Disease Note

Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Southern Blight, Caused by *Athelia rolfsii* (syn. *Sclerotium rolfsii*) on Hellebores in North America

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Lenten rose (*Helleborus hybridus*) is an herbaceous perennial grown in landscapes and valued for early spring flowers and high levels of deer resistance. An additional benefit as a landscape plant comes from the high level of disease resistance, with only three fungal pathogens reported in North America. In August 2021, a Lenten rose plant within a mature landscape in Silver Spring, MD, U.S.A. (latitude 39.116629, longitude 77.043198) was found with a collapsed canopy and brown stems near the soil line. Small clusters of brown sclerotia-like objects were seen along the stem. Samples of the sclerotia and diseased tissue were dipped in 70% ethanol for 15 s, transferred to 5% NaClO for 30 s, immersed in sterile water for 1 min, then plated onto potato dextrose agar (PDA). Sclerotia-like objects germinated and white mycelia covered the plates within 5 days of germination. Hyphae emerged from diseased tissue within 2 days and also grew rapidly. Cultures from sclerotia-like objects and diseased tissue produced white sclerotia which melanized to brown spherical sclerotia ranging in size from 2 to 4 mm. Culture samples (1 cm²) were excised from the culture plates and transferred to the base of three 2-year old potted hellebore plants. Control plants had blocks of PDA placed at the base of the plants. Plants were placed in plastic bags for

2 days to maintain humidity, then maintained at room temperature without plastic bags. Petioles turned brown and collapsed within 7 days of inoculation. White, fan-like hyphae were present along with maturing sclerotia. Samples from surface-sterilized tissue and sclerotia produced the same culture morphology as the originally isolated cultures. Noninoculated plants remained healthy, and the pathogen was not isolated from noninoculated plants. Individual DNA samples were prepared from original cultures and the reisolated cultures. Molecular identification was performed by amplification of the internal ribosomal RNA (rRNA) transcribed spacer region (ITS1/4) (White et al. 1990), the large subunit rRNA (LSU), and the elongation factor-1A (EF1a). Amplification products were cloned into TOPO-TA pcr4 vector and sequenced (Macrogen USA). Sequences were submitted to GenBank for ITS1/4 (OK172559) and LSU (OK172560). Homology to ITS1/4 was found with *Athelia rolfsii* (MN622806) (syn. *Sclerotium rolfsii* Sacc.), to LSU with *A. rolfsii* (MT225781), and for EF1a with *A. rolfsii* (MW322687). This is the first report of *A. rolfsii* on hellebores in North America (Farr and Rossman 2021). This report is unique in that few pathogens are known to infect hellebores (Taylor et al. 2011) and Southern blight is not commonly isolated in landscape plantings at Maryland latitudes.

References:

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