DETEKSI DAN IDENTIFIKASI BAKTERI PATOGEN TULAR BENIH PADA PADI VARIETAS UNGGUL LOKAL SUMATERA BARAT

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Abstrak

Kelompok bakteri merupakan salah satu patogen penting yang ada pada tanaman padi. *Burkholderia glumae*, *Acidovorax avenae* subsp.*avenae*, dan *Xanthomonas oryzae pv. oryzae* merupakan bakteri patogen tanaman padi yang juga dapat ditularkan melalui benih. Penelitian ini bertujuan mendeteksi serta mengidentifikasi bakteri patogen tular benih pada benih padi varietas unggul lokal asal Sumatera Barat. Penelitian ini terdiri dari tiga tahapan yaitu (1) isolasi bakteri patogen tular benih, (2) identifikasi secara biokimia, (3) identifikasi secara molekuler. Untuk deteksi patogen tular benih parameter yang diamati adalah benih kering, bentuk makroskopis koloni bakteri, reaksi hipersensitif, dan uji patogenesitas. Untuk karakteristik biokimia diamati Gram, Oksidatif/Fermentatif, pigmen fluorescent, enzim katalase, dan enzim oksidase. Pengujian molekuler yang diamati adalah elektroforesis DNA genom, kuantifikasi DNA genom, Amplifikasi DNA, dan analisi bioinformatika. Hasil penelitian deteksi dan identifikasi bakteri dari benih padi lokal asal Sumatera Barat secara morfologi dan biokimia menunjukkan isolat KK 1 dan BM 2 diduga sebagai bakteri patogen dari genus Acidovorax. Isolat KK 2, KK 3, KK7, KK 8, KK 10, KK 12, dan AD 1 diduga bakteri patogen dari genus Xanthomonas. Isolat KK 4 dan KK 11 diduga bakteri patogen dari genus Burkholderia. Analisis nukleotida gen 16S rRNA menggunakan primer universal 27f dan 1525r menunjukkan isolat AD1 memiliki kemiripan 98,90% dengan *Sphingomonas* sp. penyebab penyakit hawar daun bakteri pada tanaman padi yang belum pernah dilaporkan di Indonesia.

Kata kunci: Filogenetika, Isolasi bakteri, PCR-Sekuensing, *Sphingomonas* sp., Uji Biokimia bakteri

DETECTION AND IDENTIFICATION OF SEEDBORNE BACTERIA PATHOGENS FROM LOCAL SUPERIOR RICE VARIETY NATIVE TO WEST SUMATRA

Abstract

The bacterial group is one of the important pathogens of rice plants. *Burkholderia glumae*, *Acidovorax avenae* subsp. *avenae*, and *Xanthomonas oryzae* pv. *oryzae* are pathogenic bacteria of rice plants that can also be transmitted through seeds. This study aims to detect and identify seed-borne pathogenic bacteria in rice seeds of local superior varieties from West Sumatra. This research consists of three stages, namely (1) isolation of seed-borne pathogenic bacteria, (2) biochemical identification, (3) molecular identification. For the detection of seed-borne pathogens, the parameters observed were dry seeds, macroscopic shape of bacterial colonies, hypersensitive reactions, and pathogenicity tests. For biochemical characteristics, Gram, Oxidative/Fermentative, fluorescent pigment, catalase enzyme, and oxidase enzyme were observed. Molecular tests observed were genomic DNA electrophoresis, genomic DNA quantification, DNA amplification, and bioinformatics analysis. The results of research on the detection and identification of bacteria from local rice seeds from West Sumatra morphologically and biochemically showed isolates KK 1 and BM 2 were suspected as pathogenic bacteria of the genus Acidovorax. Isolates KK 2, KK 3, KK7, KK 8, KK 10, KK 12, and AD 1 are suspected pathogenic bacteria of the genus Xanthomonas. Isolates KK 4 and KK 11 are suspected pathogenic bacteria of the genus Burkholderia. Analysis of 16S rRNA gene nucleotides using universal primers 27f and 1525r showed that isolate AD1 has 98.90% similarity with *Sphingomonas* sp. causing bacterial leaf blight in rice plants that have never been reported in Indonesia.

Keywords: Bacteria isolation, Bacteria Biochemical test, PCR-Sequencing, Phylogenetics *Sphingomonas* sp.