

Fungal species on baobabs in Western Australia

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There are eight known species of baobab tree of which six species are found in Madagascar. One species, *Adansonia digitata*, occurs throughout the tropical parts of Africa, whilst *A. gibbosa* is a single species endemic in Australia and is restricted to the north-western parts of the country. Baobabs belong to the family Bombacaceae, which is widely distributed in Southern America and Africa. *Adansonia gibbosa* is a single species from the family Bombaceae present in Australia. A recent study revealed that *A. gibbosa* in Australia is more closely related to *A. digitata* in Africa than to species found in Madagascar.

Recently, some diseased and dying baobabs were observed in southern Africa. In order to identify causal agents of the disease, a pilot study has been conducted on dying trees in South Africa. Different fungal species were found to be associated with these trees and the most common were species of Botryosphaeriaceae. These species are common endophytes that can be present in plants without causing any disease symptoms. These fungi are also latent pathogens on many woody plants, causing diseases when plants are exposed to unfavourable environmental conditions.

Finding Botryosphaeriaceae that could be potential pathogens on baobabs in Africa, initiated a survey on fungal species associated with baobabs in Australia. During the survey in northwestern Australia, isolates were collected from baobab (*Adansonia gibbosa*) and surrounding endemic trees. Cultures resembling those of the Botryosphaeriaceae were predominantly endophytes isolated from apparently healthy wood and bark, but some also came from dying branches. Identification of isolates obtained in this study was based on DNA sequence comparison and morphology. Sequence comparison with known species of the Botryosphaeriaceae revealed that several of the isolates represent undescribed species. Six new species are recognised that belong to different genera within Botryosphaeriaceae. The new species comprise three *Pseudofusicoccum* spp., a *Botryosphaeria* sp., a *Lasiodiplodia* sp. and a *Dothiorella* sp.

Very few studies have been conducted to identify Botryosphaeriaceae on trees in natural ecosystems, and little is known regarding the fungi on baobabs. This is the first detailed study to consider fungal species in baobab trees. Thus, the relatively large number of new species emerging from this study is not surprising. The role of these fungi in the ecology of the trees from which they were collected will be considered in future studies. Findings from this study should form the basis for further investigations on baobabs that will help us to protect these remarkable and ancient giant trees.



Left: Draginja Pavlic with young baobab. Top right: healthy baobab. Bottom right: diseased baobab.