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Enrichment of essential oil components in citronella (*Cymbopogon winterianus* Jowitt): A novel approach

Citronella oil is one of the essential oils obtained from the leaves and stems of *Cymbopogon winterianus* and is extensively used as a mosquito repellent, in perfume industry, shows antibacterial and insecticidal activity; effective inhibitor of biodegrading and storage contaminating fungi and in fruit juice preservation, repelling properties on the tick and free radical scavenging. This oil contains medicinally important compounds like nerol, citronellol and geraniol, etc. that are synthesized during its metabolic pathways. Since geraniol dehydrogenase is responsible for the degradation of nerol, citronellol and geraniol. Characterisation of these compounds was performed using HPTLC, ESI MS and FTIR techniques. Therefore, looking the strategies to inactivate geraniol dehydrogenase enzyme by blocking gene encoding this enzyme might be helpful to enrich the content of above mentioned compounds. Also, *in silico* analysis of *GDH* gene via molecular docking with potent inhibitors and subsequent study on their individual interactions in enzyme- inhibitor assays will be preliminary yet beneficial for blocking the enzyme activity. The effect of selected inhibitors on the suspension cultures derived from callus proved to be a novel approach for pharmaceutical and cosmetic industry thereby accumulating the essential oil components *in vivo*.

Biography

Dev Mani Pandey is working as Associate Professor at the Department of Bio-Engineering, Birla Institute of Technology, Ranchi, India. He completed his PhD in Plant Physiology from Chaudhary Charan Singh, Haryana Agriculture University, Hisar, India. He was Post-doctoral fellow in South Korea and worked in the areas of plant molecular biology and functional genomics. He was also invited as Consultant to Plant Breeding, Genetics and Biotechnology, IRRRI, Los Banos, Philippines. He has presented his research findings and chaired the Session at national and international symposium/conferences/congress in India and abroad as well as organized international symposium successfully. He has published several research papers in peer reviewed journals. He is the Principal Investigator of Sponsored project as well as guide of many PhD scholars. His research areas and scientific expertise includes molecular biology, functional genomics, stress physiology and bioinformatics approaches on crop plants using recent biotechnological tools.

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