SPECIES OF BOTRYOSPHAERIACEAE ASSOCIATED WITH SCLEROCARYA BIRREA TREES IN TSHIKUNDAMALEMA

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Sclerocarya birrea (Family Anacardiaceae), is an important wild fruit tree species widely distributed across sub-Saharan Africa.This tree has many indigenous uses in countries where it is found and it has long formed an integral part of rural communities' livelihoods, culture and spirituality. Prior to this study, no diseases of these trees had been studied. Various disease symptoms of woody plants have been linked to infection by species of Botryosphaeriaceae including cankers, dieback and blight of individual plant parts or entire trees.

The Botryosphaeriaceae are known to survive endophytically on healthy plant tissues. Diseases caused by Botryosphaeriaceae mostly follow the onset of stress in the host plant rather than causing disease themselves. *Sclerocarya birrea* trees in Tshikundamalema were surveyed for the presence of disease symptoms such as canker and dieback that could be caused by the Botryosphaeriaceae. Two species of Botryosphaeriaceae in the genera *Lasiodiplodia* were isolated from a cankered tree and rotting fruits (Fig. 1a and b) and were identified as *L. mahajangana* and *L. theobromae.*

A cankered *Sclerocarya birrea* tree (left) and diseased *Sclerocarya birrea* fruits (right)

More species of Botryosphaeriaceae were isolated as endophytes from leaves, branches and fruits. Isolates obtained from asymptomatic plant materials were identified based on DNA sequence data of multiple gene regions. Phylogenetic analyses indicated that species isolated as endophytes belonged to the genera *Lasiodiplodia* and *Macrophomina,* and were identified as *L. crassispora, L. mahajangana*, *L. pseudotheobromae*, *L. theobromae* and *Macrophomina phaseolina* (Figs. 2 and 3).

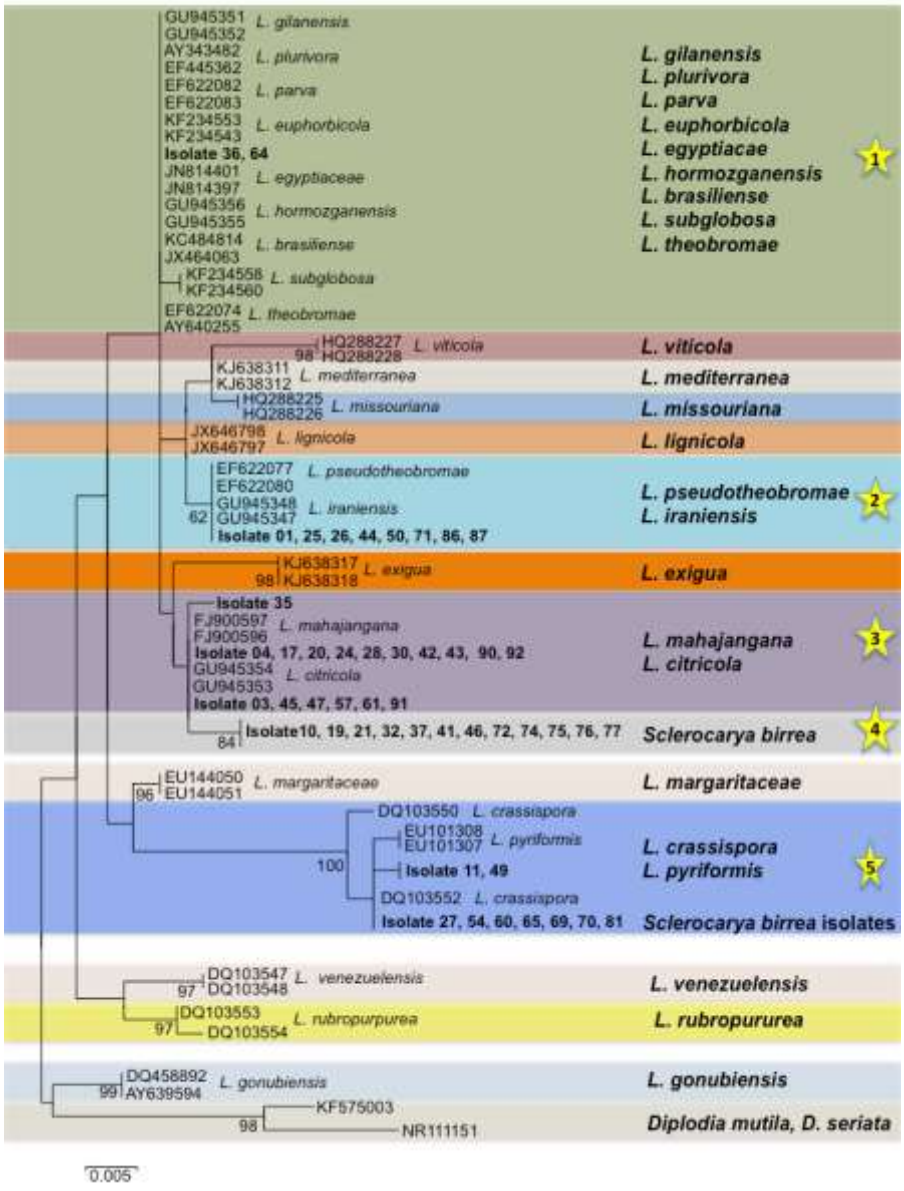

Figure 2. Maximum likelihood tree based on ITS sequence analyses showing the relationship of isolates obtained from *Sclerocarya birrea* (in bold, numbered clades with stars) and different *Lasiodiplodia* species.

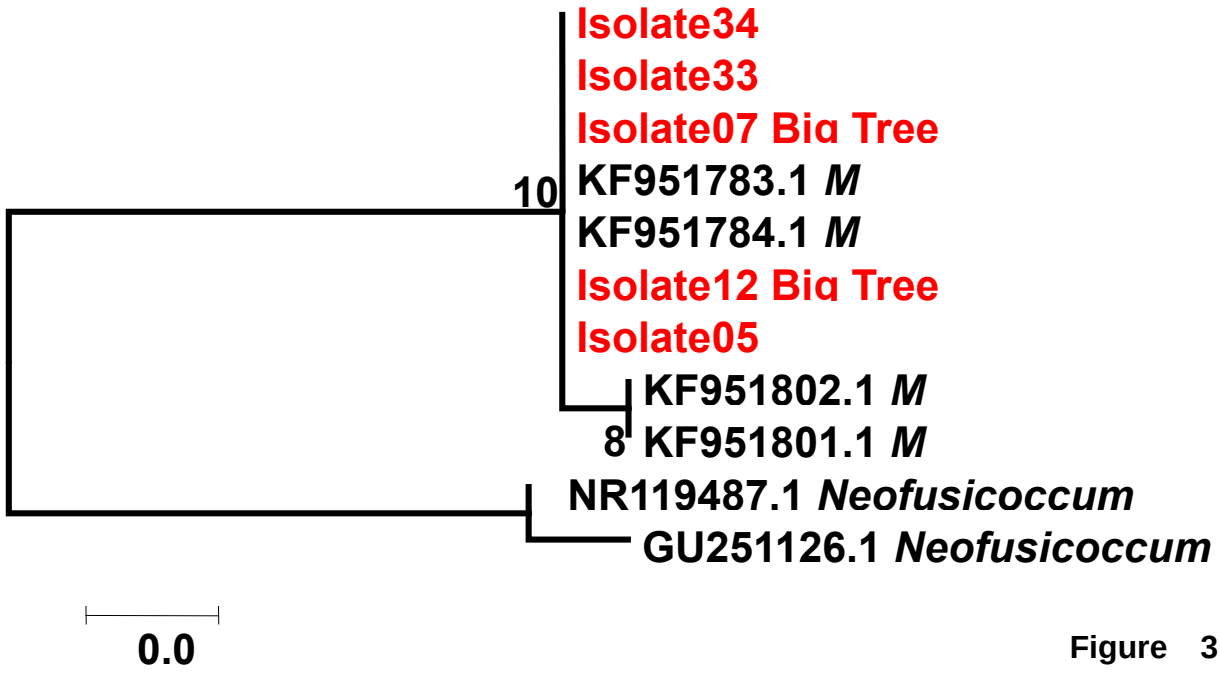

Figure 3.

Maximum likelihood tree based on ITS sequences showing the relationship between isolates obtained from *Sclerocarya birrea* and different *Macrophomina* species.