

Enhancing seed germination and seedling growth attributes of a medicinal tree species *Terminalia chebula* through depulping of fruits and soaking the seeds in water

ABSTRACT

Terminalia chebula (Gaertn.) Retz. is an important medicinal tree species in the Asian countries. Large scale planting program for the species is often difficult due to its limited seed germination capacity and longer germination period in the natural conditions. This study describes various pre-sowing treatments attributed to the seed germination and seedling growth of *T. chebula*. A total of 1200 fruits were subjected to various treatments of which 600 were depulped by rotting the fleshy pulp in water while rests were kept intact and dried followed by their storage in airtight containers until setting up for the experiments. The effects of depulping and soaking period (0, 24, 48 and 72h) on seed germination and seedling growth performance were explored. The fastest seed germination and highest germination percentage (73.8%) was observed in depulped seeds soaked in cold water for 48 h followed by 72 h and delayed germination with lowest percentage was in intact fruits without treatment. Growth parameters including shoot length, root length, total height, leaf number, leaf area, collar diameter, dry mass and vigor index were also maximum and significantly higher in the same treatment compared to others. Considering the practicability of the nursery raising technique for the species, the best treatment option obtained in this study was depulping the fruits and soaking the seeds in cold water for 48h which could be useful for large scale plantation programs. Introduction Medicinal plants play vital roles in healing various diseases throughout the world since time immemorial. Medicinal plants are now being used by Unani and Ayurvedic practitioners as well as by the common people to heal ailments at home. Plants with medicinal properties can also provide raw materials for downstream processing operations in the pharmaceutical industries.

Keyword: Depulping; Germination percentage; Pre-sowing treatments; Seedling growth; Seed soaking