

Depulping of fruits and soaking the seeds enhances the seed germination and initial growth performance of Terminalia belerica Roxb. seedlings

ABSTRACT

The study describes the effects of depulping the fruits and soaking the seeds of Terminalia belerica Roxb. on seed germination and seedling growth in nursery condition. Around half of the freshly collected fruits of T. belerica were depulped by rotting the fleshy pulp in water. Depulped seeds or intact fruits were dried in sun following storage in airtight container. Effects pre-sowing treatments were explored by soaking the dry intact fruits or depulped seeds in cold water for 0, 24, 48 and 72 h and sowed in polybags filled with soil mixed with decomposed cow dung. The study revealed that depulping of fruits and soaking the seeds significantly enhanced the seed germination and seedling growth performance in nursery condition. The fastest seed germination was observed in depulped seeds soaked in cold water for 72 h (DT3) and slowest germination was in intact fruits without treatment (IT0). The highest germination percentage (93) was observed in depulped seeds soaked in cold water for 48 h (DT2) followed by 85.6% in depulped seeds soaked in water for 24 h (DT1), which was significantly higher than the other treatments including the control (36.7). Although growth parameters such as shoot length, root length, total height, leaf number, leaf area and collar diameter of the seedlings were maximum in the seedlings developed through DT3, the vigor index was maximum in DT2 and minimum in IT0. Total dry mass per seedling was also maximum in the seedlings developed from the treatment DT3. Considered the imbibition period, germination percentage, growth performance including vigor index and total biomass produced per seedling, depulping the fruits and soaking the dry seeds in cold water for 48 h was recommended for obtaining maximum seed germination and seedling growth performance.

Keyword: Terminalia belerica; Medicinal plants; Pre-sowing treatment; Depulping; Germination capacity; Growth performance