THE 9th INTERNATIONAL MEDICINAL MUSHROOMS CONFERENCE

BOOK OF ABSTRACTS

edited by Maria Letizia Gargano & Giuseppe Venturella

University of Palermo
Department of Agricultural, Food and Forest Sciences

References

[1] - C. Shapiro and A. Recht (2001), N Engl J Med **344**, 1997-2008.
[2] - P.J. Mills et al. (2005), Biol Psychol **69(1)**, 85-96.
[3] - T. Ferguson et al. (2007), Cochrane Database Syst Rev (4):CD004421.
[4] - H. Lin et al. (2004), Int Immunopharmacol **4(1)**, 91-9.
[5] - Jung K et al. (2004), J Ethnopharmacol **93(1)**, 75-81.
[6] - G. Mao et al. (2014), Carbohydr Polym **101**, 213-9.
[7] - X. Jin et al. (2012), Cochrane Database Syst Rev (6): CD007731.
[8] - J.C. Rebellio et al. (2014), Nutr J **13**, 49.
[9] - S. Akamatsu et al. (2004), Biol Pharm Bull **27(12)**, 1957-1960.

EP_10 Cultivation of medical mushrooms to develop an international green supply chain between Italy and France: the FINNOVER project

S. Di Piazza[1], G. Damonte[2], G. Cecchi[1], M. Beruto[3], M. Zotti[1]

[1]Laboratory of mycology, DISTAV - University of Genoa, C.so Europa 26, I-16132 Genova (Italy); [2]CEBR - University of Genoa, Viale Benedetto XV, 9 I-16132 Genova (Italy); [3] Regional Institute for Floriculture (IRF), Via Carducci 12, 18038 Sanremo Imperia (Italy)
Email: simone.dipiazza@unige.it

FINNOVER is a European project funded by ALCOTRA programme started in 2017. The project is coordinated by the Regional Institute for Floriculture (IRF) in Sanremo (Province of Imperia north-west Italy) and involves several partners from France and Italy. The project aims at encouraging and developing new green supply chains, based on circular economy fundaments, to revamp the stagnant economy due to crisis of small and medium floricultural enterprises (SME) in Cote d'Azur and Riviera Ligure. In the last years, these SMEs in order to continue to exploit their greenhouses and facilities cultivated niche products or, in other cases, covered their greenhouses with solar panels thus limiting the cultivation of many horticultural products.

In this context FINNOVER aims at boosting the business restoring a consistent portion of floricultural facilities, mainly greenhouses which were abandoned or underutilised, through the production of innovative natural nutraceutical, pharmaceutical, phyto-pharmaceutical, and bio-stimulant products derived from fungi and vegetal buds.

The project consists of 4 main tasks (1-governance, 2-communication, 3-technical production and process for green economy, 4-start up of new green supply chain). Task 3 is devoted to develop a new line of natural products from fungi and vegetal buds.

Concerning fungal production, three different species were selected: *Pleurotus ostreatus, Lentinula edodes, Cyclocybe agerita and Auricularia* spp.

Firstly, these fungi will be experimentally cultivated on several substrates prepared using the green wastes produced during agricultural activity. Then the fruit bodies grown on the different substrates will be analysed in order to evaluate the difference in their composition and to find the presence of natural substances exploitable for natural nutraceutical, pharmaceutical, and phyto-pharmaceutical products.

The analysis will be carried out by means of HPLC-DAD and HPLC-MS in order to characterize fungal extracts composition.

Later, the fungi will be cultivated in the greenhouses of each business involved in the project, following the protocol set up during the trials in order to start up new green supply chains also with respect of circular economy fundaments.

The FINNOVER project represents the first attempt to develop an effective and sustainable production chain focused on the exploitation of fungi.

EP_11 Transformation as a tool to modify morphological and physiological properties of the mushroom *Coprinopsis cinerea*

B. Dörnte[1], W. Khonsuntia [1], N. Javaid[1], Ł. Istel[1], K. Lakkireddy[1], A. Kamran[1], E. Owis[1], U. Kües[1*]

Molecular Wood Biotechnology and Technical Mycology, University of Goettingen, Germany
*Email: ukuees@gwdg.de

The inkcap *Coprinopsis cinerea* produces abundant unicellular uninucleate oidia in the aerial mycelium which are used in protoplast transformation [1]. Upon DNA incubation on ice and PEG-treatment, protoplasted oidia regenerate well and give rise to hundreds of transformation per µg DNA, making *C. cinerea* to a champion fungus in efficiency of transformation. Transformation makes use of auxotrophic selection markers such as in the tryptophan biosynthesis pathway or in vitamin production [2,3]. DNA integration is ectopic at multiple sites into the genome. This efficiently allows co-transformations of one or more vectors with genes of interest simultaneously together with vectors harbouring a selection marker. Co-transformation rates of two plasmids occur usually at frequencies of 25-30%. We use co-transformation to introduce genes for various regulatory functions of growth and development into the fungus and genes for overproduction of enzymes of interest in biotechnological applications.