



The Fungiology Difference

- Full-Spectrum Mushrooms = Full-Bioactivity
(Mycelium, Primordia, Fruiting Bodies & Extracellular Compounds)
- Certified Organic • Cultivated and Packaged in the USA • 100% Non-GMO • Suitable for Vegans
- Mushrooms are verified by DNA Sequencing by: The National Institute of Health - NCBI GenBank

The Gold Standard in Mycology

Full-Spectrum (containing: Mycelium, Primordia, Fruiting Bodies & Extracellular Compounds)

'Full-Spectrum' Mushrooms (FSMs) are the complete mushroom material consisting of all the biologically active components, such as Mycelium, Primordia, Fruiting Bodies and most importantly, the Extracellular Compounds (ECCs). ECCs are produced throughout the entire life cycle of the organism. It is these Extracellular Compounds which are excreted outside of the cell and into the surrounding environment. ECCs are responsible for mushrooms' main health-supportive properties, and contain 'Survival Compounds', thus giving Fungi an evolutionary advantage over bacteria and microbes in their highly competitive biospheres.

Unfortunately, it is just these Extracellular compounds that are removed during most extraction processes; whereas, the ECC content is maintained by the Full-Spectrum Mushroom process.

For this reason, Full-Spectrum Mushrooms are now considered by mycologists to be the most superior and efficacious form – the true “Gold Standard”!

Myth #1: Hot Water Extracts [HWEs] are “more potent” than Full-Spectrum Mushrooms.

Fact: The hot water extraction process may eliminate a number of beneficial bioactive compounds. It is true that mushroom extracts (e.g., Hot Water and/or Alcohol [Ethanol]-based extracts) are useful when one is trying to concentrate or isolate specific bioactive compounds, such as Polysaccharides, Beta-Glucans, Triterpenes, Lentinan, PSK & PSP. Naturally, the hot water extraction process can only capture water-soluble compounds; however, by and large, the most biologically active compounds are the lipids, glyconutrients and large-molecule, immune-active heteropolysaccharides, all of which are insoluble in hot water.

Myth #2: Due to the chitin-bearing cell wall, active compounds can only be made bioavailable by using a hot water extraction process.

Fact: The concept that the active compounds in mushrooms are not bioavailable due to the presence of chitin in the cell wall is simply not true, and comes primarily from mushroom manufacturers seeking to promote Hot Water Extracts sourced from overseas.

For a comparison, let's look at how the human body utilizes nutrients from plants:

The cell walls of plants are made from cellulose (plant fiber) which is indigestible by humans. However, the cell wall does not form an impermeable barrier (which would make the cellular contents/phytonutrients of plants unavailable to the body). In fact, the cell wall contains millions of tiny pores, as well as structural lipid and phospholipid compounds, which are digestible. Human digestive enzymes enter into the cell through these pores, and the interior contents/phytonutrients exit the cell through the very same pores. So, the cellulose in the cell wall has no effect on the bioavailability of the nutrients from the plant, even though the cell wall of plants is indigestible, as is the chitin found in mushrooms.

What about Fungal Cells?

Compared with plant cells, fungal cells are far more permeable. Fungi have no vascular system; therefore, every single biological process in the fungal cell must pass through the cell wall in order to function.



How do Fungi assimilate nutrients from their food sources?

Digestive enzymes are excreted through the cell wall in order to digest food at site, since fungi lack any type of mouth. In addition, transport molecules are excreted through the cell wall to move nutrients into the cell. Also, various anti-bacterial/anti-microbial compounds are excreted through the cell wall to keep pathogenic microbes away from their food source. Simply put, everything in the fungal kingdom passes through the cell wall. So, there is no scientific validity to the claim that the presence of chitin in the structural makeup of the fungal cell wall renders it unavailable to human digestion. More than 95% of all biologically active compounds produced in the fungal kingdom are excreted out of the cell (extracellular). They do not remain inside the cell. These are the 'Extracellular Metabolites', the most biologically active components of mushrooms.

Myth #3: All scientific research is conducted on Mushroom Hot Water Extracts.

Fact: This is simply not accurate and is primarily marketing hype. Research has been conducted on Whole Mushrooms, Mushroom Mycelium, Mushroom Fruiting Body Extracts (e.g., Hot Water & Alcohol/Ethanol-based) etc. In short, extensive research has shown that mushrooms have health-promoting properties and contain beneficial compounds. It is our studied opinion that FSMs are the most bioactive & complete form of mushrooms available.

Myth #4: Mushrooms grown on wood logs are far superior to other growing media.

Fungiculture is a complex discipline with a variety of medicinal, agricultural and industrial applications involving the cultivation of mushrooms and other fungi.

While many types of mushrooms can be grown on wood logs, this type of production leaves the mushrooms vulnerable to contamination, both natural and man-made – such as insects, heavy metals and herbicides. Also, because the growing conditions can be unpredictable (with variations in climate, light cycles, air quality, etc.), there is little control of the uniformity and quality of the final material.

Generally, indoor growing results in a consistent final product due to the tightly controlled growing conditions, while excluding contaminants and pests. Thanks to special cultivation methods, including custom-made growing spaces, highly specific growth substrates, as well as very specific growth parameters (precise climate controls, light cycle and air quality), indoor growing allows for maximizing the production of targeted medicinal compounds.

Common Question: Isn't it true that the quality of grain-grown mushrooms is not as good as wild-grown or log-grown mushrooms?

Answer: In addition to the very important Beta-Glucans, there are a number of biologically active compounds in mushrooms, such as Triterpenes, Sterols and Statins. The concentration of the phytonutrients in mushrooms is dependent on several factors: the stage in their life cycle when harvested, their growing medium, and the specialized fungiculture techniques that are applied.

In the case of Fungiology, we only use mushrooms that are harvested when the mycelium has converted 95% of the substrate, and after the fruiting bodies have emerged. The result is a Full-Spectrum whole mushroom powder that incorporates Mycelium, Primordia, Fruiting Bodies and Extracellular Compounds. And thus, it contains the full complement of important phytonutrients which have been shown to offer broad-based support for healthy immune function.

Historical Perspective

Mushrooms have been collected from nature and used since ancient times. Woody, inedible fruiting bodies were collected in the wild. Then what was done with them? The "old school" method involved boiling them in water to extract water-soluble bioactive compounds contained in the woody mass, and then drinking the broth/tea. This may have been the best method in the past, but modern science has brought us high-tech laboratory cultivation. Therefore, it is no longer necessary to use this primitive method, as today's FSMs are far more bioactive and far more affordable for daily use.

NOTE:

We believe that our U.S. Cultivated & Processed Full-Spectrum Mushrooms are among the most well-balanced, complete mushroom products available. While we are not in the business of comparing our products to those of our competitors, we ARE in the business of producing and supplying premium quality products to our customers at the best possible value.

In our opinion, eating culinary mushrooms and/or consuming Full-Spectrum Mushrooms or Fruit Body Extracts is a great way to supplement your healthy daily diet.

We greatly value and appreciate our customers, and respect each individual's decision to purchase and consume the mushroom product of his/her choice.

Best in health!
Team Fungiology