

## ***Abstract***

### *Comparative Effectiveness of Noni (*Morinda citrifolia L*) Fruit Extract with Temephos as Larvicides against *Aedes aegypti* Larva*

**Background:** World Health Organization (WHO) estimates that 50 million people suffer from dengue hemorrhagic fever (DHF) each year. During 2014, Larva Extermination Rate (Angka Bebas Jentik (ABJ)) in Indonesia did not reach the target of 95%. This indicates that program of larvae eradication including the use of Temephos is not optimal yet. Indonesian people were known to use Noni (*Morinda citrifolia L*) as traditional medicine since long ago. It opens opportunities to use Noni fruit as alternative bio-larvicide because it is not toxic to human body and environment.

**Method:** This was an experimental study using random allocation sampling. The study was divided into two stages: a preliminary test and the main test. Research was conducted at the entomology laboratory, Institute of Tropical Disease, Airlangga University for 3 months (November 2016 – January 2017). Samples were 25 instar III/IV of *Aedes aegypti* larva at each concentration group. The obtained data was analyzed using SPSS 17.0 statistical software.

**Result:** The noni fruit extract showed larvicidal effects after 24 hour of exposure. After preliminary test, we decided on six concentration groups (between 2250 ppm until 3500 ppm) for the main study. Statistical test of main study result showed significant result on Kruskal-Wallis test. Moreover, statistics showed significant differences between the groups on Least Significance Difference test and Mann-Whitney test. Probit analysis obtained LC (Lethal Concentration) 50% = 2.752,573 ppm and LC<sub>90</sub> = 3.137,241 ppm. There was no preliminary test for Temephos group. Kruskal-Wallis test of Temephos group showed significant result. Mann-Whitney test of Temephos group showed significant and also insignificant differences between group. Probit analysis obtained LC<sub>50</sub> = 0,3 ppm and LC<sub>90</sub> = 0,468 ppm.

**Conclusion:** Noni fruit extract has larvicide effect on *Aedes aegypti* larva, but Temephos is a more effective larvicide than noni fruit extract.

**Keyword:** *Aedes aegypti* Larva, Dengue Hemorrhagic Fever, Larvicide, Noni Fruit (*Morinda citrifolia L*), Temephos