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Research Article

Live Longer, Stay healthy, Feel better with Astashinecapsules

Govind Shukla, Nagalakshmi Yaparthy, Jyothika Vanamali, C.J. Sampath Kumar

Lactonova Nutripharm (P) Ltd, Makers of ASTASHINE capsules, 81/3, IDA Mallapur, Hyderabad, Telangana, India-500 076.

Corresponding Author: Govind Shukla

Email: govindbbd@gmail.com

ABSTRACT

ASTASHINE capsule contains natural astaxanthin from *Haematococcus pluvialis*. Astaxanthin has exceptional antioxidant activity to combat singlet oxygen when compared to other antioxidants. In particular, Astaxanthin can be used to defend against singlet oxygen damage, which are especially susceptible to aging effects.

In this study, Astaxanthin extracted from *Haematococcus* microalgae powerfully quenched singlet oxygen. Results show that the quenching effect of Astaxanthin is 800 times greater than coenzyme Q10. Astaxanthin was also about 75 times greater than alpha lipoic acid, about 550 times greater than green tea catechins and about 6000 times greater than Vitamin C. The present Article reviews the role of ASTASHINE capsules as World's most powerful Antioxidant and Anti-aging Nutrient.

Keywords: Astashine capsules, Anti-aging, Oxidative Stress.

INTRODUCTION

As aerobic organisms, we depend completely on molecular oxygen for our existence; the typical result of just a few minutes without oxygen is irreparable damage or death. However, although oxygen is utterly critical for human life, this molecule has also a dark side to its actions.

Oxygen is also found in a large number of harmful by-products that are relentlessly being produced in living tissues. These molecules are chemically unbalanced and very active; hence they tend to react with any other adjacent molecule. These *reactive-oxygen species* (ROS) contain

reduced oxygen molecules as free radicals and reactive compounds.

In nature, electrons in covalent bonds always come in pairs. Whenever a covalent bond is broken down, each atom is left with one unpaired very active electron, and is therefore termed a *free radical*. Free radicals include superoxide, hydroxyl radicals, and peroxy radicals; all have one unpaired electron, and thus will seek any other atom with which to react.

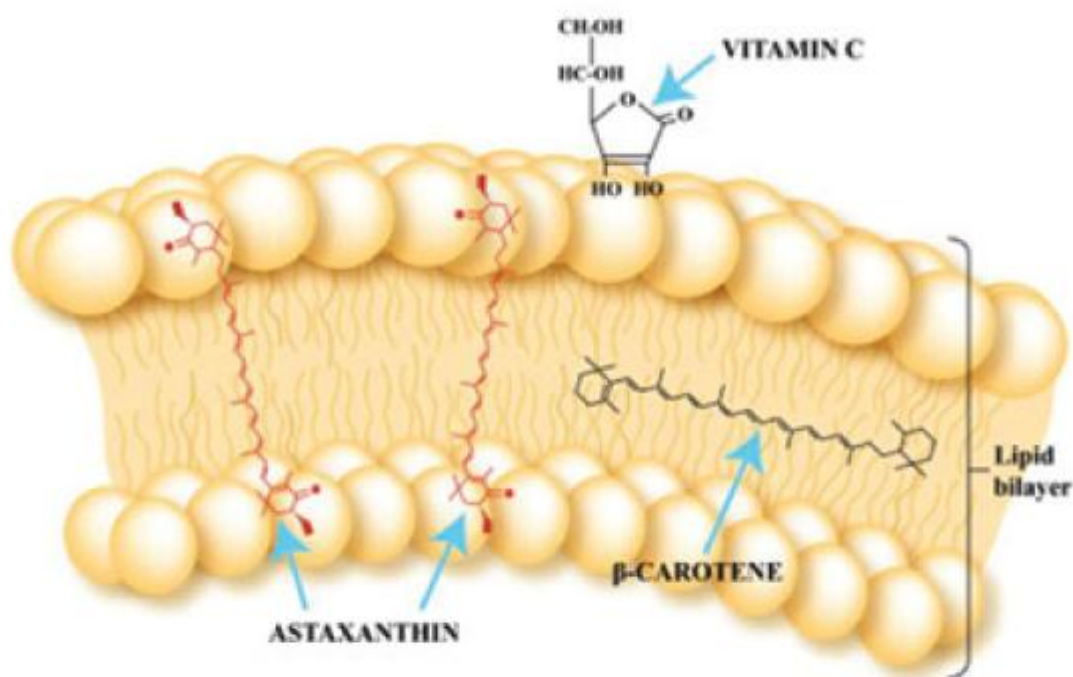
ROS also include reactive compounds, which are non-radicals, such as ozone, lipid peroxides, hydrogen peroxide, and singlet oxygen. Additionally, a number of nitrogen compounds

containing oxygen, such as nitrogen oxides and peroxy nitrite, are also extremely harmful.

The strong tendency of ROS to react with neighboring molecules puts these molecules at risk. free radicals and highly reactive forms of oxygen are produced in the human body during normal metabolic reactions and processes. Consequently, ROS are found in our bodies at any given time, and react with the tissue molecular constituents, such as proteins, DNA, RNA, carbohydrates, and lipids.

The results of such “oxidative attack” may include protein and lipid peroxidation and structural changes in DNA and RNA, which in turn may lead to damage, mutations, and even loss of function. The oxidation of poly-unsaturated fatty acids in the membranes could induce a chain reaction of free radicals, which in turn could result in the loss of adequate function of the lipid components of the cellular membranes.

Astaxanthin Provides Superior Cell membrane Protection



Astaxanthin has polar (water-loving) ends and a lipid (oil-loving) backbone and can span cellular membranes allowing it to provide superior antioxidant protection. Polar (water-loving) antioxidants like Vitamin C and lipid (oil-loving) antioxidants like beta carotene cannot offer this same level of defense.

Fig. 1

Physiological stress, air pollution, tobacco smoke, exposure to toxic chemicals, or exposure to ultraviolet (UV) light can enhance the production of ROS. Indeed, oxidative damage has been linked to aging, atherosclerosis, ischemia-reperfusion injury, macular degeneration of the eye, carcinogenesis, neurodegenerative diseases, bacterial and viral meningitis, and many other

known health phenomena and diseases, all of which pathogenic conditions involve an underlying oxidative insult, either in their development or in their progression. On the other hand, this constant attack on the body is continuously countered by mechanisms designed to neutralize oxidative damage and prevent associated damage and diseases. An important defense mechanism in the

body is the cascade of enzymes that neutralize the ROS prior to the induced damage (superoxide dismutase, catalase, glutathione peroxidase). This preventive pathway is extremely important, since it

helps to support a healthy existence. Certain repair enzymes can reverse the damage produced by the ROS, as in the case of DNA breaks being enzymatically restored.

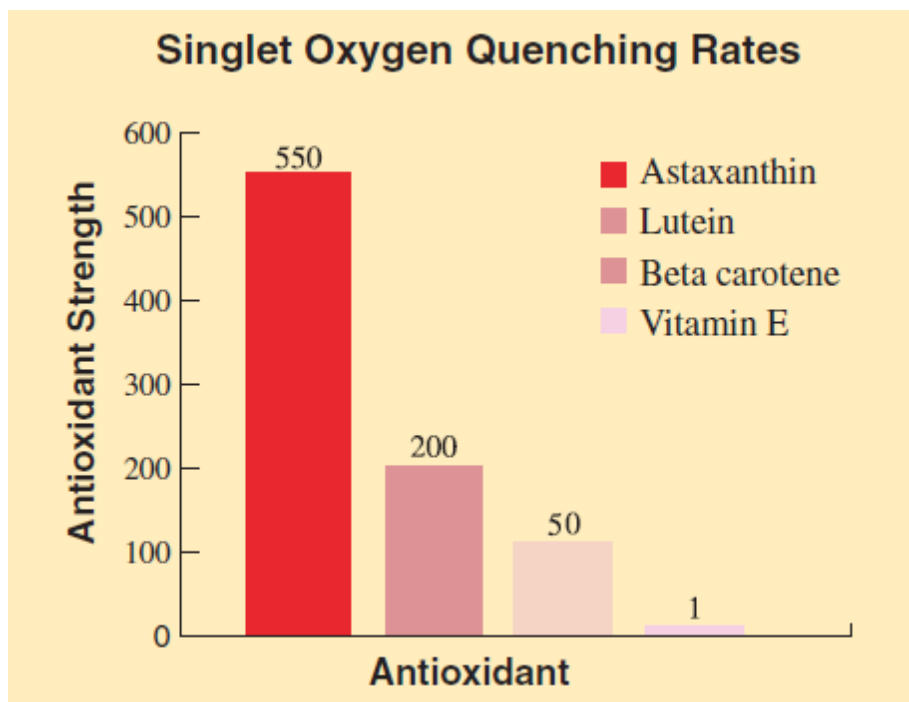


Fig.2

An additional defense mechanism against free radicals and reactive compounds in the body requires the action of special molecules, ones we call *antioxidants*. Antioxidants are a variety of substances from diverse chemical groups that share one common property: their ability to scavenge for

the harmful free radicals and react with these active molecules. Some of the antioxidants in our defense system are synthesized in the body; some are solely consumed with the diet. progression of, and in some cases even prevent, a wide array of health phenomena and diseases.

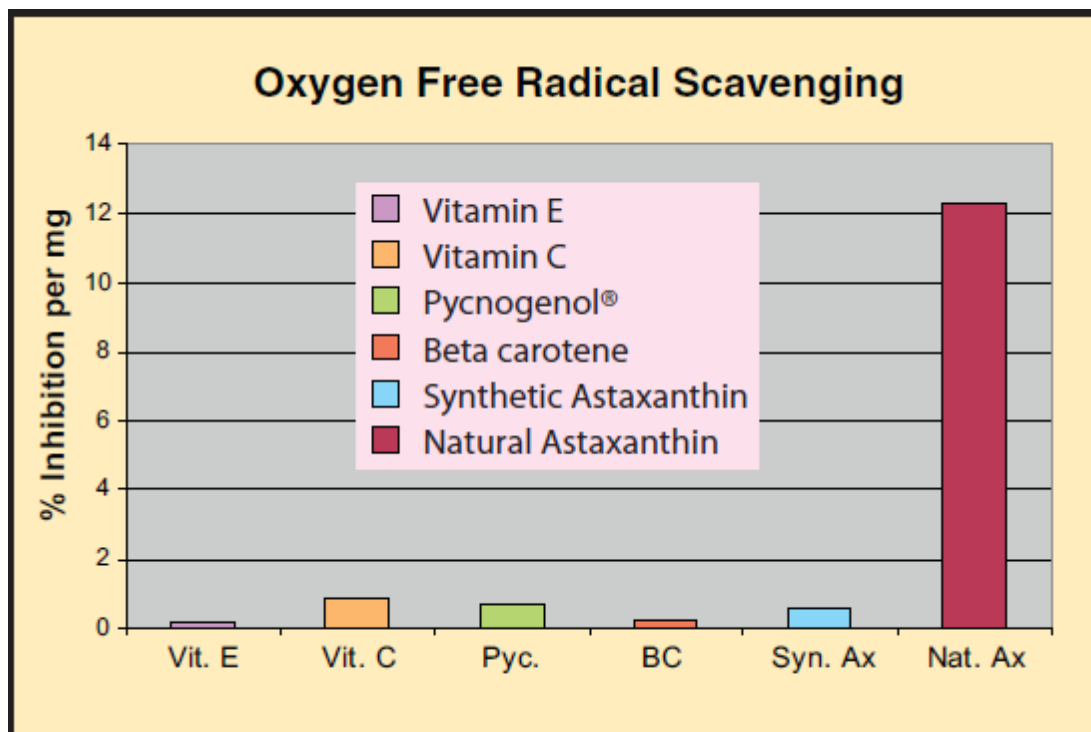


Fig.3

Astaxanthin capsules as a powerful antioxidant

Astaxanthin is a carotenoid that belongs to the xanthophyll sub-group, a family of oxygen-containing carotenoids. Unlike the most common carotenoid in the human diet, the Vitamin A precursor β -carotene, Astaxanthin possesses additional potent hydroxyl and ketone groups at both termini, which are responsible for its official chemical name, 3,3'-dihydroxy- β -carotene-4,4'-dione. Astaxanthin has two asymmetric carbons (carbons 3 and 3') in its side rings, and thus contains two chiral centers. Therefore, it may present three stereoisomers: 3S, 3'S form, 3R, 3'R

form, and the meso form 3R, 3'S. Synthetic Astaxanthin consists of the racemic mixture of the three enantiomers, but only one form is abundant naturally: the 3S, 3'S isomer.

Astaxanthin consists of geometric isomers as well, all-trans isomer (all- E), and the cis isomers (mainly as 9Z and 13Z). In nature, Astaxanthin can appear as free Astaxanthin, monoester, or diester; while the most abundant geometric isomer in nature is the all-E isomer. In the microalgae *Haematococcus pluvialis*, Astaxanthin is accumulated mainly as monoester, partly as diester, and only in minor quantities as free Astaxanthin.

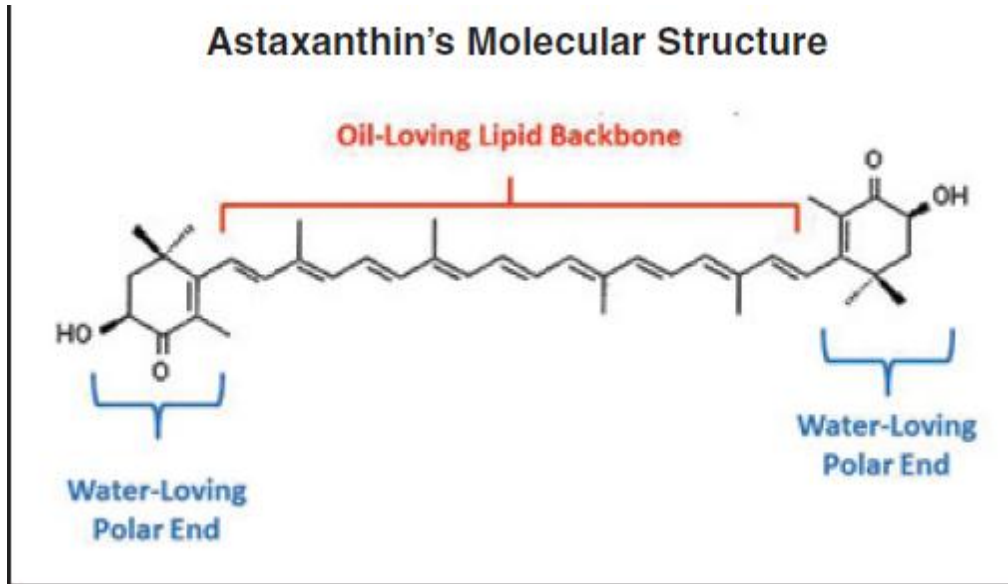


Fig. 4

Composition of Astashine capsules

Astaxanthin - 2mg
 (Naturally derived from Haematococcus pulvialis algae extract, which is microencapsulated)

singlet oxygen, and a strong scavenging effect against free radicals. Astaxanthin was found to be at least 10 times stronger antioxidant than zeaxanthin, lutein, tunaxanthin, canthaxanthin, and beta-carotene, and 100 times stronger than Vitamin E.

CLINICAL STUDY REPORTS OF ASTAXANTHIN IN ASTASHINE CAPSULES

Clinical studies has shown that Astashine capsules has the strongest quenching effect against

<u>Supplement</u>	<u>How many times Weaker than Astaxanthin</u>	<u>How many mg to equal 4mg of Astaxanthin</u>
Astaxanthin		
Alpha Lipoic Acid	75 times weaker	300 mg
Green Tea Catechins	550 times weaker	2200 mg
CoQ10	800 times weaker	3200 mg
Vitamin C	6000 times weaker	24,000 mg

Fig 5

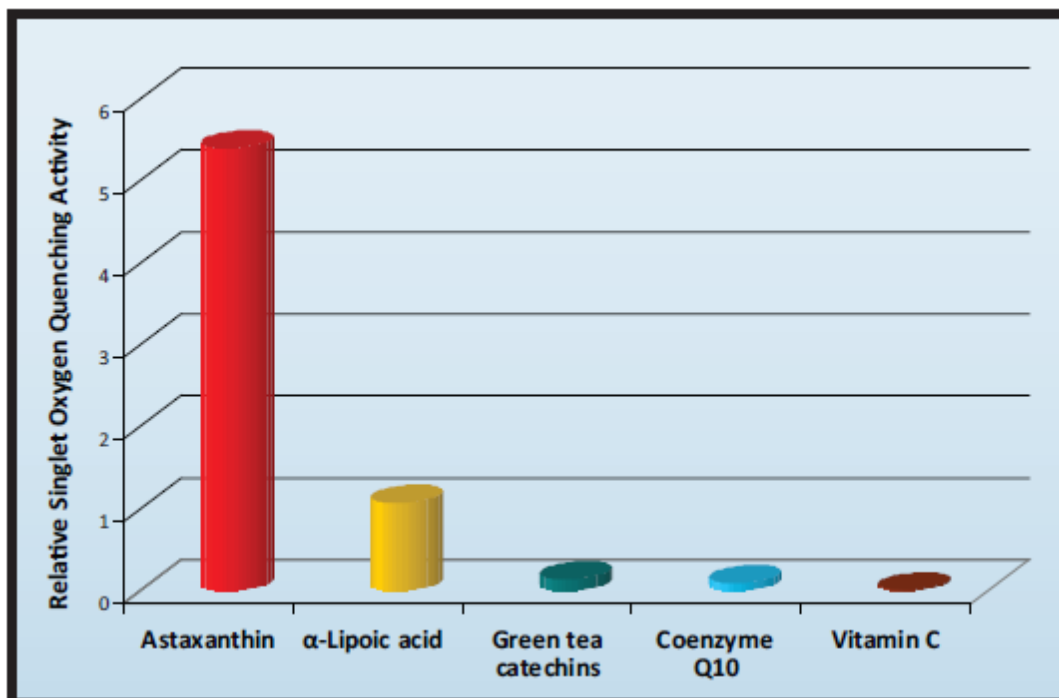


Fig.6

Astaxanthin is a potent antioxidant nutrient with a wide variety of health benefits. Three recent studies demonstrate excellent anti-aging potential, especially to help preserve the efficiency of energy production during aging.

Mitochondria are cell's Power house. They need to function well in order to maintain efficient energy production, especially to offset the common decline in mitochondrial function that occurs during aging. astaxanthin improves the mitochondrial function. Astaxanthin improves antioxidant status and decreases the levels of nitric oxide that is linked to inflammatory states in the circulation. Under the influence of astaxanthin, not only did mitochondria Organelle function better, they grew in physical size and demonstrated superior enzyme activity. When mitochondria grow in size, a process called mitochondrial biogenesis is taking place, a key anti-aging event that is helping body energy production become more youthful. [1]

Another study looked at the ability of bovine embryos to maintain normal growth and development under varying levels of heat stress. After disruptive stress was induced upon the embryos, astaxanthin was provided to the embryos, which recovered their normal function and growth pattern. Astaxanthin specifically localized with the

mitochondria, rejuvenating normal energy production capability. [2]

In Another study, Japanese researchers from the Department of Aging Control, Juntendo University, provided doses of either 6 mg or 12 mg per day of astaxanthin in a randomized, double-blind, placebo-controlled study to test cognitive function in middle aged and elderly patients. Over a 12-week period both groups improved on learning tests, and the 12 mg per day group improved on cognitive testing. The researchers concluded that astaxanthin "improves cognitive function in the healthy aged individuals." Of course, the brain requires efficient mitochondrial energy production in order to perform and is also helped by a reduction in free radical damage – two of the key mechanisms of astaxanthin benefit. Astaxanthin makes sense as part of an anti-aging nutritional program wherein a variety of nutrients help reduce free radical damage and excess inflammation while helping to improve the efficiency of energetic function. [3]

SAFETY OF ASTASHINE CAPSULES

Astaxanthin has demonstrated safety in numerous human clinical trials. In one open-label clinical study on subjects with metabolic syndrome

(n=17). Astaxanthin (16 mg/day, for three months) significantly raised blood bilirubin ($p \leq 0.05$), potassium ($p \leq 0.05$), and creatine kinase ($p \leq 0.01$), although all three values remained within normal range. Also, astaxanthin significantly lowered the liver enzyme gamma-glutamyl transpeptidase (GGTP; $p \leq 0.05$). Since the researchers noted this enzyme was abnormally elevated in 11 of the 17 subjects at baseline, this astaxanthin effect may have been beneficial. Animal experiments have investigated astaxanthin at levels well over 120 mg/day in human equivalents, without causing apparent harm. Hoffman-La Roche confirmed its safety with extensive tests, including acute toxicity, mutagenicity, teratogenicity, embryotoxicity, and reproductive toxicity.

Suggested Dosage

The doses of astaxanthin used in clinical trials have ranged from 1 mg/day to 40 mg/day (with the

majority in the 6-12 mg range); single-dose pharmacokinetic studies used up to 100 mg per dose. As a dietary supplement, astaxanthin should be taken along with fats, with or immediately prior to meals, to ensure its optimal absorption.

Summary and Conclusion

Astaxanthin's antioxidant activity has been demonstrated in several studies. In some cases, astaxanthin has up to several-fold stronger free radical antioxidant activity than vitamin E and beta-carotene. The antioxidant properties of astaxanthin are believed to have a key role in several other properties such as protection against UV-light photooxidation, inflammation, cancer, ulcer's Helicobacter pylori infection, aging and age-related diseases, or the promotion of the immune response, liver function and heart, eye, joint and prostate health.

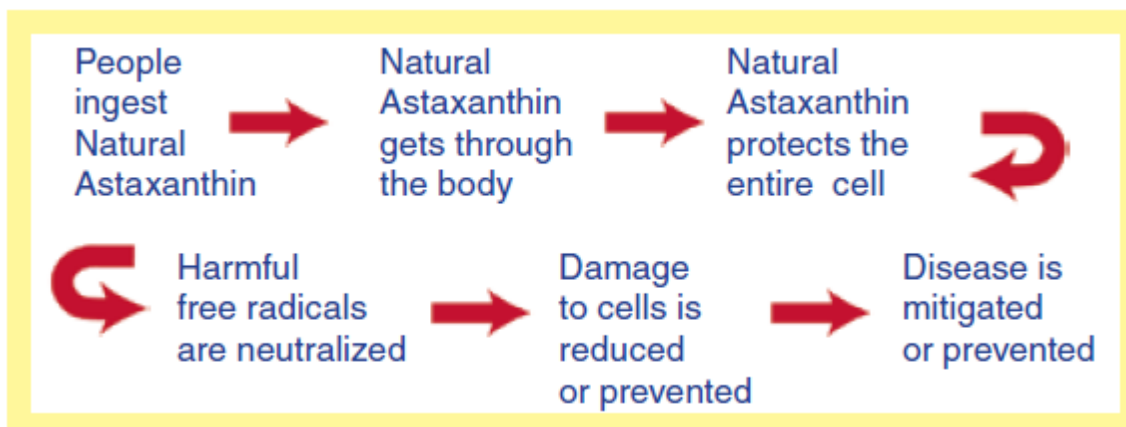


Fig. 7

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