

**IN VIVO AND IN VITRO SEED GERMINATION OF AN ENDEMIC
RHODODENDRON SPECIES (*Rhododendron arboreum* subsp.
zeylanicum) IN SRI LANKA**

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Rhododendron arboreum subsp. *zeylanicum* known as the *Maha rath mal* is an endemic woody plant found in Sri Lanka. Although it is a vulnerable plant and has ornamental value, there are no published reports or researches concerning its propagation. *Rhododendron* species naturally grow from seeds and their natural regeneration rate is low. The vegetative propagation of most woody *rhododendrons* species is not successful. Therefore, investigation of different seed germination techniques is important. The effect of six growing media, Unsterilized native soil 100%, native soil: coir dust (1:1), native soil: leaf mould (1:1), coir dust: sand (1:1), native soil: sand (1:1), and clay soil were tested for *in vivo* seed germination in two locations, *Peradeniya* and *Hakgala* using factorial design. Further, four culture media (Anderson, autoclaved distilled water + agar, ½ strength Murashige and Skoog (MS) and full-strength MS) with two different sterilization methods (15% *Clorox* with *teepol* for 15 minutes and 20% *Clorox* with *teepol* for 10 minutes) were tested for *in vitro* seed germination using factorial design. The germination percentage was significantly ($P < 0.05$) affected by the location and growing media. The highest germination percentage ($90.67\% \pm 7.42$) was recorded in the media consisted with coir dust: sand medium (1:1). *Hakgala* was better than *Peradeniya* for *in vivo* seed germination. The lowest germination percentage ($23.01\% \pm 3.16$) and the highest contamination percentage ($30.9\% \pm 9.11$) were recorded in the full-strength MS medium in *in vitro* study. The highest plant height ($4.39\text{mm} \pm 0.18$) was recorded in the seeds treated in autoclaved distilled water + agar with 20% *Clorox* and *teepol* for 10 minutes. Moreover, the highest root length was recorded in the seeds treated with autoclaved distilled water + agar. Therefore, it can be concluded that autoclaved distilled water + agar with 20% *Clorox* and *teepol* for 10 minutes was the best protocol for *in vitro* seed germination of *Rhododendron arboreum* subsp. *zeylanicum*.

Keywords: Growing media, *Maha rath mal*, Seed germination, Sterilization