# ABSTRACTS

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**K. MÁRIALIGETI and O. DOBAY**

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## TEMPERATURE-, PH- AND WATER ACTIVITY DEPENDENCE OF *PHOTORHABDUS LUMINESCENS* STRAINS AND THEIR *IN VITRO* INHIBITORY EFFECT TO TRICHODERMA SPECIES CAUSING MUSHROOM GREEN MOULD DISEASE

PÉTER KÖRMÖCZI[1], HENRIETTA ALLAGA[1], RÓBERT KORMÁNYOS[2], GERGŐ KORMÁNYOS[2], CSABA VÁGVÖLGYI[1] and LÁSZLÓ KREDICS[1]

[1]Department of Microbiology, Faculty of Science and Informatics, University of Szeged, Szeged, Hungary; [2]College for Gifted Students, Bolyai Secondary Grammar School, Zenta, Serbia

*Agaricus bisporus, Lentinula edodes* and *Pleurotus ostratus* are the three most abundant cultivated mushrooms in the world. Their production is getting increasingly affected by green mould infections causing great crop losses. The fungi responsible for the green mould disease of *Pleurotus* have been described as *Trichoderma pleurotum* and *T. pleuroticola*. *T. aggressivum* is the main causative agent of *Agaricus* green mould disease, while *T. pleuroticola* was reported from infected Shiitake mushroom. As the application of chemical compounds against *Trichoderma* species in mushroom production is not allowed or very limited, there is an increasing need for biological control agent. *Photorhabdus luminescens* strains can be promising candidates for this purpose. The aim of our study was to determine the *in vitro* inhibitory effect of 2 *P. luminescens* (SZMC 22400, SZMC 22401) and 2 *P. luminescens* subsp. *kayaii* (SZMC 22402, SZMC 22403) strains against four *Trichoderma* strains causing mushroom green mould disease (*T. aggressivum* f. *aggressivum*, *T. aggressivum* f. *europaeum*, *T. pleuroti* and *T. pleuroticola*). We used an image analysis based method for the quantification of the inhibitory effect which is a simple method to compare the activities of different strains. After this image analysis we defined the Antibiosis Index (AbI) values of the *Photorhabdus* isolates in comparison with the growth of control Trichoderma strains. All of the tested *P. luminescens* strains were sustantially inhibiting the growth of the green mould strains, with *P. limunescens* subsp. *kayaii* SZMC 22403 showing the highest inhibition of all tested *Trichoderma* strains. We also examined the temperature-, pH- and water activity dependence of *P. luminescens* strains on microtiter plates. In the case of *P. luminescens* SZMC 22400 and SZMC 22401 the optimum temperature value were 25 °C and 20 °C, respectively, they proved to be higher (30 °C) in the case of the two *P. luminescens* subsp. *kayaii* strains. All of the tested *P. luminescens* strains showed an increased growth at pH values between 5 and 8 while none of them were able to grow under the water activity value of 0.980. The knowledge about the temperature-, pH- and water activity-dependence of *P. luminescens* strains and about their inhibitory effects against *Trichoderma* species is very important when planning the development of an appropriate control method against *Trichoderma* green mould in mushroom production.

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## WIDENING SPECTRUM OF FILAMENTOUS FUNGI CAUSING MYCOTIC KERATITIS

LÁSZLÓ KREDICS[1], MÓNIKA HOMA[1], NIKOLETT BARANYI[1], COIMBATORE SUBRAMANIAN SHOBANA[2], YENDREMBAN RANDHIR BABU SINGH[3], RAJARAMAN REVATHI[4], ANITA RAGHAVAN[4], SÁNDOR KOCSUBÉ[1], LÁSZLÓ GALGÓCZY[1], BALÁZS LEITGEB [5], VENKATAPATHY NARENDRAN[4], TAMÁS PAPP[1], JÁNOS VARGA[1], CSABA VÁGVÖLGYI[1] and PALANISAMY MANIKANDAN[6]

[1]Department of Microbiology, Faculty of Science and Informatics, University of Szeged, Szeged, Hungary; [2]Department of Microbiology, PSG College of Arts and Science; [3]Department of Microbiology, Dr. G.R. Damodaran College of Science; [4]Department of Cornea and Refractive Services, Aravind Eye Hospital and Post-Graduate Institute of Ophthalmology, Coimbatore, India; [5]Institute of Biophysics, Biological Research Centre, Hungarian Academy of Sciences, Szeged, Hungary; [6]Department of Microbiology, Aravind Eye Hospital and Postgraduate Institute of Ophthalmology, Coimbatore, India

Mycotic keratitis is known as a serious suppurative, usually ulcerative disease among eye infections, which may cause blindness or reduced vision. We studied the fungal spectrum of keratitis based on the data recorded in the 10-years-period of 2005-2014 at the Aravind Eye Hospital and Postgraduate Institute of Ophthalmology, Coimbatore, Tamilnadu, South India. Fungal isolates were collected from corneal scrapings of mycotic keratitis patients. Species-level identification of the isolates was performed by morphological examination followed by nucleotide sequence-based confirmation. *Fusarium* proved to be the genus most frequently occurring in the corneal samples. Members of five *Fusarium* species complexes could be detected. The *Fusarium solani* species complex (FSSC) was predominant, followed by the species complexes *Fusarium dimerum* (FDSC), *Fusarium fujikuroi* (FFSC), *Fusarium oxysporum* (FOSC) and *Fusarium incarnatum-equiseti* (FIESC). The sexual fungus *Neocosmospora vasinfecta* from FOSC and *Fusarium napiforme* from FFSC were firstly detected from keratitis. The genus *Aspergillus* was the second most frequent taxon with *Aspergillus flavus* as the predominant species, followed by *Aspergillus fumigatus* and *Aspergillus terreus*. *Aspergillus amstelodami* from section Aspergillus, *A. melleus* from section Circumdati, *Aspergillus tamarii*, *A. pseudotamarii* and *A. nomius* from section Flavi, *A. lentulus* from section Fumigati, *A. variecolor* and *A. sydowii* from section Nidulantes as well as *A. brasiliensis, A. tubingensis, A. welwitschiae* and *A. neoniger* from section Nigri of the genus *Aspergillus* were firstly recognized as causative agents of mycotic keratitis.

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## TEMPORAL AND SPATIAL FLUCTUATIONS OF PLANKTONIC BACTERIAL COMMUNITY STRUCTURES OF LAKE HÉVÍZ REVEALED BY DGGE

GERGELY KRETT, ZSUZSANNA NAGYMÁTÉ, KÁROLY MÁRIALIGETI and ANDREA BORSODI

Department of Microbiology, Faculty of Science, Eötvös Loránd University, Budapest, Hungary

Lake Hévíz is a unique thermal spa located in Hungary. Owing to the thermal springs nourishing the lake, it has a relatively rapid water turnover. In spring 2011 a comprehensive embankment reconstruction was performed to preserve the water supply of the surrounding wetland habitats. The aim of the present study was to gain information about the temporal and spatial changes of planktonic bacterial communities using denaturing gradient gel electrophoresis (DGGE) method together with the changes in the physical and chemical parameters of the water of Lake Hévíz with special respect on the effect of the disturbance caused by the embankment reconstruction. Samples were taken in April, July, October 2010 and 2011 from four different locations of the lake. According to the abiotic components, both temporal and minor spatial differences were revealed with the exception of autumn samples. The reconstruction resulted in a short term but dramatic alteration of the total planktonic bacterial and cyanobacterial community structures as revealed by DGGE. In addition greater seasonal than spatial differences of bacterial communities were also