

Germination Pattern of some Important Lesser Known and Threatened Tree Species: Nursery Prospective

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1. Introduction

Forest trees have vital role in mitigating climate change. Restoration and massive plantation of forest tree species are considered for improve the green cover of the country. Proposing lesser known tree and threatened plant species into such large-scale plantation programme help in conservation and management of such species out side the forests. Therefore, understanding seed biology and nursery technique provide a good plat form for production of quality seedlings in large quantity. In fact, preliminary information on seed traits, germination and seedling growth is poorly understood among LKTs and Threatened species. To fulfill some of these gaps, studies are being carried out in the research project at Navsari Agricultural University, Navsari, Gujarat, India. This paper provides information about germination techniques in some of these LKTs.

2. Material and methods

The present study consists of six LKT species viz., *Semecarpus anacardium*, *Pterocarpus marsupium*, *Dalbergia lanceolaria*, *Bauhinia malabarica*, *Miliusa tomentosa* and *Mallotus philippinensis*. Good fruits/seeds were collected from healthy trees and they were exposed to different pre-sowing treatments in the nursery. For germination, growing media was used and standard nursery procedure was followed. Daily germination count was made and germination percentage was worked out. Based on several pre-sowing treatments worked out among six species, the best pre-treatments are elaborated in the result.

3. Results and discussion

Studies shows that different pre-sowing treatments enhanced the seed germination over control. In *S. anacardium*, soaking seeds in conc. H₂SO₄ for 15 min followed by soaking seeds in normal water for 24 hrs resulted in 6.33 per cent improvement over control.

Table 1. Germination status of six lesser known and threatened tree species

Sr. No	Tree Name	Best Treatment	Germination achieved (%)	Per cent improvement over control
1	<i>S. anacardium</i>	Soaking seeds in conc. H ₂ SO ₄ for 15 min. followed by dipping in normal water for 24 hrs	19.67	6.33
2	<i>P. marsupium</i>	Soaking seeds in GA ₃ @750 ppm for 12 hrs	66.33	36.33
3	<i>D. lanceolaria</i>	Soaking seed in cowdung slurry for 48 hrs	77.33	30.67
4	<i>B. malabarica</i>	Soaking seeds in conc. H ₂ SO ₄ for 60 minutes	75.25	71.25
5	<i>M. tomentosa</i>	Soaking seeds in normal water for 24 hrs	56.33	17.33
6	<i>M. philippinensis</i>	Soaking seeds in normal water for 12 hrs, followed by dipping in GA ₃ @ 50 ppm solution for 60 min	48.67	19.67

Whereas in *P. marsupium*, soaking seeds in GA₃ @750 ppm for 12 hrs resulted in 36.33 per cent improvement over control. Similarly, for *D. lanceolaria*, soaking seed in cowdung slurry for 48 hrs resulted in 77.33 per cent germination. In the case of *B. malabarica*, 75.25 per cent germination was recorded when seeds soaked in conc. H₂SO₄ for 60 minutes. Seeds of *M. tomentosa* soaked in normal water for 24 hrs resulted in 17.33 per cent improvement in germination over control. Similarly, *M. philippinensis* seeds exposed to soaking treatment in normal water for 12 hrs, followed dipping in GA₃ @ 50 ppm solution for 60 min provided 19.67 per cent germination over control. This shows that common pre-sowing treatment is found to be not suitable for seeds of all the species. Some seeds showed good result in physical treatment, while other few species resulted higher germination when seeds exposed to chemical treatments. Inference also shows that there is a scope for further improvement of seed germination in these species. Different pre-sowing seed treatments worked out for six LKTs shows that seed quality, structure and its biology play vital role in enhancing seed germination. The present study provides suitable pre-sowing treatment for enhancing seed germination in six studied species and they may be used for large scale seedling production in the nursery. Furthermore, this piece of information certainly helps the researcher for species conservation as well as restoration work.