



Spec-Chem Ind.

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Kojic Acid

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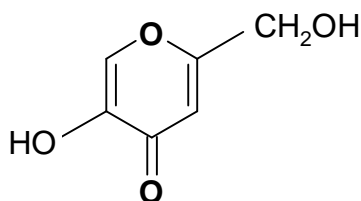
A. TECHNICAL DATA SHEET

CAS No.: 501-30-4

EINECS: 207-922-4

Empirical Formula: C₆H₆O₄

Chemical Name: 5-hydroxy-2-(Hydroxymethyl)-4H-Pyran-4-one



Kojic acid was first extracted from mould grown on rice (*Aspergillus oryzae*) or that grown on soybean (*Aspergillus sojae*) and is used as a starter medium for the production of fermented food. Kojic acid is produced biologically by fermentation of bacteria on carbohydrates. The name is Japanese and comes from the word "koji" meaning "culture".

APPLICATION:

1. Skin-lightening agent

Kojic acid is a natural, effective lightener (derived from rice) that helps fade spots by retarding excessive melanin production.

Skin color is determined by the quantity of melanin in the skin. Melanin is biosynthesized in the melanosome of the melanocyte - a process involving the presence of the enzyme tyrosinase. Kojic acid is known to inhibit tyrosinase thereby reducing the production of melanin.

Kojic acid is primarily used in cosmetics for its skin lightening effect. It acts as an inhibitor of tyrosinase, which is responsible for the formation of melanin - the skin coloring agent in skin. Kojic acid also reduces existing melanin in the skin thereby assisting in the depigmentation of the skin. Kojic acid successfully reduces age spots and pigmentation on face and body, typically caused by sun damage. Kojic acid is also known to have an anti-microbial effect.

2. Medicine material

Kojic acid and its derivatives are used as an important material in antibiotic -cephamycin, anodyne, and antiphlogistic production.



3. Food additive:

Kojic acid and its derivatives work as antiseptic, antioxidant, preservative and color stabilizer in meat processing, also act as useful materials of food aromatizer - maltol and ethylmaltol.

4. Preservative and color stabilizer of cut-flower:

Kojic acid and its derivatives are added to cut-flower to keep flower colorful and fresh.

5. Film despecking agent and iron analysis reagent.

6. Non-toxic to person and livestock, pollution-free pesticide in insecticide production.

In summary, Kojic acid can act as a tyrosinase inhibitor (to inhibit melanin formation), an antioxidant, a bacteriostat, a metal chelating agent and an intermediate in synthesis. Applications of kojic acid include the prevention of discolouration of crustacea, meat and fresh vegetables, as a preservative, as an antioxidant for fats and oils, in cosmetics (skin whitening or depigmenting agent), in the preparation of derivative esters (i.e. kojic oleate, kojic stearate), in adhesives, in chelate-forming resins and as a plant growth-regulating agent to increase production, early maturing and increase sweetness. Kojic acid has been used in flavourings at 0.2% to add luster, to prevent discolouration on vegetables at 1.0%, in flour production at 0.1%, in meat production at 0.2%, in syrup at 0.05% and as a whitening agent in cosmetics at 0.5–1.0%.

SAFETY

Kojic Acid is a pure (98%) and natural material. It also is widely used in the field of medicine and food. Because it can eliminate free radicals, strengthen cell activity, and keep food fresh. Kojic Acid is widely consumed in the Japanese diet and is believed to be beneficial to health.

MAIN SPECIFICATIONS

Appearance	Pale yellow to almost white crystals
Melting point	152-154°C
Assay	Not less than 99.0 %

USE LEVEL: At present, kojic acid's level added in cosmetics is from 0.2 to 1.0 percent.

PACKAGE: In aluminum foil bag: 1.0kg/bag; 2.0kg/bag; 5.0kg/bag; etc



B. Formulation of Kojic Acid

Tooth-Whitening:

Kojic Acid	2.0
Citric acid	2.0
Silica	20.0
Propylene glycol	5.0
Sorbitol	12.0
Na CMC	1.0
Na Sacharin	0.15
Perfumes	1.1
H ₂ O to	100%

Antiwrinkle Cosmetic and topical agents:

Kojic acid	1.0
Na Hyaluronate	2.0
Polyethylene glycol	3.0
Polyoxyethylene cetyl ether	5.0
Stearic acid	5.0
Avocado oil	1.0
Almond oil	10.0
Na dl-pyrrol donecar boxylate	5.0
P-hydroxybenzoate	0.2
Disodium edetate	0.1
H ₂ O to	100%



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