

Astaxanthin as a Medical Food

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ABSTRACT:

Astaxanthin is a red pigment that belongs to the carotenoid family like β -carotene. And it's found in seafood such as crustaceans: shrimp and crabs and fish: salmon and sea bream. Recently, astaxanthin has been reported to have antioxidant activity up to 100 times more potent than that of vitamin E against lipid peroxidation and about 40 times more potent than that of β -carotene on singlet oxygen quenching. Astaxanthin does not show any pro-oxidant activity and its main site of action is on/in the cell membrane. Various important benefits to date have suggested for human health such as immunomodulation, anti-stress, anti-inflammation, LDL cholesterol oxidation suppression, enhanced skin health, improved semen quality, attenuating eye fatigue, sport performance and endurance, limiting exercised induced muscle damage, suppressing the development of life-style related diseases such as obesity, atherosclerosis, diabetes, hyperlipidemia and hypertension. Nowadays, the research and demand for natural astaxanthin in human health application are explosively growing worldwide. Especially, the clinicians use the astaxanthin extracted from the microalgae, *Haematococcus pluvialis*, as an add-on supplementation for the patients who are unsatisfied with the current medications or who can't receive any medications because of their serious symptom. For example, the treatment enhances their daily activity levels or QOL in heart failure or benign prostatic hypertrophy/lower urinary tract symptom patients. Other studies and trials are under way on chronic diseases such as non-alcoholic steatohepatitis, diabetes and CVD. We may call astaxanthin "a medical food" in the near future.

Keywords: astaxanthin, medical food, *Haematococcus*, add-on supplementation