

Use of visual analogue scale measurements (VAS) to assess the effectiveness of standardized *Andrographis paniculata* extract SHA-10 in reducing the symptoms of common cold. A randomized double blind-placebo study.

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The objective of our study was to measure the effectiveness of *Andrographis paniculata* SHA-10 extract in reducing the prevalence and intensity of symptoms and signs of common cold as compared with a placebo. **A group of 158 adult patients of both sexes completed the randomized double blind study in Valdivia, Chile. The patients were divided in two equal size groups, one of which received** *Andrographis paniculata* dried extract (1200 mg/day) and the other a placebo during a period of 5 days. Evaluations for efficacy were performed by the patient at day 0, 2, and 4 of the treatment; each completed a self-evaluation (VAS) sheet with the following parameters: headache, tiredness, earache, sleeplessness, sore throat, nasal secretion, phlegm, frequency and intensity of cough. In order to quantify the magnitude of the reduction in the prevalence and intensity of the signs and symptoms of common cold, the risk (Odds Ratio = OR) was calculated using a logistic regression model. At day 2 of treatment a significant decrease in the intensity of the symptoms of tiredness (OR = 1.28; 95% CI 1.07-1.53), sleeplessness (OR = 1.71; 95% CI 1.38-2.11), sore throat (OR = 2.3; 95% CI 1.69-3.14) and nasal secretion (OR = 2.51; 95% CI 1.82-3.46) was observed in the *Andrographis* SHA-10 group as compared with the placebo group. At day 4, a significant decrease in the intensity of all symptoms was observed for the *Andrographis paniculata* group. The higher OR values were for the following parameters: sore throat (OR = 3.59; 95% CI 2.04-5.35), nasal secretion (OR = 3.27; 95% CI 2.31-4.62) and earache (OR = 3.11; 95% CI 2.01-4.80) for *Andrographis paniculata* treatment over placebo, respectively. **It is concluded that *Andrographis paniculata* had a high degree of effectiveness in reducing the prevalence and intensity of the symptoms in uncomplicated common cold beginning at day two of treatment. No adverse effects were observed or reported.**

Melchior J, Palm S, Wikman G. Controlled clinical study of standardized *Andrographis paniculata* in common cold- a pilot trial. *Phytomedicine* 1996;97;3:315-8.

Hancke J, Burgos R, Caceres D, Wikman G. A double-blind study with a new monodrug Kan Jang: decrease of symptoms and improvement in the recovery from common colds. *Phytotherapy Res* 1995;9:559-62.

Double-blind, placebo-controlled pilot and phase III study of activity of standardized *Andrographis paniculata* Herba Nees extract fixed combination (Kan jang) in the treatment of uncomplicated upper-respiratory tract infection.

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Two randomized double-blind, placebo-controlled parallel group clinical trials were performed to investigate the effect of a standardized extract (SHA-10) of *Andrographis paniculata* fixed combination (Kan jang) in the treatment of uncomplicated upper-respiratory tract infections. 46 patients in the pilot study and 179 patients in the phase III study completed the study according to the protocol. Medication was taken three times daily for a minimum of 3 days and a maximum of 8 days for the pilot study, and for exactly three days in the phase III study. The primary outcome measures in the patients self-evaluation were: related to pain in the muscle, cough, throat symptoms, headache, nasal symptoms and eye symptoms and temperature. The physician's fixed score diagnosis was based mainly on sign/symptoms: ears, nose, oral cavity, lymph glands-tonsils and eyes. **The total symptom score showed a tendency toward improvement in the pilot study ($p = 0,08$), while both the total symptom score and total diagnosis score showed highly significant improvement ($p < \text{or} = 0.0006$ resp. 0.003) in the verum group as compared with the placebo. In both studies throat symptoms/signs, were found to show the most significant improvement.**

A double blind, placebo-controlled study of *Andrographis paniculata* fixed combination Kan Jang in the treatment of acute upper respiratory tract infections including sinusitis.

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A double blind, placebo-controlled, parallel-group clinical study was carried out to evaluate the effect of an *Andrographis paniculata* (N.) extract SHA-10 fixed combination, Kan Jang, in the treatment of acute upper respiratory tract infections, including sinusitis. Ninety-five individuals in the treatment group and 90 individuals in the placebo group completed the study according to the protocol. The medication was taken for 5 days. Temperature, headache, muscle aches,

throat symptoms, cough, nasal symptoms, general malaise and eye symptoms were taken as outcome measures with given scores. The total score analysis showed a highly significant improvement in the verum group versus the placebo. This result applied to the group as a whole and to the sinusitis subgroups. The individual symptoms of headache and nasal and throat symptoms together with general malaise showed the most significant improvement while cough and eye symptoms did not differ significantly between the groups. **Temperature was moderately reduced in the verum group. It can be concluded that Kan Jang has a positive effect in the treatment of acute upper respiratory tract infections and also relieves the inflammatory symptoms of sinusitis. The study drug was well tolerated.**

The usage of *Andrographis paniculata* following Extracorporeal Shock Wave Lithotripsy (ESWL).

J Med Assoc Thai. 1995 Jun; 78(6): 310-3

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One hundred consecutive cases with renal stones less than 3 cm in size and normal renal function underwent ESWL from January to March 1994. Out of these, 50 were given *Andrographis paniculata* tablets (250 mg), 4 tablets tid, 25 were given cotrimoxazole 2 tablets bid and 25 received norfloxacin 200 mg bid, started immediately after ESWL and continued for 5 days. All tolerated the treatment well and none had complications. At one month follow-up, pre- and post-ESWL pyuria, hematuria and proteinuria among the *Andrographis paniculata* group were 84, 58, 72, 40, 52, 22 per cent; the cotrimoxazole group 88, 64, 84, 64, 56, 44 per cent and the norfloxacin group 92, 56, 72, 40 per cent and 56, 28 per cent respectively. The results showed that post ESWL pyuria and hematuria in patients receiving *Andrographis paniculata* were reduced to 0.69 and 0.55 time of pre ESWL value. We think that this herbal medicine is beneficial in the treatment of post ESWL urinary tract infection. Besides the herbal drug given to eighteen previously sulfa sensitized patients resulted in no allergic reaction.

Increased production of antigen-specific immunoglobulins G and M following in vivo treatment with the medicinal plants *Echinacea angustifolia* and *Hydrastis canadensis*. (GOLDENSEAL)

Immunol Lett. 1999 Jun 1; 68(2-3): 391-5

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A number of immunomodulatory effects have been attributed to the medicinal plants *Echinacea angustifolia* and Goldenseal (*Hydrastis canadensis*); however, little is known about whether treatment with these plants can enhance antigen-specific immunity. We investigated the antigen-specific in vivo immunomodulatory potential of continuous treatment with *Echinacea* and Goldenseal root extract over a period of 6 weeks using rats that were injected with the novel antigen keyhole limpet hemocyanin (KLH) and re-exposed to KLH after the initial exposure. Immunoglobulin production was monitored via ELISA continuously over a period of 6 weeks. **The *Echinacea*-treated group showed a significant augmentation of their primary and secondary IgG response to the antigen, whereas the Goldenseal-treated group showed an increase in the primary IgM response during the first 2 weeks of treatment. Our results suggest that medicinal plants like *Echinacea* or Goldenseal may enhance immune function by increasing antigen-specific immunoglobulin production.**

Immune system effects of echinacea, ginseng, and astragalus: a review.

Integr Cancer Ther. 2003 Sep;2(3):247-67

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Traditional herbal medicine provides several remedies for strengthening the body's resistance to illness through effects on immune system components. This review article examines 3 popular herbal immune stimulants that are often of interest to cancer patients. *Echinacea*, a native of North America, is widely used to prevent, or provide early treatment for, colds. Preclinical studies lend biological plausibility to the idea that *echinacea* works through immune mechanisms. Numerous clinical trials have been carried out on *echinacea* preparations: it appears that the extracts shorten the duration and severity of colds and other upper respiratory infections (URIs) when given as soon as symptoms become evident. However, trials of long-term use of *echinacea* as a preventive have not shown positive results. *Ginseng* has been studied in some depth as an antifatigue agent, but studies of immune mechanisms have not proceeded so far. Preclinical evidence shows some immune-stimulating activity. There have been several clinical trials in a variety of different diseases. *Astragalus* is the least-studied agent. There are some preclinical trials that show intriguing immune activity. The herbs discussed appear to have satisfactory safety profiles. Cancer patients may wish to use these botanicals to inhibit tumor growth or to boost resistance to infections. However, passive immunotherapy with herbs, with no mechanism to expose tumor antigens, is unlikely to be effective in inhibiting tumor growth. Although the margin of safety for these herbs is large, more research is needed to demonstrate the clear value of using herbs to improve resistance to infections.

Antimicrobial constituents from goldenseal (the Rhizomes of *Hydrastis canadensis*) against selected oral pathogens. (GOLDENSEAL)

Planta Med. 2003 Jul; 69(7): 623-7.

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Two new C-methyl flavonoids, 6,8-di- C-methylfluteolin 7-methyl ether (1) and 6- C-methylfluteolin 7-methyl ether (2), were isolated from a commercially available sample of the roots of *Hydrastis canadensis*, along with seven known compounds, berberine (3), beta-hydrastine (4), canadine (5), canadine (6), isocorypalmine (7), canadine acid (8), and beta-sitosterol 3- O-beta- D-glucoside (9). The structures of the new compounds 1 and 2 were elucidated on the basis of their spectral data including 1D and 2D NMR techniques. Of these isolates, berberine (3) and, to a lesser extent, 1 and 2, showed antimicrobial activity when evaluated against **the oral pathogens *Streptococcus mutans* and *Fusobacterium nucleatum*. Berberine (3) exhibited an additive antimicrobial effect when tested against *S. mutans* in combination with 1.**

Effect of astragalus injection on immune function in patients with congestive heart failure

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Zhongguo Zhong Xi Yi Jie He Za Zhi. 2003 May; 23(5): 351-3

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OBJECTIVE: To study the effect of Astragalus Injection (AI) on the humoral immunity (IgG, IgA and IgM), cellular immunity (T-lymphocyte subsets) and soluble interleukin-2 receptor (sIL-2R) in patients with congestive heart failure (CHF). **METHODS:** Sixty-two in-patients with CHF, whose heart function belonged to NYHA grade II-IV, were randomly divided into two groups. The treated group was treated with AI 30 ml (equivalent to 60 g crude drug), and the control group was treated by nitroglycerine injection 10 mg, the drugs were administered respectively by adding in 5% glucose solution 500 ml for intravenous dripping, once a day, 20 days as one therapeutic course. Venous blood from cubital vein was collected before and after treatment to detect the IgG, IgA, IgM, T-lymphocyte subsets and sIL-2R, and the clinical effect of treatment was evaluated. **RESULTS:** The clinical heart function markedly improved rate and total effective rate in the treated group was 25.8% and 74.2% respectively, significantly better than those in the control group respectively ($P < 0.05$ or $P < 0.01$), the left ventricular ejecting fraction (LVEF) and end systolic volume (ESV) were improved in both groups ($P < 0.05$, $P < 0.01$), and the improvement in the treated group was superior to that in the control group ($P < 0.05$). In the treated group after treatment, the CD4 level and CD4/CD8 ratio increased ($P < 0.05$), levels of sIL-2R, IgG and IgA lowered ($P < 0.05$) significantly, while those in the control group were not changed significantly ($P > 0.05$). **CONCLUSION:** AI could improve the immune function of CHF patients, and can be taken as an important auxiliary treatment for CHF.

Studies on pharmacological junctions of hairy root of Astragalus membranaceus

Zhongguo Zhong Yao Za Zhi. 1999 Oct; 24(10): 619-21, 639.
[Article in Chinese]

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OBJECTIVE: To investigate the effect of hairy root of Astragalus membranaceus(HRA). **METHOD:** HRA were given 10 g/kg per day for 50 days to aged mice treated with D-galactose, and the effect on memory and antioxidant functions were estimated. After administration of HRA 10 g/kg for four days, anti-ischemia-reperfusion kidney model of rat was prepared. The kidney function, activity of superoxide dismutase (SOD) and content of malondialdehyde(MDA) in kidney were examined. Mice with immunosuppression induced by cyclophosphamide were given orally HRA 10 g/kg for 12 days. The activity of natural killer (NK) cells was measured. **RESULT:** HRA improved the memory, raised SOD activity in brain and liver, decreased the MDA content in the liver of aged mice, reduced the MDA content in ischemia-reperfusion kidney, decreased the creatinine level in blood of rats, and promoted the activity of NK cells in immunosuppressed mice. **CONCLUSION:** Similar to the natural A. membranaceus, HRA has senility-preventing, antioxidizing and immunomodulating functions.

Chinese herbs: a clinical review of Astragalus, Ligusticum, and Schizandrae.

Altern Med Rev. 1998 Oct; 3(5): 338-44.
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Although Astragalus, Ligusticum and Schizandrae have a long history of medicinal use within the traditional Chinese system, only recently has the West begun to understand their pharmacological possibilities and clinical applications. Astragalus has demonstrated a wide range of immunopotentiating effects and has proven efficacious as an adjunct cancer therapy. Ligusticum, and its active components, have been investigated for enhancement of the immune system, treatment of ischemic disorders, and as an anti-inflammatory. Clinically, the hepato-protective and antioxidant actions of Schizandrae have proven beneficial in the treatment of chronic viral hepatitis.

The effect of herbal remedies on the production of human inflammatory and anti-inflammatory cytokines.

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BACKGROUND: Some herbal remedies are sold as food additives and are believed to have immune-enhancing properties. **OBJECTIVES:** To study the effect of five herbal remedies--Sambucol Black **Elderberry Extract**, Sambucol Active Defense Formula and Sambucol for Kids (with known antiviral properties), Protec and Chizukit N (containing propolis and Echinacea, claimed to be immune enhancers)--on the production of cytokines, one of the main components of the immune system. **METHODS:** The production of four inflammatory cytokines (interleukin-1 beta, tumor necrosis factor alpha, and IL-6 and IL-8) and one anti-inflammatory cytokine (IL-10) was tested using blood-derived monocytes from 12 healthy donors. **RESULTS:** The Sambucol preparations increased the production of five cytokines (1.3-6.2 fold) compared to the control. Protec induced only a moderate production of IL-8 (1.6 fold) and IL-10 (2.3 fold) while Chizukit N caused only a moderate increase in IL-10 production (1.4 fold). Both Protec and Chizukit N caused moderate decreases in IL-1 beta, TNF alpha and IL-6 production. Lipopolysaccharide, a known activator of monocytes, induced the highest levels of cytokine production (3.6-10.7 fold). **CONCLUSIONS: The three Sambucol formulations activate the healthy immune system by increasing inflammatory and anti-inflammatory cytokines production, while the effect of Protec and Chizukit N is much less. Sambucol could therefore have immunostimulatory properties when administered to patients suffering from influenza (as shown before), or immunodepressed cancer or AIDS patients who are receiving chemotherapy or other treatments.**

Anti-angiogenic property of edible berries.

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Recent studies show that edible berries may have potent chemopreventive properties. Anti-angiogenic approaches to prevent and treat cancer represent a priority area in investigative tumor biology. Vascular endothelial growth factor (VEGF) plays a crucial role for the vascularization of tumors. The vasculature in adult skin remains normally quiescent. However, skin retains the capacity for brisk initiation of angiogenesis during inflammatory skin diseases such as psoriasis and skin cancers. We sought to test the effects of multiple berry extracts on inducible VEGF expression by human HaCaT keratinocytes. Six berry extracts (wild blueberry, bilberry, cranberry, elderberry, raspberry seed, and strawberry) and a grape seed proanthocyanidin extract (GSPE) were studied. The extracts and uptake of their constituents by HaCaT were studied using a multi-channel HPLC-CoulArray approach. Antioxidant activity of the extracts was determined by ORAC. Cranberry, elderberry and raspberry seed samples were observed to possess comparable ORAC values. The antioxidant capacity of these samples was significantly lower than that of the other samples studied. The ORAC values of strawberry powder and GSPE were higher than cranberry, elderberry or raspberry seed

but significantly lower than the other samples studied. Wild bilberry and blueberry extracts possessed the highest ORAC values. Each of the berry samples studied significantly inhibited both H₂O₂ as well as TNF alpha induced VEGF expression by the human keratinocytes. This effect was not shared by other antioxidants such as alpha-tocopherol or GSPE but was commonly shared by pure flavonoids. Matrigel assay using human dermal microvascular endothelial cells showed that edible berries impair angiogenesis.

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