

ABSTRACT

CHARACTERIZATION OF SEVERAL CAUSES OF PAPAYA SHOOTING DISEASE CAUSED BY BACTERIA IN EAST LAMPUNG

With

AQILAH FADLIYAH

Papaya dieback disease (*Carica papaya* L.) is a major constraint in papaya cultivation in East Lampung. Under certain conditions, this disease can cause yield losses of up to 100%. This study aims to determine the characteristics of several types of papaya dieback pathogenic bacteria in East Lampung. A total of 19 samples of papaya plant parts, from stems, leaves, and fruit, were used in this study. The isolation results obtained 111 bacterial isolates. Selection of pathogenic bacteria was carried out through *soft rot* and hypersensitivity tests, then 13 bacteria were suspected to be pathogens. A total of 13 bacteria were then continued to biochemical tests, pathogenicity tests, and host range tests to determine the characteristics of the 13 suspected pathogenic bacteria. Biochemical test results showed that eight bacterial isolates were gram-negative, 13 were fermentative, seven were casein-positive, eight were *lecithinase*-positive, nine grew at 39°C and eight at 40°C, 12 were *arginine*-positive, and 13 did not fluoresce on King's B medium. 13 were able to utilize the organic materials *D-arabinose*, *Mannitol*, *Myo-inositol*, *Lactose*, and *5-ketogluconate*; and 12 were able to utilize the organic material *Innulin*. Pathogenicity tests on papaya seedlings showed that five bacterial isolates caused symptoms on papaya petioles. Host range tests showed that 13 bacterial isolates caused rotting, watering, and an unpleasant odor in the fruit of green beans, long beans, and tomatoes, four bacterial isolates in eggplant fruit, six bacterial isolates in chili fruit, and 12 bacterial isolates in luffa fruit.

Keywords: *Carica papaya* L., host range, biochemical test, pathogenicity test.

ABSTRAK

KARAKTERISASI BEBERAPA PENYEBAB PENYAKIT MATI PUCUK PEPAYA YANG DISEBABKAN OLEH BAKTERI DI LAMPUNG TIMUR

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AQILAH FADLIYAH

Penyakit mati pucuk pada tanaman pepaya (*Carica papaya* L.) merupakan salah satu kendala utama dalam budidaya tanaman pepaya di Lampung Timur. Pada kondisi tertentu penyakit ini dapat menyebabkan kehilangan hasil hingga 100%. Penelitian ini bertujuan untuk mengetahui karakter beberapa jenis bakteri patogen mati pucuk pepaya di Lampung Timur. Sebanyak 19 sampel bagian tanaman pepaya, dari batang, daun, dan buah digunakan dalam penelitian ini. Hasil isolasi didapatkan 111 isolat bakteri. Seleksi bakteri patogen dilakukan melalui uji *soft rot* dan uji hipersensitif, kemudian didapatkan 13 bakteri diduga patogen. Sebanyak 13 bakteri tersebut kemudian dilanjutkan ke uji biokimia, uji patogenesitas, dan uji kisaran inang untuk mengetahui karakter dari 13 bakteri diduga patogen tersebut. Hasil uji biokimia menunjukkan delapan isolat bakteri termasuk dalam kelompok gram negatif, 13 isolat bakteri bersifat fermentatif, tujuh isolat bakteri termasuk casein positif, delapan isolat bakteri termasuk *lechitinase* positif, sembilan isolat bakteri dapat tumbuh pada suhu 39°C dan delapan isolat bakteri dapat tumbuh pada suhu 40°C, 12 isolat bakteri termasuk *arginine* positif, dan 13 isolat bakteri tidak berpendar pada media king's B, serta 13 isolat mampu menggunakan bahan organik *D-arabinose*, *Mannitol*, *Myo-inositol*, *Lactose*, *5-ketogluconate*; dan 12 isolat bakteri mampu menggunakan bahan organik *Innulin*. Hasil uji patogenesitas pada bibit tanaman pepaya menunjukkan lima isolat bakteri menimbulkan gejala pada petiole tanaman pepaya. Hasil uji kisaran inang menunjukkan 13 isolat bakteri menimbulkan gejala busuk, berair, dan mengeluarkan bau tidak sedap pada buah tanaman buncis, kacang panjang, dan tomat, empat isolat bakteri pada buah tanaman terung, enam isolat bakteri pada buah tanaman cabai, dan 12 isolat bakteri pada buah tanaman gambas.

Kata kunci: *Carica papaya* L., kisaran inang, uji biokimia, uji patogenesitas.