Characterization and pathogenicity of Fusarium proliferatum and Fusarium verticillioides, causal agents of Fusarium ear rot of corn

ABSTRACT

Fusarium ear rot is a significant disease of corn caused by several toxigenic Fusarium species including Fusarium proliferatum and Fusarium verticillioides. Forty-one Fusarium isolates were recovered from corn with Fusarium ear rot disease symptoms collected from Peninsular Malaysia. Isolates were classified into three described species known as F. proliferatum, F. verticillioides, and F. solani. Based on sexual compatibility test, four isolates from F. proliferatum (MATD-1) were crossed-fertile with tester isolate F. proliferatum D024853 (MATD-2), producing perithecia in the presence of ascospores. Meanwhile, the isolates from F. verticillioides (MATA-2) were crossed with tester isolate F. verticillioides A00149 (MATA-1), but were found producing 11 isolates with barren perithecia and three infertile isolates, whereas in 11 isolates of F. verticillioides (MATA-1), seven isolates produced barren perithecia with four nonfertile isolates. In the pathogenicity test, all isolates were found pathogenic and displayed disease symptoms with variation in severity. The highest disease severity index value was observed in F. proliferatum B68c at 4.67, which was obtained in an updated report on the mating type of F. verticillioides and F. proliferatum isolated from Fusarium ear rot disease.

Keyword: Fusarium ear rot; Fusarium proliferatum; Fusarium verticillioides; Mating type; Translation elongation factor 1-Ŭ