

**PENGARUH PERBEDAAN KONSENTRASI NANOSILIKA
DAN VARIETAS PADI TERHADAP PERKEMBANGAN DAN
TINGKAT SERANGAN WERENG BATANG COKLAT
(*Nilaparvata lugens* Stal)**

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Abstrak

Nanosilika diketahui berperan dalam meningkatkan pertumbuhan dan ketahanan tanaman padi namun pengaruh interaksinya dengan varietas padi terhadap Wereng Batang Coklat (WBC) belum banyak dilaporkan. Penelitian bertujuan untuk mengetahui pengaruh perbedaan konsentrasi nanosilika dan varietas padi terhadap perkembangan dan tingkat serangan WBC. Penelitian dilaksanakan di Laboratorium Bioekologi Serangga dan Rumah Kaca Fakultas Pertanian Universitas Andalas menggunakan Rancangan Acak Lengkap (RAL) Faktorial dengan dua faktor. Faktor pertama adalah konsentrasi nanosilika terdiri dari 7 taraf yaitu 0, 100, 200, 300, 400, 500, dan 600 ppm. Faktor kedua adalah varietas padi terdiri atas varietas IR 42, Cisokan, dan Ciherang. Setiap kombinasi perlakuan diulang empat kali sehingga diperoleh 84 satuan percobaan. Variabel yang diamati meliputi mortalitas, intensitas serangan, lama stadia nimfa (instar ke-3, ke-4, dan ke-5), dan imago (terbentuk, normal, rasio, dan lama stadia). Hasil penelitian menunjukkan interaksi antara kedua faktor yaitu pada variabel lama stadia betina dengan konsentrasi terbaik yaitu 600 ppm pada varietas IR 42 dengan memperpanjang lama stadia imago betina (0,78 hari). Secara tunggal, nanosilika dengan konsentrasi 600 ppm memperpanjang lama stadia instar ke-4 (0,48), ke-5 (0,47 hari), imago jantan (0,47 hari), meningkatkan mortalitas (7,23 %), menurunkan intensitas serangan (37,41 %), persentase imago terbentuk (7,23 %), persentase imago normal (11,08 %). Faktor varietas, secara tunggal memperpanjang lama stadia instar ke-3 (0,87), ke-4 (0,12), imago jantan (0,61 hari), mortalitas (8,81 %), intensitas serangan (25,16 %), persentase imago terbentuk (8,81 %), persentase imago normal (13,03 %). Kedua faktor tidak menunjukkan pengaruh yang signifikan terhadap rasio jantan dan betina.

Kata kunci: 600 ppm, Cisokan, imago, ketahanan, mortalitas

EFFECT OF DIFFERENCES IN NANOSILICA CONCENTRATIONS AND RICE VARIETIES ON THE DEVELOPMENT AND INFESTATION LEVEL OF BROWN PLANTHOPPER (*Nilaparvata lugens* Stal)

Abstract

Nanosilica is known to play a role in enhancing the growth and resistance of rice plants however, studies on its interaction with rice varieties in relation to the brown planthopper (BPH) are still limited. This study aimed to determine the effect of different nanosilica concentrations and rice varieties on the development and infestation level of BPH. The research was conducted at the Insect Bioecology Laboratory and the Greenhouse of the Faculty of Agriculture, Andalas University, using a factorial Completely Randomized Design (CRD) with two factors. The first factor was nanosilica concentration, consisting of seven levels: 0, 100, 200, 300, 400, 500, and 600 ppm. The second factor was rice variety, consisting of IR 42, Cisokan, and Ciherang. Each treatment combination was replicated four times, resulting in a total of 84 experimental units. The observed variables included mortality, infestation intensity, duration of nymphal stages (instars 3, 4, and 5), and imago characteristics (emergence, normality, sex ratio, and developmental duration). The results showed an interaction between the two factors on the female imago developmental duration, with the best concentration being 600 ppm on the IR 42 variety, which prolonged the female imago stage by 0.78 days. Individually, nanosilica at a concentration of 600 ppm prolonged the duration of instar 4 (0.48 days), instar 5 (0.47 days), and male imago (0.47 days), increased mortality (7.23%), reduced infestation intensity (37.41%), and decreased the percentage of emerged imago (7.23%) and normal imago (11.08%). The varietal factor alone prolonged the duration of instar 3 (0.87 days), instar 4 (0.12 days), and male imago (0.61 days), increased mortality (8.81%), reduced infestation intensity (25.16%), and decreased the percentage of emerged imago (8.81%) and normal imago (13.03%). Both factors did not show a significant effect on the male-to-female sex ratio.

Keywords : 600 ppm, adults, Cisokan, mortality, resistance