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Studies on Bamboo *Dendrocalamus asper* Seed Viability Changes with the Storage Age in Sri Lanka

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Abstract

Dendrocalamus asper is an introduced bamboo species grown in wet/intermediate climatic areas of Sri Lanka. It has many uses in both economic, environmental contexts. Propagation through seeds is well adapted practice among medium to large scale groves. The Sowing medium plays an important role in the production of good quality seedlings. Therefore, this study aims to determine the best nursery media for seed germination and evaluate the performance of seeds yearly which were kept in a refrigerator (4° C) from 2018 to 2023. Seven sowing media (Treatments) were set up as river sand alone, river sand+topsoil (1:1), river sand+coir dust (1:1), compost only, topsoil only, coir dust only, and river sand+compost (1:1) as the first experiment in 2018 to determine the best sowing media for seed germination. Germination pots were set up in a completely randomized design (CRD) with twenty replicates using 10 seeds per each treatment. Germination percentages were recorded in 12, 15 and 18 days after seed sowing. Treatment differences were tested by ANOVA and significant means were separated using the Duncan multiple range test. The results revealed that treatment with river sand with topsoil (1:1) and Treatment only with river sand were shown best media for seed germination. The corresponding values were 40.98%, 44.29%, and 47.97% for river sand with topsoil (1:1) and 38.74%, 39.84%, 44.11% for medium with river sand only. Thereafter best sowing media treatment with river sand with topsoil (1:1) were used to test the seeds germination percentage using cool stored (4° C) seeds in year 2019, 2020, 2021, 2022 and 2023 and the figures were reported descriptively after 12, 15 and 18 after sowing. Average seed germination percentage 18 days after seed sowing dropped to 45.10% in 2019. The germination percentages for 2020 were 37.1%, 40.20%, and 41.5%, in that order. The experiment was conducted again in 2021, with germination rates of 35.40%, 36.90%, and 37.90%. It was 34.22%, 35.22%, and 36% in 2022, respectively. Although 36% germination was recorded at the end of 15 days, only 21% survived at the end. Rest of the plants were died due to the poor vigor and poor performance of seeds. After 18 days, the experiment conducted in 2023 showed that 17.50% of the seeds had germinated. The research findings showed that seed viability of (*Dendrocalamus asper*) has gradually declined with time in Sri Lanka.

Keywords: Bamboo, *Dendrocalamus asper*, Germination percentage, Sowing media, Viability