

11<sup>th</sup>

**INTERNATIONAL**  
Medicinal Mushroom  
Conference **IMMC11**

SUPPORTED BY



МИНИСТАРСТВО ПРОСВЕТЕ,  
НАУКЕ И ТЕХНОЛОШКОГ РАЗВОЈА

SEPTEMBER } CROWN PLAZA  
27<sup>th</sup>-30<sup>th</sup> 2022 } Belgrade, Serbia

**ELECTRONIC**  
**ABSTRACT BOOK**

13:05-13:25

• Sébastien Sinaeve / Belgium

Nephroprotective effect of a methanolic extract of two *Ganoderma* species and its association in an in vitro model of cisplatin induced tubulotoxicity

13:25-15:00

Lunch break / Poster Viewings / Exhibition

15:00

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17:00

## SESSION 8

CONFERENCE HALL 1 / Pacific

Industrialization of medicinal mushrooms products (including management, marketing, laws and regulations, standardization, ecotourism and mushroom hunting);

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Chairpersons: Dr. Jasmina Glamočlija, Peter Petros

15:00-15:20

• Prof. Elena Savino / Italy

Selection of wood decay fungal strains with medicinal properties useful for development of myco-materials

15:20-15:50

• Hana Vašatko / Austria • Prof. Milena Stavrić / Austria

Mycelium-based composites in the architectural scale

15:50-16:10

• Peter Petros / Finland

Validation of Large-scale forest-fungi inoculation and Chaga cultivation network in the Nordics: A circular bioeconomic strategy for sustainable forest management

16:10-16:40

• Dr. Gabriele Beltrame et al. / Finland

Effect of sea buckthorn press cake on the cultivation of *Inonotus obliquus mycekium* and its polysaccharides

16:40-17:00

• Amazing Grace Heath Products

Natural Phellinus Mushroom - New Visions of a Modern Elixir of Life

17:00-17:30

Coffee break

CONFERENCE HALL 1 / Pacific

CONFERENCE HALL 2 / Atlantic

17:30-19:00

SHORT ORAL PRESENTATION  
session NO 5 & 6

-

12 present. x 5 min – 60 min  
+ 30 min discussion - 90 min

Chairpersons: Prof. Mirjana Stajić,  
Dr. Ewa Zapora

SHORT ORAL PRESENTATION  
session NO 7

-

10 present. x 5 min – 50 min  
+ 40 min discussion - 90 min

Chairpersons: Prof. Milena Pantić,  
Dr. Marina De Bonis

## SESSION 08

### LECTURE 01 SELECTION OF WOOD DECAY FUNGAL STRAINS WITH MEDICINAL PROPERTIES USEFUL FOR DEVELOPMENT OF MYCO-MATERIALS

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Recently researchers are focusing their attention on the potential of wood decay fungi (WDF) as a source for biotechnological and industrial applications. Chemical composition, mycelial texture, ease of cultivation, and lack of sporification make these organisms particularly suitable for developing myco-materials. In the Myco-Advanced leather materials (MATER) project different strains of wood decay fungi (many of them considered medicinal mushrooms too) were isolated using 2% malt extract agar (MEA) medium enriched with hydrogen peroxide and maintained at 4 °C and -80 °C. The identification of the strains was confirmed by molecular analysis of the ITS region. Based on growth rate, colour, homogeneity, consistency of the mycelium, at first 21 strains were chosen to be chemically characterised through scanning electron microscopy (SEM) and thermogravimetric analysis (TGA).

Three strains were selected in consideration of their different cell wall chemical composition (high content of  $\alpha$ -glucans,  $\beta$ -glucans or chitin) to evaluate how these differences could influence the mechanical and chemical characteristics of myco-materials. The fungal strains were cultivated in liquid submerged dynamic fermentation (both flasks and bioreactor). Later on, chitin and glucans were crosslinked with acetic acid and plasticized with glycerol in order to obtain flexible sheets. *Abortiporus biennis*, *Fomitopsis iberica* and *Stereum hirsutum* strains resulted to be adapted to produce material with adequate flexibility. Thermogravimetric analysis (TGA) allowed us to evaluate the principal chemical components, providing a semi-quantitative indication on material composition. The material obtained from each species was mechanically tested in terms of tear strength, elongation at break, and Young's modulus. Taking all the results into account, there was evidence of a correlation between chitin content and material mechanical response.

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LECTURE  
**01** **SELECTION OF WOOD DECAY FUNGAL STRAINS  
WITH MEDICINAL PROPERTIES USEFUL  
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In conclusion, a new typology of sustainable and 100% pure fungal-based raw materials have been produced from different wood decay fungi with officinal properties too. Further chemical and physical steps are needed in order to improve these materials for practical applications.

The in-depth analysis of fungal strains knowledge is an essential groundwork for any further study on this topic. Future interdisciplinary researches can give a real opportunity to significantly improve myco-materials.

**Keywords:** myco-materials; fungal strains; medicinal mushrooms; thermogravimetric analysis (TGA); electron microscopy (SEM)

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