



Botanical  
Ingredients



## ASTAGILE™ microcapsules Naturally stable astaxanthin for healthy aging

### Description

ASTAGILE™ microcapsules is a stable and natural astaxanthin with increased stability and functional benefits for an enhanced cognitive performance to support healthy aging.

### Composition

Spirulina (*A. platensis*), astaxanthin-rich oil extracted from *H. pluvialis*, mixed tocopherols, sunflower oil.

\*The product contains 2% of astaxanthin

### A nutritional view

Astaxanthin, a member of the xanthophyll group, is a red-orange carotenoid with unique cell membrane actions and diverse biological activities. Numerous studies have shown that astaxanthin has potential health-promoting effects, however, because of its highly conjugated, double bond structure, astaxanthin is unstable during production and storage. This causes a loss of its biological activity, and considerably limits its use in nutraceutical applications.

Microencapsulation provides a solution to astaxanthin limitations as it protects and stabilizes the astaxanthin-rich extract of *Haematococcus pluvialis* while improving its health properties.

ASTAGILE™ microcapsules is an all-natural, nootropic product based on a stable microencapsulated astaxanthin with proven neuroprotective efficacy. The key innovation of the product is the use of other bioactive algae ingredients for the astaxanthin microencapsulation to improve its benefits.

### Applications

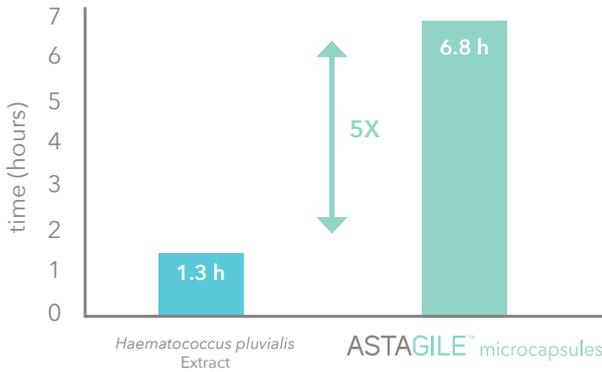
Nutritional powders, tablets, capsules and other dietary supplements.

### Competitive advantages

- 100% natural nootropic ingredient
- Powerful antioxidant effect
- Improves astaxanthin benefits by other microalgae
- Proven neuroprotective efficacy

## Oxidation Stability

Astaxanthin stability against oxidation has been evaluated in **ASTAGILE™ microcapsules** and *Haematococcus pluvialis* extract by a means of a Rancimat test. Both samples were exposed at 10L/h airflow and temperature of 100°C showing that the Induction time for **ASTAGILE™ microcapsules** was 5 times longer than the one for *H. pluvialis* extract.

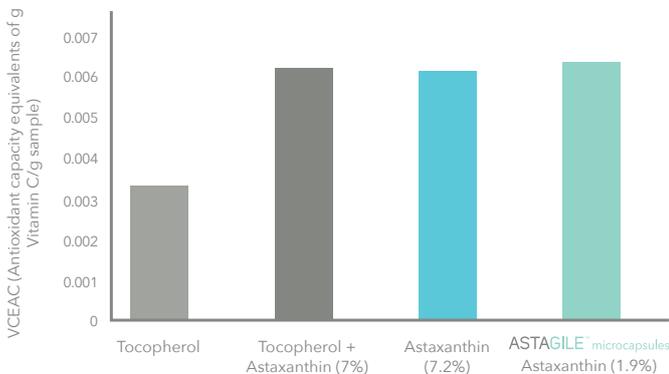


**ASTAGILE™ microcapsules showed a 5X greater stability index compared to the *H. pluvialis* extract**

According to the results, **ASTAGILE™ microcapsules** improves significantly oxidation stability of astaxanthin compared with the extract.

## Antioxidant effect

**ASTAGILE™ microcapsules** antioxidant capacity has been assessed and compared with tocopherol, astaxanthin and the mix of astaxanthin and tocopherol through an ABTS test. This method, based on the antioxidant capacity equivalence of Vitamin C (VCEAC), is considered one of the most sensitive techniques to identify antioxidant activity.



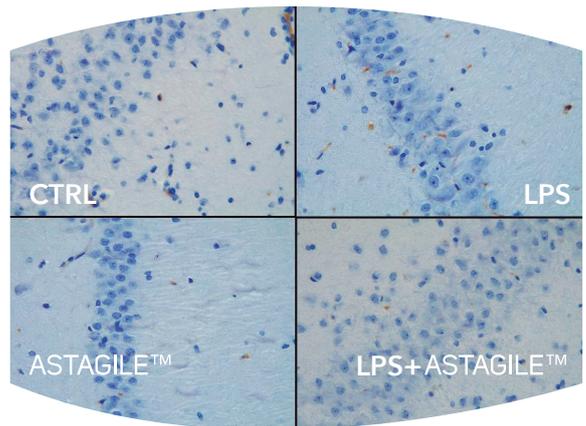
**ASTAGILE™ microcapsules shows a superior antioxidant capacity thanks to its algae composition**

According to the results, **ASTAGILE™ microcapsules** with an astaxanthin content of 1.9% has the same antioxidant capacity as of *H. pluvialis* extract with 7.2% astaxanthin.

## Beneficial effects on cognitive health

An animal study was conducted at the Nutrition and Health Unit of the Technological Center at Eurecat in Catalonia, Spain to demonstrate the cognitive enhancing effects of **ASTAGILE™ microcapsules** on subjects that were induced with neuroinflammatory lipopolysaccharides (LPS) treatment.

Immunohistological analysis of the hippocampus and prefrontal cortex has been performed. As shown in the representative photograph of the hippocampal microglia, **ASTAGILE™ microcapsules** reversed the activation of the microglia induced by LPS, thereby exerting an anti-inflammatory action on brain tissues.



**ASTAGILE™ microcapsules exerted a protective cognitive effect by reversing LPS-induced microglia activation**

Results showed a reversal effect against LPS-induced cognitive impairment in rats as well as the memory enhancement exerted in healthy individuals.

For more information, visit [www.lipofoods.com](http://www.lipofoods.com)

