

Dormancy and Germination of Brown Salwood Seeds from West Timor Provenances: Does These Traits Support the Invasiveness of Introduced Acacia Species

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Brown salwood (*Acacia mangium* Willd.) is one of invasive species of acacias worldwide, but it has been introduced as part of the afforestation program to many degraded forest areas in Indonesia. Its nitrogen fixing capability and fast growth has made the species an appealing choice for those who took part in the program in the past. However, the ability the species to produce a large quantity of seeds and the ability of the seeds to withstand harsh environmental conditions may contribute to making the species to become invasive in many parts of the world. An experiment was carried out to evaluate the dormancy of brown salwood seeds from different provenances under different temperature regimes. Seeds were obtained from brown salwood provenances in the districts of Kupang, South Central Timor, and Malaka in West Timor. To test for the indication of dormancy, a preliminary germination test was carried out by soaking 100 seeds from each provenance in 30 mL sterile water in a 50 mL beaker glass for 24, 48, and 72 hours. Because of no difference in seed germination was observed, the primary experiment was designed consisting of germination after soaking the seeds of each provenance in 30 mL water of ambient temperature, 60, 80, and 100°C. Seedling germination was observed every three days for one months by defining a seed as germinated when its radicle has reached at least 2 mm in length. Results of the experiment showed that both the

provenance and water temperature affected seed germination. Seeds of the South Central Timor provenance provided a higher percentage of germination compared seeds of other two provenances and soaking the seeds in water of 80°C enhanced the percentage of germination than in water of other temperatures. These results indicated that dormancy is an inherent trait in brown salwood seeds and heat is needed to break such dormancy. The invasiveness of this introduced species in a particular type of ecosystem is therefore depends on its provenances and the presence of fire in the ecosystem which in the case of woodland savanna of West Timor is of either natural or man-made events.

Keywords:

- *Acacia mangium*
- Seeds
- Dormancy
- Germination, provenance,
- Heat
- Invasiveness