Identifikasi Khamir dari Saluran Pencernaan Lebah Pejantan dan Lebah Pekerja Pengumpul Polen Apis mellifera L. Berdasarkan Data Sequence Daerah ITS rDNA = Identification of Yeasts from Digestive Track of Drone and Pollen Collecting Bees of Apis mellifera L. Based on ITS Region of rDNA Sequence Data

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Abstrak

Penelitian bertujuan untuk mengetahui identitas khamir dari saluran pencernaan lebah madu Apis mellifera L. yang mengunjungi bunga kapuk (Ceiba pentandra (L.) Gaertn) di Jepara. Sebanyak 12 isolat khamir yang terdiri atas 3 isolat dari saluran pencernaan lebah pejantan (drone) dan 9 isolat dari lebah pekerja pengumpul polen (pollen collecting bees, PCB) diidentifikasi berdasarkan data sequence daerah internal transcribed spacer (ITS) rDNA. Primer yang digunakan untuk amplifikasi daerah ITS adalah primer forward ITS1 atau primer reverse ITS4. Hasil elektroforesis produk PCR menunjukkan daerah ITS rDNA khamirkhamir tersebut bervariasi antara 400 pb hingga 750 pb. Berdasarkan hasil pencarian homologi sequence daerah ITS rDNA melalui program basic local alignment search tool (BLAST), analisis filogenetik dengan metode Neighbor Joining, dan pengamatan karakter morfologi, 12 isolat tersebut diidentifikasi ke dalam empat genus dan tujuh spesies. Berdasarkan taksonomi, khamir-khamir tersebut termasuk kedalam family Candidaceae dan Saccharomycetaceae, order Saccharomycetales, class Hemiascomycetes dari phylum Ascomycota. Isolat-isolat tersebut diidentifikasi ke dalam spesies Candida magnoliae (isolat JZ078), C. orthopsilosis (isolat JZ068 dan JZ069), C. parapsilosis (isolat JZ067 dan JZ095), Debaryomyces hansenii (isolat JZ083 dan JZ096), Meyerozyma caribbica (isolat JZ094), Zygosaccharomyces mellis (isolat JZ075), dan Z. siamensis (isolat JZ054,JZ055, dan JZ056).
......The aim of this research was to determine the identity of the yeasts isolated from the digestive tract of honey bee Apis mellifera that visit flowers of kapok (Ceiba pentandra (L.) Gaertn) in Jepara. A total of 12 yeast isolates consist of 3 isolates from digestive tract of drones and 9 isolates from digestive tract of pollen collecting bees (PCB) were identified based on sequence data of internal transcribed spacers regions of ribosomal DNA (ITS rDNA). The primer set of ITS1 (forward primer) and ITS4 (reverse primer) were used to amplify the ITS rDNA of yeasts. The results of electrophoresis of PCR products showed ITS region rDNA of yeast isolates varied between 400bp--750 bp. Based on sequence homology search results by basic local alignment search tool (BLAST) program, phylogenetic analysis by Neighbor Joining method, and morphological characterization, those 12 isolates were identified into four genera and seven species. Taxonomically, 11 isolates belong to family Candidaceae and Saccharomycetaceae, order Saccharomycetales, class Hemiascomycetes of the phylum Ascomycota. Those isolates were identified as species Candida magnoliae (isolat JZ078), C. orthopsilosis (isolat JZ068 and JZ069), C. parapsilosis (isolat JZ067 and JZ095), Debaryomyces hansenii (isolat JZ083 and JZ096), Meyerozyma caribbica (isolat JZ094), Zygosaccharomyces mellis (isolat JZ075), and Z. siamensis (isolat JZ054, JZ055, and JZ056).