

Prapaporn Srikhong 2006: Effects of crude extracts from some plant species on Esterase and Glutathione – S – transferase activity in *Aedes aegypti* (L.). Master of Science (Biology), Major Field: Biology, Department of Zoology. Thesis Advisor: Associate Professor Suraphon Visetson, Ph.D. 178 pages
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Some plant extracts were studied to evaluate detoxification enzyme activity in larvae of mosquitoes (*Aedes aegypti*(L.)). Three plant materials, nutgrass tuber (*Cyperus rotundus* L.) seeds of yambean (*Pachyrhizus erosus* (L.) Urb.) and Ya-Nguang-Chang (*Heliotropium indicum* L.) were extracted by Soxhlet extraction method using ethanol 95% as a solvent. The completely randomized designs (CRD) with 3 replicates were used to analyse their LC_{50} . The toxicity of nut grass tuber extracts showed 10.75% w/v ($y = 5.7 + 4.12 x$) LC_{50} after exposure at 24 hours and after exposure for 48 hours was 6.17% w/v ($y = 12.53 + 6.07 x$). The jam bean extracts showed 0.07% w/v ($y = 15.971 + 490.565x$) LC_{50} at 24 hours and 0.05 %w/v ($y = 23.334 + 493.335 x$) at 48 hours. The Ya-Nguang Chang showed LC_{50} of 24.32%w/v ($y = -7.085 + 2.347x$) and 20.21%w/v ($y = -0.696 + 2.508x$) after exposure at 24 and 48 hours, respectively.

The detoxification enzyme mechanisms in terms of inhibition types at average 0.02-0.2 Mm were studied to evaluate types of inhibition. It revealed that three of extracts were likely to inhibit esterases and glutathione-S-transferase showing of competitive inhibition. Although some experiments indicated that after using Dichloronitrobenzene (DCNB) as a substrate to glutathione-S-transferase, all extracts exhibited as noncompetitive inhibition. While using Chlorodinitrobenzene (CDNB) as a substrate, the Ya - Nguang Chang inhibited glutathione – S - transferase as noncompetitive inhibition. Furthermore, toxicity tests against some nontarget organisms showed that LC_{50} was highest against fish (*Xiphophorus helleri* Heckel) at ca. 17.74%w/v for Ya - Nguang Chang extracts. In addition to the lowest LC_{50} was at 0.076% w/v was from jam bean extracts. The adult bees (*Apis cerana*) exhibited LC_{50} at 3.47% w/v from Ya - Nguang Chang extracts. The highest toxicity against bees was from jam bean extracts which showed 2.17%w/v. Finally, Dissolved Oxygen (DO) and pH of water incubating larvae in all treatments were reduced significantly.

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