Collection, Management and Databasing of DNA Sequences Used for Microorganism Identification and Authentication

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In more recent years, the ribosomal DNA (rDNA) sequences have been widely used for microorganism phylogenetics and diagnostics. For the aims of systematic collection and management those data and information, the process-oriented information system was built to provide the researchers for storing the records in the process of microorganism preservation and authentication. rDNA and other marker sequences were uploaded in the fasta format, and deposited in the Oracle database once the process finished. The researchers could use the record retrieval tool to trace the history of microorganism authentication and compare the sequences produced at different practices. All deposited DNA sequences were also provided to the species identification. The web-based information system was designed by the object-oriented model and built by the Java-based application framework. The system integrates other external resource such microorganism information in BCRC and the status of scientific name in MycoBank to enhance identification correctness. Importantly, the quality of DNA sequences in this system is assured by a curated approach during the microorganism authentication. The user-friendly web service allows users to identify more than one gene simultaneously, and more noteworthy, the graphic displays of results enrich the power of expression.

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