Updating the taxonomy of Penicillium in South Africa

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FBIS170605237212

It is well known that South Africa is a biodiversity hotspot from where many new fungi are described each year. This is also true for Penicillium with 29 new species described from a handful of sampling sites in the last few years. The ability to describe these new species is partly due to the nomenclatural review and reference sequence dataset released for ex-type Penicillium strains in 2014. Knowledge on local Penicillium are therefore also improving and we are starting to learn more on the diverse nature of the genus in South Africa. However, a lot remains to be discovered. The economic importance of Penicillium, combined with its diverse nature, necessitate its study.

The PPRI of the National Collection of Fungi currently has 466 Penicillium cultures, all isolated from South Africa. Based on morphology they represent 72 species with 99 strains identified to only genus level. These probably represent new species or species that was described more recently. These cultures currently represent the best resource for expanding knowledge of Penicillium across South Africa, as strains originate from a wide source of habitats and ecological regions.

This project aims to expand, document and disseminate our understanding of the diversity and distribution of Penicillium in South Africa. This will be achieved by (1) placing PPRI strains into morphogroups using characters observed on CYA (Czapek Yeast Autolysate agar) and (2) sequencing the secondary identification marker β-tubulin for representatives from each morphogroup. For new and/or rare species, we will also sequence the ITS DNA barcode region. Identifications will be updated in the collection database, descriptions and illustrations provided for publishing the new species, while data will be released to GenBank, Biobank, SANBI, FBIP and other relevant repositories.