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**ABSTRACT**

Northern Leaf Blight diseased maize leaves were collected from 8 locations of maize fields in northeastern Thailand: Nong Bua Lam Phu, Loei, Chaiyaphum, Sakon Nakhon, Nong Khai, Udon Thani, Khon Kaen and Sri Sa Ket. The fungi were isolated using tissue transplanting method and 32 monoconidial cultures were obtained. The morphological characteristics of the tested fungi on Potato Dextrose Agar (PDA) were greenish, brownish, whitish with a grayish tint. Conidia were obclavate, straight or slightly curved, widest near the middle. The dimension of the conidia range from 17.5-23.6 µm in width and 80.6-95.6 µm in length with 4-8 transverse septa. The growth rate on PDA range from 0.447-1.623 cm/day (average 0.98 cm/day). Because the fungi could not be identified based on only their morphology, 8 representative isolates were characterized in detail by using nuclear ribosomal DNA (ITS1-5.8S-ITS2 rDNA) in order to identify these isolates on the basis of the nucleotide sequences and all of them were identified as *Exserohilum turcicum*. These isolates were evaluated for pathogenicity on waxy corn (line 209, 216, 241) and super sweet corn (variety Hybrix03, Hybrix17). Isolate L1/1 and SN1/3 were virulent on line 216 whereas the others were avirulent on the tested maize lines.

Genetic diversity among 23 isolates were investigated with DNA fingerprinting by Amplified Fragment Length Polymorphism (AFLP) technique. A total of 36 polymorphic bands were obtained using 3 primer combinations (*Eco*RI-AAC/*Mse*I-C, *Eco*RI-AAG/ *Mse*I-C and *Eco*RI-AG/ *Mse*I-CC). The dendrogram derived by cluster analysis using unweighted pair group method using an arithmetic average (UPGMA) with Dice’s similarity coefficient showed that all of the tested fungi can be divided into 5 groups at a similarity coefficient of 0.70.