ABSTRAK

PENGARUH EKSTRAK METANOL DAUN PANDAN (*Pandanus amaryllifolius)* LC_{85} TERHADAP KADAR ASETILKOLINESTERASE LARVA NYAMUK *Aedes aegypti*

Salah satu penyakit yang dibawa oleh nyamuk *Ae. aegypti* adalah Demam Berdarah Dengue (DBD). Pengendalian nyamuk dapat dilakukan dengan berbagai cara salah satunya dengan pengendalian secara kimiawi yang dilakukan dengan menggunakan larvasida temephos. Larvasida temephos bekerja dengan menghambat enzim asetilkolinesterase (AChE). Penggunaan temephos dapat menyebabkan resistensi sehingga diperlukan larvasida dari bahan alami seperti ekstrak daun pandan. Penelitian ini adalah penelitian eksperimen murni (*True- experimental design*) untuk mengetahui pengaruh ekstrak metanol *P. amaryllifolius* LC_{85} terhadap kadar AChE pada larva nyamuk *Ae. aegypti*. Rancangan penelitian yang digunakan dalam penelitian ini adalah *post-test only control group*. Pengujian dilakukan dengan memberikan perlakuan pada larva nyamuk dengan ekstrak *P. amaryllifolius*, akuades, dan temephos selama 24 jam dan diulang tiga replikasi. Hasil penelitian menunjukkan kadar enzim AChE larva nyamuk *Ae. aegypti* yang terpapar ekstrak *P. amaryllifolius* LC_{85} memiliki rata-rata kadar enzim AChE larva nyamuk yaitu 147,19 $\pm$ 70,87 unit/l dengan kadar terendah 86,58 unit/l dan kadar paling tinggi 225,11 unit/l. Pada perlakuan dengan akuades, rerata kadar enzim AchE larva nyamuk yaitu 323,23 $\pm$ 36,05 unit/l dengan kadar terendah 294,37 unit/l dan kadar paling tinggi 363,64 unit/l. Perlakuan dengan temephos memiliki rata-rata 279,94 $\pm$ 4,99 unit/l dengan kadar terendah 277,06 unit/l dan kadar paling tinggi 285,71 unit/l. Hasil menunjukkan bahwa terdapat perbedaan kadar enzim AChE larva nyamuk yang signifikan pada setiap kelompok perlakuan dengan *P. amaryllifolius* LC_{85}, akuades, dan temephos. Ekstrak *P. amaryllifolius* memiliki mekanisme kerja sebagai racun saraf.

Kata kunci : Larva *Aedes aegypti, Pandanus amaryllifolius,* kadar, enzim AChE

ABSTRACT

THE EFFECT OF LC_{85} OF METHANOL EXTRACT FROM PANDAN LEAVES (*Pandanus amaryllifolius*) ON ACETYLCHOLINESTERASE LEVELS OF *Aedes aegypti* MOSQUITO LARVAE

One of the diseases carried by *Ae. aegypti* is Dengue Hemorrhagic Fever (DHF). Mosquito control can be done in various ways, one of which is chemical control using temephos larvicide. Temephos larvicides work by inhibiting the enzyme acetylcholinesterase (AChE). The use of temephos can cause resistance so that larvicides from natural ingredients such as pandan leaf extract are needed. This study was a pure experimental study (True-experimental design) to determine the effect of methanol extract of *P. amaryllifolius* LC_{85} on AChE levels in *Ae. aegypti*. The research design used in this study was a post-test only control group. Tests were carried out by treating mosquito larvae with *P. amaryllifolius* extract, distilled water, and temephos for 24 hours and three replications were repeated. The results showed that the AChE enzyme levels of *Ae. aegypti* exposed to *P. amaryllifolius* LC_{85} extract had an average AchE enzyme level of mosquito larvae, namely 147.19 + 70.87 units/l with the lowest level being 86.58 units/l and the highest level being 225.11 units/l. In the treatment with distilled water, the average AChE enzyme level of mosquito larvae was 323.23 + 36.05 units/l with the lowest level being 294.37 units/l and the highest level being 363.64 units/l. Treatment with temephos had an average of 279.94 + 4.99 units/l with the lowest level being 277.06 units/l and the highest level being 285.71 units/l. The results showed that there were significant differences in the AChE enzyme levels of mosquito larvae in each group treated with *P. amaryllifolius* LC_{85}, distilled water, and temephos. *P. amaryllifolius* extract has a mechanism of action as a neurotoxin.

Key Word : *Aedes aegypti* larvae, *Pandanus amaryllifolius*, level, AChE enzyme