Thesis Title	Application of Gel Electrophoresis for Identification of *Colletotrichum* spp. and Biological Control of Mango Anthracnose's causal agent
Student	Miss Veeranee Sripromsuk
Student ID.	38065302
Degree	Master of Science
Programme	Plant Pest Management Technology
Year	1999
Thesis Advisor	Assoc. Prof. Dr. Kasem Soythong
Thesis Co-advisor	Asst. Prof. Dr. Tanimnun Jeanaksorn
	Asst. Prof. Dr. Wirat Phuwiwat

ABSTRACT

Comparative identification of 24 *Colletotrichum* isolates were studied by using morphological and gel electrophoresis methods. According to cluster analysis of protein bands, the 24 isolates were classified into 4 groups as follows: *Group 1* there were 8 isolates namely; C007-1 (tangerine ,Tak), St002 (strawberry), C004 (tangerine, Phrae), Pea001 (peanut), C003 (tangerine, Phrae), Sb001 (sweet basil), Sb002 (sweet basil), and C005 (pomelo). *Group 2* there were 13 isolates namely, A001 (dracaena), A003 (mandivila), M001 (mango var. Chokanan), Pep001 (pepper), M003 (mango var. Ok-rong), Pay001 (papaya), C001 (tangerine, Lampang), C007-2 (tangerine, Tak), C006-1 (tangerine, Tak), Bf001 (red latan palm), Sap001 (rose apple), A002 (scheffera) and M002-2 (mango var. Kheow-sa-wei) *Group 3* there were 2 isolates namely, Ban001 (banana) and C002 (tangerine, Lampang) and *Group 4* there was 1 isolate namely, Ft001 (fox tail palm). *C. gloeosporioides* in Group 2 was closely related to the virulent isolates for mango var. Chokanan in pathogenicity tests, especially isolate M002-2 showed the highest disease incidence and followed by isolate M001 and A001, respectively. Moreover, the virulent isolate M002-2 also showed to cause the anthracnose symptoms on various tested host plants such as tangerine, sapodilla, guava, *Elaeocarpus hygrophilus* Kurz., jack fruit, tomato, sweet pepper and peanut. From the above result, it can be concluded that gel electrophoresis technique could be

employed for classifying the fungal pathogen into groups according to the bands of protein present in the fungi. This technique is quite rapid and more accurate than morphological classification since this technique is based on fungal proteins. From the effect of different media and acidity levels on the growth of *C. gloeosporioides* M002-2 and antagonistic fungi, *Chaetomium globosum* Cg8, *Ch. cupreum* Cc9, *Trichoderma harzianum* T88-2 and transformant of *T. harzianum* China were conducted *in vitro*. It was shown that the suitable medium and acidity level for the growth of colony and spore production of all tested fungi were potato dextrose agar at pH 6-7. The resistance to carbendazim of those fungi were also tested on potato dextrose agar. The results showed that *C. gloeosporioides* M002-2., *T. harzianum* T88-2 and transformant of *T. harzianum* China (carried R-gene to carbendazim) had the highest resistance to chemical fungicide, carbendazim, upto 0.8 ppm. whereas *Ch. globosum* Cg8 and *Ch. cupreum* Cc9 showed the resistance to carbendazim only at 0.4 ppm.

The potential of antagonistic fungi against *C. gloeosporioides* was tested using bi-culture method on PDA amended with carbendazim. Results showed that *Ch. globosum* and *Ch. cupreum* inhibited 60 percent of *C. gloeosporioides* growth and 80 percent of spore production whereas the highest potential of inhibition, 90 percent, was observed in *T. harzianum.*