



Astaxanthin

What Is It?

Derived from Hawaiian *Haematococcus pluvialis* microalgae cultivated under pristine conditions, esterified astaxanthin is a stable, powerful, fat-soluble antioxidant from the carotenoid family. *Haematococcus* algae produces astaxanthin to protect itself against ultraviolet induced free radical damage.*

Features Include:

Enhanced Antioxidant Capacity: Astaxanthin is different from beta-carotene in that it has two additional oxygenated groups on each of its ring structures, enhancing its ability to scavenge free radicals. It is believed to be several hundred times more effective than vitamin E in neutralizing singlet oxygen molecules and has been shown to exert greater antioxidant activity than both zeaxanthin and lutein.*

Bioavailability And Stability: BioAstin® astaxanthin is formulated in a base of safflower oil to enhance bioavailability. Vitamin E and rosemary are added to enhance stability.

Clinically Studied: Astaxanthin has been and will continue to be clinically studied.

Patents: The producers of BioAstin® hold three patents for use as a human nutraceutical. US Patents 6,258,855, 6,344,210 and 6,433,025. BioAstin® is a registered trademark of Cyanotech Corporation.

Uses For Astaxanthin

Antioxidant Support: Astaxanthin protects the phospholipid membranes of cells from oxidative damage. In a recent U.S. study, it demonstrated the ability to cross the blood brain barrier and protect the retina in animals, suggesting its potential for supporting the brain and nervous system from free radical damage. In one animal study, astaxanthin helped to maintain a healthy bacterial environment in the stomach. *

Skin Support: Initial trials with astaxanthin suggest that it may boost the skin's natural antioxidant defenses against ultraviolet induced free radicals. In a human clinical evaluation, supplementation with BioAstin® astaxanthin for two weeks provided significant antioxidant protection for the skin. In cell cultures, astaxanthin provided greater protection than both beta-carotene and lutein, in part by supporting catalase and superoxide dismutase activity. Astaxanthin may also moderate the activity of polyamines generated by exposure to sunlight.*

Joint Support: In one double-blind placebo controlled trial, BioAstin® astaxanthin significantly supported joint comfort in human volunteers. The results of another human clinical trial suggest that BioAstin® supported knee comfort and joint function after strenuous leg exercises. Subjects in a third study using BioAstin® reported enhanced wrist nerve comfort.*

Immune Support: Enhanced dietary concentrations of astaxanthin have demonstrated the ability to support healthy immunoglobulin activity and immune function. Additional studies suggest astaxanthin's immune and cellular support potential.*

Lipid And Cardiovascular Support: In another animal study, astaxanthin supported healthy lipid metabolism. Other studies are in progress to evaluate further its cardiovascular support properties. *

What Is The Source?

Haematococcus pluvialis microalgae cultivated under highly controlled conditions; vitamin E (d-alpha tocopherol) (soy).

(continued)

Recommendations

Pure Encapsulations recommends 1-3 capsules per day, in divided doses, with meals.

Are There Any Potential Side Effects Or Precautions?

At this time, there are no known side effects or precautions. If pregnant or lactating, consult your physician before taking this product.

Are There Any Potential Drug Interactions?

At this time, there are no known adverse reactions when taken in conjunction with medications.

References:

1. Nir Y, et al. Effect of an astaxanthin containing product on rheumatoid arthritis. *Journal of the American College of Nutrition* 2002 October;21(5):490.
2. Jyonouchi H, Sun S, Gross M. Effect of carotenoids on in vitro immunoglobulin production by human peripheral blood mononuclear cells: astaxanthin, a carotenoid without vitamin A activity, enhances in vitro immunoglobulin production in response to a T-dependent stimulant and antigen. *Nutr Cancer* 1995;23(2):171-83.
3. Tanaka T, Kawamori T, Ohnishi M, Makita H, Mori H, Satoh K, Hara A. Suppression of azoxymethane-induced rat colon carcinogenesis by dietary administration of naturally occurring xanthophylls astaxanthin and canthaxanthin during the postinitiation phase. *Carcinogenesis* 1995 Dec;16(12):2957-63.
4. Lim BP, Nagao A, Terao J, Tanaka K, Suzuki T, Takama K. Antioxidant activity of xanthophylls on peroxy radical-mediated phospholipid peroxidation. *Biochim Biophys Acta*. 1992 Jun 22;1126(2):178-84.
5. Jyonouchi H, Sun S, Iijima K, Gross MD. Antitumor activity of astaxanthin and its mode of action. *Nutr Cancer*. 2000;36(1):59-65.
6. Jyonouchi H, Zhang L, Gross M, Tomita Y. Immunomodulating actions of carotenoids: enhancement of in vivo and in vitro antibody production to T-dependent antigens. *Nutr Cancer*. 1994;21(1):47-58.
7. Healthnotes Clinical Essentials. Copyright 2003. Healthnotes, Inc.

Astaxanthin

each softgel capsule contains

astaxanthin	4 mg.
(naturally derived from <i>Haematococcus pluvialis</i> microalgae)	
lutein (naturally occurring)	40 mcg.
vitamin A (as beta carotene) (naturally occurring)	65 i.u.
vitamin E (d-alpha tocopherol)	50 i.u.
other ingredients: rosemary liquid extract, high oleic safflower oil, gelatin	
1-3 capsules per day, with meals.	