

FUNGAL SPECIES ISOLATED FROM ASYMPTOMATIC AND SYMPTOMATIC *BERCHEMIA DISCOLOR* BRANCHES

Prepared by Cindy Ramokgano

MSc student at the University of Venda

Berchemia discolor (muni) trees are highly valued and used for various purposes by rural communities in Limpopo Province. A field visit to Mapungubwe National Park was undertaken during August 2017 to collect fungi associated with healthy and infected *B. discolor* trees in natural undisturbed habitats. *Berchemia discolor* trees can grow to a height of 20m; it is therefore not always easy to sample for healthy and dieback branches. Various strategies were employed, including climbing the trees (Figure 1).



Figure 1. Climbing trees to get branches from taller trees.

During the fieldwork, infected and healthy branches were obtained from 13 *B. discolor* trees in Mapungubwe National Park for further isolations. In total, 69 pure fungal isolates were obtained after fungal isolates were carried out (Figure 2). The isolates were then grouped in morphological groups and representatives of each group were further used for identification using DNA sequence based methods.

DNA sequences from the internally transcribed regions (ITS) were obtained for the isolates. The sequences were compared against the DNA sequence database GeneBank. Results from the sequence comparisons, using BLASTn searches, indicated that the majority of the fungal endophytes belong to the family Botryosphaeriaceae (Table 1). Fungal species in this family are opportunistic pathogens because they can switch from being endophytic to pathogenic when host trees are under stress.



Figure 2. Isolations obtained from: cutting healthy (far left) and dieback branches (left)

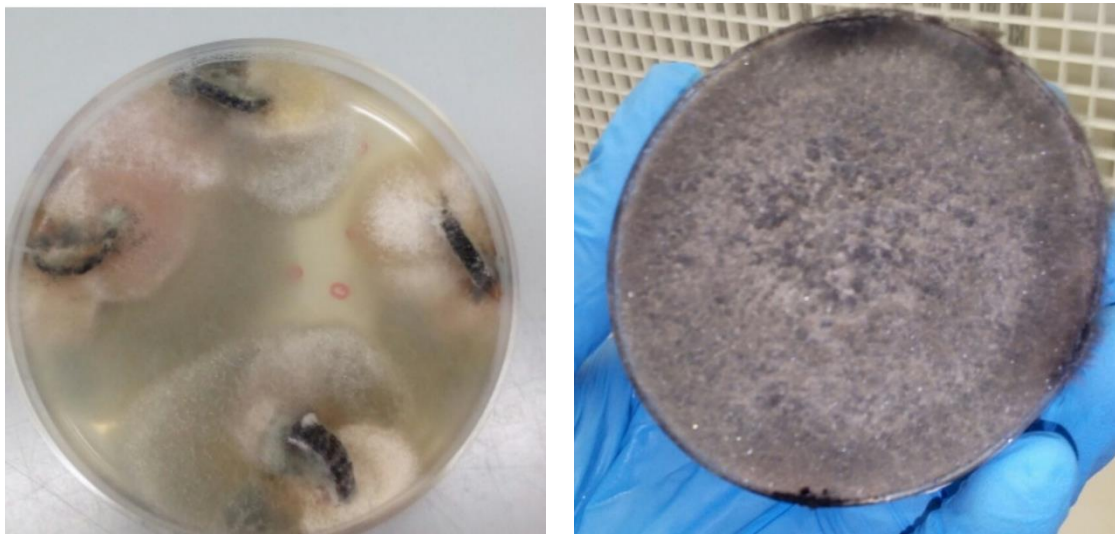


Figure 3. Doing single spore isolations (far right)

The preliminary results indicate the presence of different species in the family Botryosphaeriaceae. *Dothiorella* is the most prevalent genus from the Mapungubwe isolates. Among the species in this genus, *D. longicollis* was the most prevalent species on both healthy and dieback branches. Isolates representing *Lasiodiplodia* species were only identified from healthy branches. The results suggest that *D. longicollis* might be a latent pathogen, as it was also isolated from healthy branches of *Berchemia discolor*.

Table 1. Species identified from Mapungubwe isolates for which ITS DNA sequences were obtained.

Species	Number of isolates
<i>Dothiorella longicollis</i>	21
<i>Lasiodiplodia crassispora</i>	3
<i>Spencermartinsia rosulata</i>	3
<i>Lasiodiplodia theobromae</i>	3
<i>Dothiorella oblonga</i>	2
<i>Alanphillipsia aloeigena</i>	2
<i>Lasiodiplodia margaritacea</i>	1
<i>Botryosphaeria dothidea</i>	1

In this part of the study we focussed on samples collected from Mapungubwe National Park. However, parallel studies are also being carried on isolates from *B. discolor* in agro-ecosystems with the aim to compare endophytic and pathogenic fungi from these two ecosystems. Results from this investigation will shed light on the difference in the diversity of the fungal species in the two ecosystems and contribute to the knowledge of pathology of indigenous trees.