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Diversity of *Fusarium* Species Infecting Banana in Malaysia

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Purpose: The *Fusarium* wilt is caused by mainly four different races of *Fusarium oxysporum f. sp. cubense* (*Foc*). *Foc* tropical race 4 (*Foc*-TR4) or *F. odoratissimum* had raised the concern of plant pathologist all around the world as this strain of pathogenic fungi can infect most of banana cultivar, making it the most destructive strain in comparison to others. On the other hand, it is known that each physiological race of *Foc* has a different host range of the banana cultivar but there are no morphological differences among them. There is a need to assess the diversity of *F. oxysporum f. sp. cubense* infecting the various banana cultivars in Malaysia to estimate the severity of this disease and the damage caused in order to effectively control this disease.

Method: Using *Fusarium* selective medium, 38 fungus samples suspected to be *F. oxysporum* was isolated from symptomatic tissue of corm, root and stem of different local banana cultivar infected by *Fusarium* wilt in Malaysia. The banana samples consist of dessert, plantain and cooking banana cultivars. These isolates were subjected to identification and classification by using histone H3 and *TEF 1-alpha* gene. Analysis of race identification was conducted using TR4 specific primer and also LAMP-FLP analysis.

Result: Based on the phylogenetic analysis of histone H3 and *TEF 1-alpha*, the isolates could be classified into *F. fujikuroi*, *F. odoratissimum*, *F. grosmichelii* and unknown *Fusarium oxysporum* species complex (FOCS). Result shows that the 27 out of 38 of the sample are positive for Tropical Race 4 (TR4).

Conclusion: Previous studies of TR4 focuses on the symptoms on the Cavendish. However, to prevent the prevalence of *Fusarium* wilt caused by TR4, further study regarding the diversity of this fungus from different banana cultivar, including the local cultivar of various genome, is urgently needed.