Disease Note

Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Collar Rot Caused by *Sclerotinia sclerotiorum* on Sesame (*Sesamum indicum*) in Mexico

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Sesame (*Sesamum indicum* L.; Pedaliaceae) is the second most cultivated oilseed in Mexico with 80,000 ha planted per year. The seeds of this crop are used as a condiment, for the extraction of oil, and for their medicinal properties. In October 2020, collar rot symptoms were observed in six sesame fields (SOPC-9539 TD variety) in the Carrizo Valley (26°15′33.1″N; 109°01′37.9″W), El Fuerte, Sinaloa, México. Initially, small brown spots in the basal stem of infected plants were observed. At advanced stages of the disease, the circumference of the stem was necrotic with white mycelium extending to the roots. Infected plants showed symptoms of yellowing, wilting, and finally death. Disease incidence was estimated at 15% by five counts of diseased plants in arbitrary quadrants in the sesame fields. For fungal isolation, stem sections from the symptomatic basal stem were surface disinfected with 1.5% sodium hypochlorite for 2 min and triple rinsed with sterile distilled water. The tissue sections were dried on sterile blotting paper and plated in Petri dishes with potato dextrose agar (PDA) culture medium. The plates were incubated at 28°C in darkness for 48 h. Sclerotinia-like colonies were consistently isolated and four isolates from different locations were purified by the hyphal-tip method. Fungal colonies were formed of compact white mycelium, with the formation of sclerotia on the margin of the plate 6 days after inoculating PDA cultures. Sclerotia averaged 3.1 mm in diameter and 0.024 g. One isolate was deposited in the Culture Collection of Phytopathogenic Fungi of the Faculty of Agriculture of Fuerte Valley at the Sinaloa Autonomous University under accession no. FAVF654. To confirm identification, genomic DNA was extracted from one isolate, and the internal transcribed spacer (ITS) region was amplified by PCR and sequenced directly using the primer pair ITS5/ITS4 (White et al. 1990). The resulting consensus sequence was deposited in GenBank (accession no. ON401416). BLASTn alignments in GenBank showed 100% identity of our sequence with the sequence of the type strain of *Sclerotinia sclerotiorum* ATCC 46762 (accession no. JX648201). Pathogenicity of the fungus was demonstrated by inoculating healthy sesame plants (Dormilón and SOPC-9539 TD varieties) germinated in plastic pots with sterile substrate. Plants were inoculated with the FAVF654 isolate by applying three sclerotia at the base of each of the 12 plants. Twelve plants were left uninoculated as controls. All the inoculated plants of both varieties developed characteristic symptoms of the disease 7 days after inoculation, while the control plants remained symptomless. The pathogenicity test was performed twice with the same result. The fungus was reisolated from all the inoculated plants, thus fulfilling Koch's postulates. *S. sclerotiorum* has been reported on sesame plants in Bulgaria and Korea (Farr and Rossman 2022). To our knowledge, this is the first report of *Sclerotinia sclerotiorum* causing collar rot in sesame plants in Mexico and the Americas. This disease considerably reduces the yield of sesame, so it is necessary to develop effective disease-management strategies.

References:

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