

ABSTRACT

A comparison of inhibition of several insecticides on the esterase erythrocyte of rodent Rattus rattus diardii was done using the spectrophotometric method. In this experiment, α -naphthyl acetate was used as a substrate. Rattus rattus diardii was exposed to the Dichlorvos, Malathion, and Fenitrothion through an injection of intraperitoneum at different times. It was found that specific activity of the enzymes increased with longer period of insecticides exposure. Base on the I_{50} and K_i (bimolecular rate constant) values, it was found that the Dichlorvos and Fenitrothion showed cross resistance, unlike that for malathion in the tests. Dichlorvos was the most effective inhibitor for esterase, followed by Malathion and Fenitrothion. Starch gel electrophoresis was used to resolve the rats esterases which were subsequently characterized with specific inhibitors. Six esterase bands, *i.e.* one arylerase, two carboxylesterase, and three cholinesterase were resolved. The electrophoresis results strengthened the findings of the spectrophotometric tests. The significance of these findings is discussed.

ABSTRAK

Perbandingan mengenai perencatan beberapa insektisid ke atas esterase eritrosit tikus Rattus rattus diardii telah dijalankan menggunakan kaedah spektrofotometer. Dalam eksperimen ini, α - naftil asetat telah digunakan sebagai substrat. Rattus rattus diardii telah didedahkan kepada Dichlorvos, Malathion dan Fenitrothion menerusi suntikan intraperitoneum pada masa berbeza. Telah ditemui bahawa aktiviti spesifik enzim meningkat dengan meningkatnya tempoh pendedahan kepada insektisid. Berdasarkan kepada nilai I_{50} dan K_i (Pemalar kadar dwimolekul), telah ditemui bahawa Dichlorvos dan Fenitrothion menunjukkan rintang silang tidak seperti untuk ujian malathion. Dichlorvos adalah perencat yang paling efektif untuk esterase, diikuti oleh Malathion dan Fenitrothion. gel Elektrofosis kanji telah digunakan untuk mengasingkan esterase tikus yang selepasnya dicirikan menggunakan perencat khusus. Enam jalur esterase iaitu satu arilesterase, dua karboksilesterase, dan tiga kolinesterase telah diasingkan. Keputusan electrofosis menguatkan lagi penemuan dalam ujian spektrofotometer. Hasil penemuan kajian dibincangkan.