

Anupap Puangsomchit 2014: Searching for a New Environmentally-Friendly Botanical Insecticide from the Rhizomes of *Alpinia galanga*. Master of Science (Chemistry), Major Field: Chemistry, Department of Chemistry. Thesis Advisor: Assistant Professor Wanchai Pluempunupat, Ph.D. 85 pages.

The objective of this study was to develop an alternative strategy for the control of *Spodoptera litura*. The dried rhizomes of *Alpinia galanga* were extracted with sequential polarity solvent; hexane, dichloromethane, ethyl acetate and methanol, respectively by soaking at room temperature for seven days. The topical application was used to examine the toxicity of the extracts against second instar *Spodoptera litura* larvae. Dichloromethane crude extract exhibited the most toxicity as LD₅₀= 3177 ppm and 2099 ppm after 24 and 48 hours post-treatment, respectively. Furthermore, two active ingredients as [1'S]-1'-acetoxychavicol acetate and *p*-coumaryl diacetate were successfully isolated from dichloromethane crude extract. In addition, mode of action of insect enzyme activity was found that the both isolated compounds could inhibit acetylcholinesterase and glutathione-S-transferase after exposed 24 hours.

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Thesis Advisor's signature

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