Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Lasioidiplodia pseudotheobromae* Causing Collar Rot of Peanut in Shandong Province, China

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In August 2019, a collar rot of peanut was observed in several fields in Qingdao, Shandong Province, China. A disease survey was conducted in several peanut fields. Less than 5% of plants exhibited various symptoms, including brown or black stem rot, pod rot, chlorotic leaves, wilting, and even death. Symptomatic stems were cut into small pieces, surface disinfested with 70% ethanol for 1 min and 1% NaClO for 2 min, rinsed three times with sterile water, and dried on sterile filter paper. Pieces were then plated on potato dextrose agar (PDA) media and incubated at 25°C in darkness. Fungal cultures were initially white, turning gray and eventually black, and aerial hyphae were dense and fluffy. Conidia were ellipsoidal, initially hyaline, unicellular, and 14.3 to 21.1 × 8.7 to 13.2 µm ($n = 50$), and mature conidia were dark brown with a central septum and longitudinal stripes. Molecular identification was performed by sequencing the ITS with ITS1/ITS4 (White et al. 1990) and the

beta tubulin gene with Bt2a/Bt2b (Glass and Donaldson 1995) of a representative isolate ZHX9. The ITS and beta tubulin regions (OK427342 and OK489788) of ZHX9 were 99.62 and 100% similar to *Lasioidiplodia pseudotheobromae* (KF766193 and EU673111), respectively. Phylogenetic analysis was done using neighbor-joining analysis based on those gene sequences. The isolated microorganism was identified as *L. pseudotheobromae* based on molecular analysis and morphological characteristics. For a pathogenicity assay, 12 10-day-old peanut ('Zhonghua No. 12') seedlings were each inoculated with one mycelial plug (8 mm in diameter) by placing the inoculum on the base of the stem. Twelve plants were each inoculated with a plug of noncolonized PDA as controls. Plants were incubated in a growth chamber (30°C in the day and 25°C at night with a 12-h photoperiod and 80% RH). Necrotic lesions were observed on stems of all inoculated seedlings 5 days after inoculation, whereas control plants remained asymptomatic, and *L. pseudotheobromae* was consistently reisolated from symptomatic stems. In Asia, peanut collar rot caused by *L. pseudotheobromae* has been reported in India, Indonesia, North Vietnam (Nguyen et al. 2006), and China (Guo et al. 2014), but collar rot caused by *L. pseudotheobromae* has not been reported. To our knowledge, this is the first report of *L. pseudotheobromae* causing collar rot on peanut in China. These results will provide crucial information for studying the epidemiology and management of this disease.

References:

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