Puntipa Junhirun 2013: Bio-efficacy of allelochemicals from *Wedelia trilobata* (L.) Hitchc (Asteraceae) against *Plutella xylostella* (Lepidoptera: Plutellidae). Master of Science (Biology), Major Field: Biology, Department of Zoology. Thesis Advisor: Assistant Professor Vasakorn Bullangpoti, Ph.D. 73 pages.

This research prospective was investigated efficacy of *Wedelia trilobata* (L.) Hitchc (Asteraceae) (BK 064385) to control *Plutella xylostella* (Lepidoptera: Plutellidae). *W. trilobata* dried leaves were extracted with sequential polarity solvent; hexane, dichloromethane, ethyl acetate and ethanol, respectively by using Soxhlet's apparatus. The topical application assay was used to determine toxicity on 2nd instars larvae of *P. xylostella*. Ethyl acetate crude extract was the most effective as the results presented yield was 0.2130% w/w, LD_{50} value at 24 hours was 358.39 ppm and LC_{50} value at 48 hours was 316.82 ppm. The alkanes mixture were consisted of Nonacosane 31.02%, Hexacosane 16.70%, Heptacosane 15.77%, Pentacosane 13.45%, Octacosane 10.45%, Tetracosane 4.20% and Docosane 1.42%. The mortality percentages were 44.16% and 66.67% after exposed with 400 ppm of alkanes mixture 24 hours and 48 hours, respectively. Mode of action of insect enzyme activity showed carboxylesterase was inhibited by ethyl acetate crude extract and acetylcholinesterase was inhibited by alkanes mixture after exposed 24 hours.

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