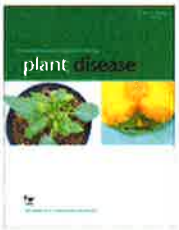

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DISEASE NOTES

First Report of Carrot Root Rot Caused by *Rhexocercosporidium carotae* in the United States

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In March 2015, black irregularly shaped lesions up to 30 mm in diameter were observed on carrot roots that were placed in cold storage for 6 months in Wadhams, Essex County, New York. Disease incidence was ~5% and up to 30% of the tissue was affected on some roots. The crop was grown on Occum alluvial soil and no symptoms were observed at harvest. Small tissue pieces were excised from the edge of lesions and placed on 2% water agar (WA) in petri dishes and incubated at 20°C for 7 days in the dark, then transferred to V8 agar. Conidia (n = 30) had five (occasionally three to four) septa and were (34.6-) 39.7 (-46.3) × (4.8-) 6.0 (-8.1) µm in size. Conidia were cylindrical and straight, but with an undulating outline, slightly wider at the apex and often obconic, with a slightly protruding truncate scar. Conidial morphology was similar to the description of *Rhexocercosporidium carotae* (syn. *Acrothecium carotae*, syn. *Pseudocercosporidium*): Arsvol, 1965, De Hoog & van Ooerschot 1985, Braun 1994 (Shoemaker et al. 2002). Mean colony diameter of six isolates (BA1 to BA6) on V8 agar ranged from 17.2 to 24.2 mm after incubation at 20°C for 14 days in the dark. Growth rate and colony morphology were similar to *R. carotae* (Reeleder 2007). Standard primers were used to amplify the sequences for the internal transcribed spacer (ITS) gene and the sequences were deposited in GenBank (accession nos. KX192401 to 6). All isolates had sequences identical to *R. carotae* isolates CBS 418.65 and DAOM 226960 (from carrot in Quebec, Canada) but showed only 97% similarity to *R. panacis*, which has also been reported to infect carrot (Punja et al. 2013). Pathogenicity tests using three isolates (BA1, BA4, and BA6) were conducted using carrot roots that were rinsed with sterile distilled water and blotted dry. A 2-mm deep wound was made with a pin at two locations on each root to simulate minor damage incurred at harvest. A 5-mm diameter plug from the edge of a colony on V8 agar was placed (mycelia side down) over the wound. Noninoculated roots were also wounded, and noncolonized V8 agar plugs were placed over the wound. Roots were placed in a sealed box suspended by wire mesh over moist paper towel and maintained at 20°C in the dark. Five replicate carrots were included for each treatment and isolate, and the entire experiment was

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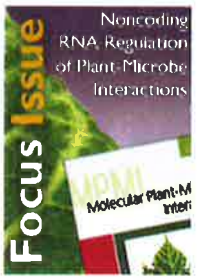
repeated. After 24 days, the width, height, and depth (cutting transversely) of each lesion was recorded. All inoculated carrots formed dark gray to black lesions with fungal growth. Lesions and fungal growth were not observed on noninoculated roots. Mean lesion length, width, and depth for inoculated roots (across experiments) varied between isolates from 11.7 to 22.0 mm, 13.1 to 19.5 mm, and 1.5 to 3.1 mm, respectively. Colonies similar to *R. carotae* were reisolated from inoculated carrots. The disease has been reported in Europe (Kastelein et al. 2007) and Quebec, Canada (Shoemaker et al. 2002). To the best of our knowledge, this is the first report of *R. carotae* in the United States. However, Shoemaker et al. (2002) noted the symptoms closely resemble an undescribed brown side rot on carrot from New York reported by Rader (1952).



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