

Medicinal Mushrooms

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Spring is high-time for mushrooms. Several mushrooms are esteemed for their disease fighting compounds, notably, shitake, maitake, oyster, reishi, cordyceps, agaricus, lion's mane, basidiomycetes and turkey tail mushrooms. An important fact however, is not all edible mushrooms (e.g. white mushrooms) have medicinal value and some medicinal mushrooms are not for eating (e.g., Reishi). In addition, medicinal mushrooms are defined by their unique molecular architecture and its pharmacognosy constituents such as polysaccharides, glycoproteins, ergosterols, and triterpenes.

Although frequently mistaken as vegetables, mushrooms are actually fungi, so they possess unique molecular nutrient profiles that are taking center stage in the "Broadway of medicinal foods". In the "science theatre", these fungi are performing powerful biological mechanisms—see mushroom chart below (e.g. antitumor, antimicrobial, cholesterol lowering, blood pressure lowering, increased oxygen absorption in the lungs and immune-balancing and enhancing properties).

For example, a clinical trial funded by the NIH (National Institute of Health in Bethesda MD) is studying the anti-tumor effect of turkey tail mushrooms on hundreds of people with breast cancer. Turkey tail mushrooms contain aromatase inhibitors, which are associated with the decline in the growth rate of tumors, breast cancer in particular. Of course, the theorem is that we all have cancer cells in our body, so it's a matter of whether our immune system can scavenge the disease cells away or not. So even if we're not currently diagnosed with cancer, it makes preventative sense for us to fortify the milieu of our blood with aromatase inhibitors so these constituents can mitigate the effect of cancer cells from growing into a tumor.

Although shiitake mushrooms are cherished for their taste, these delightful culinary fungi are producing some powerful health promoting effects. Studies reveal anti-tumor, antimicrobial and immune enhancing effects in some human studies but most of studies are in rats. Likewise in other rodent studies, shiitake mushrooms showed cholesterol lowering as well as anti-inflammatory qualities. The close fungi relative of Shiitake, Maitake mushrooms, is showing immune stimulating qualities to help immune cells fight cancer and help lower blood pressure compared to control groups.

Another NIH study underway is looking at oyster mushrooms in hopes of mitigating the negative effects of protease inhibitors, which are anti-viral agents used in the treatment of AIDS patients. The problem with protease inhibitors is that the drug frequently interferes with the liver's ability to clear triglycerides (fancy word for fat) from the blood and typically causes hyperlipidemia (another fancy word for a lot of fat and cholesterol floating in the blood). Oyster mushrooms contain a natural isomer of Lovastatin®, which is an FDA-approved drug for lowering cholesterol. However unlike Lovastatin® which can cause further liver toxicity, oyster mushrooms may just prove to have a more gentle effect on lowering cholesterol without liver toxicity. To upstage Lovastatin® even

more, oyster mushrooms also contain glycoproteins which may serve as anti-viral agents. Why not kill two birds with one mushroom?

Isolated compounds of Reishi mushrooms (available in teas or nutraceuticals) known as triterpenes have shown promise in human studies by increasing oxygen absorption in their lungs, which could serve as an adjuvant therapy for chronic lung conditions or for the aging endurance athlete. Like shitake and maitake, reishi mushroom's polysaccharides, alpha and beta glucans, are showing anti-tumor and immune enhancing effects. Furthermore, reishi's triterpenes are frequently found in many longevity herbs.

Although, researchers are just beginning to explore a handful of the hundreds of mushrooms species with medicinal benefits, it's an exciting piece of pharmacognosy knowledge for those of us who want to use fungi to prevent immune dysfunction and other health problems. For more information on the medicinal properties of mushrooms visit www.healthtransformations.com or email Diana@healthtransformations.com.

Mushroom chart

<i>Mushroom</i>	<i>Medicinal constituent(s)</i>	<i>Pharmacognosy</i>
<i>Agaricus</i> (<i>Agaricus brasiliensis</i>)		
<i>Basidiomycetes</i>	<i>Alpha and beta-glucans and GI-saccharide</i>	<i>Immune balancing</i>
<i>Cordyceps</i> (<i>Cordyceps sinensis</i>)	<i>Cordyceptic acids</i>	<i>Effective energy tonic</i>
<i>Lion's Mane</i>		
<i>Maitake</i> (<i>Grifola frondosa</i>)	<i>D-fraction</i>	<i>1. Anti-tumor and immune boosting</i>
<i>Oyster</i> (<i>Pleurotus ostreatus</i>)	<i>1. Natural isomer of Lovastatin</i> <i>2. Glycoproteins</i>	<i>1. Lowers LDL-cholesterol</i> <i>2. Anti-viral</i>
<i>Reishi</i> (<i>Ganoderma lucidum</i>)	<i>Triterpenes</i>	<i>Increases oxygen absorption in lungs</i>
<i>Shitake</i> (<i>Lentinula edodes</i>)	<i>1. Lentinan and lentinula edodes mycelium</i> <i>2. Eritadenine</i>	<i>2. Anti-tumor, anti-microbial and immune boosting</i> <i>3. Lowers LDL-cholesterol</i>
<i>Turkey tail</i> (<i>Trametes versicolor</i>)	<i>Aromatase inhibitors</i>	<i>Inhibits tumor growth, particular breast cancer</i>