Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Sclerotinia Blight Caused by *Sclerotinia sclerotiorum* on *Pinellia ternata* in China

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Pinellia ternata is a perennial herb that belongs to the Araceae family. The tuber of the *P. ternata* plant contains active ingredients such as alkaloids and pinellia starch and can be used as a Chinese medicine for antineoplastic and anti-inflammatory disorders in humans (Marki et al. 1987). In April 2019, lesions with rotting were observed during the flowering phase on spathes of *P. ternata* in a field in Qianjiang City (30.50°N, 112.92°E), Hubei Province, which is one of the main production areas of *P. ternata* in China. Approximately 10% of *P. ternata* plants were symptomatic. The initial symptoms of infection were reddish-brown lesions, followed by the appearance of white cottony mycelia. Subsequently, lesions became gray-brown and rotted, with white mycelium that eventually formed on the lesions after 2 to 3 days. In the later phases, spathes were completely rotted, and mycelia began to spread to the stems, until the plant wilted and died. Ten spathes at the initial stage of infection were collected in Zhugentan Town, Qianjiang City, disinfested with 0.5% sodium hypochlorite for 1 min and 75% alcohol for 20 s, washed with sterile distilled water three times, dried, and

placed on Petri plates with potato dextrose agar (PDA) and incubated at 22°C for 2 days. Six fungal isolates were obtained and purified by hyphal tip isolation in fresh culture, respectively. Culture medium was covered with white hyphae after 3 to 4 days of incubation, and dark-gray, rough, irregular sclerotia (1.5 to 5.5 mm in length × 1.0 to 3.5 mm in width) formed on the margins of the medium, followed by the melanization as the culture aged. Eventually, black sclerotia were formed and wrapped by white hyphae. All isolates were preliminarily identified as *Sclerotinia sclerotiorum* (Lazarovits et al. 2000). To further identify the pathogens, molecular identification was performed with one of the six isolates (BXH1). Polymerase chain reaction was performed with primers ITS1/ITS4 for the internal transcribed spacer (ITS) region (White et al. 1990) and primers SSasprF/SSasprR for the aspartyl protease gene (Abd-Elmagid et al. 2013). BLAST search analysis revealed that the 456-bp ITS sequence (GenBank MT436756.1) was ≥99% similar to *S. sclerotiorum* (MT177216.1, MN105884.1, MG931017.1, etc.), and the 173-bp aspartyl protease gene sequence (GenBank MT584031.1) was too (MK028159.1, MK028161.1, AF271387.1, etc.). Pathogenicity tests were carried out by inoculating disease-free, surface-disinfested spathes of thirty 30-day-old *P. ternata* plants in plastic pots with a sterilized mixture of peat moss and vermiculite (3:1). Five mycelial plugs (6 mm) were excised from the margin of a colony cultured for 5 days. The plugs were placed on five spathes covered with wet sterile cotton at 22 ± 1°C and 80% relative humidity with a 12-h photoperiod. Five control plants were inoculated with noncolonized PDA plugs. Lesions formed on the second day, and then rot and white hyphae began to appear on the third day, whereas the controls had no symptoms. Similar results were obtained in three repeated experiments with *S. sclerotiorum* being reisolated from all diseased plants, in accordance with Koch's postulates. This disease is an emerging problem in *P. ternata* fields in Qianjiang, leading to extensive yield reduction and significant economic losses. To our knowledge, this is the first report of Sclerotinia blight on *P. ternata* in China.

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