UNIVERSITI PUTRA MALAYSIA

DISTRIBUTION AND PATHOGENIC POTENTIAL OF SOIL FUSARIA FROM SELECTED OIL PALM HABITATS IN WEST MALAYSIA

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It is hereby certified that we have read this thesis entitled "Distribution and Pathogenic Potential of Soil Fusaria From Selected Oil Palm Habitats in West Malaysia" by Ho Yin Wan, and in our opinion it is satisfactory in terms of scope, quality and presentation as partial fulfilment of the requirements of the degree of Doctor of Philosophy.

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Distribution and pathogenic potential of soil fusaria from selected oil palm habitats in West Malaysia

by

HO YIN WAN

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DISTRIBUTION AND PATHOGENIC POTENTIAL
OF SOIL FUSARIA FROM SELECTED OIL
PALM HABITATS IN WEST MALAYSIA

By

Ho Yin Wan

March, 1984

Supervisor : George Varghese, Ph.D.

Faculty : Agriculture

A total of eight species and two varieties of Fusarium was isolated from the sampling sites in the oil palm habitat. Fusarium solani and Fusarium oxysporum were the most prevalent species followed by Fusarium semitectum. The other species and varieties isolated showed a more

sporadic occurrence. Generally, soils from oil palm rhizospheres and young palm areas contained a larger number and greater variety of Fusarium species than soils from the avenues and older palm areas.

Pathogenicity tests of Fusarium species isolated showed that none were capable of producing vascular wilt or other diseases on oil palm seedlings. Some of the isolates, however, caused a reduction of growth in the test seedlings.

Comparative studies of F. oxysporum isolates from oil palm habitat in Malaysia with F. oxysporum f. sp. elaeidis isolates from Africa showed that the two groups of isolates were indistinguishable in their cultural, morphological and isozyme characteristics. Subsequent pathogenicity tests proved that the F. oxysporum isolates from Africa were pathogenic, causing vascular wilt on the Malaysian oil palm seedlings whilst the F. oxysporum isolates from Malaysia were non-pathogenic to the wilt-susceptible African oil palm seedlings and Malaysian oil palm seedlings. Inoculation of Malaysian F. oxysporum isolates on Malaysian oil palm seedlings and wilt-susceptible African oil palm seedlings, subjected to an initial period of water stress, also did not result in showing any disease symptoms.

Histopathological studies of Malaysian oil palm seedlings inoculated with pathogenic F. oxysporum f. sp. elaeidis indicated that resistance of the symptomless palms to the vascular wilt is probably biochemical in nature.