

Ethno Health Products

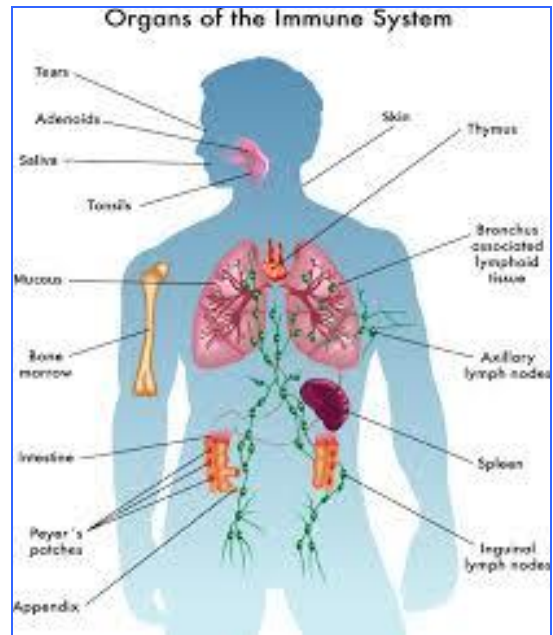
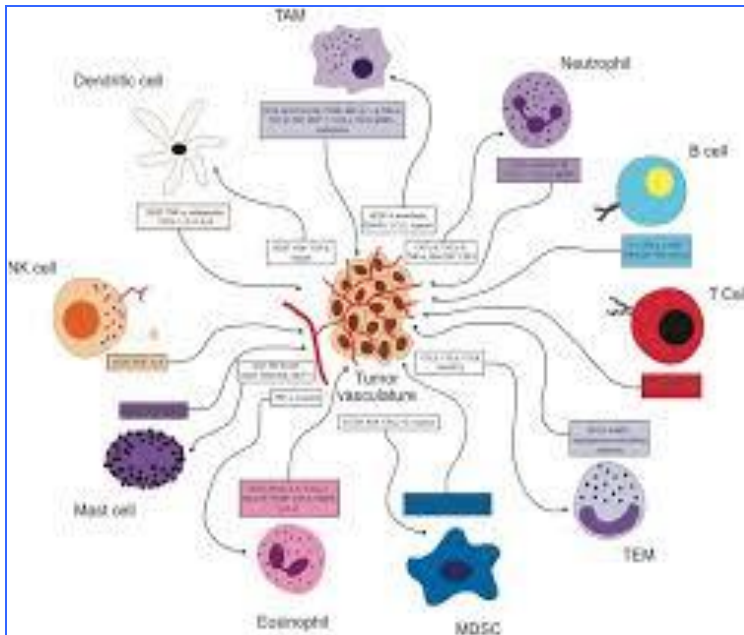
Mushroom Power – Pilzkraft (Fungal Power)*



From Italy, Greece, Asia and North America, ancient people throughout the world regarded mushrooms as “deep reservoirs of powerful medicines”.

Ongoing scientific research includes new methods of testing the activity of mushrooms’ essential nutrients and individual phytochemical compounds, and their beneficial, synergistic effects in the body (Stamets, 2014).

Pilzkraft is a blend of five of the best mushrooms in the world: Reishi, Cordyceps, Shiitake, Maitake and Hericium. These highly valued mushrooms are rich in polysaccharides, a highly beneficial group of phytochemicals (Ethno,2021).



Types of Immune Cells

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Reishi (*Ganoderma lucidum*)



21.4% Reishi (*Ganoderma lucidum*), extract (contains 30% polysaccharides)
21.4 g per 100 g, of which polysaccharides 6.4 g.
Per daily dose of 300 mg Reishi Extract and 90 mg of Polysaccharides.

- *Ganoderma lucidum* uses and beneficial effects are documented in the classical Materia Medica or Shen-nong's Herbal Classics, *Shen Nong Ben Cao Jing*, written in the Eastern Han dynasty of China (25-220 AD), and has continuously been maintained and extended.
- A well-known mushroom with an impressive range of health protective benefits.
- Data supports its anticancer, blood glucose regulating, antioxidant, antibacterial, and antiviral effects, as well as protection against liver and gastric injury.
- A good source of essential minerals: potassium, calcium, phosphorus, magnesium, selenium, silica, sulfur to be their main mineral components, and iron, sodium, zinc, copper, and manganese.
- Contains bioactive molecules: terpenoids, steroids, phenols, nucleotides and their derivatives, glycoproteins, and polysaccharides.
- Polysaccharides are active anti-inflammatory, hypoglycemic, anti-ulcer, antitumorigenic, and immunostimulating compounds.
- Terpenes have demonstrated have anti-inflammatory, antitumorigenic, and hypolipidemic activity.
- The *G. lucidum* mushroom contains all essential amino acids, and is especially high in lysine and leucine.
- Is used for strengthening the immune system and is taken when undergoing conventional therapies for cancer.
- Polysaccharides and triterpenes are major components in *G. lucidum*, and have been shown to exhibit chemopreventive and tumoricidal effects in numerous *in vitro* and *in vivo* human studies.
- Out of fifty-eight basidiomycetes mushrooms, *G. lucidum* proved to be the most effective for destroying cancer cells in various human and rodent tumor cell lines *in vitro*, including leukemia and lung cancer cells.
- Tumor cells were also arrested in breast, liver, bladder, and prostate cancer cell cultures (Wachtel-Galor, 2011).

Caterpillar Mushroom (*Cordyceps sinensis*)



21.4% caterpillar mushroom (*Cordyceps sinensis*) extract 10: 1
21.4 g per 100 g. Per daily dose of 300 mg

- Also known as *Dong Chong Xia Cao* in China, meaning “winter worm summer grass”.
- Widely used in China, Bhutan, Nepal and north east areas of India at 3500-5000 meters above sea level.
- Found in the Tibetan Plateau of Asia and Himalayas and used as a tonic and medicinal food in Traditional Chinese Medicine (TCM).
- Used in China for hundreds of years for “lung invigoration and kidney nourishment”.
- Various studies have shown its beneficial roles as an:
 - Adaptogenic
 - Aphrodisiac
 - Antioxidant
 - Anti-Aging
 - Neuroprotective
 - Nootropic (protects mental functioning)
 - Immunomodulatory
 - Anticancer
 - Hepatoprotective
- Contains potent bio-active principles: nucleosides, exo-polysaccharides, sterols, and proteins.
- Active compounds include: ribonucleosides, mannitol, sterols, organic acids, polysaccharides, proteins, polyamines, amino acids dipeptides
- Also good sources of vitamins E, K, and B1, B2, and B12, along with essential minerals potassium, sodium, calcium, magnesium, iron, copper, manganese, zinc and selenium.
- Many *in vitro* and *in vivo* studies have shown a wide range of biological actions in renal (kidneys), immunologic, hepatic (liver), nervous system, cardiovascular and anti-cancer activity.
- Much research has shown the beneficial effects on blood glucose metabolism as a blood sugar regulating agent, demonstrating anti-diabetes and anti-hyperglycemic actions.
- A clinical study on patients who were hyperglycemic, 95% showed better improvement in blood sugar level measurements taking *Cordyceps* than the 54% who received mainstream medical treatment.
- Anti-inflammatory

- Has been shown to be effective in preventing lung and kidney damage while decreasing blood pressure and urinary protein.
- Shown to be effective for asthma, COPD (Chronic Obstructive Pulmonary Disease), and bronchitis.
- Other studies proved that *Cordyceps* reduces fatigue and boosts endurance in athletes and in older test subjects.
- The historical performance of Chinese track and field women athletes at the Chinese National Games in Beijing in 1993 attracted international attention to the caterpillar fungus, *Cordyceps sinensis* (Shashidhar, 2013).

Hedgehog Goatee (*Hericium erinaceus*)



12.3% Hedgehog goatee (*Hericium erinaceus*) extract (contains 30% polysaccharides)
12.3 g per 100 g

- Also commonly known as lion's mane, the *Hericium erinaceus* mushroom is widely documented as having effects that promote nerve and brain functioning.
- Different compounds such as hericenones and erinacines have been shown to improve cognitive functioning in 50-80 year old Japanese patients, and prevent neurodegenerative conditions, and peripheral neuropathy (weakness, numbness, pain from nerve damage).
- Preclinical studies show promise, suggesting erinacine A can effectively reduce neurodegenerative conditions and be effective for cancer therapy.
- It has also been found that *H. erinaceus* enriched with erinacine A shows promise as an agent for stroke injury.
- Other studies indicate promise for those with Parkinson's and Alzheimer's (Li, et. al., 2018).
- Still other studies demonstrate the mushroom's antimicrobial, immune modulating, anti-hyperglycemic, antioxidant and anti-aging actions (Chaiyasut, et. al., 2017).
- This mushroom has also been shown to be anti-hypercholesterolemic, neuroprotective, and antidepressant.
- Found to help recovery of motor and sensory functions after crush injuries.
- Showed enhanced recognition memory through improved neurotransmission and neurogenesis in the hippocampus and cerebellum areas of the brain, suggesting that the *H. erinaceus* compounds may ameliorate cognitive decline and neurological deficits (Chong, 2020).

Shiitake (*Lentinus edodes*)



12,3% shiitake (*Lentinus edodes*) extract (contains 10% polysaccharides)
12.3 g per 100 g

- Shiitake mushrooms has been shown to contain antitumor properties.
- The phytochemical compound, lentinan, has been shown to regress tumor formation *in vitro* in human colon-carcinoma cell lines injected into mice.
- Significant reduction in tumor size occurred in laboratory mice fed lentinan (Ng, 2002).
- The polysaccharides in *L. edodes* exhibited antioxidant capabilities against reactive oxygen species (ROS), and scavenging hydroxyl and superoxide free radicals, to protect the body from the many health hazards these free radicals pose (Chen, et. al., 2012).
- *L. edodes* contains proven pharmacological properties, and is used for conditions such as depressed immune function, cancer, environmental allergies, fungal infection, flu and colds, bronchial inflammation, heart disease, hyperlipidemia, high blood cholesterol, hypertension, infectious diseases, diabetes, hepatitis, and problems with urinary inconsistencies.
- Well-studied recipes that include the polysaccharide lentinan, lectins and eritadenine, and mycelium.
- Shown to be antibiotic, anti-carcinogenic, antiviral.
- Reviews of shiitake research concluded that “this macrofungus is unquestionable in the most important areas of applied biotechnology.” (Bisen, et. al., 2010).

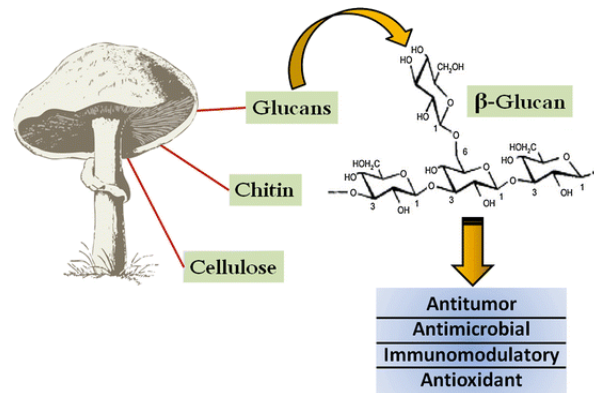
Maitake (*Grifola frondosa*)



12.3% maitake (*Grifola frondosa*) extract (of which 25% polysaccharides)
12.3 g per 100 g

- *G. frondosa*, popular in Japan, is known as hen-of-the-woods, sheep's head and ram's head.
- Maitake has drawn interest due to its anti-inflammatory, antimicrobial, antidiabetic, cardioprotective, hepatoprotective and anticancer properties.
- Mushrooms are known for their properties demonstrating their effect on boosting the immune system's efficiency through enhancing the actions of macrophages, T cells, dendritic cells, natural killer cells, and hematopoietic stem cell functions.
- A rich source of protein, fiber, vitamins (Patel, et.al., 2020).

Polysaccharides



The Mushroom Power Formulation Contains: Total polysaccharides 8.0 g. per daily dose of 112 mg

- The body stores polysaccharides as energy reserves in the form of glycogen or “muscle starch” in tissues and in the liver.
- All polysaccharides can be broken down by the body and by plants back into glucose units as available energy for cellular energy production that fuels all cell functions (Study.com, 2003-2018).
- Polysaccharides that are not water-soluble include plant fibers called celluloses and hemicelluloses, which maintain the structure of plant cell walls.
- In the human digestive tract, polysaccharides help prevent constipation and maintain a healthy ecology in the colon (Edinformatics, 1999) (Lovegrove, et al., 2017) (Scheller, 2010).
- Contain essential fatty acids (hormone precursors, anti-inflammatory) and amino acids (the fundamental molecules used to build all body proteins).
- Contain many antioxidant phytochemical compounds such as phenolics, sterols, terpenes, and others.
 - Phenolics: shown to help lower over all and LDL cholesterol, and to reduce risk of heart disease (Cleveland, 1995-2018)
 - Sterols: play a role in energy production; help maintain normal cholesterol.
 - Terpenes: anti-inflammatory, anti-tumor, neuroprotective.
- Help modulate and improve the immune system:
 - Anti-tumor.
 - Anti-microbial: anti-bacteria, antifungal, anti-parasitic.
 - Anti-viral.
- Help neutralize free radicals: biochemicals the body produces under pain or stress, as well as invading organisms, synthetic chemicals and toxic pollutants.

- Help maintain normal microbiota in the lower intestine.
- Helpful for maintaining normal blood sugar levels that otherwise may lead to obesity, and have been shown to help regulate insulin levels in diabetes.
- Have demonstrated protective effects in radiation-induced adverse effects (Friedman, 2016).

Hydroxypropyl Methylcellulose (HPMC)



- HPMC is used as a vegetable capsule shell.
- Derived from plant cellulose fiber; is not absorbed by the body.
- Has been found to modulate amounts of lipoproteins in cell plasma.
- Promotes changes in liver lipid (fat) levels.
- In the intestine, it acts to increase fat in the feces and the excretion of fats such as the harmful trans fats in fast-food diets.
- Preliminary studies on mice showed reductions in plasma cholesterol, glucose (blood sugar) and insulin levels (Caballero, 2016).

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