

Maitake SAP

Science-based hot-water mushroom extract for optimal health and immune support*

Maitake SAP is a hot water-extracted medicinal mushroom.* Its Latin name is *Grifola frondosa*, but it is also known as “hen of the woods” or “king of mushrooms”.* Maitake is an edible mushroom and has been consumed in Asia for thousands of years.* Maitake is a rich source of antioxidants and exerts multiple health benefits including immune modulation, weight management, cardiovascular health, antimicrobial, and blood glucose management.*

SUPPLEMENT FACTS

Serving Size: 1 Capsule	Servings: 60
Amount Per Serving	% Daily Value
Maitake (<i>Grifola frondosa</i>) 8:1 extract, equivalent to 4 g of dried mushroom, 40% polysaccharides providing 40% β -glucans	400 mg **

**Daily Value not established

Note: Polysaccharide and β -glucan content may vary from lot to lot.

This product is non-GMO and vegan friendly.

Contains no: Gluten, soy, wheat, corn, eggs, dairy, yeast, citrus, preservatives, artificial flavor or color, starch, or sugar.

Maitake SAP contains 60 capsules per bottle.

DIRECTIONS FOR USE

Take 1 capsule daily or as directed by your healthcare practitioner. To avoid digestive upset, take with food / a meal.

INDICATIONS

Maitake SAP:

- Can be used to help with immune modulation to promote health.*
- May help induce ovulation in patients with PCOS.*
- May help support blood glucose management.*
- May help in promoting breast health.*

CAUTIONS AND WARNINGS

Consult a healthcare practitioner prior to use if you suffer from an immune system disorder (e.g. Crohn's disease, myasthenia gravis, multiple sclerosis, rheumatoid arthritis, systemic lupus erythematosus, HIV/AIDS, etc.), if you are taking immunosuppressants, or if you have diabetes.

Dried maitake mushroom powder has been used safely in doses up to 2.25 g daily for up to 28 weeks.^[2]

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **Maitake SAP** lot numbers have been tested by a third-party laboratory for identity, potency, and purity.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Scientific Advisory Panel (SAP):
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351, Rue Joseph-Carrier, Vaudreuil-Dorion, Quebec, J7V 5V5
T 1 866 510 3123 • F 1 866 510 3130 • nfh.ca

Maitake D-fraction is one of the active components of maitake mushroom that has been extensively studied for its variety of potential medicinal uses. Physiological benefits include immunomodulatory activities that may help support weight management, blood glucose control and cardiovascular health; and antimicrobial properties.^[1] Numerous in vitro, in vivo, and clinical trials have shown that maitake D-fraction has immune-modulating and hematologic parameters, that may help promote optimal health.^[1]

MAITAKE AND PCOS

In an open trial, 80 patients with PCOS were randomly assigned to receive maitake extract, clomiphene citrate (CC), or a combination of the two.^[2] 72 patients were assigned to a monotherapy for up to 12 weeks. The 18 patients who did respond to maitake or CC were then given combination therapy, as were 8 patients who came into the trial with a documented history of failure to CC therapy. Ovulation rates for the maitake group were 76.9% (20/26), and were 93.5% (29/31) in the CC group.^[2] In the combination therapy, 7/7 patients who failed the maitake monotherapy and 6/8 patients who failed CC monotherapy showed ovulation.^[2] Researchers concluded that maitake extract alone or as an adjunct to CC therapy for patients who failed monotherapy may induce ovulation in patients with PCOS.^[2]

MAITAKE AND IMMUNE MODULATION

Bone-marrow myelotoxicity is a major concern during chemotherapy treatment. Researchers explored the effects of β -glucan extract from maitake mushroom (MBG) on leukocyte recovery and granulocyte/monocyte function in vivo after administering dose-intensive paclitaxel in normal mice.^[3] After cumulative dosing of paclitaxel, mice were given a daily oral dose of 4 or 6 mg/kg of MBG.^[3] Researchers found that leukocyte counts declined less in the group that received the MBG than the control. MBG was able to restore granulocyte/monocyte ROS response to normal levels compared to the paclitaxel alone.^[3] Researchers concluded that oral dosing of MBG assisted the myeloid cells to become functionally active, and it enhanced peripheral blood leukocyte recovery after chemotoxic bone marrow injury.^[3]

In a phase II trial, researchers examined the effects of maitake on innate immune function in myelodysplastic syndromes (MDS).^[4] Myelodysplastic syndrome patients that had an international prognostic scoring system of low and intermediate risk of disease received oral maitake extract at 3 mg/kg twice per day for 12 weeks.^[4] In the 18 patients who completed the study, maitake was found to increase endogenous neutrophil and monocyte function.^[4] Researchers concluded that maitake was well-tolerated, and that it enhanced in vitro neutrophil and monocyte function following the treatment, showing it has immunomodulatory potential in MDS.^[4]

Polysaccharides are thought to play a significant role in immune stimulation via their ability to promote the proliferation of T cells, B cells, macrophages, and natural killer (NK) cells.^[5] A study looked at the effect of five polysaccharides, including maitake polysaccharide, on primary human NK cells under normal or simulated microgravity (SMG) conditions.^[5] Researchers found that polysaccharides significantly promoted the cytotoxicity of NK cells by enhancing IFN- γ and perforin secretion, and by increasing the expression of the activating receptor NKG2D under normal conditions.^[5] They also found that polysaccharides can enhance NK cell function under SMG conditions by restoring the expression of the activating receptor NKG2D and reducing the early apoptosis and late apoptosis/necrosis.^[5] Moreover, the antibody neutralization test showed that CR3 may be the critical receptor involved in polysaccharides-induced NK cells activation.^[5] This demonstrates that polysaccharides may be used as immune regulators to promote health.^[5]

Researchers in another study found that a specific protein, the *G. frondosa* protein (GFP) from the fruiting body of maitake, may play a critical role in modulating the immune response, and that it links the

immune-enhancing effects of maitake to its antitumour activities.^[6] The GFP induced interferon- γ secretion by murine splenocytes and natural killer cells as well as activated the maturation of bone marrow-derived dendritic cells (BMDCs) via a TLR4-dependent mechanism. GFP-treated BMDCs promoted a T_H1 response and exhibited significant antitumour activity when transferred into tumour-bearing mice.^[6]

MAITAKE AND INSULIN SENSITIVITY

In a study, researchers were looking to determine if a specific glycoprotein extract of maitake mushroom enhanced insulin sensitivity in spontaneously hypertensive rats (SHR).^[7] The SHR were divided into one of five groups: a control group, a group receiving the drug pioglitazone, and three groups consuming varying concentrations for the SX-fraction derived from maitake.^[7] Rats were then examined at different time periods to see the effect on circulating glucose and insulin concentrations.^[7] Results showed that the SX-fraction of maitake resulted in lower circulating levels of glucose after challenge, despite no rise in circulating insulin.^[7] In comparison to controls groups consuming either pioglitazone or the higher doses of SX-fraction, they showed significantly lower circulating glucose levels after insulin challenge, whether or not glucose was given concomitantly.^[7] Researchers concluded that the glycoprotein extract from maitake mushroom should be considered as an alternative method for improving insulin sensitivity.^[7]

A study explored the hypoglycemic effect of an α -glucan from the fruit body of maitake on murine type 2 diabetes mellitus (T2DM) model.^[8] Researchers used body weight as well as levels of fasting plasma glucose, glycosylated hemoglobin, triglycerides, cholesterol, free fatty acid, nitric oxide, NO synthase, and hepatic malondialdehyde as markers.^[8] When the MT- α -glucan was administered to the T2DM mice, serum insulin, hepatic glycogen, and reduced glutathione, as well as the activity of superoxide dismutase and glutathione peroxidase, increased significantly.^[8] The treatment group also showed an improvement in the histopathological changes in the pancreas.^[8] Researchers concluded data suggest that MT- α -glucan has a hypoglycemic effect on T2DM mice, which may be related to its protective effect of pancreatic β cells by decreasing levels of factors that destroy β cells like oxidative stress and NO synthesis.^[8]

MAITAKE AND BREAST HEALTH

The polysaccharide complexes present in maitake mushrooms seem to benefit breast health.^[9] Researchers using CDNA microarray analysis reported that maitake, especially the D-fraction, positively modulates gene expression of immunomodulatory cells involved in breast tissue function and promotes breast health.^[9]

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