

High adaptability of *Blepharis indica* T. Anders seeds towards moisture scarcity: A possible reason for the vulnerability of this medicinal plant from the Indian Thar desert

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ABSTRACT:

The seeds of *Blepharis indica* T. Anders (Acanthaceae) are the official part of the plant for its medicinal values and also as the promise of its future. Dunes of the Thar desert with high percolation capabilities are the most preferred habitat of this vulnerable medicinal plant. It produces 1337.26 seeds/plant as an average and shows high viability and germination percentage under *in-vitro* conditions, but efficiency of seedling establishment was observed poor at natural sites. Occurrence of seed coat layers as sheath of hygroscopic hairs is a sign of its extreme capabilities to initiate life under lesser soil moisture availabilities in desert. Seeds with 0.5 to 1.0 ml distilled water were observed most suitable for the production of maximum shoot and root lengths under controlled conditions. Maximum biomass of shoot and root modules were observed in 0.5 ml distilled water. Maximum amount of non-soluble sugar was found in intact seeds devoid of any imbibition. Seeds with 0.5 ml distilled water produced maximum amount of shoot biomass and soluble sugar, while seedlings with 1.0 ml had maximum root biomass. Seedlings treated with >1.5 ml of distilled water showed a decreasing trend in all parameters. Excessive water always found to cause seedling collapse and failure of its establishment.

Keywords:

Thar desert, Medicinal plant, Vulnerable, Hygroscopic hairs, Moisture, Seedling collapse.