Disease Notes

First Report of Pomegranate Wilt Caused by Ceratocystis fimbricata in Sichuan Province

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During May of 2009, a new devastating disease was observed on pomegranate (Punica granatum L.) that caused losses estimated at 30% as surveyed by 10 orchards in Panzhihua-Xichang Region of Sichuan Province, Southwest China. Characteristic symptoms were yellow and wilting leaves. Initial symptoms only occurred on shoots, but later, leaves of the whole tree turned yellow and wilted, causing extensive defoliation and dieback and the xylem of the trunk turned brown to black with a star burst-like pattern. Finally, heavy infection resulted in the whole tree dying, causing severe yield losses. A fungus was consistently isolated from basal stems and roots of diseased plants. Single conidia were obtained and cultured on potato dextrose agar (PDA) and incubated at 25 ± 1°C with a 12-h light/dark photoperiod. Mycelium was initially hyaline and then rapidly became dark greenish brown. Two types of endoconidia were produced in 5 days. Barrel-shaped conidia were hyaline, 1-celled, and measured 7.3 to 9.4 × 11.6 to 13.2 μm. Cylindrical conidia were hyaline, 1-celled, and measured 9.2 to 29.6 × 3.1 to 6.8 μm. Aereulocconidia were brownish, thick walled, near globose, and measured 8.7 to 18.1 × 8.2 to 10.7 μm. Parithecium were dark brown to black, globose, measured 30.8 to 149.8 μm in diameter, and had a long thin neck, 254.4 to 533.8 μm long, through which ascospores exuded. Ascospores were small, hyaline, hat shaped, measured 3.7 to 6.5 × 3.1 to 5.7 μm, and accumulated in a sticky matrix at the tip of the ascomal neck. The fungus was identified as Ceratocystis fimbricata (anamorph Chalara sp.) (1). The internal
transcribed spacer (ITS) region of rDNA was amplified with universal primers ITS4/ITS5 and sequenced (GenBank Accession No. HQ529711), and comparisons with GenBank showed 99% similarity with *C. fimbriata* on *Colocasia esculenta* from Brazil (Accession No. AM712448, 1). Pathogenicity tests were conducted. Two-week-old seedlings of pomegranate cv. Qingpiuranzi, germinated in plastic containers in the greenhouse, were wounded with a needle to a depth of 0.5 mm at the base of the stem below the soil level and near the root system, and then inoculated by drenching the wounds with a spore suspension (10^5 conidia per ml). Control plants were inoculated with sterile water. There were four replicates for each treatment. The treated plants were incubated at 25 ± 1°C with 80 to 95% relative humidity under a 12-h light/dark photoperiod in a greenhouse. All inoculated plants wilted within 25 days after inoculation and *C. fimbriata* was reisolated. All control plants remained healthy. To our knowledge, this is the first finding of pomegranate wilt caused by *C. fimbriata* in Sichuan Province. This pathogen may pose a serious threat to pomegranate production in Sichuan where it is a major fruit tree. This pathogen has been previously reported in India (3) and Yunnan Province, China (2), but is not known elsewhere.