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**Shri Shivaji Science and Arts College, Chikhli.**  
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3rd Cycle

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**Research, Innovations and Extension**

**QnM-3.3: Research Publication and Awards**

**3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year**

Sr. No.	Name of Author	Title of the Book/Chapter/Proceeding Paper
1	Dr. Vanita Pochhi	Pharmacognostical ethnopharmacological and phytochemical study of careya arborea roxb
2	Dr.Sunita Kalakhe	Challenges facing Indian agriculture: Regarding use of pesticides
3	Dr. Vanita Pochhi	Tribal medicine formulation (TMF) used by tribal practitioners for foot and mouth disease in animals from buldana district maharashtra
4	Dr. M.T. Nikam	Fluoride content of man reservoir shirla nemane district buldana india
5	Dr. Vanita Pochhi	Phytochemical and physico-chemical analysis of carlluma adscendens (ROXB)
6	S.L.Kumbhare	waste water treatment by using nanomaterial and nanocomposites
7	N.B.Thakare	optical limiting in gelatin stabilized CU-PVP nanocomposites colloidal suspension
8	Dr. A. M. Garode	Bacteriological analysis of public place drinking water from buldana district (M.S.)
9	Dr. A. M. Garode	Bacteriological and physico-chemical characteristics of ground water in chikhli town buldana district maharashtra India
10	Dr. A. M. Garode	Microbiological evaluation and antibacteterial properties of toothpaste
11	Dr. A. M. Garode	Study of bacteriological quality of street vended chinese food
12	Dr. A. M. Garode	Bacteriological analysis of vegetable sold in market study of contamination from agriculture land to market
13	Dr. A. M. Garode	Sanitation & Hygiene in indian trains determination of bacterial load on toilet door handles of train
14	Dr. A. M. Garode	Studies on hand hygiene of food handlers based on the bacteriological examination
15	Dr. A. M. Garode	Microbiological standard of mineral water from mineral water plants
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17	Dr. A. M. Garode	Biological determination of beauty soap
18	Dr. A. M. Garode	Biological evaluation of Honey Sold in the Market
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21	Dr. Ganesh Malte	Placement of stress
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23	Dr. Vanita U. Pochhi	Evaluation of the Medicinal plant Resources from Ambabarva Forest, Dist. Buldana and Strategies for Conservation
24	S. A. Salve	Kantowski-Sach-Bounciing Cosmological Model with Viscous Fluid
25	S. J. Kokode	The role of Traditional Sports in physical fitness and health



Shri Shivaji Education Society, Amravati's

**SHRI SHIVAJI SCIENCE & ARTS COLLEGE**  
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**Dr. V. U. Pochhi**

**Coordinator**  
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## PHARMACOGNOSTICAL, ETHNOPHARMACOLOGICAL AND PHYTOCHEMICAL STUDY OF CAREYA ARBOREA ROXB.

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### ABSTRACT

*Careya arborea* Roxb is a medium size deciduous tree. It is a medicinal plant used in Ayurveda in the treatment of human and animal's ailments *Careya arborea* belongs to family Lecythidaceae and commonly called as 'Kumbhi'. The present paper reveals updated information on pharmacognostical screening studies.

**Key Words:** Ethnopharmacological, *Careya arborea*

### INTRODUCTION

The plant may be considered a biosynthetic laboratory, not only for the chemical compounds such as carbohydrates, proteins and lipids that are widest food by human being and animals glycosides, alkaloids, volatile oil, tannin etc. that execute a physiologic effect.

Tribals and other common man used plant and plant parts to cure their ailments as well as their domestic animals, As the medicinal plants has got importance to cure different ailments, which may not be cured by modern veterinary medicines.

*Careya arborea* is a medicinal plant used in Ayurveda and Chinese medicine

<b>Taxonomic</b>	-	<b>Classification</b>
Kingdom	-	Plantae
Division	-	Angiosperms
Class	-	Eudicots
Subclass	-	Asterids
Order	-	Ericales
Genus	-	Careya
Species	-	arborea
Vernacular name	-	kumbephal

### MORPHOLOGICAL FEATURES

- 1) A large deciduous tree with height above 20 m.
- 2) The suitcase of bark is thick rough and dark brown
- 3) Leaves are simple, alternate crowded at the ends of branches, reddish when young, abovate oblong, crenate margin
- 4) Fruit is drupe many seeded, depressed globose crowned by sepals. Fruit skin is Leathery, pulp fleshy, not splitting
- 5) Seeds albuminous, dark brown in colour, oval, ellipsoids, 1.5 to 2 cm long Indehiscent testa, hard, and wrinkled



Fig. No. 1 *Careya arborea* Roxb.

### ETHNOPHARMACOLOGICAL USES

Powder of fruits mixed with water in the proportion of one fruit powder in one litre, the decoction is sieved through cloth and given once in a day to animals for two to three days to cure tympany. Fruit powder of *Careya arborea* Roxb. *Sapindus emarginatus* Vahl. Mixed with *Curcuma longa* L. Powder and decoction is prepared in whey. One litre decoction is given twice a day in dysentery.

Bark crushed with curd and administered orally for debility in cattle (Murthy, E. N. et al. 2007). The bark of *Careya arborea* Roxb., *Madhuca longifolia*, L. one piece of *Cissus quadrangularis* L. plant and few aerial root tips of *Ficus bengalensis* L. are made into a paste and applied on bone fracture in cattle (Jain, S. K. 1981). Fruit extract is given orally in Stomach ache (Patil, D. A. 2010).

### MATERIAL AND METHODS

Mature fruits from a *Careya arborea* tree growing in the Ambaberva forest were collected. The botanical identity of the tree was established by



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 22-23 March, 2018

**CERTIFICATE**



This is to certify that Prof./Dr./Mr./Ms. V.U. POCHHI  
 of SHRI SHIVAJ SCIENCE AND ARTS COLLEGE, CHIKHOLI DISTT. BULDANA  
 has actively participated in the International Conference on Recent Trends in Science &  
 Technology held on 22<sup>nd</sup> & 23<sup>rd</sup> March, 2018 and has presented a research paper entitled  
PHARMACOGNOSTICAL, ETHNOPHARMACOLOGICAL AND PHYTOCHEMICAL STUDY OF CAREYA ARBOREA  
ROXB.  
 during technical session of the conference.

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नेक पुनर्मूल्यांकन 'ब \*\*' दर्जा प्राप्त

भारतीय कृषिक्षेत्रासमोरील आव्हाने व संधी  
विशेषांक

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प्रकारच्या संभाव्य ग्राहकांचा विचार करून विविध विमा उत्पादने निर्माण करावी जेणे करून विमा एजंटसना अधिकाधिक पॉलीसीधारकांच्या संख्येत वाढ करता येईल.

७. भारतीय आयुर्विमा महामंडळाने नियमित कालांतराने आपल्या कंपनीचे प्रतिनिधीत्व करणा-या विमा एजंटच्या कार्याचे मूल्यमापन करावे.

संदर्भ :

- १) www.licindia.in .
- २) www.irda.gov.in .
- ३) www.mahades.maharashtra.gov.in .
- ४) LIC annual Report – 2003-2013.
- ५) Irda annual Report – 2003-2013.
- ६) प्राथमिक तथ्य संकलन (विमा एजंटची मुलाखत प्रश्नावली).



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## भारतीय शेती समोरील आव्हाने : किटकनाशकांच्या वापरासंदर्भात

प्रा.डॉ.सुनिता कलाखे,

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जि. बुलडाणा.

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### प्रस्तावना(Introduction)

भारतात शेतीव्यवसायाला अर्थव्यवस्थेत अन्यन साधारण महत्व आहे. भारतातील ६७ टक्के लोक हे शेतीवर अवलंबून आहे. निर्वाहासाठी शेतीवर अवलंबून राहणा-या लोकांचे प्रमाण अभ्यासले असता गेल्या विसाव्या शतकाच्या पाउणशे वर्षांच्या काळात हे प्रमाण ७० टक्के आसपास स्थिर राहले आहे. भारतीय श्शेतीव्यवसायाचा राष्ट्रीय उत्पन्नातील हिस्सा पाहला असता तो १९५०-५१ पासून आतापर्यंत ५५.३ टक्के ते २९.४० टक्के एवढा राहला आहे. कृशी विकास आणि मालाला योग्य भाव मिळाला तरच देशाच्या अर्थव्यवस्थेला चालना मिळत असल्याचे दिसून येते. शेतीचा राष्ट्रीय उत्पन्नात जरी १/३ वाटा असला तरी भारताचा औद्योगिक आणि इतर क्षेत्राचा विकास शेतीच्या प्रगतीवर अवलंबून आहे. कमी उत्पादन, पाउसाचा लहरीपणा, निकृष्ट दर्जाची बियाणे यामुळे शेती व्यवसाय घट्यात आला असतांना देशातील शास्त्रज्ञानी नवनविन बियाण्याचा शोध, कमी काला वधीत जास्त उत्पादन देणारे वाण शोधून काढली. शेतीच्या उत्पादनात मोठी हरीत क्रांती होउन देश अन्नधान्याच्या बाबतीत स्वयंमपूर्ण झाला. नवनविन संकरीत वाण, रासायनिक खतांचा मोठया प्रमाणात वापर आणि वेगवेगळया रोगांपासून पिकांचे संरक्षण होण्यासाठी नवनविन किटकनाशके, मागणी तसा पुरवठा या न्यायाने आपल्या देशात आली. भ्रष्ट शासन व्यवस्थेमूळे जगाच्या पाठीवर बंदी असणारे औषधे



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One Day Interdisciplinary National Conference on "Indian  
Agriculture: Challenges and Opportunities" and participated in the  
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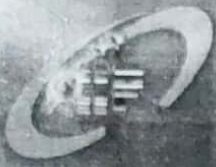
*She also presented a research paper.*

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## Tribal medicine formulation (TMF) used by Tribal Practitioner's for Foot and Mouth disease in Animals from Buldana district, Maharashtra

Dr. Vanita. U. Pochhi .

Shri Shivaji Science & Arts College,  
Chikhli. Distt. Buldana

\*\*\*\*\*

### Abstract:-

In the present investigation, an attempt has been made to appraise the ethno-veterinary medicinal plants of Buldana district. Plants are utilized extensively as raw drugs for many formulations in traditional system of medicine. Our country has a long tradition of using herbal products for livestock. This indigenous traditional knowledge of medicinal plant of various ethnic communities, where it has been transmitted orally for centuries n fast disappearing from the face of the earth due to the advent of modern technology and transformation of traditional culture. The paper deals with the selected 10 ethno veterinary medicinal plants which is used in treatment of foot and mouth diseases in animals from Buldana district.

**Key words:-** Ethno veterinary medicinal plants. Tribal medicine formulation.

### Introduction:-

The nature has provided an absolute resource of remedies to cure the several ailments of mankind as well as Animal health care. Ancient human beings were closely associated with other animals especially the domesticated ones and with the plants those were found in and around their close vicinity as well as with other plants

which were used for their daily necessities like food, shelter, clothing and medicines. Ancient man has discovered natural products to satisfy his needs including relief from his personal ailments as well as fellow domestic animals. This has been tested through lapse of time and later on these findings were transmitted to the succeeding generation through the words of mouth very little of this knowledge has recorded so far and it seems that these valuable time tested findings are on the verge of extinction. A part of such knowledge is tried to be retrieved in this paper.

### Methodology:

#### I. Tribes and culture:-

This tribal 'Bhil' lives in the tropical evergreen forest association with nature referring to the dense thickets they inhabit. The tribal are involved in collecting of non timber forest products like honey, lichens, soapnut etc.

#### II. Interaction with tribal healers:-

The indigenous information of the community herbalists tribal practitioners, other rural traditional hearers and the ethnomedicinal plant drugs (EMP) practiced for medicinal utility were collected through extensive base line survey with tribal medicinal men (TMM) followed by personal interviews and semi-structured questionnaire prepared for documentation of traditional knowledge.

#### III. Collection of Ethno-medicinal plant drugs:-

The plants of ethno-veterinary significance were collected in vegetative as well as blooming condition, simultaneously jotting down the vernacular names. The morphotaxonomical description of each plant taxon was done and identified with the help of different floras. The collected data arrange with alphabetically name of plant, local name, parts used and mode of Administration.

### Observation:-

#### Foot and mouth disease

Mouth disease attacks the animals when they eat newly raised grass on the ground in the month of June. The symptom of the disease is



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## Fluoride content of Man Reservoir, Shirla Nemane, District. Buldana, (MH), India.

Dr. M. T. Nikam,  
&

Dr. C. D. Morey

Department of Zoology

Shri Shivaji Arts, Commerce & Science  
College, Chikhli, Dist. Buldana

\*\*\*\*\*

### Abstract:

The study was carried out monthly over a period of one year from Jan – 2016 to Dec. 2016 to examine the variations of fluoride content, pH and temperature of Man reservoir water at ShirlaNemane for analyzing the suitability of water for drinking, irrigation, industrial and aquatic biota purposes.

An average fluoride concentration of water is 0.25 mg/l having range of 0.19 mg/l in summer to 0.54 mg/l in winter, while in Dec. 2016 was 0.20 mg/l having range of 0.18 mg/l in summer the prescribed standards for drinking. The pH was 7.5 in the range of 7.6 to 8.4 during 2016 is within the prescribed limits. Maximum pH was in January, while minimum in August. Monthly temperature variations of water was in the range of 24.2°C to 34°C.

**Keywords:** Fluoride, pH, Temperature, Man Reservoir.

### Introduction:

Water is the most abundant and most useful compound in the world and hence it is called "Jeevan" in Sanskrit. It is one of the most difficult substances to obtain in pure state. It has the ability to dissolve different materials which include physical, chemical, biological and radiological

impurities. It is an essential component for survival of life on the earth, which contain minerals important for humans as well as for earth and aquatic life. Fluoride is one of the most important parameters in water quality management. Fluoride is an element of high biological activity. Fluoride should have in the proper amount in plants, humans and animals. Inadequate intake of fluoride causes various physiological disorders in humans stated by Choubisa *et al.*, (2001); Valithan. (2001); Sargaonkar and Deshpande (2002); and fluorosis in various livestock by Sahoo *et al.*, (2003); Water, soil, air and most foods are the sources of fluoride stated by Gupta *et al.*, (2002). Hence, it is important to monitor the fluoride status, pH and temperature of major sources of water in Buldana and to analyse the quality of water for drinking, irrigation, industries and aquatic biota. Thus, this study reports the fluoride concentration of Man Project, Buldana district.

### Materials And Methods :

Man Dam is an earth fill dam on Munriver near Khamgaon in the Buldana district in the state of Maharashtra in India. The height of the dam above lowest foundation is 30.2 m (99 ft), while length is 1.466 m (4.810 ft) and the gross storage capacity of Man Dam is 42.480.00. It is Major reservoir supplying the water for agriculture irrigation, drinking and domestic use, industries and aquatic biota in Buldana District. Every month during Jan, 2016 to Dec, 2016, one liter of water samples were collected from Man project reservoir at ShirlaNemane in clean plastic bottle with cork. The bottle were sealed, labeled and brought to the laboratory before noon of the same day and analyzed for fluoride by digital fluoride meter. The pH and temperature of water samples were measured at the same spot, time and period by using standard methods of APHA (1998).

### Observation :

Mean fluoride concentration (mg/l), pH and temperature of water for every month from Jan- 2016 to Dec, 2016 is given in table No.1.



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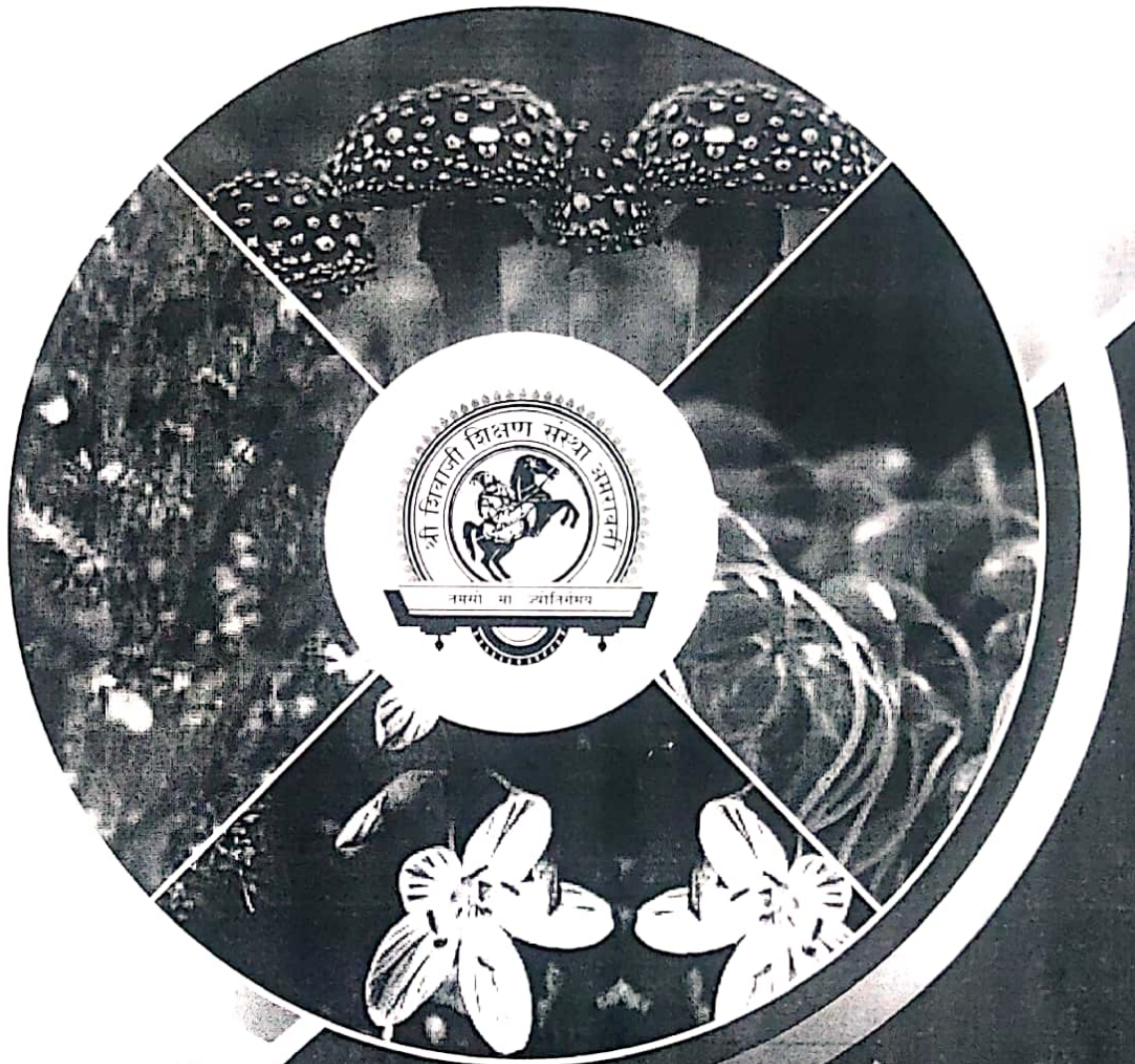
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In Collaboration with

**S. G. B. Amravati University Botany Teachers Association, Amravati**

STUDY OF ETHNOMEDICINAL PLANTS USED BY TRIBALS FOR  
HEPATIC DISEASES IN WEST VIDARBHA

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**Abstract**

West Vidarbha in Maharashtra has been rich source of plants specially of ethnomedicinal origin. Tribal used them in different way according to their needs, particularly as food & folk medicine. Generally the whole plant is not used for the medicinal preparation. The part used in the preparation are leaves, rhizomes, bark, fruits, seeds, wood etc. The various plants used to treat Hepatic i.e. liver diseases such as *Phyllanthus niruri*, *Aloe vera*, *Tephrosia purpurea*, *Tinospora cordifolia*, *Calotropis procera*, *Azadirachta indica*, *Cynodon dactylon*, *Eclipta alba*, *Lawsonia intermis*. etc. All these plants contribute in the recovery of liver diseases with negligible side effects as compared to synthetic drugs.

**Keywords:** Ethnomedicinal, West Vidarbha, Hepatic, folk medicine.

PHYTOCHEMICAL AND PHYSICO-CHEMICAL ANALYSIS OF  
*CARALLUMA ADSCENDENS* (ROXB.)

Pochhi, V. N.

Department of Botany, Shri Shivaji Science & Arts College, Chikhli. Distt. Buldana (MS)

Email ID: [vanitapochhi@gmail.com](mailto:vanitapochhi@gmail.com)

**Abstract:**

*Caralluma adscendens* belonging to the family Asclepiadaceae and is used to treat animal diseases. This species popularly known as "Rankar". In the present investigation, an attempt has been made to appraise phytochemical and physicochemical analysis of *Caralluma adscendens*. The phytochemicals have two categories i.e primary and secondary constituents. Primary constituents have chlorophyll, proteins sugar and amino acids. Secondary constituents containsterpenoids, alkaloids, flavonoids, saponins, tannins etc. The phytochemical parameters were analyzed evidently for their active presence in the aqueous extracts followed by organic solvents like ethanol, petroleum ether and methanol extracts. The presence of active secondary metabolites in the extracts of *Caralluma adscendens* may have profound activity and justifies the status for preparation of crude potential drug used by the tribal people

**Keywords:** Phyto-chemical and physicochemical, analysis



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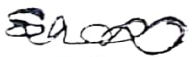
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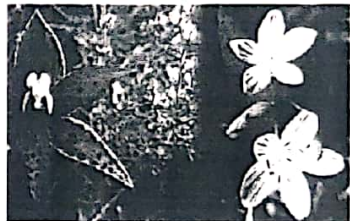
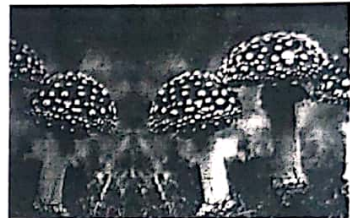
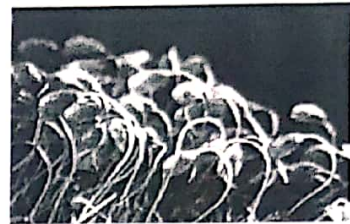
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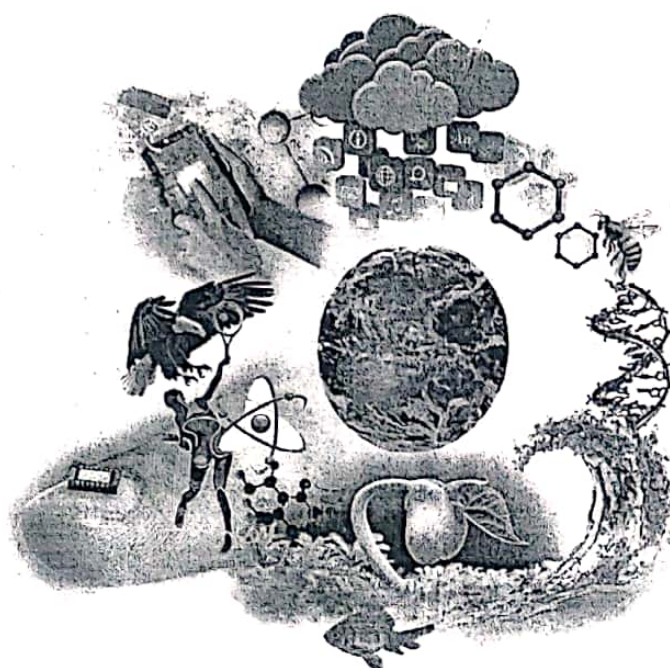




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## WASTEWATER TREATMENT BY USING NANOMATERIALS AND NANOCOMPOSITES

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### ABSTRACT

*Water contamination with toxic metal ions and organic dyes represent a serious worldwide problem in the 21st century. A wide range of conventional approaches have been used to remove these contaminants from wastewater. Recently, nanotechnology has been given great scope for the fabrication of desirable nanomaterials with large surface-to-volume ratios and unique surface functionalities to treat these pollutants. Amongst these, oxide-based nanomaterials are promising new materials for Wastewater treatment. We study a broad-spectrum overview of recent developments in the area of oxide-based nanomaterials, such as Fe<sub>3</sub>O<sub>4</sub>, ZnO and TiO<sub>2</sub>, as well as their binary and ternary nanocomposites, for the removal of various toxic metal ions and organic dyes.*

**Keywords :** Nanomaterials , Metal Oxides, Nanocomposite , Wastewater, Toxic Metal Ions

### INTRODUCTION

Today's world faces alarming challenges in the rising demand for clean drinking water, and conditions are particularly bad in developing countries. The scarcity of water in terms of both quantity and quality has become a significant threat to the well-being of humanity. In particular, the quality of drinking water has become a serious concern, with the rapid escalation of industrialization towards a developed society. The waste products generated from the textiles, chemicals, mining and metallurgical industries are mainly responsible for contaminating the water. This contaminated water contains non-biodegradable effluents, such as heavy metal ions (arsenic, zinc, copper, nickel, mercury, cadmium, lead and chromium, etc.) and organic materials that are carcinogenic to human beings and harmful to the environment. Water contaminated with arsenic (As) causes cancer of the skin, the lungs, the urinary bladder and the kidney, as well as other skin problems such as pigmentation changes and thickening (hyperkeratosis). Another toxic metal pollutant is lead which, if present with a concentration of >70 µg/dL in blood levels (WHO), can damage various bodily systems, including the nervous and reproductive systems and the kidneys, and it can also cause high blood pressure and anaemia. Large amounts of lead (>100 µg/dL) in the body can lead to convulsions, coma and death. However, the presence of nickel at higher levels in the human body can cause serious lung and kidney problems as well as gastrointestinal distress, pulmonary fibrosis and

skin dermatitis. A further neurotoxin is mercury, which can cause damage to the central nervous system, and its concentration within the range of 0.12–4.83 mgL<sup>-1</sup> may cause the impairment of pulmonary and kidney function, chest pain and dyspnoea. High levels of cadmium exposure (1 mgm<sup>-3</sup>) may result in several complications leading to death. In addition to heavy metal contaminants, other hazardous contaminants found in the environment are organic dyes, discharged from textile manufacture and other industrial processes into the water. The dyes presently used in industries include methylene blue (MB), Rhodamine B (RhB), methyl orange (MO), Rhodamine 6G (Rh6G) as well as organic chemicals (phenol and toluene), and the release of these into lakes or other water sources has become a serious health concern. Various treatment techniques and processes have been developed for the removal of toxic contaminants from wastewater, such as adsorption, ion exchange, chemical precipitation, membrane-based filtration, photodegradation, evaporation, solvent extraction, reverse osmosis, and so on. Among these, adsorption and photodegradation are conventional but efficient techniques for removing toxic contaminants from water. For this, numerous adsorbents/catalysts have been developed for the removal of such hazardous chemicals from wastewater. However, most of them suffer from certain drawbacks, such as high capital and operational costs for treatment, and the disposal of the residual metal sludge. Thus, there is urgent demand for the development of low-cost materials and better processes for providing clean drinking



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## Optical Limiting in Gelatin Stabilized Cu-PVP Nanocomposite Colloidal Suspension

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**Abstract.** This article illustrates investigations on optical limiting properties of Cu-PVP nanocomposite colloidal suspension. Gelatin stabilized Cu nanoparticles have been synthesized using chemical reduction method and thin films in PVP matrix have been obtained using spin coating technique. Thin films have been characterized by X-ray diffraction (XRD), Ultraviolet-visible (UV-vis) spectroscopy, etc. for structural and linear optical studies. Optical limiting properties of Colloidal Cu-PVP nanocomposites have been investigated at 808 nm diode CW laser. Minimum optical limiting threshold was found for GCu3-PVP nanocomposites sample. The strong optical limiting is thermal in origin as CW laser is used and effects are attributed to thermal lensing effect.

**Keywords:** Cu nanoparticles, Cu-PVP nanocomposite, optical limiting.

### INTRODUCTION

Metal nanoparticles have obtained tremendous interests because of the ease with which they can be synthesized and modified chemically [1]. Colloidal metal nanoparticles have been known since the end of the middle ages. Interest in copper nanoparticles (Cu NPs) arises from the useful properties of this metal such as the good thermal and electrical conductivity at a cost much less than silver and gold. This leads to potential application in cooling fluids for electronic systems and conductive inks [2]. Cu NPs are also widely used as catalysts for various reactions including water-gas shift and gas detoxification reactions, and as electrocatalysts in solid oxide fuel cells [3, 4]. On the other hand, due to their good biocompatibility and surface-enhanced Raman scattering (SERS) properties, Cu NPs may have potential applications as nanoprobes in medical diagnosis and biological analysis [5]. Due to surface plasmon resonance (SPR), Cu NPs exhibit enhanced nonlinear optical properties (NLO), which could result in many applications in optical devices and NLO materials, such as optical switches or photochromic glasses [6].

In this study, we have synthesized Cu NPs in colloidal form stabilized by gelatin. Copper colloids stabilized by gelatin having a stability upto six months were mixed with polyvinyl pyrrolidone (PVP) and thin film nanocomposites were obtained by the spin coating technique. Cu NPs and Cu-PVP thin films were characterized by various techniques for structural, optical and morphological studies. Optical limiting properties of Cu-PVP nano colloids have also been investigated using diode laser at 808 nm. The results and discussions have been presented here.

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## Bacteriological analysis of public place drinking water from Buldana district (M.S.)

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&

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### Abstract:

On the basis of the result differences in quality and quantity of the microbiological parameters between the different places of collection of water sample. Indeed, salmonella typhi was more frequently detected in bus stand water sample also Escherichia coli and staphylococcus aureus were detected in higher number especially in the water from dispensers. The contamination of the water dispenser may be derived from the poor sanitation low level of hygiene the regular refilling of the bottles and uncontrolled parameters. Therefore, a periodic adequate disinfection of water dispensers had to be indicated in order to keep the level of microbiological contamination under control. To avoid problems with cross-contamination of machines or devices, it is extremely important to ensure that the staff responsible for the cleaning and sanitizing of water dispensers are correctly trained and are aware of the potential for contamination during the cleaning process.

**Keyword-** Public places, drinking water, Bacteriological study.

### Introduction

Water is the most important natural resource in the world, since life cannot exist without water. The health and well being of a



## Bacteriological and Physico-chemical characteristics of Ground water in Chikhli town Buldana District, Maharashtra (India).

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### Abstract

Water is an essential constituent of all animals, plants and human beings. Different sources of water like rain water spring water and mineral water meet requirement of each living organisms, inspire of abundant water resources 1/3<sup>rd</sup> population has to depend on drinking water scarcity, is always burning problem. The present study was conducted for bacteriological and physico-chemical analysis of drinking water. The bacteria isolated from bore well and well water. The people from interior of Buldana district of Maharashtra states uses well and bore well water for spread of water born diseases so it is necessary to analyzed the present water. The physico-chemical analysis Buldana district revealed that PH of ranging from 5.9 to 6.9. the nitrate values were ranging from 0.25 to 17.1 Mg/l.the total solid and TDS values were ranging from 200 to 400 Mg/l and 300 to 500 Mg/l respectively. The result reveals that PH, nitrate, total solid and TDS were above permissible limits in accordance with world health organization standards.

**Keywords** -Ground water, Bacterio & physico-chemical study, well & bore well, standard limit.

### INTRODUCTION

Water is indispensably and intricately connected to life without which there is no life. This is the reason for which water must given the necessary attention at all time. World is covered by water and land, about 28.89%area is covered by land 71.11%area is covered by water if we distribute the percentage of all water we can see about 97%wateris saline, 3% is freshwater and out of which about 30.1% is ground water, this percentage shows the minimum aviability of different pathogenic bacteria(E.coli).we will discuss from ground water and preventive measures to avoid the pathogen city.

Good quality water is an essential resource for the continuity of ecosystem. it is prerequisite to healthy living hence the development of water resources is a significant part of integrated community development police report by indicated that water borne diseases killed more than six million children every yearly arising from lack of access to save drinking water. Various researchers have reported on the serious and severe illness liked typhoid fever, cholera and dysenry as being caused by the use of contaminated water. Also water of poor physico-chemical quality may have adverse health effect causing unavoidable economic and human losses. Indicated that around 2.6(6,000 people a day),90% of whom are children, die of faecally-transmitted diseases while statistics revealed inadequate sanitation as the underlying cause of 2,213000 deaths per year due to unsafe water and hygiene especially in developing countries.(Talabie et al.,2014)

In 1990, WHO and UNICEF pooled resources and experience to form a joint monitoring program (JMP) in water supply and sanitation. The JMP has persuaded and helped many developing countries to designs and establish national monitoring

operations for drinking water and sanitation. It collects its data from 38 African, 23 Asia-pacific, 5west Asia, and 18 Latin American and Caribbean national monitoring centers, and issues regular status reports using 1990 as the baseline year. It is widely considered the best source of global data on water and sanitation access and availability in the developing countries. Water borne infection diseases are transmitted primarily through contamination of the water sources with excreta of human and animals who are either active cases or carriers of the diseases (Doyle and Erickson et al., 2006).

### Materials and Methods

**Collection of sample:-** Drinking water samples were collected from different points of chikhli city, ie.well water and bore well water, 50 samples were collected to analyzed, and samples were collected in sterilized bottle. An analysis was carried out after 2 hrs of collection keeping in view the standards of world health organization (WHO)

### Enumeration and Isolation of total and faecal coliform:

The bacteriological analysis of collected water samples was carried out for the presence of coliform E.coli was determined by using methods as recommended by APHA.the microbial quality of the drinking water samples were assessed by making use the multiple tube fermentation test ( MPN/100ml) ( APHA, 1998).

Total coliforms were estimated by using the 5-tube most probable number (MPN) method. Macconkey broth was used for the presumptive tests. Inoculates the tube of macconkey broth are incubated at 37°C for 24hrs and 48 hrs. Positive presumptive tests were confirmed by lactose fermenting with acid and gas production in macconkey broth with color change. Colonies with characteristic in macconkey broth as well as



## **Microbiological Evaluation and Antibacterial Properties of Toothpaste**

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### **ABSTRACT**

The Present study was carried out to assess the microbiological properties & evaluation of antibacterial properties of toothpaste. Four branded toothpaste were purchased from the market and transferred to the laboratory for microbiological examination & antibacterial properties as to study. The assessment performed viable microbial count like Standard Plate Count, isolation of pathogens on selective media, gram staining, endospore staining, Biochemical test, enzyme test, antibiotic test by disc diffusion method etc. Standard Plate Count shows bacterial growth on some sample & coliforms growth. Pathogenic microbes *S. aureus* & *E. coli* were isolated in some samples. Antibiotic sensitivity test by disc diffusion method shows the clear zone of inhibition on EMB & MSA. That indicates the extent of the test organism is inability to survive in the presence of test antibiotic.

### **I. INTRODUCTION**

Toothpaste is a paste thick; soft moist substance used on a brush for cleaning one's teeth. Toothpaste is used to promote oral hygiene it serves as an abrasive that aids in removing dental plaque & food from the teeth assist in suppressing halitosis & deliver active ingredients to help to prevent tooth decay & gum diseases. Salt and sodium bicarbonates are among materials that can be substituted for commercial toothpaste.

Apart from water toothpaste contains variety of components. The three important ones being abrasive. (Origin of heavy metals) flavors, sweeteners / binding agents/preservative) when considering the nature of toothpaste it prompts a suitable environment to grow & create product spoilage are health risk to human. Therefore one of the important parameters is to study the bacteriological examination of toothpaste.

### **II. MATERIAL & METHODS**

The nutrient medium such as MSA, BSA, EMB, CA, MacConkey broth, Nutrient agar & reagents used are of Himedia India.

#### **Sample Collection:**

Four branded sealed samples of toothpaste are purchased from market and taken to microbiological laboratory for bacteriological investigation.

#### **Methods:**

A. Plate count by Standard Plate Count method was carried out to analyze four toothpaste samples.

B. All toothpaste samples inoculated on following selective media and other nutrient medium for isolation of pathogenic and coliform bacteria. The bacteria isolated was identified by gram staining, endospore staining, biochemical test and enzyme test.

C. Antibacterial test of toothpaste is done by disc diffusion method.



## Study of Bacteriological Quality of Street Vended Chinese Food

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### ABSTRACT

The present study was carried out to assess the microbiological quality of street vended Chinese food samples which was obtained from two different local Chinese stalls. Totally eight food samples were collected (1 mantarian, 2 soup, 3 noodles, 4 fried rice) from the vendor in aseptic polythene bags and transported in a low temperature refrigerator for some time and then transferred into the laboratory for bacteriology analyses. The assessment parameters include viable microbial counts like standard plate count, isolation of pathogenic microorganisms on selective media, Gram staining, Biochemical test, enzyme test etc. The SPC shows uncountable bacteria and coli forms along with pathogenic microbes such as salmonella typhi, pseudomonas, S aureus. E.coli shows presence. This shows poor unhygienic status of street food.

### I. INTRODUCTION

Ready-to-eat food that can be brought directly from the street vendor or local market and eaten immediately i.e. without necessarily having to cook before consumption as they have been already prepared by the vendors. Foods are defined as ready to eat food and beverages prepared and sold by vendors especially in street and at other public place (FAO, 1987) these are popular worldwide and provide readily available delicious at a cheaper rate (Mosupye at.2000). However, the unhygienic condition in which these foods are prepared, stored and served raise a question regarding their microbiological quality. These foods are endanger public health by causing various acute and chronic food borne diseases through pathogenic microbes or toxic substances present in them.

Most of the studies done on street foods in India and abroad indicate that these foods are not meeting the microbiological standards and are contaminated with various pathogens eg. E coli, vibrio, salmonella, eisteria etc. (chiou et al 1996). The present study performed from chikhli town shows similar outcomes.

### II. MATERIAL AND METHOD

#### Material :

##### [A] Sample collection

1. Food Samples were collected from two different locations of local food market from buldhana district. These vending sites were chosen because the market or local place in major junction town for many vendors.
2. The eight samples of street vended Chinese food of different categories such as 1 mantarian, 2 soup, 3 noodles, 4 fried rice, were purchased from two different stalls. These samples were collected in aseptic polythene bags.

#### Mediums:

Nutrient Mediums, Biochemical test medium and reagents used are of HI Media, India such as manitol salt Agar, Bismuth sulfite Agar, MacConkey broth Eosin methylene blue Agar etc.

#### Methods: (Collinsetal, 1989)

##### A. Total viable count bacteria by standard plate count.

From each sample by preparing serial dilution such as 1:10, 1:100, 1:1000, 1:10000 and plating with appropriate amount of natural agar total viable count is taken.



Certificate



## "Bacteriological Analysis of Vegetable Sold in Market, Study of Contamination From Agriculture Land to Market."

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### ABSTRACT

Vegetables get contaminated with pathogenic microorganism will growing in field during harvesting, post harvesting handling, processing and distribution. A number of studies have been carried out previously to detect the extent of microbiological contamination in fresh salad vegetables. The vegetable samples were analyzed from the total viable count (TVC) and the presence of pathogen such as *E. coli*, *S. typhi* and *S. aureus*. Result was found that the salad vegetables were showed a wide variation in total viable count ranging from  $2.5 \times 10^4$  to  $11 \times 10^5$  cfu/g. The percentage of pathogen on vegetable sample was found such as *E. coli* 77.77%, *S. typhi* 61.11% and *S. aureus* 72.22%. These vegetables are usually consumed without proper washing; there is the probability of consumers contracting pathogens if they get in contact with the vegetables. There is a need to promote awareness about the possible health hazards that could be due to poor handling storage and use of water on these vegetables for their freshness.

### I. INTRODUCTION

Enteric pathogens such as *E. coli* and *S. typhi* are among the greatest concerns during food related outbreaks (Buck et al., 2003). Several cases of typhoid fever outbreak have been associated with eating contaminated vegetables grown in or fertilized with contaminated soil or sewage (Beuchat, 1998). These increase in vegetables-borne infection may have resulted from increased consumption of contaminated vegetables outside the home as most spend long hours outside the home (Buck et al., 2003).

The attempt was made to study the bacterial flora present on fresh vegetables sold in market. The presence of pathogenic bacteria on the vegetables was serious issue regarding food hygiene and safety.

### II. MATERIAL AND METHOD

Total 36 samples of different salad vegetables such as spinach, cucumber, tomato, brinjal, cauliflower, coriander, capsicum, lady's finger, miserly were collected from local market and street vendors of

Chikhli town. Vegetable sample were brought sterile containers and analyzed within two hours of collection. A bacteriological analysis of vegetable sample collected and analyzed for bacteriological studies. The vegetable samples were analyzed for the total viable count (TVC). The presence of pathogens such as *E. coli*, *S. typhi* and *S. aureus* was determined by selective media (Collins and Lyne, 1998).

### III. RESULT AND DISCUSSION

The salad vegetables were showed a wide variation in total viable count ranging from  $2.5 \times 10^4$  to  $11 \times 10^5$  cfu/g at 37°C. vegetables get contaminated with pathogenic microorganisms while growing in field during harvesting, post harvesting handling, processing and distribution. Total 36 samples of vegetables were collected from local market of Chikhli. These all samples were taken for TVC and isolation of pathogenic bacteria. However, isolation of bacteria and total viable bacterial counts were performed on representative samples from each treatment using the standard plate count method.



## **“Sanitation & Hygiene in Indian Trains: Determination of Bacterial Load on Toilet Door Handles of Train.”**

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### **ABSTRACT**

Regularly, approximately 1.4 crore people transported by Indian Railway are most performed mode of transport for the masses in India. The main aim of this work is to prove the prevalence of pathogenic bacteria on door handles of trains toilet and coaches. Samples collected from the trains passing through Malkapur railway station of Buldana district.

The bacteria isolated were coliforms, E.coli, Pseudomonas, S.aureus & Salmonella. To summarize the contamination of train toilet & coach handles largely unnoticed but can causes serious infection such as Diarrhea, Dysentery, Thyphoid, Hepatitis & Food infection . Hence this will help to evaluate the effect of unhygienic sanitation on public health & ensure the need for basic sanitation practices at Indian railway station .

### **I. INTRODUCTION**

Railway are the most preferred mode of transport for the masses of India, running 9,000 trains reaching 8,000 stations & transporting approximately 1.4 crore passengers per day . One of the commitments of railway in the citizen charter on passenger services on Indian Railway is to provide safe & dependable train services to the passengers & ensure adequate passengers amenities in trains & railway station , which include provision of clean & hygienic surroundings both at train & railway stations. Indian railway might be hit by serious of problems including basic hygiene particularly unclean toilets that appear to be a biggest concern in mind of frequent travelers. A survey conducted earlier by some researcher, state that the unclean toilet & unclean coaches were the main issue. The microorganisms are ubiquitous & constitute chief part of every ecosystem. The transmission diseases through hand contact have been an area of major concern. Microbes in various environments live either freely are as parasite. Daily intrection of people contributes to spreading of diseases but a major source & spread of community acquired infection are fomites it includes toilet door in Indian railways. People are in danger from the use of such toilet

when the microbes enter the body through hand to mouth contact or hand to food contact. Public toilets have a large interchange of users who deposit on the doors handles their own microbial flora and other organism. The presence of pathogenic bacteria on handles is major source for transmission of diseases to vulnerable people. The present study showed the striking presence of pathogenic bacteria on the train toilet door handles of trains. This will be help to evaluate the effect of unhygienic sanitation on public health and ensure the need for basic sanitation practices at trains toilet handles:

### **II. MATERIAL AND METHOD**

#### **A. Sample collection:**

25 samples were collected from the trains toilet door handles and at entry door handles using sterile cotton swab moistened with nutrient broth from the trains passing through Malkapur Railway station Of Buldana District & transported to laboratory.

#### **B. Bacterial Analysis:**

The samples collected, inoculation performed on following medium.





## **Studies on Hand Hygiene of Food Handlers Based on The Bacteriological Examination**

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### **ABSTRACT**

The Bacteriological examination of food handlers in Hotels was assessed using standard bacteriological methods. The Sample was taken on sterile cotton swabs from the hands of food handlers and vendors in the hotel were assessed for bacteriological examination. There were four types of bacterial colonies which were isolated from hands of food handlers. Four genera of bacteria were isolated and identified. They were Staphylococcus Sp. E.coli, Salmonella Sp., Bacillus Sp. and Pseudomonas Sp., when their Morphology and Biochemical characteristics were compared with standard reference organism's. The presence of these bacterial isolates has been attributed to ineffective washing technique, rare changing of water used for washing hands and poor personal hygiene of the food handlers which could be enhanced by regular monitoring and supervision of the hotels by the authorities on food safety practices and regular education on food and personal hygiene.

### **I. INTRODUCTION**

According to WHO A food handler is a person with any job that requires him/her to handle unpackaged foods or beverages and involved in preparing, manufacturing, serving, inspecting or ever packaging of food and beverage items. Hand hygiene is the set of basic principles employed in the systematic control of environment condition during working, production, packaging, transportation, Storage, preparation, selling and serving of food. However hand itself can propose a health threat a problem that is in securing optimal hygienic status of hands of food handlers. The public health objective of health hygiene's and safety is the prevention of illness. This is Because of careless attitude of food handlers. In an Assessment of hands hygiene status among food handlers in hotels and street foods status in town Chikhli reports that the knowledge and practice of hand hygiene and safety was poor. Good and healthy hand is important and growing concern in food services. Biological contaminants such as bacteria constitute the major cause of severity ranging from mild indisposition to chronic or life- threatening illness or both. In developing countries such contaminated hands

are responsible for food borne disease such as cholera, Salmonellosis, E.coli gastroenteris, Typhoid, fever etc. hotels, street food status are commercial catering establishment that service the hotel campus popular both the consumes incidence of diarrhea and abdominal pains are mostly prevented at public place hospital or clinic following eating or the hotels and food status, such cases are presume to be "microbial and consuming" even though no clinic or laboratory findings are provides; There force hygienic status on hands of food handless is questionable. In most countries, food borne disease remains a public health predicament in spite of the improvement in hygienic standards, education of food handless. The hands of food handled can be pivotal as vector in the spread food-borne disease due to poor personal hygiene or cross-contamination. The risk of food borne disease illness due to contact hands or surface depends on both the level of contamination; as well as the probability of transfer and importance of contaminated surface in relation to potential transmittion of pathogens to food in apparent in food processing.

This study was carries to bacteriological examination from hands was sample of food handless.



## Microbiological Standard of Mineral Water from Mineral Water Plants

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### ABSTRACT

Water borne diseases continue to be dominant cause of water borne morbidities and mortality all over the world. In present study, a total of 50 water samples were analyzed from ten different mineral water plant sources. The percentage of *Escherichia coli* in total water plant sample was found to be 70%. The highest percentage of *Escherichia coli* was found in sample E and J as compared to other sample and the minimum percentage of pathogens as compared to sample I. All these waters might be contaminated due to various reasons. If such water is not purified properly, then it affects on the health of consumers. Ground water such as boreholes when properly constructed and maintained provide a relatively safer source of raw water and such water are to be taken for the purpose of purification it will be properly purified. Appropriate treatment process should be utilized for production of quality and safe water from mineral water plants.

**Keywords:** Bacteriological quality, mineral water, coliform.

### I. INTRODUCTION

Water is most important for living organism. Health of human and other organism directly related with safe water other than anything, that is why resource of drinking water are very important. The mineral water shall be manufactured and packed under hygienic conditions in properly washed and cleaned bottles in sterilized conditions. The water from mineral plant water is generally perceived as clean, of good quality and protected. Although waterborne diseases associated with consumption of mineral plant water are not found, but challenge and the different ideas were put forward to the world. For example Bottled water, mineral water plants, R.O. filters etc. Unfortunately sufficient safe potable water is not available everywhere in the country, either harmful chemical substances are found in the layers of earth which enter into water it may be contaminated due to coliform micro-organisms. If such water is consumed, the body suffers from water borne diseases. Due to this, it has become imperative to process and bottle safe potable water for the mankind in prevailing conditions (Hunter and Burge et al., 1987).

Around 19<sup>th</sup> century, outbreaks of diseases like cholera emphasized the necessity of disinfecting drinking water. The World Health Organization (WHO) estimated that about 1.1 bn people globally drink unsafe water (WHO, 2000) and the vast majority of diarrhoeal diseases in the world (88%) are attributable to unsafe water, sanitation and hygiene. Approximately 3.1% of annual death (1.7m) and 3.7% of the annual health burden (disability adjusted life year (DALYs) worldwide (54.2m) are attributed to unsafe water, sanitation and hygiene (WHO).

Mineral plant water consumption has been steadily increasing in the world. Consumers may have various reasons of purchasing mineral plant water, such as taste, convenience or fashion but for many consumers safety and potential health benefits are important considerations because they believed plant water is safer than tap water. There are concerns about chlorine by product, contaminants such as lead, nitrate and micro mineral plant water consumption has been steadily increasing in the world. Consumers may have various organisms contamination in municipal water



## Isolation and Characterization of Efficient Bacterial Isolates for Treatment of Municipal Wastewater

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### ABSTRACT

In present study, bacteria were isolated from municipal wastewater and sludge and were tested for biodegradation potential. Among total isolates, 24 showed growth on wastewater agar medium which were further identified on the basis of morphological, biochemical and cultural characters and were belonging to genera of Bacillus, Enterobacter, Paenibacillus, Klebsiella, Escherichia, Alcaligenes, Serratia, Pseudomonas, Stenotrophomonas, Planococcus and Aeromonas. These bacteria from in wastewater has capacity to produces the enzymes which were required for hydrolysis of organic materials present in wastewater and use this material as a food or nutrients. Such microbes will be capable of degradation of organic material and may used for bioremediation of municipal wastewater.

### I. INTRODUCTION

Recently, water pollution is main problem because of uncontrolled urbanization which is due to sewage effluent disposed into water bodies and leads to the adverse effect on living organism (Tamil Selvi et al., 2012). Due to such problems the main global agenda is environmental management, treatment and disposal, wastes recycling, pollution control and prevention and reuse of the wastewater. Global attention has been drawn on ways to sustain the environment using microorganism to remediate environmental pollutants because physical and chemical treatment are costly and can lead to production of toxic substance (Luka et al., 2014). Bioremediation involves the use of microorganism to reduce or remove the pollutants from contaminated area which may lead to restoration of the original natural substance without further disruption to the local environment (Vezzulli et al., 2004). Bioremediation is an economical, eco-friendly and requires less expensive techniques for water pollution. Therefore, the present study focussed on isolation and characterization efficient bacteria for bioremediation of the municipal wastewater.

### II. MATERIALS AND METHODS

#### Sample collection and site

Wastewater and sludge samples were collected from various places from Buldana district, India, in pre-sterilized bottle and Zip-lock plastic bag respectively according to standard procedures from American Public Health Association (APHA, 2005) and transferred immediately to the laboratory.

#### Isolation and identification of bacterial isolates

Wastewater and sludge samples were serially diluted and inoculated on the Nutrient agar medium separately. Morphologically different colonies were isolated and maintained at 40C on nutrient agar slants. The purified isolates were identified by morphological and biochemical characteristics based on Bergey's Manual of Determinative Bacteriology (Holt, 1994).

#### Screening of efficient bacterial isolates for bioremediation study

All bacterial isolates were inoculated on wastewater agar medium (WWA). The composition of the medium per 100 ml was 100 ml sterilized wastewater and 2% agar. All plates were incubated for 48 hr at 37C. Those bacterial isolates which showed growth on WWA

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## BIOLOGICAL DETERMINATION OF BEAUTY SOAP

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### Abstract

The present study was performed to evaluate the microbial contamination in the soap. Total bacterial count, isolation and identification of pathogenic microorganisms were performed on the collected eight popular branded bath soap. The viable count for aerobic bacteria shows more than 1586 bacteria per gram of sample. Almost all sample shows presence of E.coli and some are contaminated with S.aureus, Salmonella and Pseudomonas. The contaminated soap unable to suppress the growth of several microorganisms represent a potential health hazards.

**Keywords:** Pathogenic, Dermatological, Coliform.

### Introduction

Soaps are the combination of fats, oils (animal and vegetable origin) and salt (Friedman *M. et al* 1987). Dermatological soaps and disinfectants are chemical of different from soap and contains modified detergents to enhance their use for 'antimicrobial' soap can remove 65% to 85% bacteria from human skin (Norboy, 1987). The aim of this investigation is to examine the presence of E.coli, S.aureus, Salmonella, Pseudomonas and Coliform and observe the total viable bacterial count in each

### Observation and results:-

#### (A) Total viable count by standard plate count (Table no.1) :

Sample no.	Number of colonies			Number of bacteria per gm in soap
	1:10	1:100	1:1000	
S-1	126	15	02	1586
S-2	03	01	620	206710
S-3	167	191	490	170256
S-4	232	65	398	135606
S-5	88	298	320	116893
S-6	163	257	88	38443
S-7	138	391	509	183160
S-8	276	344	318	118366

sample. The soap should have good ingredients which have the ability to kill the bacteria but not allow the growth of bacteria in soap.

### Material and Methods

#### Methods:-

(A) Total viable count of bacteria by standard plate count:-

From each sample by standard count dilution such as 1:10, 1:100, 1:1000 and plating with appropriate amount of nutrient agar viable count is taken.

(B) Detection of coliforms for contamination:-

From 1:10 dilution of each sample inoculated in MacConkey broth and after inoculation of 37°C for 24 hours observed for acid and gas.

(C) Isolation of pathogenic bacteria:-

From 1:10 dilution inoculated on selective medium for isolation of pathogenic microorganism.

- (1) Manitol salt Agar – For S. aureus.
- (2) Bismuth sulfite Agar – For Salmonella.
- (3) Cetrimide Agar – For Pseudomonas.
- (4) Easine Methylene Blue Agar- For E.coli.

From the growth appeared on selective medium the specific bacteria is confirmed by gram staining, biochemical test and enzyme test.

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## BACTERIOLOGICAL EVALUATION OF HONEY SOLD IN THE MARKET

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### Abstract

Honey is a sweet and viscous fluid produced by honey bees or some other species from the nector of the flowers .Its high osmosity is due to the high sugar content.The sugar present in honey are fructose, glucose, maltose sucrose and other type of carbohydrates . Honey is best for human health but being contenting high carbohydrates content it is susceptible to contamination by micro organisms. The present study includes the bacteriological analysis of difference honey sold in market the bacteria isolated from different honey sample are *s. aureus* ,*E.coli* ,*S.typhi*. *Pseudomonas* and *bacillus* species . Such honey instant of give health benefit may cause serious health problems.

**Keywords:** Nector, Osmosity, *Bacillus*.

### Introduction:

The study was designed to investigate the bacterial contamination present in honey. Honey is sweat and viscous fluid produce by honey bees or some other species from the nactor of the flower its high osmolarity is due to the high sugar content including fructose, glucose, maltose, sucrose and other types carbohydrates. Honeys properties as a natural product make it popular for consumption for health benefit. However it is susceptible for contamination from variety of microorganism during collection, transporting ,handling and packaging. Thus this product are polluted via

different source of contamination. Bacteria , yeast and moulds may found in honey.

### Material and method

#### Materials

The nutrient medium such as Manitol salt agar, Bismuth sulfite agar, Cetrimide agar ,Mac-Ckonkey agar, nutrient agar and reagents use are of HI media, India.

#### Sample collection:

Four branded sealed and four local loose sample are purchased from market and taken to microbiology laboratory for bacteriological investigation .

#### Method

a) Standard plate count by pour plate method was carried out to analyse the honey sample microbiologically for total heterotrophic bacteria.

b) All honey sample included on following selective and other nutrient medium for isolation of pathogenic and coliform bacteria .The bacteria isolated where identify by gram staining, endospore staining ,biochemical test and enzyme test.

#### Isolation of pathogenic bacteria

From 1:10 dilution inoculated on selective medium for isolation of pathogenic microorganism

Selective medias are :

- Manitol salt agar -for *s.aureas*
- Bismuth sulfite agar -for *salmonella*
- Cetrimide agar -for *pseudomonas*
- Eosin methylen blue agar -for *E.coli*

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## MICROBIAL CONTAMINATION OF CURRENCY NOTES IN CIRCULATION

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### ABSTRACT

Currency is very important to our life as it facilitates the needs of common man. Paper currency is widely exchanged for goods and services in countries worldwide. It is used for all type of commerce. Paper currency provides a large surface area as a breeding ground for pathogens. Currency notes could carry potentially pathogenic organisms. Paper currency, an exchangeable fomite, is constantly subjected to contamination. The species of this study was to identify the micro-organisms present on the currency notes circulating in buldana district. A total of 40 currency notes (Rs.10, Rs.20, Rs.50 and Rs.100) were randomly collected from bank, Municipal Corporation, food sellers, butchers, hospital.

Persons handling the notes were asked to deposit them in sterile envelopes. The notes were taken to the laboratory immediately and microorganisms isolated by using Eosin methylene blue agar, mannitol salt agar, Bismuth sulfite agar and Cetrimide agar.

All the notes collected during this study were contaminated by micro-organisms. Species isolated were *Escherichia coli*, *Staphylococcus aureus*, *Salmonella typhi* and *pseudomonas aeruginosa*.

The currencies used by public (bank, hospital, Municipal Corporation) in India were found to be extremely contaminated with various pathogenic bacteria followed by the currency used by butchers and food sellers. Infected currency was identified as a potential public health hazard, as pathogens

could spread by circulating the contaminated notes. We recommend that currency notes must be handled with caution.

**Keywords:** Buldana currency notes, pathogenic microorganisms, contamination.

### INTRODUCTION

Microorganisms are known to spread via air, water, food etc. an important mechanism of the spread of pathogens by fomites. Paper currency is widely exchanged for goods and services in countries worldwide.

It is used for every type of commerce. Accumulated data obtained over the last 20 years on the microbial status and survival of pathogen on currency notes indicate that this could represent a potential cause of sporadic cases of food borne illness. The paper currency notes may harbor various deadly pathogenic microorganisms. Currency in the form of notes represents a universal medium for the transmission of bacteria in the environment and among humans.

There is a possibility that currency notes might act as environmental vehicles for the transmission of potential pathogenic microorganisms. An individual living in unhygienic conditions having unhygienic habits will contaminate the notes with bacteria e.g. habits such as using saliva to count the paper notes also leads to the contamination and these notes will act as a vehicle delivering bacteria to contaminate the hands of the next user. The currencies act as a tool for easy transfer of bacteria and thus cross contamination takes places.

# डॉ. अक्षयकुमार काळे समीक्षेची समीक्षा

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प्रा. गणेश गोपाळराव मालटे  
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श्री शिवाजी विज्ञान, कला महाविद्यालय,  
चिखली, जि.बुलडाणा.



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(दोन)



डॉ. अक्षयकुमार काळे हे मराठीतील साहित्य संशोधन क्षेत्रात एक गंभीर आणि व्रतस्थ काव्य समीक्षक म्हणून प्रसिध्द आहेत. त्यांनी नव्या जुन्या मराठी कवींच्या काव्यातील सौंदर्यस्थळे शोधण्याचा आस्वादक परंतु वस्तुनिष्ठ प्रयत्न जसा केला तसाच त्या काव्याच्या प्रेरणांमागील सांस्कृतिक अनुबंध शोधण्याचाही यशस्वी प्रयत्न केला. कवी किंवा लेखकांचे जसे साहित्यविश्वाला योगदान असते, तसेच ते समीक्षकाचेही असते. हे गृहीततत्त्व धरून डॉ. गणेश मालटे यांनी प्रस्तुत ग्रंथात डॉ. काळे यांच्या एकूण समीक्षाव्यवहाराची चिकित्सा केली आहे.

समीक्षक म्हणून डॉ. काळे किती काटेकोर आहेत आणि आस्वादक म्हणून ते किती सहृदयी आहेत याची साधार मांडणी लेखकाने येथे केली आहे. एका उत्तम संशोधकाच्या वस्तुनिष्ठ दृष्टीतूनच डॉ. मालटे यांनी या ग्रंथाचे लेखन केले आहे. त्यांच्यावर डॉ. काळे यांच्या ज्येष्ठतेचे कोणतेही दडपण दिसत नाही. समकालीन मराठी समीक्षेत आणि एकूणच साहित्यात डॉ. काळे यांचे स्थान त्यांनी अतिशय वस्तुनिष्ठ रीतीने मांडले आहे.

- डॉ. श्रीकांत तिडके



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..दोन..

गेल्या वीस-पंचवीस वर्षांत मानवी जीवन अधिकाधिक धावपळीचे आणि धकाधकीचे झाले आहे. त्याला एक विलक्षण गतिमानता प्राप्त झाली आहे. आधीच मानवी मन हे चंचल, चपल असते, त्यात त्याला विज्ञान-तंत्रज्ञानाने गती प्राप्त करून दिली आहे. पण तो आपली जगण्याची दिशा हरवून बसला आहे. त्यामुळे आजचे जीवन आणखी दिशाहीन, अस्थिर झाले आहे. तो सतत अस्वस्थ, बेचैन आणि कार्यव्याप्त झाला आहे. त्यामुळे त्याचे असमाधान सतत वाढत आहे. म्हणून त्याला उपलब्ध असलेल्या साधनसामुग्रीचाही नीट वापर करता येत नाही.

मनासारखे काम होत नाही, अपेक्षित यश प्राप्त होत नाही. काय करावे आणि काय करू नये, हे सूचित नाही. म्हणून त्याचे जीवन ताणतणावयुक्त बनले आहे. ह्या तणावग्रस्ततेवर, प्रतिकूल परिस्थितीवर मात करून आधुनिक मनोविज्ञानाने जगण्यासाठी काही महत्त्वाच्या विचारांचा सुबोध परिचय या पुस्तकात करून दिला आहे.



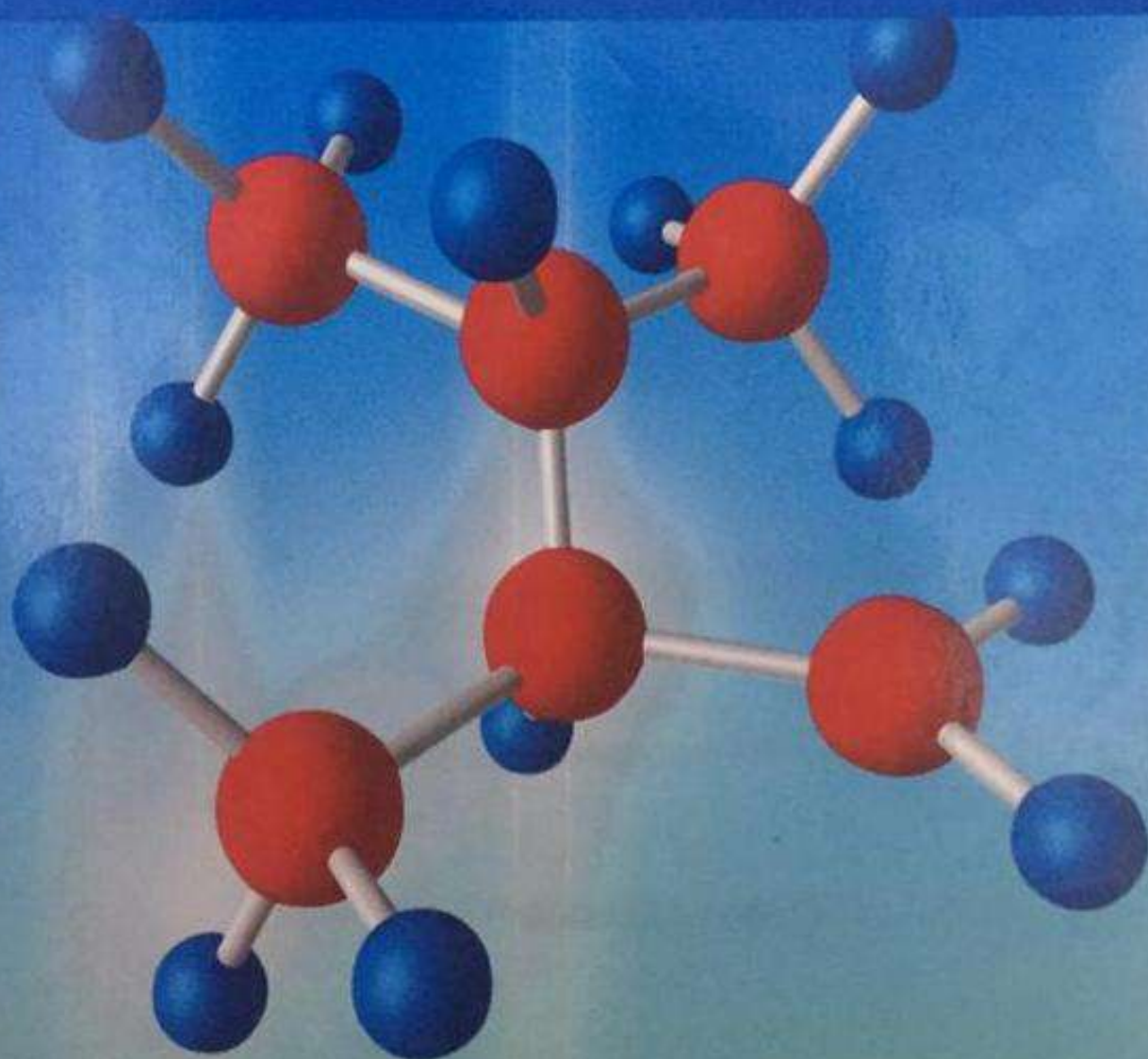
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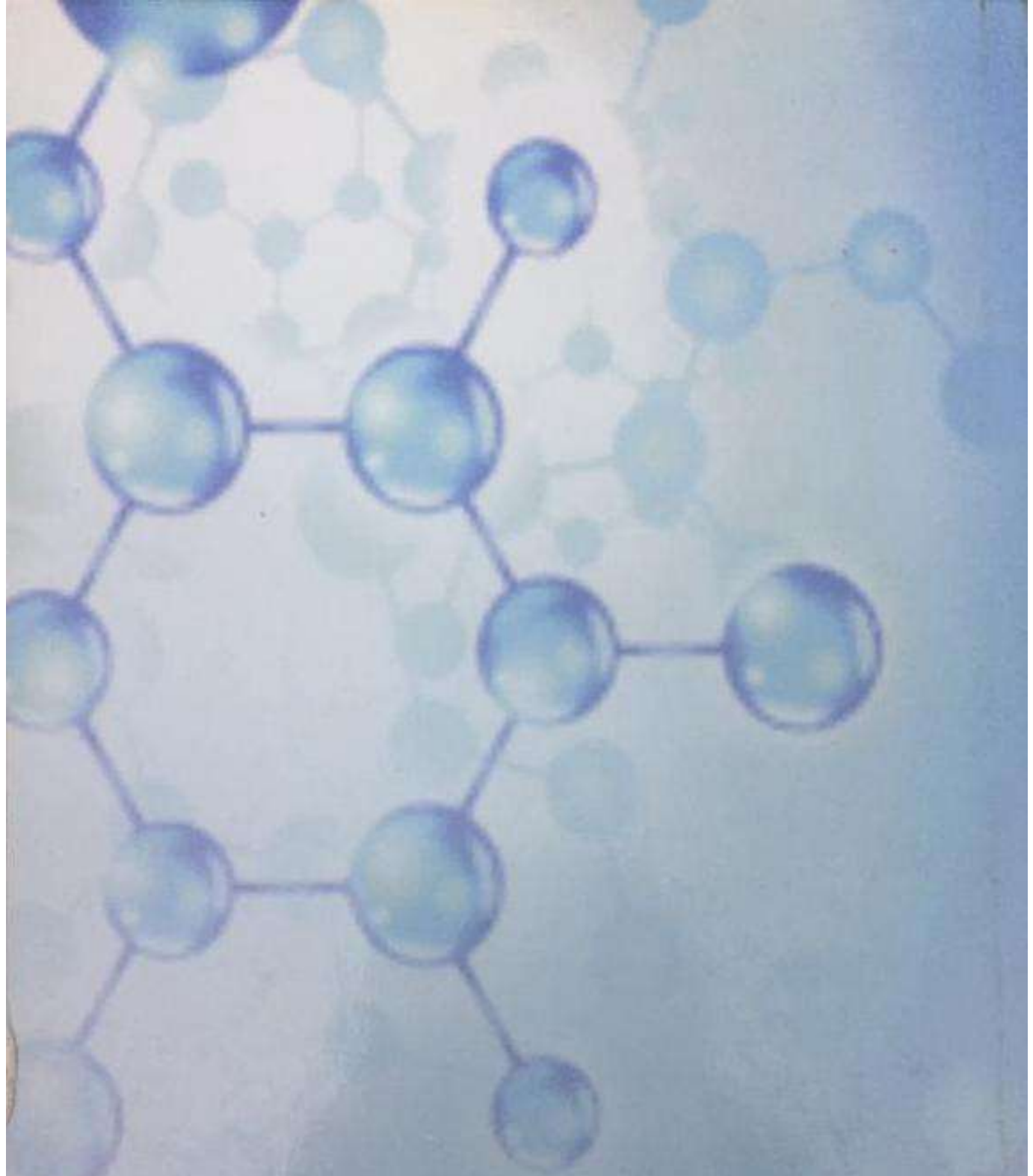
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## INVESTIGATION OF PROTEIN DIVERSITY AMONG THE SPECIES OF *TRIMATOSTROMMA*.

Kadu SR\*; Suradkar KP and Hande DV<sup>#</sup>

\* Sipna College, Chikhaldara

<sup>#</sup> Shri Shivaji Science College, Amravati

Fungi are found to be the ultimate source of unlimited opportunities that provide noble chemicals to the human beings. In the present work classical taxonomy of Hyphomycetes fungi were carried out which is a universal approach for many groups. It has been observed that morphological criteria often overlap among the closely related species thus leading to taxonomic confusion, making identification and classification very difficult at species level. So in the present work some closely related species of *Trimmatostroma* have been identified by using SDS-PAGE technique.

SDS-PAGE was successfully applied in many fungal species for estimating fungal identification. Three *Trimmatostroma* species in SDS-PAGE electrophoresis revealed very distinctive protein banding pattern on electrophorogram. In total 12 bands were scored among three *Trimmatostroma* species. Out of 12 bands, 5 bands (42%) were monographic, while 7 bands (58%) were polymorphic. The dendrogram generated from similarity table clearly grouped three *Trimmatostroma* species into two distinct clusters. Cluster-I was formed of two species while; cluster-II comprised single species.

**Keywords:** *Fungi, Trimmatostroma, SDS-PAGE, protein diversity*

## EVALUATION OF THE MEDICINAL PLANT RESOURCES FROM AMBABARVA FOREST, DISTT. BULDANA AND STRATEGIES FOR CONSERVATION.

Pochhi, VU

Shri Shivaji Science and Arts College, Chikhli, Distt. Buldana.

Plants are of great importance in the environment. They help in conserving soil fertility, prevention of erosion, recycling of oxygen and water. They also provides shade, fruits, timber, vegetable and medicines for man and his livestock. Ambabarva forest known for its rich reserve of Economic and Medicinal Plants. This forest has been over exploited and the rate at which the vegetation around the forest is being destroyed as alarming so there arose an urgent need to document the available plant species in this forest. An inventory of the Ethnoveterinary medicine of the forest was undertaken between September to January. A total 75 plants species have been documented as Ethnoveterinary medicinal plants.

In Buldana district traditional healers and remedies made from plants play an important role in the health of millions of people and live stocks. This medicine is traditional because it is deeply rooted in a specific socio cultural contact, which varies from one community to another. Traditional medicine is the most widely used medicinal system in the region. Traditional medicine is not only popular but also accepted in many areas, it is the only system available. As a result, many plant species have become extinct and some are endangered. It is therefore necessary that systematic cultivation of medicinal plants be introduced in order to protect threatened species. A lot of research has been going on to ascertain whether the



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## KANTOWSKI-SACH BOUNCING COSMOLOGICAL MODEL WITH VISCOUS FLUIDS

Ghate, H.R.<sup>1</sup>, Sontakke, A.S.<sup>2</sup>, Patil, Y.D.<sup>3</sup>, Patil, A.S.<sup>4</sup> & Salve, S.A.<sup>5</sup>

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### ABSTRACT

The bounce in viscous fluid cosmology with inhomogeneous viscous fluids in Kantowski space-time has been investigated by considering different forms of scale factor. The general features of the fluids which realize them and the possibility to have an acceleration after the bounce have been discussed.

**Keywords:** Kantowski-Sach Space Time, Viscous Fluid, Energy Conditions

### INTRODUCTION

Observational evidence point towards an accelerated expansion of the universe. The astrophysical observations of the SN<sub>c</sub>Ia (Perlmutter *et al.* 1999), cosmic microwave Radiation (Bennet *et al.* 2003; Sperge *et al.* 2003), X-ray (Allen *et al.* 2004), are the main evidences for the cosmic acceleration. For this acceleration expansion of the universe a new energy with negative pressure is driven which is commonly known as dark energy (DE). (Peebles and Ratra 2003). Dark energy is major component in energy field of the universe (Ade *et al.* 2013). The dark energy which is responsible for accelerated expansion of the universe has been captured a vast range of recherche in astrophysics. But till now the nature of dark energy is a challenging problem in theoretical physics.

The observations also indicate that the fluids in the universe is not a perfect fluids (Jaffe *et al.* 2005) and the viscosity plays role in the evolution of the universe (Brevik and Gorbunova 2005, Brevik *et al.* 2005, Cataldo *et al.* 2005). Several interesting cosmological solutions with a variety of features obtain by considering the contain of the universe different from standard matter. Among them, the bounce, solutions (where the contraction is followed by an expansion at a finite time) are quite interesting (Novello and Bergliatta 2008, Battfeld and Peter 2015). In the matter bounce scenarios the initial contraction of the universe is in matter dominated stage, after that a universe without initial singularity appears leading to an expanding universe. In the context of bouncing cosmology,

inclusion of viscosity Broadens the applicability of the considered theory.

Many different aspects of bounce cosmology have been analyzed in the literature (Belinsky *et al.* 1970). For BKL instability; Khoury *et al.* (2001) for the Ekpyrotic scenario, Piao *et al.* (2004), Liu *et al.* (2013) for the conformation of the bounce universe with planck observation. (Bamba *et al.* 2014) have investigated bounce solutions in the framework of modified gravity and massive bi-gravity.

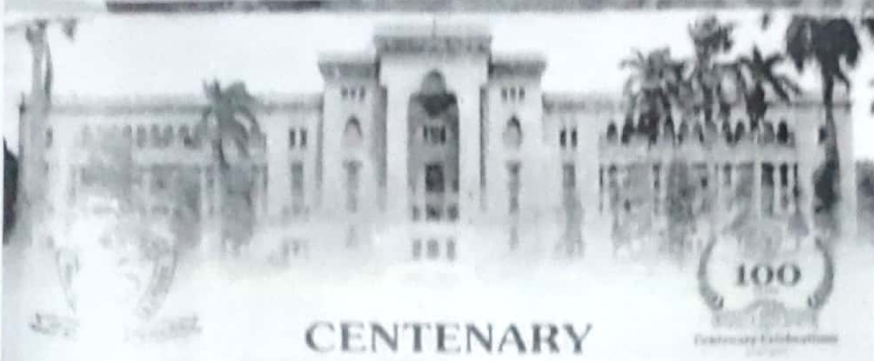
The aim of this work is to investigate the bounce cosmology induced by inhomogeneous viscous fluids in Kantowski-Sach space time. We will discuss different bounce solutions and the features of the related viscous fluids, taking into account the necessity to have a cosmic (inflationary) acceleration after the bounce. In particular, we are interested in the relation between bounce and singular solutions and in the corresponding relation between the viscous fluids realizing such a scenario.

The paper is organized as follows. In section 2, the formalism of inhomogeneous viscous fluid in Kantowski-Sach universe is presented. In section 3, we will analyze the bounce solutions in fluids cosmology. In section 4, the same investigations will be carried out for the bounce solutions, conclusions and remarks are given in section 5.

### METRIC AND FIELD EQUATIONS

Kantowski-Sach space time is considered in the form

$$ds^2 = dt^2 - A^2 dr^2 - B^2 (d\theta^2 + \sin^2 \theta d\phi^2), \quad (1)$$



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## The Role of Traditional Sports in Physical Fitness and Health

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### Introduction:

Sports are vital for mental health and physical fitness. It builds up the overall personality of a person and makes him intellectually and physically strong, confident, having cheerful behavior. Apart from fitness, sports develop other social qualities like leadership, confidence, loyalty, balanced behavior, sustainability during failures, continuous learning, discipline etc. India has a vast and unique culture, so every state has its own traditional sports to follow. India becomes the land of traditional sports like Kushti the Indian wrestling, Vallamkali, Jallikattu and many more. India is also known for its diversified culture and traditions. One of the traditional sports in India is Mallakhamb also known as the pole dance of India; it is one of the very difficult sports in India. There are few famous villages sports are also very adventures sports in India. Sports in India have a long tradition, which can be traced in its religious philosophy and ancient books. It has been implied that gaining strength, stamina, endurance and supreme control of the body functions has been considered as means of attaining the emancipation. Although today the games and sports of the colonial origin, like Football (soccer), Cricket have taken over the lion's share of Indian society, the traditional sports merits a special mention for their variety and the excitement they can generate. A large number of traditional sports are still practiced in the rural India with great enthusiasm. One strikingly common aspect of the traditional sports of India is the minimum use of instruments. The emphasis is largely on physical fitness and competence. Some of traditional sports, like Chess, Kabaddi, Satoliya, Gutte, Kancha, Kho-Kho, Gilli Danda, Poshampa, Chaupar/Pachisi, Kitti Kitti, Dhopkhel, Pallanguli etc. Which had their origin in India, have gained prominence over the world.

### Why we playing traditional sports and games?

Traditional Sports & Games generally involve simple physical games in the matter of rules and tolls. Most TSG are based on natural movement of the human body – they are about running, jumping, being fast, strong and flexible or hitting something or somebody. TSG involve complexity in socializing a group in how play. The participants have to take account of each other if the play is to succeed in a good way. In this perspective TSG are about the development and cultivation of the body and mind among the players. TSG are usually easy to understand, with simple basic rules and a clear purpose. This makes it easy to participate on the basic level. But to master all the movement of the play, the tactics of the game and skill required can take years to develop. The same can be said about truly understanding the dynamic and complexity in socializing a group in play. Thus, TSG offer games and play for the beginner to expert, the able-bodied and disabled, and for the young and old.

### What is Physical health?

#### Defining

Traditional definitions of physical health prior to the onset of modern medicine would have considered someone physically healthy if he or she was not stricken with a serious illness. With modern medical innovations came longer life spans, which changed the way we define physical health. Today's definition can consider everything ranging from the absence of disease to fitness level.

#### Physical Health Assessments

If you have visited a physician or personal trainer recently, you might know that assessing physical health can be done in a variety of ways. The following measurements can be used to test certain aspects of physical health:

- General assessments - includes weight, body mass index (BMI), and reflex tests.
- Disease risk factor - assessments includes blood pressure, cholesterol, and blood glucose tests.
- Fitness assessments - includes body composition (body fat percentage), flexibility, muscular strength, and endurance tests.

#### How sports effects on athlete's health

The physical benefits of playing sports are numerous. Exercise in general controls weight by burning calories, improves the functioning of the cardiovascular system, placing a lower strain on the heart, and increase an athlete's level while improving the quality of sleep. It also provides longer term benefits, such as the reduced risk of diseases like cardiovascular disease and diabetes, reduces the level of body fat, improves the cholesterol makeup of the athlete's bloodstream and makes the bones and muscles stronger.





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