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## Research Reviews

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## Echinacea, Licorice, Milk Thistle, Horse Chestnut

### ANTIOXIDANT PROTECTION FROM ECHINACEA



Increasing solar radiation is implicated in alarming increases in skin cancers and other LW-related conditions, such as cataracts. Photo-damage caused by ultraviolet radiation is largely the result of oxidative damage to the skin. Now scientists in Italy have documented a protective effect of polyphenols from echinacea against free radical damage. This indicates a powerful potential for echinacea extracts for topical use for the prevention and treatment of photo-damage of the skin by USA and UVB radiation. Collagen is the main connective tissue of the skin. It is also extremely sensitive to ultraviolet damage. Damaged collagen cross-links and loses its contractile properties, resulting in skin wrinkling and skin surface roughness. Topical use of echinacea is widespread in Europe, but has been slow to catch on in the U.S. The Italian research points to a remarkable number of antioxidant compounds in echinacea, described in at least ten previous studies. The current study focuses on echinacoside and a class of specific antioxidants known as caffeoyl derivatives. The authors comment on the results: "The results of this study strongly support the

view that extracts from echinacea species can be used for the prevention of skin photo-damage, and since the commonly used echinacea extracts contain caffeoyl derivatives in appreciable amounts, effective local concentrations of the compounds might be obtained by topical application." — Rob McCaleb

[Facino, R. M., St Carini, G. Aldini, L. Saibene, P. Pietta, and P. Maud. 1995. Echinacoside and caffeoyl conjugates protect collagen from free radical-induced degradation: a potential use of Echinacea extracts in the prevention of skin photodamage. *Planta Med.* 61: 510-514.]

### LICORICE MAY FIGHT LUPUS

Researchers at the Oriental Medicine Research Center (Kitasato Institute, Tokyo) noted that Kampo medicines, described as Sino-Japanese herbal medicines, have been reported effective against autoimmune diseases (Terasawa and Imadaya, 1985). Presently, conventional Western medicine has no acceptable treatments for these disorders (e.g., systemic lupus erythematosus, arthritis, and others) in which the body's immune system attacks healthy tissue. Modern drug therapy utilizes steroids or immunosuppressive agents with severe side effects. Kampo medicines containing licorice root (*Glycyrrhiza uralensis*), have been effective against inflammation, allergy, and gastric ulcer. Japanese researchers Matsumoto et al. tested licorice to see if it



could prevent elevated levels of immune complexes (IC) which are related to autoimmune disease. An extract of licorice significantly increased the clearance of the autoimmune producing excess IC in mice. According to the authors: "Our results suggest that the use of herbal prescriptions containing licorice may provide a beneficial effect for the treatment of autoimmune diseases. This is the first report that crude drugs reduce decrease in IC clearance in vivo." Further study is recommended. The scientists prepared a decoction by boiling 250 g of licorice root in 2 liters of water, simmering it to 1 liter, then freeze-drying the extract to yield 72 g.

— Rob McCaleb

[Matsumoto, T., M. Tanaka. H. Yamada, J.-C. Cyong. 1996. Effect of licorice roots on carrageenan induced decrease in immune complexes clearance in mice. *Journal of Ethnopharmacology* 53: 1-4.]

### MILK THISTLE EXTRACTS REDUCE LIVER DAMAGE FROM PSYCHOTROPIC

## DRUGS

Lipoperoxidation is "The oxidative degradation of polyunsaturated fatty acids in biologic membranes." It is believed to be the mechanism by which xenobiotic agents, such as alcohol and drugs, induce liver damage. Studies have shown that the antioxidant activity of silymarin, a compound derived from milk thistle (*Silybum marianum*), prevents lipoperoxidative hepatic damage induced by xenobiotic compounds. The purpose of the current study was to determine whether it would be useful in preventing the kind of damage as caused by chronic use of psychotropic drugs.

In a double-blind, placebo-controlled clinical trial, the efficacy of silymarin was evaluated in patients receiving psychotropic drugs as long-term therapy. In the psychiatric ward of an Italian hospital, sixty women, aged 40-60, who had been being treated with either phenothiazines and/or butyrophenones for at least five years, were treated with silymarin or placebo for 90 days. The women were divided into four groups: group IA— treatment with psychotropic drugs and silymarin ( 800 mg/day, in two divided doses): group IB — treatment with psychotropic drugs and placebo; group HA — suspension of psychotropic drugs plus treatment with silymarin (800 mg/day, in two divided doses and group IIB - suspension of psychotropic drugs plus treatment with placebo. The parameters tested were ( 1) serum levels of malon-dialdehyde (the end product of the oxidation of polyunsaturated fatty acids). and (2) the indices of hepatocellular function. These parameters were assessed at days 0, 15, 30, 60, 90, and one month after the completion of the treatment.

The results of the trial suggest that treatment with silymarin can reduce lipoperoxidative hepatic damage caused by chronic use of phenothiazines and butyrophen ones. The data show that the serum levels of malon-dialdehyde

decreased in the two groups receiving silymarin, with the decrease in group EA being "more striking."\* Also, the indices of hepatocellular damage were improved through treatment with silymarin,\* although the difference between the silymarin-treated groups and the placebo-treated groups was not statistically significant. With both parameters, the effect of silymarin is greater when treatment with psychotropic drugs is suspended. Ginger Webb \* Data represented in chart form only.

[Palasciano, Guiseppa, Piero Portincasa, Vincenzo Palmieri, Daniela

Gianluigi Vendemiale, and Emanuele Altomare. May 1994: The Effect of Silymarin on Plasma Levels of Malon-Dialdehyde in Patients Receiving Long-Term Treatment with Psychotropic Drugs. Current Therapeutic Research. Vol. 55. No. 5, pp. 537-545.]

## HORSE CHESTNUT SEED EXTRACT FOR CHRONIC VENOUS INSUFFICIENCY

Two therapeutic approaches are currently in use for treating chronic venous insufficiency: mechanical compression involving bandages and stockings, and administration of venoactive medicines, such as extract of horse chestnut seed (HCSE), which exert "an inhibitory action on capillary protein permeability." A randomized, partially-blind, placebo-controlled clinical study was conducted to determine the efficacy and safety of both treatments. Two hundred forty patients (194 women, 46 men) with chronic venous insufficiency were assigned at the approximate ratio of 2:2:1 to three groups. Ninety nine patients were given compression therapy, 95 were treated with HCSE from the Klinge Pharma, Munich, Germany (Venostas retard 50 mg aescin twice daily); and 46 patients were given one capsule twice daily of the pla-

cebo. The study duration was twelve weeks. The patients randomized to compression treatment received individually fitted class II compression stockings. For all subjects, lower leg volume of the most severely affected leg was measured at baseline. Edema (swelling) reduction based on lower leg volume was the parameter tested.

Mean leg edema volume has been estimated at 220 ml in patients with chronic venous insufficiency. The researchers found that both compression therapy and HCSE resulted in similar decreases in lower leg volume (mean difference: 56.5 ml and 53.6 ml respectively) while lower leg volume showed an increase in the placebo group. For purposes of the study, maximum effectiveness of the compression stockings was a goal. For instance, in order that the stockings fit well, a diuretic pretreatment was given for seven days to those in the compression group, and not to those in the other groups, an action that clearly favored the compression group. Nevertheless, both those receiving compression therapy and HCSE therapy experienced approximately a 25 percent reduction of mean edema volume. Because compression treatment is "inconvenient, uncomfortable, and subject to poor compliance," the authors conclude that treatment with HCSE for chronic venous insufficiency offers an acceptable alternative to compression stocking therapy. — Ginger Webb

[Diehm, C. (representing the steering committee and investigators), H. J. Trampisch, S. Lange, and C. Schmidt. February 3, 1996. Comparison of leg compression stocking and oral horsechestnut seed extract in patients with chronic venous insufficiency. The Lancet, 347:292-294.]

