

Astaxanthin and encapsulated astaxanthin from white shrimp shell alleviates cognitive impairment in animal model of Alzheimer's Disease

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Astaxanthin is a carotenoid with powerful antioxidant and anti-inflammatory activity. However, the effects of astaxanthin and encapsulated astaxanthin from white shrimp shell (*Litopenaeus Vannamei*) on Alzheimer's Disease (AD) has not been elucidated. AD was induced by i.c.v. administration of Amyloid-beta (1-42) peptides in rats. This study aimed to investigate the effect of astaxanthin extract and encapsulated astaxanthin on cognition function.

Astaxanthin significantly reversed the cognitive and memory impairment, assessed by the Morris water maze test, Novel Object Recognition test and Novel Object Location test. Astaxanthin is able to act against oxidative injuries, through various mechanisms, by inhibiting superoxide anion, reduction of malondialdehyde (MDA) and protein oxidation product levels, increasing the levels or stimulating the activity of glutathione peroxidase enzymes in the cortex and hippocampus.

Astaxanthin 10 mg/kg encapsulated using cryogenic incorporated freeze-drying showed the similar effect with astaxanthin commercial 10 mg/kg and better effect with astaxanthin extract 10 mg/kg and vitamin E 100 mg/kg. Our study concludes preventive of astaxanthin, acting on cognitive functions and neurodegeneration caused by A β (1-42) peptides infused Wistar rats.

Biography

Pennapa Chonpathompikunlert is postdoctoral researcher from University of Tsuluba, Japan for 3 years and following Assistant Professor from Prince of Songkhla University, Thailand for 5 years and now move to Expert Centre of Innovative Health Food, Thailand Institute of Scientific and Technological Research as a research officer. Her research projects focusing on the role of encapsulation technology for drug or food ingredient delivery to treat various pathological conditions that related to a free radical pathway. Specifically, she is interested in behavioral testing in an animal model of neurodegenerative diseases such as AD, PD, stress condition and also interesting in brain tumor, stroke condition, an inflammatory disease such as OA, RA and pain condition. And nowadays, she moves to setup comet assay follow OECD-GLP in present institute. She has published more than 30 papers in reputed journals.