

Diki Mega Nanda, 220311100020. Potensi Ekstrak Daun Bintaro (*Cerbera odollam*), Daun Mimba (*Azadirachta indica*), Dan Campurannya Terhadap Serangan Hama Ulat Grayak (*Spodoptera frugiperda*). Dibimbing oleh: Ir. Achmad Djunaedy, M.P dan Prof. Dr. Ir. Hj. Siti Fatimah, M.Si

ABSTRAK

Ulat grayak (*Spodoptera frugiperda*) merupakan hama invasif yang menjadi ancaman serius bagi produksi jagung di Indonesia. Pengendalian hama secara ramah lingkungan dapat dilakukan melalui pemanfaatan pestisida nabati. Penelitian ini bertujuan untuk mengetahui efektivitas ekstrak daun bintaro (*Cerbera odollam*), daun mimba (*Azadirachta indica*), dan campuran keduanya dalam mengendalikan larva *Spodoptera frugiperda*. Penelitian dilaksanakan di Laboratorium Proteksi dan Lingkungan Tanaman, Universitas Trunojoyo Madura, pada bulan Desember 2025 hingga Februari 2026. Metode yang digunakan adalah metode celup pakan menggunakan pakcoy sebagai media pakan larva instar II, pada konsentrasi 5%, 10%, 15%, dan 20% untuk masing-masing perlakuan serta campurannya, dengan tiga kali ulangan. Parameter yang diamati meliputi mortalitas larva, kesintasan, lethal concentration (LC_{50} dan LC_{90}), lethal time (LT_{50} dan LT_{90}), serta penghambatan makan. Hasil uji fitokimia membuktikan bahwa kedua ekstrak mengandung senyawa flavonoid, saponin, tanin, dan alkaloid. Hasil penelitian menunjukkan bahwa ekstrak campuran daun bintaro dan mimba konsentrasi 20% menghasilkan mortalitas tertinggi sebesar 100%, diikuti ekstrak daun mimba 93% dan daun bintaro 80%. Nilai LC_{50} ekstrak campuran (2,349%) lebih rendah dibandingkan ekstrak mimba (6,524%) dan bintaro (8,992%), yang menunjukkan toksisitas campuran lebih tinggi. Nilai LT_{50} ekstrak campuran lebih singkat (5 hari) dibandingkan ekstrak tunggal (6 hari). Dapat disimpulkan bahwa ekstrak campuran daun bintaro dan mimba lebih efektif daripada ekstrak tunggal dalam mengendalikan *Spodoptera frugiperda*.

Kata Kunci: *Azadirachta indica*, *Cerbera odollam*, insektisida nabati, LC_{50} , mortalitas, *Spodoptera frugiperda*

Diki Mega Nanda, 220311100020. Potential of Bintaro Leaf Extract (*Cerbera odollam*), Neem Leaf Extract (*Azadirachata indica*), and Their Mixture Against Armyworm (*Spodoptera frugiperda*) Pest Attacks. Supervised by: Ir. Achmad Djunaedy, M.P and Prof. Dr. Ir. Hj. Siti Fatimah, M.Si

ABSTRACT

*Fall armyworm (*Spodoptera frugiperda*) is an invasive pest that poses a serious threat to maize production in Indonesia. Environmentally friendly pest control can be achieved through the use of botanical pesticides. This study aimed to evaluate the effectiveness of *Cerbera odollam* (bintaro) leaf extract, *Azadirachta indica* (neem) leaf extract, and their combination in controlling *Spodoptera frugiperda* larvae. The research was conducted at the Plant Protection and Environment Laboratory, Trunojoyo University of Madura, from December 2025 to February 2026. A bioassay method was employed using a food-dipping technique with pakchoi as larval feed for second-instar larvae, at concentrations of 5%, 10%, 15%, and 20% for each treatment and their combination, with three replications. Parameters observed included larval mortality, survival rate, lethal concentration (LC_{50} and LC_{90}), lethal time (LT_{50} and LT_{90}), and feeding inhibition. Phytochemical analysis confirmed that both extracts contained flavonoids, saponins, tannins, and alkaloids. Results showed that the combined extract at 20% concentration produced the highest mortality of 100%, followed by neem extract at 93% and bintaro extract at 80%. The LC_{50} value of the combined extract (2.349%) was lower than neem extract (6.524%) and bintaro extract (8.992%), indicating higher toxicity of the mixture. The LT_{50} of the combined extract (5 days) was shorter than that of individual extracts (6 days). It can be concluded that the combined extract of bintaro and neem leaves is more effective than individual extracts in controlling *Spodoptera frugiperda*.*

Keywords: *Azadirachta indica*, botanical insecticide, *Cerbera odollam*, LC_{50} , mortality, *Spodoptera frugiperda*