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RUSA Sponsored National Conference on

"Current and Future Prospects in Life Sciences (CFPLS- 2023)"

26th October, 2023

ABSTRACT BOOK

ISBN: 978-93-88901-84-0

Organized By:
School of Life Science,
(Department of Botany, Zoology and Microbiology)
Pratap College, Amalner (Autonomous), Dist. Jalgaon, (M.S.) India 425 401

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Khandesh Education Society's

Pratap College, Amalner (Autonomous)

Affiliated to K. B. C. North Maharashtra University, Jalgaon

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ABOUT COLLEGE

In 1945, Pratap College was founded by Shri. Pratap Shethaji, a prominent Philanthropist from Khandesh in Maharashtra State. The college holds permanent affiliation to Kavayitri Bahinabai North Maharashtra University, Jalgaon. Additionally, the college has received recognition in the form of 2f and 12B from UGC. Notably, Pratap College has been re-accredited by the National Assessment and Accreditation Council (NAAC) with an 'A+' grade in the third cycle. Furthermore, in February 2019, the college achieved Autonomous Status, further solidifying its commitment to academic excellence. The college prides itself on its exceptional leadership provided by the Management, as well as its qualified and dedicated staff.

MESSAGE FROM PRINCIPAL DESK

Prof. Dr. A. B. Jain

Principal,

Pratap College (Autonomous), Amalner

Dear Conference Participants, I'm honoured to introduce the abstract book for the "National Conference on Current and Future Prospects in Life Sciences" Your diverse research and innovation on display here epitomize the dynamism of these fields. I'm excited about the collaborative potential within these pages. This conference represents the nexus of Current and Future research in life Sciences and cutting-edge applications. It's an opportunity for knowledge sharing and cross-disciplinary growth. As you explore these abstracts, I encourage you to seek inspiration, forge connections, and drive your passion for Life Sciences to new heights. The intellectual discourse here will undoubtedly shape the future of these disciplines. I extend my appreciation to the organizing committee, speaker authors, and reviewers for their invaluable contributions to this academic tapestry. Together, let's embrace the transformative power of Life Sciences.

Warm regards,

MASSAGE FROM CONVENOR

Dear authors and Contributors, I am so happy to introduce the abstract book for conference. This book represents the collective knowledge and innovative research that you have all generously shared with us. It is testament to the dedication and hard work that each of you has put into your respective fields. The abstract book is a valuable resource that will be shared with attendees, colleagues, and the broader academic community. It Serves as a platform to disseminate your insight, ideas and discoveries. I would like to express my gratitude to all of you for your active participation and for enriching this book with your expertise, and I am confident that they will inspire further exploration and advancement in your respective areas of research. Thank you for your dedication to the pursuit of knowledge and for making this conference a success.

Warm Regards

Convenor

Dr. R. C. Sarvade — HOD Dept. of Zoology

Prof. S. A. Joshi — HOD Dept. of Microbiology

Pratap College, Amalner (Autonomous)

PREFACE

Welcome to the abstract book for the “National Conference on Current and Future Prospects in Life science”. In these pages, you will discover a rich collection of abstracts that showcase the latest advancement in these fundamental disciplines. This conference is testament to the dynamic nature of Life Science bringing together the brightest into current and future prospects in Life Sciences. We extent our sincere appreciation to the organizing committee, speakers, authors, reviewers for their invaluable contribution to this conference. Your dedication in instrumental in advancing knowledge in these fields. We encourage you to explore these abstracts. Embrace new ideas and cultivate collaboration that will shape in future of Life Science. This book is testament to the intellectual favor and the endless possibilities that these disciplines offer. Thank you for being a part of this inspiring journey.

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SCHEDULE OF THE CONFERENCE

08:00 am to 10:00 am	Registration and Breakfast
10:00 am to 11:20 am	Inauguration Function
	Inauguration Function Includes: Welcome and Felicitation of Guest Introductory Speech Inaugural Speech of Chief Guest **VC Dr. V. L. Maheshvari, KBCNMU Jalgaon** Key Note Address by **Dr. Bhushan L. Chaudhari** Professor, Department of Microbiology School of Life Science, KBCNMU Jalgaon Presidential Speech by **Dr. Anil Shinde**, Chairman, KES, Amalner
11:30 am to 12:10 pm	**Plenary Lecture 1:** *"Bionanotechnology: Fundamentals and Applications"* **Dr. Kiran D. Pawar** School of Nanoscience and Technology, Shivaji University, Kolhapur, M.S.
12:20 pm to 01:00 pm	**Plenary Lecture 2:** "*Role of Biotechnology in Crop Improvement through Tissue Culture and Genetic Engineering"* **Dr. Thirunahari Ugandhar** Govt. Degree College Mahabubabad, Telangana State
01:00 pm to 02:00 pm	Lunch Break
02:00 pm to 02:40 pm	**Plenary Lecture 3:** *"Induced photophosphorylation in heterologous host for enhanced xenobiotic degradation"* **Dr. Nafisa Patel** Naran Lala College of Professional and Applied Sciences, Navsari
02:50 pm to 03:30 pm	**Plenary Lecture 4:** *"Zinc oxide (ZnO) nano-biofertilizer as bio-emerging strategy for sustainable Agriculture"* **Dr. Vrushali Wagh** Naran Lala College of Professional and Applied Sciences, Navsari, Gujarat.
03:30 pm to 4:30 pm	Poster Presentations
4:30 pm to 5:00 pm	Valedictory and Tea

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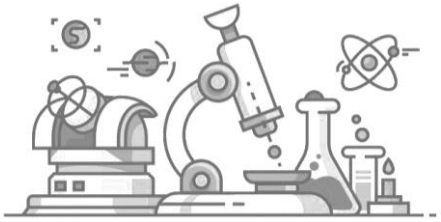

ABSTRACTS

BIONANOTECHNOLOGY: FUNDAMENTALS AND APPLICATION

Dr. Kiran D. Pawar

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ABSTRACT:

Bionanotechnology is defined as the incorporation of biological molecules into nanoartifacts. The word "Bionanotechnology," it is the emerging field of science which utilizes biological molecules for nanotechnological applications. Today's lecture is the basics of nanomaterial properties, synthesis, biological synthesis, and chemistry and demonstrates how to use nanomaterials to overcome problems in agricultural, environmental, and biomedical applications.

Keywords: Bionanotechnology, Environment

ROLE OF BIOTECHNOLOGY IN CROP IMPROVEMENT THROUGH TISSUE CULTURE AND GENETIC ENGINEERING

Dr. Thirunahari Ugandhar

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ABSTRACT:

Crop improvement is a crucial facet of contemporary agricultural practices, propelled by the escalating worldwide need for sustenance, animal fodder, and textile materials. The field of biotechnology has significantly contributed to the advancement of crop enhancement by employing methodologies such as tissue culture and genetic engineering. This abstract presents a succinct summary of the primary advancements made by biotechnology in enhancing crop quality, with a particular focus on the roles played by tissue culture and genetic engineering in this domain. Tissue culture techniques enable the ex vivo proliferation of plant cells, tissues, or organs, presenting several benefits in the realm of crop enhancement. Plant breeders may utilize tissue culture techniques to efficiently propagate plants with desirable characteristics, regenerate whole plants from minute tissue samples, and provide planting materials that are free from diseases. In addition, the utilization of tissue culture techniques facilitates the preservation and proliferation of plant species that are at risk of extinction, as well as the genetic resources Genetic engineering has been utilized in the field of agricultural development to create genetically modified (GM) crops that possess several desirable characteristics, including resistance to pests and diseases, tolerance to abiotic stress, improved nutritional composition, and increased yield. This presents a great opportunity for the development of genetically enhanced crop types. This method enables precise gene editing without the incorporation of exogenous genetic material, therefore mitigating apprehensions associated with transgenic crops. This document presents a comprehensive examination of the various functions that biotechnology serves in enhancing crop quality and productivity, specifically focusing on tissue culture and genetic engineering methodologies.

Keywords: Biotechnology, Crop improvement, Tissue culture, Genetic engineering, *In vitro* propagation, Genetically Modified Crops (GM crops), Gene Editing and CRISPR-Cas9

DIRECT PLANTLET REGENERATION FROM COTYLEDONARY EXPLANTS OF *MELOTHRIA MADERASPATANA* (L)

Dr. Thirunahari Ugandhar
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Government Degree College Mahabubabad, Dist: Mahabubabad Pin 506101
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ABSTRACT:

Melothria maderaspatana (L), sometimes referred to as the "mouse melon" or "cucamelon," is a tropical vine that has been extensively utilised in traditional medicine and culinary practises throughout its historical trajectory. This work presents a thorough examination of the process of direct plantlet regeneration from cotyledonary explants of *M. maderaspatana*. The findings provide vital insights into a potentially effective approach for the propagation of this important plant species. The utilization of tissue culture techniques for plant regeneration plays a crucial role in contemporary agricultural and horticulture practices. The work was commenced by developing a refined procedure for the surface sterilization of cotyledonary explants derived from fully grown seeds of *M. maderaspatana.* Subsequently, the explants were cultivated on Murashige and Skoog (MS) media, which were treated with different quantities of plant growth regulators, including auxins and cytokinins. The findings of our study suggest that cotyledonary explants had a high degree of shoot induction and differentiation when placed in a culture medium containing 2.0 mg/L of 6-benzyladenine (BA) and 0.5 mg/L of indole-3-butyric acid (IBA), as per the Murashige and Skoog (MS) formulation. The initiation of shoot growth was then accompanied by the stimulation of root formation on a Murashige and Skoog (MS) medium supplemented with 1.0 mg/L indole-3-butyric acid (IBA). Furthermore, it offers a viable and sustainable approach to utilize the significant agricultural and horticultural capabilities shown by *M. maderaspatana*, including its distinctive fruit yield, decorative significance, and therapeutic attributes. In addition, the existing regeneration system serves as a fundamental basis for forthcoming genetic modification and breeding initiatives, facilitating the creation of enhanced cultivars with advantageous characteristics. In summary, the effective regeneration of *M. maderaspatana* from cotyledonary explants is an important initial step in the further investigation and use of this adaptable plant, hence promoting its long-term viability and expansion in the fields of agriculture and horticulture.

Keywords: *Melothria maderaspatana*, Cotyledonary explants, Plantlet regeneration, Micropropagation, Murashige and Skoog (MS) medium,6-benzyl adenine (BA) and Indole-3-butyric acid (IBA)

INDUCED PHOTOPHOSPHORYLATION IN HETEROLOGOUS HOST FOR ENHANCED XENOBIOTIC DEGRADATION

Dr. Nafisa Patel

Naran Lala College of Professional and Applied Sciences, Navsari

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ABSTRACT:

Bacteriorhodopsin of halophilic archaea and proteorhodopsin of proteobacteria are associated with the translocation of protons across the cytoplasmic membrane forming a proton gradient, which acts a major driving force for ATP synthesis. Exploiting this protein can prove to be an effective alternative for fulfilment of energy demand and extended growth phase. Genetic modification of E. coli with the PR gene cluster was done to study the induction and expression of proteorhodopsin gene. Highest Induction of PR gene expression was at a concentration of 0.1% of arabinose with the induction of Ara promoter leading to an enhanced production of proteorhodopsin in the transformed E. coli cells with subsequent subcloning of the amplified PR gene cluster in the E. coli host through pJET vector with Lac promoter. Metabolic engineering of such transformed E. coli with proteorhodopsin exhibited an enhanced growth and energy generation. The growth kinetics of the untransformed, transformed and induced E. coli under starvation conditions at low carbon concentration in presence of light was studied. It showed a prolonged exponential and stationary phase and delayed declined phase by the transformed and induced cells as compared to the untransformed cells, which had the growth phase of 02 hrs and reached to a decline phase within 7 hrs. Phenol is one of the most common toxic environmental pollutants that originated mainly from industrial processes. Enzyme assay detects the formation of cis -cis muconic acid and 2 hydroxy muconic semialdehyde by presence of catechole 1,2 dioxygenase and catechole 2,3 dioxygenase. The enzyme activity of Catechole 2,3 dioxygenase and catechole 1,2 dioxygenase indicates the metabolism of phenol via meta cleavage pathway. The genetic transformation of PS1 with the proteorhodopsin, showed an enhanced degradation of phenol, a potential strain for the removal of the toxic xenobiotics from the polluted environment.

Keywords: Proteorhodopsin, Muconic Acid, Proteobacteria

ZINC OXIDE (ZNO) NANO-BIOFERTILIZER AS BIO-EMERGING STRATEGY FOR SUSTAINABLE AGRICULTURE

Vrushali Wagh

Naran Lala College of Professional and Applied Sciences, Navsari, Gujarat

ABSTRACT:

Nano-biofertilizers are synthesized or modified form of traditional fertilizers, nanotechnology tool is used to improve, soil fertility, quality and productivity of agricultural products. Total 29 bacterial trains were isolated from the agricultural field of sugarcane, chickpea and rice. During screening of microbial isolates for heavy metal zinc sulfate tolerance, as compared to other bacterial strains, Z-1, Z-19 and Z-23 showed maximum tolerance of zinc sulfate (600 to 800 mg/ml). Out of These three isolates, Z-19 showed significant ability for ZnO (colorless to milky white) nanoparticle synthesis. Size of ZnO nanoparticles synthesized by Z-19 was checked by particle size (40 nm) distribution and zeta potential (-37.0) was also checked. FTIR analysis of ZnO was also studied to observed the arrangements of functional groups. Optimization of media components for maximum ZnO and selenium nanoparticle synthesis was carried out by OFAT along with statistical analysis like PBD. Z-19 isolate showed maximum plant growth promotion as compare to Z-1 and Z-23 during seed germination (100%), pot and field assay. In field assay, as compared to isolates Z-1 and Z-23, ZnO nanoparticles synthesized by Z-19 isolate enhances major soil nutrients like nitrogen (from 125 to 138), phosphorus (22.54 to 25.62) and potassium (822 to 900 kg/h) and also enhanced growth of watermelon in a rapid manner, salinity of the soil get decreased. Rhizosphere soil isolate Z-19 showed noteworthy ability as a nano biofertilizer and which was also responsible to enhance soil fertility and plant growth promotion. Nano-biofertilizers are economical, ecofriendly and versatile.

Keywords: OFAT (one factor at a time); PBD (Plackett-Burman Design); ZnO (Zinc oxide nanoparticles)

SURVEY OF FARMER DEVELOPED SUSTAINABILITY OF CROPPING SYSTEM VILLAGE OF PILODE IN AMALNER TAHSIL

Padul Jyoti P.

Assistant Professor, Department of Botany,

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ABSTRACT:

Sustainable agriculture is more efficient in use of resources such as soil water, and its balance with the environmental condition. In Traditional farming monocropping system used in addition to depletion of natural resources, soil fertility, Productivity, Quality, crop diversity etc. Investigation of survey showed strategies to increase agriculture output is development of new cropping system including intercropping system and various intercropping patterns, farmers, perception on intercropping systems were emphasized. Intercropping is a type of multiple cropping system it is define as cultivating two or more crops in same space at the same time. This study conclude that intercropping system could enhance income of farmers can improve their management practice thinking critically and strategically about what intercropping practices.

Keywords: Sustainability, Intercropping, Intercropping Patterns, Survey, Management etc.

COPPER NANOPARTICLES SYNTHESIS BY COPPER SULPHATE TOLERATING BACTERIA AND ITS CHARACTERIZATION

Mrs. V. S. Mistry* and Dr. S. K. Patil

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*Corresponding author E-mail: vsmistry@kkwagh.edu.in

ABSTRACT:

Nanoparticle is a particle of matter between 1 to 100 nanometers (nm) exist in the natural world and are also created as a result of human activities. Copper nanoparticles have promising applications in different fields like gas sensors, heat transfer fluids, catalysis, solar energy, batteries and antimicrobial activities of copper nanoparticles find applications in the agriculture and healthcare sectors. In present study Cu-NPs were successfully synthesized by bacteria isolated by suspending 1% copper sulphate in sterile distilled water and it was used for isolation which gave two bacterial isolates on nutrient agar. These isolates exploited for the synthesis of copper nanoparticles. UV-Visible spectrophotometry was used for characterization. Cu-Nps showed antibacterial and antifungal activity against pathogenic bacteria like *Staphylococcus sp.*, *E. coli*, *Klebsiella sp.*, and *Aspergillus sp.* respectively.

Keywords: Copper Nanoparticles, Antimicrobial Activity, Pathogenic Microorganisms, UV-Visible Spectrophotometry

SCANNING ELECTRON MICROSCOPY ANALYSIS OF THE *CYATHOCLINE MANILALIANA*

Jayesh T. Salve*[1], Ashok R. Tuwar[2], Sarala C. Tadavi[3]

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ABSTRACT:

Cyathocline manilaliana, a small member of family Compositae belongs to small genus *Cyathocline* Cass. represented by three species. SEM investigation of this species revealed that, they having glandular, non-glandular trichomes of variety of sizes and shape. Trichomes were present on both surfaces of leaf.

Keywords: *Cyathocline manilaliana.,* SEM, Asteraceae

LOW-COST PORTABLE CULTURE DEVICE (PCD) FOR DETECTION OF FOODBORNE PATHOGENS

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ABSTRACT:

Foodborne infection is a severe problem especially in developing countries due to lack of sanitary practices and limited access to diagnosis and treatment. Although, both conventional and rapid methods such as PCR, ELISA are available, these techniques require well equipped laboratories and trained personnel. These techniques are not widely accessible to those living in remote areas due to their high costs and resource-limited settings. In order to overcome these problems, an on-site, point of care testing (POCT) and cost-effective method needs to be developed and a portable culture device is one such device. This research aims to construct paper-based Portable Culture Devices (PCD) to detect micro-organisms in food samples. PCDs are fabricated from tape and hydrophobic paper. The current work demonstrates detection of micro-organisms based on enzyme and chromogenic substrate interactions. Proof of concept studies were done using spiked food samples. Food samples were also used for onsite testing lab-independent detection. This work also reveals that PCDs can be a suitable alternative to the traditional culture media plates. PCDs have the advantages of ease of fabrication, minimum sample volumes requirement, easy visual interpretation of the test results. They are also cost effective and user friendly. Therefore, they are suitable for point of care testing, especially in resource limited settings fulfilling the ASSURED (Accurate, Sensitive, Specific, User friendly, Rapid and Robust, Equipment free, Deliverable to end users) criteria for rapid detection devices.

Keywords: On-site detection, foodborne pathogens, ASSURED, Point of care testing (POCT), Portable Culture Device (PCD)

EFFECTS OF HUMAN INTERACTIONS ON THE DOMESTIC ANIMALS: AN ANALYTICAL STUDY

Dr. R. C. Sarvade
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Department of Zoology, Pratap College Amalner, Dist. Jalgaon
Corresponding author E-mail: rcsarvade@gmail.com

ABSTRACT:

Relationship between human and animal is significant factor for animal welfare. Domestic animals pursue and enjoy relation and companionship with human apart from depending on their social relationship with species. Domestic animals, in terms of modern management of rearing and technics, lead to a way of life is very different from the natural life. Productivity, contribution, and reproduction are the basic purpose for human to domesticate animals. These aims can be achieved by following proper methods of behaviour from human toward animals. This research paper aims to underline human animal relationship in terms of relationship in general and in agricultural sectors. Further, it also reviews some opportunities in developing relationship as well as animal welfare. Study found positive behaviour of human toward their pets leads productivity on the other hand, negative behaviour increases fear factor in animals and consequently reduce productivity. Modern management is another hierarchy in terms of animal husbandry in agriculture sector and has proven its impact on human animal relationship.

Keywords: Human-Animal Interactions, Social Relationship, Productivity, Domestication, Modern Management, Positive Perception.

ON THE OCCURRENCE OF *CERATOPTERIS THALICTROIDES* (L) BRONG. IN VENGURLA, SAHYADRI HILLS, WEASTERN GHATS, MAHARSHTRA STATE, INDIA

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ABSTRACT:

The author is engaged in the study of fern of the Sahyadri hills in western ghats of Maharashtra state, India. During studies on ferns of the western ghats Maharashtra. A *Ceratopteris* species with dimorphic fronds was recorded in Vengurla, western ghats Maharashtra. It was collected from this region and identified as *Ceratopteris thalictroides* (L) Brong.

Keywords: *Ceratopteris,* Dimorphic Fern, Sahyadri Hills, Western Ghats

BIODIVERSITY OF FRESHWATER FISHES FROM GODAVARI RIVER, NASHIK (M.S.) INDIA

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ABSTRACT:

Fish Diversity in Godavari River in Nashik District has been studied. Godavari River was sampled for fish diversity studies by selecting 3 sampling stations. The study revealed the presence of 13 species of fish belonging to 10 genera ,06 famillies and 04 orders. 13 species within six families were recorded during the study period. Cyprinidae, Bagridae, Chandidae, Cichlidae, Mastacembelidae, Gobiidae. These six families were recorded in collection. In present report, out of 13 species, 06 (46.15%) are common,04 (30.76%) occasional and 03 (23.07%) species is rare. The reduction of rare species may be due to unsuitable climatic condition or may water pollution. The highest number of 3 species was recorded in the families Cyprinidae, Bagridae, Chandidae. The fishes recorded were found to be widely distributed and were present in good numbers in the river.

Keywords: Godavari River, Trimbakeshwar, Cyprinidae, Bagridae, Chandidae.

DIVERSITY OF ZOOPLANKTONS FROM, AMALNER TAHASIL OF JALGAON DISTRICT, MAHARASHTRA

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ABSTRACT:

Zooplanktons are microorganisms of water and they are biosensors, so they tell us quality of water and quickly show any environmental changes. Hence diversity of zooplanktons has major importance in environment. Their habitat is in the water bodies. So, check their quantitative assessment we select Bhokarbari Dam, Kankraj Dam, Gandhali Pilode Panjhar Talav and Pimpali Talav, in Amalner Tahsil, Dist. Jalgaon, Maharashtra, India. Currently Rotifera, Copepod, Cladocera and Ostracoda genera species are found.

Keywords: Zooplanktons, Diversity, Lakes, Species Identification, Check list

KARYOMORPHOLOGICAL STUDY OF *COIX LACRYMA-JOBI* L (POACEAE) IN INDIA

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ABSTRACT:

The detailed karyomorphological study was undertaken for two varieties of *Coix lacryma-jobi* L. namely *C. lacryma-jobi* var. *lacryma-jobi* L., *C. lacryma-jobi* var. *puellarum* (Balansa) E.G. Camus and *A. Camus* and *C. lacryma-jobi* var. *ma-yuen* (Rom. Caill.) Stapf. Present communication deals with somatic chromosome number, total chromosome length, arm ratio, centromeric position and Stebbins classification. Somatic chromosome number 2*n*=10 and 20 were observed in *C. lacryma-jobi* var. *lacryma-jobi* while, other all varieties of *C. lacryma-jobi* have 2*n*=20. All the taxa are fall under 4A category of Stebbins classification. Karyomorphological study of *C. lacryma-jobi* var. *puellarum* recorded for first time.

Keywords: *Coix*, Cytology, Karyotype, India, Poaceae

STUDIES ON PHYSICO CHEMICAL PROPERTIES OF INDUSTRIALLY POLLUTED SOIL OF AURANGABAD CITY

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ABSTRACT:

Industrialization often has drawback of undesirable wastes that hamper the soil and ground water. Soil (10) and water (4) samples from different industrial locations of Aurangabad industrial regions were analysed for different physico-chemical parameters like pH, EC (Electrical conductivity), organic carbon (OC), nitrogen (N), phosphorus (P), and potassium (K). Water samples were examined for pH, EC, TDS, TSS (Total Suspended Solids), chloride concentration, sulphate concentration, and COD (Chemical Oxygen Demand). Soil analysis revealed pH ranging from 7.29 to 9.90. EC varied from 0.03 to 9.75 ms/cm, with Site 6 having the lowest conductivity. Organic carbon content ranged from 0.39% to 2.49%. Available nitrogen ranged from 225.79 to 1486.08 kg/ha, while available phosphorus ranged from 3.87 to 335.54 kg/ha. Site 7 had the highest available potassium (1302.78 kg/ha). Water analysis showed a pH ranging from 3.48 to 7.02. EC varied between 0.27 and 3.75 ms/cm, with similar values in Shendra and Waluj. TDS and TSS were higher in Nath and Vihamandwa compared to Shendra and Waluj. Waluj had the highest chloride concentration (8717 mg/L), Nath had the highest sulphate concentration (1383 mg/L), and Nath also had the highest COD value (17840 mg/L). Though the soil in the industrial region needs attention to be given for the soil quality improvement, the water quality was not significantly bad. This paper presents a milestone as recent report on the soil and water quality around the MIDC regions of Aurangabad, and a reference to provide an idea for soil and water quality improvement.

Keyword: Aurangabad, Electrical Conductivity, MIDC, Physicochemical, Soil Analysis

MICROBIAL CONSORTIUM: A POTENTIAL BIOTECHNOLOGICAL TOOL FOR TEXTILE WASTEWATER MANAGEMENT

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ABSTRACT:

The sustainable use of a microbial consortium to degrade environmentally relevant toxic azo dyes from the textile effluent has captured the attention of recent environmental research. Textile azo dyes are carcinogenic, teratogenic, mutagenic and recalcitrant in nature. The synergistic action of microbial consortium degrades and detoxifies these dyes effectively. The untreated synthetic azo dyes in textile wastewater are released directly into the environment that contaminates natural water sources. As this untreated water is utilised for irrigation by nearby farmers, the presence of poisonous colors from the textile effluents surely harms the flora and animals. In present research, we offer an effective microbial treatment of textile waste water and reuse of the treated wastewater simultaneously as an extra benefit to promote plant development. The toxicity of synthetic textile effluent was also assessed by using a bioassay approach with plant species namely *Vigna radiata* (Mung bean) and *Triticum aestivum* (Wheat). Plate and Pot assay were conducted with microbial consortium treated waste water and untreated azo dye containing waste water with distilled water as a control. After comparing with the control, efficient seed germination (92%), shoot length (15.6 cm), root length (12.4 cm) of the plants were observed for microbial consortium treated wastewater. The effective bioremediation of textile manufacturing effluent protects the environment from the negative impacts of toxic dyes. Under co-metabolic properties of microbial consortium, the biological decolorization of textile azo dyes was explored.

Keywords: Microbial Consortium; Wastewater; *Vigna radiata*, Decolorization

EFFECTIVE BIOCONTROL OF BANANA WILT DISEASE BY USING PLANT EXTRACTS

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ABSTRACT:

Phytopathogenic fungi are frequently reported to cause the disease in banana plant showing wilting, leaf spot and root rot etc. In this study phytopathogenic fungus was isolated from infected banana leaves, stem and root parts. The pathogenicity of the isolated fungal strain was confirmed by using Koch's postulates and its morphological and cultural characteristics were also studied. The isolated fungal strain was characterized and its ability to secrete various hydrolytic enzymes (Amylase, Cellulase, Pectinase, Protease etc.) as a weapon to enter the host plant were studied. Different plant extracts were tested as the biocontrol against isolated pathogen; the experimental study indicated that the garlic extract was a promising biocontrol agent against the isolated phytopathogen of banana wilt disease.

Keywords: Phytopathogenic, Banana Wilt Disease, Hydrolytic Enzymes, Biocontrol.

TEMPORAL VARIATIONS IN PHYSICOCHEMICAL CHARACTERISTICS AND HEAVY METALS IN SALIM ALI LAKE, AURANGABAD

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ABSTRACT:

Understanding water quality is crucial for effective natural surface water resource management. This study focuses on assessing physicochemical attributes and heavy metal levels in Salim Ali Lake, Aurangabad, across three seasons in 2021: May, August, and November. Significant differences were observed in all parameters between seasons ($p < 0.01$). During summer, physicochemical parameters exceeded standard guidelines due to varying climatic conditions. Electrical conductivity, dissolved oxygen, and chloride levels increased in winter. Turbidity was highest in the monsoon, potentially due to dilution effects. Some heavy metals, including total chromium, lead, and cadmium, exceeded permissible limits according to water quality guidelines. Conversely, mercury levels were the lowest. The study highlights the detrimental impact of electroplating and manufacturing effluent discharge on lake water quality. The findings provide valuable data informing long-term water resource management and strategies to mitigate heavy metal pollution.

Keywords: Heavy Metals, Physicochemical, Pearson Correlation, Salim Ali Lake, Seasonal Variation.

DIVERSITY OF PIGMENTED HALOPHILES IN RELATION TO PHYSIOLOGICAL PARAMETERS AND SEASONAL VARIATION IN THE SALTPANS OF MAHARASHTRA AND GUJARAT REGION

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ABSTRACT:

Pigmented halophilic bacteria are crucial components of salt pan ecosystems, contributing to their ecological balance and playing a role in various biotechnological applications. The purpose of the study was to comprehend the relationship between seasonal variation, the distribution and variety of pigmented halophiles of salt water in the saltpans of Gujarat (Nargol, district-Valsad) and Maharashtra (Kelve rd, district-Palghar) from February 2022 to May 2023. Natural microbial communities that could be used as sources of medicinal compounds thrive in hypersaline settings. Salt pans and salt lakes are hypersaline environments with high salt concentrations and pH. The saltpan offers a variety of diverse alkalinity, salinity, temperature, pH, and nutritional environmental variables. Halophilic species that can tolerate salt concentrations of between 0.5 and 3.0 M. The best places to find halophile microorganisms that produce bioactive compounds are extreme settings. Samples of salt water (Brine), soil sediment were taken from various saltpan pits of both the sites. characteristics including pH, salinity, and temperature were also examined. When compared to the salt harvesting period (21-29% salinity), the pre-salt harvesting phase (3-4% salinity) of salterns can support a broad variety of microorganisms. In the hot weather season, the crystallizer reported the highest number of pigmented halophiles. In the monsoon season, the reservoir recorded its lowest number. The highest Shannon-Weaver's Diversity Index (H) was discovered to be at Crystallizer during the hot weather season, while the lowest index was discovered at Reservoir during the Monsoon. Condenser achieved the highest Evenness Index during the monsoon, while Crystallizer recorded the lowest index during the Hot Weather season. Cystallizer earned the highest Richness Index (d) during the Hot Weather season, while Reservoir Cystallizer recorded the lowest during the South West Monsoon. Because there was no previous report on bacterial biodiversity from this region so exploring the unexplored region will for surely open up path for many research activities.

Keywords: Pigmented Halophiles, Salt pan, Diversity, Ecosystem, Applications

ANALYSIS OF SOIL SAMPLES FOR ITS PHYSICO-CHEMICAL PARAMETERS AND ITS SALINITY TOLERANCE USING PEA PLANT FROM SURAT CITY

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ABSTRACT:

Making informed judgements about agricultural productivity, soil management and environmental sustainability requires doing a thorough soil study. It helps growers and gardeners identify nutrient shortages, determine how much and what sort of fertiliser to use, and select the best crops for their soil and environment. Soil analysis assists in determining the probability of soil pollution, which may have a negative impact on both human health and the environment, in order to build programmes for soil remediation and restoration. In this study, *Pisum sativum* (Pea) plants were grown in 3 different soils, from 3 different region of Surat city, i.e. from Althan, Pandesara and Udhna-Magdalla as Sewage, Industrial and Fertile soils respectively. The results showed that the medium level of all these parameters were observed in the fertile soil sample and the Industrial soil of Pandesara showed some optimal levels of growth, pH, phosphorus, salinity and sulphur when the salt was added.

Keywords: Soil Analysis, *Pisum sativum,* Surat City

BLUE GREEN ALGAE THAT FORM CRUST ON MOIST SOILS, DHULE

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ABSTRACT:

In rainy season algae appears as green crusts on soil surface due to availability of moisture. Many algal forms appear for short period. Blue green algae secrete mucilage and become successful crust forming algae on moist soils. Present investigation incorporates total thirteen filamentous non heterocystous blue green algal taxa. Genus *Lyngbya, Schizothrix* and *Symploca* was observed from moist soils of Dhule city forming algal crusts.

Keywords: Blue Green Algae, Crust, Moist Soils, Dhule

ISOLATION OF HIGH GLUCOSE TOLERANCE YEAST FROM HONEY COMB AND PRODUCTION OF BIOETHANOL

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ABSTRACT:

Five yeast strains were isolated and used as a high glucose tolerant with an optimized SSFand submerged fermentation strategy, maximum ethanol titre and productivity reached 10.96gm% of HCY 4strain after 120 hr found to be most osmotolerant. The isolates were found to grow optimally on glucose (upto50%) and xylose (upto15%) the study shows that these strains have high tolerant to ethanol. Important target is characteristics of isolated strains. Isolates of yeast from environment convert glucose to ethanol could form the basis for Bio-Fuel production.

Keyword: Osmotolerant, Strains, Honeycomb

ENHANCED COMPOSTING THROUGH COMBINED PRE-TREATMENT TO COTTON AND RED GRAM WASTE

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ABSTRACT:

Composting is an eco-friendly and sustainable approach to utilize the agrowaste. The process of biodegradation during the composting can be enhanced using various pre-treatment steps. It increases the accessibility of biomass and serves as an important step towards bioconversion. The main objective of pretreatment is to break the lignin and disrupt the crystalline structure of cellulose. In the present investigation cotton and red gram waste was utilized for composting. Before composting pretreatment of laccase (5U/ml), sodium hydroxide (10%) steam under pressure was given to the agrowaste. The compost was analysed after eight weeks with respect to pH, EC value, C: N ratio and the results of final compost are 7.4, 2.09 (ms/cm), 32%, respectively. In addition to this the final compost was also analysed for germination index. (GI) which was enhanced by 181% as compared with the compost prepared from untreated agrowaste. Thus, composting processed was improved through pre-treatment given. Such study will help for better utilization of agrowaste and help to reduce, recycle and reuse the organic waste effectively.

Keywords: Agrowaste Composting, Cotton and Red Gram Waste, Germination Inde

AREA OF SATPUDA RANGE OF JALGAON (M.S)

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ABSTRACT:

In this study we explored diversity of foliicolous fungi across the Satpuda Range using the basic morphotaxonomic tools. A slight imbalance in the environmental condition of Satpuda can result in to the development of variety of discoloration, blights, tar spots, powdery mildew, black mildew, rust, smuts, galls and sooty moulds and so on. In the different seasons, different types of fungi colonise the leaves. Their growth is favoured by different climatic conditions. With a view of studying the foliicolous fungi in Manudevi and Unapdev forest areas are visited number of times to get maximum sample collection. The fungal species were identified with the help of monograph, literature and confirmed by experts. In the current study, we conclude various types of fungal diseases found in Manudevi forest region due to Foliicolous fungi viz. *Alternaria tenuissima, cladosporium, narmadae, Cryptosporiosis eucalypti, Curvularia dactyloctenicola, Meliola mangiferae, Meliola memecyli, Meliola oogeinae, Meliola tabernaemontanae, Petrakia echinata, Sirosporium zizyphae.* The current survey may help to understand about occurrence timing, specific infectious agent and Host Forest tree of foliicolous fungi. The present paper concerns that there is still thorough need to exploit the diversity of foliicolous fungi in forest region of Satpuda Range which produces all most all types of valuable forest products.

Keywords - Folicolous Fungi, Forest Tree, Satpuda

STUDY OF HISTOPATHOLOGICAL CHANGES IN HEPATOPANCREAS OF *BELLAMYA BENGALENSIS* (L.) EXPOSED TO ZINC SULPHATE

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ABSTRACT:

Bellamya bengalensis was exposed to sub-lethal concentrations of Zinc sulphate for different periods of time for a histological study. The effects of sub-lethal concentrations of Zinc sulphate on histological structure of hepatopancreas have been documented. The histopathological changes examined are disintegration of basement membrane due to damaged epithelial cells, disruption of hepatic tubules, and increase in internal luminar area at 3.210 ppm $ZnSo_4$ for 72 hrs, occurrence of cell debris in between the tissue at 1.735 ppm $ZnSo_4$ for 96 hrs. The histopathological lesions in hepatopancreas resulted in the disturbances of overall metabolism and several related physiological processes

Keywords: *Bellamya bengalensis,* Zinc sulphate, Hepatopancreas, Histopathological changes

'SACRED PLANTS': AN ANCIENT PLANT CONSERVATION PRACTICE

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ABSTRACT:

If we look at the history of Indian culture, we realize that many important plants have been given a prominent place in it. While studying Ayurveda, ancient scriptures, Upanishads, we see the mention of many trees like wad, pimpal, mango, tulsa, we get to study their importance in human life. In this study it is also noticed that the importance of these trees is only in a particular religion, but not also. In the scriptures and customs of almost all the religions found in India or living in the Indian subcontinent, the importance of these trees is highlighted in one way or another. Like tulsi, wad, pimpal, coconut, banana in Hinduism, sabja, rose in Muslim religion, bark, pimpal, mango in Buddhism and rajnigandha in Parsi religion.... And when this study approaches the tribal life, the entire tribal culture is based on this forest resource is observed. In the present research, the same has been studied.

Keywords: Sacred Plants, Ethnobotany, Conservation, India

BIOEFFICACY OF PHYLLOCLADE EXTRACT OF EUPHORBIA TIRUCALLI ON THE GROWTH OF *HELIOTHIS ARMIGERA* H. (LEPIDOPTERA: NOCTUIDAE)

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ABSTRACT:

Current study assessed the effect of phylloclade extract of Euphorbia tirucalli on the developing stages of *Heliothis armigera* in different solvents. To study the reproductive aspects of *Heliothis armigera,* phylloclade extract of Euphorbia tirucalli was prepared in chloroform and acetone solvents. After 24 and 96 hours of treatment, both chloroform and acetone extract were interrupt their life cycle and the notable changes had been observed such as increased mortality and emergence of adults were decreased.

Keywords: *Euphorbia tirucalli*, *Heliothis armigera*, Chloroform, Acetone, Mortality, Antifeedant

HISTOLOGICAL CHANGES IN TESTIS OF WISTAR ALBINO RATS FOLLOWING TREATMENT WITH AQUEOUS EXTRACT OF *AMARANTHUS SPINOSUS*

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ABSTRACT:

Amaranthus spinosus is a tropical plant and is used traditionally as a vegetable and in folk lore medicine for the treatment of various ailments. The present study is carried out to investigate the effect of aqueous extract of *Amaranthus spinosus* on histology of testis in male rats. Male wistar rats were received aqueous extract of *Amaranthus spinosus* at 125, 250, 500 and 1000 mg/kg.bw/day orally for 60 days. The weight of testis showed significant reduction ($p<0.01$) at 250mg dose and the reduction was highly significant ($p<0.001$) at 500 and 1000 mg/kg.bw/day after 60 days of treatment. There were no appreciable gross or histological changes in the testis at 125 and 250 mg/kg. bw/day. However, disturbed arrangement of seminiferous tubules, slight degeneration in the stages of spermatogenesis and reduction in the number of spermatozoa was observed at 500 mg/kg. bw/day. In 1000 mg/kg.bw/day group, there was disruption of spermatogenesis, reduced diameter and regression of seminiferous tubules and degeneration of seminiferous epithelium with vacuolization in Sertoli cells and germ cells was observed. After 90 days of treatment withdrawal, the weights of testis were comparable statistically to that of control animals. But, continued significant reduction ($p<0.01$) was observed at 1000 mg/kg.bw/day. The histological architecture of testis was comparable to that of control animals at 500 mg/kg. bw/day and changes were noticeably recovered to normal levels at 1000 mg/kg.bw/day. Thus, administration of aqueous extract of *Amaranthus spinosus* showed dose dependent effects on weight and histology of testis after 60 days of treatment period. The effects were more noticeable at higher doses but was recovered to normal levels after 90 days of treatment withdrawal.

Keywords: *Amaranthus spinosus*, Albino Rats, Testis, Histology

SCREENING AND ISOLATION OF CELLULOLYTIC MICROBES FROM ENVIRONMENTAL SAMPLES AND ITS ENZYMATIC STUDY

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ABSTRACT:

Every year through various agricultural practices, an abundant amount of lignocellulosic biomass is generated, constituting almost 80 % of cellulose. This enormous amount of unused biomass is accumulated in an environment which may pose environmental and health hazards. These cellulosic wastes can be converted into various products and byproducts by applying cellulolytic enzymes, which catalyse the degradation of cellulose. Cellulases can be used in the bioconversion of agro-waste to products like biofuel. In the present study, a total of five cellulolytic microbes were isolated from saw mill, garden and composting site soil samples and screened using cellulose congo red agar medium. The isolates were named as I1, I2, I3, I4, and I5. Based on the hydrolysing capacity, isolate I3 was selected for further characterization and enzymatic study, which was later identified as Aeromonas spp. based on morphological and biochemical characteristics. It was revealed that I3 exhibited maximum enzyme activity i.e. 0.034 and 0.019 µM/ml/min using caboxy methyl cellulose and lignocellulosic waste as the substrates using CMCase assay. Further, the enzyme was purified using both the dialysis method at 90% saturation of ammonium sulphate and column chromatography. The enzyme activity was noted maximum of the fractions obtained from column chromatography and it was found to be 0.052 µM/ml/min. The maximum specific activity estimated was 0.112 µg/ml/min/mg of protein. Room temperature and pH 7 were recorded as optimum parameters for enzyme activity during the optimization of process parameters. Further, the purity of the enzyme was confirmed by SDS-PAGE and zymography.

Keywords: Cellulose, Lignocellulosic Waste, Cellulase, CMCase Assay, Optimization

DECOLOURIZATION AND DETOXIFICATION OF SYNTHETIC AZO DYE USING FUNGAL LACCASE

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ABSTRACT:

Laccase is being explored for bioremediation potential, especially for dye degradation and detoxification. In the present study, laccase produced from *Perenniporia tephropora* - L168 was applied to decolourisation and detoxification of non-textile synthetic Azo dye - Methyl red. To optimize the process Box-Behnken factorial design with three factors- crude laccase concentration, dye concentration and incubation time was used. The optimization resulted in 81% decolorization of methyl red in 176min. The decolourization also studied under immobilized condition with different hardening agents. The maximum 91.68% decolourization was achieved within 3 h with copper sulphate as a hardening agent. The changes in structure of dyes were noted by UV-Vis and FTIR analysis. The fungal toxicity was assayed with *Aspergillus spp*. and *Fusarium spp*. The toxicity of Methyl red was reduced for both the fungus when treaded with laccase. Also, the degradation products of various dyes transformation by laccase showed less phytotoxicity with against *Vigna radiata* and *Vigna aconitifolia* seed as compared to native.

Keywords: Laccase, Dye decolorization, Microbial toxicity, Phytotoxicity

REVIEW ON BIOCHEMICAL INVESTIGATION OF HELMINTH FAUNA FROM SHEEP AND GOAT

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ABSTRACT:

Goats and sheep are vital to the socio-economic fabric of many Asian countries, notably India, as they provide essential resources like meat, milk, and wool. These animals, crucial for agro-based industries, can become financial liabilities if they contract infections from internal parasites such as Gastrointestinal helminths. These infections can severely affect various systems in the animals, including their reproductive and immune systems, leading to decreased productivity and increased treatment costs. Key parasites that threaten these animals include *Haemonchus contortus, Teladorsagia circumcinata, Fasciola gigantica,* among others, targeting organs like lungs, stomach, liver, and blood. Various studies have shown that these infections can cause alterations at molecular levels, impacting proteins, DNA, RNA, and hormone secretions. For instance, HcTTR protein affects IL4 induced pathways in goats, and the Methyltransferase-12 gene is related to the H. Contortus parasite. Some excretory and secretory proteins from these parasites can influence specific functions in the animals. An example includes peroxiredoxin from T. circumcincta, which causes gastroenteritis. Similarly, proteins from F. gigantica affect goat monocytes, and those from H. contortus can alter Th9 cells. The rFgRab10 protein, another parasite-derived protein, affects goat PBMCs (Peripheral Blood Mononuclear Cells). Furthermore, proteins like rHcGOB have shown potential as vaccine targets, while Hco-gal-m's sugar-binding abilities are of note. Other proteins like TMEM147 and TMEM63A interact differently with H. contortus galectin in the regulation of PBMCs in goats. The importance of the serine protease inhibitor superfamily has also been highlighted in the context of parasitic helminths. In short, studies show that parasites can cause different problems in animals at a tiny, detailed level. It's important to know how this works to find good treatments and ways to prevent these infections in farm animals.

Keywords: Biochemistry, Helminth Fauna, Sheep, Goat

GENUS CLOSTERIUM NITZSCH IN TAPI RIVER FROM JALGAON DISTRICT OF MAHARASHTRA STATE

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ABSTRACT:

The present communication deals with 16 taxa of *Closterium* collected in Tapi river from Jalgaon district of Maharashtra state. Of these *Closterium acerosum* (Schrank) Her. var. *angolense* west and west, *C. attenuatum* Ralfs., *C. delpontei* (Klebs) Wolle, *C. ehrenbergii* Meneg var. *podolicum* Gutwinski, *C. gracile* Breb., *C. lanceolatum* kuetz. var. *parvum* west and west, *C. limneticum* Lemm. var. *fallax.* Ruzicka., *C. lunula* (Muell) Nitzsch. var. *Pseudoacerosum, C. malinvernianiforme* Gronblad, *C. moniliferum* (Bory) Her. var. *concavum* Klebs., *C. parvulum* var. *ellipticum* Wille*, C. porrectum* Nordst., *C. pseudolunula* Borge, *C. ralfsii* Breb., *C. venus* Kutz., *C. wallichi* Turner. The taxa *C. parvulum* var. *ellipticum* Wille *and C. venus* Kutz are addition to algal flora of Maharashtra. All the taxa are taxonomically described.

Keywords: Green Algae, Desmids, Closterium, Tapi River, Maharashtra.

CENTELLA ASIATICA (L.) URBAN AS A NEUROPROTECTIVE AGENT IN HUMAN HEALTH

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ABSTRACT:

Centella asiatica (L.) Urban, a popular medicinal plant in Eastern cultures, is progressively gaining popularity across the Asian continent. The active chemicals are pentacyclic triterpenes; the most noteworthy are asiaticoside, madecassoside, Asiatic acid, and madecasic acid. The aerial portions and roots are utilized for medicinal reasons, and the plant's chemical components contain antibacterial, anti-inflammatory, anticancer, neuroprotective, antioxidant, and wound-healing qualities. This article overviews current studies on *C. asiatica's* health advantages. The research focuses on the plant's significance as a neuroprotectant and its phytochemistry and pharmacological qualities.

Keywords: *Centella asiatica* (L.) Urban, Neuroprotectant, Antibacterial, Anticancer, Human Health.

IMMOBILIZED LACCASES: AN OVERVIEW OF ITS METHODS AND APPLICATIONS FOR A SUSTAINABLE ENVIRONMENT

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ABSTRACT:

Laccase is a copper-containing oxidase with huge versatility due to its broad range of substrate specificity. The enzyme is widely used in the paper and pulp industry, bioremediation, bioleaching of synthetic dyes, food processing and pharmaceutical industries, etc. However, industrial applications of laccases are hampered by changes in pH, temperature, and activity loss, leading to higher costs. Free laccases show poor stability. Immobilization of laccase is a well-run strategy to improve their kinetic properties, reduce enzyme loss, and subsequently reduce costs in this regard. The immobilization of laccases improves the storage and operational stabilities as well as reusability and this represents a great advantage compared with the free laccases. Laccases are immobilized by adsorption, entrapment, covalent attachment, and cross-linking. This review aims to study different aspects of laccase immobilization methods, carriers, and their applications in environmental studies.

Keywords: Immobilization, Adsorption, Bioremediation.

GAMMA RAY INDUCED MUTATIONAL STUDIES IN *CYAMOPSIS TETRAGONOLOBA* (L.)

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ABSTRACT:

Cluster bean (*Cyamopsis tetragonoloba* (L) Taub) variety NS661 was used in the current work to study the mutagenic Effect of various doses of physical mutagen Gamma rays. The mutagenized seed of the cluster bean genotype variety NS661 was exposed to three different doses of Gamma rays (viz. 05kR 10kR and 15kR). *Cyamopsis tetragonoloba* is a diploid species with 2n = 14 chromosome number. Studying the mutagenic effects of gamma rays on Cluster bean *(Cymopsis tetragonoloba)* variety NS661 provides valuable insights into the potential applications of physical mutagens in crop improvement and genetic research. Economic Importance: Cluster bean has multiple economic uses. The seeds of *Cymopsis tetragonoloba* contain a gum called guar gum, which has thickening and stabilizing properties. Cluster beans experience some morphological alterations as a result of Gamma radiation's physical mutagen effects. Chlorophyll deficiency sectors and the leaf margin also changes are observed effective at 10 kR dose of Gamma rays. In these studies, the researchers observed comparable outcomes in terms of the percentage of seed germination, seedling height, and the frequency of plants carrying chlorophyll deficient sectors and leaf morphological changes in the M_1 generation

SYSTEMATIC STUDIES OF GENUS *ABILDGAARDIA* (CYPERACEAE) IN INDIA

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ABSTRACT:

Genus *Abildgaardia* (Tribe: Abildgaardeae) is a tropical genus belongs to family Cyperaceae. Total nine species are reported worldwide and out of that two species are reported from India *viz. Abildgaardia ovata* (Burm.f.) Kral and *A. triflora* (L.) Abeyw. Earlier *A. ovata* and *A. triflora* were considered in the genus *Fimbristylis* Vahl after detailed morphological, molecular, embryological and physiological analysis both species are treated under the genus *Abildgaardia*. In present communication detailed taxonomy, nomenclature and synonymy of the Indian *Abildgaardia* and typification for two binomials of genus *Abildgaardia* were discussed. Detailed notes, identification key, photo plates are provided for easy identification, and distribution in India are also mentioned.

Keywords: Abildgaardeae, India, Sedges, Taxonomy, Typification

ETHNO-MEDICINAL STUDIES OF SOME SHRUB PLANTS OF DHULE DISTRICT (MH.) INDIA

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ABSTRACT:

The aim of the present work was identification and characterization of Ethno-medicinal shrub plants growing in the distinct Dhule (MH.) India. Our survey was also aimed at the possibility of discovering new ways by which such Shrub plants are used for human health. The survey was made during January 2022 to December 2022. A total 22 species of shrub plants representing 19 genera and 13 families were collected. The plants were identified on the basis of their natural characteristics, using semi structured interviews, guided field walks and observation with participants. Our result suggests the Shrub plants of these areas were mostly ones which were common, easily grown and cultivated in any place. However, our results also show that there are many ways of properly utilizing such important medicinal plants in the promotion of human health.

Keywords: Shrub Plants, Ethno-Medicinal Studies, Survey, Dhule District.

GASTROPOD DIVERSITY WITH PHYSICO-CHEMICAL CHARACTERISTICS OF AKKALPADA DAM DHULE DISTRICT OF MAHARASHTRA, INDIA

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ABSTRACT:

At the Akkalpada dam in Dhule, Maharashtra, from October 2021 to November 2022, a study on the population dynamics of freshwater and terrestrial gastropods as well as the physico-chemical features of soil and water was conducted. Mean values were taken to calculate the density, frequency, and abundance of these species of gastropods, which were collected using the conventional method of handpicking. Using established techniques, the physico-chemical properties of the water and soil in the chosen locations were examined. Thirteen families and eight orders contain nineteen different species of gastropods. According to Simpson's and Shannon diversity indexes, Akkalpada had the highest species richness and diversity. The value of the physico-chemical parameters shows that the population dynamics of gastropods had a moderately positive relationship.

Keywords: Akkalpada, Physico-Chemical, Gastropods, Species, Simpson's Index, Shannon Index

ISOLATION AND CHARACTERIZATION OF BIOSURFACTANT PRODUCING BACTERIA FROM OIL CONTAMINATED SOIL

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ABSTRACT:

Biosurfactants are biological surface-active agent capable of reducing interfacial tension between liquid, solids and gases, thereby allowing them to mix and disperse redially in water or other liquids. Surfactants are used for wide variety of applications in household, industry and agriculture. Microorganisms synthesize a wide range of surface-active compounds. The main aim of this study was isolate and characterize biosurfactant producing bacteria from oil contaminated soil of oil industry, Amalner. The isolation and growth study were carried out in MSM media using kerosene oil as sole carbon source for bacterial growth. Two bacterial strains labelled as B_3 and B_5 were isolated and screened among other isolates for their ability to produce biosurfactants. Also study of their growth kinetics at different pH and temperature was performed. The cell free culture broth showed positive results towards three screening tests- Oil displacement, hemolysis in blood agar and emulsification activity(E_{24}).

Keywords: Biosurfactant, Oil Displacement, Hemolysis, Emulsification Activity (E_{24}).

SCREENING OF HALOTOLERANT MICROORGANISMS FROM NATURAL SALINITY STRESS CONDITIONS FROM COASTAL REGION FOR SUSTAINABLE AGRICULTURE

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ABSTRACT:

Till the date numerous research done on plant growth promoting bacteria, but there is abrupt increase in population with food insecurity these issues developing due to most of land is affected by global warming, continuous changes in environmental conditions like drought, flood, pH, temperature, salinity of soil. Nutritious level of soil, fertility of soil is affected day by day excess use of chemical fertilizer and pesticides, thus crop productivity as well as rhizosphere of crops severely degraded by stressful condition. Therefore, this research gives features on researching on halotolerant plant growth promoting microorganisms' interaction with different crops in saline affected soils. We highlighting the role of halotolerant plant growth promoting microbes with different crops under salinity stress. Thus, the researchers emphasize on important of halotolerant PGPM as an alternative source for sustainable agriculture as they are remediating the soil fertility and capability of crop to grow under salinity stress conditions. This research focuses on the halotolerant microbe's potential in salt affected soils as bioinoculants and bioremediates of salinity stress in soils. It has significant role in to improve nutritious value of soils and fertility to overcome the salinity condition affected crops yields.

Keywords: Salinity, Halotolerant PGPM, Bioremediation, Biostimulant.

TEMPORAL VARIATIONS IN PHYSICOCHEMICAL CHARACTERISTICS AND HEAVY METALS IN SALIM ALI LAKE, AURANGABAD

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ABSTRACT:

Understanding water quality is crucial for effective natural surface water resource management. This study focuses on assessing physicochemical attributes and heavy metal levels in Salim Ali Lake, Aurangabad, across three seasons in 2021: May, August, and November. Significant differences were observed in all parameters between seasons ($p<0.01$). During summer, physicochemical parameters exceeded standard guidelines due to varying climatic conditions. Electrical conductivity, dissolved oxygen, and chloride levels increased in winter. Turbidity was highest in the monsoon, potentially due to dilution effects. Some heavy metals, including total chromium, lead, and cadmium, exceeded permissible limits according to water quality guidelines. Conversely, mercury levels were the lowest. The study highlights the detrimental impact of electroplating and manufacturing effluent discharge on lake water quality. The findings provide valuable data informing long-term water resource management and strategies to mitigate heavy metal pollution.

Keywords: Heavy Metals, Physicochemical, Pearson Correlation, Salim Ali Lake, Seasonal Variation

SOME REPORTS OF ETHANOVETERINARY PRACTICES BY TRIBE IN NEWASA TEHASIL AHMEDNAGAR (M.S.)

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ABSTRACT:

This study presents traditional ethno-veterinary knowledge of 25 families and 27 plant species out of a total of 30. The knowledge of local residents residing in the research region was investigated. It incorporates seeds from8 trees, leaves from 6 trees, trunk from 5 trees, fruit from 4 trees, and bark from 2 trees, as well as bark, wood, root, tuber, and leaf bark from 1 tree. Botanical name, followed by local name, family (in brackets), and ethno-veterinary use of local importance are tabulated and included in the study. His details were gathered. Oral interviews with informants from the research region In a casual setting at their workplace. The informants ranged in age from 16 to 90. Among these informants, males (55.30%) and females (44.07%) claimed ethno-veterinary knowledge among the 42 participants. Scientific validation of therapeutic characteristics of natural plants utilized in traditional domestic animal medical systems. Recognizing and appreciating local communities' traditional wisdom.

Keywords: Quantitative, Exploration, ethno-veterinary, medicinal

RESPONSE SURFACE METHODOLOGY FOR OPTIMIZATION OF LIPASE PRODUCTION UNDER SUBMERGED FERMENTATION BY *TRICHODERMA VIRIDE*

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ABSTRACT:

Lipase has been found to be a potential candidate for different industrial sectors, as compare to plants and animals, microorganisms serve as a best potential source of lipase production. The aim of this study was to check effect of different production media factors on lipase yield by submerged fermentation using *Trichoderma viride*, and to find significant one from them. Placket Burman factorial design (PBD) and Central composite design (CCD) were used for media optimization. In PBD 12 experiments were conducted to study influence of 9 factors on production of extracellular fungal lipase by *Trichoderma viride*. Among these factors K_2HPO_4 and temperature had a significant effect ($p<0.05$) on lipase production and were studied through CCD. After optimization the maximum lipase activity achieved was 16-17 U/mL

Keywords: Plackett Burman Factorial Design, Central Composite Design, *T. viride,* Lipase Activity

ANTICANCER PROPERTY OF SIMPLE ASCIDIAN *HERDMANIA MOMUS* AGAINST A-549 CANCER CELL LINE

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ABSTRACT:

Lung cancer is one of the most prevalent diseases affecting human beings. The cytotoxicity-based chemotherapy treatment for cancer has significant side effects. Therefore, anticancer research is concentrated on identifying an effective drug with minimal side effects. Here assesses the anticancer activity of the ethyl acetate, butanol, water and dry extract of the simple ascidian *Herdmania Momus* against human lung cancer cell lines (A-549). The extract administration at 10, 20, 40, 80, and 100 micrograms/ml in 100 ml of DMEM. Butanol and ethyl acetate extract showed good percent inhibition of the A549 (lung cancer cell line) cell line as compared to standard drug 5-fluorouracil. In vitro studies indicate the presence of bioactive compounds in *Herdmania Momus with* anticancer properties against A-549 cells.

Keywords: Herdmania Momus, Anticancer, A-549 Cells, Cytotoxicity.

POSTHARVEST FUNGAL DISEASES ON PAPAYA FRUIT IN AHMEDNAGAR DISTRICT OF MAHARASHTRA, INDIA

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ABSTRACT:

To study the morphological symptoms and cultural characteristics of fungal pathogens `found on post-harvest fruits of Papaya. The current study concerns Post-harvest Fungal Diseases, Fungal Pathogen, and Fruit Losses. Papaya is known for its medicinal properties. Every part of the papaya tree possesses medicinal value. Papaya fruits are naturally perishable from illnesses by various microorganisms, particularly fungi, along with viral Diseases, nematode Diseases, and bacterial Diseases. Fungal pathogens are accountable for the majority of losses. Sometimes, improper harvesting, storage, and transportation show several pathogen attacks. We are currently studying eight different fungal pathogens that were isolated from papaya fruits. The fungal pathogen isolated from papaya is *Alternaria alternate*, *Aspergillus flavus, Colletotrichum gloeosporioides, and Aspergillus niger, Rhizopus sp ,Fusarium sp, Cladosporium, Penicillium*

Keywords: Papaya (*Carica papaya*), Fungal Pathogen, Symptoms

UTILIZATION OF LIGNOCELLULOSIC WASTES FOR PRODUCTION OF LACCASE USING *PERENNIPORIA TEPHROPORA L-168*

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ABSTRACT:

Selection of substrate is important in production of enzyme when Solid substrate fermentation (SSF) technique is used. Diverse low-cost agro wastes were reported for laccase production which otherwise have little or no economic value. In the present investigation, different substrates were screened for laccase production such as agro wastes viz., Jawar stack, Cotton stacks, Corn stover, Wheat bran and Green gram, grasses viz., *Ricinus* and *Alternanthra* and food waste sweet lime, orange, banana and potato peelings were also studied. On the comparison of all substrates, addition of wheat bran, has resulted in maximum laccase 642 U/g laccase production, it was followed by red gram husk and ground nut. In case of food waste potato peeling was more effective. In conclusion, wheat bran is abundant by-product formed during wheat flour preparation, rich in nutritional content and has ability to act as supportive material as result of its physical integrity**.** Hence, it serves as effective, easily available and inexpensive raw material for laccase production.

Keywords: Laccase, Lignocellulosic Substrate, Agro Waste, Food Waste

POST-HARVEST SHELF-LIFE IMPROVEMENT USING LACTIC ACID BACTERIA AGAINST FOOD SPOILAGE FUNGI – *FUSARIUM* AND *ASPERGILLUS*

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ABSTRACT:

One of the main causes of post-harvested food disease is food contaminating fungi. Currently, the use of fungicides is the main strategy to control the contamination caused by different types of fungi, but these treatments can cause side effects such as environmental contamination, impacts on human health, and the development of resistance by pathogenic strains, which have generated the need to develop new alternatives to replace the use of synthetic chemicals. The fungi *Aspergillus niger, Fusarium* sp. have been identified in previous studies as some of the main responsible for the deterioration of post harvested food. A technology that has been recently used in a variety of studies is the application of edible coatings (ECs) of LAB or extracted fragments on fruit and vegetables. These are considered an ecologically friendly method that can extend the shelf life of fruit or vegetables by reducing moisture loss and respiration rates, preventing physical damage, and improving product appearance. Among 15 different isolates obtained from 5 types of fruits,5 isolates were shown antifungal activity against *Aspergillus niger, Fusarium* sp. Among them only one isolate that given promising results was used in further study. Isolate *Streptococc*i showed more than 60% inhibition of *Fusarium* in poison agar assay, and increases shelf life of tomato.

Keywords: Shelf Life, Edible Coatings, LAB, *Aspergillus niger, Fusarium* sp.

SOME MEMBERS OF*CHLOROPHYCEAE* FROM FAIZPUR REGION DIST. JALGAON

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ABSTRACT:

A Total 94 water sample were collected from different site of polluted and unpolluted localities around Faizpur region. The present communication deals with the description, photographs of the floristic composition of rain water bodies of algae are comprised of the members of *Chlorophyceae*. A total of 35 algal taxa were collected and identified belong to 16 genera such as *Pandorina, Oocystis, Chlorella, Pediastrum, Coelastrum, Ankistrodesmus, Crucigenia, Scenedesmus, Ulothrix, Uronema, Chetophora, Oedogonium, Spirogayra, Euastrum, Closterium, Cosmarium, Xanthidium.*

Keywords: Chlorophyceae, *Oocystis, Cosmarium, Cosmarium, Spirogayra*

SCREENING OF REGIONAL LIGNOCELLUOSIC SUBSTRATE FOR OPTIMIZED BIOGAS PRODUCTION USING LABORATORY LEVEL REACTOR

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ABSTRACT:

Biomass is a distinctive, promising, global green energy source found abundantly in nature, even in non-urban areas. These lignocellulosic materials such as cultivated feedstocks and residues can be utilized for anaerobic digestion and bioenergy production. Present study deals with the screening of regional lignocelluosic substrate for biogas production. The parameters used for screening were total and volatile solids, cellulose, lignin. Screening parameters also includes the constituent such as total values of sugar, protein, Kjeldahl nitrogen, C: N ratio and calorific value. On the basis of BMP analysis and availability of crop residues in the region, cotton agro waste was selected for optimization studies. The biogas production was optimized with respect to pH, substrate concentration and hydraulic retention time (HRT). An average %TS of all eleven agro-waste has above 93%, with a maximum of 94.89 % for cotton. Moreover, cotton agro-waste has C: N ratio 24.34 which is near to desirable value. Cotton waste has produced maximum net biogas 284.2±10.54 L/kg and net absolute methane 178±6.12 L/kg. The maximum of net biogas and absolute methane was produced at pH 7.0 and at substrate concentration 5.0 g/L in 25 days cycle. The biogas produced using optimized parameters at 1 L digester using cotton agro-waste resulted in 361 L/kg Net biogas yield and 184.2 L/kg net absolute methane.

Keywords: Cotton Agro Waste, Biogas

FLORISTIC DIVERSITY OF SAMERA FOREST DISTRICT ARAVALLI, GUJARAT

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ABSTRACT:

The present work has been done to collect the Information about different plant species of Kanthariya range forest in particular zone of Samera. The data obtained from these studies have botanical importance of the particular zone Samera During my field work we have consisted of total 52 Angiosperm families are belonging 192 plant species were collected and recorded. Trees are dominated with 112 and 38 shrubs, 8 climbers and 42 herbs. We have also noted 2 ptreidophytes and 3 bryophytes. The dominant species are *Tactona grandis, Butea monosprma, Holarrhena antidysenterica, Diospyros melanoxylon, Acacia nilotica, etc.*

Keywords: Floristic Diversity, Dominant Species

SURVEY OF AQUATIC HYPHOMYCETES FROM VISAPUR DAM IN AHMEDNAGAR DISTRICT OF MAHARASHTRA, INDIA

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ABSTRACT:

During our Aquatic Hyphomycetes studies from the dam of Visapur village of Ahmednagar district. We have collected some aquatic Hyphomycetes members encountered foam samples, water analysis, and submerged leaves collected from Visapur Dam. These fungi namely *viz., Anguillospora crassa, Campylospora chaetocladia, Chaetendophragmia triangularia, Diplocladiella scalaroides, Flageollospora penicillioides, Lunulospora curvula.*

Keywords: Aquatic Hyphomycetes, Visapur Dam

FUNGAL DISEASES OF HORTICALTURE CROP PLANTS FROM DHULE DISTRICT

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ABSTRACT:

Horticulture is the art of cultivating plants in gardens to produce food and medicinal ingredients, or for comfort and ornamental purposes. Horticulture is the branch of agriculture concerned with intensively Cultured plants directly used by man for food, medicinal purposes and aesthetic gratification. M. H. Marigowda is considered the father of Indian Horticulture productivity and Horticultural crops in India. Is relatively low as compared to other countries of the several factors responsible for lower productivity of horticultural crops, fungal diseases are considered as important limiting factors, MT of technical grade fungicides are used annually to manage the diseases in India. The information on fungal diseases of horticultural crops is very much scattered. In present study 10 different horticulture plants with prominent fungal pathogen is reported. These plants were collected from field as well as markets of Dhule district.

Keywords: Horticulture, M.H. Marigowda, Fungal Diseases, Lower Productivity.

FUNGI IN THE SOIL CLOSE TO CROPS

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ABSTRACT:

In Botanical research, the microscopic plant-like cells known as mycelium, which are formed by hyphae or long, thread-like structures, are what make up soil fungi. Nutrients are taken up by the mycelium from the roots. It has taken over the soil or organic substances on the surface. I discovered a fungus of the sclerotia kind when I collected dirt next to a maize plant's stem. I then dug out some dirt around the cotton plant and discovered a species of soil fungus known as cotton rot root. I investigated three or four additional kinds of fungi in this way. You will learn about soil fungus in crops and crop plants in this.

Keywords: Botany Research, Mycelium, Root Fungus, Crop Plant.

PHYTOCHEMICAL ANALYSIS OF SOME *HIBISCUS* SPECIES OF FAMILY MALVACEAE

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ABSTRACT:

Photochemistry is a branch of science that deals with the study of chemicals obtained from plants These phytochemicals are mainly the primary andamp; secondary metabolites offering medicinal attributes to the plants. Hibiscus Genera is of flowering plants belongs to the family Malvaceae. The genus is quite large comprising several hundred species that are native to warm temperature, subtropical andamp; tropical regions throughout the world. Member species are renowned for their large showy flowers, which are hardy and tropical plants for the garden cultivated as ornamental. Our approach involved the collection, identification, extraction andamp; phytochemical evaluation of extracts derived primarily from a random section of commonly occurring in native plants of Hibiscus species for knowing biochemical attributes which endow them potential to cure numerous diseases andamp; flower coloration. The various phytochemical test performed reveals the presence of Variety of primary andamp; secondary metabolites, which might be responsible for their high Nutritional and medicinal value.

Keywords: Malvaceae, Phytochemical, Hibiscus

PHYTOCHEMICAL STUDIES IN SOME CRUCIAL MEDICINALS PLANTS IN MAHARASHTRA

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ABSTRACT:

Medicinal plants would be the best source to obtain variety of medicines. About 80% of individual developing countries use traditional medicines, which has compound derived from medicinal plants. About 75 – 90 % of the rural population in the world (excluding western countries) relies on traditional medicines as their only health care system. Medicinal plants still play important role in the diurnal lives of people living in developing countries of Asia and Africa, including Ethiopia. Medicinal plants not only serve as complements or backups for modern medical treatments, which are frequently deficiently available but also enhance the health and security of old people. Different traditional medicinal plant species are studied by different experimenters in the world Treatment of Cancer, skin problems, leprosy. Medicinal plants contain some organic compounds which give definite physiological action on the mortal body and these bioactive compounds include tannins, alkaloids, carbohydrates, terpenoids, steroids and flavonoids. The active ingredients of these plants and sauces suggest the presence of phytochemicals, vitamins, minerals and anti-microbial ingredients. The main aim of the present research was to study phytochemical component and possible antimicrobial and antioxidant conditioning of medicinal plants The eventuality of antioxidant and antimicrobial activities of the excerpts from similar plants are of great interest in food and pharmaceutical industry.

Keywords: Medicinal Plants, Metabolites, Pharmaceuticals

SCREENING AND OPTIMIZATION OF LIPASE IN SOLID STATE FERMENTATION

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ABSTRACT:

Lipase is very versatile enzyme, and produced the attention of the several industrial process. The choice of the carrier concerns usually the biocompatibility, chemical and thermal stability, and insolubility under reaction. *Bacillus spp.*, *Achromobacter spp.*, *Pseudomonas spp.*, of bacteria and *Penicillium spp.*, *Fusarium spp.*, *Aspergillus spp.*, of fungi are screened large scale for lipase production. Lipases as multipurpose biological catalyst has given a favourable vision in meeting the needs for several industries such as biodiesel, foods and drinks, leather, textile, detergents, pharmaceuticals and medicals. The main aim of this study screening of lipase from oil contaminated soil. The isolation and growth study were carried out in SOB and PDA media for growth such as fungus, bacteria, yeast. From fungus isolates for screening purpose pNPP solution were used for lipase activity by solid state fermentation. After this for optimization study their growth kinetics for different pH, temperature, moisture, time, salt concentration, etc. In this project *Aspergillus Niger* show maximum activity for lipase production.

Keywords: pNPP, Solid-State Fermentation

ANTIMICROBIAL POTENTIAL OF INDIGENOUS MEDICINAL PLANTS AGAINST PHYTOPATHOGENIC MICROBES.

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ABSTRACT:

Many indigenous medicinal plants are yet to be explored for its antimicrobial potential, since this is the only sustainable approach in future farming. With this perspective, *Lagerstroemia speciosa* (L.) Pers., *Salvadora persica* L., and *Woodfordia fruticosa* Kurz. were selected and their leaf and stem extracts in water, ethanol, methanol and chloroform solvents were tested for their antimicrobial potential. The extract yield of *Lagerstroemia speciosa* (L.) Pers. was the highest in methanolic stem extract (21.2 ± 0.23 %). MIC of ethanolic stem and aqueous stem extract of *Salvadora persica* L. was best against *Erwinia amylovera* and *Ralstonia solanearum* (0.39 mg/mL), respectively. The same pattern followed for MBC. The MIC of ethanolic and methanolic stem extract of *Salvadora persica* L. against *Fusarium oxysporum* and *Aspergillus flavus* was the lowest (1.56 mg/mL). The same extracts gave 3.13 mg/mL of MFC against the selected fungi. *Salvadora persica* L., in general was found to be the best in controlling bacteria and fungi. The application of these plants has seldom been reported and only over human pathogenic bacteria. This report can provide useful reference for application of these plants in pathogen control and sustainable agriculture. The purification and bioactive metabolite analysis of bioactive solvents of these plants is necessary.

Keywords: Antimicrobial, MIC, MBC, MFC, Phytopathogen, Sustainable Agriculture.

LOW-COST PORTABLE CULTURE DEVICE (PCD) FOR DETECTION OF FOODBORNE PATHOGENS

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ABSTRACT:

Foodborne infection is a severe problem especially in developing countries due to lack of sanitary practices and limited access to diagnosis and treatment. Although, both conventional and rapid methods such as PCR, ELISA are available, these techniques require well equipped laboratories and trained personnel. These techniques are not widely accessible to those living in remote areas due to their high costs and resource-limited settings. In order to overcome these problems, an on-site, point of care testing (POCT) and cost-effective method needs to be developed and a portable culture device is one such device. This research aims to construct paper-based Portable Culture Devices (PCD) to detect micro-organisms in food samples. PCDs are fabricated from tape and hydrophobic paper. The current work demonstrates detection of micro-organisms based on enzyme and chromogenic substrate interactions. Proof of concept studies were done using spiked food samples. Food samples were also used for onsite testing lab-independent detection. This work also reveals that PCDs can be a suitable alternative to the traditional culture media plates. PCDs have the advantages of ease of fabrication, minimum sample volumes requirement, easy visual interpretation of the test results. They are also cost effective and user friendly. Therefore, they are suitable for point of care testing, especially in resource limited settings fulfilling the ASSURED (Accurate, Sensitive, Specific, User friendly, Rapid and Robust, Equipment free, Deliverable to end users) criteria for rapid detection devices.

Keywords: On-Site Detection, Foodborne Pathogens, ASSURED, Point of Care Testing (POCT), Portable Culture Device (PCD)

A NEW CASTODE GENUS – *SENGA NATHSAGARENSIS* (DOLFUS 1934) FROM FRESHWATER FISH *MASTACEMBELLUS ARMATUS* AT AURANGABAD

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ABSTRACT:

The present paper deals with the new species of the cestode from genus Senga Dollbus, 1934 viz. *Senga nathsagarensis* n. sp. collected from, Nathsagardam Dist. Aurangabad, M.S., from fresh water fish *Mastacembellus armatus* new species Senga.

Keywords: Freshwater Fish, *Mastacembellus armatus*, *Senga nathsagarensis*

DIVERSITY OF RHIZOSPHERE AND NON-RHIZOSPHERE FUNGI OF *CAESALPINIA DECAPELATA* (ROTH.) ALST. FROM TORANMAL REGION OF NANDURBAR, MAHARASHTRA

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ABSTRACT:

Present paper deals with the study of rhizosphere and non-rhizosphere fungi of *Caesalpinia decapelata* (Roth.) Alst. (Caesalpinaceae), medicinal plant from Toranmal region. 16 species of rhizosphere fungi belonging to 13 genera viz. *Circinella, Cunninghamella, Mortirella, Mucor, Pythium, Phytophthora, Zygorhychus, Didymosphaeria, Chaetomium, Fusarium, Diplodia, Discocia, Alternaria* and 12 species of non-rhizosphere fungi belonging to 8 genera viz. *Circinella, Chaetomium, Mucor, Rhizopus, Epicoccum, Hansfordia, Aspergillus, Alternaria* were isolated.

Keywords: Rhizosphere, *Caesalpinia decapelata*, Toranmal.

FOLIAR EPIDERMAL STRUCTURE IN SOME EUPHORBIACEAE

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ABSTRACT:

Epidermal structure of 20 genera and 44 species of Euphorbiaceae has been investigated. In most of the plants, adaxial epidermal cells are large in size and have thick walls as compared to the abaxial. They are straight, undulated or wavy walls, noticed on both the surfaces in most of the taxa while the abaxial ones are thin walled more undulated cells in *Breynia nivosa*, *Flueggea virosa*, *Glochidion*, *Phyllanthus polyphyllus*, *P. urinaria*, *P. virgatus*, *Anda*, *Agrostistachys* and *Baliospermum*. The leaves are hypostomatic or functionally hypostomatic in majority of species. The predominant stomatal type is paracytic. The cuticle on the leaf epidermis is smooth, striated or may show cuticular ornamentation in the form of striations and papillae. The striations in many species are linear, curved or excentric. Stomatal length, width, index, frequency also vary in different species therefore it may offer most valuable criteria for the segregation of taxa.

Keywords: Epidermis, Structure, Euphorbiaceae.

STUDY OF *COLLETOTRICHUM FALCATUM* CAUSING RED ROT DISEASE IN *SACCHARUM OFFICINARUM* FROM RAHURI TEHSIL OF AHMEDNAGAR DISTRICT, MAHARASHTRA

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ABSTRACT:

In the current study, an attempt has been made to record the occurrence of *Colletotrichum falcatum* causing red rot disease on *Sachharum officinarum* (sugarcane) from Rahuri Tehsil of Amhednagar district for which repeated visits were made in the sugarcane fields of Rahuri Tehsil for sampling the diseased parts of sugarcane. It is an important cash crop which found infected by red rot disease that causes yield loss. The objective of present investigation was studying red rot disease of sugarcane for identification of the pathogen associated with the disease and its control measures. To identify the pathogen causing red rot disease of sugarcane, a morpho-cultural analysis was carried out. The results obtained revealed that diseased sugarcane leaves exhibit change in colour from green to orange and from orange to yellow then infected leaves started drying while infected sugarcane stalks became discoloured and hollow. Some black fruting bodies were observed on the rind and nodes and an acidic smell arose after spitting open the infected stalk while the internal tissues found reddened with intermixed transverse white spots. The present investigation concluded that the sugarcane leaves and stalks found infected by *Colletotrichum falcatum* that caused red rot disease which reduced the yield due to reduction of sucrose and decadence of the juice.

Keywords: Incidence, Investigation, Pathogen, Sugarcane, Red Rot

DIVERSITY OF MUSHROOMS FROM NANDURBAR DISTRICT-II MAHARASHTRA (INDIA)

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ABSTRACT:

Mushrooms are an important integral part of the ecosystem. These possess fleshy, leathery, woody fructifications which bears spores. Mushrooms are seasonalmacrofungi, which occupy diverse niches in nature in the forest ecosystem. Predominantly occurs in rainy season and few in winter. The paper deals with ten species of woody mushrooms viz. *Cyathus stercoreus* (Schw.) Detoni, *Daldinia concentrica* (Bolton) Ces. and De Not, *Fomitopsis pinicola* (Swartz) P. Karsten, *Ganoderma applanatum* (Persoon) Ptourlard, *Inonotus hispidus* (Bulliard) P. Karsten, *Lenzites betulina* (L.) Fr., *Pleurotus ostreatus* (Jack.) P. Kumm., *Rigidoporus microporus* (Fr.) Overeem, *Trametes gibbosa* Sanjeev Kumar and Sharma and *Trametes versicolor* (L. Fries) Pilát belonging to nine genera.

Keywords: Nandurbar, Mushrooms, Macroscopic Wood Fungi.

FRESHWATER CRABS: THE NEED TO PROTECT THEM

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ABSTRACT:

In zoological research, crabs are frequently associated with ecosystems in brackish or marine waters. However, several species of freshwater crabs are found worldwide in tropical and subtropical climates. There are eight families and 1,300 species spread over the tropics and subtropics. They can survive in wetlands and rivers with rapid current. additionally dwell in caves or tree trunks in a variety of water settings. Freshwater crabs must be protected because they have therapeutic and ecological value. Macroinvertebrate assemblages. They are a great sign of good water quality and are crucial to the freshwater ecosystem's nutrient cycling. In aquarium, also able to kept some freshwater crabs. some of the amazing pellet crabs are aquatic crabs that make an ideal companion for the aquarium and they act like scavenges.

Keywords: Zoological Science, Freshwater Crabs, Aquarium, Scavengers.

BIOPIGMENT PRODUCTION FROM YEAST RHODOTORULA: POTENTIAL SOURCE OF NATURAL PIGMENTS

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ABSTRACT:

Colour is first most important characteristic of food. The development of foods with an attractive appearance is an important goal in the food industry. Increasingly food producers are turning to natural food colours, since certain artificial synthetic color additives have demonstrated hazardous health issues following their consumption. Microbial pigments are best alternative source of natural colorants. A microorganism produces variety of pigments like Violacein, Carotenoids, Quinones, Indigo and Melanin. Among the pigment producing microbes - bacteria and fungi, yeast are found to be most reliable source for large scale production of carotenoid pigments. Yeast have higher growth rate, simple unicellular in structure and they are easily able to grow on cheap carbon sources. Present study deals with the production of pigment from yeast *Rhodotorula* using renewable carbon sources and applications of pigments in feed and medicine.

Keywords: Biopigment, Rhodotorula, Renewable Carbon Sources.

NUTRITIONAL CONFIGURATION OF FINGER MILLET LANDRACES

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ABSTRACT:

Finger millet is considered one of the most nutritious cereals. It is superior to rice and wheat with respect to mineral, fibre and micronutrient contents. Currently, in world about 12% of the total millet area is under finger millet cultivation, which mainly covers more than 25 countries of Asia and Africa. It contains about 12-15% protein, 1–2% ether extractives, 65–75% carbohydrates, 15–20% dietary fibre and 2.5–3.5% minerals. It has the highest calcium content among all cereals (344 mg/100 g) than the other cereals. Finger millet in terms of nutritional composition, ranks higher than other cereal grains, though the grain is extremely ignored and widely underutilized. Regular consumption of finger millet is good for bone health and keeps diseases such as osteoporosis and could reduce risk of fracture. In the present investigation, Finger millet landraces were collected from tribal regions of Nashik, Palghar, Ahmednagar and Pune districts of Maharashtra, India. Nutritional and antioxidant studies were done by standard protocols. Obtained results shows nutritional diversity and exhibit good amount of protein and carbohydrate content. Landraces showed substantial amount of protein (8.01 to 20.73 %) and carbohydrates (52.65 to 71.55%). It concludes that finger millet landraces have highly nutritious content and need to be conserve as good source of nutrients and for nutritional traits.

Keywords: Nutritional Composition, Micronutrient, Calcium, Consumption.

HORSE SWEAT APPLICATION IN HUMAN EXISTENCE

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ABSTRACT:

Horse sweat is beneficial for humans' existence is useful for prevents fungal infections to humans. If road accident happened, that time so much blood are flow than that time we can used horse sweat for prevent the blood flow. It is work like iodine and it coagulate the blood. There are many products on alcohol cessation that claim to be 100% alcohol free but they are not that effective. Horse sweat and black Datura is an effective medicine for alcohol addiction. People die due to excessive bleeding in road accidents due to failure to take them to the hospital on time. In such a case, if horse sweat is applied to the wound, it acts like iodine and coagulates the blood. Horse sweat is very useful for skin dieses.

Keywords: Horse Sweat, Fungal Infections, Blood Flow.

BIOENZEME: ECO-FRIENDLY CLEARERS AT HOME

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ABSTRACT:

Bioenzymes are an amalgations of complex organic substances such as proteins salts and other materials. It is simple, inexpensive natural healthy cleaning products derived from vegetables, fruits peels by formation method. A Bioenzymes as are biologically active so we introduce a Bioenzymes as home cleaner and plant growth stimulant so we introduce Bioenzymes as plant growth regulator.

Keywords: Amalgations, Fermentation, Growth Stimulant.

HYPHOMYCETES IN JALNA DISTRICT OF MAHARASHTRA

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ABSTRACT:

Some species of hyphomycetes collected from Jalna district soils are reported for the first time. viz *Tritirachium roseum*. Van Beyma. *Antionie van Leeuwenhocke*, *Alternaria dauci* (Kiihn) Groves and Skolko, *Beltrania mangiferae* Munjal and Kapoor *Cladosporium macrocarpum* preuss, *Curvularia fallax* Boedijn, *Corynespora lomgispora* Saikia and Sarbhoy, *Cylindromyces striatus* Manoharachary.

Keywords: Soil Hyphomycetes, Forest Soil, Agricultural Soil.

CHRYSOMYA BEZZIANA (DIPTERA: CALLIPHORIDAE) A FLY SPECIES OF FORENSIC IMPORTANCE DETERMINES POST-MORTEM INTERVAL IN RAINY SEASON IN AHMEDNAGAR (M.S.) INDIA

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ABSTRACT:

Crysomya bezziana species is found in different seasons and at different locations. Main objective of this research is to identify the life cycle of flies in rainy season for PMI estimation. Most of the research work on this has been done in America, Europe and Australia but in India very little work has been done on this aspect. In rainy season some of Calliphorid species are active. In Ahmednagar region these species are commonly found in the rainy season. For the present research these flies were allowed to lay eggs and their life cycle stages were studied at fixed time interval every day. Since the temperature and humidity play important role in the span of life cycle stages, maximum and minimum temperature and humidity level were recorded every day. Flies lay the eggs in bunches. Eggs are hatched and maggots emerges out. The maggots took three days to reach the pupation stage, while pupation lasted for four days to emerge as adult. The whole life cycle gets completed in eight days.

Keywords: Post-Mortem Interval, Lifecycle, *Crysomya bezziana*

STUDY OF PHENOTYPIC VARIABILITY IN CHICK PEA (*Cicer arietinum*) WITH RESPECT TO DROUGHT AND DISEASES TOLERANCE

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ABSTRACT:

Due to the changing environment condition crops are affected ultimately which leads to less yield of crops, breeder should select the variety which have abilities to sustain in abiotic stress such as drought resistance, having optimal protein contain and defensive mechanism against disease. Our present studies deal about the physiological analysis of 20 variety of chickpea (*Cicer arietinum*) variety basis of variability in cultures, we observed 3 biochemical such as Proline, Methionine, protein and 8 phenotypic characters parameters our main objective of research to suggest provable traits on plants to breeders for further germplasm development of basic of yield and quality. this data is analysis by Metrogylph (semi-graphics method) to screening the best variety amongst samples. The principal objective of research is mainly to study drought tolerance in 20 different cultivars taken from regional research centre Mahmudabad Dist- Jalgaon, in order to assess their nutritional value and think over the breeding program between those varieties.

Keywords: Abiotic Stress, *Cicer arietinum*, Biochemical Test, Phenotypic Characters.

DIVERSITY OF ANTS (HYMENOPTERA: FORMICIDAE) IN A NANDURBAR CITY, DISTRICT NANDURBAR, MAHARASHTRA INDIA

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ABSTRACT:

Survey conducted on the Diversity of a Ants (Hymenoptera: Formicidae) In a Nandurbar city, District Nandurbar, Maharashtra India. During the present study, we recorded 7 species of ants representing three subfamily Dolichoderinae, formicidae represented by two species ants, Black crazy ants, Red fire ants. Dominance of myrmicinae in terms of diversity was common at Maharashtra in nandurbar.Dominance of myrmicinae at urban sites was also recorded by colleges campus,Dandpaneshwar garden and CB garden. Seven ant species were commonly observed. Four species of myrmicinae, two formicinae and one each from dolichoderinae. It is noteworthy that camponotus compressus (family: formicidae) and paratrechina longicornis (family: formicidae) were the common species. Compontous compressus, is a general predator and is common variety of habitats including gardens. Common occurrence of Tapinoma melanocephalum (Family:Dolichoderinae) an arboreal species.

Keywords: Diversity, Ants, Nandurbar City.

STUDY OF DIFFERENT TYPES OF CHICKEN DISEASE

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ABSTRACT:

In Poultry industry, many diseases provoke at different time, situation and types of diseases. The study area for the investigation was Chalisgaon region, Dist- Jalgaon from August 2022 to October 2023. Total 8 different types of diseases in Chicken were evaluated which may decline the economy of poultry industry. The poultry industry provides a large portion of meat and eggs for human consumption. The early detection and warning of poultry infectious diseases play a critical role in the poultry breeding and production systems, improving animal welfare and reducing losses.

Keywords: Chicken, Different Types Diseases, Poultry Industry

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