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Diversity of decaying wood associated fungi in Dimbulagala forest of Sri Lanka

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Sri Lanka is one of the 34-biodiversity hotspots in the world bearing a tremendous diversity in flora and fauna. Therefore, it should hold true for fungal species diversity as well. In Sri Lanka, tropical wet evergreen rain forest reserves, mainly Sinharaja forest is well studied for the macro and micro fungal diversity. However, studies in the dry zone and intermediate zone forests are neglected though 83% of the country's forest cover belongs to this category. The current study was initiated to describe the decaying wood associated fungal diversity in a dry mixed evergreen forest reserve. Decaying wood samples were collected from Dimbulagala forest reserve. Decaying hard wood pieces of at least 6 inches length were collected randomly. Fungal strains associated with the decaying woods were isolated into PDA or semi-selective medium and pure cultures were obtained. Macroscopic and microscopic features were observed. Total genomic DNA was isolated from a modified CTAB method and Polymerase Chain Reaction (PCR) was conducted targeting rDNA-ITS region using universal ITS primers and Sanger dideoxy sequencing was carried out to determine the nucleotide sequence of the region. Sequences were manually edited and compared with the GenBank using Basic Local Sequence Alignment Search Tool (BLAST). Phylogenetic relationships among decaying wood associated fungi were determined using MEGA (version 7.0) and according to the phylogenetic analysis well-defined clusters of fungi that belongs to divisions Ascomycota and Basidiomycota were found. Fungal cultures were maintained at the Department of Botany using dry filter papers and in sterilized distilled water. A total of 55 fungal isolates were obtained from 36 decaying wood pieces and 35 fungal species were successfully identified. Results indicated that Sri Lankan dry mixed evergreen forests are rich in species of *Paecilomyces*, *Daldinia*, *Trametes*, *Perenniporia*, *Phanerochaete*, *Hypoxylon*, *Schizophyllum*, *Lentinus*, *Fusarium*, *Corioloopsis*, *Phlebia*, *Coprinellus*, *Gymnopilus*, *Scytalidium*, *Trichoderma*, *Xylogone*, *Lasiodiplodia*, *Neoscytalidium* and *Pleurostoma*. Species of *Trichoderma* and *Lasiodiplodia* were the most abundant species. *T. harzianum*, *T. lixii*, *T. longibrachiatum*, and *T. erinaceus* were also found. Out of six *Lasiodiplodia* isolates, three were *L. crassispora*, and the rest belonged to the species of *L. pseudotheobromae* and *L. theobromae*. Some of the isolated fungi were already known plant pathogens and some were well-known biodegraders. The results indicated that the least studied Sri Lankan dry mixed evergreen forests are rich in various fungal species and could serve as another source in finding biotechnologically important fungal species.

Keywords: rDNA-ITS, species diversity, wood decay fungi

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