

SEED ECOLOGY OF SYZYGIUM CUMINI (L.) Skeels. (MYRTACEAE)

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I. ABSTRACT

Syzygium cumini is a native tree that grows in MCCC. The tree blooms during late summer and subsequently ripe fruits are displayed during June – September. Fruits/seeds exhibit polymorphism. Small, medium and large seeds are distinguished on the basis of seed size and seed weight. The mean seed weight of small seed is 170 mg, while that of large seeds is 648 mg. The medium seeds weight is 360 mg/seed. Accordingly, the seed moisture content also increases with seed size/weight. Seeds stored in contrasting lab conditions such as DL, dark and low temperature conditions displayed prolonged viability for a maximum of three months. Seeds with an insect larva (weevil) are tetrazolium negative and failed to germinate. The initial 3.28 g weight of 10 seeds is reduced to 1.185 g. This loss in weight is attributed to consumption by insect predator. Small, medium and large seeds failed to germinate in response to acid scarification or even control. Random seeds acid scarified for 5-10 min, responded with 60-90% germination in DL and dark conditions as against untreated controls, which showed 70-75% germination. Seed lots sown in forest soil and red soil also displayed 70-90% germination in different conditions. Exposure of seed lots to leaching for various periods of time did not result in significant germination. Red light promoted germination up to 40% while in far-red germination is only 10%. This shows absence of phytochrome control on germination process. Germination responses of seed lots to contrasting lab conditions reveal that the seeds are capable of germination under a variety of environmental conditions in the habitat. Promotion of seed germination by acid scarification is significant because the fruits are efficiently dispersed by frugivorous birds. The germination is hypogeal with the cotyledons remaining underground. The seed reserves are abundant in starch, protein as well as lipids, all of which are metabolized during and after germination to support seedling growth. Seedlings grown in darkness showed etiolation syndrome, while those grown in darkness showed condensed shoot/internode with normal chlorophyllous leaves. Seedlings, which are 100 days old, possess average of seven normal leaves with photosynthetic leaf area of 16.265cm². Certain seeds during germination showed presence of multiple shoots. Seed polymorphism, polyembryony and seed germination in response to various simulated conditions in the lab contribute to natural regeneration of this native tree.