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Characterization of Chinese eggplant isolates of the fungal pathogen *Verticillium dahliae* from different geographic origins

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ABSTRACT. *Verticillium dahliae* is a fungal pathogen that causes wilt disease in a wide range of host plants. Characterization of virulence, morphological, and molecular variations among *V. dahliae* isolates from different geographic origins is essential for any breeding program aimed at producing plant cultivars resistant to this disease. We characterized virulence variation among *V. dahliae* isolates from Chinese cultivated eggplant grown in Northeast China by pathogenicity testing on susceptible, moderately resistant, and resistant eggplant accessions in a glasshouse using a root-dipping method of infection. These isolates were also characterized for morphological features based on growth on potato dextrose agar media and for genetic variation based on ISSR markers. All 12 isolates were divided into three pathotypes based on the virulence, i.e., strong, moderate, or weak type. Three isolates were

categorized as defoliating pathotypes, with strong virulence, and the rest of the isolates were categorized as non-defoliating pathotypes, with moderate to weak virulence. The eggplant isolates were classified into three morphological types or morphotypes, hypha, hypha-sclerotia, and sclerotia; no significant correlations were detected between pathotypes and morphotypes or geographic origins. ISSR fingerprinting indicated genetic diversity among isolates, ranging from 0.26 to 0.69. Specific fingerprint types were not correlated with either pathotype or morphotype. However, ISSR analyses did reveal two clusters in which the isolates in each share the same or neighboring geographic origins.

Key words: ISSR-PCR; Morphotype; Pathogenicity; Pathotype; Wilt disease

