

PROJECT PROFILE

Title of the Project: Bioproduction of secondary metabolites from *Aegle marmelos*

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Duration of Project: 2006-2010

Objective:

1. To develop cell culture protocol for *Aegle marmelos*
2. To quantify the levels of secondary metabolites under culture conditions
3. To optimize culture conditions for scaling up of the production of secondary metabolites

Funding agency: National Medicinal Plants Board

Summary

Phytochemical screening of the leaves and roots of the species was carried out. Crude extracts of 3 different tissues of *Aegle marmelos* (leaves, stem bark and roots) were prepared in 5 different solvents viz., chloroform, methanol, dichloromethane, petroleum ether & water and subjected to HPTLC. The distribution of alkaloids, flavanoids, terpenoids and coumarins was studied through uv fluorescence, uv absorption and white light transmittance. Eight different media combinations were tested with five growth regulator combinations in five replicates. Shoot and root explants responded well with the initiation period ranging from one to three weeks. 6.0 mg / L 2, 4 D was found to be the optimal growth regulator concentration. WPM medium facilitated better callus induction. Calli produced had a weight ranging from 85-100 mg on fresh weight basis. Variations in salt mixtures are being attempted to increase the callus production. Metabolite profile of the roots, stem, leaves, and primary branches of the wild plants was developed. Compact callus aggregates for callus obtained from different explants was optimized for

increased growth in suspension cultures. Analysis of secondary metabolites in suspension cultures was carried out. Plant and human pathogens were tested with extracts from calli obtained using different explants to assay the efficacy of the active principles in the calli. Active principles present in the calli showed inhibitory effects on the pathogens. As part of the evaluation process of NMPB, M/s AFCL, Bangalore was awarded a consultancy to evaluate projects funded to various organizations. AFCL, Bangalore identified this project as a successful project implemented with financial assistance from NMPB.