Abstract Volume National Conference

On

INNOVATIVE RESEARCH IN MICROBIOLOGY AND ALLIED SCIENCE (IRMAS 2024)



17th February 2024

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President's Message



Dear esteemed guests, colleagues, and fellow researchers, it is my great pleasure to welcome you all to the One Day National Conference on Innovative Research in Microbiology and Allied Science (IRMAS-2024). The field of microbiology awareness of the significant role of basic and applied microbiology and its profound impact on diverse sectors like agriculture, pharmaceutical, industrial, environmental, health, and biotechnology. In the field of microbiology, continuous development of research, it has become more important than ever to explore new approaches and delve deeper into this fascinating field. This conference aims to bring together experts, scholars, and researchers from various disciplines to share their experiences, insights, and research findings. Our goal is to foster a collaborative and multidisciplinary environment that will enable us to explore new ideas and approaches in the field of Microbiology. I am confident that this conference will provide an excellent platform for meaningful discussions and insightful presentations. As you are aware, the conference was a great success, with many insightful presentations and discussions. I believe that publishing the abstracts in a volume would be a valuable contribution to the field of Microbiology and would allow our research to reach a wider audience. Additionally, it would serve as a valuable resource for future researchers who are interested in exploring the topics addressed at the conference.

Once again, on behalf of the organizing committee, I extend a warm welcome to all our guests and delegates. Let us make the most of this opportunity to learn, grow, and collaborate.

Thank you.

Date: 17/02/2024

Shri. Brijgopal Ramnarayan Toshniwal,

President, SGSPM, Yeldari Camp

Principal's Message



Dear attendees of the One Day National Conference on Innovative Research in Microbiology and Allied Science (IRMAS-2024), It is our pleasure to welcome you all to this important event, where we have the opportunity to learn from each other and explore new ideas and approaches in the field of Microbiology. Microbes in natural environmental conditions produce a variety of metabolites, products, and biomass that play an important role in maintaining the ecological balance of an environment, like for nutrient recycling, cause and control of diseases, food spoilage, fermentation, production of medically important active ingredients these potential activity, its need to explore such activities which are used for wellbeing of living organisms, to explore various recent innovation and integrated approaches in research in microbiology. We hope that it will be helpful for improving recent research knowledge and evolving new project ideas, where microbiology can be utilized for the development of new technologies and sustainable development. It Our goal is to foster meaningful discussions and insightful presentations that will contribute to the advancement of geosciences. We hope that this conference will be a valuable experience for all of you, and we look forward to seeing the presentations and discussions that will take place. On behalf of the organizing committee, we extend our deepest thanks to all our guests and delegates for being a part of IRMAS-2024.

Thank you and have a great conference!

Best regards,

Date: 17/02/2024

Prof. Dr. S. G. Talnikar, Principal, Toshniwal College, Sengaon



Convener's and Co-convener's Message

Heartly welcomes to to all the guests and fellow participants for the One Day National Innovative Research in Microbiology and Allied Science (IRMAS-2024), We extend a warm welcome to each of you on behalf of the organizing committee to this prestigious gathering. This conference provides an exceptional opportunity to share knowledge and explore novel ideas and approaches in the field of Microbiology. As you are well aware, the study of its need to explore such activities which are used for wellbeing of living organisms, to explore various recent innovation and integrated approaches in research in microbiology. We hope that it will be helpful for improving recent research knowledge and evolving new project ideas, where microbiology can be utilized for the development of new technologies and sustainable development. The current conference is aimed at providing a platform for researchers from different areas to present their modern technologies and work, which will pave the way for sustainable development along with biodiversity conservation.

We anticipate that the conference will be an enriching experience for all participants, and we eagerly await the knowledge-sharing and discussions that will take place. We express our heartfelt gratitude to all the guests and delegates for attending IRMAS-2024. Your participation in this conference is highly appreciated. Thank you for your attention, support, and love. We wish you an engaging and informative conference.

Date: 17/02/2024

Mr. N. S. Gaikwad Convener (IRMAS-2024) **Mr. K. S. pawar** Co-convener (IRMAS-2024)



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U. V. Spectrometric Analysis of Green Synthesized Silver Nanoparticles (AgNPs) Using Aqueous Leaf Extract of Neem (*Azadirachta indica*) And Assessment of Its Antibacterial Activity.

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ABSTRACT

Neem (*Azadirachta indica*) plant leaves possess medicinal properties. Green synthesized silver nanoparticles (AgNPs) demonstrated good stabilizing agent due to its reducing and capping nature. After six hours incubation of silver nanoparticle synthesis showed peak and stabilization. Green synthesis of silver nanoparticles with aqueous leaf extract of Neem leaves exhibited remarkable antibacterial activity against *Escherichia coli, Bacillus subtilis* and *Salmonella typhi*. Diameter of zone of inhibition (mm) was more with *S. typhi* than *E. coli* and *B. subtilis*.

Keywords:-Silver nanoparticles (AgNPs), aqueous leaf extract of neem leaves U.V spectrophotometer, *E. coli*, *B. subtilis* and *S. typhi*

1



Role of Gut Microbiome in Human Health

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Abstract:

The human microbiome consists of various microorganisms like bacteria, archaea, viruses and eukaryotes residing within and outside our bodies. Indigenous organisms in the human body are well adapted to the immune system, due to the biological interaction of the organisms with the immune system over the course of time. An alteration in the intestinal microbial community (Gut microbiome) plays a significant role in human health and disease development. These organisms have an influence on human physiology including good health and disease presenting to detriment metabolic and immune functions. Microorganisms colonise different sites on and in the human body, where they acclimatize to distinct features of each niche. Researches have disclosed the influence of gut microbiome not only on human mind and health status, but also in extensive range of disease switching, ranging from cardio-metabolic diseases, allergies and obesities to life-threatening diseases such as cancer. Although the complete mechanism of many diseases is yet not clear, research works have revealed that the metabolites, nutrients and microbes can be considered as the leading characters for such physiological state. The major approach of this review article is to elucidate the correlation of the gut microbiome on the human health each in a synergistic or in an antagonistic aspect.

Key words: Gut microbiome, indigenous microorganisms, human health, correlation, synergistic, antagonistic.



Isolation of biosurfactant producing microorganism from hydrocarbon contaminated soil

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Abstract

The present investigation was performed for, isolation and screening of bacteria from hydrocarbon spilled soil samples collected from different spots like petrol pumps, motor garages etc. The samples are enriched in Minimal salt medium (MSM), containing petrol, diesel and dodecane as a sole source of carbon instead of glucose. Initially 10 numbers of colonies were isolated on Nutrient agar plate; these isolated bacteria were inoculated in 1 % glucose containing MSM broth at 35° C in shaking incubator on 100 rpm for 48 h. The biosurfactant production is tested by using screening test like surface tension, blood heamolysis, drop collapse, emulsification index etc. the surface tension is observed to be decreased to 33.3 from 55.2 dyne/cm, clear zones around the colonies in blood heamolysis analysis and reduction in drop collapsing is observed while emulsification index in diesel 83 % and petrol 80 %.

Key words: Biosurfactant, Emulsification index, Blood heamolysis, Hydrocarbons.

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Role of Biofiltration in successful Aquaponic Systems

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Abstract

Aquaponics is an integration of aquaculture (fish farming) and hydroponics (growing plants without soil) to facilitate utilization of available resources. In this system, fishes and other aquatic organism are cultured in aquatic environment while terrestrial vegetation are grown without soil in hydroponic unit. The excretory and metabolic waste along with leftover feed from aquatic organisms makes the culture water rich in nutrients. On the other hand, plants can be grown by exposing their roots to such nutrient rich water. Thus, waste from fish culture unit can be utilized as input in hydroponic culture unit through proper recycling mechanism. Hence, aquaponic is a sustainable agricultural technology to produce high quality fish and plant vegetable throughout the year for mankind utilization. But, success of aquaponic system is mainly depends on the water quality of the system.

Biofiltration is a crucial component of aquaponic systems, where it serves to maintain water quality by converting harmful substances like ammonia produced by fish into plant nutrients such as nitrites and nitrates for plant growth. In aquaponics, biofiltration typically involves the use of beneficial bacteria such as ammonia oxidising bacteria, *Nitrosolobus spp., Nitrosomonas spp., Nitrosospira spp., Nitrovibrio spp., Nitrosococcus spp.* and nitrite-oxidizing bacteria, *Nitrobacter, Nitrospina* and *Nitrococcus* that colonize surfaces within the system, such as the walls of the fish tank, grow beds or dedicated biofilter media.

Biofiltration mostly works in the aquaponics systems in several ways. 1) Removal of toxic ammonia first into less toxic nitrites (NO2-) and then into nitrates (NO3-) primarily by Nitrosomonas and Nitrobacter species. 2) Converted nitrites (NO2-) into nitrates (NO3-) are not only less toxic to fish but also serve as an essential nutrient for plants growth. 3) Biofilter media such as gravel, lava rock, or specialized plastic or ceramic media designed to maximize surface area provides a large surface area for beneficial bacteria to grow and thrive. 4) Grow beds in aquaponic themselves act as biofilters and provide additional surface area for beneficial bacteria to colonize, enhancing biofiltration while serving as a medium for plant growth

Overall, biofiltration plays a crucial role in maintaining the symbiotic relationship between fish and plants in aquaponic systems, ensuring a healthy environment by maintaining water quality for both aquatic life as well as plant growth.

Keywords: Aquaponic, Biofiltration, Waste to best, Success.



Antimicrobial Potentials of Bioactive Compound Produced by Bacillus spe cies isolated from Garden Soil.

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ABSTRACT:

Both ribosomal and non-ribosomal antibiotics are produced in enormous quantities by the gram-positive bacterium *Bacillus subtilis*. It's possible that the large percentage of strains that produce antimicrobial chemicals has an ecological function, acting as a barrier against new strains entering an established microbial community. Microorganisms are incredibly effective at producing a wide variety of bioactive substances. *Actinomycetes* are among the many species of bacteria that have been demonstrated to produce a wide range of antibiotics. It is still profitable to investigate the screening of bacteria to develop novel antibiotics. Therefore, the purpose of this study is to investigate the antimicrobial potential of a bioactive compound produced *by Bacillus subtilis* isolated from Garden Soil against a variety of microorganisms, including *P. aeruginosa, Aspergillus flavus, Aspergillus species, E. coli,* and *Staphylococcus aureus.*

Keywords: Bioactive compound, actinomycetes.



Antifungal activity of extracts of weed biomass against major seed borne fungi of Groundnut (Arachis hypogaea L.)

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Abstract

During the present studies, weeds found in fields were screened to observe their antifungal activity against major seed borne fungi of groundnut i.e. *Aspergillus flavus* Link ex Fr. and *Aspergillus niger* van Tieghem. To study the antifungal mechanism of plant extract, poisoned food technique was followed. The efficacy of weed extracts was expressed as percent inhibition of mycelial growth over control.

Among these weeds *Parthenium hysterophorus* L. and *Commelina benghalensis* L. found to be most effective against major seed borne fungi of groundnut i.e. *Aspergillus flavus* Link ex Fr. and *Aspergillus niger* van Tieghem.

Key words: Aspergillus flavus, Aspergillus niger, seed-borne fungi, Parthenium hysterophorus.

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Exploring the Antimicrobial Potential of Synthesized Schiff Bases: A Biological Investigation

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Abstract

Schiff bases, synthesized through the condensation reaction between primary amines and carbonyl compounds, have gained prominence in medicinal chemistry due to their diverse biological activities. The Schiff bases are very important in medicinal and pharmaceutical field. These compounds exhibit significant antimicrobial effects against a wide range of microorganisms, including bacteria and fungi. For instance, studies by demonstrated the antibacterial activity of Schiff bases against *Escherichia coli* and *Staphylococcus aureus*. Additionally, research has highlighted their antifungal properties against *Aspergillus species*.

Schiff bases represent a versatile class of compounds with diverse biological activities, including antimicrobial, anticancer, and antioxidant effects. In the cur-rent investigation, the antimicrobial activity of Schiff base was investigated against various organism including some bacteria and fungi such as *E. coli, B. subtilis, S. aureus P. aerogenosa, Klebsiella and fungi A. niger, A. flavus, C. neoformans, M. hanisis , M. canis* against standard antibiotic by using Kirby-Bauer disc diffusion method. The result of antimicrobial activity of Schiff bases against all bacteria and fungi have been found, zone of inhibition occur and measured in mm. Continued research into their pharmacological proper-ties is essential for harnessing their therapeutic potential in various disease contexts.

Key words: Schiff bases, antimicrobial, anticancer, and antioxidant



Effects of manmade hazards on the aquatic ecosystem: A review study

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ABSTRACT:

Aquatic ecosystem is an ecosystem found in and around a water body, in contrast to land based terrestrial ecosystems. Aquatic ecosystem contains communities of organisms that are dependent on each other and on their environment. Both freshwater (lentic & lotic) and marine water ecosystems. In recent years, freshwater and marine water ecosystems have experienced serious threats from manmade hazards such as domestic sewage, agricultural sewage and industrial effluents, urban waste management issues and anthropogenic activities. Domestic sewage is a type of wastewater that is derived from household activities such as washing clothes, utensils, bathing, cleaning, defecation and micturition get transported through a sewer system. Agricultural sewage surface runoff contaminated by chemicals in fertilizer, pesticides, animal slurry, crop residues etc. directly enter into the large water bodies. Majority of industrial untreated wastewater and effluents are discharged into the surrounding aquatic environments. Studies have been shown that these sewage discharges affect the habitats of aquatic flora and fauna. Thus, in order to protect global aquatic ecosystems, wastewater treatment and addressing advancements in treatment methods has great future possibilities.

Keywords: Manmade, Hazards, Sewage, Aquatic Ecosystem, Management



Herbal medicine awareness among UG Students

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ABSTRACT

As our knowledge of medicinal plants is inherited traditionally through indigenous systems of medicine like Ayurveda, Siddha and Unani. It is known to several households as well, spreading and preserving this knowledge on medicinal plants and their uses is important for wellbeing of Mankind. A survey based study was undertaken to perceive the awareness about use of herbal medicines to cure different kinds of ailments by UG students. Study reveals less awareness about herbal medicines and their uses in students belonging to urban areas while students belongs to rural areas are more aware about herbal medicines and their uses.

Keywords: Herbal medicine, use, awareness, UG students.

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Nano-catalyzed Green Synthesis Of 3,4-dihydropyrimidin-2(1H)ones

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Abstract:-

Green synthesis of 3,4-dihydropyrimidin-2(1H)ones in the presence of Nano-ZnO particles NP's (0.1%) the mixture of benzaldehyde , ethylacetoacetate, Urea and ammonium acetate was grind at RT temperature after 20 minutes reaction was completed. The reaction gives high yield.

Keywords:- Nano ZnO particles, benzaldehyde, ethyl acetoacetate, urea, ammonium acetate etc



Sustainable Textile Dyeing A Comprehensive Review of Textile Dye Pollution and Innovative Bioremediation"

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Abstract:

This review is to make small step towards shedding light on the staggering environmental ramifications of textile dye pollution and the imperative for innovative, sustainable dyeing methodologies. Textile dye pollution poses a formidable threat to ecosystems and water bodies, originating from the widespread use of synthetic dyes in the textile industry. These dyes, often persistent and resistant to conventional degradation processes, infiltrate aquatic environments, disrupting ecological balance and endangering aquatic life. The urgency to address this predicament has never been more apparent, as textile dye pollution continues to escalate globally. With bacterial synergies at its core, this research beckons towards a horizon where innovation, sustainability, and economic viability blend into a transformative force for industry and environment alike.

Keywords: Synergies, Dye pollution, Ecological balance, sustainability, Textile industry



Butterflies Bioindicators Of Environment: A Review

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ABSTRACT

Environmental contamination research has been utterly interesting in bio indicators recently. The basic objective of bio indicator research is to find species that can accurately detect environmental disturbances and reveal how those disturbances affect other species or biodiversity as a whole Butterflies are gradually being accepted as valuable environmental indicators, for their rapid and sensitive responses to subtle habitat or climatic changes and as indicative for the diversity and responses of other wildlife. India is a huge country with a rich diversity of biotic resources, ranked one of the 12-mega diversity countries in the tropics. But due to unscientific management of natural resources, much of our native butterflies are fast disappearing. On account of various reasons such as habitat destruction for development, fire, grazing and scarcity of both larval and adult food plants, butterfly populations may be severely affected in near future. In this review article, I've point out the use of butterfly as a resource for evaluating contaminants and monitoring environmental pollution.

Keywords: Butterfly, bio indictor, environment, monitoring.



Length Weight Relationship and Condition factor for six fresh water fishes from Kaigaon Toka, Sambhajinagar (Maharashtra)

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Abstract:

The present study describe the Length-weight relationship and condition factor of six fresh water fishes from 4 different families of ecological and economic importance namely *Hypophthalmicthys nobilis, Cirrihinius mrigala, Channa channa, Clarias batrachus, Tilapia Mossambica* and *Mystus armatus* from Aurangabad(Maharashtra) region. A total 460 fish specimen was studied from March 2023 to December 2023. The relationship between total length and total weight were estimated using the logarithm form of equation i.e. W=aLb. The slope (b) values obtained from six fishes between 0.75 to 5.62 that all the fishes shows positive allometric growth. The regression slope values for all species was found to be highly significant (P<0.05). The condition factor (K) values ranged from 0.84 to 1.32 which indicates that the reservoir have good environmental condition for the growth for fishes. The present study provides the first baseline information on the length - weight relationships and condition factor of the six fish species from Kaygaon Toka which may be useful for further fisheries management of these species.

Key words : Species, ecological



Synthesis of N-(2-chlorophenyl)-1-(2,4-dichlorophenyl) methanimine and their biological study

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Abstract

From the literature we found that Schiff base play an important role in medical field with so many pharmacological activities such as antimicrobial, antiviral, ant tubercular and anticancer activity. The potency of these pharmaceutically useful drugs in treatment of microbial infections and other activities encouraged the development of some more potent and significant compounds and metal complexes. Schiff bases are remarkably effective compounds, extensive biochemical and medicinal studies have confirmed that these molecules are effective against various strains of microorganisms. They are the important compounds owing to their wide range of industrial application in food industry, dye Industry, analytical chemistry, catalysis, Agrochemicals An interesting property of Schiff bases is their use as an effective corrosion inhibitor. From last two three decades it was observe that many of the saturated and substituted imine. Due to wide range of application to know the chemistry of different derivatives of substituted Schiff bases for the synthesis of different compounds.

2-chloroaniline in 20 ml toluene was added to a solution 2,4-dichlorobenzaldehyde. The mixture was heated under reflux for 2 hour in the presence of 4A molecular sieves. The mixture was filtered and then solvent was evaporated. The crude products were purified by crystallization from ethanol to give compounds.

Keywords: 2-chloroaniline, 2,4-dichlorobenzaldehyde and toluene.



Environmental Pollution issues with Carbon Monoxide (CO) its causes and solutions

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Abstract

World now a days facing many environmental issues. Air pollution is one of them. Natural or artificial sources generated air pollutants are responsible for air pollutions. Carbon Monoxide is major air pollutant which leads air pollutions on the earth. Combustion of fossil fuel is major source of CO generation in nature. When CO is started in accumulating in nature it leads to greenhouse effect, global warming and climate change. So its need to control production of CO in nature. This can be done with less use of fossil fuels or alternate use of other sources like renewable energy .It helps to control air pollutions on earth. In this research paper we are discussing the sources of generations of CO on earth and effects of CO pollutant on human begin and how we can reduce air pollution.

Keywords: Air pollutions, Global warming, Carbon monoxide, fossil fuel



Synthesis and Antifungal activity of substituted 2-hydroxynaphthyl isoxazoline derivatives

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Abstract:

In this study new series of isoxazolines (**3a-3j**) were synthesized from 2hydroxynaphthyl chalcones and hydroxylamine hydrochloride in 2-ethoxy ethanol solvent. The Synthesized isoxazoline derivatives were purified by recrystallization and confirmed by spectral analysis. All the compounds were tested for antifungal activity against different fungal strains using the agar diffusion method and found that the compounds **3b**, **3d**, **3e**, **3f** and **3h** were shown good antifungal activity same as that of standard drugs whereas the compounds **3a**, **3c**, and **3j** shows moderate antifungal activity. Compound **3g** shows moderate activity against *Aspergillus niger* and *Penicillium chrysogenum*. The compound **6i** were inactive in whole test.

Keywords: Chalcones, hydroxylamine hydrochloride, 2-ethoxy ethanol, isoxazolines, antifungal activity.

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Prevalence of bacteria specially *Staphylococci* on Public transport Vehicles

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Abstract:

In present study we investigated the prevalence of *Staphylococci* in public transport vehicles. A total of 54 samples (3 per bus) from 18 bus were collected in the morning and evening using cotton swabs dipped in mannitol salt broth. Mannitol fermenting colonies mannitol salt agar after inoculation were gram stained and colonies of *Staphylococci* were selected for further studies. *Staphylococcus sp.* were found to be prevalent on around 17% of samples. The results of present study shows that public transportation vehicles can be a significant reservoir for spreading pathogenic microorganisms.

Keywords: Microbial contamination, Public transport vehicles, Prevalence of Staphylococci



Targeting Emerging Mechanisms of Drug Resistance in Spike (S) Protein of SARS-CoV-2

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Abstract:

Coronavirus disease 2019 is a newly emerging infectious disease which is caused by a novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The spike (S) protein, which plays a key role in the receptor recognition and cell membrane fusion process. Out of two subunit S1 contains a receptor-binding domain that recognizes and binds to the host receptor angiotensin-converting enzyme 2, while the S2 subunit mediates viral cell membrane fusion by forming a six-helical bundle via the two-heptad repeat domain. In this present work, we are targeting these S protein as potential drug resistant target in control of infection. It may improve covid infection management in managing patients in the near future.

Keywords: SARS-CoV-2, S protein, Sub-units, Drug Designing, Drug resistance,



BIOTRANSFORMATION OF CHROMATE BY USING MICROBIAL CONSORTIUM.

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Abstract:

Accumulation of hexavalent chromium in the aquatic ecosystem, agricultural soil leads to serious environmental issues due to their persistent and biomagnifications in the food cycle and food web. Bioremediation can be used as an alternative to overcome the limitations of the conventional methods. The present study emphasized the use of an indigenous consortium developed by using chromium resistant bacteria. Among sixty heavy metal resistant bacteria screened from metal contaminated effluents, five isolates showed higher MIC values for Cr (VI). These five isolates were identified by 16s rRNA sequencing and used in different combination for development of eight bacterial consortia. Among eight consortia, Consortium M (C. amylolyticum, B. cereus, S. arlettae, and C. funkei) showed a complete reduction of 10µg/ml Cr (VI) in 6 h of the incubation period. The effects of various temperature, pH, and concentrations of Cr (VI) and heavy metals on chromium reduction efficiency of selected consortium showed that at pH 7.0, and 30°C, Cr reduction efficiency of Consortium was optimum. In the presence of Cu, Ni, and Zn, Cr reduction efficiency of Consortium was activated whereas Cd, Co, Pd, and Hg showed an inhibitory effect on Cr reduction efficiency. The bacterial consortium showed complete reduction of Cr (VI) present in electroplating industrial effluent sample. The phytotoxic study by pot assay showed that, in comparison with the untreated electroplating sample, the treated effluent sample was found to be plant (V. radiata) growth supportive. In the SEM-EDS analysis of the consortium showed that slightly changes were occurred in surface morphology due to the presence of Cr (VI). The bioremediation process is a cost-effective, environmental friendly process for removal of hexavalent chromium from the environment.

Key words : Accumulation, , environmental, 16s rRNA sequencing



Isolation of qualitative and quantitative screening for high lipid producing microalgae.

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Abstract:

Microalgae are photosynthetic microorganisms that can produce lipids, proteins, and carbohydrates in large amounts and within short periods of time, and these can be processed into both biofuels and other useful commercial products. Due to this, microalgae are considered a potential source of renewable energy, and one of the most important decisions in obtaining oil from microalgae is the choice of species. In this study, the potential of microalgae species isolated from freshwater in the Dharashiv region was characterized and evaluated by determining their biomass accumulation, lipid productivity, fatty acid profiles, and biodiesel properties. The screening of desirable algal species based on the lipid content of different algal species was investigated qualitatively by Sudan black B stain and quantitatively by gravity metric method and GC-MS. The preliminary screening for lipid richness was carried out using the Sudan-black lipid staining method. Selected algae were cultured in Bold's Basal Medium under uniform laboratory conditions for 30 days. Then lipid was extracted from dry algal biomass by using the Bligh and Dyer method. Lipid contents estimated by the gravity metric varied from 10 to 37.77% fatty acid analysis by using GC-MS shows that palmitic acid (C16:0), oleic acid (C18:1), and linoic acid (C18:2) are the majority of fatty acids, and naturally important fatty acids are also present. The potential of this local algal strain for biomass production and oil yield is confirmed.

Key words : Microalgae, Bligh and Dyer, biomass



ETHNOMEDICINAL PLANTS USED BY VILLAGERS OF SAILU TALUKA OF DISTRICT PARBHANI, MAHARASHTRA, INDIA.

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ABSTRACT

The ethnomedicinal plants play an important role in the treatment of different diseases. In the present paper ethnomedicinal plants used by the local people, vender and medicinal practitioner for the treatment of diseases in Sailu taluka. In this study 35 plant belonging to 28 genera and 25 families were used in the treatment of diseases. The medicinal information collected through semi-structured interviews. The leaf, root and flower were the most frequently used; medicines were prepared in the form of extract, decoction, and powder. Medicines are administrated orally.

Key Words: Ethnomedicinal Plants, Diseases, Sailu and Maharashtra



Lipase Enzyme: a comprehensive review on production, optimization by using agro-industrial waste.

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Abstract:

Lipases are triacylglycerol hydrolases used in different types of industries such as in textile industry, detergent industry, in food processing, flavor development and their quality improvement, , medicinal field, cosmetics, bakery and confectionery, tea processing, biosensors, degreasing of leather, waste or sewage treatment plants, oil biodegradation, pulp and paper industry, in biodiesel production. The higher enzyme cost limits the production of lipases by considering this the present review focuses on the processes for optimizing the enzyme production though solid state fermentation by using agro-industrial waste like oil cakes. Oil cakes are waste produced after boiling process, and generally responsible for the lowering the production cost of lipase enzyme production.

Keywords: Lipases enzyme, Solid state fermentation, oil cakes, microbial lipases, optimization of lipases.



A Review on Biological control of Alternaria blight disease of Soyabean: A Promising and Ecofriendly approaches to Chemical Fungicide Pradeep S. Pawar*, L. S. Raut**, S. M. Dalvi***, Kuldeep S. Pawar # and R. R. Rakh**** *Department of Microbiology, Netaji Subhashchandra Bose Arts, Commerce and Science College Nanded – 431601 **Department of Microbiology, Sant Tukaram College of Arts and Science, Parbhani Dist. Parbhani - 431401 (M.S.) ***Department of Botany, Shri Guru Buddhiswami Mahavidyalaya, Purna (Jn.) – 431511 Dist. Parbhani - 431401 (M.S.) #Department of Microbiology, Toshniwal Arts, Commerce & Science College, Tq: Sengaon, Dist. Hingoli-431542 (MS) ****Department of Microbiology, Shri Guru Buddhiswami Mahavidyalaya, Purna (Jn.) - 431511 Dist. Parbhani - 431401 (M.S.) ****Department of Microbiology, Shri Guru Buddhiswami Mahavidyalaya, Purna (Jn.) - 431511 Dist. Parbhani - 431401 (M.S.) ****Department of Microbiology, Shri Guru Buddhiswami Mahavidyalaya, Purna (Jn.) - 431511 Dist. Parbhani - 431401 (M.S.) * Corresponding Author Email:- pawarpradeep849@gmail.com

Abstract:

Soybean cultivation has gained global recognition due to its versatility as an edible oil seed, protein source, and vegetable. The high content of free unsaturated fatty acids in soybean oil has sparked interest in various industries, including pharmaceuticals. However, challenges in production and productivity have emerged due to environmental and biological factors, with diseases such as *Alternaria* blight posing a significant threat. Chemical fungicides have been traditionally used to manage this disease, but concerns over environmental impact and resistance have led to a search for sustainable alternatives. Biological control methods, utilizing beneficial microorganisms like *Pseudomonas spp.* and *Bacillus spp.*, show promise in effectively managing Alternaria blight in soybeans.

Keywords: Soybean, Alternaria blight, *Alternaria alternata*, Chemical fungicides, biocontrol control, *Pseudomonas spp.*, and *Bacillus spp.*



Preparation of vermicompost enriched with microbial consortia for pomegranate plant (*Punica Grantum L*) cv Bhagawa

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Abstract:

The present investigation was carried out in pomegranate farm CV Bhagwa during the murg bahar (June 2023- December 2023), nutrient enriched vermicomposting was prepared using plant growth promoting microbes including Bacillus Subtilis, azotobacter species, Frateuria Aurantia, Bacillus Polymixa, Pseudomonas Fluorescens, Trichoderma Viride. These consortia were spraying on heap of vermicompost mixed it and allowed to incubate for 21 day in shady space at aerobic condition, after each fourth day interval spaying of water and mixing were carried out using turning of vermicompost for achieved maximum growth of plant growth promoting microbes in vermicompost, The selected farm of fourth eight plants of pomegranate were treated with three treatments T_1 (Organic manure 15 kg/plant + NPK 2kg/plant), T₂ , (Organic manure 15 kg/plant +Vermicompost 2 kg/plant) , T₃ (Organic manure 15 kg/plant +Vermicompost 2 kg/plant+ microbial consortia). The T₃ treatment gives significant results of the selected plant and shows that 28 days are required for initiation of the first flower bud as compared to other treatments (decrease day of initiation of bud). The all selected plants of treatment T₃ (Organic manure 15 kg/plant +Vermicompost 2 kg/plant + microbial consortia) gives average weight of fruit is 260 grams, it also shows that plant developed resistance against fungal and nematode infection furthermore required less chemical pesticides as compared to T1 and T2. It was concluded that the consortia of microbes in a vermicompost gives plant growth promoting substances and increases plant defence system against plant pathogens, hence this is an alternative and eco-friendly method for increasing soil fertility, maintaining microflora in rhizosphere soil and receiving safe food for human beings.

Key words: Vermicompost, consortia, aerobic, pesticides, rhizosphere



Phytochemical Evaluation and Antimicrobial Activity of Leaves of *Aegle marmelos* (Bael)

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ABSTRACT

Therapeutic value of *Aegle marmelos*, commonly known as Beal has been recognized as a component of traditional medication for the treatment various human ailment. The plant, though, being highly explored, still lack sufficient evidences for the best variety possess the highest degree of medicinal values. The present study is focused on phytochemical screening of ethanolic and methanolic leaf extract of Beal plant. The crude extracts of *Aegle marmelos* revealed the presence of several biologically active phytochemicals with the highest quantity of alkaloids, flavonoids and phenols. The antibacterial efficacy was investigated against pathogenic bacterial strains and the highest inhibitory activity of methanol extract was obtained against *S. typhi and B.cereus* and MIC was observed as 7.8µg/ml whereas ethanolic extract were found to be potent against *B. cereus* and MIC was observed as 15.62 µg/ml. the MIC for standard antibiotics ampicillin was 1.29 µg/ml. The leaves of *Aegle marmelos* showed potent antimicrobial activity against pathogenic microorganisms.

Keywords: Antimicrobial, MIC, Phytochemicals, Aegle marmelos.



Qualitative Phytochemical Analysis from some Medicinal plant

in Akola and allied regions of Maharashtra

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ABSTRACT:

The phytochemical screening of the medicinal plants is significant and have marketable attention in collectively research organizations and pharmaceutical companies for the progress of the novel drugs in management of various diseases. With rich biodiversity of medicinal plants in and around of Akola district of Maharashtra; the current analysis on four medicinal plants such as Achyranthus aspera, Erythrina indica Linn., Curculigo orchioides Gaertn., and Rauvolfia sarpentina (L.) Benth. ex Kurz, were carried out. The total of six phytochemicals such as alkaloids, flavonoids, phenolic compound, steroids, saponins and carbohydrates were trialed in two different plant extracts, showed presence and absence of their activity. While screening of phytochemicals, Ethanol (ET) and Methanol (ME) extracts were used. Conducting qualitative trial, different customary techniques were adapted in order to validate the activity of relevant chemical compounds. With qualitative phytochemical estimation, it found that 60.41% were present, however 39.58% were absent in selected four plant species with both the extracts. Furthermore it was substantiate that the positive trails of phyto constituents detection were more specially in *Erythrina indica* and *Rauvolfia* sarpenting plant samples, on the other hand, it was less in Achyranthus aspera and Curculigo orchioides. It was found that occurrence of phytochemicals were very less detected in Achyranthus aspera comparatively than selected other plant samples in the study. All these phytochemicals have impending therapeutic or physiological actions on human system, for that the selected plant species can stand as a potential supply of some vital drugs.

Keywords: Phytochemicals, biodiversity, ethanol, alkaloids, vital drugs



A comparative study on Toxicity and Antipyretic effects of Ethanol extracts of some common Indigenous plants of India, (*Phyllantus embilica, Solanum melongena Linn., Pongamia pinnata*)".

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ABSTRACT

The traditional drug consisting of leaves of *Phyllantus embilica, Solanum melongena Linn., Pongamia pinnata* were evaluated for toxicity and antipyretic study. The ethanol plant extracts at 100, 250 and 500 mg/kg dose dependently exhibited significant antipyretic properties during yeast induced pyretic test. No toxic effect was observed up to the dose of 2000 mg/kg during acute toxicity studies. These antipyretic properties of the extracts may be related to the presence of its active constituents especially alkaloid.

Key Words: Toxicity, Antipyretic, Phyllantus embilica, Solanum melongena Linn., Pongamia pinnata



Studies on Chromium Resistance Bacteria Isolated from Damanganga River Water

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ABSTRACT

The very hazardous metal chromium (VI) makes up a significant portion of industrial waste. In the environment, hexavalent chromium (Cr (VI)) is highly mobile and water-soluble. Because of its continuous release into the water and the problems it causes to the environment and human health, it is a matter of serious concern in developing nations. Chromium-resistant bacteria were isolated from 15 different regions of Silvassa (UT of DNHDD), Bhilad, and Vapi (Gujarat) along the Daman Ganga River. A total of 28 chromium-resistant isolates were selected by using nutrient agar plates containing 50 mg/l of (K₂Cr₂O₇) and primarily differentiated based on morphological characteristics. Among the 28 isolates, 22 (CrR 1, CrR 3, CrR 4a, CrR 4b, CrR 5, CrR 7, CrR 8, CrR 9, CrR 10, CrR 11, CrR 12, CrR 13, CrR 14a, CrR 14b, CrR 15a, CrR 15b, CrR 17, CrR 20, CrR 21, CrR 23, CrR 24, CrR 25) can grow well up to 1,000 mg/l of Cr (as K₂Cr₂O₇) in nutrient broth. Native bacterial strains from sites contaminated with industrial wastewater make use of their natural capacity to change toxic heavy metals into less harmful forms and can be a useful instrument for tracking environmental heavy metal contamination.

Keywords- Industrial waste, Chromium, Damanganga

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Microbial evaluation of Shrikhand prepared from carrot powder

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Abstract

Shrikhand is a semi solid, sweetish, whole milk product, prepared by lactic fermentation of milk. The curd (dahi) obtained is partially strained through a muslin cloth to remove the whey to yield chakka. The *Shrikhand* was prepared from buffalo milk by supplementing with different levels of carrot powder with different treatment and the microbial quality was carried out. In present study the *Shrikhand* was prepared using carrot powder in different levels i.e 0% ,3%, 5%, 7% and 9% in different treatments i.e T₀, T₁, T₂, T₃ and T₄ respectively .The microbiology in storages total plate count and yeast and mould was increased but treatment T₄ TPC and YMC lower growth as compare to treatment T₀.coliform count was absent in shrikhand during overall storage period.

Keyword: Carrot powder, Shrikhand, TPC, Yeast Mould, coliforms



A Review of the Potential of Incorporating Local Wild Fruits into Value-Added Dairy Products.

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ABSTRACT

Wild fruits are a group of natural ingredients that have been widely used in traditional Indian dairy products, including yogurt, basundi, whey beverage, peda, cheese, ice cream, shrikhand, and kulfi. In recent years, there has been a significant increase in the application of wild fruits in value-added dairy products. This article aims to explore the potential of incorporating local wild fruits into value-added dairy products and the necessary considerations for successful integration, allowing smallholders to capitalize on the growing demand for innovative and sustainable agricultural products. In addition, the review paper explores the major groups of vitamins, minerals, and antioxidants found in wild fruits, highlighting their potential health benefits. Furthermore, the study highlights the importance of exploring indigenous fruits to create innovative culinary experiences while preserving cultural heritage and promoting local agricultural resources.

Keywords: Dairy Product, Wild Fruit, Value-added, Antioxidant.