

Intisari

IDENTIFIKASI MOLEKULER BEGOMOVIRUS DAN POTYVIRUS PADA CUCURBITACEAE DI DAERAH ISTIMEWA YOGYAKARTA DAN JAWA TENGAH

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Penelitian ini bertujuan untuk mengidentifikasi infeksi ganda Begomovirus dan Potyvirus pada tanaman *Cucurbitaceae* di Daerah Istimewa Yogyakarta dan Jawa Tengah, menentukan nilai insidensi dan intensitas penyakit, mengidentifikasi spesies virus, serta mendeteksi keberadaan betasatelit dan pengaruhnya terhadap keparahan gejala. Penelitian dilakukan melalui survei lapangan pada tanaman melon, semangka, mentimun, dan labu siam, dilanjutkan pengamatan gejala, pengukuran insidensi dan intensitas penyakit, serta pengambilan sampel secara purposive sampling. Analisis molekuler dilakukan menggunakan PCR dan RT-PCR, diikuti elektroforesis, sekuensing, dan analisis filogenetik. Hasil penelitian menunjukkan variasi gejala berupa mosaik kuning, klorosis, daun mengeriting, malformasi, dan kerdil, dengan insidensi penyakit berkisar 3–93% dan intensitas 16–78%. Deteksi molekuler mengindikasikan adanya infeksi Begomovirus dan Potyvirus, dengan dugaan kuat terjadinya infeksi ganda pada beberapa sampel. Selain itu, keberadaan beta satelit terdeteksi berasosiasi dengan Begomovirus dan berpengaruh dalam peningkatan keparahan gejala pada tanaman inang. Kesimpulan penelitian ini menunjukkan bahwa penyakit keriting kuning pada *Cucurbitaceae* di wilayah studi disebabkan oleh infeksi ganda Begomovirus dan Potyvirus yang diperparah oleh keberadaan beta satelit, sehingga meningkatkan keparahan penyakit dan berpotensi menurunkan produktivitas tanaman secara signifikan.

Kata kunci: Begomovirus, betasatelit, *Cucurbitaceae*, infeksi ganda, Potyvirus.

Abstract

MOLECULAR IDENTIFICATION OF BEGOMOVIRUS AND POTYVIRUS IN CUCURBITACEAE IN THE SPECIAL REGION OF YOGYAKARTA AND CENTRAL JAVA

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This study aimed to identify mixed infections of Begomovirus and Potyvirus in *Cucurbitaceae* crops in the Special Region of Yogyakarta and Central Java, to determine disease incidence and severity, to identify the virus species involved, and to detect the presence of betasatellites and their influence on symptom severity. The research was conducted through field surveys on melon, watermelon, cucumber, and chayote plants, followed by symptom observation, measurement of disease incidence and severity, and purposive sampling. Molecular analyses were performed using PCR and RT-PCR, followed by electrophoresis, sequencing, and phylogenetic analysis. The results showed a wide range of symptoms, including yellow mosaic, chlorosis, leaf curling, malformation, and stunting, with disease incidence ranging from 3% to 93% and severity from 16% to 78%. Molecular detection confirmed the presence of Begomovirus and Potyvirus, with strong evidence of mixed infections in several samples. In addition, betasatellites were detected in association with Begomovirus and were found to contribute to increased symptom severity in host plants. In conclusion, yellow leaf curl disease in *Cucurbitaceae* in the study area is associated with mixed infections of Begomovirus and Potyvirus, exacerbated by the presence of betasatellites, leading to more severe disease symptoms and potentially significant yield losses.

Keywords: *Cucurbitaceae*, Begomovirus, Potyvirus, betasatellite, mixed infection.



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