

Disease Note

First Report of *Globisporangium* (*Pythium*) *mastophorum* Causing Damping-Off/Root Rot on Parsley in Slovenia

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Pythium-like species cause damping-off symptoms of various hosts, including umbelliferous crops. In April 2023, parsley plantlets (*Petroselinum crispum*), showing stunted growth, yellowing, decayed roots, and damping off, were obtained from a nursery in central Slovenia, where parsley was grown in polystyrene trays in a greenhouse. Nearly 30% of plants were symptomatic. Sampled roots of 10 plants contained ornamented oogonia (average $33.3 \pm 1.4 \mu\text{m}$ in diameter) with conical projections ($5.2 \pm 0.5 \mu\text{m}$ long) in microscopically analyzed squash mounts. The pathogen was isolated from root pieces treated for surface disinfection with 0.5% sodium hypochlorite for 30 s and washed with sterile water. Four 1- to 2-mm root pieces were taken from each of 10 plants, plated on the selective medium P5ARP, and incubated at 21°C. Mycelia emerging from root pieces were transferred to carrot piece agar (CPA). Twenty-two morphologically similar oomycetous colonies were obtained; all sampled plants were infected. Oogonia formed by all colonies were similar to those observed on decayed roots, suggesting that *Globisporangium* (*Pythium*) *mastophorum* is the causal disease agent. Analyses of partial β -tubulin (Kroon et al. 2004) and mitochondrial cytochrome c oxidase I (COI) gene sequences (Robideau et al. 2011) confirmed the identification. The obtained COI (GenBank accession no. OR725417) sequence was 100% identical to that of the *G. mastophorum* strain CBS 375.72 (EU350523), and the β -tubulin sequence (OR725416) corresponded to 99.6% pairwise identity (KJ595502). Furthermore, pathogenicity of an obtained isolate was tested on 4-week-old curly leaf parsley (cv. Petra F1). Half of a 7-day-old CPA culture, consisting of mycelium and oogonia, was finely cut and mixed with approximately 50 ml of a nonsterile commercial substrate (Potgrond H, AGRO-FertiCrop) in each of six 400-ml pots. Pots were filled with approximately 300 ml of the additional substrate, in which five parsley seedlings were planted. Control plants were treated equally but with sterile CPA. Plantlets were watered with sterile tap water and kept at ambient light conditions and temperature (18°C at night and 23°C in the day). After 14 days, inoculated plants started wilting and showed yellowing and stunted growth. After 21 days, roots were severely decayed and the seedlings damped off. Four pieces each from 10 decayed roots were

plated. Thirty-one pieces revealed pythium-like colonies. Obtained isolates were morphologically identical to the strain used for inoculation and identified as *G. mastophorum*. The control plants developed no foliar or root symptoms, and no pythium-like species was obtained. Agricultural advisors observed occurrence of parsley damping-off also in other nurseries in Slovenia, which may lead to spreading of the pathogen to parsley in production fields and private gardens. The case emphasizes the need for implementing phytosanitary measures to eliminate primary inoculum. Reports from field-infected plants showed that *G. mastophorum* is a pathogen of parsley in Australia (Petkowski et al. 2013) and the United States (Tsuchida et al. 2018) and celery in the Czech Republic (Šafránková and Holková 2017). Others isolated *G. mastophorum* from parsley in The Netherlands (online database of the Westerdijk Fungal Biodiversity Institute, strain CBS 243.86). However, the here described case is, to the best of our knowledge, one of the rare documentations of damping-off due to *G. mastophorum* in Europe (Šafránková and Holková 2017) and the first in Slovenia.

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