

SPECIES OVERLAP OF THE BOTRYOSPHAERIACEAE ON SOME TREE SPECIES OF THE ANACARDIACEAE

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Fungi in the family *Botryosphaeriaceae* are important to pathologists as they include several species that are pathogens of plants and trees. The family includes several genera and at least 200 known species. Many of these species occur in South Africa on native and introduced tree species growing in plantations, orchards and natural forests.

Earlier studies showed that certain species in the *Botryosphaeriaceae* are able to cross-infect native and non-native hosts. It is therefore possible for these fungi to move from a native trees species to a commercially planted tree species, and *vice versa*. The shift from commercial forest tree species to native trees poses a threat to the health of native trees in South Africa.

In South Africa species such as *Neofusicoccum parvum*, *N. kwambonambiense*, *Lasiodiplodia theobromae*, *Botryosphaeria dothidea* and *Spencermartinsia viticola* have been found overlapping on various native and non-native hosts. At present, little is known regarding species overlap of the *Botryosphaeriaceae* on native and non-native trees in the family *Anacardiaceae* growing in this country. The aim of the current study was therefore to investigate the diversity and overlap of species in the *Botryosphaeriaceae* on native and non-native *Anacardiaceae* in Limpopo Province.

This study focused on *Sclerocarya birrea*, *Mangifera indica* and *Lannea schweinfurthii*. These are widely distributed across sub-Saharan Africa. The products of these trees are used as a source of food, income and medicine in areas where they are found, especially during periods of famine and food scarcity in the Southern Africa Development Community (SADC) region. Trees in the *Anacardiaceae* have the potential to alleviate poverty and malnutrition in Africa because of their high fruit production and widespread occurrence

During the study, asymptomatic and symptomatic branches were collected from trees growing in Tshikundamalema, Tshipise, Nwanedi and Mapungubwe National Park. Isolations were made from the collected branches. After pure fungal cultures were obtained, the fungal isolates resembling species of *Botryosphaeriaceae* were grouped into morphological groups. Representatives from the different groups were then subjected to preliminary identification using DNA sequence based methods.

Nine species representing seven genera in the *Botryosphaeriaceae* were identified based on their DNA sequences. Species identified represent previously described taxa in the *Botryosphaeriaceae*, including *Diplodia pinea*, *Dothiorella longicollis*, *Lasiodiplodia crassispora*, *L. pseudotheobromae*, *L. theobromae*, *Neofusicoccum parvum*, *Phaeobotryosphaeria porosa*, *Pseudofusicoccum olivaceum* and *Spencermartinsia viticola*.

L. theobromae was the most common overlapping species occurring on all the three tree species, followed by *L. crassispora*. There was also an overlap of *L. pseudotheobromae* and *P. olivaceum* on *M. indica* and *L. schweinfurthii*, *N. parvum* on *S. birrea* and *M. indica*, and *D. longicollis* on *L. schweinfurthii* and *S. birrea*. *Diplodia pinea*, *P. porosa*, and *S. viticola* were recovered from only one host (Fig 1).

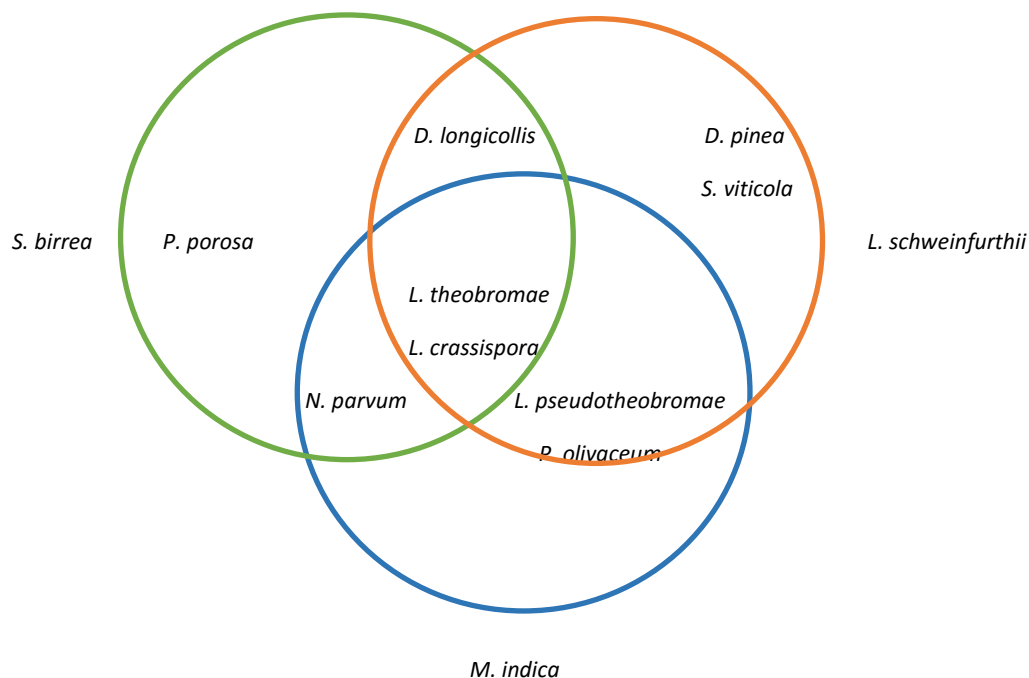


Figure 1. Species overlap of the *Botryosphaeriaceae* on *Sclerocarya birrea*, *Lansea schweinfurthii* and *Mangifera indica*.

To confirm species identities, phylogenetic analyses were performed for the ITS gene region. Additional sequences required for phylogenetic analyses were retrieved from GenBank (<http://www.ncbi.nlm.nih.gov>). Phylogenetic analyses separated the sequences into seven supported clades (Fig 2).

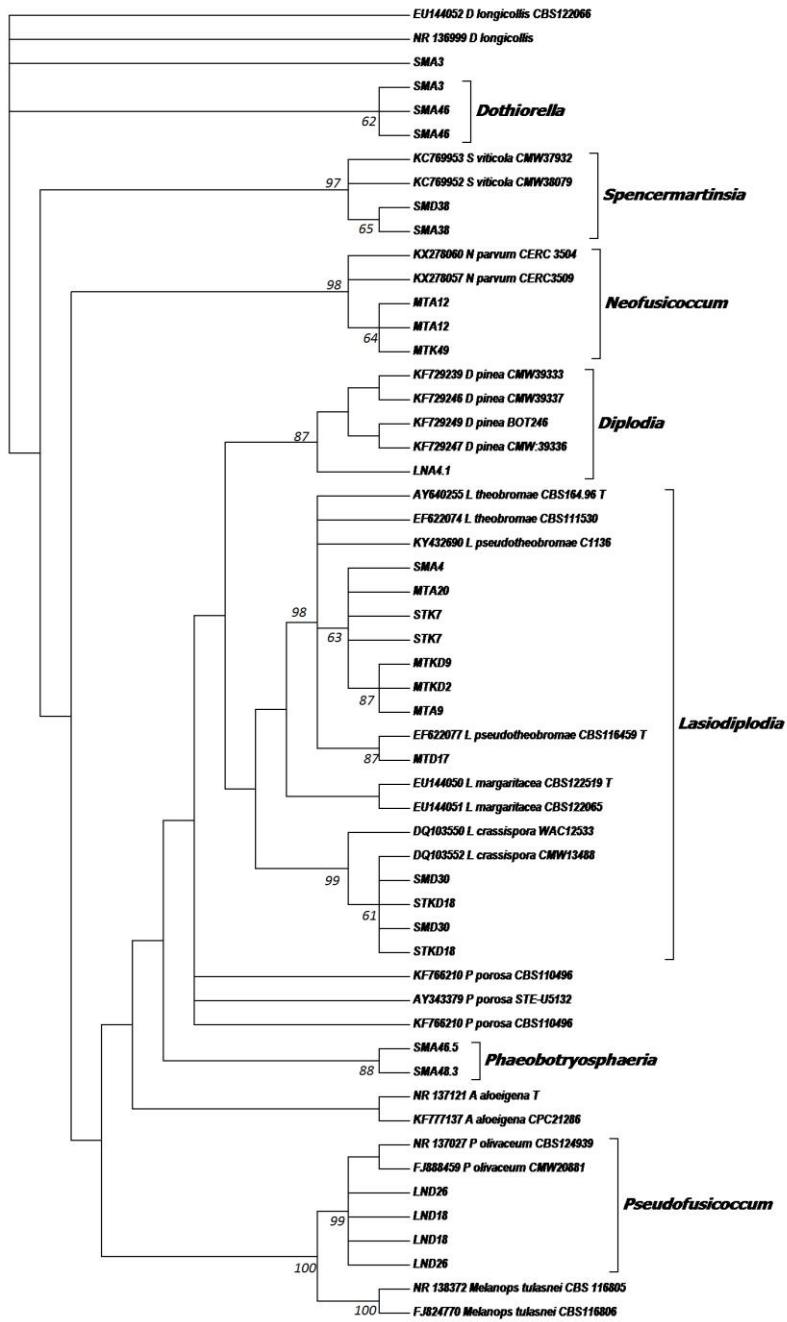


Figure 2. Maximum likelihood tree of the ITS gene region. Bootstrap support values above 60% are indicated at the nodes. The tree was rooted to *Melanops tulasnei* (CBS116805 and CBS116806).