

# Old and emerging causal agents of mushroom green mould disease

László KREDICS<sup>1</sup>, Irina S. DRUZHININA<sup>2</sup>, Csaba VÁGVÖLGYI<sup>1</sup>, Lóránt HATVANI<sup>1</sup>

<sup>1</sup>University of Szeged, Faculty of Science and Informatics, Department of Microbiology, Közép fasor 52, H-6726 Szeged, Hungary, (e-mail: kredics@bio.u-szeged.hu)

<sup>2</sup>Institute of Chemical Engineering, Division of Gene Technology and Applied Biochemistry, Gumpendorfer strasse 1a, A-1060, Vienna, Austria

## Abstract

The most severe problems in the world-wide production of cultivated white button mushroom (*Agaricus bisporus*) and oyster mushroom (*Pleurotus ostreatus*) are attributed to green mould. Pathogenic moulds compete efficiently for space and nutrients, produce extracellular enzymes, toxic secondary metabolites and volatile organic compounds, leading to drastic crop losses. The causal agent of the disease of *A. bisporus* is known as *Trichoderma aggressivum*, while the pathogens of *P. ostreatus* have been described as *T. pleuroti* and *T. pleuroticola*. However, according to our findings in Croatia the green mould disease of *A. bisporus* is caused exclusively by *T. harzianum* and it also results in severe losses in the cultivation of *P. ostreatus*, together with *T. pleuroticola*. *T. pleuroticola* is specialized to *P. ostreatus* mostly, it can rarely be isolated from environmental samples, while *T. aggressivum* appears in association with *A. bisporus* only. In contrast, *T. pleuroticola* seems to be a cosmopolitan species, which can be found at various natural habitats, and as a mushroom pathogen it is a generalist appearing also in the cultivation of *A. bisporus* and *Lentinula edodes* (shiitake). Furthermore, as *T. harzianum* is a wide-spread soil inhabiting fungus our finding suggests that it might represent a serious threat to mushroom production.

Key words: *Agaricus bisporus*, *Pleurotus ostreatus*, green mould

## Acknowledgement

The work was supported by grants K-116475 (National Research, Development and innovation Office) and 90ou3 (Austria-Hungary Action Fund).

s2016\_a0113