

The Effect of Papaya Leaf Extract Botanical Pesticide on Armyworm Mortality (*Spodoptera litura* F.) in Tobacco Plants

Mentored by Satria Indra Kusuma, S.E., M.M.

Ridho Alberto Prasetyo

Study Program of Cultivation of Plantation Crops

Majoring of Agricultural Production

State Polytechnic of Jember

ABSTRACT

Armyworm (*Spodoptera litura* F.) is a pest that attacks the leaves of tobacco plants, causing damage and reducing production yields. This study aims to determine the effect of papaya leaf extract botanical pesticide on armyworm mortality and to determine the effective concentration in controlling the pest. The study was conducted at the Plant Protection Laboratory of Jember State Polytechnic using a nonfactorial Randomized Block Design (RAK) with five concentration treatments, namely 0 ml/L, 20 ml/L, 40 ml/L, 60 ml/L, and 80 ml/L, each of which was repeated five times with a total of 250 third-instar armyworms. The parameters observed included mortality, LT_{50} (*Lethal Time Fifty*), feeding behavior, and physical changes of larvae. The results showed that papaya leaf extract had a very significant effect on armyworm mortality at 72 to 240 hours after application. Treatment of 20 mL/L papaya leaf extract has been able to cause the death of armyworms, while the fastest LT_{50} value was obtained at a concentration of 80 mL/L of 123 hours and the most efficient LT_{50} value was obtained at a concentration of 40 mL/L of 129 hours. Administration of papaya leaf extract did not significantly affect the feeding behavior of armyworms. Larvae exposed to the extract showed physical changes in the form of changes in body color from pale green to yellow, dark brown, to blackish and dry. Based on the results of the study, papaya leaf extract has the potential to be used as a botanical pesticide to control armyworm pests in tobacco plants.

Keywords: armyworm, papaya leaf extract, mortality, botanical pesticide.