Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Phomopsis longicolla* Causing Stem Canker of Eggplant in Fujian Province, China

Jinjie Hu, Qian Zhou, Chaohui Shi, Shun Xiao, Yexin Ke, and Guokun Liu[†]

Key Laboratory of Biopesticide and Chemical Biology, Ministry of Education, Fujian Agriculture and Forestry University, 350002, Fuzhou, Fujian, P.R. China

Funding: Funding was provided by the National Key Research and Development Program of China (2018YFD0201200). Plant Dis. 105:3296, 2021; published online as <https://doi.org/10.1094/PDIS-01-21-0139-PDN>. Accepted for publication 14 April 2021.

Eggplant (*Solanum melongena* L.) is one of the most popular vegetables in China. In July 2019, a serious stem canker disease of eggplant (cv. Hangqieyihao) was found in commercial fields in Pingnan County (26°47'35.16"N, 118°56'31.6"E), Fujian Province. The disease incidence ranged from 38 to 72%. At first, the lesions are small, more or less circular, later becoming elongated, blackish-brown lesions, eventually containing numerous tiny black dots. When stem girdling occurs, the shoot above the infected area wilts and dries up, and it is the reason for the yield loss. The teleomorph of the fungus has not been encountered in symptomatic stems. An isolate was obtained from a diseased branch by using routine fungal isolation methods and single-spore purification technique, which was designated as FAFU01. The fungus was cultivated on potato dextrose agar (PDA), incubated under 12-h/12-h cycles of light and darkness until sporulation. The fungus initially produced white fluffy aerial hyphae, forming a relatively dense concentric pattern colony, which subsequently exhibited yellow-green pigmentation. Pycnidia had globose locules and prominent beaks, which immersed in medium, black, solitary, discoid or irregular. Conidiophores were colorless, separated, branched, 10.0 to 20.0 µm long, and 1.0 to 2.5 µm wide. Alpha-conidia were single-celled, ellipsoidal to fusiform, guttulate, 5.4 to 8.7 µm long, and 1.5 to 3.2 µm wide. Beta-conidia were found occasionally in older stock cultures, hyaline, filiform, hamate, 17.0 to 26.9 µm long, and 0.86 to 1.23 µm wide. Based on these morphological characters, the fungus was preliminarily identified as *Phomopsis longicolla* (Hobbs et al. 1985). The internal transcribed spacer region of the ribosomal

DNA of the isolate FAFU01 was amplified with primers ITS1/ITS4 (TCCGTAGGTGAACCTGCGG/TCCTCCGCTTATTGATATGC) (White et al. 1990) and a 578-bp sequence obtained (GenBank accession no. MW380387) was 96 to 98.3% identical to the known sequence of *P. longicolla* (syn. *Diaporthe longicolla*) in GenBank. For further confirmation, *P. longicolla*-specific primers Phom.I/Phom.II (GAGCTCGCCACTA-GATTTTCAGGG/GGCGGCCAACCAAACTCTTGT) (Zhang et al. 1997) were used, and a 337-bp amplification product was obtained, which was previously reported only for *P. longicolla*, whereas no product was amplified from the negative control. Based on these morphological and molecular characters, the fungus was identified as *P. longicolla*. In greenhouse tests at 25 to 28°C, 35-day-old plants of eggplant (cv. Hangqieyihao) were each maintained in a 30-cm-diameter pot. The healthy stem on the plants was wounded by pinpricking (Wei et al. 2019). Both wounded and nonwounded stems were inoculated respectively with mycelial plugs (4 mm in diameter) from a 7-day-old PDA culture or PDA medium plugs as controls, with six replicates. The plants were covered with plastic bags to maintain high relative humidity for 2 days. Four days after inoculation, the plugs were washed from the stems with sterile water. Thirty-five days after inoculation, canker lesions and small black pycnidia, which were similar to those in the field, were observed on the surface of nonwounded and wounded asymptomatic stems inoculated with the pathogen, whereas all the control stems remained healthy. The fungus was reisolated from the infected stems of plants and was further confirmed with the species-specific primers, fulfilling Koch's postulates. This is the first report of *P. longicolla* causing stem canker on eggplant in Fujian Province, China.

References:

- Hobbs, T. W., et al. 1985. Mycologia 77:535.
Wei, X. Y., et al. 2019. Plant Dis. 103:143.
White, T. J., et al. 1990. Page 315 in: PCR Protocols: A Guide to Methods and Applications. Academic Press, San Diego, CA.
Zhang, A. W., et al. 1997. Plant Dis. 81:1143.

The author(s) declare no conflict of interest.

e-Xtra

Keywords: *Diaporthe longicolla*, morphology, molecular, rDNA-ITS, pathogenicity

[†]Indicates the corresponding author.
G. K. Liu; liuguok@126.com