

Nutchaya Kumrungsee 2010: Efficiency of ricinine from *Jatropha gossypifolia* (Euphorbiaceae) leave extract against *Spodoptera exigua* Hübner (Lepidoptera : Noctuidae) : Toxicity and detoxification enzyme activities. Master of Science (Zoology), Major Field: Biology, Department of Zoology. Thesis Advisor: Ms.Vasakorn Bullungpoti, Ph.D. 78 pages.

This study explored the control efficacy of crude extract and Ricinine from *Jatropha gossypifolia* leave extract against second instar *Spodoptera exigua* Hübner. The leave of *Jatropha gossypifolia* was extracted with EtOAc or EtOH using soxhlet extractor whereas Ricinine, the purified compound from EtOAc crude extract was isolated by chromatography techniques. From toxicity analysis, EtOAc crude extract showed the highest insecticidal activity with an LC₅₀ by dipping method 1,809.40±342.62 ppm and 1,588.39±295.10 ppm after 24 and 48 hours exposed, compare with EtOH crude extract which showed LC₅₀ as 34,570.65 ±3,572.17 ppm and 26,796.21±3,527.98 ppm after 24 and 48 hours exposed. The topical sprayer method of EtOAc crude extract showed the control efficiency as LC₅₀ value at 24 hours as 8,644.63 ± 1,566.54 ppm while Ricinine showed LC₅₀ value as 3,215.56±1,030.75 ppm, and showed LC₅₀ value of EtOAc crude extract and Ricinine at 48 hours as 6,027.16 ± 1,227.16 ppm and 2,087.63±882.38.75 ppm respectively. This study also analyzed the effect of EtOAc crude extract to parasitoid insect, *Meteorus pulchricornis* which it showed the 60% mortality at dose 40,000 ppm by filter paper method. In addition, the detoxification enzyme activity analysis result showed EtOAc crude extract induce activity of carboxyl esterase and glutathione-S-transferase (GST) activity 0.12 and 1.62 fold, respectively . Thus, these both detoxification enzymes may play important role for *S. exigua* resistance to this extract in the future.

Student's signature

Thesis Advisor's signature