Study on Selected Species of Family Thymelaeaceae for Agarwood Type Resin and their Propagation Methods

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Abstract

Dark color resin embedded heartwood formed by certain species of family Thymelaeaceae is called agarwood. Because of its unique aroma, agarwood oil is considered to be a highly priced fragrant compound in the world. In the recent past a native tree, *Gyrinops walla*, has become seriously threatened due to illegal harvesting and smuggling out of the country for agarwood oil. Therefore, it is important to discover other plants having resins with similar chemical compounds. In the present study, analysis and comparison of the chemical compounds of agarwood type resin of *Gyrinops walla* with the resin extracts of three other species of family Thymelaeaceae available in Sri Lanka, namely *Gnidia glauca*, *Wikstroemia indica* and *Phaleria capitata* were done. Preliminary phytochemical analysis was done using TLC fingerprints and GCMS chromatographs of Methanol extracts of the resins of selected plants. Studies on seed germination and vegetative propagation of *Wikstroemia indica* were also done. In the TLC fingerprint profile run in the Methanol (10%) and chloroform (90%) solvent system, spots observed at R_f = 0.79 were common in all the resin extracts of four samples. In GCMS chromatographs Isolongefolene and Copaene were common in *Gyrinops walla* and *Wikstroemia indica*. Common occurrence of 4, 7- Methanoazulene was identified in *Gyinops walla, Gnidia glauca* and *Wikstroemia indica* resin extracts. Further studies are needed to refine the results. Highest germination percentage of *Wikstroemia indica* seeds was obtained from the acid treatments ($P \leq 0.05$). In *Wikstroemia indica* interaction effect between cutting type and rooting hormone was significantly ($P \leq 0.05$) affect on the survival percentage of the stem cuttings at 1 ½ months after planting. The highest survival percentage could be obtained using semi hard wood and hardwood stem cuttings. Application of rooting hormone has not affected on the survival percentage of *Wikstroemia indica* stem cuttings.

Keywords: Agarwood resin, *Gnidia*, *Phaleria*, GCMS, Propagation, *Wickstroemia*, TLC

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