

# ***IN VITRO* SEED GERMINATION AND CALLUS INDUCTION OF *GYRINOPS WALLA* GAERTN**

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*Gyrinops walla* gaertn. (Thymalaeaceae) is a well-known plant species out of eight members of genus *Gyrinops* which is used for the extraction of agarwood resin. Due to the deep fragrance of the resin produced by *G. walla*, the species has great demand in Sri Lanka as well as worldwide. Overexploitation diminishes the natural population. Illegal felling decreases the natural population before maturity. As there is a high demand for the plant species in establishing plantations, micropropagation may be a feasible alternative to provide healthy planting material in commercial scale. Different surface sterilization procedures for mature seeds were carried out to eliminate microbial contaminations, using carbendazim, Clorox® and ethanol. Optimum concentrations of each solution and the duration of the surface sterilization were determined. *In vitro* seed germination method was studied to obtain *G. walla* seedlings with minimal microbial contaminations. Effect of different concentrations of plant growth regulators - gibberellic acid (GA<sub>3</sub>), indole-3-acetic acid (IAA) and kinetin (Kin) and their interactive effects on *in vitro* seed germination and seedling development were studied. When seedlings were established cotyledonary parts, shoot tips, axillary buds and leaves were cultured in MS basal medium supplemented with different growth regulators for multiple shoot and callus induction. Completely randomized design was used in all experiments and data obtained were analysed using ANOVA. Carbendazim 0.2%, Clorox® 10% and ethanol 70% solutions found to be optimum for surface sterilization of seeds. Scarification enhanced the *in vitro* seed germination. MS medium supplemented with 1.0 mg/L GA<sub>3</sub>, 2.5 mg/L IAA and 2.0 mg/L kin found to be ideal for *in vitro* seed germination. Callus initiation was observed in MS medium supplemented with 2.0 mg/L kin and 2.0 mg/L 2,4-D. from the results obtained, it would be suggested that callus induction is possible through cotyledonary leaves and shoot tips obtain from *in vitro* seedlings.

**Keywords:** *Gyrinops*, agarwood, seed germination, seedlings, plant growth regulators, callus induction