

RESISTANCE STATUS OF *Crocidolomia pavonana* F. (LEPIDOPTERA : CRAMBIDAE) FROM PASIRWANGI GARUT, WEST JAVA TO THE INSECTICIDE PROFENOFOS AND ITS SUSCEPTIBILITY TO THE METHANOLIC LEAF EXTRACT OF *Nicotiana tabacum* L. (SOLANACEAE)

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ABSTRACT

This research was conducted to determine the resistance status of *Crocidolomia pavonana* to the synthetic insecticide profenofos and to know the toxicity of leaf extract of tobacco (*Nicotiana tabacum*) against *C. pavonana*. The study used two bioassay methods, dry film and feeding assay. *C. pavonana* larvae was obtained from Sirnajaya, Karyamekar, and Padasuka village, Pasirwangi district, Garut, West Java, Indonesia. A standard susceptible strain of *C. pavonana* larvae (more than 20 generation in the laboratory) was used as comparison. The results of this study showed that *C. pavonana* from all villages (Karyamekar, Sirnajaya, Padasuka) indicating slight resistance ($1 < RR \leq 5$) to profenofos with Resistance Ratio (RR) values of 1.04, 1.65, and 1.20, respectively (dry film method) and 1.23, 1.86, and 1.42 (feeding assay). These results suggest that the resistance mechanism of *C. pavonana* in these populations occur mainly in the insect alimentary canal. On the other hand, the field population of *C. pavonana* had a RR to tobacco leaf extract of less than one (0.92 in Sirnajaya; 0.89 in Karyamekar; 0.90 in Padasuka) suggesting that the larvae of *C. pavonana* tested were not resistant to the tobacco leaf extract.

Key words : Resistance ratio, resistance mechanism, botanical insecticide.

INTRODUCTION

Pest resistance cases to inorganic insecticide have been known since 1910, but the number of cases have increased significantly since the discovery of the synthetic organic insecticide of DDT (dichloro diphenyl trichloroethane) in 1945. In 1986, it was reported that 447 insect species became resistant to most groups of insecticide (organochlorine, organophosphate, carbamate, synthetic pyrethroid, fumigant), including *Bacillus thuringiensis* (Georghiou and Mellon, 1983).

Uhan and Sulastrini (1993) reported in 1993 that *C. pavonana* populations from Lembang (West Java, Indonesia) were not resistant to a number of synthetic insecticides tested. Resistance status of *C. pavonana* to profenofos synthetic insecticide was reported previously by Santoso (1997). Suharti (2000) stated that *C. pavonana* of Lembang (Cibogo and Cikidang) had a Resistance Ratio (RR) value more than 4 times, which were 6.81 and 7.88. In Pangalengan (Pulosari and Warnasari) and Cisarupan (Sukawargi), *C. pavonana* also became resistant to profenofos with RR of 3.19, 1.59,