



Pathogenic and molecular characterisation of *Pythium* spp. inducing root rot symptoms in other crops intercropped with beans in Southwestern Uganda

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ABSTRACT

Objective: In Southwestern Uganda, bean root rot epidemics associated with *Pythium* species are frequent despite the use of various management methods. This study set out to determine whether other crops in bean cropping system of Southwestern Uganda are affected by *Pythium* root rots and to characterise the *Pythium* species using Internal transcribed sequence (ITS) DNA primers.

Methodology and Results: Root rots were found to occur on maize, sorghum, peas and potato sampled from farmer's fields where they were found to be intercropped with beans affected by root rot. *Pythium* species were isolated using Corn meal agar (CMA). DNA was subsequently extracted and polymerase chain reaction (PCR) analysis carried out using ITS DNA region primers and then the PCR products were sequenced. Twenty-one *Pythium* species were isolated. Cross pathogenicity tests were done in a screen house using bean pathogenic *Pythium* species and *Pythium*, species derived from other crops intercropped with beans. The *Pythium* species were moderately to non-pathogenic in maize and millet while those in sorghum and peas were highly pathogenic.

Conclusion and application of results: This study found that other crops intercropped with beans in Southwestern Uganda were affected by *Pythium* root rots. Peas and sorghum were highly susceptible to the pathogenic *Pythium* species and could therefore be contributing to the continuous bean root rot epiphytotic in the region. On the other hand, maize and millet were non pathogenic to the *Pythium* species. This knowledge could be used to advice farmers not to include sorghum and peas when intercropping with beans, as they seem to be contributing to the *Pythium* inoculum load. They could alternatively use maize and millet, as they are not susceptible to the pathogenic *Pythium* species.

Key words: *Pythium*, root rots, Southwestern Uganda, ITS DNA, pathogenic