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Development of Propagation Techniques for Keekiridiya (*Eclipta prostrata* L.): A Valuable Medicinal Plant

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Abstract

Due to its miraculous chemical qualities, *Eclipta prostrata* L. has long been used extensively in traditional herbal remedies. Owing to over-harvesting caused by the rise in demand, *Eclipta prostrata* could be in danger of extinction Therefore, this experiment was held to implement an artificial propagation method and maintain the preservation of biodiversity and natural habitats of *Eclipta prostrata* L. Three separate experiments were conducted with five replicates per treatment. Experiment one comprised four sub-experiments (Effect of different water soaking methods, alternative wetting and drying treatments, Sulfuric and Nitric acid treatments, and Gibberellic acid treatments) to select the most promising seed treatment method/s. Experiment two was to select the suitable nursery media for *Eclipta prostrata* seeds and cuttings using five different media (coir dust, compost, coir dust:sand-1:1, compost:sand-1:1, cow dung:sand-1:1). Experiment three was planned to study the most suitable transplanting media for seedlings, rooted cuttings, and direct seeding of *Eclipta prostrata* using five different transplanting media (topsoil:compost:sand-1:1:1, topsoil:compost:sand-1:2:1, topsoil:compost-1:1, topsoil:compost-1:2, topsoil only). All the experiments were carried out using a Completely Randomized Design with factorial arrangements where necessary. Parameters were taken three weeks after seed establishment in experiment one and four weeks after establishment in experiments two and three. Data was analysed using ANOVA with an appropriate statistical analysis system. Results revealed that the highest germination percentage was observed in seeds treated with Gibberellic acid (900 ppm in 14 hours dipping period) (90%) followed by seeds soaked in water for 12 hours (80%). Nursery media of cow dung:sand-1:1 showed higher seed germination (77%) and the highest seedling height (5.8 cm) for seeds and significantly ($P \leq 0.05$) highest height increment (2.1 cm) for cuttings of *Eclipta prostrata.* All seedlings, rooted cuttings, and direct seeding of *Eclipta prostrata* had the maximum number of leaves, branches, and height increment in the transplanting medium topsoil:compost:sand-1:1:1. Therefore, it can be concluded that *Eclipta prostrata* seeds treated with Gibberellic acid (900 ppm in 14 hours dipping period) could be used as the most promising seed treatment method and cow dung:sand-1:1 could be used as the most suitable nursery media to obtain healthy and vigorous seedlings. The most suitable transplanting media was topsoil:compost:sand-1:1:1 and compared to direct sowing and cuttings, *Eclipta prostrata* seedlings had superior growth characteristics. The research could be very helpful in overcoming the various constraints in *Eclipta prostrata* propagation and ensuring a steady supply of planting materials for the species' commercial production.

Key Words: *Eclipta prostrata*, Nursery media, Propagation, Seed treatments, Transplanting