Use of Vegetable Pesticides with Variations of Soaking Carica Papaya Leaves for Plutella Xylostella Pest Control on Brassica Juncea L. Plants Towards Environmentally Friendly Agriculture

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ABSTRACT

This study aims to determine the effectiveness of the pesticide solution of papaya leaf vegetable with various immersion variations in 1) Plutella xylostella pest mortality, 2) leaf damage level of mustard plants and 3) the wet weight of mustard greens (Brassica juncea L.). The research was conducted in the garden and Biology laboratory, FMIPA, Yogyakarta State University, starting from mid-February to June 2019. This study used an experimental research design with a completely randomized design. As for the treatment, the papaya leaves were soaked for 24 hours, 72 hours, and 120 hours as a vegetable pesticide, and one negative control (water) and one positive control (using synthetic pesticides). The dependent variables observed were larval mortality, level of damage to mustard leaves, and wet weight of the mustard plant. The analysis was performed using the ANOVA (Analysis of Variance) test. The results of the ANOVA test that had an effect or were significantly different were continued with the DMRT (Duncan Multiple Range Test) tests with a significant level of 5% to determine the differences between treatments, while to compare the results before and after pest application the T-test was used.
The results showed: 1) spraying treatment of papaya leaf extract before application of Plutella xylostella larvae, the longer soaking the papaya leaves, the higher the mortality of Plutella xylostella larvae, while in the treatment of spraying papaya leaf extract after application of Plutella xylostella larvae, the soaking time did not affect the mortality of Plutella larvae. The content of secondary metabolites in papaya leaves works as a stomach poisons and respiratory toxins that attack the digestive and respiratory systems of larvae, this results in high larval mortality rates. 2) The duration of soaking papaya leaves (1, 3 and 5 days) did not have a significant or significant effect on the level of mustard leaf damage both in the papaya leaf extract spraying treatment before and after the application of Plutella xylostella larvae. 3) The duration of soaking papaya leaves (1, 3, and 5 days) did not have a significant or significant effect on the wet weight of mustard leaves both in the papaya leaf extract spraying treatment before and after the application of Plutella xylostella larvae. However, based on the results of the T-test, it shows that spraying papaya leaf extract before application of Plutella xylostella larvae with 5 days of immersion has a more effective effect on larval mortality and wet weight of mustard greens compared to spraying treatment after application of Plutella xylostella larvae.

Kata Kunci: *Soaking, papaya leaves, Plutella xylostella, mortality, wet weight*