RESEARCH FOCUS

Plant disease diagnostics and molecular characterization of plant pathogens. Biochemical and physiological dynamics of host-pathogen interaction. Plant disease epidemiology and postharvest pathology. Characterization and field deployment of phyto-essential oils within the context of integrated disease management.

Current Research

(i) **Detection and characterization of *Curvularia lunata* as new pathogen causing brown leaf spot disease of cassava (*Manihot esculenta* Crantz) in Nigeria**
The study is investigating the causative agent of cassava brown leaf spot (BLS) disease in southwest Nigeria. Symptomatic cassava leaf samples have been collected from major cassava producing areas in southwest Nigeria. Identification and molecular characterization of fungal isolates are ongoing. Screenhouse experiment will also be conducted to establish pathogenicity of the fungal isolates on susceptible cassava cultivar.

(ii) **Assessment of cowpea *Vigna unguiculata* (L.) Walp landraces for resistance to *Aschochyta* blight disease**
Thirty cowpea landraces are currently being evaluated for resistance to *Ascochyta* blight disease in a two-season field trial. The first experiment has been concluded and data collected are being analyzed. The second trial is ongoing and data are being collected to validate the first experiment. This study will recommend resistant varieties to be sown by farmers in order to reduce incidence and severity of the disease.

(iii) ***Trichoderma-Fusarium* pathway as model for studying plant-fungal interactions**

The research is investigating the efficacy of two selected strains of the species, *Trichoderma harzianum* and *T. asperellum* in the promotion of tomato growth and also in the biological control of *Fusarium* wilt disease induced by *Fusarium oxysporum* f.sp. *lycopercisi* in a field experiment. Data on effect of the treatments on tomato growth and yield have been collected and currently being analysed. Histopathology of inoculated and treated tomato vascular tissues are currently being evaluated, while secretion of phytotoxins and phytoalexins will also be assessed.

(iv) **Efficacy of *Bacillus amyloliquefaciens* stains in inducing resistance to wilt disease in pepper (*Capsicum annum* L.)**

Two *Bacillus amyloliquefaciens* stains AM103 and AM117 are being evaluated *in vitro* for production of secondary metabolites and ability to directly inhibit the causal agent of bacterial wilt disease of pepper pathogen, *Ralstonia solanacearum*. Data on inhibitory potential have been collected, while the metabolites are undergoing GC-MS analysis. Field experiment for the *in vivo* assay is ongoing prior to transcription analysis of selected genes related to the plant defence in response to *B. amyloliquefaciens* treatment.