Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Sclerotinia sclerotiorum* Causing Strawberry Fruit Rot in Florida

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During the 2019 to 2020 Florida strawberry season (October to April), a strawberry (*Fragaria × ananassa*) fruit rot was observed in two fields (Plant City and Wimauma, FL) with up to 5% incidence on short-day cultivars Sensation Florida127 and Florida Brilliance. Symptoms on pink and ripe fruit consisted of softening, discoloration, watery rot with white fuzzy mycelium, and initial sclerotium formation. Diseased tissue was placed on general isolation medium (Amiri et al. 2018) and incubated at 25°C under a 12-h photoperiod. A fungus producing spreading cottony white colonies with dark sclerotia near the outer edges of the plates was consistently isolated. One isolate from each cultivar field (20-51 and 20-55) was selected for identification and pathogenicity tests. Apothecial production was induced following the protocol of Li and Rollins (2009), and apothecia ($n = 30$) had an average diameter of 4.5 (3.5 to 7.2) mm. Sclerotia were 3.6 (2.5 to 6.2) mm by 4.5 (3.1 to 5.9) mm ($n = 30$) in size. Dimensions of asci were 130.2 (115.1 to 160.5) μm by 8.5 (6.2 to 13.1) μm ($n = 30$), and those of ascospores were 12.2 (10.8 to 14.6) μm by 6.8 (5.7 to 8.1) μm ($n = 30$). Based on these morphological features, the pathogen was tentatively identified as *Sclerotinia sclerotiorum* (Maas 1998). DNA was extracted from the same two isolates using the FastDNA kit (MP Biomedicals, Solon, OH), and the ribosomal internal transcribed spacer region was amplified using the primers ITS1 and ITS4 (White et al. 1990). Sequences were deposited in GenBank (accession nos. MT378215 and MT378216). BLASTn searches revealed that isolates 20-51 and 20-55 were 99.62% identical (526/528 bp) to *S. sclerotiorum* CBS 499.50 (MH856725.1). Immature pink fruit of Sensation Florida127 were harvested, surface disinfested in bleach solution (0.08% NaClO) for 90 s, rinsed twice with deionized water, placed into Styrofoam egg cartons inside clean plastic boxes (30 × 24 × 7 cm) containing 150 ml of sterile deionized water to maintain moisture, and kept at 25°C with a 12-h photoperiod. Ascospores and sclerotia were used for inoculation tests with three repetitions in an egg carton containing 12 fruit each per isolate and

inoculation method. The experiment was repeated once. Fruit were inoculated by placing 20 μl of a 1×10^6 ascospores/ml suspension or a single sclerotium on the upper half of the fruit. Controls were included, by placing 20 μl of sterile deionized water or fruit with no sclerotia. Evaluations were done 6, 10, and 15 days after inoculation (DAI). Control fruit remained healthy, whereas inoculated fruit developed symptoms of softening and discoloration. For ascospore inoculation, disease incidence was 55 (± 5) and 78% (± 4), at 6 and 15 DAI, respectively, whereas for sclerotia inoculation incidence was 100% at 6 DAI. Morphologically identical fungi to the original isolates were reisolated from the diseased fruit. No other fruit decay fungi were observed. *S. sclerotiorum* has been previously reported causing strawberry fruit rot in Washington, England, Israel, and Scotland (Alcorn 1966; Maas 1998; McLean 1957). It has also been listed in the indexes of plant diseases from Florida, North Carolina, and California as causing crown rot (Farr and Rossman 2020). To our knowledge, this is the first report of *S. sclerotiorum* causing strawberry fruit rot in Florida. The pathogen is an aggressive necrotroph with prolonged survival, and it affects several vegetable crops grown in Florida (Paret et al. 2018). Because only the strawberry beds are fumigated, sclerotia remaining in the alleys could serve as inoculum sources. Currently, the disease is rare and of minor significance to strawberry production. However, efforts should be implemented to monitor its occurrence and spread.

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