

TOXICITY OF BINTARO SEEDS EXTRACT PESTICIDE AGAINST *Crocidolomia pavonana* F (Lepidoptera: CRAMBIDAE)

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1. Introduction

Cabbage and plants from the Brassicaceae family horticultural commodities have high economic value for farmers. But in the cultivation of cabbage can never be separated from the problem often encountered such an attack plant pests and the high cost of synthetic pesticides. *Crocidolomia pavonana* F. is one of the important pests of the plant Brassicaceae family which caused heavy damage to 100% (Kumarawati et al., 2013). *C. pavonana* that attack cabbage will result cabbage not being sold in the market if it is not done fast and precise control. *C. pavonana* larvae will consume part of the crop and the growing point of the part being sold (Uhan, 1993). Currently have been developed pesticides that are derived from plants or popularly known botanical pesticides. Bintaro plants (*Cerbera odollam* Gaertn.) From the family Apocynaceae is known to have potential as botanical pesticides shown by the results of Utami's research (2010) that the crude extract of *C. odollam* seeds have a strong insecticidal activity against *S.litura* larvae. Based on this, the research aims to determine the toxicity of *C. odollam* seed extract against *C. pavonana*.

2. Research Method

This research method was determined into eight steps and described in the following.

- (1) Clean the dirt that attached to the seeds with water.
- (2) Dried the seeds under the sun for 7 days.
- (3) Smooth it with smooth crusher until powdered.
- (4) Extract the 500g of dried seeds powder with methanol with concentration 1 : 10 (m/v) and then soaked it with maceration method for 72 hours.
- (5) Then filter the liquid with filter paper whatman no. 41.
- (6) The extract solution is then evaporated with rotary evaporator at temperature 55-60°C and at a pressure of 580-600 mmHg to produce a crude extract.
- (7) Put the extract into baker glass and give it label.
- (8) Saved it on refrigerator with temperature ± 4°C until used.

The bintaro seeds extract then tested into 60 *C. pavonana* larvae at Instar I with three conditions; control, treatment with 0.02% concentration and treatment with 0.06% concentration. The solvent for

treatments was made by mixing the 0.02% concentration or 0.06% concentration of bintaro seeds extract with distilled water and alkylaryl polyglycol ether (agristik) 0.05 ml per liter of dissolved.

Then percentage of death *C. pavonana* count with these formula.

$$P = \frac{a}{b} \times 100\%$$

Explanations:

P= Mortality (%)

a= The number of death *C. pavonana*

b= The number of experiment *C. pavonana*

If in the control *C. pavonana* died less than 20%, do the correction with Abbots formula below.

$$Pt (\%) = \frac{po - pc}{100 - pc} \times 100\%$$

Explanations:

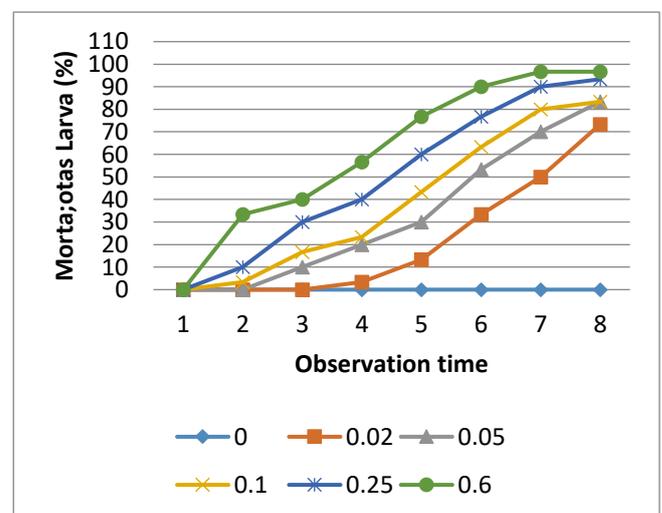
Pt = The percentage mortality of tested insects that have been corrected

Po = The percentage of tested insects mortality trials for the treatment of the extract

Pc = The percentage mortality of tested insects in control

3. Results and Analysis

The extract of *C. odollam* caused mortality to the *C. pavonana* at every level concentration. The experimental results showed that the extract concentration of 0.02% can cause mortality of 16.67%, while the 0.60% concentration of the extract can cause mortality of 93.33% at 7 days after



application.

The higher the level of concentration of *C. odollam* seed extract that is applied then the higher the

mortality of the larvae. This is in line with the results of Dono et al., (2008) which showed that the higher the level of *Barringtonia asiatica* extracts concentration that is tested, then *C. pavonana* mortality rate continues to increase. It can be



concluded that the percentage of larvae mortality increased with the increase of the concentration extract.

Dead *C. pavonana* showed symptoms black and shrink body. This is presumably because of the secondary metabolites of *C. odollam* contain saponine that can harm the body metabolism so the larvae activities disturbed. This is accordance with the opinion of Rohimatun & Suriarti (2011), said that saponine that contained in *C. odollam* seeds is toxic and can harm the body metabolism.

4. Conclusion

Bintaro seeds extract can be processed to make pesticide. Each concentration level of the extract that are being tested can cause mortality and the higher the concentration level, the higher the mortality of the larvae. The resulting extract of Bintaro seeds at the concentration of 0,02% cause mortality of 16,67% and at the concentration of 0,60% cause mortality of 93,33% on 7 days after the application. It inhibits the development of the larvae and reduce feed consumption. Therefore, Bintaro seeds can be processed into botanical pesticide.

References

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