

ABSTRACT

**Toxicity Test of *Mahkota dewa* (*Phaleria papuana* Warb.)
Bioinsecticide towards the Mortality of *Aedes aegypti* Linn.
Mosquito in Laboratory**

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This study was aimed to identify the difference of toxic effect in several concentrations of seed extract of *mahkota dewa* (*Phaleria papuana* Warb.) tested on *Aedes aegypti* Linn. mosquito. This study investigated correlations pattern between the increased concentration of *mahkota dewa* (*Phaleria papuana* Warb.) seed extract and increased mortality rate of *Aedes aegypti* Linn. mosquito, and determined the LC₅₀ and LC₉₀ of the seed extract of *mahkota dewa* (*Phaleria papuana* Warb.) which had killing effect on *Aedes aegypti* Linn. mosquito, either at larva and adult stage during 24 hours the exposure time.

Larva of were used from instar III and from early instar IV, while adult mosquitoes consisted of female ones of 3 days old. Experimental animals used were obtained from *Aedes aegypti* Linn. colonization in laboratory. Sample size was 25 mosquitoes (either at larva or adult stage) for each treatment with seven concentrations. Each treatment was repeated five times. Research method was started with mosquito colonization, extract producing, and content examination. Subsequently, preliminary study were followed by the real study was carried out to the mosquitoes. The difference of toxic effects in several concentrations of *mahkota dewa* seed extract on *Aedes aegypti* Linn. mosquitoes was used one-way ANOVA, followed by smallest least significance different (LSD). Correlations between the increase of concentration of *mahkota dewa* extract seed and the increase of killed *Aedes aegypti* Linn. was used regression trend analysis, while probit analysis was used to find LC₅₀ and LC₉₀.

The result showed a highly significant difference in each concentration of *mahkota dewa* seed related to the number of killed *Aedes aegypti* Linn. ($p = 0.000$). A correlation pattern was used between the increase of *mahkota dewa* seed extract concentration and the increase of the number of killed *Aedes aegypti* Linn. mosquitoes, either in larva or adult stage ($p = 0.000$). Furthermore, determination of LC₅₀ and LC₉₀ in larva or adult stage showed that concentrations that killed 50% of the mosquitoes were respectively 0.09255% and 0.21694% in

both stages, and those that killed them 90% were respectively 0.20987% and 0.35389%.

It can be concluded that the seed extract of mahkota dewa (*Phaleria papuana* Warb.) is toxic against *Aedes aegypti* Linn. mosquito or it has killing capacity to larva and adult stage of those mosquito. A highly significant difference of toxicity is present in each concentration of mahkota dewa seed extract related to the number of killed (mortality rate) of *Aedes aegypti* Linn. mosquito, either at larva or adult stage ($p = 0.000$). There was correlation between the increased concentration of mahkota dewa seed extract and the increased mortality rate in those mosquitoes in both stages ($p = 0.000$). The highest mortality rate in larva stage was showed respectively by 0.4% and 1.30% of concentrations. Furthermore, determination of LC_{50} and LC_{90} of both larva and adult stage showed that the concentration that killed 50% of them were respectively 0.09225% and 0.21694%, while those that killed 90% of them were respectively 0.20987% and 0.35389%.

Keywords: *Aedes aegypti* Linn., bioinsecticide, mahkota dewa (*Phaleria papuana* Warb.), toxicity, extract.

