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Acer Truncatum seed extract Nervonic acid profile

Name : Nervonic acid

Alternative Name: Selacholeic Acid; cis-15-Tetracosenic Acid

Source: Acer Truncatum

Botanical Name : Acer truncatum Bunge

Extract part: Kernel of Acer Truncatum

CASN: 506-37-6

Molecular Formula:$C_{24}H_{46}O_2$

Formula Weight:366.62

Purity :≥85%

Appearance: White crystalline powder

Melting Point:42-43

Country of origin:P.R. China

What is

Nervonic acid (24:1, n-9) is a fatty acid. It is a monounsaturated analog of lignoceric acid (24:0). It is also known as selacholeic acid and cis-15-tetracosenoic acid.

It exists in nature as an elongation product of oleic acid (18:1 Δ9), its immediate precursor being erucic acid. Nervonic acid is particularly abundant in the white matter of animal brains and in peripheral nervous tissue where nervonyl sphingolipids are enriched in the myelin sheath of nerve fibers.[2]

In the same way, recent studies have concluded that nervonic acid is implicated as an intermediate in the biosynthesis of nerve cell myelin.

This acid is an important member of the group of the cerebrosides, which are fatty acids of the glycosphingolipids group, important components of the muscles and the central nervous system and peripheral. Indeed, it is one of the major fatty acids in brain sphingolipids, normally accounting for approximately 40% of the total fatty acids in sphingolipids.

Function

1). Nervonic Acid can advance the re-growth of neuron. It possesses the following three medical effects:Repair and dredge the speedway of transferring nervonic information nerve fiber to dredge the brain route.Repair the injured cranial nerve cells.

2). Advance the re-growth of cranial nerve.

3). Nervonic acid can increase the energy of brain cells, advance the multiplication and differentiation of cells, prevent the cranial nerve cells from consenescence and injury, recover the clear perceive ability, distinguishing ability, study ability and memory of brain. It is effective to prevent senile dementia.

Source

It occurs in seed oil of plants, in where significant amounts of nervonic acid are contained. Indeed,

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more than 10% of nervonic acid are in the lipid (usually triglyceride). The seed oils of Lunaria species (Lunaria biennis for example) are a quite important source of this long chain fatty acid, since they contain over 20% of it in the triglyceride lipid. Nervonic acid is also found in Cardamine gracea, Heliphila longifola, or even Malania oleifera. In all these species, 24:1 usually is esterified at the sn-1 and sn-3 positions on the glycerol backbone.[11] Other sources can be the moulds Neocallismastix frontalis; the bacterium Pseudomonas atlantica, the yeast Saccharomvces cerevisiae, and the marine diatom Nitzschia cylindrus

Usage

It is also used as a biomarker to predict who will suffer some psychoses. For instance, there is evidence of abnormal levels of fatty acids in individuals with schizophrenia. In particular, decreased levels of 24:1 are related with prodomal psychosis symptoms so it can be beneficial in the prevention and treatment of this kind of disorders.[8]

Nervonic acid can be an indicator of future neurodevelopmental disorders in male babies whose mother has preeclampsia. Recent studies show that cord nervonic acid levels were lower in women with preeclampsia delivering male babies as compared to normotensive control group. But this does not happen with girl babies. These results suggest that male babies born to mothers with preeclampsia may be at an increased risk of developing neurodevelopmental disorders as compared to female babies.[9]

This acid is present in the composition of aged eye lens, but it does not appear in normal eye lens. This data shows that we can use the presence of nervonic acid (together with heneicosylic acid and docosahexaenoic acid) as biomarkers of aging lens, which is the most vulnerable stage for cataract development.