

# รายงานการวิจัย

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Survey on Natural Enemies and Biological Control of Insect and Mite Pests of Chilli

รองศาสตราจารย์ ดร.จिरาพร เพชรรัตน์

ภาควิชาการจัดการศัตรูพืช

คณะทรัพยากรธรรมชาติ

มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่

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### Abstract

Insect and mite pests of chilli found in chilli planting areas in Rattaphum and Ranote districts, Songkhla province; Khao Chaison and Lumpum districts Phattalung provinces; and Chianyai and Phakpanang districts, Nakorn Sri Thammarat province (October 2006 – September 2007) were: Spiraling whitefly *Aleurodicus disperses* Russel (Homoptera: Aleurodidae), pepper fruitfly *Atherigona orientalis* Schiner (Diptera: Muscidae), fruitfly *Bactrocera* spp. (Diptera: Tephritidae), housefly *Musca domestica* Linnaeus (Diptera: Muscidae), green peach aphid *Myzus persicae* (Sulzer) (Homoptera: Ahdidae), common cutworm *Spodoptera litura* (F.) (Lepidoptera: Noctuidae), and broad mite *Polyphagotarsonemus latus* (Banks) (Acari: Tarsonemidae). The only natural enemy found was braconid parasitoid of fruit fly, *Diachasmimorpha longicaudata* Ashmead.

The cost of control, income, number of infested fruit fly *Bactrocera* spp., and number of fruit fly parasitoid *Diachasmimorpha longicaudata* (Ashmead) collected from chilli plots with chemical insecticide control (total of 8 plots;  $c_1, c_2, c_3, c_4, c_5, c_6, c_7$  and  $c_8$ ) were compared with those of biological control plots using *Mallada basalis* (Walker) (total of 8 plots;  $b_1, b_2, b_3, b_4, b_5, b_6, b_7$  and  $b_8$ ). **From plots  $c_1 - c_8$ :** Total weights of chilli of each plot were 209.51, 266.95, 45.53±4.12, 345.74±8.77, 624.57±16.73, 396.23±16.94, 1,210.24±33.28, and 279.44±9.95 kg. respectively. **Cost of chemical control** was 50.40, 1400.00, 2.70, 2.40, 88.20, 88.20, 291.60, and 291.60 baht respectively. **Incomes** (chilli price 30.00 baht: kg.) were 6,285.30, 8,008.50, 1,365.90, 10,372.20, 18,737.10, 11,886.90, 36,307.20, was 8,383.20 respectively. **Numbers of fruit flies** were 1.46±0.14, 2.10±0.24, 0.60±0.23, 0.22± 0.54, 0.18±0.52, 0.18±0.52, 0.06±0.23, and 0.10±0.36 flies:10 fruits respectively. **Numbers of fruit fly parasitoids** were 0, 0.53±0.1, 0.04± 0.69, 0.44± 0.86, 0.28±0.72, 0.18±0.48, 0.38±0.75, and 0.26±0.712 parasitoids:10 fruits respectively. **From plots  $b_1 - b_8$ :** Total weights of chilli of each plot were 198.11, 231.85, 85.10±4.24, 677.63 ±29.90, 660.65 ±21.57, 644.42±25.26, 1,198.87±19.18, and 294.61±8.27 kg. respectively. **Costs of control** (0.35 baht: 1 *M. basalis*) were 1,400.00, 4,725.00, 1,580.50, 1,168.00, 2, 353.50, 2, 353.50, 1,876.50 and 1,876.50 baht respectively. **Incomes** (insecticide free chilli 45.00 baht: kg.) were 1,400.00, 4,725.00, 1,580.50, 1,668.00, 2,358.50, 2,358.50, 1,876.50, and 1,876.50 baht respectively. **Numbers of fruit flies** were 2.37±0.23, 4.40 ±0.35, 0.16±0.46, 0.10±0.36, 0.16±0.42, 0.06±0.23, 0.02±0.45 and 0.04±0.19 flies:10

fruits respectively. **Numbers of fruit fly parasitoids** were 0,  $0.37 \pm 0.08$ ,  $0.38 \pm 0.86$ ,  $0.26 \pm 0.72$ ,  $0.18 \pm 0.48$ ,  $0.12 \pm 0.82$ ,  $0.26 \pm 0.72$  and  $0.16 \pm 0.42$  parasitoids:10 fruits respectively.

**Key words:** insect pests of chilli, biocontrol, lacewing, *Mallada basalis* Walker