
Clean Sweep

Detoxification Support

(Practitioner)

Overview and Use

The liver is the largest solid organ in the body. It is responsible for a) detoxifying (facilitating elimination) harmful xenobiotic compounds, alcohol, and ammonia, b) the metabolism of carbohydrates, fats, and amino acids, and c) the storage of fat-soluble vitamins and glycogen, and d) the production of bile. Due to a poor diet (eg, excessive intake of carbohydrates, sugars, alcohol, xenobiotics), increased stress, underlying health conditions, and other factors, maintaining our liver, in peak operating condition, has become increasingly challenging for most adults and some children. As a result of poor dietary choices and/or excessive alcohol intake, fat can accumulate in the liver and trigger inflammation, oxidative stress, and insulin resistance. These early stages of liver dysfunction are playing a significant role to drive epidemic of metabolic diseases, eg obesity, metabolic syndrome, type 2 diabetes and non-steatohepatitis (NASH). Clearly, restoring the liver to its optimal physiological performance should be the cornerstone of any whole-body wellness program.

N-acetyl cysteine (1200 mg; % Daily Value not established)

N-acetyl cysteine (N-acetylcysteine, NAC) is the N-acetyl derivative of the amino acid L-cysteine (1, 2). NAC acts primarily as a stable oral delivery system for cysteine, a precursor in the intracellular biosynthesis of glutathione. Glutathione is a tripeptide and the major cellular antioxidant. Although recommended and used for a wide variety of therapeutic applications (3), NAC is most widely used for hepatoprotection and to facilitate whole-body detoxification.

Silymarin (as milk thistle seed extract, 200 mg; % Daily Value not established)

Milk thistle is an annual (or biennial) herb native to the Mediterranean region, that has been used for centuries as a food and as a medicinal herb for treatment of liver conditions, along with a variety of other conditions (4, 5). Milk thistle is used widely as a liver tonic in patients with acute and chronic liver diseases (6-8).

Dandelion root (50 mg; % Daily Value not established)

Dandelion root exhibits a variety of biological activities including antioxidant, anti-inflammatory, immunomodulatory, hepatoprotective, and others (9-11). For centuries, dandelion has been used to treat liver, gallbladder, and bile duct problems (10).

Artichoke leaf extract (200 mg; % Daily Value not established)

A perennial herb, native to Mediterranean southern Europe, northern Africa; its cultivation dates back to ancient Greece and Rome (12). Artichoke leaf has been used as a gallbladder and kidney stimulant in traditional European medicine since Roman times (12, 13). Artichoke leaf is widely used for modulating cholesterol levels, ie reducing LDL-cholesterol and elevating HDL-cholesterol and for its hepatoprotective effects (12, 14-16).

Clean Sweep has been created for 1) individuals who require support for whole-body detoxification, 2) individuals that require clinically-validated ingredients to support their overall liver function and liver health, 3) individuals who desire broad-spectrum liver support, 4) individuals who desire additional support for their glycemic and lipid metabolism, 5) individuals who are experiencing or at risk for having inadequate liver function. Clean Sweep also provides support for woman's health, sleep, a healthy immune response, generalized aches and pains, and weight management.

N-acetyl cysteine (1200 mg; % Daily Value not established)

N-acetyl cysteine (N-acetylcysteine, NAC) is the N-acetyl derivative of the amino acid L-cysteine (1, 2). NAC acts primarily as a stable oral delivery system for cysteine, a precursor in the intracellular biosynthesis of glutathione. Glutathione is a tripeptide (sequence: cysteine, glutamic acid, glycine) and the major cellular antioxidant. Glutathione is also important as a cofactor for the enzyme glutathione peroxidase, in the uptake of amino acids, and in the synthesis of leukotrienes (17). As a substrate for enzyme glutathione S-transferase, glutathione reacts with a number of harmful chemical species, such as halides, epoxides and free radicals, to form harmless inactive products. In erythrocytes, these reactions prevent oxidative damage through the reduction of methemoglobin and peroxides (17). Glutathione is also involved in the formation and maintenance of disulfide bonds in proteins and in the transport of amino acids across cell membranes (17). Although recommended and used for a wide variety of therapeutic applications (3), NAC is most widely used for hepatoprotection and to facilitate whole-body detoxification. NAC is also indicated for counteracting certain drug overdoses (especially acetaminophen) and mushroom poisoning (1).

Silymarin (as Milk thistle seed extract, 200 mg; % Daily Value not established)

Milk thistle is an annual (or biennial) herb native to the Mediterranean region, that has been used for centuries as a food and as a medicinal herb for treatment of liver conditions, along with a variety of other conditions (4, 5). Milk thistle is used widely as a liver tonic in patients with acute and chronic liver diseases (6-8). Extracts of milk thistle seeds contain multiple flavanolignans, known collectively as silymarin, consisting largely of silybinin, silychristin, and silydianin. In cell culture and animal models, silymarin has been shown to prevent or ameliorate acute liver injury caused by a variety of irritants and toxins, including acetaminophen and *Amanita phalloides* (4, 6). As is the case for most natural products, the precise mechanism of action has not been fully elucidated. However, it is known that silymarin suppresses the activation of the pro-

inflammatory transcription factor, NF- κ B, resulting in the reduced expression of pro-inflammatory cytokines (18).

A randomized, double-blind, placebo-controlled, clinical (RCT) study of silymarin in patients with chronic liver disease, ie non-alcoholic steatohepatitis (NASH) reported very promising results (19). Although not meeting the primary outcome measure (ie NASH Activity Score; NAS), patients with diagnosed NASH (19), a significantly higher proportion of patients in the silymarin group had reductions in fibrosis based on histology (reductions of 1 point or more; 22.4%) than did the placebo group (6.0%; $P = .023$), and based on liver stiffness measurements (decrease of 30% or more; 24.2%) than did the placebo group (2.3%; $P = .002$). The silymarin group also had significant reductions in mean aspartate aminotransferase to platelet ratio index (reduction of 0.14, $P = .011$ compared with baseline), fibrosis-4 score (reduction of 0.20, $P = .041$ compared with baseline), and NAFLD fibrosis score (reduction of 0.30, $P < .001$ compared with baseline); these changes were not observed in the placebo group (reduction of 0.07, $P = .154$; increase of 0.18, $P = .389$; and reduction of 0.05, $P = .845$, respectively). There was no significant difference between groups in the number of adverse events; the adverse events that occurred were not attributed to silymarin. These results clearly indicate the beneficial effects of silymarin (Milk thistle seed extract) as a beneficial ingredient for liver support.

Dandelion root (50 mg; % Daily Value not established)

Dandelion (*Taraxacum officinale* Weber) is a member of the Asteraceae (Compositae) family that is native to Europe and widely distributed in the warmer temperate zones of the Northern Hemisphere (9). Comparison of the nutritional composition of dandelion with that of lettuce and spinach, i.e., vegetables with similar culinary uses, shows dandelion to have a higher content of dietary fiber and proteins and a greater variety of amino acids and of most vitamins and minerals (9). Dandelion root extracts contain a variety of bioactive sesquiterpenes and several phenolic compounds, including chicoric acid; others include hydroxycinnamic acid and di-caffeoyl-tartaric acid and their derivatives, particularly caffeic acid esters and several caffeoylquinic acid isomers such as mono-caffeoyl-tartaric acid, 4-caffeoylquinic acid, chlorogenic acid, caffeic acid, coumaric acid, ferulic acid (9). Dandelion root contains the oligofructan, inulin, a beneficial prebiotic that is a food source for many intestinal bacteria (10).

Dandelion root exhibits a variety of biological activities including antioxidant, anti-inflammatory, immunomodulatory, hepatoprotective, and others (9-11). For centuries, dandelion has been used to treat liver, gallbladder, and bile duct problems (10). It is also widely used now as a diuretic and to treat digestive problems, among other issues (10).

Artichoke leaf extract (200 mg; % Daily Value not established)

A perennial herb, native to Mediterranean southern Europe, northern Africa; its cultivation dates back to ancient Greece and Rome (12). Artichoke leaf has been used as a gallbladder and kidney stimulant in traditional European medicine since Roman times (12, 13). Traditional medicinal uses of artichoke have focused on liver function. Artichoke leaf is considered choleric (bile increasing), hepatoprotective, cholesterol-reducing, and a diuretic (13-15). In Germany, it is used today as a gallbladder stimulant, and for its lipid-lowering, liver-stimulating actions (12, 15). Artichoke leaf contains up to 2% phenolic acids,

chlorogenic acid, plus cynarin, and caffeic acid; bitter sesquiterpene lactones including cynaropicrin; flavonoids including the glycosides scolymoside, luteolin-7-b-D-glucoside, luteolin-4-b-D-glucoside; taraxasterol; some sugars; and inulin (16, 20, 21). The Merck Index indicates the therapeutic category of cynarin, an active principle of artichoke, as choleric (21).

The pharmacological and therapeutic effects of the artichoke on the liver had already been well known in the 17th century (12). Modern studies started in the last century confirmed the stimulating properties of artichoke extracts on the liver and gallbladder (16). Artichoke leaf is widely used for modulating cholesterol levels, ie reducing LDL-cholesterol and elevating HDL-cholesterol and for its hepatoprotective effects (12, 14-16). In a recent randomized, double-blind, placebo-controlled clinical trial in patients (n = 60) with nonalcoholic steatohepatitis (NASH), the effects of artichoke leaf extract (as 6 tablets per day consisting of 2700 mg; for 2 months) on biochemical and liver biomarkers were evaluated (22). The artichoke group showed significant improvement (ie reductions) in alanine aminotransferase (-53% vs -13.6% for placebo; p<0.001) and aspartate aminotransferase (-46.5% vs -11% for placebo; p<0.001) activities, compared to placebo. The artichoke group also showed significant reductions in both total cholesterol and triglyceride levels, compared to the placebo group. These results indicate multiple beneficial effects of artichoke extract on validated markers of liver function in individuals with NASH.

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Supplement Facts		
Serving Size: 3 capsules		
Servings Per Container: 30		
	Amount Per Serving	% Daily Value
Calcium	62 mg	5%
N-acetyl cysteine	1200 mg	*
Silymarin (as milk thistle seed extract)	200 mg	*
Dandelion root	50 mg	*
Artichoke leaf extract	200 mg	*
* Daily value not established.		

Other ingredients: hypromellose, tricalcium phosphate, stearic acid, L-leucine, and silica

DOES NOT CONTAIN: Wheat, gluten, yeast, soy protein, dairy products, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

DIRECTIONS FOR USE: Take 3 capsules as needed, or as directed by your healthcare practitioner. Consult your healthcare practitioner prior to use.

STORAGE: Keep closed in a cool, dry place out of reach of children.

References

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