

***THE EFFECTIVENESS OF KIRINYUH LEAF EXTRACT WITH THE
ADDITION OF A SURFACTANT ON THE MORTALITY OF THE PEST *Oryctes
rhinoceros* L. IN COCONUT PLANTS***

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ABSTRACT

*Coconut (*Cocos nucifera* L.) productivity in Indonesia is frequently disrupted by *L.* attacks, particularly at the larval stage, which damages roots and stems. Synthetic insecticide use carries risks of resistance and environmental harm, highlighting the need for botanical insecticide alternatives such as kirinyuh (*Chromolaena odorata* L.) leaf extract, which contains flavonoids, alkaloids, tannins, saponins, and pyrrolizidine alkaloids toxic to insects. This study aimed to evaluate the effectiveness of kirinyuh leaf extract combined with a surfactant against *O. rhinoceros* larval mortality. The research was conducted in June 2026 at the Plant Protection Laboratory, Politeknik Negeri Jember, using a Non-Factorial Randomized Block Design (RBD) with five treatments (P0: control; P1: 15% kirinyuh extract; P2: 15% extract + 0.3% surfactant; P3: 30% extract; P4: 30% extract + 0.3% surfactant) and five replications. Parameters observed included mortality, Lethal Time 50 (LT_{50}), feeding behavior, and physical changes in larvae. Results showed that extract concentration had no statistically significant effect on larval mortality across all observation intervals (24-264 hours), although mortality descriptively increased consistently over time. Surfactant addition accelerated the time to 50% population mortality, with the fastest LT_{50} (193.72 hours)*

recorded for the 30% kirinyuh extract + 0.3% surfactant treatment. Kirinyuh extract had a highly significant effect on reducing feeding activity, with the lowest consumption (14.08 g) observed in the 30% extract treatment without surfactant, and induced darkening of body color and shrinkage in larval body size.

Key words: *kirinyuh, botanical insecticide, mortality, Oryctes rhinoceros L., surfactant.*