Disease Notes

Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Poinsettia Wilt Caused by *Amphobotrys ricini* (syn. *Botryotinia ricini*) in Florida

Charles Krasnow,^{1,†} Ana Maria Bocsanczy,² Lee Bloomcamp,³ and David Norman²

¹ Professional Solutions, Syngenta Crop Protection, Vero Beach, FL

² University of Florida Mid Florida Research and Education Center, Apopka, FL

³ Professional Solutions, Syngenta Crop Protection, Gainesville, FL

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Poinsettia (*Euphorbia pulcherrima*) plants exhibiting wilt symptoms were observed in two large research greenhouses at the University of Florida, Gainesville, in 2019. Disease symptoms were observed on a limited number (<5%) of plants during a period of high temperatures, and diseased plants had continuously been rogued during the growing season. Shoots of symptomatic plants were wilting with branches breaking off from the stem base, and soft, watery lesions encircled the plant crown and lower stem. Irregular, flat sclerotia were observed on diseased stems. The roots were asymptomatic and not discolored. A *Botrytis*-like organism was consistently isolated from pieces of diseased stems that had been surface sterilized in 70% ethanol. The pathogen was tentatively identified as *Amphobotrys ricini* (syn. *Botryotinia ricini*) based on sclerotial and colony characteristics on potato dextrose agar (PDA). Conidial formation was sparse on PDA, and numerous sclerotia were produced; however, on V8 agar medium conidia were formed more abundantly. Isolates were slow-growing at 22°C compared with *Botrytis cinerea*. On PDA, globular, light brown conidia formed on long conidiophores, and conidia measured 8.4 (7.5 to 10) µm in diameter. Sclerotia were black and irregularly shaped. Two isolates were selected to confirm the species identity. Genomic DNA of the isolates was extracted to perform PCR amplification using glyceraldehyde 3-phosphate-dehydrogenase (G3PDH), RNA polymerase-II binding module (RPB2), and heat-shock protein (HSP60) genes with primers G3PDHF1/G3PDHR1 (5'-gctgtcaacgaccttcat, 3'-gtggtgtcaccgttcatgt), RPB2F1/RPB2R1 (5'-ctgcgcagataccaagat, 3'-attcggaagaagcgtttg), and HSP60F1/HSP60R1 (5'-attgagattgcccacaagg, 3'-ggcaacttgaggtgaccac) (Amiri et al. 2016). The amplified DNA was sequenced, and a BLASTN

search showed 99.8% similarity for all three genes to *A. ricini* (KR259129 [G3PDH], KR183766 [RPB2], and KR183765 [HSP60]), a pathogen that has been observed on poinsettia in Louisiana and castor bean and strawberry in Florida (Amiri et al. 2016; Godfrey 1919; Holcomb 1989). The G3PDH, RPB2, and HSP60 gene sequences for one isolate were deposited in GenBank (MT350627, MT350628, and MT350629, respectively). To test pathogenicity, unwounded stems of mature poinsettia 'Christmas Feelings Pink' ($n = 6$) were inoculated with each isolate individually by placing a 5-mm mycelial plug from the margin of a 5-day-old PDA culture onto the stem base and covering with Parafilm to prevent desiccation. The plants were incubated for 5 days at 25°C and returned to a greenhouse bench, where temperatures ranged from 26 to 28°C for 3 weeks. Crown and lower stem rot, rotting of individual stems, foliar wilt, and sclerotia developed on 5 to 10% of plants, symptoms and signs similar to those in the original outbreak. Several inoculated plants died. When the stem base and lower leaves were atomized with a conidial suspension (10^5 in 1M glucose) and incubated as described above, the same symptoms developed, with no apparent difference in disease severity between isolates. The pathogen was reisolated from symptomatic stems onto PDA and identified as *A. ricini* based on conidial and sclerotial morphology. Control plants were inoculated with PDA plugs without the pathogen and remained healthy. The pathogenicity test was repeated twice with similar results, fulfilling Koch's postulates. To our knowledge, this is the first report of poinsettia wilt caused by *A. ricini* in Florida. This pathogen can cause significant losses on crown of thorns (*Euphorbia milii*; Sanoamuang 1996) and field grown castor bean (Godfrey 1919) and is known to infect additional ornamental crops (Pirone 1978). Poinsettia is a widely grown crop in the southeast United States and is economically important for many greenhouse operations. Control measures may be necessary to limit losses in poinsettia production.

References:

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[†]Indicates the corresponding author.

E-mail: charles.krasnow@syngenta.com (C.K.)