**Characterisation and in vitro sensitivity of blood cholinesterase from diodon hystrix towards carbamate insecticides**


## ABSTRACT

An alternative biosensor using blood cholinesterase Diodon hystrix was determined by exposure to several insecticides; a nerve agent that highly potential to caused environmental pollution. The blood of fish was collected and mixed with an extraction buffer (1:4 v/v) followed by homogenisation using an ultraturax homogeniser T25, centrifuged and purified using DEAESepharose as the matrix of the column. Optimal assay condition was determined at temperatures ranging from 30 to 40oC, pH 7 using sodium phosphate buffer, and ATC was chosen as a preferred substrate due to the highest catalytic efficiency compared to BTC and PTC. A sensitivity test was conducted by exposing ChE with several carbamates and the only carbary shows more than 50% inhibition, while bendiocarb only 24.5% inhibition. Carbofuran, methomyl and propoxur seem to be unaffecting the activity of ChE. Preliminary screening prove blood ChE could be another alternative for insecticides especially carbamate compound. Further study is needed to enhance the sensitivity before implementation for environmental biomonitoring.