



ADVANCES IN WILD AND CULTIVATED PLANTS

Plants and Fungi, as Sustainable Food and Source of Health Benefits

International Meeting

“in-person and virtual”

October 21st - 22nd, 2022

Corleone (Palermo), Italy

BOOK OF ABSTRACTS



*Editors: Francesco M. Raimondo,
Rosaria Acquaviva, Giuseppe A. Malfa
Technical Editing: Giuseppe A. Malfa*

TECHNIQUES OF PREPARATION OF MUSHROOM EXTRACTS

FORTUNATO CIRLINCIONE¹, MARIA LETIZIA GARGANO²

¹*Department of Agricultural, Food and Forest Sciences, University of Palermo, Viale delle Scienze, Bldg.5, 90128 Palermo, Italy.*

²*Department of Soil, Plant, and Food Sciences, University of Bari, Via G. Amendola, 165/A, 70126 Bari, Italy. E-mail: marialetizia.gargano@uniba.it*

Most of culinary-medicinal mushrooms contains high amount of bioactive compounds such as vitamins, minerals, proteins, polysaccharides, polyphenols, and other nutrients that are important for human health. Mushrooms of medicinal interest are known to have a high polysaccharide content. Before performing polysaccharide extraction, a collection of the mushroom in the wild, isolation in the laboratory on Petri plates, and subsequent cultivation on solid substrate or in liquid culture is required. The collected mushrooms can be dehydrated or lyophilized to completely remove humidity and powdered before starting the extraction process that can be performed by applying low- or high-temperature methods.

Regarding hot extraction, Soxhlet extraction and microwave assisted extraction are the commonest. Soxhlet extraction needs solvents of increasing polarity, high temperature, and the process is long and hard to perform. Microwave assisted extraction is also a potential effective method of hot extraction because heating causes water to evaporate in the target cells and the generated pressure cause cells rupture. Compared with the Soxhlet the amount of solvent used greatly reduced, and the preparation time is shortened.

Freezing extraction and ultrasound assisted extraction are two common cold extraction methodologies. In the former, polysaccharide extraction is carried out by freezing (72 hours) and subsequent thawing of the sample placed in distilled water, while in the latter, cell rupture is carried out by using an ultrasonic probe (30 minutes).

An appropriate choice must be made because each extraction method has its own specific characteristics (yield, quality, chemical structure, and biological activities).