



First Report of *Sclerotium cepivorum* causing white rot of garlic in Hungary

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Allium species are traditionally important export products of Hungary. In June 2008, premature yellowing and wilting of foliage were observed in a 32 ha commercial garlic field (*Allium sativum* cv. Arno) within the biggest *Allium*-producing region of Hungary, 200 km southeast of Budapest. The underground parts of affected plants were covered with a white mycelial mat producing black spherical sclerotia with diameter up to 0.5 mm (Fig. 1). Roots and bulbs were rotten and the rot had spread onto the lower part of leaves. Similar symptoms were recorded in the adjacent onion field (*Allium cepa* cv. Glacier). Finally, the infected plants died. A microscopic examination revealed that sclerotia consisted of a central medulla and a blackish, smooth outer rind (Fig. 2). To isolate the causal agent, several single sclerotia were placed onto potato dextrose agar (PDA) plates and incubated at 20°C in the dark. Isolates developed white mycelia and dark sclerotia similar to those observed on naturally infected plants (Fig. 3). In older cultures spermatia-like phialospores (Crowe, 2008) were produced, but sexual structures were absent. The pathological and morphological characteristics suggested that the fungus was *Sclerotium cepivorum* (Mordue, 1976), the causal agent of white rot of *Allium* species. One isolate from garlic was deposited in the PPIHAS Mycology Collection (WDCM824) under the accession number H-292. The rDNA ITS sequence (GenBank Accession No. FJ460433) of this isolate showed 99-100% sequence similarity to GenBank accessions of *S. cepivorum*. The pathogenicity of isolate H-292 was tested by placing five mycelial PDA discs (one cm diameter) with mature sclerotia one cm below three cloves of garlic potted in sterile soil. The treatment was repeated three times. Controls received non-inoculated agar discs. Incubation was carried out in a laboratory at room temperature. Within three weeks the emerged plants in infected soil exhibited severe root and bulb rot and died, whereas

control plants remained healthy. *S. cepivorum* was re-isolated from the infected plants.

S. cepivorum is recorded from several countries in Europe, and also from Africa, Asia, Australia and Oceania, as well as North and South America (CMI, 1990). The pathogen can survive in soil and plant residues for years, which is an important consideration for disease management. White rot of garlic and onion was reported to be absent in Hungary (Glits, 1993). This report is the first to prove the occurrence of *S. cepivorum* in this country and is of phytosanitary and economic importance, since the garlic and onion produced in the region where the disease was observed are of premium quality and are a speciality of Hungary.

Acknowledgements

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Figure 1

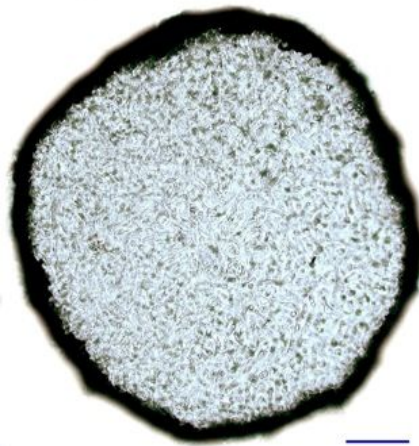


Figure 2

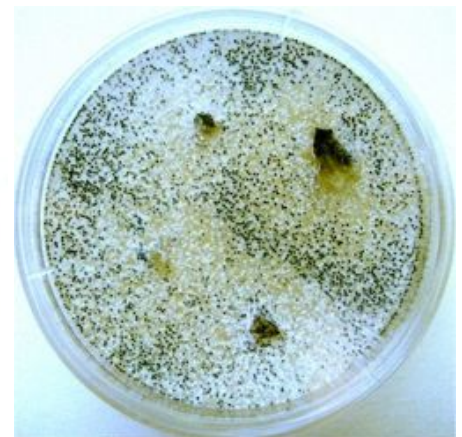


Figure 3

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