ABSTRACT

Background. Organophosphate insecticide (malathion and temephos) have been used in Indonesia intensively to control *Aedes aegypti* more than 25 years. It is very important to monitor the usage of these insecticides periodically since the usage of these insecticides for a long time can cause resistance of *Aedes aegypti*.

Researh Objective. To measure and analyze the resistance of *Aedes aegypti* larvae towards organophosphate insecticide (temephos) and number of dengue cases in Yogyakarta municipality based on age and gender.

Methods. The subjects of this research are *Aedes aegypti* larvae obtained from the hatching of the mosquito eggs which are collected from some houses in Yogyakarta municipality. Final result of biochemical test in this research is measured qualitatively by eyes and quantitatively by *Absorbance Value* (AV) reading by using ELISA reader at γ = 450 nm. Data is classified into 2 groups: first group is sensitive group, if average score < 2.0 second group is resistant group, if average score = 2.0-3.0. Data for incidence rate (per 10,000) of dengue were collected from Department of Health.

Result. From the data of quantitative biochemical test, 6 sub-districts are resistant while the remaining 8 sub-districts are sensitive. The most resistant sub-district is Gondomanan (average score of 2.6) while the most sensitive sub-district are Pakualaman and Mergangsan (average score of 1.1). The average incidence rate of dengue cases in Yogyakarta is 6.8 with Wirobrajan recording the highest incidence rate with 19.4 and Gedongtengen recording the lowest incidence rate with 3.0. The gender distribution of dengue shows no significant difference between number of cases among females and males with a p-value of 0.241 ($p>0.05$). There is no significant difference between the number of cases of 10 years and below and 10 years above with a p value of 0.341 ($p>0.05$).

Conclusion. There is no relation between the resistance of *Aedes aegypti* larvae towards organophosphate insecticide and the number of dengue cases.

Keywords. *Aedes aegypti*, larvae, resistance, incidence rate, organophosphate insecticide.