

**EFFECT OF METHYL JASMONATE ON AGARWOOD PRODUCTION  
FROM SHOOT CULTURE OF *Gyrinops walla***A.M.D.C. Aththanayake<sup>1\*</sup>, J.P. Eeswara<sup>2</sup> and G. Thirukkumaran<sup>1</sup><sup>1</sup>Dept. of Agricultural Biology, Faculty of Agriculture University of Jaffna, Sri Lanka<sup>2</sup>Department of Crop Science, Faculty of Agriculture, University of Peradeniya, Sri Lanka**Abstract**

*Gyrinops walla*, known as “WallaPatta”, produces a resinous compound Agarwood, and is an endemic plant to Sri Lanka. The production of agarwood occurred as a response to external damage. In-vitro propagation of *G. walla* has been identified as a better alternative for sustainable harvesting and agarwood production due to the high price and rare presence of natural agarwood. The present study was carried out to identify the effect of different concentrations of Methyl Jasmonate as an elicitor on the growth and the agarwood production of *G.walla* under solid cultures and identify the correct harvesting stage after application of MJ for maximum product synthesis from shoot cultures of *G.walla* under in-vitro conditions. *G. walla* shoots were grown on full-strength MS medium supplemented with 1 mg/L of BAP and 0.1 mg/L of IBA. Approximately 0.5g of *G. walla* shoots were cultured in one unit for 12 weeks. At the end of the 12<sup>th</sup> week, all treated and control 10 samples were harvested and freeze-dried. According to thin-layer chromatography (TLC) results, most of the compounds produced at 1 µmol MJ treatment had thicker bands than all other treatments. Moreover, 0.5g of *G.walla* shoots were cultured in 1 µmol MJ applied MS medium, and growth measurements were obtained at weekly intervals until 6 weeks. TLC results and SAS, Kruskal Wallis test revealed that the samples harvested in the 5<sup>th</sup> and 6<sup>th</sup> week weeks had a higher number of chemicals than in other weeks. Furthermore, similar compounds representing bands at similar retention times were present in 6<sup>th</sup> week treatments and agarwood extract than in other weeks. TLC fingerprint profile proved the presence of similar phytochemicals in shoot cultures and agarwood extracts. Therefore, these results revealed that the effective concentration of MJ is 1µmol and most effective harvesting stages are 5<sup>th</sup> and 6<sup>th</sup> week period.

**Keywords:** Agarwood, Methyl Jasmonate, Solid culture, Thin layer chromatography*\*Corresponding author: attanayakedinith@gmail.com*