

Importance of phylogenetic maintenance of scientific names of fungi in a culture collection

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Purpose: Culture collections may accumulate various fungal species for long-term preservation and for distribution to the users. These fungal strains stored are labeled ordinarily with scientific names that were given at the time of their deposition. Scientific names labeled to the strains may become handled by the users for various purposes. However, classification of fungi, as the basis of these scientific names, may become altered gradually or sometimes drastically during the progress of their taxonomy. In the NARO Genebank, Microorganisms Section (MAFF), phytopathogenic fungal strains isolated mainly from Japanese agricultural fields have been accumulated for more than 35 years. Scientific names labeled to the strains were basically those given by their depositors. Based on the progress/alteration of the taxonomic systems, the fungal names applied at the time of deposition may often become out-of-dated. Moreover, recent alteration of fungal nomenclature, i.e., ICNafp, claimed unification of fungal teleomorphic and anamorphic names, based on the one-fungus-one-name rule. Then, the deposited strains should be reidentified and their scientific names should be confirmed/updated based on the current classification to secure their accuracy.

Methods: Considering these backgrounds, the MAFF Collection is conducting comprehensive sequencing analyses of barcode gene regions of fungal strains preserved. By conducting Sanger sequencing of DNA, more than 13,000 strains out of ca. 21,000 fungal strains stored were molecularly analyzed and more than 4,000 strains were taxonomically verified.

Results and conclusions: Scientific names of the strains newly identified are indicated in the Microorganisms Database, together with the names recorded at the time of their deposition.