

Barcoding of the national collection of fungi: with special emphasis on Hypocrealean fungi

**A. Jacobs, Agricultural Research Council (South Africa) - PPRI
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South Africa as a mega-diverse country has invested significant resources in documenting its above-ground flora and fauna. However, similar research on soil organisms, specifically soil fungi, has been fragmented and poorly integrated. The soil ecosystem plays host to some of the most important plant, human and animal fungal pathogens documented. In the past these have been mainly identified based on morphology. This is time consuming, and commonly leads to erroneous identifications between different laboratories, and do not provide a platform for different research sectors to use. Improving our understanding of soil ecosystems in South Africa is of great strategic importance. As it forms the basis for the vast majority of our agricultural production and an essential ecosystem service for rural communities. The benefits of soil ecosystem research to improving agricultural productivity, conservation planning, the management of global change and the maintenance of ecosystem services have been demonstrated internationally (Pimentel et al., 1995)

This project will contribute to the existing databases of South African soil and phytopathogenic fungal biodiversity, and will be available for research sectors in agriculture and forestry, health, and industry. It will furthermore increase support for the quarantine lists needed by the DAFF to impose import-export regulations. The generated DNA barcodes will enhance the databases' BLAST tool that will consult data in the Centraalbureau voor schimmelcultures (CBS) and the National Collection of Fungi (NCF) and provide an unique online BLAST identification. In addition this will ensure value addition to the specimen holdings of the NCF by consolidating existing data i.e. mobilizing and integrating existing specimens' collection data with sequences (DNA barcodes).