

SUMMARY

BERNADETH SHITA R.L. 115040200111067. Toxicity Test of Bitter Melon Fruit Extract *Momordica charantia* to *Spodoptera litura*. Supervised by Hagus Tarno, SP., MP., Ph.D. and Mochammad Syamsul Hadi, SP., MP.

Spodoptera litura F. (Lepidoptera: Noctuidae) is one of the main pest which are commonly found in agricultural sphere in the various countries. *S. litura* is regarded as one of the most destructive insect pests in Asia Pacific for its high reproduction and cause heavy damage to crops. *S. litura* are polyphagous leaves pests or have a broad host range. The most pest control by the farmers and considered to be effective until this moment are by chemical control. Chemical pesticides which are sprayed by the farmers on crop leave carcinogenic residue. One of the alternatives that can be used is biopesticides. One of the plants that are known to have the potential as biopesticide is bitter melon (*Momordica charantia* L.). This study aimed to determine the effect of bitter melon fruit extract applications (*M. charantia* L.) on the feeding activity of *S. litura* larvae, pupae formation, emergence of the adult and larval mortality.

This research was conducted in September until December 2015 in Sub-Laboratory rearing and Toxicology Laboratory of the Department of Plant Pests and Diseases Agriculture Faculty, University of Brawijaya. The experiment was arranged in Randomized Complete Block Design with seven treatments and four replications, so there were 28 experimental units. The treatments were different concentrations of bitter melon fruit extracts, they were 7,5, 15, 30, 45, 60 dan 75%. Bitter melon fruit extract was made by maceration using distilled water and shaken for 24 hours. Test of extract application performed using cabbage leaves which dipped in extracts for one minute and then invested by second instar of larvae of *S. litura*. Observations of this research conducted on four parameters, they were *S. litura* larvae feeding activity, mortality of larvae, pupae formation and the emergence of imago. Observation of the larvae feeding activity was done at 24, 48, 72, 96, 120 hours after treatment by calculate the weight of the leaves before and after treatment. Observations of mortality of larvae was done at 24, 48, 72, 96, 120, 144 and 168 hours by counting the number of dead larvae. Pupae formation and adult emergence observed until pupae and adult formed.

The test results showed that the application of bitter melon fruit extract significantly affect feeding deterrent, mortality of the larvae, pupae formation and adult emergence of *S. litura*. Applications of bitter melon fruit extract was able to inhibit feeding of *S. litura* larvae up to 73,41% and larvae mortality was up to 62.80%. Extract applications was also able to reduce the formation of the pupa of *S. litura* up to 31.25% in 12,04 days and 10% of adult emergence in 11,50 days. The concentration that cause mortality of 50% of *S. litura* larvae (LC50) was 346.287 ppm, while the time that cause mortality of 50% of *S. litura* larvae (LT50) was 75.90 hours.