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Improvement of Germination Rate of Lontar (*Borassus flabellifer* L.) Seed through Physical and Chemical Treatments

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Abstract

Lontar (*Borassus flabellifer* L.) is a member of the Arecaceae (palmae) family and commonly planted as a home industry plant. The main product from lontar is sap obtained by tapping inflorescences used to make sugar. It contributed to the improvement of the society economie particularly in Sulawesi, Indonesia. Use of lontar woods as construction materials for home building and the use of young fruits as a kind of traditional food are further utilities of lontar. However, the lontar population decreased severally caused by several factors, i.e. slow regeneration process caused by a long dormancy phase and a low growth potential. The present study investigated the effect of physical and chemical treatments to improve the germination rate of lontar seeds.

The experiment consisted of a complete randomised design with two factors. First factor: physical treatments (P0 = no physical treatment, P1 = scarification with sandpaper, P2 = seed back sliced by knife). Second factor: chemical treatments (C0 = no chemical treatment, C1 = 24 hours dipped in sterile distilled water, C2 = 24 hours dipped in 0,1 % KNO_3, and C3 = 24 hours dipped in Gibberelin GA3).

The results show that the combined treatments P1 with C2 or C3 and P2 with C2 or C3 had similar effects on germination rate and grow potency of lontar seeds. In both combined treatments, the germination rate of lontar seed was 13–17 % with a grow potency of about 20 %. In these combined treatments the germination of seeds started at 90 days after treatment, which was 30 days earlier then the control (120 days). The germination potency and grow potency of the control treatment was only 0–10 % . These results suggest that a combined physical and chemical treatment can be used as a the best method to tackle the seed dormancy problems in lontar regeneration process.

Keywords: *Borassus flabellifer* L., seed dormancy, seed germination

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