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Propagation of Physic Nut (*Jatropha curcas* L.) on Leyte Island, Philippines

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Abstract

Due to an increasing demand for energy and lacking energetic resources, biofuels are worldwide more and more recognised as an alternative source of energy. Physic nut (*Jatropha curcas* L.) is a common plant in the Philippines, which is so far not cultivated on large scale. Its seeds contain approximately 30 % of oil. It is drought resistant and can grow on poor soils.

On Leyte Island a propagation trial with physic nut was conducted. Seeds and cuttings collected at three different places on the island were propagated under different treatments. The substrate was varied, different pre-treatments were tested and cuttings were obtained from different stem parts. The choice of the stem part had the strongest influence. Distal cuttings produced most biomass. Biomass production also varied between plant material originating from different locations. The variation in substrate didn't show an effect, same as the treatment of cuttings with a hormone solution. Plants of seeds that had been soaked in water before planting showed the highest survival rate. Anyway the survival rate of generatively propagated plants was fairly low with less than 30 %.

To find out more about the low germination rate, which was expected to be the main reason for the little success of generative propagation, a germination test was conducted. Two factors were tested: “Storage time” of seeds and “degree of ripeness” of fruits. Storing the seeds for 20 days after harvest led to an increase in germination rate from 1 % to 92 %. The older the fruits the seeds were obtained of, the lower the germination rate. The analysis of chemical composition of seeds from Leyte showed slightly higher oil contents compared to the results of seed analysis reported in literature. Farmers on the island started to cultivate physic nut recently. The soils of the physic nut fields are quite heavy and tend to water logging, which has to be seen critically. The practised intercropping technique with coconut (*Cocos nucifera*) and sweet potato (*Ipomoea batatas*) can increase benefits and minimise risk.

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