Astragalus SAP

Science-based astragalus extract for enhanced therapeutic effect

Astragalus membranaceus, an ingredient historically used in many traditional herbal extracts, acts as an immunomodulating agent for the purpose of treating immunodeficiency diseases.[1] Astragalus is a complex combination of polysaccharides, triterpene glycosides, flavonoids, amino acids, and trace minerals. Astragalus may restore T-cell (a specific type of white blood cell) counts to relatively normal ranges in suppressed patients.[2] Astragalus polysaccharides have also been shown to stimulate pituitary-adrenal cortical activity and restore depleted red blood cell formation in bone marrow. It has also been proposed that this plant may possess antitumorigenic effects in certain cancer cell types.[1] Again confirming traditional Chinese medicine, astragalus has been shown to stimulate the body's natural production of interferon and is also useful for the treatment of Alzheimer's disease, common cold/sore throat, chemotherapy support, and immune function.

ACTIVE INGREDIENTS

Each vegetable capsule contains:

Astragalus (*Astragalus membranaceus*) root extract,
3% astragalosides. . . . . 500 mg

Other ingredients: Vegetable magnesium stearate and silicon dioxide in a vegetable capsule composed of vegetable carbohydrate gum and purified water.

Contains no: Gluten, soy, wheat, dairy, eggs, yeast, citrus, starch, preservatives, artificial flavour or colour.

This product is non-GMO and vegan friendly.

Astragalus SAP (3% astragalosides) contains 90 capsules per bottle.

DIRECTIONS FOR USE

Adults: Take 1 capsule daily or as directed by your healthcare practitioner.

1 capsule provides 15 mg of pure astragalosides.

INDICATIONS

Astragalus SAP may confer protection against viral infections, and can be used:

- As an immunomodulating agent to improve immune activity that can help support the management of immunodeficiency diseases.
- To alleviate the side effects of chemotherapy.
- To stimulate pituitary-adrenal-cortical activity and restore depleted red blood cell formation in bone marrow.

IMPROVED THERAPY

Astragalus has been shown to increase resistance to the immunosuppressive effects of chemotherapy drugs, while stimulating macrophages to produce interleukin-6 and tumour necrosis factor (TNF). Supplementing with astragalus can reduce the dosage required in treating cancer patients. The severe side effects of IL-2 therapy (e.g. acute renal failure, capillary leakage syndrome, myocardial infarction, and fluid retention) might be reduced.

CAUTIONS AND WARNINGS

Contact a healthcare practitioner before using if you are pregnant, breast-feeding, or have an auto-immune disorder. Hypersensitivity (e.g. allergy) has been known to occur; in which case, discontinue use. Do not use if seal is broken. Keep out of reach of children.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for each **Astragalus SAP** lot number have been tested by an ISO 17025–accredited third-party laboratory for identity, potency, and purity.

Scientific Advisory Panel (SAP): adding nutraceutical research to achieve optimum health

NFH®

351, Rue Joseph-Carrier, Vaudreuil-Dorion, Quebec, J7V 5V5
T 1 866 510 3123 • F 1 866 510 3130 • nfh.ca

For healthcare professional use only.

WHAT IS ASTRAGALUS?

Astragalus membranaceus, an ingredient historically used in many traditional herbal extracts, acts as an immunomodulating agent for the purpose of treating immunodeficiency diseases.[1]

Astragalus extracts have also been noted to alleviate the effects of chemotherapy, and it has also been proposed that this plant may possess antitumourigenic effects in certain cancer cell types.[1] Further to this, astragalus has been hypothesized to increase immune-cell activity in humans.[2]

Research supporting these findings is becoming increasingly prevalent, thus, it is very probable that astragalus will spark public interest in the foreseeable future.

ANTITUMOURIGENIC AND CHEMOTHERAPEUTIC EFFECTS

Currently, Western cultures are experiencing an increase in incidence of colon cancer, coupled with a low remission rate. Associated with these trends are the ineffective treatment methods that reportedly lead to hypersensitivity and chemo resistance, thus rendering these treatments to be of a low therapeutic index.

In one study, the antitumourigenic effect of astragalus saponin (AST) was illustrated in vivo in nude mice xenograft. AST was administered alongside another chemotherapeutic drug, 5-fluorouracil (5-FU), to investigate its potential as an auxiliary agent. By day 13 of administering AST, tumour volume had reduced by 53%, whereas monotherapy could only achieve the same results after day 16.[1] A clear dose-dependent correlation has yet to be finalized; however, the study supports using AST to replace cytotoxic drugs such as oxaliplatin as a chemotherapeutic adjuvant of 5-FU to reduce adverse side effects and toxicity.[1]

In the same study, astragalus polysaccharides were also credited for inhibiting cancer-cell growth and for producing antiproliferative effects.[1] Human intestinal cancer cells (HT-29) were cultured and exposed to various concentrations of AST, and the number of proliferated cells was measured spectrophotometrically. Findings showed that astragalus saponins inhibit cell proliferation and promote apoptosis in human intestinal epithelial cells.[1] These results indicate that this product could be an effective chemotherapeutic agent in colon cancer treatment.

A. membranaceus has also been shown to display the capability of exhibiting potent antitumour effects both in vitro and in vivo.[3] Results after testing tumour-bearing mice demonstrated a marked reduction in the number of viable tumour cells and a prolonged life-span.[3]

In a meta-analysis of randomized trials, researchers sought to evaluate evidence utilizing astragalus in combination with platinum-based chemotherapy. In conclusion, after collecting data and analyzing various studies, researchers were able to deduce that astragalus can increase survival, tumour response and performance status as well as decrease chemotherapy toxicity versus a treatment based solely on chemotherapy.[4] However, due to the limitations generally associated with conducting a meta-analysis, the proposed conclusions cannot be confirmed.

ASTRAGALUS INCREASES IMMUNE ACTIVITY

For quite some time, astragalus has been claimed to be able to activate immune cells in human subjects.[2] In a placebo-controlled, double-blind study, three herbs, *Echinacea purpurea, Glycyrrhiza glabra,* and *A. membranaceus,* were administered to human subjects.[2] The effect of the herbs was monitored when ingested for 7 days both singly and in combination. To measure immune effects, cellular activation markers on immune cells with growth factor receptors such as CD69 are observed.[3] This cell-surface antigen is expressed by T cells following activation. 24 hours following ingestion, CD69-expressing cells were increased, with astragalus showing the strongest effect.[2] Although at day 7, the level of activation decreased from the 24-h level, it still remained higher than at initial levels.[2] Those subjects ingesting a combination tincture were seen to have greater immune-cell activation over those taking individual tinctures.[2]

Astragalus polysaccharides (APS) are able to bind to membrane immunoglobulins (m-Ig) expressed by B cells with medium to high affinity.[5] Results from a study by Shao et al. (2004) indicate that APS activate B cells via membrane immunoglobulin inducing B-cell proliferation and immunoglobulin release.[5]

Typically, lipopolysaccharides rely heavily on m-Ig as well as toll-like receptors (TLR 4) for B-cell activation; however, APS are fully able to stimulate B cells in the absence of TLR 4 indicators.[5] Use of APS for activation of B cells is proven not only to be effective, but also efficient, ultimately making this product an ideal candidate as an immunomodulator.[5]

ASTRAGALUS USE FOR VIRAL INFECTIONS

Clinical studies have reported an inverse association between astragalus and viral diseases.[6] The application of astragalus on viral myocarditic mice was designed to evaluate the protective effects of this herbal plant. In their study, Chen et al (2006) confirmed the cardioprotective effects of astragalus when fed at an amount of 2.2 mg/kg/d. According to their observations, the survival rate of the mice was increased significantly within 7 days.[6] This study suggests that particular doses of the astragalus plant can be of great service when one desires to alleviate the effects of viral infections.

ALLEVIATION OF NOISE STRESS

Although typically overlooked, a key determinant of stress is noise. High levels of noise can severely raise a person's blood pressure, cause tension and headaches, as well as impair one's ability to concentrate.

Alleviation of noise stress by the extracts *Astragali* radix have been recorded in studies using rats as subjects.[7] This is mainly as a result of *Astragali* radix's ability to decrease glycogen, lactic acid, and cholesterol content in rat liver caused by exposure to noises.[7] Results from this particular study suggest that *Astragali* radix can function as a potential phytoadaptogen.[7] Further to this, evidence supports that this herb can improve damage caused by other types of stressors.

When an individual is placed under stressful conditions, acute changes in glutamic pyruvic transaminase (GPT), alkaline phosphatase (ALP), and creatine kinase (CK) can be observed.[8] The activity of these enzymes when influenced by astragalus was measured. Rats medicated with the extract of the herb revealed lower enzyme activity than that observed within untreated rats after noise application.[8]

The mechanism by which astragalus ameliorates these effects has yet to be elucidated. One possible hypothesis suggests that the elevation of enzyme activity may be linked to the production of reactive oxygen species.[8] However, studies confirming this proposition have yet to be conducted.

REFERENCES

1. Auyeung, K.K., P.C. Law, and J.K. Ko. "Combined therapeutic effects of vinblastine and *Astragalus* saponins in human colon cancer cells and tumor xenograft via inhibition of tumor growth and proangiogenic factors." *Nutrition and Cancer.* Vol. 66, No. 4 (2014): 662–674.
2. Wan, C.P., et al. "Astragaloside II triggers T cell activation through regulation of CD45 protein tyrosine phosphatase activity." *Acta Pharmacologica Sinica.* Vol. 34, No. 4 (2013): 522–530.
3. Cho, W.C. and K.N. Leung. "In vitro and in vivo anti-tumour effects of *Astragalus membranaceus*." *Cancer Letters* Vol. 252, No. 1 (2007): 43–54.
4. McCulloch, M., et al. "Astragalus-based Chinese herbs and platinum-based chemotherapy for advanced non-small-cell lung cancer: meta-analysis of randomized trials." *Journal of Clinical Oncology* Vol. 24, No. 3 (2006): 419–430.
5. Shao, B.M., et al. "A study on the immune receptors for polysaccharides from the roots of *Astragalus membranaceus,* a Chinese medicinal herb." *Biochemical and Biophysical Research Communications* Vol. 320, No. 4 (2004): 1103–1111.
6. Liu, Z.L., et al. "Herbal medicines for viral myocarditis." *The Cochrane Database of Systematic Reviews.* No. 8 (2013): CD003711.
7. Zhu, B.W., et al. "Reduction of noise-stress-induced physiological damage by radices of Astragali and Rhodiolae: glycogen, lactic acid and cholesterol contents in liver of the rat." *Bioscience, biotechnology, and biochemistry* Vol. 67, No. 9 (2003): 1930–1936.
8. Zhu, B.W., et al. "Resistance imparted by traditional Chinese medicines to the acute change of glutamic pyruvic transaminase, alkaline phosphatase and creatine kinase activities in rat blood caused by noise." *Bioscience, biotechnology, and biochemistry* Vol. 68, No. 5 (2004): 1160–1163.

ASTRAGALUS SAP

Science-based astragalus extract for enhanced therapeutic effect

NFH®

INDICATION SPECIFIC DOSAGE SUMMARY BASED ON HUMAN CLINICAL RESEARCH#

#Please note these suggestions are guidelines based on the clinical studies. Evidence for efficacy and safety have been qualitatively (study quality in terms of study design, sample size, appropriate methods of analysis, use of appropriate placebo/control, and bias) assessed and have been rated using a 5 star ★ rating classification.

Indication	Suggested Dosage	Supporting evidence and study outcomes	Study design	Outcomes measures/ selection criteria for studies	Safety	Evidence quality rating
Immunomodulating Agent						
Immune system booster/ humoral immunity, cold and flu symptoms[1,2]	1-2 capsules/ day	Increased immune cell function, CD4 and B cells and reduced CD8 and NK numbers. Stabilized numbers of T regulatory lymphocytes and natural killer cells	2 Randomized, double-blind, placebo-controlled trials (n=34 avg), avg dose = 500-1230 mg/ day, 1-6 weeks	Immune cell analysis, flow cytometry analysis. Inflammatory markers, T regulatory lymphocytes, cytotoxic lymphocytes, natural killer cells	No adverse effects observed	★★
Allergic rhinitis[3]	1 capsule/ day	Decreased intensity of rhinorrhea, symptoms, and improved quality of life	Randomized controlled trial (n=27), 80 mg (2 capsules 2 times a day) for 6 weeks	Symptom score, quality of life score, specific serum immunoglobulin E (IgE) and immunoglobulin G (IgG), nasal eosinophils, physician and patient global evaluation	Rhinosinusitis, pharyngitis, enterocolitis, nausea, lacunar angina, and vulvitis were observed	★★★
Metabolic Syndrome						
Cardiovascular health [4,5,6]	2 capsules/ day	Reduced buildup of arterial plaque and reduced cholesterol in the blood stream and hypertension	3 Randomized controlled open labelled trials (n=423), avg. dose 9 g/ day, from 3-6 weeks	New York Heart Association (NYHA) cardiac functional grading, serum TNF-alpha level, left ventricular ejection fraction (LVEF) and walk distance in 6 min (WD), metabolic index, cardiac structure, systolic, diastolic function analyses	No adverse effects were observed	★★★★

Adjunct in Chemotherapy						
Cancer related fatigue[7]	1-2 capsules/ day	Improved side effects such as nausea, vomiting, diarrhea, and bone marrow suppression	Randomized double blinded placebo-controlled study (n=58), dosage:500 mg/day 3 times a week	Brief Index Scores (BFI), hematocrit and hemoglobin values and red blood cells (RBC), platelet, white blood cells (WBC), differential counts, serum alanine transaminase, aspartate transaminase, alkaline phosphatase, blood urea nitrogen, bilirubin, albumin, total protein, creatinine, C-reactive protein and, pre-albumin	No adverse events connected to the study treatment were observed	★★★
Neurological Function						
Post stroke fatigue[8]	1 capsule/ day	Improved BFI scores, cognitive functioning, social functioning, and global Quality of Life (QOL) scores	Double blinded randomized control study, (n =64), dosage: 2.8 g 3 times daily	European Organization for Research and Treatment of Cancer QOL questionnaire, BFI scores, blood pressure, heart rate, WBC count, RBC count, platelet count, serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), blood urea nitrogen (BUN), and creatinine	No significant adverse events different than the control group were reported	★★★

References:

1. Julie Brush., et al. "The effect of echinacea purpurea, astragalus membranaceus and glycyrrhiza glabra on CD69 expression and immune cell activation in humans." *Phytother Res*. Vol. 95, No. 8 (2006 Aug): 20-687.
2. Ewa Latour, et al. "Standardized astragalus extract for attenuation of the immunosuppression induced by strenuous physical exercise: randomized controlled trial." *J Int Soc Sports Nutr*. (2001 July): 18-57.
3. Zinka Matkovic, et al. "Efficacy and safety of astragalus membranaceus in the treatment of patients with seasonal allergic rhinitis." Phytother Res. Vol. 81, No. 2 (2010 Feb): 24-175.
4. Qing-you Yang, et al. "Effects of astragalus on cardiac function and serum tumor necrosis factor-alpha level in patients with chronic heart failure." Chin. J. Integr. Med. Vol. 701, No. 7 (2010 Jul): 30-699.
5. Li, Ning-Yin; et al. "Astragalus membranaceus improving asymptomatic left ventricular diastolic dysfunction in postmenopausal hypertensive women with metabolic syndrome. A prospective, open-labeled, randomized controlled trial." *Chin Med J*. Vol. 526, No. 5 (2018 Mar 5): 131-516.
6. Yang Qing-you, et al. "Clinical effect of astragalus granule of different dosages on quality of life in patients with chronic heart failure." *Chin J Integr Med*. Vol. 9, No. 2 (2011 Feb): 17-146.
7. Hong-Wen Chen, et al. "A novel infusible botanically-derived drug, PG2, for cancer-related fatigue: A phase II double-blind, randomized placebo-controlled study." *Clin Invest Me*. Vol. 11, No. 1 (2012 Feb 1): 35-E1.
8. Chung-Hsiang Liu, et al. "Effects of the traditional chinese herb astragalus membranaceus in patients with poststroke fatigue: A double-blind, randomized, controlled preliminary study." J Ethnopharmacol. Vol. 962 (2016 Dec 24): 194-954.