

Characterization of *Colletotrichum kahawae* Diversity

A. LOUREIRO¹, V. VÁRZEA¹, L. GUERRA-GUIMARÃES¹, A. RIBEIRO¹,
M.C. SILVA¹, B. BERTRAND²

¹Instituto de Investigação Científica Tropical (IICT) – Centro de Investigação das Ferrugens do Cafeeiro (CIFC), Quinta do Marquês, 2784-505 Oeiras, Portugal

²Centre De Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), 2477, Avenue de val Montferrand, BP 5035, Montpellier, France

SUMMARY

A major threat to the production of *Coffea arabica* in Africa is the coffee berry disease (CBD), caused by the fungus *Colletotrichum kahawae* Bridge and Waller. Crop losses can reach more than 50% if no control measures are applied. The characterization of *C. kahawae* diversity has been carried out at morphocultural, pathogenic, biochemical and molecular levels. Morphocultural studies made in 13 *Colletotrichum* isolates confirmed the results obtained by other authors where differences in fungal growth rates at different temperatures were found. Preliminary pathogenic and aggressiveness tests (made with isolates grown at different temperatures) revealed that the growing temperature of the fungal isolate is a factor that interacts with its ability to infect the green berries. Thus, some isolates grown at 10°C and 15 °C were more aggressive than the isolates grown at 22 °C. Previous molecular studies using RAPD, ITS and IGS techniques did not show polymorphism within these isolates. The isoenzymatic characterization of the same isolates, based on the activity of esterase, acid and basic phosphatase and peroxidase was done using the techniques of isoelectric focusing electrophoresis (IEF) and polyacrylamide gel electrophoresis (PAGE). For both techniques it was possible to detect a high esterase activity with many bands per isolate while the activity of basic and acidic phosphatase, and peroxidase was lower, showing few bands per isolate. However all the enzymes revealed polymorphisms. The extent of isoenzymes polymorphisms found in *C. kahawae* provide a useful tool to study the genetic and diversity of this fungus.