

SURTHRIVAL

Why SurThrival uses a Dual Extraction of Wild and Organically-Grown Medicinal Mushroom Fruit Bodies By Daniel Vitalis



Greetings,

My name is Daniel Vitalis, and I am the formulator of SurThrival's 'Immortality Quest' Medicinal Mushroom formulas, which we produce using a Dual Extraction process. This process utilizes Organic grape or Organic grain ethanol, and Spring Water to extract the most important physiologically active components of our wild-crafted and/or log grown mushroom fruiting-bodies.

In light of the rising popularity of 'mycelial bio-mass' products and single extraction alcohol tinctures, we are often asked why we produce our formulas in the way that we do. It is our hope that the following article will shed some light on the reasons why we use a Dual Extraction process in the creation of our formulas, as well as why we have chosen to work with mushroom fruiting-bodies rather than what is known as 'mycelial bio-mass'.

We believe that after reading the following pages you may come to feel as we do, that a dual extraction on mushroom fruiting-bodies is the most effective way to prepare a medicinal mushroom formula.

Why we use mushroom fruit bodies

When most of us think of a mushroom, we envision what is known as a fungal "fruiting-body", that classic saucer shaped cap that sits atop a slender stem. In actuality, this is only a portion of the fungus itself, its sexual organ, which is roughly akin to the fruit of a plant. The root-like body of the fungus that gives rise to the fruiting-body is known as the "mycelia", and it lives under the ground, leaf litter, or in whatever other "substrate" the fungus might be decomposing. This mycelia is composed of many bundles of filamentous, thread-like "hyphae" which together make up the organism itself.

Fungi reproduce by spore dispersal, and these spores are released from the fungi's fruiting-body, which we often refer to as a "mushroom". Mushrooms typically grow up and out of the mycelia breaking the surface of the substrate, much like a periscope comes up and out of a submarine to break the surface of the water, in order to spread their spore into, throughout, and beyond their surrounding environment.

For the last several thousand years, human use of

medicinal mushrooms has focused primarily on the fruiting-bodies, as these are, and have always been, the most accessible portion of Fungi when harvested from natural, wild environments. In more recent history, more specifically the last couple of decades, the technology to artificially breed and grow mycelia and fruit-bodies in sterile laboratory-like settings has been developed. Mushrooms cultivated in this way are typically grown on a sterilized growing media like wood shavings or rice, and it is from this "substrate" that mycelial biomass is harvested.

Mycelial Bio-mass products are harvested from the mycelia infused artificial substrates. They do not contain fruit-bodies, but rather are composed of the hyphal filament networks along with the remaining substrate. While this novel idea certainly has many important applications, we have chosen to rely on the time-tested use of fungal fruit-bodies for several reasons. Some of those reasons are as follows:

- **Nearly all of the research studies available on medicinal mushrooms have been conducted using "crude extracts" from the fruiting-bodies. This does not dismiss the idea that mycelial bio-mass products may have beneficial biological effects, but rather that this newer technology does not have the historical or scientific underpinnings that the more traditional methods do.**

- **The taste of mycelial biomass products tends to be very mild, often with an almost cereal-like flavor. We suspect that this is likely due to the presence of rice or other grain based substrates used for cultivation of the biomass. In this way, the consumer of these products is likely purchasing and ingesting the rice and/or other substrate growth media along with the mycelial biomass.**

- **The flavor of both beta-glucans and terpenes, from which we trace the medicinal action of these fungi, are somewhat bitter in flavor. This bitter flavor is indicative of the concentration of biologically active constituents, and therefore a good gauge of the potency of a medicinal mushroom formula. Mycelial biomass products that lack these strong bitter flavors are likely very low in these active constituents.**

Why we use a dual extraction

For thousands of years, medicinal mushrooms like Reishi and Chaga have been harvested from wild

landscapes in both the East and the West. Once harvested, mushrooms of this kind were boiled in water to extract their medicinal components. The “tea” that is produced by boiling herbs like these in water is known as a “decoction”. This folk-method of extraction was thought to yield a superior immune system tonic, beliefs that have now been borne out by modern scientific studies.

In the last few centuries, the ability to create crude alcohol extracts has become more widely available (as distillation became a developed and accessible science) and this has led to the appearance of what are today known as tinctures, or “alcohol extracts”. Because the chemistry of alcohol differs from that of water, alcohol has the ability to extract components of medicinal fungi that are not extracted well in hot water. This yields a different “fraction” of the mushroom, and this folk-method of extraction was thought to yield a superior adaptogen and liver-protective tincture. As is often the case, these folk methods have been confirmed by modern science.

When modern day science began experimenting with medicinal mushrooms to test their potential efficacy, research was conducted using these same folk-methods, i.e. hot water and alcohol extraction. These are sometimes referred to as “crude extracts” which simply means they are extracts that contain a full spectrum of substances, as opposed to lab isolated molecules. In testing these crude extracts, what was discovered was fascinating. These two distinctly different extraction methods produced two very different medicinal fractions, and therefore two very different physiological effects.

It was learned that the hot-water method of extraction was best for concentrating the exotic long-chained sugars known as beta-glucans, as well as other medicinally active polysaccharides. Because these polysaccharides have a profound effect on the immune system, it was quickly understood that hot water extraction was critical to making an immuno-modulating formula.

You may be wondering what “immuno-modulating” refers to. Modulation, as it is used here, refers to a “bi-directional mode of action”, or the ability of medicinal mushrooms polysaccharides to bring balance to both excessively active immune systems (as in auto-immune issues) as well as weak or sluggish immune systems (as in immuno-deficiency issues).

In other words, regardless of the current state of a person’s immune system, medicinal mushrooms can be used to help restore optimal balance and healthy function.

Hot water extraction is the preferred method for extracting beta-glucans for immuno-modulating mushroom formulas because these polysaccharides are not soluble in alcohol (as in a tincture), nor are they well absorbed by simply eating the mushroom material (as in a capsule). This is because every cell of a mushroom (and this is true of fungi as a kingdom) has a tough cell-wall made of chitin (pronounced “kite-in”), the very same substance that insects and crustaceans utilize in the construction of their exoskeletons. In this way, we could imagine fungal cells having an exoskeleton that makes accessing the valuable beta-glucans inside extremely difficult. Hot water helps to break this chitinous cell-wall down, dissolving the beta-glucans into itself. The tea (or “decoction”) that results is rich in the immune-modulating beta-glucans.

Additional scientific inquiry has turned up another powerful class of molecules within the fruiting bodies of medicinal mushrooms as well, and these are known as “terpenes”. It is these terpenes that are responsible for the adaptogenic effects that medicinal mushrooms are becoming increasingly more known for.

Incidentally, an adaptogen is an ingredient or substance that assists the body in adapting to stress (physical, psychological, emotional, social, etc) and promotes general healthy well-being. In order to be considered an adaptogen, an herb or substance must meet three important requirements. These are:

- **The substance must be nontoxic to the user, at least in any reasonable amount that might be consumed.**
- **The substance must generate a nonspecific response, meaning that it does not target a specific region of the body, but rather benefits the body and its systems as a whole.**
- **The substance must help to support a state of balance or normalization in the patient, restoring the natural homeostasis of his or her body.**

Though medicinal fungi are well known adaptogens, the fraction responsible for this action, namely the terpenes, are poorly soluble in water, which

means that they are not effectively extracted utilizing the same technique (hot water extraction) that is used to extract beta-glucans.

Because of this property, known as “hydro-phobia”, a different method must be employed in order to effectively extract and concentrate these terpenes. Ethanol (drinking alcohol) has been used to make extractions of herbs for many centuries. Alcohol is an ideal extraction media because it is a biologically-friendly solvent. Extractions made with ethanol are known as “tinctures”.

As we can see, there are two fractions of medicinal mushrooms that have an important biological role in human physiology. One fraction is hot water soluble and the other is ethanol soluble. Both are extremely beneficial, though for different reasons, and both are essential in a well-rounded medicinal mushroom formula. Thus, a “dual extract” is one in which both a hot water extraction and an alcohol extraction are performed separately, and the resulting concentrations are then brought together to produce a combination formula that contains both important fractions. While this procedure is both time consuming and more complex, we at SurThrival make all of our medicinal mushroom formulas in this way because we feel it produces the most powerful product possible, and we believe that this is what our clients deserve.

At SurThrival, we have taken time tested and scientifically proven methods of medicinal mushroom extraction and upgraded them using the finest organic and wildcrafted ingredients. From our choice of fruit-bodies, to our extraction in spring water and the finest organic alcohols, we strive to set a new standard for medicinal fungi formulas. We always bottle our formulas in violet Miron glass to protect them from light-degradation ensuring maximum shelf life. SurThrival strives to create the finest products available to today’s educated and discerning customer.

Thank You for taking the time to read this article. We wish you abundant health and prosperity for a lifetime! 🍄🍄

Sincerely,

~Daniel Vitalis and the SurThrival Team