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Seed dormancy and germination of five tropical montane species belonging to the family Fabaceae in Sri Lanka

Kusinara Wijayabandara* and Gehan Jayasuriya

University of Peradeniya, Sri Lanka.

*hansani8526@gmail.com

Abstract

The family Fabaceae consists of economically and ecologically important plant species (as crops, crop wild relatives, cover crops, shade crops, weeds, and invasive species and as members in many important plant communities). Information on seed dormancy and germination is essential in propagation of useful species and in eradication of unwanted species. However, information on seed dormancy and germination is rare on the species belongs to Fabaceae family occurring in tropical montane forests. Thus, the objective of the study was to investigate the seed dormancy type of five species of Fabaceae family ie. *Tadehagi triquetrum*, *Calpurnea aurea*, *Clotelaria scabrella*, *Erithria subumbrans* and *Cassia didymobotrya*. Available information suggested that seeds of these species have Physical Dormancy (PY), Physiological Dormancy (PD), combinational dormancy and non dormancy. Seeds were collected from various montane forests in Sri Lanka. Seed moisture content (SMC), imbibition and germination of non scarified (NS) and manually scarified (MS) seeds were determined for each species separately.

SMC of *T. triquetrum*, *C. aurea*, *C. scabrella* and *C. didymobotrya* was $\leq 15\%$ indicating that seeds are Orthodox. However, SMC of *E. subumbrans* was 34%, suggesting that they are recalcitrant. Significantly higher mass increment was observed in MS seeds than that of NS seeds of all the species except for *E. subumbrans*. Thus, it reveals that seeds of these four species have PY. The germinating test in light/dark condition confirmed the PY of these four species. MS seeds of *C. aurea*, *C. scabrella* and *C. didymobotrya* germinated $> 50\%$ while, NS seeds only germinated to $< 15\%$. Although, within first 14 days only $< 50\%$ of the NS seeds of *T. triquetrum* germinated, within 30 days it germinated $> 90\%$ indicating that they have a slight dormancy. Interestingly, both NS and MS seeds of *E. subumbrans* imbibed water and $> 90\%$ of them germinated during the 30 day germinated within 14 days. Thus, seeds of *E. subumbrans* have no dormancy.

Key words: orthodox seeds, physical dormancy, recalcitrant seeds