

## INTISARI

Kecamatan Negara merupakan salah satu daerah endemis Demam Berdarah Dengue (DBD) di Bali, sehingga telah dilakukan usaha pengendalian penyakit tersebut menggunakan insektisida organofosfat, sejak tahun 1992 sebanyak 4X setiap tahunnya. Penggunaan insektisida dalam jangka waktu lama dengan frekuensi per tahun yang tinggi dapat menyebabkan resistensi pada nyamuk vektor. Oleh karena itu diperlukan deteksi status resistensi nyamuk *Aedes aegypti* dari Kecamatan Negara (Bali) terhadap insektisida organofosfat. Uji resistensi dilakukan secara biokemis untuk mengetahui aktivitas enzim esterase non spesifik yang berkaitan dengan mekanisme timbulnya resistensi.

Penelitian ini bertujuan untuk menentukan status resistensi nyamuk *Ae. aegypti* di Kecamatan Negara (Bali) terhadap insektisida organofosfat dengan uji biokemis dan mengetahui hubungan aktivitas enzim esterase non spesifik dengan status resistensi nyamuk.

Penelitian bersifat non eksperimental dengan rancangan deskriptif analitik. Analisis hasil uji dilakukan secara kualitatif dan kuantitatif. Secara kualitatif data dianalisis dengan membandingkan intensitas warna antara sampel dengan kontrol negatif dan kontrol positif. Data kuantitatif berupa *Absorbansi Value* (AV) yang diukur dengan *ELISA reader* pada  $\lambda$  415 nm. Data dianalisis dengan menentukan harga *cut off positive*, dengan patokan rerata AV kontrol negatif+2SD, untuk mendapatkan kriteria status resistensi.

Hasil yang diperoleh menunjukkan bahwa nyamuk dengan status rentan ( $AV < 0,623$ ) sebanyak 0%, nyamuk resisten sedang ( $AV: 0,623-1,188$ ) sebanyak 91,25%, dan nyamuk resisten tinggi ( $AV > 1,188$ ) sebanyak 8,75%. Hal ini menunjukkan bahwa nyamuk *Ae. aegypti* di Kecamatan Negara (Bali) telah resisten terhadap insektisida organofosfat.

Kata kunci : *Aedes aegypti*, Demam Berdarah Dengue, Insektisida Organofosfat, Status Resistensi, Uji Biokemis.

## ABSTRACT

Negara subdistric was one of Dengue Haemorrhagic Fever (DHF) endemic area in Bali, therefore the control of that disease had been done by organophosphate insecticide since 1992 for four times in a year. The usage of insecticide for a long period in a high frequency per year might cause the vector mosquito became resistant. Thus, early detection of resistance status of *Ae. aegypti* mosquitoes from Negara subdistric (Bali) to organophosphate insecticide was needed. Resistance test was done by using biochemical assay to find out non specific esterase enzyme activity that related with resistance mechanism.

The objective of the study was to find out the resistance status of *Ae. aegypti* mosquitoes in Negara subdistric (Bali) to organophosphate insecticide using biochemical assay and correlation between the activity of non spesific esterase and the resistance status of *Ae. aegypti* mosquitoes.

This study was non experimental research with analytical descriptive program. The result of this study was analyzed qualitatively and quantitatively. The data was analyzed qualitatively by comparing the intensity of the color among samples in negative and positive control. Quantitative data in the form of Absorbance Value (AV) measured by ELISA reader at  $\lambda$  415 nm. The data was analyzed by deciding the value of cut off positive, with the standard average AV negative control+2SD to obtain the criteria of resistance status.

The result showed that the mosquitoes with susceptible status (AV<0,623) was 0%, the mild resistance mosquito (AV: 0,623-1,188) was 91,25% and the high resistance mosquito (AV > 1,188) was 8,75%. This condition showed that *Ae. aegypti* from Negara (Bali) had been resistant to organophosphate insecticide.

*Keywords* : *Aedes aegypti*, *Dengue Haemorrhagic Fever*, *organophosphate insecticide*, *resistance status*, *biochemical assay*.