Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Fruit Blight Caused by *Alternaria alternata* on Sesame in Northeast China

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Sesame (*Sesamum indicum* L.) is an important oilseed crop in China, and it is also used in food and health products. In August of 2019, sesame fruit blight was observed in a field of Liaoyang city, Liaoning Province of China. Typical disease symptoms were brown or dark brown spots on fruit initially. With the lesions coalescing, the whole fruit turned dark brown or black. Most of the diseased fruits were thin and small, deformed, necrotic, hardened, and occasionally cracked on top. Spots were produced on stem and petioles and caused leaf abscission. The disease caused heavy yield losses, especially from premature fruit death. To determine the causal agent, symptomatic fruits with typical lesions were collected, surface sterilized in 2% NaOCl for 3 min, rinsed three times in distilled water, and plated onto potato dextrose agar (PDA) medium. After incubation at 25°C for 5 days, a dark olivaceous fungus with abundant, branched, brown to black, and septate hyphae was consistently isolated. Twenty single spores were separated with an inoculation needle under a stereomicroscope. The conidia were in chains, brown, obclavate, ovoid or ellipsoid, with 1 to 6 transverse septa and 0 to 4 longitudinal or oblique septa, 12.5 to 45 × 6.5 to 14.5 µm in size. Conidiophores were septate, light brown to olive brown, measuring 22 to 60 × 2 to 4 µm. The morphological characteristics of the 20 isolates all matched the

description of *Alternaria alternata* (Simmons 2007). The internal transcribed spacer (ITS) region of rDNA of 15 isolates were amplified using primers ITS1/ITS4 (White et al. 1990) and EF1-728F/EF1-986R (Carbone et al. 1999) and sequenced. Identical sequences were obtained and the sequence of the isolate ZMHG12 was submitted to GenBank (accession nos. MW418181 and MW700316). BLAST analysis of the sequences of the isolates of ZMHG12 showed 100% identity to *A. alternata* (KP739875 and LC132712). In pathogenicity tests, the conidial suspension (2.5×10^5 conidia per ml) was prepared from 7-day-old cultures of isolate ZMHG12 grown on PDA at 25°C. The fruits of 2-month-old potted sesame plants (variety 'Liaozhi 8') were sprayed until runoff with the conidial suspension. A total of 10 plants were inoculated. Another 10 plants sprayed with distilled water were served as noninoculated controls. All plants were maintained for 48 h in a humid chamber at 25 to 26°C, and then moved to a greenhouse. Ten days after inoculation, all fruits of inoculated plants exhibited symptoms similar to those observed in the field, while noninoculated control plants remained symptomless. The experiment was repeated twice with similar results. *A. alternata* has been reported as a pathogen causing leaf blight disease of sesame in Pakistan (Nayyar et al. 2017). To our knowledge, this is the first report of *A. alternata* causing fruit blight of sesame in China. So far, we have observed the disease on sesames in fields of Fuxin, Chaoyang, and Tieling city in Liaoning Province, and Tongliao city in Inner Mongolia of China, and it has become an important disease in sesame production of China.

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