Identifikasi khamir dari putik ceiba pentandra (L.) gaertn dan saluran pencernaan lebah pengumpul polen, apis mellifera L. berdasarkan data sequence daerah ITS rDNA = Identification of yeasts from the pistils of ceiba pentandra (L.) gaertn and digestive tracts of pollen collecting bee, apis mellifera L. based on ITS region of rDNA sequence data

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Abstrak

Penelitian bertujuan untuk mengetahui identitas khamir yang hidup pada putik bunga Ceiba pentandra (L.) Gaertn dan saluran pencernaan Apis mellifera L., lebah pengumpul polen yang mengunjungi bunga Ceiba pentandra. Sebanyak 12 isolat khamir yang terdiri dari tiga isolat dari putik bunga Ceiba pentandra dan sembilan isolat dari saluran pencernaan Apis mellifera digunakan pada penelitian. Isolat-isolat khamir diidentifikasi berdasarkan hasil Basic Local Alignment Searching Tools (BLAST) data sequence daerah ITS rDNA, analisis filogenetik dengan metode Neighbor Joining, dan pengamatan alat reproduksi seksual dan aseksual. Primer forward ITS1 dan primer reverse ITS4 digunakan untuk mengamplifikasi daerah ITS rDNA. Hasil elektroforesis gel produk PCR menunjukkan ukuran daerah ITS rDNA isolat khamir tersebut bervariasi antara 400 hingga 800 pb.
Hasil menunjukkan bahwa 12 isolat khamir terdiri dari enam species. Lima species khamir termasuk ke dalam phylum Ascomycota, order Saccharomycetales, class Saccharomycetes dan satu species khamir termasuk ke dalam phylum Basidiomycota, order Tremellales,dan class Tremellomycetes. Tiga isolat khamir dari putik bunga C. pentandra diidentifikasi sebagai Bullera coprosmaensis (JZ137), Candida orthopsilosis (JZ053), dan Debaryomyces hansenii (JZ051). Sembilan isolat khamir dari saluran pencernaan A. mellifera diidentifikasi sebagai Candida fermentatii (JZ059 dan JZ060), Candida mesorugosa (JZ057, JZ058, dan JZ063), Candida orthopsilosis (JZ064 dan JZ065), Candida parapsilosis (JZ066), dan Debaryomyces hansenii (JZ061). Dua species khamir yaitu Candida orthopsilosis dan Debaryomces hansenii ditemukan pada putik C. pentandra dan saluran pencernaan A. mellifera.
.....The aim of this study was to identify yeasts from the pistils of Ceiba pentandra (L.) Gaertn and digestive tracts of pollen collecting bee, Apis mellifera L. Twelve yeast isolates were identified which were consisted of three isolates from the pistils of C. pentandra and nine isolates from digestive tracts of A. mellifera. Identification was based on homology sequences analysis using Basic Local Alignment Searching Tools (BLAST), phylogenetic analysis by Neighbor Joining method, and observation of sexual and asexual reproduction. The primer set of ITS1 (forward primer) and ITS4 (reverse primer) were used to amplify ITS region rDNA of the isolates. Gel electrophoresis results showed that the size of ITS region of the isolates were varied on the range of 400--800 bp.
The results showed that twelve yeast isolates were identified as six species. Taxonomically, five species belong to phylum Ascomycota, order Saccharomycetales, class Saccharomycetes and one species belong to phylum Basidiomycota order Tremellales, class Tremellomycetes. Three yeast isolates from the pistils of C. pentandra were identified as Bullera coprosmaensis (JZ137), Candida orthopsilosis (JZ053), and Debaryomyces hansenii (JZ051). Nine yeast isolates from digestive tracts of pollen collecting A. mellifera were identified as Candida fermentatii (JZ059 & JZ060), Candida mesorugosa (JZ057, JZ058, dan JZ063),

Candida orthopsilosis (JZ064 & JZ065), Candida parapsilosis (JZ066), and Debaryomyces hansenii (JZ061). Debaryomyces hansenii and Candida orthopsilosis were found on the pistils of C. pentandra and digestive tracts of A. mellifera.