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MOLECULAR MECHANISMS AND THERAPEUTIC POTENTIAL OF RESVERATROL

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Abstract: Trans-resveratrol is a polyphenol that belongs to the stilbene family. In nature, resveratrol works primarily as a phytoalexin., it is synthesized by more than 70 plant species as a primary defense mechanism against environmental stressors, such as prolonged exposure to ultraviolet radiation or fungal and bacterial infections. Among the richest botanical sources is the *Vitis vinifera* plant whose fruits store this compound mainly in the skin of the grapes. Berries, blueberries and cranberries are a known source of resveratrol. *Polygonum cuspidatum* is a plant used as a source of resveratrol extraction for use in dietary supplements. Other sources of resveratrol include various trees like eucalyptus and floral species such as lilies. Several studies have documented different medicinal effects of resveratrol on human health, including its antioxidant, anti-inflammatory, cardioprotective, and neuroprotective properties. For human consumption, this antioxidant is available in a variety of everyday foods, especially red and purple fruits, peanuts, grapes and red wine. The maceration process of red wine, which includes the skin, seeds, and woody parts of the plant, facilitates a very high concentration of this compound, giving it great nutritional value. On a structural level, resveratrol is composed of two aromatic rings linked by a carbon-carbon double bond, allowing it to exist in cis and trans configurations. The trans form is the most stable and, therefore, the most used in health research. Its synthesis occurs through three condensation reactions mediated by the enzyme stilbene synthase. **Conclusions:** Trans-resveratrol is a naturally occurring polyphenolic stilbene synthesized by numerous plant species as part of their defense mechanisms against environmental stress conditions. It is found in human foods such as grapes, berries, peanuts, and red wine. Several studies have documented its potential benefits for human health.

Keywords: Medicinal properties, Resveratrol, Stilbene, Phenolics, Trans-resveratrol

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DIMERIA RAJANIANA (POACEAE): A NEW SPECIES FROM THE COASTAL WETLANDS OF NORTHERN KERALA, INDIA

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Abstract: A new species of the genus *Dimeria* from northern Kerala, India, *Dimeria rajaniana* Sunil, Ratheesh & Sidharth, is described. A comprehensive taxonomic account, including its distribution, ecology, and comparison with related taxa, is provided, along with photographic plates of the habit and dissected floral parts to facilitate identification.

Keywords: Coastal, *Dimeria*, Kannur, Kerala

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WOOD-DECAYING CRUST FUNGI OF SAL FORESTS: AN ANNOTATED CHECKLIST FROM KODERMA WILDLIFE SANCTUARY, JHARKHAND

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Abstract: Corticoid fungi are not a natural and well-defined group but assemblage of many ecological life forms which are kept together for the convenient of survey, collection, characterization, identification, documentation and preservation. In the present communication an annotated checklist of 20 taxa falling under 11 genera belonging to 9 families showing similar ecological life forms i.e. crusty basidiomata, also known as corticoid fungi is being provided.

Keywords: Crust fungi, India, Jharkhand, Koderma, Taxonomy

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IMPACT OF MONSOON ON WATERLOGGING AND GROUNDWATER QUALITY IN HISAR DISTRICT

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Abstract: The study was conducted to assess and map the extent of waterlogging and groundwater quality in Hisar district through Geo-spatial techniques. The maps of water table depth and groundwater quality for pre and post monsoon seasons were generated for the years 2013 to 2018. LANDSAT-8 satellite image was effectively used for determining surface waterlogged area which found to be 7.76 per cent in Hisar district. Analysis of water table depth maps for both pre and post monsoon of Hisar district generated in GIS environment for the years 2013 to 2018 reveals that in post monsoon area (average 0.80 %) under fully waterlogged (< 1.5 m) condition was increased as compared to pre monsoon (average 0.30 %).

Keywords: Geo-spatial techniques, Groundwater quality, Waterlogging, Water table

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FOREST-BASED LIVELIHOODS IN TRANSITION: A STUDY OF THE HALAKKIVAKKALIGA COMMUNITY IN UTTARA KANNADA DISTRICT, KARNATAKA

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Abstract: Forest-based livelihoods have historically supported the subsistence, nutrition and cultural identity of indigenous communities, but these systems are increasingly shaped by agriculture, wage labor and market integration. This study examines the livelihood transition of the Halakki Vakkaliga community in Uttara Kannada district, Karnataka, using an ex post facto design and data collected from 500 respondents through a structured interview schedule. The findings show that the sample was largely middle-aged and older, with 29.20% in the 51–60 age group and 43.20% illiterate; most households had small landholdings of 0.10–0.60 acres (75.40%) and medium annual income (75.40%). Agriculture remained the dominant occupation for 81.60% of families, but 44.60% combined agriculture with wage earning, indicating livelihood diversification. Forest dependence remained strongest for fuelwood, used by 100% of respondents, while use of wild fruits such as jamun (38.40%), karonda (31.40%) and amla (29.80%) persisted at moderate levels. The study concludes that the Halakki Vakkaliga community is experiencing a transition from diversified forest dependence toward agriculture and wage-based livelihoods, with important implications for ecological knowledge, cultural continuity and livelihood security.

Keywords: Forest livelihoods, Halakki Vakkaliga, Indigenous community, NTFPs, Livelihood transition, Uttara Kannada

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IN VITRO CALLUS INDUCTION AND SHOOT REGENERATION FROM LEAF EXPLANTS OF *BARLERIA LUPULINA* LINDL.

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Abstract: *Barleria lupulina* Lindl. is a medicinally important shrub native to Southeast Asia, valued in Thai folk medicine for anti-inflammatory, anti-amoebic, and diuretic properties. Overexploitation and limited natural regeneration have created an urgent need for reliable *in vitro* propagation protocols. In the present study, callus was induced from leaf, petiole, and stem explants on Murashige and Skoog (MS) medium supplemented with combinations of 6-benzylaminopurine (BAP), indole-3-butyric acid (IBA), and α -naphthaleneacetic acid (NAA). Leaf explants showed the highest callus induction frequency. Established callus was transferred to MS medium containing BAP and/or kinetin (Kn), alone or with low concentrations of auxins, to initiate shoot organogenesis. The present study reports the first systematic account of callus-mediated shoot regeneration in *B. lupulina* and establishes a framework for clonal multiplication, germplasm conservation, and future genetic improvement of this species.

Keywords: *Barleria lupulina*, Callus culture, Acanthaceae, Plant growth regulators