

An executive summary of the final report of the work done on the Minor Research Project of Mr. S. Harsha Paul entitled "MYCO ELICITORS OF PLANT SECONDARY METABOLITES" sanctioned by UGC , vide sanction letter No. MRP(S)-0498/13-14/kama002/UGC SWRO, dated 28TH March, 2014.

Executive Summary

The minor research project for which fund was received by UGC was carried out as per the proposal submitted to the funding agency. The work was carried out over the period of two years beginning from July 2014 to October 2016. The summary of the project is described in short below.

The project involved the extraction of plant secondary metabolites elicited in response to the fungi.

The work began with the standard procedure of plant tissue culture which required the absolute aseptic conditions for the growth of explants tissue from the plant.

The most commonly used explants are seeds (especially for monocots), young, aseptically germinated seedlings and green house-grown, healthy plants. *Millingtonia hortensis* (Indian Cork tree) was selected for extraction of the secondary metabolite in this project.

The plant tissue explants were sterilized as per the standard procedure describe in the report. The surface sterilants chosen for an experiment typically depend on the type of explant and also plant species. This may be accomplished with an aqueous solution of either sodium hypochlorite (NaOCl) or calcium hypochlorite [Ca (OCl)₂]. The process of sterilization may be enhanced by agitation or by addition of wetting agents like Tween 20 or Tween 80.

The sterilized plant explants tissues were transferred and stored under the controlled conditions as delineated in the report. The storage conditions that were regulated include temperature, light and humidity.

The callus induction of was done by maintaining the explants in MS medium (pH 5.8) supplemented with 5 mg/L kinetin and 5 mg/L IAA and incubated at 25° C under 16 h illumination.

The elicitation of secondary metabolite was done by subjecting the callus growth under abiotic (pH, osmotic condition , methyl jasmonate and biotic stress conditions. The biotic stress were induced by different types of fungi were identified as, *Aspergillus niger*, *Aspergillus terreus*, *Paecilomyces viridis* and *Fusarium solani*.

Elicitation with fungal extracts was carried out. The calluses were treated on their upper surface with prepared fungal extracts at concentration of 1 mg/ml with 1ml sterile syringe.

The extraction of plant secondary metabolited elicited by inducing stressful conditions were done. .

Process of extraction 100 g of plant material (leaves) was separately packed with thimble and defatted using pet.ether and CHCl₃ for 3 h in soxhlet apparatus. Finally, plant material was extracted with methanol for 6 h and concentrated *in vacuo*.

