

ตลอดฤดูการ เท่ากับ 6.725, 8.175, 7.500, 9.300 และ 6.675 ตัว ตามลำดับ ส่วน cyhalothrin L และ สารสกัดจากผลดีปตี มีประสิทธิภาพรองลงมา โดยมีค่าเท่ากับ 10.925 และ 11.525 ตัวตามลำดับ แสดงให้เห็นว่า สารสกัดจากผลดีปตีมีแนวโน้มที่จะเป็นสารเสริมฤทธิ์กับสารไพรีทรอยด์สังเคราะห์ชนิด cyhalothrin L

มหาวิทยาลัยเชียงใหม่
Chiang Mai University

Thesis Title Synergistic Efficacy of the Indian Long Pepper Fruit Extract
in Combination with Some Insecticides for Controlling the
Diamondback Moth (*Plutella xylostella* L.)

Author Miss Panyarat Salee

M.S. (Agriculture) Entomology

Examining Committee : Assistant Prof. Dr. Sawai Buranapanichpan	Chairman
Lecturer Prachaval Sukumalanand	Member
Associate Prof. Dr. Sanit Ratanabhumma	Member
Assistant Prof. Chumporn Tepsuwan	Member

Abstract

Toxicity test of *Piper retrofractum* fruit extract, carbosulfan, cyhalothrin L and cyfluthrin against the larvae of *Plutella xylostella* L. were revealed that oral LC_{50} were 10,000, 300, 13 and 62.50 ppm ; oral LC_{90} were 18,700 , 1,160 , 43 and 142 ppm ; LD_{50} were 1.25, 0.105, 0.00625 and 0.025 ng/larva and LD_{90} were 2.25, 0.295, 0.027 and 0.07 ng/larva, respectively. The obtained oral LC_{50} and LD_{50} values were used as standard for mixing the mentioned substances. Each chemical insecticide mixed with *P. retrofractum* fruit extract at the ratio of 1:1, 1:2, 1:4, 1:8 and 1:10. The results showed that oral LC_{50} ratio of the mixture between carbosulfan + *P. retrofractum* fruit extract, cyhalothrin L + *P. retrofractum* fruit extract, and cyfluthrin + *P. retrofractum* fruit extract were 1:2.016, 1:2.924 and 1:2.099 while that of LD_{50} were 1:1.316, 1:1.233 and 1:1.016, respectively.

Field efficiency test of these substances were carried out at Ban Ton Pueng, Muang Kaew, Mae Rim, Chiang Mai. The results revealed that carbosulfan, cyfluthrin, carbosulfan + *P. retrofractum* fruit extract, cyhalothrin L + *P. retrofractum* fruit extract, and cyfluthrin + *P.*

retrofractum fruit extract showed the non-significant difference ($P=0.05$) in controlling efficiency against *P. xylostella* larvae were 6.725, 8.175, 7.500, 9.300 and 6.675 larvae, respectively. Whereas cyhalothrin L and *P. retrofractum* fruit extract yielded less efficiency in controlling this insect giving the seasonal average of 10.925 and 11.525 larvae respectively. The data indicated that *P. retrofractum* fruit extract exhibited synergistic potential only to the synthetic pyrethroid, cyhalothrin L.