

EKSPLORASI DAN IDENTIFIKASI NEMATODA ENTOMOPATOGEN PADA LAHAN PERTANAMAN JAGUNG DI KABUPATEN GUNUNGKIDUL

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ABSTRAK

Produktivitas jagung sering menurun akibat serangan hama, namun dapat dikendalikan dengan agen hayati seperti nematoda entomopatogen (NEP). Penelitian ini bertujuan mengeksplorasi dan mengidentifikasi NEP pada lahan pertanian jagung di Kabupaten Gunungkidul melalui pendekatan morfologi, morfometri, dan molekuler. Penelitian dilakukan di Laboratorium Proteksi Tanaman UPN “Veteran” Yogyakarta dengan pengambilan sampel tanah dari lima kecamatan yaitu, Wonosari, Playen, Patuk, Karangmojo, dan Semanu. Pemerangkapan NEP menggunakan larva *Tenebrio molitor*, kemudian dilakukan ekstraksi dengan metode *white head tray*. Identifikasi morfologi dan morfometri dilakukan menggunakan mikroskop, sedangkan identifikasi molekuler menggunakan PCR dengan primer D2A dan D3B yang menargetkan gen 28S rDNA. Hasil penelitian menunjukkan populasi NEP tertinggi terdapat di Kecamatan Playen (462,67 NEP/5 ml), diikuti Semanu (261,67 NEP/5 ml), Karangmojo (160,33 NEP/5 ml), Wonosari (13,67 NEP/5 ml), dan Patuk (7,33 NEP/5 ml). Perbedaan populasi dipengaruhi karakteristik tanah dan sistem budidaya. Patuk memiliki tanah bertekstur debu dengan kelembaban rendah serta budidaya berbasis pupuk kimia, sedangkan Playen memiliki tekstur tanah liat hingga lempung berdebu dan menggunakan pupuk organik yang mendukung keberadaan NEP. Berdasarkan morfologi dan morfometri, NEP yang ditemukan termasuk genus *Steinernema* dengan panjang tubuh 438,77–501,9 μm .

Kata Kunci: Morfologi, morfometri, Populasi, *Tenebrio molitor*, *white head tray*

EXPLORATION AND IDENTIFICATION OF ENTHOMOPATHOGENIC NEMATODE IN CORN FIELDS IN GUNUNGKIDUL REGENCY

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ABSTRACT

Corn productivity often declines due to pest attacks, but can be controlled with biological agents such as entomopathogenic nematodes (EPN). This study aims to explore and identify EPN in corn fields in Gunungkidul Regency through morphological, morphometric, and molecular approaches. The research was conducted at the Plant Protection Laboratory of UPN “Veteran” Yogyakarta with soil samples taken from five subdistricts, namely Wonosari, Playen, Patuk, Karangmojo, and Semanu. NEP were captured using *Tenebrio molitor* larvae, then extracted using the White Head Tray method. Morphological and morphometric identification was performed using a microscope, while molecular identification was performed using PCR with D2A and D3B primers targeting the 28S rDNA gene. The results showed that the highest NEP population was found in Playen District (462.67 NEP/5 ml), followed by Semanu (261.67 NEP/5 ml), Karangmojo (160.33 NEP/5 ml), Wonosari (13.67 NEP/5 ml), and Patuk (7.33 NEP/5 ml). Population differences were influenced by soil characteristics and cultivation systems. Patuk has dusty soil with low moisture content and chemical fertilizer-based cultivation, while Playen has clayey to dusty loam soil and uses organic fertilizers that support the existence of NEP. Based on morphology and morphometry, the NEP found belongs to the genus *Steinernema* with a body length of 438.77–501.9 μm .

Keywords: Morphology, morphometry, population, *Tenebrio molitor* white head tray