

## What is Astaxanthin?

Astaxanthin is a red pigment from the xanthophyll-carotenoid family, which is responsible for giving the pink-red color to salmon and shrimps, being aquaculture one of the main uses.

It is EU Novel Food and US FDA approved, and recognized as safe for food and beverage applications.

It is a powerful antioxidant with a capacity greater than other antioxidants such as vitamin C, vitamin E or beta-carotene.

In nature, the main source of natural astaxanthin is the green algae *Haematococcus pluvialis*, which can be massively produced. Synthetic astaxanthin can also be produced, but the molecular structure, the isomers, are not the same. This means that the level of bioactivity is not the same, neither the stability or the bioavailability, compared with the natural one.

As an antioxidant, it contributes to oxidative stress reduction. It improves oxidative stress markers such as DNA damage and it's been shown to enhance immune response.

Also, due to its capacity of crossing blood-brain and blood-retinal barrier, it has positive impacts in brain function, as well as improving eye health as for example reducing ocular hypertension or improving central retina dysfunction in Age-related Macular Degeneration.

As a carotenoid, it acts as a filter of light protecting against UV radiation and scavenging free radicals generated by environmental exposure. Studies shown to improve skin condition and reduce signs of aging.

It is used in sports medicine due to its capacity to promote lipid metabolism over glucose utilization during exercise. In addition, it absorbs the oxidative stress induced by exercise.

Apart of this, astaxanthin shows a high anti-inflammatory activity, and it was shown that it positively impacts insulin sensitivity for type II diabetes. Also, it has demonstrated potential in cardiovascular health during in-vivo research.

Last but not least, astaxanthin, unlike other carotenoids, never becomes a pro-oxidant.

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