terpenoids, which exhibit a wide range of biological activities including antimicrobial, anti-inflammatory, and antioxidant properties (Hostettmann, 1999). Modern scientific investigations have validated many of these traditional uses, and numerous studies have documented the antimicrobial efficacy of plant extracts against various pathogenic microorganisms (Chung et al., 1998) (Lis-Balchin & Deans, 1997).

The significance of medicinal plants in traditional medicine cannot be overstated. They offer a cost-effective, sustainable, and accessible source of antimicrobial agents, especially in developing regions where access to conventional antibiotics may be limited (Mishra & Dubey, 2009). Furthermore, plant-derived antimicrobials are often associated with fewer side effects compared to synthetic drugs, making them a safer alternative for long-term use (Adewale et al., 2007).

This study aims to explore the antimicrobial activity of leaf extracts from selected medicinal plants, specifically *Calendula officinalis*, *Butea monosperma*, *Vitex negundo*, *Argemone Mexicana*, *Lantana camara*, *Bignonia gracilis*, and *Calotropis gigantea*, against common pathogenic bacteria such as *E. coli*, *Streptococcus spp.*, *Vibrio spp.*, *Salmonella spp.*, and *Pseudomonas spp.* The objectives are to evaluate the efficacy of these extracts through disc

diffusion and minimum inhibitory concentration (MIC) methods, identify the phytochemical constituents responsible for the antimicrobial activity, and assess their potential as alternative antimicrobial agents. By systematically investigating



these plant extracts, the study seeks to contribute to the growing body of evidence supporting the use of medicinal plants in combating antibiotic resistance and to pave the way for future research into plant-based antimicrobial therapies (Kumar et al., 2009) (Jain, 2005) (Eloff, 1998).

## LITERATURE REVIEW

Antibiotic resistance is a growing concern worldwide, significantly impacting public health, healthcare costs, and patient outcomes. The rise of antibiotic-resistant bacteria is largely due to the overuse and misuse of antibiotics in human medicine and agriculture. This phenomenon leads to the selection of resistant strains, making infections harder to treat and increasing the risk of disease spread, severe illness, and death (Chung et al., 1998). The mechanisms of resistance include mutations in bacterial genomes and the acquisition of resistance genes through horizontal gene transfer, often facilitated by mobile genetic elements like plasmids and transposons (Noguchi et al., 1999). As a result, formerly effective antibiotics are becoming obsolete, and new drug development cannot keep pace with the rapid emergence of resistance, exacerbating the global health crisis (Bauer et al., 1966).

Given the urgent need for new antimicrobial agents, research has increasingly focused on natural products, particularly plant extracts, as potential sources of novel compounds with antimicrobial properties. Medicinal plants are rich in secondary metabolites, such as alkaloids, flavonoids, terpenoids, and phenolic compounds, which have demonstrated significant antimicrobial activity against a variety of pathogens (Hostettmann, 1999). Numerous studies have documented the efficacy of plant extracts in inhibiting the growth of bacteria, fungi, and viruses. For instance, Lis-Balchin and Deans (1997) reported the bioactivity of selected plant essential oils against *Listeria monocytogenes*, highlighting their potential as natural preservatives and therapeutic agents.

Several specific studies have investigated the antimicrobial properties of the plants selected for this research. *Calendula officinalis*, commonly known as marigold, has been shown to possess strong antimicrobial activity against various pathogens, attributed to its high content of flavonoids and saponins (Jain, 2005). *Butea monosperma*, known as flame of the forest, has been studied for its broad-spectrum antimicrobial effects, particularly against gram-positive bacteria such as *Staphylococcus aureus* (Kumar et al., 2009). *Vitex negundo*, or Chinese chaste tree, contains bioactive compounds like flavonoids and essential oils that exhibit significant antibacterial and antifungal properties (Adewale et al., 2007).

*Argemone Mexicana*, often referred to as Mexican poppy, has demonstrated potent antibacterial activity, particularly against *E. coli* and *Pseudomonas* spp., due to its alkaloid content (Ikram & Inamul, 1984). *Lantana camara*, an ornamental shrub, has been found effective against a range of bacteria and fungi, with its activity linked to the presence of

triterpenoids and polyphenols (Ross, 1999). *Bignonia gracilis*, although less commonly studied, has shown promise in preliminary screenings for its antimicrobial properties, particularly against gram-negative bacteria like *Salmonella* spp. (Scalbert, 1990). *Calotropis gigantea*, known for its latex, has been traditionally used for its medicinal properties, and recent studies have confirmed its efficacy against bacterial strains such as *Streptococcus* spp. and *Vibrio* spp. (Pelczar et al., 1977).

These studies underscore the potential of medicinal plants as sources of new antimicrobial agents. The bioactive compounds present in these plants offer a diverse arsenal against pathogenic microorganisms, providing a basis for developing alternative therapies to combat antibiotic resistance. By exploring the antimicrobial properties of these selected plants, this study aims to contribute to the existing body of knowledge and support the development of plant-based antimicrobial strategies (Eloff, 1998) (Reynolds, 1996).

## MATERIALS AND METHODS

### Collection of Plant Material

The plant materials were collected from the local region of Saswad, Pune District, Maharashtra. The selected plants included *Calendula officinalis* (marigold flowers), *Butea monosperma* (leaves), *Vitex negundo* (leaves), *Argemone Mexicana* (leaves), *Lantana camara* (leaves), *Bignonia gracilis* (leaves), and *Calotropis gigantea* (leaves). Healthy, uninfected parts of these plants were chosen, thoroughly washed under running tap water to remove dirt and debris, and then air-dried in the shade to preserve their active compounds. Once dried, the plant materials were ground into a fine powder using a mechanical grinder, which facilitated efficient extraction of the bioactive constituents (Hostettmann, 1999).

Characterization of Bacteria

MAH/MUL/ 03051/2012

ISSN :2319 9318



July To Sept. 2020  
Issue-35, Vol-03

Date of Publication  
01 August 2020

Editor

Dr. Bapu g. Gholap

(M.A.Mar.& Pol.Sci.,B.Ed.Ph.D.NET.)

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“Printed by: Harshwardhan Publication Pvt.Ltd. Published by Ghodke Archana Rajendra & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor Dr. Gholap Bapu Ganpat.



Reg.No.U74120 MH2013 PTC 251205

**Harshwardhan Publication Pvt.Ltd.**

At.Post.Limbaganesh,Tq.Dist.Beed

Pin-431126 (Maharashtra) Cell:07588057695,09850203295

harshwardhanpubli@gmail.com, vidyawarta@gmail.com

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Date of Publication  
01 August 2020

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04

## PHYSICAL ACTIVITY DURING CORONA COVID – 19

Rushikesh Chandrakant Kumbhar  
PDEA's Waghire College, Saswad,  
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\*\*\*\*\*

### Introduction:-

Corona Covid – 19 is a disease they affect of whole world. They affect on daily routine of human life as well as human health. Corona virus are a large family of virus which may cause illness in animals or human. In human, several corona virus are known to cause respiratory infections ranging from the common cold to more several diseases. Covid -19 is a disease caused by the “ Novel Corona Virus”. Common symptoms are Fever, Dry cough, Breathing difficulty some patients also have aches and pains, nasal congestion, runny nose, sore throat or diarrhoea.

### Definition :-

“ Physical Activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure”<sup>[1]</sup> Physical Activity includes exercise as well as other activities which involve bodily movement.

### Effect of Corona Virus on human organ :

**1. Cardiac Effects:** - Virus attack the body by infecting cells directly. In the case of COVID – 19 the virus primarily attacks the lungs. “While there’s still much to be learned, we are starting to understand that COVID – 19 may lead to some heart problems that can have long term consequence”

**2. Pulmonary Effects:** - An infection that affects both lungs. As the swelling gets worse, your lungs fill with fluid and debris.

**3. Renal Effects:** - Virus COVID – 19 related ef-

fects that are thought to contribute to AKI include kidney tubular injury (acute tubular necrosis) with septic shock, micro inflammation, increased blood clotting, and probable direct infection of the kidney.

**4. Brain Effects:** - COVID – 19 are experiencing an array of effects on the brain, ranging in severity from confusion to loss of smell and taste to life threatening strokes.

**5. Eyes Effects:** - COVID – 19 will get conjunctivitis, also called as pinkeye. It happens when the virus infects a tissue called conjunctiva, which covers the white part of eye or inside of eyelids.

**6. Gastrointestinal Effect:** - Gastrointestinal effect such as diarrhea, vomiting, or belly pain.

**7. Psychological Effects:-** Various psychological problems and important consequences in term of mental health including stress, anxiety, depression, frustration.

### Important of Exercise during the COVID – 19:-

Regular exercise is essential for everyone under normal circumstances. However, here are a few reason why exercise is especially crucial during the COVID – 19.

**Exercise boosts the immune system :** Research shows that regular, moderate – intensity exercise has immune – boosting benefits that may help your body fight off infections.

**Exercise may prevent weight gain :** Exercise can help burn extra calories caused by dietary changes and offset the effects of sedentary activities.

**Exercise reduces stress and anxiety :** Exercise is proven mood booster and can adult reduce stress levels the build emotional resilience.

**Exercise improves sleep :** There is evidence that suggests regular exercise help fall asleep faster and improves sleep quality and getting a good night’s sleep has also been found to boost immune system.

### Physical Activity During Corona Covid – 19

**Physical Activity :-** “ Physical Activity is defined as any bodily movement produced by skeletal

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An International Peer Reviewed Journal

October - 2021

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**EXCEL PUBLICATION HOUSE  
AURANGABAD**

ijindex  
International Journal Index

ISSN 2277 - 7539 (Print)  
Impact Factor - 5.631 (SJIF)

Vol. I No. 19

# **Excel's International Journal of Social Science & Humanities**

An International Peer Reviewed Journal

October – 2021

Special Issue on

**PHYSICAL AND SOCIAL VITAL ISSUES**

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Aurangabad**



## EFFECTS OF ANULOMVILOM AND KAPALBHATI PRANAYAM ON BLOOD SUGAR

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### **Abstract:**

Anulom Vilom and Kapalbhati in Pranayama in Yoga have been studied in this present paper. Its have been studied in people with diabetes and high blood sugar. So that the victim in the society can take advantage of it.

**Keywords:** Anulomvilom, Kapalbhati, Bloodsugar, Pranayam, Suryanamaskar, Omkar jap, Yogic exercise, Pre & Post Test of sugar on blood, Increase, Decrease, Cloths, Fatigue, Feel, Fats.

### **Introduction:**

In earlier times, human beings used to do yoga on a regular basis. So their health was good. Their ability to work was higher than others. They did not suffer from any kind of ailment or disease. In today's 21st century society, there is a lack of Pranayam yoga practice and physical exercise.

Ignoring yoga and exercise can lead to diabetes, high blood pressure, and obesity. Individuals in the community can get rid of ailments and diseases by doing yoga Pranayam and regular exercise.

### **Objectives of the study:**

1. To design the schedule of Yog Pranayam practice.
2. To collect the information by Questionnaire.
3. To analyse the blood sugar Pre and Post Test.
4. To study the benefit of Anulom Vilom and Kapalbhati.
5. To study the impact of Anulom Vilom and Kapalbhati.
6. To understand the procedure of Anulom Vilom and Kapalbhati to reduce the sugar of body.

### **Significance of Proposed Problem:**

1. Yoga helps to improve physical health.
2. Diabetes and blood pressure remain under control.
3. Its helps reduce obesity.
4. It's Helps to increase physical efficiency.

### **Statement of Problem:**

This paper attempt to investigate "Effects of AnulomVilom and Kapalbhati Yoga Pranayam on blood sugar" Its positive effects toward reducing the disease and blood sugar of a Subject.

### **Defination:**

#### **Yoga:**

Yoga is a Sanskrit word derived from from the Sanskrit root "yuj" which means to connect, join or balance. "Yoga is resistant of the activity of the mind" by yogsutra of patanjali.

#### **Anulom Vilom:**

"Anulom vilom is a specific type of controlled breathing (pranayama) in the practice of yoga"

MAH/MUL/ 03051/2012

ISSN :2319 9318



April To June 2024  
Issue 50, Vol-11

Date of Publication  
01 June 2024

Editor

Dr. Babu g. Gholap

(M.A.Mar.& Pol.Sci.,B.Ed.Ph.D.NET.)

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"Printed by: Harshwardhan Publication Pvt.Ltd. Published by Ghodke Archana Rajendra & Printed & published at Harshwardhan Publication Pvt.Ltd.,At.Post. Limbaganesh Dist,Beed -431122 (Maharashtra) and Editor Dr. Gholap Babu Ganpat."



Reg.No.U74120 MH2013 PTC 251205

**Harshwardhan Publication Pvt.Ltd.**

At.Post.Limbaganesh,Tq.Dist.Beed

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Date of Publication  
01 June 2024

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## IMPACT OF INJURIES ON KHO KHO PLAYERS

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\*\*\*\*\*

### Abstract:

Kho Kho Federation of India has reduced the size and measurement of the kho kho playground. This shows an increase in the speed and intensity of the game. As a result, players have to deal with physical and psychological injuries. Players need to use preventive equipments (i.e knee cap, anklet or doctor tape etc) to avoid physical and mental injuries. Researchers have studied how to enhance players' without injury performance.

**Keywords:** Performance, injury, Sprain, Overuse injury, Prevention, Equipments etc

### Introduction:

In the modern world, the intensity of competition in all sports seems to have increased. Increasing competition appears to be adding to the number of injuries. There are a lot of injuries that players have to deal with. Kho Kho games are considered more intense than other sports. The game is a time of 9 -5 -9 (9 minutes play - 5 minutes rest -9 minutes play). There is no time out or break while the game is going on. As a result, there are more chances of injury in this game. The severity of injuries is high in kho kho sports so it is important to get proper treatment and precautions. The player's performance seems to have been affected by

the injuries in the competition. Therefore, it is important for the players as well as the sports coaches to know about the injuries. So that poor performance will not end the career of the player in kho kho game.

### Defination:

#### Kho Kho :

"Chaser touching to the attacker with hand palm between shoulder line and waist line and uttering the word with sufficiently loud tone which defender and referee can hear."

### Injury:

"A violation of a legally protected interest (as the physical or mental well-being, property, reputation, or rights of another) for which the law allows an action for legal or equitable relief."

### Performance:

"A performance is an act or process of staging or presenting a play, concert, or other form of entertainment. It is also defined as the action or process of carrying out or accomplishing an action, task, or function."

### Objectives:

1. To aware of the injury to players in the game of Kho Kho.
2. To Informing the players what care to take on which skills can lead to an injury.
3. To be aware that repeated stress or excessive use of the same bone or joint in practice or competition is likely to lead to overuse injury.
4. To using preventive equipment so that the knee, toe, toe fingers, and waist do not suffer injuries in practice or competition.
5. To inform the players about the injury in kho-kho game and to train accordingly.

### Impact of injuries in kho kho games seems to have affected the following factors:

**1. Physical Impact :** An injury or injury sustained during the competition can cause pain and stress on the muscle in the injured area and reduce the performance of the player.

In Kho Kho games some common sports injuries include:

April-2024

E-ISSN : 2348-7143



International Research Fellows Association's  
**RESEARCH JOURNEY**



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**Abstract:**

*The National Education Policy (NEP) 2020, introduced by the Government of India, represents a transformative shift in the country's educational system. It has completely revamped the academic curriculum, integrating knowledge of professional practices within students' academic pursuits. Additionally, NEP 2020 places a strong emphasis on physical education across school and university levels. This policy aims to significantly improve the academic quality and physical fitness of students, thereby equipping India's younger generation with greater efficiency.*

**Keywords :** Physical Education, Fitness, Physical ability, Mental health, Teamwork, Khelo India, Fit India, Yoga, Commonwealth Games, Syllabus

**Introduction :**

In Latin, the word 'education' means 'to bring out the qualities of a person academically.' The National Education Policy (NEP) 2020, with its revised system, aims to cultivate knowledge, skills, humility, physical ability, and mental development in individuals. This policy encompasses physical education and various sports to foster physical and mental development in students, integrating these aspects into the educational system's evaluation criteria. The primary goal of NEP 2020 is to enhance the physical and mental well-being of India's youth.

In today's modern world, parents, teachers, and coaching centers primarily focus on academic studies. However, schools and universities should offer a broad scope to meet academic qualifications and enhance mental abilities. To support this, the University Grants Commission (UGC) has received funding for the necessary sports equipment. Globally, the coronavirus pandemic has significantly impacted the health of students and working individuals by reducing their immunity and compromising their efficiency. Incorporating physical education in the National Education Policy (NEP) 2020 aims to improve students' physical capabilities, and enhance circulation, muscle strength, and immunity, thereby enabling them to lead fulfilling lives in society. Moreover, the inclusion of physical education in NEP 2020 is designed to foster personality development and encourage active participation in society.

The Institute of Medicine has established a committee to integrate physical exercise and education within schools, aiming to safeguard student health. This initiative examines its impact on the physical, mental, and psychosocial development of adolescents. The National Education Policy (NEP) 2020 specifically integrates yoga into physical education, emphasizing health, education, and nutrition for children, and promotes the inclusion of sports. At the university level, the government is implementing various sports competitions and initiatives, such as Khelo India and Fit India, to enhance efficiency. NEP 2020 offers a broader selection of subjects to