

ABSTRACT

Zahrotul Munawwaroh. 24020122120026. The Effect of Neem Leaf Extract (*Azadirachta indica*) as a Botanical Pesticide on Mortality and Feeding Activity of Crickets (*Gryllus mitratus*). Supervised by Rully Rahadian and Aprilia Nurul Aini

The use of chemical pesticides in pest control causes negative impacts such as pest resistance, environmental pollution, and health risks, thus eco-friendly alternatives such as botanical pesticides are needed. Crickets (*Gryllus mitratus*) are pests that can damage crops and reduce productivity. Neem leaves contain bioactive compounds with insecticidal and antifeedant properties. This study aimed to analyze the effect of neem leaf extract on cricket mortality and antifeedant activity, and to determine its toxicity (LC_{50}). The study used a Completely Randomized Design (CRD) with five concentrations in the preliminary test (0%, 20%, 40%, 60%, and 80%) and six concentrations in the advanced test (0%, 43%, 47%, 52%, 57%, and 62%) with three replications. Observed parameters included mortality and antifeedant activity over 120 hours after application. Mortality data were analyzed using a binomial Generalized Linear Model (GLM) and probit analysis to determine LC_{50} , while antifeedant data were analyzed using ANOVA followed by DMRT. The results showed that neem leaf extract concentration significantly affected cricket mortality ($p < 0.05$) with a regression coefficient of 0.113, indicating a positive relationship. Mortality increased from 40% at 43–47% concentrations to 83.33% at 62% concentration after 120 hours. The LC_{50} value was 56% at 120 hours, indicating moderate toxicity with a slow mode of action. Neem leaf extract also significantly affected antifeedant activity, with feeding inhibition reaching 99.62% at the highest concentration. In conclusion, neem leaf extract is effective as a botanical pesticide with toxic and antifeedant mechanisms for environmentally friendly control of cricket pests.

Keywords: Azadirachtin, Biopesticide, IPM, Probit, Toxicity