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MOLECULAR IDENTIFICATION AND CHARACTERIZATION OF *Fusarium* SPECIES CAUSING LEAF TWISTER DISEASE OF ONION

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Leaf Twister disease (LTD) is a major disease of onion (*Allium cepa* L.) cultivated in Sri Lanka. The pathogens causing the LTD of onion have been identified as *Collectotrichum* spp and *Fusarium* spp. However, species delineation of the two genera has not been done in detail. Morphological features are not a reliable criterion for species delineation due to diverse variations of colony characters of *Fusarium* spp. and minor variations of spore dimensions that could be detected morphometrically. Hence, the objective of the present study was to identify and characterize the *Fusarium* species associated with LTD of onion grown in Sri Lanka by DNA-based molecular techniques.

LTD-infected onion plants were collected from farmer fields at six locations of the Puttalam district, Sri Lanka. Possible causal organism/s of LTD were isolated from three different parts of the infected plants, namely leaves, pseudostem and bulb. Twelve morphologically-different isolates of *Fusarium* spp, were identified. Genomic DNA was extracted from each purified isolate using a modified CTAB method. Using genomic DNA, PCR amplification was done with ITS-Fu1f and ITS-Ful r primers to amplify the region of ITS2-rDNA subunit of the *Fusarium* isolates. All *Fusarium* isolates gave the expected PCR product of 466 bp. To determine the genomic variation among the isolates, PCR products were analyzed by PCR-RFLP using restriction endonucleases, *Rsa* I and *Pvu* II. Based on PCR-RFLP analysis, no molecular polymorphism was observed among the isolates of *Fusarium* spp.

DNA sequencing was done for a PCR product out of the 12 amplified products of the *Fusarium* isolates. DNA sequence data was compared with the available sequence information of the databases using Basic BLAST search option of NCBI. Sequence data of the query sample showed 99% similarity with *Fusarium solani* (Accession no. JX896998.1). Based on the results, all the isolates used in the present study were identified as *Fusarium solani* and they are not genomically-polymorphic with reference to ITS2-rDNA subunit. Therefore, *Fusarium solani* has been identified as one of the causal agents of LTD on onion (*Allium cepa* L.).

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