

SUMMARY:

Title of Project : Development of Molecular Diagnostic Tests for Quiescent *Colletotrichum* Infections in Fruits and Vegetables

Research Institute: Department of Botany University of Peradeniya

Chief Scientific Investigator: Dr. Sunethra Dharmasiri

Period of contract: Date of award : 01 July 1996

Date of completion : 02. 04. 1999 (Work suspended in 1999 following the resignation of Principal Investigator from the University of Peradeniya)

Colletotrichum is one of the more important genera of plant pathogenic fungi worldwide, especially in sub-tropical and tropical regions and the genus causes economically significant diseases food crops. Disease symptoms are commonly known as anthracnose and typically include depressed black lesions, which are sub-circular or angular and in which erumpent pink spore masses develop. The taxonomy of *Colletotrichum* is confused, both for the anamorphic species and the telemorph, *Glomerella*. There have been about 900 'species' described in or assigned to *Colletotrichum* and identification has been based mostly on morphological and cultural criteria, especially conidial characteristics, presence of setae and sclerotia and shape of appressoria. The present study investigated the possibility of developing biochemical or molecular procedures to distinguish *Colletotrichum* infection different fruit crops in Sri Lanka.

Distinctive physiological characteristics and biochemical activities can be used to develop systems for classification and isozymes, multiple molecular forms of an enzyme sharing a catalytic activity derived from single organisms, are one such tool. Also the nucleic acids, DNA and RNA-based techniques has now been extended to identification of plant pathogenic fungi.

Colletotrichum musae, *C. gloeosporioides* and *C. capsici* were isolated from banana, avocado, papaya, mango and chilli and grown on Cook's No. 2 agar. Colony morphology and conidial characters showed wide variations among isolates, particularly among the *C. musae* isolates. Isozyme patterns especially that of esterase

showed a distinct and reproducible variations among isolates from different fruit species. However, the requirement of large sample size for isozyme analysis and the relatively low insensitivity in detecting bands, are disadvantages of using this as a tool for identification. Due to unexpected termination of the project the PCR analysis of fungal and host samples could not be completed.

Communications based on work done under the contract

Muthuranwela DN, Dharmastri S, Adikaram NKB, Wickramasinghe P (1998) A comparative morphological study and isozyme analysis of different isolates of *Colletotrichum* sp. *Proceedings of the 54th Annual Sessions of Sri Lanka Association for the Advancement of Science*. P. 213 (Abs.).

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