

***Fusarium* species associated with waterberry (*Syzygium cordatum*) floral malformation**

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Waterberry, also known as umdoni (*Syzygium cordatum*), is a native tree of Southern Africa that is commonly found near streams, forest margins or in swampy spots. This evergreen tree has white, fluffy flowers that bloom from August to November. Its fruit is an edible berry that turns dark-purple when ripe. In rural areas the tree is used as a remedy for stomachache, diarrhea and tuberculosis.

Recently, numerous trees with malformed inflorescences have been observed (Figure). The affected inflorescences are abnormally enlarged, branched and heavy. They also bear large numbers of flowers. With time these malformed inflorescences dry out without ever bearing fruit. Similar symptoms are also associated with mango (*Mangifera indica*). Mango inflorescences malformation is caused by *Fusarium mangiferae*, which is a member of the *Gibberella fujikuroi* species complex. Therefore the aim of this project is to identify and characterize various *Fusarium* species associated with malformed waterberry inflorescences, by primarily focusing on species from the *G. fujikuroi* complex.

Fusarium isolates were obtained from malformed and healthy inflorescences from various locations throughout South Africa. These are then identified using morphological and DNA-based approaches. For the morphological identifications, the fungi are examined microscopically and traits such as shape and size of macro- and microconidia as well as presence of mono-, polyphilaides and chlamydospores are evaluated. For the molecular identifications, species differences are detected using the DNA sequence for the gene encoding EF-1 α , which are compared to those in a public domain database. Thus far, numerous saprophytic *Fusarium* species such as *F. oxysporum*, *F. solani*, *F. equiseti*, *F. pallidoroseum* has been identified. A number of novel lineages in the *G. fujikuroi* complex have also been identified. These include species that are closely related to *F. sacchari*, *F. proliferatum*, *F. udum* as well as several species that appear to be completely unique and as yet undescribed. Future work will include studies on the pathogenicity of the various *Fusaria* isolated from waterberry, as well as a description of new *Fusarium* species.



Figure. Healthy vs. malformed waterberry inflorescences.