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<b>2019-2020</b>						
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17. XRD, FTIR and SEM Studies of Gel Grown Barium Tartrate Crystals	P. A. Savale, S.K. Bachhav, V.B. Suryawanshi	Physics	International Journal of Emerging Technologies and Innovative Research	Mar-19	2349-5162	UGC Approved List No.63975
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## आधुनिक समाज में पुस्तकालयों और पुस्तकालयाध्यक्ष की भूमिका

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पुस्तकालयाध्यक्ष

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### Abstract

उच्च शिक्षा संस्थान का पुस्तकालय शैक्षणिक वातावरण की गुणवत्ता बढ़ाने में केंद्रीय भूमिका निभाता है। इसलिए गुणवत्ता प्रबंधन संगठन में सभी प्रयासों के एकीकरण पुस्तकालय से संबंधित है, जो ग्राहक उत्पन्न सेवाओं का प्रतिनिधित्व करता है। पुस्तकालय प्रभावी परिणाम प्राप्त करने के लिए नेतृत्व कौशल विकसित करने का प्रबंधन करता है। पुस्तकालयाध्यक्ष एक दोस्त, दार्शनिक और शिक्षण और सीखने वाले समुदाय दोनों के लिए मार्गदर्शक है। पुस्तकालयाध्यक्ष मानवता के लिए शिक्षा के महान सेवा का एक हिस्सा है, इसलिये पुस्तकालयाध्यक्ष एक महानसामाजिक सेवक है।

**Keywords:** आधुनिक समाज, पुस्तकालय, पुस्तकालयाध्यक्ष, सामाजिक केंद्र, महानसामाजिक सेवक, सूचना सेवा

### परिचय:

शिक्षा के माध्यम से हि कि भारत में आधुनिक युवा के जीवन की जटिलताओं से उत्पन्न समस्याओं का समाधान खोजने के लिए आवश्यक आत्मविश्वास और परिपक्वता प्राप्त कर सकते हैं। यह भविष्य के नेताओं के लिए आवश्यक देशभक्ति को विकसित करने का एकमात्र तरीका है जिसके निष्ठा, सहयोग, सामुदायिक भावना, निडरता से महान आदर्श पैदा कर सकते हैं। विशेष रूप से सूचना और संचार प्रौद्योगिकियों के वैश्विक परिवर्तनों को पुस्तकालयों के विकास ने विभिन्न तरीकों से शैक्षणिक पुस्तकालयों ने उपयोगकर्ता की अपेक्षा को बदल दिया है। उपयोगकर्ता के लिए संग्रह और सेवाओं का निर्माण करने के तरीके आधुनिक काल में पिछली प्रथाओं से भिन्न होते हैं। उपयोगकर्ताओं की मांगों को प्रभावी ढंग से पूरा करने के लिए, शैक्षणिक पुस्तकालयों को अच्छी प्रथाओं की पहचान करने और उन्हें अपनाने की आवश्यकता है। इस प्रकार उच्च शिक्षा संस्थान की पुस्तकालय और सूचना सेवाएं शैक्षणिक और अनुसंधान पर्यावरण की गुणवत्ता बढ़ाने में केंद्रीय भूमिका निभाती हैं।

### पुस्तकालय-शिक्षा और सामाजिक अध्ययन केंद्र:

उपयोगी और नवीनतम जानकारी की आपूर्ति करके औपचारिक और अनौपचारिक शिक्षा प्रदान करने के लिए पुस्तकालय मानव को पूरे जीवन में सीखने के लिए अध्ययन के अंतर बढ़ाते हैं, सभाओं का आयोजन करके और एक वातावरण प्रदान करके सीखने के लिए उपयुक्त, सामान्य और विशेष सुधार सेवा पुस्तकालय पूरा करते हैं। सरकार और प्राधिकरण, अनुसंधान और शिक्षा की गतिविधियों को अंजाम देते हैं। पुस्तकालय सार्वजनिक स्थान का कार्य करते हैं, जिसमें सामाजिक रूप से कमजोर लोगों को समस्याग्रस्त परिवारों और बेघर लोगों के बच्चों जैसे समूह, एक जगह पा सकते हैं उसके लिये कार्य करते हैं। पुस्तकालय, एक सामाजिक संस्था के रूप में एक समय में अनेक भूमिकाएं निभाते हैं।

पुस्तकालय संचार करने के लिए, अपने अनुभवों आदि को साझा करने के लिए बदलते समाज की अपेक्षाएं को पूरा करने के लिये एक सामाजिक केंद्र के रूप में उभरकर सामने आ रहा है। जीससे सामाजिक और सांस्कृतिक गतिविधियों और अन्य कार्यों के लिए पुस्तकालय एक ही समय में एक से कई भूमिकाओं को पूरा कर सकते हैं। सामाजिक संस्था के रूप में एक निश्चित प्रणाली के माध्यम से सांस्कृतिक कार्यान्वयनकर्ता के रूप में पुस्तकालय कार्य करते हैं। समाज में ज्ञान पर बहुत कम ध्यान दिया जाता है। इसलिए सामाजिक प्रणाली में पुस्तकालय एक एकीकृत सांस्कृतिक केंद्र के रूप में काम करता है।

### बदलते समाज के लिए पुस्तकालय की भूमिका:

पुस्तकालय को समाज का विकास करने का माध्यम माना जाता है। पुस्तकालय सामाजिक संस्थाओं के रूप में कार्य करता है। जो मानव कि बौद्धिक जरूरतों के लिए कारण साबित हुआ है। समाज में परिवर्तन लाने के लिये वातावरण बहुत बड़ा प्रभाव डालती है। इसलिये पुस्तकालय एक समाज का अविभाज्य हिस्सा, और समाज को एकजुट और समर्थन करने वाला बल है। सांस्कृतिक हिस्से के रूप में पुस्तकालयों की प्रणाली का विश्लेषण सामाजिक व्यवस्था के लिये किया जाता है। पुस्तकालय में वैज्ञानिक द्वारा दी गई ज्ञान कि एक दृष्टि है, क्योंकि समाज अपने लक्ष्यों को पूरा करने और उन तक पहुंचने के लिए इसका उपयोग करता है। पुस्तकालय मनुष्य द्वारा बनाए गए दस्तावेज का भंडारण और अधिग्रहण के द्वारा समाज के दस्तावेजों का प्रबंधन, संरक्षण करता है। पुस्तकालय के माध्यम से सूचना कि जानकारी एकत्र रूप से पायी जाती है जीससे आंकड़ों का पता चलता है। पुस्तकालय औपचारिक और अनौपचारिक शिक्षा देने का कार्य करता है। एक सांस्कृतिक केंद्र के रूप में पुस्तकालयों को कार्यों को पूरा करना होता है।

गुणवत्ता प्रबंधन में पुस्तकालय की भूमिका :



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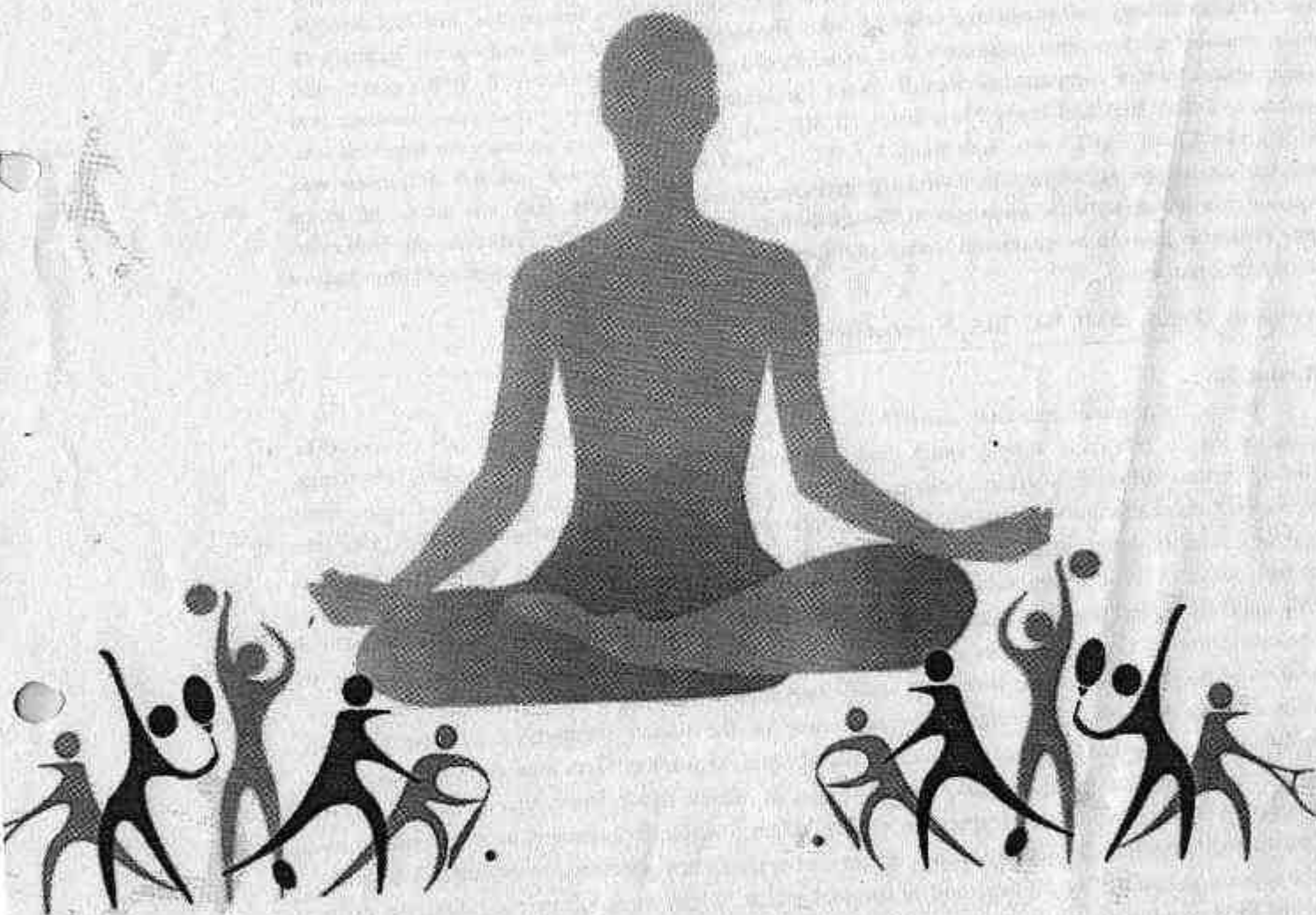
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## Physical Education, Sports, Yoga & Psychology



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SALAPURIA HIRI...



**Bioelectrical Impedance Analysis in Body Composition Measurement**

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**Abstract :**

**Background:** Several measures like Bio-electrical Impedance Analysis (BIA) and anthropometry are been proposed in literature to quantify obesity. As Obesity is an established harbinger of hypertension; the strength of association of these measures with hypertension may provide an evidence for their aptness in context specific setting. **Aims and Objective:** To compare the performance of Bio-electrical Impedance Analysis with anthropometric indices (Body Mass Index and Waist Circumference) to predict hypertension among Indian population. **Method/study design:** This hospital based cross sectional study was conducted for 6 months. BIA, anthropometry data and blood pressure were recorded from representative sample. Validity of these obesity measures for hypertension was analyzed through sensitivity, specificity and predictive values. Further the strength of association and overall accuracy of these measures were compared through area under Receiver Operator Characteristic (ROC) curves and nonparametric paired comparisons. **Result:** Waist Circumference (WC) was overall more sensitive and specific tool than BIA and Body Mass Index (BMI), with higher predictive accuracy for hypertension. Area Under Curve (AUC) was maximum for WC in both male and female and this difference was detected statistically significant in contrast paired comparison. **Conclusion:** BIA was not found to be superior over anthropometric measures in Central-Indian ethnicity to envisage Hypertension; However, more evidences need to be generated from a multicentric study with diverse strata representation before making final remark.

**Key words:** Obesity, BMI, WC, BIA, Hypertension, ROC

**Introduction :**

Bioelectrical impedance analysis (BIA) is a widely used method for estimating body composition. The technology is relatively simple, quick, and noninvasive. BIA is currently used in diverse settings, including private clinicians' offices, health clubs, and hospitals, and across a spectrum of ages, body weights, and disease states. Despite a general public perception that BIA measures "body fat," the technology actually determines the electrical impedance of body tissues, which provides an estimate of total body water (TBW). Using values of TBW derived from BIA, one can then estimate fat-free mass (FFM) and body fat (adiposity). In addition to its use in estimating adiposity, BIA is beginning to be used for the estimation of body cell mass and TBW in a variety of clinical conditions. BIA measures the opposition of body tissues to the flow of a small (less than 1 mA) alternating current. Impedance is a combination of two components (vectors): the resistance of the tissues themselves, and the addition of reactance (due to the capacitance of membranes, tissue interfaces, and nonionic tissues). The measured resistance is approximately equivalent to that of muscle tissue. Impedance measures vary with the frequency of the current used (typically 50 kHz, when a single frequency is used). Applications increasingly use multifrequency measurements, or a frequency spectrum, to evaluate differences in body composition caused by clinical and nutritional status. Many equations are available to estimate FFM and FFM as a function of impedance, weight, height, gender, and age. In actual use, however, BIA estimations of an individual's body fat may vary by as much as 10 percent of body weight because of differences in machines and methodologies used. Equations and their variables differ, as does the choice of reference method. There is a need for a consensus among experts on the appropriate conditions of use for appropriate applications of BIA. Because of the accessibility and widespread use of this technology, the NIH Office of Medical Applications of Research and the National Institute of Diabetes and Digestive and Kidney Diseases, along with the National Institute of Child Health and Human Development,

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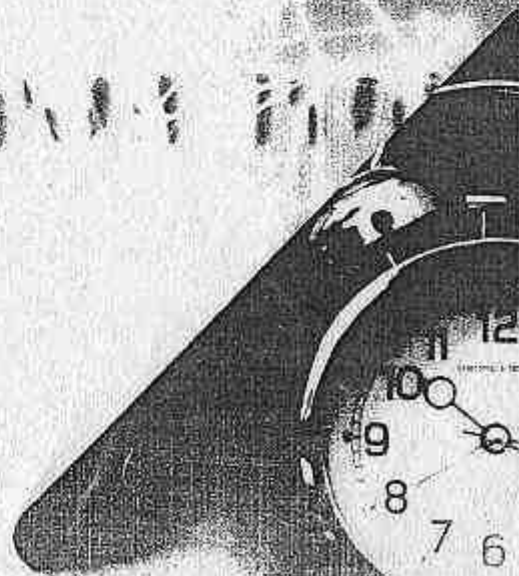
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## 19. Growth and Characterization of Calcium Tartrate Crystals by Sol Gel Technique

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### Abstract

In the present research work, Calcium Tartrate ( $\text{CaC}_4\text{H}_4\text{O}_6$ ) crystals were grown by sol gel technique at room temperature. The optimum growth conditions were optimized by varying various parameters such as pH, concentration of the gel solution, setting time of the gel solution and concentration of the reactance. The test tubes were used as crystallization vessels while silica gel as a growth media. The structural properties of the grown crystals were characterized by XRD, FTIR and SEM. The structure of the grown crystal was analyzed by using powder X-ray diffraction technique. The XRD provide the cell parameters and the structure of the grown crystal. FTIR spectra provide the information about functional groups present. The scanning electron microscope reveals the morphology of the crystal having orthorhombic structures.

**Keywords:** Gel technique, Calcium Tartrate, XRD studies, FTIR analysis, SEM

### Introduction

Scientifically and technologically crystal growth and their characterization have become an interested research area in the past decades. All basic solid materials are made up of single crystals and they are backbone of the today's modern technology. The influence of single crystal is noticed in the semiconductors, optics and acoustics; in jewelers industries and in various medical applications [1]. The gel method is found to be more promising than the high temperature crystal growth methods because the crystals grown by this technique have high degree of perfection, crystals with dimensions of several mm can be grown in a period of 21 to 30 days, and it can be conveniently used for mass production of crystals. This method is extremely simple and inexpensive [2-4].



## Comparative Studied by the $C_4H_4BaCuO_6$ Doped $BaC_4H_4O_6$ Crystals by Silica Gel Technique

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### ABSTRACT

Single crystals of Copper doped Barium tartrate crystals were grown by single diffusion technique at room temperature. Effect of Copper doping in the Barium tartrate crystals has been studied and reported. The XRD pattern shows that Copper barium tartrate crystals are polycrystalline in nature and having orthorhombic structure. Thermo gravimetric analysis (TGA) curve shows the percentages of the weight loss in the different stages of decomposition. Differential scanning calorimetry (DSC). The thermal stability has been studied by the TGA, DTG and DSC.

**Keywords** - Single diffusion, XRD, TGA, DTG and DSC.

### 1. INTRODUCTION

We have turned our attention towards the tartrate crystals as these crystals are having wide application and can be synthesized by gel technique. Commercially, the tartrate compound is used in various applications like antimony in binary drugs [1], ferroelectric applications of potassium tartrate [2], potassium-chromium tartrate in medicine [3] and so on. Many have studied various tartrate compounds like calcium-strontium mixed levo tartrate [4], zinc tartrate [5] and cadmium tartrate [6] with respect to their properties such as dielectric, magnetic, piezoelectric, optical and other pertinent characteristics [7-15]. Barium tartrate (BaTr) is a quite interesting compound as they are having good ferroelectric properties. Hence in the present course of investigation it has been decided to synthesize and grow Cu-doped Barium tartrate crystals by silica gel method. As grown crystals are characterized by different techniques and exported.





## 14. Impact of Climate Change on Waterborne Diseases

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Dept. of Zoology, Arts and Science College, Bhalod, Tal. Yawal, Dist. Jalgaon.

### Abstract

Change in climate and water cycle will challenge water availability but it will also increase the exposure to unsafe water. Floods, droughts, heavy storms, changes in rain pattern, increase of temperature and sea level, they all show an increasing trend worldwide and will affect biological, physical and chemical components of water through different paths thus enhancing the risk of waterborne diseases. This paper is intended, through reviewing the available literature, to highlight environmental changes and critical situations caused by floods, drought and warmer temperature that will lead to an increase of exposure to water related pathogens, chemical hazards and cyanotoxins. The final aim is provide knowledge-based elements for more focused adaptation measures.

**Keywords:** Climate change, waterborne diseases, microbial pathogens, chemical contaminants, toxic cyanobacteria.

### Introduction

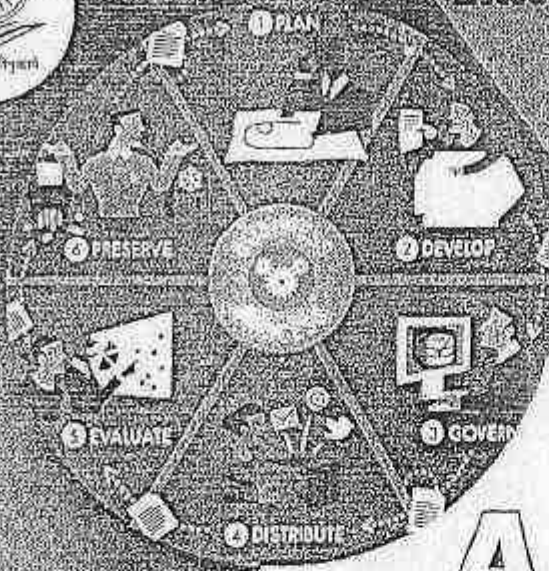
Although several studies show the vulnerability of human health to climate change, a clear comprehensive quantification of the increased health risks attributable to climate change is lacking. Even more complicated are assessments of adaptation measures for this sector. We discuss the impact of climate change on diarrhoea as a representative of a waterborne infectious disease affecting human health in the Ganges basin of northern India. A conceptual framework is presented for climate exposure response relationships based on studies from different countries, as empirical studies and appropriate epidemiological data sets for India are lacking. Four climate variables are included: temperature, increased precipitation, decreased precipitation/droughts and relative humidity. Applying the conceptual framework to the latest regional climate projections for northern India shows increases between present and future (2040s), varying spatially from no change to an increase of 21% in diarrhoea incidences, with 13.1% increase on average for the Ganges basin. We discuss three types of measures against diarrhoeal disease: reactive actions, preventive actions and national policy options. Preventive actions have the potential to



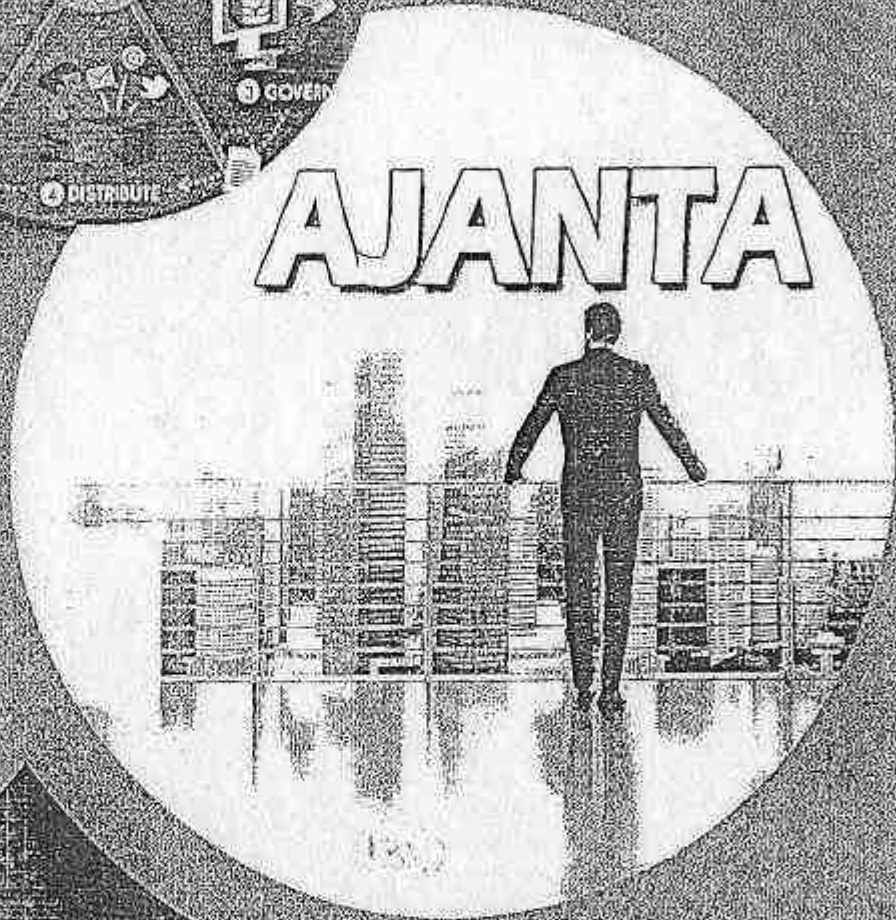


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Ajanta Prakashan



## 14. Biodiversity of Powdery Mildew on Some Vegetables Plants from Khandesh Region of Maharashtra State

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### Abstract

Present Paper Deals with the study vegetable plants powdery mildew are caused by several genera of Ascomycetes. They are host specific, bio trophic and obligate parasitic. During the growing season, the fungi produce hyphae and conidia on leaves, usually the upper surface, or on stems, flowers or fruits.

**Keyword:** - Vegetable plant, Fungi.

### Introduction

The fungi belonging to Division Ascomycetes, order Erysiphales and family Erysiphaceae are commonly known as powdery mildew fungi. The fungi are highly pathogenic to the variety of Angiospermic plants causing disease powdery mildew. The fungi grow ectoparasitically on the surface of the infected plant parts. The surficial mycelium of the fungi produces enormous number of conidia usually on the leaf surface, which appear like a mass of white powder, hence the name powdery mildew. As a group, powdery mildew fungi infect many species of plants, including many trees, shrubs crops vegetables, cereals, grasses, numerous ornamental and even weeds. It is clear from the literature that nearly 7187 host species which are all Angiosperms spread all over the globe are attacked by powdery mildew fungi. Powdery mildew is more common on cultivated plants and grows luxuriantly in dry, cool seasons. Depending upon environmental conditions the powdery mildew disease may cause significant destruction and loss in plants and yields. With the onset of summer they began to disappear and the plants become free from the infection during scorching heat and rainy season.

### Materials and Methods

Extensive survey on powdery mildew diseases of plants Fresh and dried plant materials with powdery mildew collection. Dissecting needles/ single edge razor blades. Microscope slides. Coverslip. Stains and staining technique preparations were made using different using Cotton





## Growth, XRD, FTIR, SEM and EDAX Study of Nickel Tartrate Crystal

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### ABSTRACT

In this present research work nickel tartrate ( $C_4H_6NiO_6$ ) single crystals have grown successfully by sol gel growth technique at room temperature. The optimum growth conditions were optimized by varying various parameters such as pH, concentration of the gel solution, setting time of the gel solution and concentration of the precipitant. The test tubes were used as crystallization vessels while silica gel as a growth media. Gel was prepared by mixing the solutions acetic acid ( $CH_3COOH$ ), sodium meta silicate ( $Na_2SiO_3$ ) and nickel chloride ( $NiCl_2$ ) dissolved in silica tube of diameter 2.5cm and 10cm in length. The mouth of tube is covered by cotton plug and kept at the extreme. After setting the gel, it was left for setting. After two days the supernatant acetic acid ( $CH_3CO_2$ ) of 3M concentration was poured over the wet gel by using pipette and kept undisturbed by covering the cotton plug at the mouth of tube. After 48 hours of curing this operation, the small nucleation growth was observed at below the surface of gel. Good quality nickel tartrate crystals were grown in 40 days. The grown crystals are characterized by XRD, FTIR, SEM and EDAX. The XRD study shows that the nickel tartrate has crystallized in orthorhombic structure. The FTIR study has shows the presence of O-H bond, C-F bond and metal oxygen bond. The scanning electron microscope reveals the morphology of the crystal having orthorhombic structure. The EDAX study has shows the presence of nickel, carbon and oxygen.

Keywords: EDAX, FTIR, Gel growth, Nickel tartrate, SEM, XRD.

### 1. Introduction

Various tartrate crystals have found numerous applications in medical, pharmaceutical and industrial fields. It is known that the tartrate crystals are very much useful in the treatment of cognitive disorders associated with Alzheimer, treating the cancer with tartrate ions and using tartrates in herpes [1-3]. Therefore, they have received a considerable interest due to their interesting physical properties and technological applications such as ferroelectric, piezoelectric and dielectric applications [4-7].

Certain tartrate compound finds applications in cosmetics as hair conditioner additive and tanning agent for skin [8, 9]. They are used for transducers and many linear and non-linear mechanical devices [10, 11]. Some tartrate compounds are useful as tracers for military purposes [12]. They also find industrial applications such as corrosion inhibitor composition for coolant system, light stabilizers for plastics [13].

Most of the tartrate crystals are insoluble in water and they decompose before melting. Hence, single tartrate crystals cannot be grown by either slow evaporation or melt techniques but they can be suitably grown by sol gel method. Some tartrate crystals are well known for its ferroelectric properties in pure [14] as well as doped forms [15] and their structural characterization [16, 17]. The purpose of this paper is to report the growth of single crystals of nickel tartrate in silica hydro gel at room temperature.

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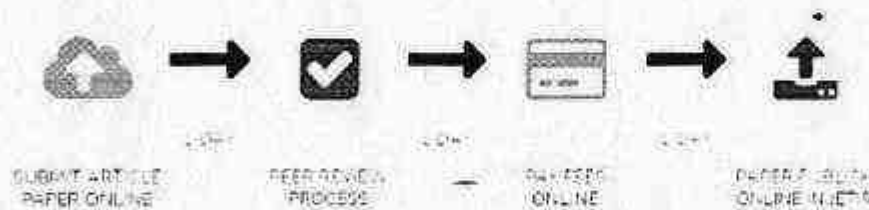
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# STUDIES OF HEMATOLOGICAL ALTERATIONS IN RABBITS DURING AFLATOXICOSIS

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## ABSTRACT :

*Aflatoxins are a secondary toxic fungal metabolites which commonly grow on human food and animal feeds. To study effects of aflatoxin, adult in-bred rabbits were fed a diet containing 7.5 mg aflatoxin / kg feed for 90 days. A time dependent response was observed suggesting cumulative toxicity during aflatoxicosis. For haematological studies, blood samples from ear-pinna of rabbits were collected on 0, 7, 15, 30, 45, 60, 75 and 90 days of treatment and used. Results revealed that feeding aflatoxin contaminated diet caused a significant reduction in erythrocytes count and haemoglobin content. The decreases in RBC count and haemoglobin were continuous and time dependant. But the % reticulocyte count registered a time dependent increase during aflatoxicosis. Significant increase was recorded on 15th day of treatment and thereafter. Morphological alterations included Change in size of the erythrocytes. The number of small sized cells while the number of medium cells increased aflatoxicosis. Decreased. During No definite trend was evident in big cells. Initial Increase in number of big cells (7 and 15 days) was followed with a decrease. Much decrease in counts was noted on 30th and 45th day of treatment. Also average sized cells showed Increase except at 45th day of treatment where a decrease was recorded. Blood samples were also examined for total and differential counts of leucocytes. An Initial upsurge in total count was followed with time dependent significant decrease. The highest share of neutrophils and lymphocytes were accounted during differential counts of leucocytes. An initial upsurge followed by time dependent continuous decrease in number of neutrophils, eosinophils, basophils and monocytes were also noted during aflatoxicosis. But only neutrophils Lymphocytes count showed statistically significant count registered an initial decline with time dependent increase.*

**Index Terms:** Aflatoxin, Aflatoxicosis, Erythrocytes, Rabbits.

## I. INTRODUCTION

The presences of aflatoxin in various food/feed stuffs, in exceptionally high concentration [1,20,21,36] pose serious health hazards to human being and animals. Aflatoxin are well known for its hepatotoxic, carcinogenic, mutagenic and teratogenic effects [4,12,34]. Aflatoxin are also reported to be extremely cytotoxic on mammalian cells in culture [18] as well as on erythrocytes in suspension [35]. Verma and Raval( 1992b) [35] reported that consumption of aflatoxin contaminated feed in a dose of 15 mg/kg for 60



## Biodiversity "Maintenance, Need and Challenges

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### Abstract:-

Earth is the only planet till day existing life in our galaxy. On the earth large number of living organisms is present including plants, animals and microbes. All they comprise the biodiversity of the earth. Biodiversity measures the health of ecosystem; healthy the biodiversity, healthy the ecosystem. Today the biodiversity on earth is greatly threatened due to climatic changes and human activities like poaching, deforestation etc. Many species of plants and animals are already extinct and large numbers of species are under the threat of extinction due to habitat loss. In the present article some points are taken under discussion regarding the maintenance, need and challenges of biodiversity.

**Key words:** Biodiversity, microbes, ecosystem, climatic changes, genetic library

### Introduction:-

One of the today's most pressing environmental issues is the conservation of the biodiversity. Many factors threaten the world's biological heritage. The challenge is for the nations, government agencies, organizations and individuals are to protect and enhance biodiversity while continuing to meet people's needs for natural resources. This challenge exists from local to global scale.

Biodiversity is the degree of variation of life forms within the given species, ecosystems, biomes, or entire planet. Biodiversity is in part a function of climate. Biodiversity measures the health of ecosystem; healthy the biodiversity, healthy the ecosystem. Biodiversity is typically rich in terrestrial habitats, tropical regions whereas poor in Polar Regions. The term biodiversity was firstly coined by Walter D. Rosen in 1885 while planning 1886 National Forum of Biological diversity organized by the National research council (NRC). Since this period the term has achieved widespread used among biologist, environmentalists & concerned peoples. Presently there are about 7,227,130 estimated number of plant and animal species in the world. According to the MoEF report (1996), India contributed over 45,000 plant species and 81,000 animal species representing 7% of the world's flora and 6.5% of its fauna. India, known for its rich heritage of biological diversity, has so far documented over 91,200 species of animals and 45,500 species of plants in its ten bio-geographic regions. Besides, it is recognized as one of the eight Vavilovian centres of origin and diversity of crop plants, having more than 300 wild ancestors and close relatives of cultivated plants, which are still evolving under natural conditions (MoEF report (2011)). So far, nearly 91,212 of faunal species (7.43% of the world's faunal species) have been recorded in the country. Endemic rich Indian fauna is manifested most prominently in Amphibia (61.2%) and Reptilia (47%). Likewise, Indian fish fauna includes two endemic families and 127 monotypic genera. As per the International Union for Conservation of Nature (IUCN) Red List (2008), India has 413 globally threatened faunal species, which is approximately 4.9% of the world's total number of threatened faunal species.

The following are different types of biodiversity





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### Effect of Plant Extracts on Seed Borne Fungi of *Vigna radiata*.

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#### Abstract

Present Paper Deals with the study of antifungal properties of botanical like leaf extracts, rhizome and seed extracts of different plants.Ten % aqueous leaf extract of *Parthenium hysterophorus*, *Azadirachta indica*, *Adhatoda vasica* and *Aegle marmelos* retarded the growth of *Alternaria alternate*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma varied*. Rhizome and seed extracts of all tested plants retarded the growth of *Alternaria alternate*, *Aspergillus flavus*, *Curvularia lunata*, *Fusarium roseum* and *Trichoderma varied*. At Ten % while rhizome extract of *Musa paradisiac* stimulated the growth of *Trichoderma viride*.

Key words :- Plant extract ;Seed born fungi, Bio pesticide,

#### Introduction

Plant pathogens have a worldwide host range covering all groups of plants. The biological control play an important role as per the modern concept of integrated disease management and sustainable agriculture and bio pesticides, part from reducing the use of synthetic fungicides avoid damage of non-targeted beneficial flora. During present investigation attempts have been made to use botanicals of various plants to control fungi growth. Effect of leaf extracts of *Aegle marmelos* ( Bel ), *Azadirachta indica* ( Neem ), rhizome extracts of *Zingiber officinale*, *Curcuma longa* ( Turmeric ), *Musa paradisiaca* ( Banana ) *Allium sativum* (Garlic ) and extract of some legumes seed of *Clitoria ternate* (Gokarna) , *Cicer arietinum* ( Gram ) *Phaseolus acoritifolius* ( Moth bean ) , *Vigna unguiculata* ( Cow pea ) were studied against the growth of seed born fungi.

#### Materials and methods

Fungi toxicity of plant extracts was studied by the poisoned food technique described by Nene and Thapliyal(1993) .The plant extracts were prepared by collecting fresh plant parts ,washing them thoroughly and grinding in distilled water.The extracts were thoroughly mixed by stirring ( Czapek dox agar medium was prepared and sterilized in flask.) To it equal amount of the plant extract was added. The medium was then poured into Petri plates .Small Disc( 7mm) of the fungal culture grown on Potato Dextrose Agar (PDA) for 7 days was cut with a sterile cork borer and transferred aseptically in the center of the Petri plates containing the plant extract. Control was also simultaneously kept where in the culture disc were grown under similar conditions but without plant extract. Linear growth of the test fungi was measured at regular intervals. The diameter of fungi colony was compared with control as a measure of the fungi toxicity.

#### Results and Discussion.

Table 1 Effect Plant leaf extracts (10 % Conc.) on growth of fungal





**'काला पादरी' उपन्यास में आदिवासी समाज जीवन**

डॉ. प्रमोद एम सीधी

कला एवं विज्ञान महाविद्यालय, भालौर, तह. बावल, जिला. जलगाँव.

२१ वीं सदी विमर्श की सदी है। जिसमें अनेक विमर्श हमारे सामने मौजूद हैं। जैसे- दलित विमर्श, मुस्लिम, पुरुष विमर्श, किन्नर विमर्श, आदिवासी विमर्श, अल्पसंख्यक विमर्श ऐसे अनेक विमर्श का निर्माण परिस्थिति के अनुरूप होते हुए दिखाई दे रहा है। २१ वीं सदी में जो लोग हाथिये पर वे अकेले में आने लगे हैं। अतः हाथिये से केंद्र की ओर प्रस्थान की रात्रि आदिवासी विमर्श की अपनी अलग ही कहानी है। आदिवासी समूह को अब भी अलग हाथिए पर रखा गया है लेकिन दलित विमर्श और स्त्री विमर्श के समान आदिवासी विमर्श की गूँज भी सुनाई देने लगी है। जिसकी छटपटाहट से सोचने के लिए विवध कर दिया है कि आदिवासी विमर्श किलहाल में अचानक सामने आया हुआ विमर्श या फिर इसका अपना इतिहास है। आदिवासी को लेकर लिखे हुए लेखन पर एक बड़े भाँके की बात सुधीर पंचोपनी ने कही है कि, "भारत में इस वक़्त सबसे बड़ी चुनौती ये ही देखे हैं। वे विकलांगों की चुनौतियों की प्रतिक्रियाएँ हैं और उसकी नृशंसला का किसी हद तक उत्तर भी है। विकास के नाम पर चले आए बर्बर और तंत्र के शिकार हैं जो एक शिकार की यह राह उनका विरोध-शिकार की घातों पर होता है।" १ स्पष्ट रूप से स्पष्ट रूप से कहा जा सकता है कि 'आदिवासी जीवन' समाज का यह हिस्सा है जो अपने रहन-सहन-खान-पान आदि के कारण दूसरे वर्गों से भिन्न नजर आता है। यह कहे कि वह अन्य समुदायों का हिस्सा बनने की शिकायतीवादा है। अपनी पहचान बनाए रखने के लिए संघर्ष करता रहता है।

विमर्शों के इस युग में आदिवासी विमर्श भी महत्वपूर्ण हो गया है जिसके कारण आदिवासियों के बीच अपनी पहचान को बनाए रखने का प्रयत्न खड़ा होता है। "यह आदिवासी समाज आदिग युग से वह जंगलों में निवास करने के कारण 'वनवासी' कहलाये जाते हैं। भारत में यह आदिवासी 'जनजाति' के रूप में जाना जाता है आदिवासी विभिन्न राज्यों में और देशों में मौजूद हैं। यह समाज जिनकी संस्कृति, रीति-रिवाज, परंपराएँ, अलग-अलग प्रदेशों में रहने के बावजूद भिन्न होते हुए भी सभी जनजाति शब्द में समाहित हो जाते हैं।" २ इस प्रकार आदिवासी जीवन केंद्रित उपन्यास साहित्य का उद्देश्य अन्य उपन्यास साहित्य की तुलना में बिल्कुल भिन्न रहता है। आदिवासी जीवन से जुड़े उपन्यास का उद्देश्य है स्थित स्थान पर गतिमान समय में जीते हुए आदिवासियों के समय पहलुओं को उद्घाटित करना। अतः आदिवासियों के बटिल जीवन चित्र को अंकित करने के लिए लेखक कहीं मोड़ी रेखाएँ खींची हैं कहीं पतली। उनके पर्व, उत्सवों परंपराओं, विश्वासों, व्यथा के अवसरों गीतों संघर्षों जीवन मूल्यों आदि से लिपटा हुआ आदिवासियों का जीवन अभिव्यक्ति के लिए एक नये माध्यम की अपेक्षा करता है। ऐसे आदिवासी जीवन संबंधी उपन्यास लिखने वाले लेखक को में तेजिंदर का नाम उल्लेखनीय है। आदिवासी जीवन संबंधी लेखक ने अपने उपन्यास साहित्य के लिए खाद के लिए गहना वन, जंगल पहाड़ों और खाई में बसने वाले आदिवासी जीवन को भी खोज निकाला है। ऐसे ख्यातिलब्ध उपन्यासकार तेजिंदर द्वारा लिखित 'काला पादरी' चर्चित उपन्यास है। इस उपन्यास में मध्यप्रदेश के सरगुजा जिले के आदिवासी समाज का चित्रण किया गया है। अकालखस्त घटना का वर्णन लेखक ने स्वयं यथार्थ रूप में करके उनके जीवन में नई रोशनी प्रकट की है।

उपन्यासकार तेजिंदर गण जी ने आदिवासियों की समस्याओं को उजागर हुए धर्मांतरण यक्ष प्रश्न को भी सम्मुख रखा है। उपन्यास में 'चर्च' संबंधी बात इस प्रकार प्रकट की गई है- "माँ कहती है कि चर्च ने तुम्हारे पिता और दादा को सैदी दी शी, कान्त दिया था और राजा की बेगार से मुक्ति दिलवायी थी, इसलिए तुम्हें अपना पूरा जीवन चर्च की सेवा में बिताना है। क्या वह एक तरह का बंधुओं विचार नहीं है।" ३ इस प्रकार लेखक ने प्रभु गीशु के चर्च का चित्रण मनुष्य के जीवन के साथ साथ जोड़कर आस्थावादी धर्म को स्पष्ट किया है।

प्रस्तुत उपन्यास मध्यप्रदेश के आदिवासी लोगों पर लिखा गया एक श्रेष्ठतम उपन्यास है। इस उपन्यास में मध्यप्रदेश के 'सरगुजे' जिले के आदिवासी गाँव और शहर में रहने वाले सभी को समेट कर उनके जीवन की लेखक ने अपने विचारों के माध्यम से स्पष्ट किया है। लेखक ने स्पष्ट शब्दों में आदिवासियों के जीवन पर प्रकाश डालते हुए कहा है कि मध्यप्रदेश के आदिवासी कृषि पर अपना जीवन गुजारते हैं। इन आदिवासियों की महत्वपूर्ण विशेषता यह है कि जंगल में ही टूटी फूटी झोपड़ी बनाकर रहना। जंगल में खबर लकड़ी आदि को काटकर बेचना और जीवन चलाना उनका महत्वपूर्ण कार्य है। लेखक ने प्रस्तुत उपन्यास में आदिवासी जीवन की समग्र समस्याओं को यथार्थ रूप में उभारा है। लोटे से बच्चे से लेकर बड़े उश्वाखड़े व्यक्ति का वर्णन वास्तविकता से किया है। अतः उपन्यास की कथावस्तु में आदिवासी जीवन का चित्रण प्रत्यक्ष रूप से किया गया है।

इस संदर्भ में उद्देश्य प्रकाश जी ने अपना मत व्यक्त करते हुए लिखा है- "तेजिंदर का उपन्यास 'काला पादरी' यथार्थ के अग्रगण्य दूरगम इलाके की अंतर्जाति का अन्तु और पहला प्रमाणिक उत्तर-आधुनिक साक्ष्य है। मध्यप्रदेश के गहन आदिवासी क्षेत्रों में घटित होती घटनाओं और जंगलों के पार पार लेने जीवन का विवरणात्मक, संवेदनशील और सूक्ष्म आकलन समाकालीन कथा साहित्य की उपलब्धि है। 'काला पादरी' की शहर सहज-वृत्तात्मकता इसे उपन्यास को यह मद् और उत्तेजक पठनियता प्रदान करती है। जिसमें सम-समय के कई अनसुलझे प्रश्नों को अचानक एक आर्काम्यता के साथ किसी बेहद परिचित चेहरे में अपने सामने उपस्थित पाते हैं।" ४ इस प्रकार लेखक ने प्रस्तुत उपन्यास में आदिवासी जीवन की सामाजिक, धार्मिक, राजनीतिक आदि बातों का सूक्ष्म चित्रण कर उनके जीवन का वास्तविक चित्रण किया है। पूरे उपन्यास में धार्मिकता पर ज्यादा जोर देते हुए लेखक ने यहाँ बताया है कि यह जाति के लोग अन्य जाति के लोग किस प्रकार से अलग हैं, अर्थात् धार्मिकता के संदर्भ में इन आदिवासियों के विचार बिल्कुल अलग हैं। क्योंकि यह लोग धार्मिक बातों पर ज्यादा विश्वास रखते हैं। वे वन में रहने के कारण बूझ, पोषे तथा जंगल कोन देवी-देवताओं का निवास मानते हैं। आदिवासी जीवन में धार्मिकता जो प्रमाण दिखाई देता है उसके संदर्भ में हरी हरिलाल शुक्ल के विचार दृष्टव्य है- "आदिवासियों की दृष्टि में वन का आध्यात्मिक तथा धार्मिक महत्व भी है, क्योंकि वन में उनके पवित्र बूझ, पोषे तथा अन्य धार्मिक स्थानों के अतिरिक्त उनके देवी-देवताओं का भी निवासी है। इससे वन में होने वाली प्रत्येक घटना से आदिवासियों का जीवन प्रभावित होता है।" ५

प्रस्तुत उपन्यास में आदिवासी के साथ साथ प्रभु गीशु की बातों को भी जोड़ा गया है। प्रभु गीशु से संबंधित एक ही बात है, "पश्चात्ताप करो और सुसमाचार पर विश्वास करो।" मध्यप्रदेश का सरगुजा जिले के आदिवासी चर्च में जाते हैं। इस प्रकार प्रस्तुत उपन्यास में आदिवासी जनजाति की समग्र जीवन पद्धति को लेखक ने बखूबी से चित्रित की है। चर्च देश में हो रहा है मगर राजनीतिक हलचल और हालात पर नजर बनाए हुए है। वह 'बिगडिड' स्मोक देखने की कोशिश कर रहा है। यह स्थानीय स्तर पर पेलेंस के प्रति विरोध को प्रमोड नहीं कर सकता। सो चर्च ने भी भूख से मरने वालों के प्रति



Signature and name of the author: P. M. Chaudhary



## A Study of 'Sign' from Structural and Post-Structural Perspectives from "The Necklace" By Guy De Maupassant

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### Introduction-

Literary theory is linguistic in its orientation. It, however, does not continue the traditional study of language but reconsiders the nature and function of language in radical terms. Structuralism and post-structuralism are language oriented approaches to literature. The present paper is an attempt to apply the notion of sign from structural and post-structural view-points to the select signs from 'The Necklace'. Such application not only demonstrates the changes in the notion but also helps better understand its working.

### About the Author-

Guy de Maupassant (1850 – 1893) was a keen observer of life and described things that he had not seen. He was a student of the great French author Flaubert who was a founding figure of realism. Maupassant started his life as a government employee. After seven years of rigorous apprenticeship, he published a volume of poem in 1880. The same year, he showed himself to be an admirable prose writer and a consummate master of short-story. In the following ten years, he produced thirty volumes of novels and short stories. He became the victim of the most alarming hallucinations. The master of simple and direct style who chooses the humblest and the most exact words to convey his ideas, died at the age of forty-three after some years of painful suffering.

### Briefing of the story :

"The Necklace" is the story of Mathilda Loisel who is born in poor circumstances. She bemoans her fate and envies the richer strata of society. One evening, her husband Monsieur Loisel is invited to attend a ball with his wife. The ball is to be attended by aristocratic men and women. Mathilda refuses to attend the ball for two reasons : she has no party dress and she has no jewel. Her husband gives her money to buy a new party dress and advises her to borrow jewel from her rich schoolmate, Madame Forestier. Mathilda loses the jewel i.e. diamond necklace and she and her husband have a very hard time replacing it. Finally, it is revealed that the borrowed necklace is fake costing not more than five hundred francs whereas the couple returned a necklace costing thirty-six thousand francs. Thus, the illusion of aristocratic life disillusiones the protagonist. The invitation for the ball which is a major structural element in the story is the point that connects illusion and disillusion.

### Structuralist Notion of sign: Arbitrariness

A linguistic sign consists of union of a sound or an image or a word and a concept or an idea. The Swiss linguist Ferdinand de Saussure proposed the term signifier for the former and

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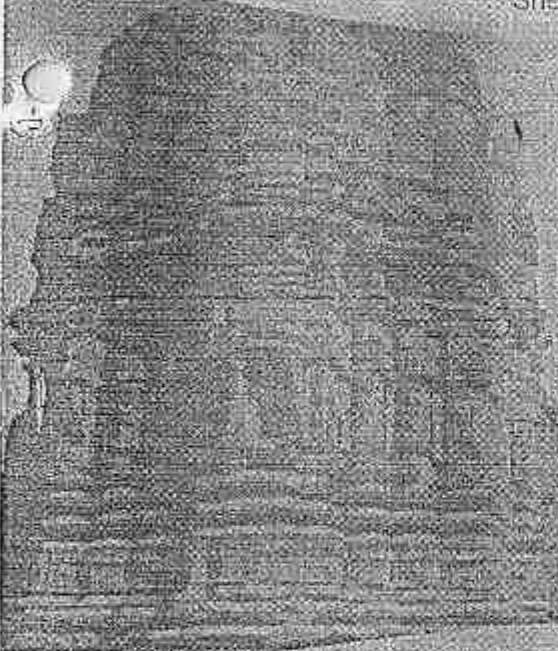
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अ. व. वि. विज्ञान शास्त्राचार्य

विज्ञान विभाग, कला व विज्ञान संशोधन संस्थान, गांधी, कोटा, राजस्थान

सुखा कृतसंयोजकं खनिजतः कृतसंयोजकं चक्रेयन्नाम शम्भुगी मातृदीनेन सतसंशोधानां सन्तनाम

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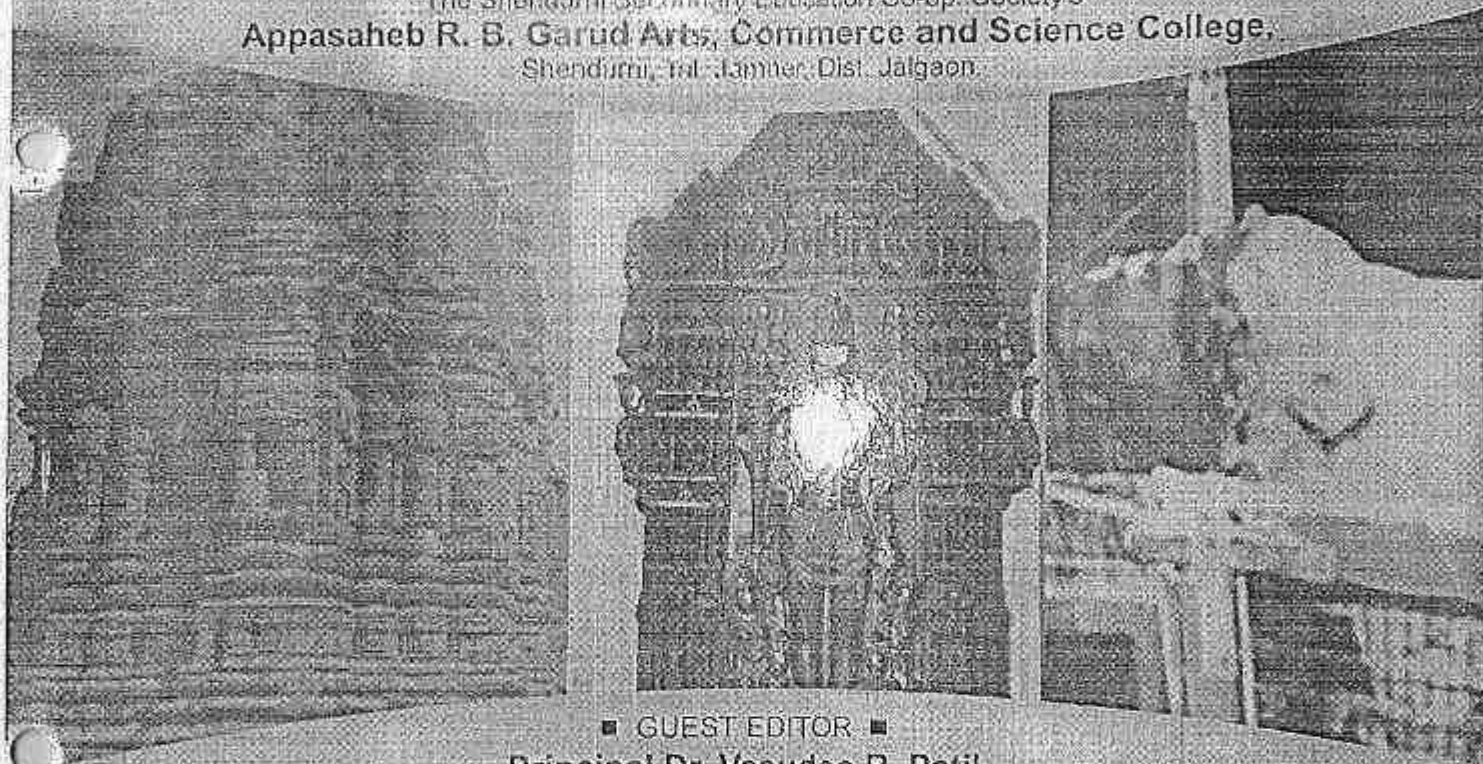
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## STRESS MANAGEMENT AT THE WORK PLACE



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## **"Stress Management of An Individual, Family & At Work Place Through Vipassana Meditation"**

**Mukesh U. Pawar**

Director of Physical Education, Arts & Science College Bhalod  
Ta.-Yawal Dist. Jalgaon

### **Introduction**

Vipassana, which means to see things as they really are, is one of India's most ancient techniques of meditation. It was rediscovered by Gotama Buddha more than 2500 years ago and was taught by him as a universal remedy for universal ills, i.e., an Art Of Living. This non-sectarian technique aims for the total eradication of mental impurities and the resultant highest happiness of full liberation.

### **Historical Background —Vipassana Meditation**

Vipassana is one of the world's most ancient meditative techniques. It was practiced 25 centuries ago by Gotama the Buddha, who said he had rediscovered a much older practice. After his enlightenment in 528 BCE, the Buddha spent the remaining 45 years of his life teaching the way out of suffering. Vipassana is the essence of what he taught. The Buddha's teaching is known by the general term Dhamma (Sanskrit: Dharma). For five centuries Vipassana helped millions of people in India, the Buddha's homeland. This era saw the matchless reign of the great Emperor Asoka (273-236 BCE) who united India and initiated a golden age of peace and prosperity. Asoka also sent ambassadors of Dhamma to all the neighboring kingdoms (including what has become Myanmar in modern times), thereby spreading both the practice and the words of the Buddha. After about 500 years the practice of Vipassana had disappeared from India. Fortunately it was maintained by a continuous chain of meditation teachers in the neighboring country of Myanmar (Burma) until the present day. In our time, Vipassana has been reintroduced to India and to people from all over the world by S. N. Goenka, a retired industrialist of Indian heritage who was born in Myanmar. He learned the technique of Vipassana from Sayagyi U Ba Khin, the renowned lay Vipassana teacher who was the first to teach westerners in English. U Ba Khin appointed him to teach Vipassana in 1969.

### **What is Vipassana ?**

Vipassana is a way of self-transformation through self-observation. It focuses on the deep interconnection between mind and body, which can be experienced directly by disciplined attention to the physical sensations that form the life of the body, and that continuously interconnect and condition the life of the mind. It is this observation-based, self-exploratory journey to the common root of mind and body that dissolves mental impurity, resulting in a balanced mind full of love and compassion. Scientific Law of Vipassana Meditation The scientific laws that operate one's thoughts, feelings, judgements and sensations become clear. Through direct experience, the nature of how one grows or regresses, how one produces suffering or frees oneself from suffering is understood. Life becomes characterized by increased awareness, non-delusion, self-control and peace.

### **Purity of Vipassana Meditation**

#### **The Tradition**

Since the time of Buddha, Vipassana has been handed down, to the present day, by an unbroken chain of teachers. Although Indian by descent, the current teacher in this chain, Mr. S.N. Goenka, was born and raised in Burma (Myanmar). While living there he had the good fortune to learn Vipassana from his teacher, Sayagyi U Ba Khin who was at the time a high Government official. After



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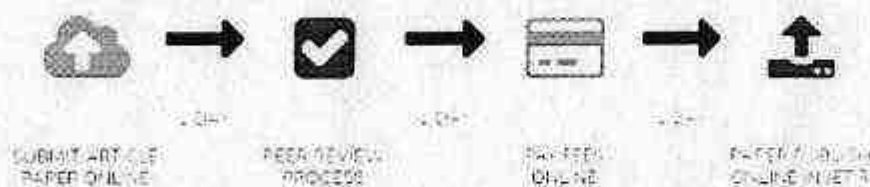
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# SOLVENT FREE SYNTHESIS OF BIS (INDOLYL) METHANES USING GRINDING TECHNIQUE

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**ABSTRACT:** Tartaric acid was found to be a mild, efficient acid catalyst in electrophilic substitution reaction of indoles with carbonyl compounds to afford the corresponding bis(indolyl)alkanes in excellent yields. In the present work, various electrophilic substitution reactions of indoles with several aldehydes were carried out using grinding technique. The products were characterized by FT-IR, <sup>1</sup>H-NMR

**KEYWORDS:** Grinding technique Tartaric acid, Indole, Aromatic Aldehyde, bis (indolyl) methanes, Spectral analysis.

## INTRODUCTION:

The design and development of sequences allowing highly selective access to complex molecular skeleton while combining structural diversity with the use of eco-friendly and environmentally benign catalysts and reagents are great challenges for organic chemists. The bis(indolyl)methanes have been gaining increasing importance in recent years and known as an important class of heterocyclic compounds. Indole fragments are featured wide variety of pharmacologically and biologically active compounds [1]. Among the various indole analogues, bis-indolylmethane derivatives display versatile biological and pharmacological activities [2,3]. These types of compounds are also known to promote the estrogen metabolism in both women and men and are expected to have an application in prevention of breast cancer [4,5,6].

Bis(indolyl)methanes (BIMs) also exhibit a range of biological activities such as antimicrobial and antifungal, antibacterial, analgesic and anti-inflammatory, growth promoting, anti-tumor activities [7]. A wide range of pharmaceutical applications of bis(indolyl)methane derivatives has grown interest among chemist to develop their easy synthetic methods. A simple, standard and common method for the synthesis of bis(indolyl)methanes is the Friedel-Crafts reaction between indoles and carbonyl compounds in the presence of protic acids or Lewis acids. Varieties of catalytic reagents used in the synthesis of BIMs have been reviewed. Researchers are competing for developing the economic, ecofriendly, easily accessible methodologies for the synthesis of bis(indolyl) methanes by using various catalytic systems and reaction conditions like citrus lemon juice [8], grape juice [9], phenyl phosphonic acid [10], triethylborane [11], poly (4-vinylpyridinium)hydrogen sulfate [12], tetrabutyl ammonium hydrogen sulphate [13]. Most of these reported methods suffer from one or several drawbacks, including the requirement of large or stoichiometric amount of catalysts, low yields, prolonged reaction times, involving harsh reaction conditions, tedious workup procedure, and difficulty in recovery, expensive catalysts. In this report we have investigated the synthesis of various bis (indolyl) methanes catalyzed by tartaric acid using grinding technique.

## MATERIALS AND METHODS:

Aldehydes, Indole, Tartaric acid, were all commercial products purchased from Avra Synthesis Pvt Ltd. used without further purification. They were chemically and analytically pure. Melting points were determined in open capillaries using Thermo Cal Analab apparatus and are uncorrected. The progress of the reactions as well as purity of compounds was monitored by thin layer chromatography with F254 silica-gel precoated sheets using hexane, ethyl acetate (9:1) as eluent; UV light vapours were used for detection. IR spectra were recorded on Agilent Cary 630 FTIR Instrument, and values are expressed in cm<sup>-1</sup>. <sup>1</sup>H NMR spectra were recorded with Bruker 400 MHz spectrometer and chemical shifts are expressed in ppm



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# XRD, FTIR and SEM Studies of Gel Grown Barium Tartrate Crystals

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## Abstract

In the present research work barium tartrate ( $\text{BaC}_4\text{H}_6\text{O}_6$ ) single crystals have grown successfully by sol gel technique at room temperature. The optimum growth conditions were optimized by varying various parameters such as pH, concentration of the gel solution, setting time of the gel solution and concentration of the reactance. The test tubes were used as crystallization vessels while silica gel as a growth media. The grown crystals are characterized by XRD, FTIR and SEM. The crystalline nature of grown crystal was confirmed using powder X-ray diffraction technique. The functional groups present in the crystals were identified using FTIR analysis. The scanning electron microscope reveals the morphology of the crystal having tetragonal structures.

**Keywords:** Gel technique, Barium Tartrate, XRD, FTIR, SEM

## 1. Introduction

Many investigators have grown the single crystals of tartrate compounds by using single diffusion sol gel method. They studied the effect of various parameters such as type of solvent, pH of the gel media, degree of saturation, the change in the growth temperature and the presence of impurities which affect significantly the morphology of the grown crystal [1-8]. A variety of pure and doped crystals have grown by several investigators for the purpose of research and modern industrial applications [9-13]. The single crystals are the backbone of the modern technological reevaluation. The compounds of tartrate find numerous practical applications in the field of science and technology because of their interesting physical properties such as dielectric, ferroelectric, piezoelectric and non-linear optical properties [14-17].

The sol gel method for growing a variety of pure and doped crystals is popular because of its simplicity, inexpensiveness and we can grow the crystals at room temperature without any sophisticated technology. But the challenge of growing pure and doped crystals and opportunities in understanding the growth features and morphology of grown crystals remains here. In this research work, single crystals of barium tartrate were grown by simple single diffusion sol gel method. The optimum growth conditions were established by varying various parameters such as pH, concentration of the gel solution, setting time of the gel solution and concentration of the reactance. The grown crystals are characterized by XRD, FTIR and SEM.

## 2. Material and Methods

All chemicals used were of AR grade. The chemicals used for growth of single crystal were acetic acid ( $\text{CH}_3\text{COOH}$ ), sodium meta silicate ( $\text{Na}_2\text{SiO}_3$ ), tartaric acid ( $\text{C}_4\text{H}_6\text{O}_6$ ) and barium chloride ( $\text{BaCl}_2$ ). Different molar mass were tried to determine the optimum growth conditions. The gel was prepared by mixing the solutions ( $\text{CH}_3\text{COOH}$ ), ( $\text{Na}_2\text{SiO}_3$ ), and ( $\text{BaCl}_2$ ) having different pH values varying from 4.0 to 4.3. The prepared gel was transferred in glass tube of diameter 2.5cm and 15cm in length. The mouth of tube is covered by cotton plug and kept for the setting. After setting the gel, it was left for aging. After two days the supernatant ( $\text{C}_4\text{H}_6\text{O}_6$ ) of 1M concentration was poured over the set gel by using pipette and kept undisturbed by covering the cotton plug on the mouth of tubes. Experiments were carried out by changing different concentrations of the reactants. The test tubes were used as crystallization vessels while silica gel as a growth media. The ( $\text{C}_4\text{H}_6\text{O}_6$ ) used as upper reactant. Gel age is the time interval between setting of gel and pouring of upper reactant. The crystals of barium tartrate have grown in silica gel in pure form by gel growth method. The X-ray diffraction was recorded using Bruker-D8. Advance, Germany (2 $\theta$  from 5 $^\circ$  to 80 $^\circ$ ) with  $\text{CuK}\alpha$  radiation of wavelength  $\lambda=1.54060\text{\AA}$ . The FTIR spectrum was recorded using Shimadzu FTIR-8400, Japan (400 $\text{cm}^{-1}$  to 4000 $\text{cm}^{-1}$ ). The FESEM images were recorded using Hitachi S-4800, Japan with X-Flash detector-5030, Bruker, Germany.

The following chemical reactions were involved in the growth of crystals sodium Meta silicate react with acetic acid and forms  $2\text{CH}_3\text{COONa}$ .



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# Comparative Study of Thermal Stability of Strontium Doped Barium Tartrate Crystals by Silica Gel Technique

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## Abstract

In the present research work, the single crystals of strontium doped barium tartrate ( $\text{SrBaCa}_4\text{H}_4\text{O}_6$ ) crystals were grown by single diffusion technique. The optimum growth conditions for ( $\text{SrBaCa}_4\text{H}_4\text{O}_6$ ) crystals were optimized by varying various parameters such as pH of the gel solution, gel concentration, gel setting time, concentration of the reactance. The platy shaped crystals were obtained in silica gel at room temperature. The effect of Strontium (Sr) doping on the barium tartrate ( $\text{BaCa}_4\text{H}_4\text{O}_6$ ) has been studied. The XRD pattern shows that ( $\text{SrBaCa}_4\text{H}_4\text{O}_6$ ) crystals are polycrystalline, having orthorhombic structure. The SEM pictures reveal that these crystals are grown by layer deposition. Thermo Gravimetric Analysis (TGA) curves show the percentages of the weight loss in the different stages of decomposition of barium tartrate. Differential Scanning Calorimetry (DSC) curves show the phase transformation due to loss of water molecules and formation of stable anhydrous ( $\text{SrBaCa}_4\text{H}_4\text{O}_6$ ) crystals.

**Keywords:** Sol gel technique, Strontium, Barium, XRD, SEM, TGA, DSC.

## 1. Introduction:

Commercially, the tartrate compound can be used in various applications like antimony in urinary drugs [1], ferroelectric applications of sodium-potassium tartrate [2], potassium-chromium tartrate in medicine etc. [3]. Many people studied various tartrate compounds like calcium-strontium mixed levo-tartrate [4], zinc tartrate [5] and cadmium tartrate [6] with respect to their properties such as dielectric, magnetic, ferroelectric, piezoelectric, and optical and other pertinent characteristics. Crystal habits of various crystals, grown under different conditions and also by different methods were described by Buckley [7], Hartman [8], Kern [9], Chemor [10], Burton [11] and Mullin [12].

A number of factors such as degree of saturation, type of solvent [13], pH of the gel media [14, 15], presence of impurities [16] and the change in growth temperature also presumably affect significantly the morphology of the crystal. The crystals, which can't satisfactorily grow from melt and vapour, are grown successfully by using this method

Hydro silica gel is very good medium for growing better quality doped and undoped crystal of barium tartrate. In present investigation, doped and undoped barium tartrate crystals were grown by silica gel method using single diffusion technique. Strontium is used as dopant. In this comparative study we study the effect of strontium doping in the barium tartrate crystals. The grown crystals are characterized by XRD, SEM, TGA, and DSC techniques.

## 2. Material and methods

All chemicals used were of AR grade. The chemicals used for growth of single crystal were acetic acid ( $\text{CH}_3\text{COOH}$ ), sodium meta silicate ( $\text{Na}_2\text{SiO}_3$ ), tartaric acid ( $\text{C}_4\text{H}_6\text{O}_6$ ), strontium chloride ( $\text{SrCl}_2$ ) and barium chloride ( $\text{BaCl}_2$ ). Different molar mass were tried to determine the optimum growth conditions. The gel was prepared by mixing the solutions ( $\text{CH}_3\text{COOH}$ ), ( $\text{Na}_2\text{SiO}_3$ ), ( $\text{BaCl}_2$ ) and ( $\text{SrCl}_2$ ) having different pH values varying from 4.0 to 4.3. The prepared gel was transferred in glass tube of diameter 2.5cm and 15cm in length. The mouth of tube is covered by cotton plug and kept for the setting. After setting the gel, it was left for aging. After two days the supernatant ( $\text{C}_4\text{H}_6\text{O}_6$ ) of 1M concentration was poured



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# Occurrence And Intensity of Powdery mildew on some Plants of Family Papilionaceae (Khandesh Region)

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## ABSTRACT

Powdery mildew fungi have been known to heavy loss to various crops every year throughout India and across the world. To study on a through survey was carried out of Khandesh region, District Jalgaon, viz Jalgaon, chalisgaon, Pachora, Bhadgaon, Jamner, Bhusawal, Yawal, Raver, Chopada and Amalner in order to assess the incidence and severity of the disease on some plants of family Papilionaceae. It was revealed from the study that the plants such as *Lablab purpureus*, *Cajanus cajan*, *Vigna mungo*, *Vigna radiata* and *Vigna unguiculata* showed moderate to mild infection in different localities of Jalgaon District whereas *Lablab purpureus*, *Cajanus cajan*, *Vigna mungo*, *Vigna radiata* and *Vigna unguiculata* showed mild infection in different localities of district Jalgaon during the study. However, no infection was observed in some areas of the Khandesh region on plant of family papilionaceae surveyed during the study. The overall study reveals the need for the management strategies at the early stage before the disease can spread widely.

**Keywords:** - Powdery mildew fungi; occurrence; Papilionaceae; Khandesh region.

## INTRODUCTION

Powdery mildew is a disease causing significant damage on variety of cultivated and wild plants across the world as well as in India. They are also known to cause damage on various economically important plants in Khandesh region as well. Three powdery mildew species, *Erysiphe polygoni*, *Sphaerotheca fuliginia* and *Oidiopsis taurica* infect various cultivated and wild crops in India and worldwide (Khan et al., 1970, 1974; Narayansamy, P. and jaganthan, T. 1975; Paul, Y.S. and Kapoor, J.N. 1983; Kennet and Palti, 1984; Amano, 1986; Bains et al., 1996; Hussain and Akram, 1997; Pervez and Akram, 2001; Garbaldi et al., 2002; Riyaz Ahmad et al., 2011). The powdery mildew fungi are also known to cause heavy damage to different plants of family Papilionaceae throughout India (Kamat, M.N. and Patel, M.K. 1948; Hirata, K. 1966; Shastree et al., 1990; Plenk et al., 1991; Sing et al., 2000)



## शैक्षणिक पुस्तकालय में सूचना साक्षरता : सर्वोत्तम अभ्यास

डॉ. दिगंबर घोबरगडे

पुस्तकालयाध्यक्ष

आर्ट्स एंड साइंस कॉलेज, भालोद, जिला-जलगांव, महाराष्ट्र

सार :

पुस्तकालय शैक्षणिक संस्थानों का हृदय और मस्तिष्क है। शैक्षणिक पुस्तकालय उच्च शिक्षा और अनुसंधान गतिविधियों में महत्वपूर्ण भूमिका निभाते हैं। इस सदी की दुनिया की जटिलता ने विकास की गति को तेज कर दिया है, और जो लोग केवल अनुकूलन और परिवर्तन नहीं सीख सकते हैं वे जीवित नहीं रहेंगे। शैक्षणिक पुस्तकालयों और पुस्तकालयाध्यक्षों में सबसे अधिक महत्वपूर्ण भूमिका उपयोगकर्ताओं या छात्रों को शैक्षिक वातावरण में सूचना के प्रभावी उपयोग के लिए प्रत्यक्ष या इलेक्ट्रॉनिक माध्यम से इंटरनेट के द्वारा शिक्षित करना है। पुस्तकालय विकास और निर्माण में पाठकों या छात्रों द्वारा सूचना साक्षरता पाठ्यक्रम शुरू करने से प्रभावी उपयोगिता साबित हो सकती है। पुस्तकालयाध्यक्ष अपनी आवश्यकताओं के नुसार सूचना साक्षरता कार्यक्रम विकसित कर सकते हैं और तैयार कर सकते हैं। इस शोध पत्र में शैक्षणिक पुस्तकालय में गतिविधियों के परिणाम के साथ लागू की गई सर्वोत्तम प्रथाओं का उल्लेख किया है।

**key words :** शैक्षणिक पुस्तकालय, पुस्तकालयाध्यक्ष, सूचना साक्षरता, सूचना प्रौद्योगिकी, राष्ट्रीय प्रत्यायन और मूल्यांकन परिषद

परिचय:

सूचना के युग में, पुस्तकालय सेवाओं की उम्मीद तेजी से बदल रही है और समाज के उदारीकरण और वैश्वीकरण के साथ आगे भी बढ़ना जारी रहेगा। उपयोगकर्ता को गुणवत्ता सेवा प्रदान करना इस सदी में शैक्षणिक पुस्तकालयों का मुख्य उद्देश्य है। आज पुस्तकालय व्यक्ति से व्यक्ति, व्यक्ति से संस्थान, प्रत्यक्ष संपर्क, पत्राचार, फैक्स, टेलिफोनिक टॉक, टेलिकॉम, टेलीकांफ्रेंसिंग, ईमेल, व्हाट्सएप, फेसबुक, वीडियो कॉन्फ्रेंसिंग, इंटरनेट का उपयोग आदि का केंद्र बन गया है। सूचना साक्षरता आजीवन सीखने का आधार बनती है। यह सभी विषयों, सभी शिक्षण वातावरणों और शिक्षा के सभी स्तरों के लिए आम है। सूचना की अवधारणा साक्षरता का निर्माण और पुस्तकालयों के दशकों-लंबे प्रयासों का विस्तार करके अपने उपयोगकर्ताओं को सीखने में मदद करता है कि कैसे पुस्तकालयों में अनुसंधान उपकरणों और सामग्रियों का उपयोग करना चाहते हैं। पुस्तकालयाध्यक्ष चाहते थे कि उपयोगकर्ता इस ज्ञान को नए वातावरण में स्थानांतरित करने और लागू करने में सक्षम हों। वर्तमान परिवेश पुस्तकालयाध्यक्ष के लिए एक एकीकृत सूचना साक्षरता पाठ्यक्रम के विकास में महत्वपूर्ण भूमिका निभाने का अवसर प्रदान करता है।

सूचना साक्षरता कि परिभाषा:

"सूचना साक्षरता व्यक्तियों के लिए आवश्यक क्षमताओं का एक समूह है, जब जानकारी की आवश्यकता होती है, और आवश्यक जानकारी को प्रभावी ढंग से पहचानने, मूल्यांकन और उपयोग करने की क्षमता होती है।

पाठ्यचर्या और सूचना साक्षरता :

प्रभावी सूचना उपयोगकर्ता बनने के लिए, छात्रों के पास सभी प्रकार की सूचनाओं को संभालने के लिए लगातार अवसर होने चाहिए। सूचनाओं का आदान-प्रदान करना। जानकारी का विश्लेषण, संक्षेपण, मूल्यांकन और संचार करना पाठ्यक्रम के हर विषय का एक हिस्सा बनना चाहिए। सभी के सदस्यों के लिए



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**ASSESSMENT OF WATER QUALITY BY PERFORMING PHYSICO-CHEMICAL AND METALLIC INVESTIGATIONS OF GROUND WATER SOURCES OF RAVER REGION OF MAHARASHTRA (INDIA)****<sup>1</sup>G. R. GUPTA, <sup>2</sup>G. R. CHAUDHARI AND <sup>3</sup>V. S. SHRIVASTAVA**<sup>1,3</sup>Nanochemistry Research Laboratory, G. T. Patil, Arts, Science and Commerce College, Nandurbar - 425 412 (India)  
Arts and Science College, Bhalod - 425 304 (India)

**Abstract :** The purpose of this work is to assess the water quality of Raver region by analyzing twelve important physico-chemical parameters as well as six metals in the ground water samples. Thereafter a water quality index is determined.

**Key Words :** Physico-chemical parameters, metal analysis, correlation analysis.

**Introduction :**

In the modern world "Environmental Pollution" is a burning topic of interest, which, perhaps, affecting all of us directly or indirectly. During the last few decades rapid growth of human population and accelerated pace of urbanization and industrialization has led an adverse effect on the environment. Indeed, the discharge of organic and inorganic compounds from industry and agricultural sectors poses severe dimensions to the environmental pollutions in the twenty first century. Today, almost everything around us, e.g. the air we breathe, the water we drink, and even the soil we grow food, are very severely polluted. Water is highly complicated fluid present on this planet, and offers an essential role towards the development of life on this planet. Eventually, water very similar to light is an important raw material for the process of photosynthesis. From the latest reports, almost 70% of water in India has become polluted due to the discharges of domestic sewage and industrial effluents into natural water source, such as river, streams as well as lakes and pollute the underground water resources (1-4).

Raver is well-known region for supplying banana, not only in Maharashtra but also in India. However, the dark site of such huge production of the banana is the use of high amount of chemical fertilizers, which possibly have an adverse effect on the natural resources like soil and water up to certain extent. Taking this in consideration a systematic study has been planned to characterize soil and water courses

throughout Raver region, both the pre-monsoon and post-monsoon analysis of selected water samples was performed very aptly. The results of physico-chemical and metallic studies have been discussed in the following sections for 30 water sampling stations:

**Materials and methods :****Water Sampling :**

The samples were collected from a water source of the Raver region. The samples were collected in well sterilized and pro cleaned glass bottles with tight lid for physico-chemical measurements and for D.O. measurements were done at the time of sampling.

**Methodology :**

Standard procedures (APHA 1995) have been followed for the Determination of various physico-chemical and metallic parameters (5). In order to calculate correlation among 30 different pairs of following water quality parameters has also been carried out and the results are discussed in the following section (6).

**Results and discussion :**

The effect of bombardment of fertilizers and pesticides on the physico-chemical and metallic properties of ground water courses of the Raver region are examined and tabulated in Tables 1 and 2 for pre-monsoon and post-monsoon study. In the study region pre-monsoon time is the preparation time i.e. preparation of land for seeding in monsoon, and





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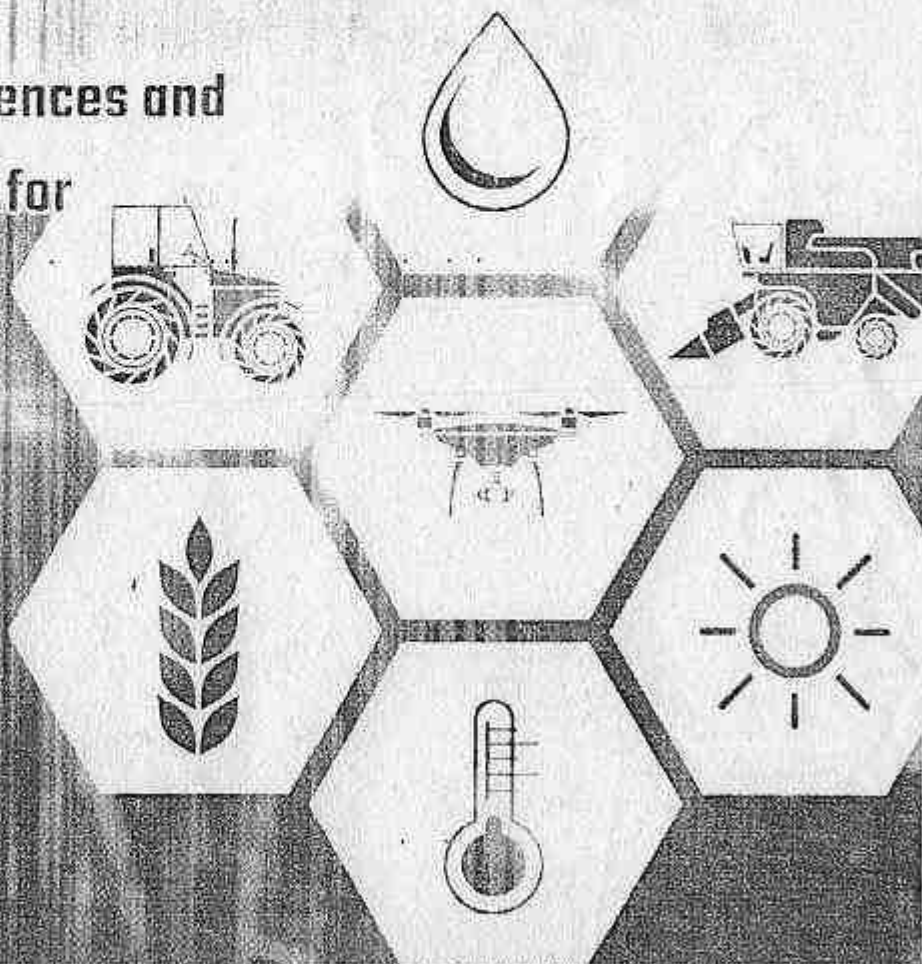
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## Histopathological alterations in gills of freshwater bivalve, *Lamellidens marginalis* (Lamarck) after acute exposure to Thiamethoxam and Triazophos

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### ABSTRACT

Present study was carried out to study gills histopathology in the freshwater bivalve, *Lamellidens marginalis* after acute exposure to Thiamethoxam and Triazophos. Several histopathological changes were observed in the gills of bivalves after exposure to the pesticides. Histopathological changes observed microscopically showed damages in the gills of bivalves exposed to Thiamethoxam and Triazophos, while gills of bivalves of control groups exhibited normal architecture. Increasing degrees of damage in the gills was observed in the bivalves exposed to Triazophos as compared to Thiamethoxam.

**Key words:** Histopathology, acute, gills, *Lamellidens marginalis*, Thiamethoxam, Triazophos.

### INTRODUCTION

Contamination of aquatic systems has become a serious ecological problem all over the world from the last few decades. Contaminants like heavy metals, pesticides and persistent organic pollutants (PAHs, PCBs, etc) are the most common anthropogenic pollutants that enter the aquatic systems and increased alarmingly. Due their toxicity, genotoxicity, persistence, bioaccumulation and biomagnification in the food chain (Sunjog *et al.* 2016) they attract increasing attention in environmental studies. The occurrence of contaminants has the potential to affect the quality of aquatic ecosystem. Pesticides are widely used in agriculture for pest control (Monteiro *et al.* 2006). The aquatic ecosystem is facing the threat of biodiversity loss due to indiscriminate use of pesticides (Rahman *et al.* 2002) in order to improve the agricultural productivity to match the explosive population growth rate is a global phenomenon. Evaluation of the impacts of contaminants on the wellbeing of aquatic organisms and ecosystems is important to prevent harmful impacts of contamination on their structure and function.

Biomarkers are biological indicators from an exposure to a stressor

