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MYCORRHIZAL RESEARCH GROUP **OPPORTUNITIES 2009**

MSC/PHD – 2 POSITIONS

NRF Funded Kalahari Truffle Project

Truffles are mycorrhizal fungi which known well known for their dual roles as a source of food and for their ability to improve the health and growth of their host plants. Desert truffles are found mostly in African and the Middle East. In South Africa, Kalahari truffles are found in the Northern Cape region with two edible species of Kalahari truffles, *Kalaharituber pfeilli* and *Terfezia austroafricana* having been reported based on morphological characteristics. Initial studies have been conducted on *K. pfeilli* and the following two projects will expand on this work.

Investigation of bacteria associated with Kalahari truffles and their potential role as mycorrhization helper bacteria.

Bacteria associated with mycorrhizal fruiting bodies have been shown to play a role in mycorrhizal establishment and are termed mycorrhization helper bacteria (MHB). These bacteria possibly function to stimulate root growth; to enhance the receptiveness of plant roots to mycorrhizal colonisation; to produce metabolites that stimulate fungal growth all factors which may improving the physio-chemical characteristics of the mycorrhizosphere.

This project will involve collection of *Kalaharituber pfeilli* and *Terfezia austroafricana* samples from various sites in the Northern Cape. *In vitro* cultures will be established from fruiting bodies and potential mycorrhization helper bacteria (MHB) will be molecularly profiled and isolated. The effect of selected MHB on mycorrhizal development will be investigated.

Verification of relationship between *K. pfeilli* and *T. austroafricana* and their host range.

The presence of Kalahari truffles has been associated with Bushmans grass and various thorn trees. Re-establishment of the mycorrhizal relationship using mycelial cultures has proved problematic but initial molecular analysis from root material has provided some positive indication of potential hosts.

This project will involve the development of a rapid screening method for screening suspected host plant roots for both *K. pfeilli* and *T. austroafricana* under field conditions. Suspected host plants will be propagated and used to re-synthesis the relationship after development of a suitable mycorrhizal inoculum.

Interested candidates should have some qualifications in either microbiology, mycology or molecular biology.

NRF Bursaries are available for South African Candidates and will be given preference.

Interested candidates should send a letter of motivation, full CV with three contactable referees and copies of transcripts to:

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