Ethyl Ferulate natural

Description

Ethyl ferulate is a naturally lipophilic derivative of ferulic acid isolated from rice bran oil. Ferulic acid occurs in nature, in plants as a free acid or as ester mainly in seeds, in leaves and in barks. Already in 1866 ferulic acid was isolated from the resin of the plant Ferula Foetida. Later in 1925 ferulic acid could be synthesized by the Knoevenagel condensation of vanillin and malonic acid diethyl ester in the presence of secondary amines. Ferulic acid usually exist as the trans isomer, while in solution slow isomerization results in an equilibrium ratio of 23 % cis and 77 % trans. The multifunctional effects of ferulic acid make this an active of high interest. Ferulic acid and its esters, like chemical sunscreen agents, have a phenyl-2-propene structure. They have a vinyl group at the benzene ring, which is strongly absorbing UV-light. By this absorption the stabilized phenoxy radical will be formed and a cis-trans-isomerization will occur. Therefore, ferulic acid in barks, leaves and seeds is protecting the plant from the harmful rays of sunlight.

An addition, ferulic acid is able to prevent the development of radicals started by oxygen and UV-radiation. Each reactive radical Lx or L-O-O-x (lipoperoxyl radical) which might get contact with a molecule of ferulic acid abstracts a hydrogen atom from the phenolic group of ferulic acid. A phenoxy radical is generated, which shows a high resonance stabilization. Therefore, ferulic acid is approved as an antioxidant agent in cosmetics and in food. The anti-inflammatory effectiveness of ferulic acid is based on its antioxidative potential. Ferulic acid furthermore shows very good MIC values for gram-positive and gram-negative bacteria.

Efficacy

- shows the efficacy of a sunscreen (UV-A and UV-B absorption)
- acts as a deodorant
- acts as an antioxidant and protects from damages due to free radicals
- reduces inflammations and counteracts erythema development
- acts antimicrobial in cosmetic formulations
- soothes the skin

Appearance

creamy white powder or granules

INCI

Ethyl Ferulate

Registration

CAS-No.....4046-02-0
EC-No.....223-745-5

Raw material approved by ECOCERT GREENLIFE, conform to the ECOCERT Natural and Organic Cosmetics Standard.

Nature needs no cosmetics,
but cosmetics need nature

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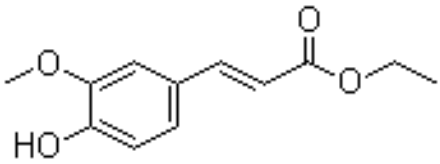
Preservatives / Stabilizers

none

Characteristics

purity (HPLC).....> 98 %
assay of Ferulic Acid.....< 1 %
loss on drying.....< 10 %
melting point.....53°C - 65°C



(source www.chemblink.com)

molecular formula.....$C_{12}H_{14}O_4$
synonym:
ethyl 4-hydroxy-3-methoxycinnamate, 3-methoxy-4-hydroxycinnamic acid ethyl ester

Application

high quality cosmetic products
daily care products
face masks
creams and gels
ampoules
body lotions
sun protection

Application concentration

skin care formulation.....0.5 - 1 %

Incorporation

Ethyl Ferulate natural is soluble in ethanol, pentylene glycol, propylene glycol or emulsifiers. It is insoluble in glycerin.
In a pure water/ethanol system 3 % ethyl ferulate is stable in 60 % of water and 37 % of ethanol. If you add additional substances, please reduce the water content and not the ethanol content.
In case an emulsifier or an oil phase is added the possible ethanol and water concentration may vary from above values.
At room temperature Ethyl Ferulate natural is insoluble in sunflower oil, olive oil, Tegosoft P, Tegosoft CT and M.
Under heating (> 50°C) Ethyl Ferulate natural is soluble up to 0.5 % in sunflower oil or in Tegosoft P and the solution is clear after cooling down.

Toxicology

non hazardous in normal use concentration

pure raw material is irritating to skin, eye and may cause respiratory irritation

Storage & Shelf life

Ethyl Ferulate natural should be stored in a dry and light protected place at 10 - 25°C.

In closed original containers the shelf life is three years.

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