Mushroom Power Supreme

An Expanded Profile

Mushrooms are an amazing life form that is neither plant nor animal, but in a whole other category called fungi. That might come as a surprise to some, that mushrooms are not plants; for one thing, they do not contain chlorophyll, as green plants do, since the growth of mushrooms is tied into their own special soil chemistry. There are many thousands of species of mushrooms, and many of them have been used for thousands of years, particularly in China and Japan, both as food and as medicine. They can be harvested directly in nature or cultivated in various ways. Well-known edible mushrooms are the button/crimini/portobello, boletus, chanterelle, oyster, puffball, and shiitake. We have all seen mushrooms popping up out of the ground almost overnight, usually after rains, hence the phrase, "to pop up like a mushroom." What is not commonly known is that the mushroom we are so familiar with—the short-lived stem and cap "fruiting body"—is only a part of the story of the complete mushroom life cycle; this part of the mushroom is but the reproductive stage. Most of the mushroom's body thrives invisibly beneath the ground, within the soil. And it is this body, rarely seen by us, that produces its own wealth of nutrients and medicinal compounds. We need to take a closer look then at the complete mushroom life form to get the full story and a better understanding of why the mushroom has always had its own traditional allure and value.

The greater part of the mushroom as a complete life form grows far more extensively than the ephemeral, collectable stem and cap phase. Within the soil (or, for many species, the wood of trees), as mushroom spores break open, mushrooms are first but tiny, microscopic filaments called *hyphae*. These go to form mat-like networks called *mycelium*, which can extend in the soil far beyond the visible mushroom we find above ground. Soils are virtually permeated by a jungle of mycelia. These multiplying networks are the growth stage of the mushroom, and can spread, for example, throughout a forest, biochemically interacting in crucial ways with all the forest's plants and trees. In fact, they can spread to hundreds, or even thousands, of acres. Sometimes we can see their extremely fine thread, often cottony, mats in exposed soil, or around trees or fallen trunks. Mycelium are in constant living interaction with their environment; mycologist Paul Stamets has called them Nature's Internet, as they exhibit their own, unusual form of biological intelligence. They are very sensitive, registering all manner of soil activities and soil changes. They can migrate by growing out in new directions in response to heat, cold, fire, or flood. Even our own footsteps in a woodland or forest has subtle impact on them. They are an unseen substratum of the biosphere, playing a key, if still underappreciated, role in any regional biohabitat, as they are essential to soil ecology. Soils would lose their potent life force, if it were not for the living networks of mushroom mycelia. This is because mycelium create and recycle nutrients, thereby enriching and energizing the soil for other plants and trees. Mycelia are what make mushrooms truly a surprising and highly important life form.

Mushrooms that are decomposers and "eat" dead plants and trees (and animal remains) are called saprophytic. Without mushroom mycelium, ground would literally pile up with dead plant matter and the dead wood of fallen trees. Mycelium decompose by exuding potent extracellular compounds—types of acids and enzymes, which in themselves are highly nutritional—that break down complex dead plant matter—including wood—into simpler, nutrient components. In other words, mushrooms acquire their nutrients by first exuding their "digestive" compounds outside their

mycelial cells, into the soil or wood, in contrast to animals that digest their food inside the body. These compounds are also anti-bacterial, anti-viral, and anti-fungal, ensuring the mycelium's own survival in a highly competitive microbial environment. All of the nutrient rich compounds in this process, those first which have been released into the soil and go to work decomposing, including then the broken down compound products that result, help to make soil, rich humus, to the benefit of all the local habitat's living plants and trees. Mycelium also then absorb these decomposed components for their own growth. They can therefore be considered nutrient generators, and nutrient recyclers.

This ability of mushroom mycelium to break down complex materials so that they can be recycled as nutrients back into the soil has brought them importance in land remediation. In the contemporary world, pollutants and toxins of various kinds, including oil and radiation, are contaminating soils everywhere. This is where mushrooms can come to the rescue, as Paul Stamets explores in his book *Mycelium Running*. Mycoremediation is the use of mushroom mycelia to break down and remove these environmental toxins. They have therefore opened up many viable possibilities for cleaning, restoring, and revitalizing land.

At the tiny nodules of mycelia networks, under the right conditions, will form what are called *primordia*. Contained in the individual primordium, also called a "pinhead," a mere dot in size, is the nascent, first visible sign of what will grow into the mushroom form we all know—the stem and cap. Once the mushroom's fruiting body breaks through the soil, it can fully mature in a matter of days. It is this fruiting, reproductive, stage whose gills, found under the cap, will then produce fine, dust-like spores that can be spread far and wide by weather and by animals. Other mushrooms, called polypores, have pores or tubes, instead of gills, under their cap that release spores. Most of these polypore mushrooms feed on tree trunks and branches, or dead wood. Mushroom spores are encased in a very hard material called chiton, which is the same substance found in the exoskeleton of insects. The spores, thereby, can withstand environmental extremes, and can remain dormant for long periods of time, numbering even years, before the right environmental conditions trigger them to open and colonize, often in new areas, once again starting out as microscopic hyphae.

The mushroom life cycle is a whole, largely invisible, process, creating, absorbing, and integrating nutrients, resulting in important health tonic benefits for us. And every part of the mushroom life cycle, we find, has nutrient and medicinal value. Clinical research and studies worldwide over decades have confirmed what traditional wisdom and medicinal practice have always known about mushrooms. And mushrooms can be specifically cultivated for these benefits.

For ages, mushrooms have been a staple in Chinese medicine; in more recent times, scientific studies have shown the wide range of their tonic, adaptogenic abilities. Above all, mushrooms have always been renowned for their immune enhancing properties, stimulating and then modulating our immune system toward an optimal state. This includes increasing antibodies, the immunoglobulins that are produced by B cells. Mushrooms, therefore, boast anti-viral, anti-bacterial, anti-tumor, and anti-inflammatory properties. They are a natural defense system in fortifying the body, thus revered also for their traditional longevity uses. Mushrooms are able to do this by imparting to us their own immune making defenses; in particular, their mycelium have evolved potent biochemical compounds to overcome harmful bacteria, viruses, and other fungi, in their environment. This ability of mycelium to survive, and to expand and thrive, results in numerous benefits to us.

Medicinal mushrooms build stamina and boost the body's chi. They assist with glucose metabolism and the managing of cholesterol reduction. Mushrooms help with cold and flu recovery, stress relief, allergic responses, hypertension, diabetes, and support the proper modulation of blood pressure, blood sugar, and the body's oxygen utilization. They offer circulatory support, which then helps with memory, and have antioxidant and detoxifying properties—liver and kidney studies show their ability to correct toxic overload in the body. They provide endocrine support, and aid in the formation of different kinds of pathogen killer cells, which are again important in cell-mediated immunity. They are infection fighters, and more recently have been used extensively in cancer treatment. Because of the wide range of their benefits, mushrooms can justly be considered health multipliers.

The nutrient, health-promoting compounds found in mushrooms include beneficial complex carbohydrates (polysaccharides), amino acids, proteins, glycoproteins (when carbohydrates bond with proteins), alpha- and beta-glucans, B vitamins, precursor vitamin D2 (ergosterol), and a notable range of minerals. Their biochemical profile works in synergy with vitamin C. They also provide antioxidants, digestive enzymes, and are high in fiber. Different mushrooms will also contain important compounds of their own, that enhance health and promote healing in specific ways. The mushrooms found in **Mushroom Power Supreme** have been specially selected for these distinctive properties. These mushrooms are also non-candida forming, and, in fact, help keep it in check.

Mushrooms are strong in beneficial polysaccharides. The "poly" in polysaccharides means that many simple sugars are linked together, which includes many types of glucose in different configurations, making them complex carbohydrates; also included are simple "healing" sugars, such as mannose and galactose. Many of the polysaccharides found in mushrooms are also found in goji berries and many other health-enhancing fruits and plants, such as astragalus, echinacea, and Siberian eleuthero. Polysaccharides help the body, first, in absorbing beneficial, simple sugars, like those mentioned above. They also have various medicinal benefits, foremost of all in activating and modulating the immune system; they are therefore called "biological response modifiers," boosting natural pathogen killer T and B cells, and macrophages. Mushroom polysaccharides also inhibit cancerous cells and tumor growth. In addition, they serve a prebiotic function in the gut, encouraging beneficial bifidus and lactobacillus bacterial strains, while discouraging harmful clostridium and staphylococcus strains. Because they are complex carbohydrates, able to release steady energy over time, polysaccharides are fatigue fighters. In mushrooms, we find both free (not bound to proteins or lipids) and protein-bound (glycoprotein) polysaccharides, both of which are building blocks of cell walls. We also find both beneficial alpha- and beta-glucan polysaccharides.

When polysaccharides bond with proteins, they make glycoproteins, which make up the major structure of the outer walls of cells; they are also involved in almost all cell processes. Glycoproteins play a key role in the immune response; they are also cell protectors by inhibiting tumor growth and any proliferation of cancerous cells. They also help enhance enzymes, and provide energy reserves in the ATP cycle, thereby help in overcoming fatigue. They help build up resistance to infections. They have anti-viral, anti-fungal, and anti-allergy properties. They help lower blood pressure and reduce elevated blood lipids. They are an important biochemical link for vitamin D.

Alpha-glucans are commonly a type of starch, the storage carbohydrate found in all green plants. Glycogen is a type found in fungi. The difference between alpha- and beta-glucans is one of stereochemistry: how the polysaccharide chain is configured spatially. Both alpha- and beta-glucans are infection fighters and help with immune system support, but it is the beta-glucans that have a much more pronounced health importance in mushrooms.

Beta-glucans form about half of the fungal cell wall. Beta-glucans are first complex carbohydrates which store energy and provide innate immunity. Mushrooms show the best forms of beta-glucans. Beta-glucans have also been called the body's "biological response modifiers," specifically, immunomodulators for the immune system, increasing white blood cells if the system is weak, and decreasing them if the system is overactive. They are infection fighters, activating the immune response by triggering cytokines; these, in turn, trigger killer T-cells, B-cells, and macrophages. They are also adaptogenic, bringing body systems to optimal balance. Because they contain oligosaccharides, they can be classified as a dietary fiber, so are prebiotic food for beneficial intestinal bacteria; they therefore aid in keeping the colon healthy. They help maintain good blood pressure and circulation; they regulate cholesterol; they help with diabetes, and have been used successfully in cancer treatment. They are powerful anti-bacterial, anti-viral, and anti-fungal agents. They are also known as wound helpers.

The ingredients in our **Mushroom Power Supreme** are full spectrum extractions, certified organic. This includes extractions from all five stages of the mushroom life cycle: mycelium, primordia, fruiting body, spores, and the highly important, exuded, extracellular compounds.

The mushrooms we use have originally been collected from their native areas and are cultured in a moist medium, solid substrate method, using organic white sorghum, resulting in a 98-99% yield of the complete mushroom life cycle, including all extracellular compounds. In other words, at each stage of the mushroom life cycle, nutrient compounds are captured. It is the mycelium, however, which produce the greater proportion. This method provides fertile ground for the mycelium mat to exude their important, healing compounds of free polysaccharides, alpha- and beta-glucans, and glycoproteins, into the growth medium, which are then recovered. With this method, it is found that beneficial triterpenes increase, especially in polypores such as reishi and chaga. The process is conducted under optimally controlled conditions of air flow, light, temperature, pressure, oxygen, and moisture. This ensures the highest potency for a more complete healing spectrum. We use only third party certified, non-irradiated, non-GMO, organic ingredients. Our product is produced in the US in a state-of-the-art FDA certified Good Manufacturing Practice (cGMP) facility.

Different methods of mushroom extraction will produce different percentages of yield. Recovered polysaccharides in our solid substrate method show these average percentages:

Total Polysaccharides	68.32%
Free polysaccharides	32.49%
Glycoproteins	11.50%
Alpha-glucans	1.07%
1,3–1,6 Beta-glucans	23.26%

The mushrooms that we have chosen in **Mushroom Power Supreme** not only have nutritional and medicinal properties in common, but each one has been selected for its own distinct, clinically proven, benefits. The following are extended profiles on the ones we use, with an emphasis on cordyceps and reishi:

Cordyceps (sinensis)

Cordyceps mushrooms have been used in Chinese and Tibetan medicine for thousands of years. There are numerous types, all considered parasitic to other organisms, mostly insects. Cordyceps sinensis has been called the "caterpillar mushroom," or "caterpillar fungus," because it is parasitic to moth larvae. Its mycelium invades the caterpillar's body, with its own bulbous fruiting body then growing on the back of the caterpillar's head. When the caterpillar dies, often after climbing high into a tree, the cordyceps' spores are then broadcast into the air, able to be spread at great distances. As a mushroom product, cordyceps has been highly prized, so much so that the great demand for it invariably has made it very expensive. Our Cordyceps sinensis was painstakingly cultivated from the highest quality Tibetan strains, reproducing the same light, temperature, and oxygen levels as that found in its native environment. However, our cordyceps is not animal derived, but cultivated in the solid substrate, white sorghum method already discussed. Biochemical analysis of both our cultivated strains and the native strains show results that are virtually identical.

Cordyceps has always been highly valued for its overall health promoting, adaptogenic benefits. Cordyceps is, first, a very nutritional mushroom, containing vitamins B1, B2, B12, E, and K, with various polysaccharides, 18 amino acids, protein, nucleotides, sterols, saturated and unsaturated fatty acids, and many trace elements. It is an immune system modulator by stimulating underactive cytokines and downgrading inflammatory, overactive cytokines. It activates natural killer T and B cells, and macrophages. It has been used for hyperimmune lupus, arthritis, rheumatoid arthritis, asthma, HIV, cancer treatment, and hepatitis. It improves metabolism, boosts both respiratory and cardiovascular health, and helps slow the aging process, so was long used for longevity. It has also long been used for libido enhancement (stimulating testosterone) in both men and women, and as a restorative for sexual dysfunction. It helps regulate hormone production.

A list of other benefits of Cordyceps includes help with blood sugar regulation, diabetes, high blood pressure, nerve strength, stroke, injuries, dizziness, joint and back pain, lungs, kidneys, adrenal fatigue, chronic fatigue, and ringing in the ears. It is a strong analgesic. It curbs the danger of mycoplasma infections, such as pneumonia. Cordyceps helps increase memory, thereby our ability to learn. It slows anti-tumor activity by inducing cancer cell death, a process called apoptosis, so is a cancer preventative. Because native Cordyceps sinesis thrives in an oxygen-deprived environment, it has evolved to utilize oxygen efficiently. This also protects intracellular mitochondria by helping oxygen move effectively through cells. Cordyceps increases glutathione, an antioxidant, thereby reducing oxidation stress. Because it both increases energy (cellular mitochondria ATP) levels and oxygen uptake for greater endurance, it has commonly been used to enhance athletic performance.

Reishi (Ganoderma lucidum)

Reishi is a tree fungus, used for thousands of years as a longevity and health-promoting tonic. Traditionally, it is considered to bring good health and good fortune. It has always been revered as a vitality enhancer. Because of this renown, it has been called the "Mushroom of Immortality." Reishi is the name used in Japan; in China, it is known as the lingzhi mushroom. Its many varieties show quite a range of color. It is classified as a polypore mushroom, as it releases its spores through tiny underside pores. (Polypore mushrooms are most often wood decomposers.) Reishi has long been researched and studied worldwide, clinically confirming in many studies its hallowed reputation.

Reishi's nutritional components include important polysaccharides, sterols, polypeptides, amino acids, soluble protein, and ergosterol, a vitamin D2 precursor (it converts to vitamin D2 when exposed to light or cooking). Ergosterol actively inhibits blood vessels from nourishing tumors. Reishi also contains alkaloids, triterpenes, albumin, mannitol, saponins, fatty acids, pantothenic acid, adenosine, and enzymes. Adenosine helps with blood platelet clumping; it improves blood circulation, helping red blood cells transport oxygen, and by lowering cholesterol. Reishi's notable germanium content helps with metabolic activity, endurance, and cell utilization.

Reishi has the highest of triterpene levels. Triterpenes are bitter phytochemicals, found also in a variety of plants and resins, such as pine and eucalyptus leaves, that have many health benefits. These include strengthening the digestive system, improving allergy and inflammation conditions, high blood pressure, central nervous system functions, and balancing blood lipid levels. Triterpenes support liver functioning and calm the nervous system. They temper the immune system's response to infections by curbing pathogenic bacteria and viruses. Triterpenes are also hormonal communicators and have anti-tumor properties. Studies have shown their efficacy with wound healing and tissue repair; they are therefore cell builders. They also promote vital energy which is why reishi is a vitality enhancer.

Reishi's numerous benefits include its already noted anti-aging ability of slowing the aging process, its immune enhancing and immune modulation abilities, and its strong body normalizing—adaptogenic—abilities. It can correct what is imbalanced in the body. It is a cancer preventative and neuro-protector; it is known to reduce hypertension, insomnia, nervous system exhaustion, anxiety, and stress. It is good for the lungs (helping to stop coughing, and conditions of asthma and bronchitis), and helps with edema. It aids with digestive problems, including stomach ulcers and leaky gut syndrome. It helps improve skin disorders. It is an anti-inflammatory, anti-histamine, anti-microbial, anti-viral, and an overall protector and fortifier of the body's major organs and systems, including the heart. It benefits those with high blood pressure. It is both a liver and kidney tonic. Reishi detoxifies the body and protects against DNA damage. It can both relax the body and fight fatigue. Its abilities have traditionally been touted as verging on miraculous.

Immune Assist

Immune Assist is a composite formula of cordyceps and reishi (the two prominent mushrooms in it), together with Agaricus blazei, maitake, shiitake, and turkey tail. It contains the most potent, concentrated, clinically tested compounds of these six highly valued mushrooms in addition to beneficial polyphenols from green tea. It has been used worldwide with proven results. The mixed polysaccharides of six select mushrooms make it a truly synergistic formula; the mushrooms work together with nearly exponential results. As its name implies, it above all strengthens and modulates the immune system, giving the immune system a powerful boost. Among its many clinical benefits, it has been used to treat opportunistic infections, cancer, HIV, and various serious illnesses. It has been shown to reduce the effects of radiation and chemotherapy, to lower blood sugar when it is too high, and to improve sleep and appetite. See the individual profiles here on the six featured mushrooms in it for further details.

Agaricus blazei (ABM)

Agaricus blazei is also known as Agaricus blazei murrill, or ABM. It originates in Brazil and is there also known as "Royal Sun Agaricus" and "Mushroom of the Gods." It is now grown in Japan and the southern U.S. It has among the highest protein levels of any mushroom (ranging from 35% up to 48%) with higher carbohydrate content (from 38-45%) than most other mushrooms. Its nutrient profile includes polysaccharides like glucomannan (a recognized dietary fiber), glycoproteins, high beta-glucans, B vitamins, and ergosterol (the vitamin D2 precursor). It is also an activator and enhancer of the immune system. Its clinical uses include cancer prevention, so has anti-tumor properties (one of the benefits of ergosterol); it stimulates the production of anti-cancer cells which go to fight malignant cancerous cells. It is also an anti-viral, anti-bacterial, anti-inflammatory, and anti-allergen. It is a blood sugar modulator, and helps with high blood pressure and high cholesterol. It enhances digestion, and supports the nervous, endocrine, and adrenal systems.

Maitake (Grifola frondosa)

Maitake, also called "Hen of the Woods" and the "Dancing Mushroom," is a polypore, growing in giant clusters, often at the base of dying hardwood trees. It is highly prized in Japan as a delicious food mushroom. Maitake is also high in protein (37%), complex carbohydrates/polysaccharides (60%) which includes fiber (29%). It also contains beta-glucans, vitamins B1, B5, riboflavin, thiamine, vitamin C, and is high in vitamin D, plus a number of minerals. It is an immune system enhancer, stimulating the production of killer T and B cells, and improving macrophage activity. It is helpful with blood sugar regulation, hyperglycemia, diabetes, hemorrhoids, nervous system disorders, hypertension, and polycystic ovary syndrome. Specifically, it normalizes insulin sensitivity to lower high blood pressure in those with blood sugar issues. It has been shown to increase good cholesterol (HDL) and decrease harmful cholesterol (LDL). Maitake provides liver support, so is helpful in fighting cirrhosis and hepatitis; it also supports stomach and spleen. It aids in weight management and is used for obesity treatment. As a cardio-protector, it is used in various kinds of cancer treatment, including breast, prostrate, colorectal, bone, lung, and brain cancers. It has been used to aid in high altitude sickness.

Chaga (Inonotus obliquus)

Chaga is traditionally found in the cold birch woodlands of Russia, Siberia, Northern and Eastern Europe, and northern areas of the US and Canada. It is not your typical looking mushroom at all, but grows on mature birch trees as a dense, black, hard mass of mycelia. It can be harvested by breaking it off the trunk; and it can also regrow. It is another polypore mushroom. In the East, tea is commonly made from it, having a slight vanilla flavor, which is unlike any other mushroom.

Chaga, like reishi, is high in triterpenes (see reishi), including betulin, recognized as a potent anticancer agent. It also contains inositol (boasting numerous health benefits), ergosterol, statins, chitin, and a wide variety of enzymes. It is another strong immunomodulator. It is also used in treating various cancers, including lung, stomach, breast, and cervical cancers. It exhibits the property of apoptosis (initiating cancer cell death). It is also used for ulcers, herpes, psoriasis, gastritis, and to reduce inflammation, with analgesic effect. It also good for circulatory, heart, lung, and digestive issues, and helps increase antibody production. Its high level of phenolic compounds makes it an antioxidant. It also has antibiotic properties. Its statins help to speed wound healing.

Turkey Tail (Trametes, also Coriolus, versicolor)

Turkey tail is one of the most common of temperate woodland mushrooms in the world. It grows on dead and fallen trees, stumps, logs, and branches. It has long been used in China and Japan. 'Versicolor' means of various colors; its shape and striped colors on a multilayered surface suggest a wild turkey's tail. It is also a polypore. It has good protein, amino acids, a very high level of carbohydrates, including complex (77%); it also contains beta-glucans, aspartic, glutamic, and other acids, plus minerals. Polysaccharide-K (PSK) and polysaccharide peptide (PSP) have both been extracted from turkey tail for their medicinal benefits. Its superoxide dismutase and glutathione peroxidase are potent antioxidants.

Turkey tail has long been used against common cold and flu, so is another immune system enhancer. Its PSP is a biological response modulator, enhancing immunological function. Much research has also been done with turkey tail in the treatment of a wide variety of cancers, including breast, cervical, prostrate, lung, liver, skin, stomach, colon, colorectal, sarcomas, lymphoma, and leukemia. Its PSK is recognized as an anti-tumor, cancer cell inhibiter. It has also been used in treatment against HIV. It helps to reduce the frequency of herpes and chronic fatigue syndrome. It also helps liver, spleen, and lung functioning, and is helpful for chronic arthritis and in reducing cramps. PSK also has strong antibiotic properties.

Lion's Mane (Hericium erinaceus)

Lion's mane is native across the Northern Hemisphere. Because of its distinctive appearance, it has acquired several other names, one of which is the pom pom mushroom. It is not a typical stem-and-cap mushroom at all, but is readily identified by its dangling mass of long white spines that grow as a clump on hardwoods. It is from these spines that its spores are released. It is edible, often being used in Chinese vegetarian cuisine; it has a long tradition in Chinese medicine as well.

Lion's mane contains protein, simple and complex carbohydrates, important polysaccharides, including beta-glucans and triterpenes, minerals, notably iron, and ergosterol. Lion's mane has in recent years come to attention for its clinically proven support of the nervous system; it is now the mushroom best known as a neuro-protector. It has been shown, first, to be beneficial for nerve regeneration, as it encourages two kinds of nerve growth factors, which stimulate neurons to rebuild damaged myelin sheath. It is therefore beneficial for multiple sclerosis. It is used for neuropathy and improving cognitive abilities, including memory, so is helpful with Alzheimer's and dementia; and because it boosts mood, it helps with anxiety and depression. It is also an immune system enhancer, and has anti-tumor properties. It was traditionally used in Chinese medicine for gastrointestinal ailments. It is an anti-microbial, anti-hypertensive, and shows an ability to help heal wounds. It also helps with lung issues, ulcers, diabetes, menopause, and muscular dystrophy, and shows strong antioxidant properties.

Shiitake (Lentinula edodes)

Shiitake is the second most popular (after button) culinary mushroom in the world, especially in China and Japan. They are native to East Asia, but are now grown worldwide. It is a classic stem-and-cap mushroom that grows on the decaying wood of hardwood trees.

Shiitake is rich in protein, nucleic acids, complex carbohydrates, beta-glucans, glycoproteins, B vitamins, precursor vitamin D2 (which increases when it is dried in sunlight), and fiber. It also contains all 8 essential amino acids. A notable extract from shiitake is called LEM (Lentinus edodes mycelium), which is rich in polysaccharides and lignans. Lignans are a type of polyphenol, which are also found in flax, pumpkin, and sesame seeds, berries, fruits, vegetables, and whole grains; they are known to have numerous health benefits. LEM has been tested to treat multiple conditions; it shows high anti-tumor and anti-viral activity, and helps to fight infections. Shiitake also contains lentinan, a polysaccharide which boosts immune defense activity. Lentinan also helps heal damage to chromosomes caused by anticancer treatment.

Shiitake is an immune enhancer, stimulating lymphocytes when there are immune deficiencies. It has been used for treating ulcers, herpes, kidney inflammation, obesity, HIV, and for speeding up bone formation. It protects, nourishes, and supports stomach, liver, spleen, adrenals, and lungs. Through apoptosis (see chaga), it fights against cancerous tumors. It benefits the cardiovascular system, lowering high blood pressure and high cholesterol. It also has adaptogenic, anti-histamine/anti-inflammatory, antioxidant, anti-bacterial, and anti-fungal properties. Its high selenium content aids with skin problems, such an acne; its zinc content aids with healing skin. Shiitake boosts energy levels, brain functions, and vitality.

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