

SEED DORMANCY AND GERMINATION OF SELECTED DRY FOREST SPECIES OF SRI LANKA

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Dry zone forests of Sri Lanka have been subjected to various human activities such as swidden agriculture, illegal logging, and over exploitation. Natural regeneration of dry forests is found to be very poor and therefore, these forests are needed to be rehabilitated or restored by assisting natural regeneration. Understanding of seed ecology is essential for these restoration programs but this aspect has not been studied extensively for Sri Lankan dry forest species.

This study aims to reveal seed dormancy and germination of four native dry zone forest species: *Manilkara hexandra*, *Drypetes sepiaria*, *Salvadora persica*, and *Dichrostachys cineria* and one alien invasive species: *Prosopis juliflora*.

Morphology (colour, width, length of seeds and the seed coat width) and the weight of 80 seeds of these five species were recorded. Viability of seeds was tested using the standard TTC (tetrazolium) test. As a control experiment seeds were soaked in distilled water and the percentage germination of seeds in moist petridishes was recorded. Rate of water absorption of seeds was also measured while the presence of water-soluble growth inhibitors were examined through a bioassay using *Brasica juncea* seeds. Various treatments were tested to break the seed dormancy of these species.

Prosopis juliflora did not show any seed dormancy, but other four species showed seed dormancy. *D.cinaria* seeds appear to be dormant due to its water impermeable seed coat and the dormancy was broken by manual-scarification. *S.persica* seeds contain undeveloped embryo which cause the seed dormancy. Hot water treatment (at 45 °C for 5 days) was found to be the best treatment to break the seed dormancy. *D.sepiaria* seeds may be dormant due to the presence of a growth inhibitor and the hard seed coat. Manual scarification coupled with gibberelic acid (4000 ppm) treatment was found to be suitable to break the seed dormancy of this species. *M.hexandra* seeds too have undeveloped embryos and hard seed coats, which may cause the seed dormancy. Seed germination of this species can be improved by hot water treatment (at 85 °C for 15 minutes) followed by manual scarification.

These dormancy-breaking treatments are low cost methods and could be recommended for the use in nurseries in Sri Lanka to obtain seedlings of the study species.