

## ABSTRACT

The serrated grain weevil *Oryzaephilus surinamensis* is an important pest that attacks cereals and cereal products in storage while the red flour weevil *Tribolium castaneum* is an important pest that attacks various rice and cereal commodities and feed ingredients that are damaged due to improper postharvest handling. Environmentally friendly alternative control using neem leaf essential oil. This research aims to study the testing and effectiveness of neem leaf essential oil on repellency, toxicity and feeding inhibition on *O. surinamensis* and *T. castaneum* imago. The concentrations of neem leaf essential oil tested were 0.125%, 0.25%, 0.5%, 1%, 2% (v/v) and control. The experiment was repeated three times. The method used was the residue method on filter paper for testing repellency, toxicity and feeding inhibitors on neem leaf essential oil. The results showed that neem leaf essential oil has insecticidal activity against *O. surinamensis* and *T. castaneum*. Antifeedant test showed that the essential oil caused 71.43% inhibition of feeding activity of *O. surinamensis* and 66.67% of *T. castaneum*. The relationship between neem leaf essential oil concentration and mortality of *O. surinamensis* and *T. castaneum* imago was determined by probit analysis. Mortality of repellents and imago at concentrations of 0.125% - 2% reached >50%. LC50 values of neem leaf essential oil against *O. surinamensis* and *T. castaneum* at 4-7 days after application ranged from 1.23079% - 0.26410% and 0.68400% - 0.20104%. The food rejection test showed 100% rejection activity in *O. surinamensis* imago, while in *T. castaneum* imago it was 100% after day 7 of application. These results indicate that neem leaf essential oil can be utilized to control *O. surinamensis* and *T. castaneum* imago in stored rice and cereal products.

Keywords: *Botanical insecticide, Oryzaephilus surinamensis, inhibition, repellency, toxicity, Tribolium castaneum*