

## Hybridization and Evaluation of Jatropha to Improve High Yield Varieties in Indonesia

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**Abstract :** The availability of fuel in the world will be reduced in next few years, it is necessary to find alternative energy sources. *Jatropha curcas* L. is one of oil crops producing non-edible oil which is potential for bio-diesel. *Jatropha* cultivation and development program in Indonesia is facing several problems especially low seed yield resulting in inefficient crop cultivation cost. To cope with the problem, development of high yielding varieties is necessary. Development of new varieties to improve seed yield was conducted by hybridization and selection and resulted in fourteen potential genotypes. The yield potential of the fourteen genotypes were evaluated and compared with two check varieties. The objective of the evaluation was to find *Jatropha* hybrids with some characters i.e. their productivity was higher than check varieties, oil content > 40% and harvesting age  $\leq$  110 days. Hybridization and individual plant selection were carried out from 2010 to 2014. Evaluation of high yield was conducted in Asembagus experimental station, Situbondo, East Java in three years (2015-2017). The experimental designed was Randomized Complete Block Design with three replication, and plot size 10 m x 8 m. The characters observed were number of capsules per plant, dry seed yield (kg/ha) and seed oil content (%). The results of this experiment indicated that all the hybrids evaluated have higher productivity than check variety IP-3A. There were two superior hybrids i.e. HS-49xSP-65/32 and HS-49xSP-19/28 with highest seed yield per hectare and number of capsules per plant for three years.

**Keywords :** *Jatropha*, bio energy, hybrid, high seed yield

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