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Research Article

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[Cold Atmospheric Pressure Plasma Jet and Plasma Lamp Interaction with Plants: Electrostimulation, Reactive Oxygen and Nitrogen Species, and Side Effects](#)

Cold atmospheric pressure plasma (CAPP) treatment is a highly effective method of protecting seeds, plants, flowers, and trees from diseases and infection and significantly increasing crop yields. Here we found that cold atmospheric pressure He-plasma jet (CAPPJ) can also cause side effects and damage to plants if the plasma exposure time is too long. Reactive oxygen and nitrogen species (RONS), electromagnetic fields, and ultraviolet photons emitted by CAPPJ can cause both positive and negative effects on plants. CAPPJ can interact with biological tissue surfaces. The plasma lamp has no visible side effects on Aloe vera plants, cabbage, and tomatoes. A plasma lamp and a cold atmospheric pressure plasma He-jet cause strong electrical signaling in plants with a very high amplitude with frequencies equal to the frequency of plasma generation. The use of plasma lamps for electrostimulation of biological tissues can help to avoid side processes in biological tissues associated with the generation of RONS, UV photons, and direct interaction with cold plasma. CAPP technology can play an important role in agriculture, medicine, the food industry, chemistry, surface science, material science, and engineering applications without side effects if the plasma exposure is short enough.

Mini Review

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[Ethno-Medicinal Plants from the North-Central Western Ghats of India for Alternative Health Care](#)

Ethnomedicine, synonymous with traditional medicine, is a crucial healthcare system practiced by various ethnic groups worldwide, especially among those with limited access to modern Western medicine. This study explores the rich bio-cultural diversity of the North Central Western Ghats in Karnataka, India, which harbors diverse ethnomedicinal practices. The region's tropical forests are home to an extensive array of plant species, with over 600 endemic to southern India and 95 exclusively endemic to Karnataka. The research focuses on documenting and analyzing the traditional knowledge of local communities regarding the use of plants for treating various human diseases. However, this task presents significant challenges and requires collaborative efforts from the government, NGOs, and Herbal Drug Companies. Over the last decade, ethnomedicinal studies have seen a rise, but there is still limited understanding of ethnomedicine's role in the traditional healthcare system in India. The forests of North Central Western Ghats, including Agumbe, Arbail Ghat, Chorla Betta, and others, exhibit a combination of deciduous and evergreen vegetation. These forests hold a variety of medicinal plants, adding to the region's bio-cultural richness. Scientific validation of the locally used ethnomedicinal plants further supports the development of herbal drug formulations with the support of the Ministry of Ayush, enabling the conservation and sustainable utilization of threatened and endangered species. The study emphasizes the importance of preserving traditional healers' knowledge and promoting collaboration for the preservation of ethnomedicinal practices in the region.

Research Article

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[Conservation Threats to Ethnomedicinal plants in Kore District, South Eastern, Ethiopia](#)

The study aimed to investigate the threats to the biodiversity of ethnomedicinal plants and to find consensus information on conservation and management practices of ethnomedicinal plants to contribute sustainable utilization of ethnomedicinal plants in Kore district, Southeastern Ethiopia. The result of the survey revealed that sixty-one medicinal plants were reported by the informants from the study area. These plants are distributed in 59 genera and 37 families. Family Lamiaceae and Asteraceae were represented by 5 (8.2%) species for each family and this is the highest number of species and followed by 4 (6.5%) species of Solanaceae and Fabaceae for each family. Preference ranking analysis shows that *Eucalyptus globulus* scored 47, indicating that it is the most used plant for firewood in the community, followed by *Olea europaea* (45) and the least used plant for firewood is *Juniperus procera* scored 36. Paired comparison analysis showed that *Olea Europeae* ranked first followed by *Podocarpus falcatus* for the use of charcoal production in the study area. The major purposes of plant species in the study area were construction, Charcoal, Firewood, Furniture, and Fences as well as for medicinal uses. Based on direct matrix ranking analysis *Juniperus procera*, *Eucalyptus globulus*, *Podocarpus falactus*, *Olea europaea*, *Hagenia abyssinica*, *Croton macrostachyus*, and *Cordia africana* were the most preferred medicinal plants by local people in the study area. The analysis's findings indicated that anthropogenic influences are endangering medicinal plants. In this study area, only about 13% of medicinal plants are collected from home gardens. This shows that the effort made by the community to conserve medicinal plants is not satisfactory. Therefore, encouraging NGOs and Government offices to participate in the conservation of medicinal plants to encourage the local people to plant indigenous trees for domestic use is necessary.

Research Article

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[Sunflower Diseases and Downy Mildew \(*Plasmopara halstedii*\) in Adana](#)

Sunflower (*Helianthus annuus* L.) is one of the most important vegetable oil sources in the world and in our country. The preference for sunflower oil in the consumption of vegetable oil increases the importance of sunflowers in our country. Rust, downy mildew, *Verticillium* wilt, *Sclerotinia* stalk and head rot, charcoal rot, blight, and leaf spot are some of the important diseases most commonly seen in sunflowers. In some years, depending on the climatic conditions, Downy mildew (*Plasmopara halstedii*) is widely observed and it causes an epidemic in sunflower-planted areas in the Adana province. Genetically resistant hybrids have started to be grown in Turkey in recent years due to the resistance of downy mildew disease to fungicides. The aim of the study was to determine the status of sunflower diseases and Downy Mildew disease in Adana.

Research Article

Published Date:-2023-07-10 09:34:51

[The Effect of Zinc Oxide, Copper, and Silver Nanoparticles Synthesized by the Green Method for Controlling Strawberry Gray Mold Fungus, *B. Cinerea* Pers](#)

Gray mold disease, caused by the fungus *Botrytis cinerea*, causes heavy losses in strawberries. The use of chemical fungicides due to the dangers for humans and the environment has caused attention to reduce their consumption and use biological methods. In this research, the effects of zinc oxide, copper, and silver nanoparticles have been synthesized from an aqueous extract of cloves, and the probiotic bacteria *Lactobacillus casei* by the green method was investigated on the gray mold disease of strawberries. The results showed that concentrations of 10% of zinc oxide nanoparticles synthesized from aqueous extract of cloves can completely control this pathogen on the culture medium and the fruit. Zinc and silver nanoparticles produced by *Lactobacillus casei* prevented 93.7% and 81% of fungal growth in the culture medium, respectively. Other treatments did not show a good inhibitory effect on the fungus. All treatments were able to prevent 100% to 50% of fungal growth after 96 hours on strawberries. The investigation of the storage characteristics showed the positive effect of the examined nanoparticles on reducing the rate of change of the physicochemical characteristics of the strawberry fruit tissue. Apparent decay was significantly reduced and samples treated with nanoparticles scored higher in sensory evaluation compared to control. Also, investigating the toxicity of nanoparticles in this experiment on the HepG2 cell line showed that Compared to the control, copper and zinc nanoparticles did not have significant toxicity on cells, but silver nanoparticles led to 25% cell death. This research provides promising results in the field of using nanoparticles for pre-harvest and post-harvest control of plant diseases.

Mini Review

Published Date:-2023-07-04 11:13:39

[Management of Fungal Diseases of Temperate Rice in the Kashmir Valley, India](#)

Over half of the world's population is fed by rice. It is consumed as a staple food by many countries worldwide. It is affected by a number of diseases among which fungal diseases contribute to its significant loss. Kashmir Valley located in the North Western Himalayan region of India is known for various coarse varieties of rice for their taste and elite class. However, the diseases cause a serious problem for the local farmers as well as the people who also consume rice as their staple food. One of the best remedies for disease management is the adoption of integrated disease management strategies, which include the use of resistant varieties, cultural practices, and judicious use of fungicides. In this review, we present the major fungal diseases affecting rice in Kashmir Valley and their management using Integrated Plant Disease Management (IDM).

Research Article **Published Date:-2023-07-03 10:44:50**

[Evaluation of Biostimulants Based on Recovered Protein Hydrolysates from Animal By-products as Plant Growth Enhancers](#)

Free amino acids-based biostimulants are gaining momentum in Europe for sustainable agriculture. They stimulate plant growth, improve crop productivity, and reduce reliance on harmful fertilizers. Enzymatic hydrolysis is used to develop biostimulants from animal by-products, such as greaves and protein-rich wastewater from processed animal proteins. The effectiveness of enzymatic hydrolysis depends on selecting the appropriate conditioning stage for the by-products, yielding protein in the range of 86% to 97%. These protein hydrolysates, with optimal amino acid compositions, are evaluated as biostimulants. Promising results show growth improvements of 17% to 31% in Chinese cabbage and lettuce seeds. The optimal dilution concentration ranges from 0.05% to 0.3%, depending on the protein hydrolysate used. The findings highlight the potential of these biostimulants to enhance plant growth and productivity while reducing environmental impact by replacing chemical fertilizers. They offer sustainable alternatives for promoting environmentally friendly practices in agriculture.

Research Article **Published Date:-2023-06-27 11:49:01**

[Snapshot of the Involvement of Glutathione in Plant-Pathogen Interactions](#)

Glutathione (GSH), a dynamic biomolecule, is popularly called the “master antioxidant”. This tripeptide thiol is almost ubiquitously found in prokaryotes, and eukaryotes, with some organism exceptions, and is known for its several significant roles including in plants. GSH in plant systems restricts itself not only to plant growth and development but its role is crucial in providing resistance to plants against several environmental hazards also.

Research Article **Published Date:-2023-06-10 11:10:37**

[The secondary metabolites profiling of the phytopathogenic fungus Sclerotinia Sclerotiorum](#)

Sclerotinia sclerotiorum is a necrotrophic plant pathogen causing more than 60 different disease symptoms in approximately 400 plants globally. Hence, due to this distinctive characteristic, S. sclerotiorum has been the subject of various research to comprehend its pathogenicity mechanism, including virulent genes, proteins, and metabolites. Likewise, the genomic annotation of S. sclerotiorum uncovered its remarkable potential for producing secondary metabolites, of which genome mining has additionally prompted the disclosure of these uncharacterized metabolic pathways, which might aid the pathogenicity process. To comprehend the secondary metabolites secreted by S. sclerotiorum that might be involved in its pathogenicity, a secondary metabolite-level investigation of this plant pathogen was performed. Profiling and characterizing these secondary metabolites produced during in vitro germination would increase the current knowledge of this pathogen.

In this study, S. sclerotiorum secondary metabolites profile examination was conducted, utilizing the Ultra-High Resolution Qq-Time-Of-Flight mass spectrometer (UHR-QqTOF). Proficient data analysis and verification with the genomic pathways of S. sclerotiorum gave an unequivocal metabolome profile of this pathogen. Two hundred and thirty secondary metabolites were identified in all three biological replicates, and their bodily functions were identified.

Opinion **Published Date:-2023-06-08 11:07:26**

[Insights from selected ancient Mesopotamian medicinal plants: an opinion piece](#)

This paper is grounded in a series of medical texts that survive from ancient Mesopotamia. It seeks to show the relevance of these texts for the modern researcher. Key findings are that the ancient Mesopotamian physician had already discovered many of the herbal treatments currently being verified by modern science. Armed with what these ancient texts tell us, we are in a position to offer advice on ways to ensure the most effective use of and avoid the dangers presented by selected medicinal plants.

Opinion

Published Date:-2023-05-30 15:08:07

[Water, energy, and food nexus with agroforestry system for sustainable development goals](#)

Food production program faces tight competition on land, water, energy, and efforts against the negative effects of food production on the environment [1,2].
