

Characterisation and pathological variability of *Exserohilum turcicum* responsible for causing northern corn leaf blight (NCLB) disease in Malaysia

ABSTRACT

Aims: Corn is grown primarily for human consumption. It is considered as the second most important cereal crop after rice in Asia. Many diseases affect this crop due to planting of susceptible hybrids. This research is aimed to characterize the causative agent of northern corn leaf blight disease in Malaysia, caused by *Exserohilum turcicum*.

Methodology and results: Leaf samples were collected from infected farms of 2 corn growing areas of Peninsular Malaysia in 2015. A total of 5 fungal isolates were examined for cultural, morphological and molecular properties, and based on the results, the five isolates were identified as *E. turcicum*. The conidial shapes were observed to be elongated and spindle. Cultural characteristics showed that variation existed among the isolates in colony growth and colour. Mycelia growth rates of the isolates were significantly different on potato dextrose agar (PDA), corn meal agar (CMA) and potato sucrose agar (PSA) media, growth on CMA was faster than on PSA and PDA. The isolates were grouped into three groups based on colony colour i.e. light gray, gray and dark gray. The isolates were categorized into 2 groups based on growth namely, moderate growth and profused growth. The number of septa ranged from 5-7 to 7-10 representing isolates ET002 and ET003, respectively. Similarly, conidial length varied from 56.7 μ m to 89.44 μ m for isolates ET002 and ET003, respectively. The pathogenic variability tested on Thai Super Sweet (TSS) corn variety, showed that isolates ET001 and ET003 were more aggressive while isolate ET005 was less aggressive among the isolates tested.

Conclusion, significance and impact of the study: Both morphology and molecular results showed that, the isolates were identified as *E. turcicum*. The findings of this study will serve as a baseline for future studies and will help to minimize losses in yield.

Keyword: *Exserohilum turcicum*; Corn; Morphological; Pathological; Northern corn leaf blight