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(54) **Title**: COSMETIC COMPOSITION

(57) **Abstract**: The present invention mainly relates to a cosmetic composition comprising: kojic acid; and at least one non-ionic surfactant selected from the group consisting of polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers, polyoxyethylenated (30-50 EO) hydrogenated castor oils, and polyoxyethylenated (15-30 EO) mono- or tri-oleates; and water in an amount of 50% or more relative to the total weight of the composition. The present invention is useful because the cosmetic composition keeps stable over time even though it comprises kojic acid.

DESCRIPTION

COSMETIC COMPOSITION

TECHNICAL FIELD

The present invention relates to a cosmetic composition with enhanced stability which is preferably used for whitening the skin.

BACKGROUND ART

It is common for people with colored or even dark skin to wish to whiten their skin, and, with this aim, to use cosmetic or dermatological compositions containing whitening agents.

The substances most commonly used as whitening agents are hydroquinone and derivatives thereof, kojic acid and derivatives thereof, azelaic acid, arbutin and derivatives thereof, alone or in combination with other active agents.

Such compositions comprising whitening agents are also used by individuals whose skin displays dyschromias. These dyschromias are of diverse origin: age (age marks), exposure to UV radiation, pregnancy marks, etc.

Kojic acid (2-hydroxymetyl-5-hydroxy-4H-pyran-4-one) is known to inhibit tyrosinase which is involved in the production of melanin in the skin, and therefore kojic acid is widely used for whitening the skin. For example, WO 00/7627 discloses a composition comprising kojic acid to reduce pigmentation of the skin in Table 7 as Example 3.

DISCLOSURE OF INVENTION

It was found by the inventors that a composition including kojic acid and high amount of water (at least 50 % by weight) can be unstable over time to form sediments. As a result of diligent research, the inventors discovered that kojic acid forms sediments when being combined with a certain type of surfactants.

It might be considered to add no surfactant to a composition comprising kojic acid in order to stabilize the composition. However, the use of a surfactant or surfactants is difficult to be avoided, especially if the composition is used as a cosmetic composition, because the cosmetic composition typically contains

several substances such as perfumes which need the aid of surfactant(s) to be dissolved in the cosmetic composition.

Thus, an objective of the present invention is to provide a cosmetic composition comprising kojic acid with good stability over time, even though the cosmetic composition includes a surfactant or surfactants.

The above objective of the present invention can be achieved by combining, kojic acid with carefully selected surfactant(s).

Thus, one aspect of the present invention is a cosmetic composition comprising:
kojic acid; and
at least one non-ionic surfactant selected from the group consisting of polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers, polyoxyethylenated (30-50 EO) hydrogenated castor oils, and polyoxyethylenated (15-30 EO) mono- or tri-oleates; and
water in an amount of 50% or more relative to the total weight of the composition.

It is preferable that the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers be selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-6 Decyltetradeceth-12, PPG-13 Decyltetradeceth-24, PPG-6 Decyltetradeceth-20, PPG-4 Ceteth-1, PPG-8 Ceteth-1, PPG-4 Ceteth-10, PPG-4 Ceteth-20, PPG-5 Ceteth-20, PPG-8 Ceteth-20, and PPG-23 Steareth-34.

It is more preferable that the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are (15-40 EO) and polyoxypropylenated (5-30 PO) alkyl (C_{16}-C_{24}) ethers, which could be selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-6 Decyltetradeceth-20, PPG-5 Ceteth-20, PPG-8 Ceteth-20, and PPG-23 Steareth-34.

It is most preferable that the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are (15-40 EO) and polyoxypropylenated (5-30 PO) alkyl (C_{16}-C_{24}) ethers, which could be selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-5 Ceteth-20, and PPG-8 Ceteth-20.

It is preferable that the polyoxyethylenated (30-50 EO) hydrogenated castor oils be selected from the group consisting of PEG-30 Hydrogenated castor oil, PEG-40 Hydrogenated castor oil and PEG-50 Hydrogenated castor oil.

It is more preferable that the polyoxyethylenated (30-50 EO) hydrogenated castor oil be PEG-40 Hydrogenated castor oil.

It is preferable that the polyoxyethylenated (15-30 EO) mono- or tri-oleates be selected from the group consisting of Polysorbate 80 and Polysorbate 85.

It is more preferable that the polyoxyethylenated (15-30 EO) mono- or tri-oleate is Polysorbate 80.

The non-ionic surfactant may be present in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 2.5% by weight, relative to the total weight of the composition.

The kojic acid may be present in an amount of 0.01% to 5% by weight, preferably 0.1% to 3.0% by weight, and more preferably 0.5% to 2.0% by weight, relative to the total weight of the composition.

The cosmetic composition according to the present invention may further comprise at least one perfume.

The perfume may be present in an amount of 0.01% to 1% by weight, preferably 0.01% to 0.5% by weight, and more preferably 0.01% to 0.3% by weight, relative to the total weight of the composition.

The cosmetic composition according to the present invention may further comprise at least one fatty compound in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 1% by weight, relative to the total weight of the composition.

It is preferable that the cosmetic composition according to the present invention be intended for whitening the skin.

The cosmetic composition comprising kojic acid according to the present invention is stable over time.

Another aspect of the present invention is a cosmetic treatment process for the skin, comprising applying the cosmetic composition according to the present invention onto the skin.

BEST MODE FOR CARRYING OUT THE INVENTION

After diligent research, the inventors have discovered that it is possible to provide a cosmetic composition including kojic acid with good stability by using carefully selected specific non-ionic surfactant(s).

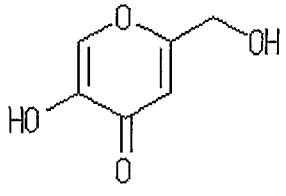
Thus, the cosmetic composition according to the present invention is characterized by comprising:
(A) kojic acid; and
(B) at least one non-ionic surfactant selected from the group consisting of polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers, polyoxyethylenated (30-50 EO) hydrogenated castor oils, and polyoxyethylenated (15-30 EO) mono- or tri-oleates.

In addition, the cosmetic composition according to the present invention further comprises
(C) water in an amount of 50% or more relative to the total weight of the composition.

Hereinafter, the cosmetic composition according to the present invention will be explained in a more detailed manner.

(A) Kojic acid

Kojic acid is a heterocyclic compound having the following chemical formula.



The cosmetic composition according to the present invention may comprise kojic acid in an amount of 0.01% to 5.0% by weight,

preferably 0.1% to 3.0% by weight, and more preferably 0.5% to 2.0% by weight, relative to the total weight of the composition.

(B) Non-ionic surfactant

The cosmetic composition according to the present invention comprises at least one non-ionic surfactant selected from the group consisting of polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers, polyoxyethylenated (30-50 EO) hydrogenated castor oils, and polyoxyethylenated (15-30 EO) mono- or tri-oleates.

Two or more of the non-ionic surfactants may be used.

The polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers can preferably be selected from the group consisting of:
PPG-6 Decyltetradeceth-30; Polyoxyethlene (30) Polyoxypropylene (6) Tetradecyl Ether such as those sold as Nikkol PEN-4630 from Nikko Chemicals Co.,
PPG-6 Decyltetradeceth-12; Polyoxyethylene (12) Polyoxypropylene (6) Tetradecyl Ether such as those sold as Nikkol PEN-4612 from Nikko Chemicals Co.,
PPG-13 Decyltetradeceth-24; Polyoxyethylene (24) Polyoxypropylene (13) Decyltetradecyl Ether such as those sold as UNILUBE 50MT-2200B from NOF Corporation,
PPG-6 Decyltetradeceth-20; Polyoxyethylene (20) Polyoxypropylene (6) Decyltetradecyl Ether such as those sold as Nikkol PEN-4620 from Nikko Chemicals Co.,
PPG-4 Ceteth-1; Polyoxyethylene (1) Polyoxypropylene (4) Cetyl Ether such as those sold as Nikkol PBC-31 from Nikko Chemicals Co.,
PPG-8 Ceteth-1; Polyoxyethylene (1) Polyoxypropylene (8) Cetyl Ether such as those sold as Nikkol PBC-41 from Nikko Chemicals Co.,
PPG-4 Ceteth-10; Polyoxyethylene (10) Polyoxypropylene (4) Cetyl Ether such as those sold as Nikkol PBC-33 from Nikko Chemicals Co.,
PPG-4 Ceteth-20; Polyoxyethylene (20) Polyoxypropylene (4) Cetyl Ether such as those sold as Nikkol PBC-34 from Nikko Chemicals Co.,
PPG-5 Ceteth-20; Polyoxyethylene (20) Polyoxypropylene (5) Cetyl Ether such as those sold as Procetyl AWS from Croda Inc.,
PPG-8 Ceteth-20; Polyoxyethylene (20) Polyoxypropylene (8) Cetyl Ether such as those sold as Nikkol PBC-44 from Nikko Chemicals Co., and
PPG-23 Steareth-34; Polyoxyethylene Polyoxypropylene Stearyl Ether (34 E.O.) (23 P.O.) such as those sold as Unisafe 34S-23 from Pola Chemical Industries. They can provide a composition with

stability for a long time, even though the temperature of the composition is increased and decreased in a relatively short period of time.

It is more preferable that the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are (15-40 EO) and polyoxypropylenated (5-30 PO) alkyl (C_{16}-C_{24}) ethers, which could be selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-6 Decyltetradeceth-20, PPG-5 Ceteth-20, PPG-8 Ceteth-20, and PPG-23 Steareth-34.

It is most preferable that the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are (15-40 EO) and polyoxypropylenated (5-30 PO) alkyl (C_{16}-C_{24}) ethers, which could be selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-5 Ceteth-20, and PPG-8 Ceteth-20. They can also provide a composition with transparency for a long time.

The polyoxyethylenated (30-50 EO) hydrogenated castor oils can preferably be selected from the group consisting of:
PEG-30 Hydrogenated castor oil; Polyoxyethylene (30) Hydrogenated Castor Oil such as those sold as Nikkol HCO-30 from Nikko Chemicals Co.,
PEG-40 Hydrogenated castor oil; Polyoxyethylene (40) Hydrogenated Castor Oil such as those sold as Nikkol HCO-40 from Nikko Chemicals Co.,
and
PEG-50 Hydrogenated castor oil; Polyoxyethylene (50) Hydrogenated Castor Oil such as those sold as Nikkol HCO-50 from Nikko Chemicals Co. They can provide a composition with stability for a long time, even though the temperature of the composition is increased and decreased in a relatively short period of time.

It is more preferable that the polyoxyethylenated (30-50 EO) hydrogenated castor oil be PEG-40 Hydrogenated castor oil. This can also provide a composition with transparency for a long time.

The HLB value of the polyoxyethylenated (30-50 EO) hydrogenated castor oils is preferably 14.5 or less, more preferably 14 or less, further more preferably 13.5 or less, and most preferably 13.0 or less.

The polyoxyethylenated (15-30 EO) mono- or tri-oleates can preferably be selected from the group consisting of:
Polysorbate 80; Polyoxyethylene Sorbitan Oleate (20 E.O.) such as those sold as Tween 80 from Croda, Inc.,
and
Polysorbate 85; Polyoxyethylene Sorbitan Trioleate (20 E.O.) such as those sold as Tween 85 from Croda, Inc. They can provide a composition with stability for a long time, even though the temperature of the composition is increased and decreased in a relatively short period of time.

It is more preferable that the polyoxyethylenated (15-30 EO) mono- or tri-oleate is Polysorbate 80. This can also provide a composition with transparency for a long time.

The cosmetic composition according to the present invention may comprise the non-ionic surfactant in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 2.5% by weight, relative to the total weight of the composition.

(C) Water

The cosmetic composition according to the present invention comprises water in an amount of 50% or more relative to the total weight of the composition.

The water may be a floral water such as cornflower water, and/or a mineral water such as Vittel water, Lucas water, or La Roche Posay water, and/or a thermal water, and/or seawater such as deep seawater.

The amount of water may range from 50 to 99.5% by weight, preferably ranging from 60 to 99% by weight, and more preferably ranging from 70 to 95% by weight, with respect to the total weight of the composition.

(D) Other components

The cosmetic composition according to the present invention may further comprise at least one perfume.

As the perfume, a natural or synthetic fragrance or aroma, and a mixture thereof can be employed.

As examples of natural fragrances and aromas, mention may be made of, for example, extracts of flowers (lily, lavender, rose, jasmine, or ylang-ylang), extracts of stems and of leaves (patchouli, geranium, or petit grain), extracts of fruits (coriander, anise, caroway, or juniper), extracts of fruit rinds (bergamot, lemon, or orange), extracts of roots (angelica, celery, cardamom, iris, or sweet flag), extracts of wood (pinewood, sandalwood, lignum vitae, or pink cedar), extracts of grasses and of gramineous plants (tarragon, lemon grass, sage, or thyme), extracts of needle leaves and of branches (spruce, fir, pine, or dwarf pine), extracts of resins and of balms (galbanum, elemi, benzoin, myrrh, olibanum, or opopanax), and the like.

As examples of synthetic fragrances and aromas, mention may be made of, for example, esters, ethers, aldehydes, ketones, aromatic alcohols, and hydrocarbon-based compounds.

As specified examples of the aforementioned esters, mention may be made of benzyl acetate, benzyl benzoate, phenoxyethyl isobutyrate, p-t-butylcyclohexyl acetate, citronellyl acetate, citronellyl formate, geranyl acetate, linalyl acetate, dimethylbenzylcarbonyl acetate, phenylethyl acetate, linalyl benzoate, benzyl formate, ethylmethylphenyl glycinate, alkylcyclohexyl propionate, styralyl propionate, benzyl salicylate, and the like.

As examples of the aforementioned ethers, mention may be made of benzyl ethyl ether and the like.

As examples of the aforementioned aldehydes, mention may be made of, for example, linear alkanals having 8 to 18 carbon atoms, citral, citronellal, citronellyl oxyacetaldehyde, cyclamen aldehyde, hydroxycitronellal, lilial, bourgeonal, and the like.

As examples of the aforementioned ketones, mention may be made of, for example, ionones such as α-isomethylionone and methyl cedryl ketone.

As examples of the aforementioned aromatic alcohols and in particular, terpene alcohols, mention may be made of anethole, citronellol, eugenol, isoeugenol, geraniol, linalol, phenylethyl alcohol, terpineol, and the like.

As examples of the aforementioned hydrocarbon-based compounds, mention may be made of, in particular, terpenes. The aforementioned compounds are often provided in the form of a

blended product having two or more odorous substances in many cases.

An essential oil can also be employed as an aroma component. For example, sage oil, chamomile oil, clove oil, balm oil, mint oil, cinnamon leave oil, lime blossom oil, juniper oil, vetiver oil, olibanum oil, galbanum oil, labolanum oil, lavandin oil, and the like are employed.

In addition, perfumes described below can be employed alone or in combination. Bergamot oil, dihydromyrcenol, lilial, lyral, citronellol, phenylethyl alcohol, α-hexylcinnamaldehyde, geraniol, benzylacetone, cyclamen aldehyde, linalol, ambroxan, indole, hedione, sandelice, lemon oil, oils from mandarins and oranges, allyl amine glycolate, cyclovertal, lavender oil, sage oil, β-damascone, geranium oil, cyclohexyl salicylate, phenylacetic acid, geranyl acetate, benzyl acetate, rose oxide, or the like, can be employed.

In accordance with a preferable mode for carrying out the present invention, various perfumes can be employed by blending the same. Thereby, a scent which is pleasing to the user can be obtained.

The cosmetic composition according to the present invention may comprise the perfume in an amount of 0.01% to 1% by weight, preferably 0.01% to 0.5% by weight, and more preferably 0.01% to 0.3% by weight, relative to the total weight of the composition.

The cosmetic composition according to the present invention may further comprise at least one organic solvent which is miscible with water at ambient temperature (25°C).

As examples of the organic solvent which is miscible with water at ambient temperature (25°C), mention may be made of, for example, monoalcohols having 2 to 6 carbon atoms, such as ethanol and isopropanol;
polyols having 2 to 20 carbon atoms, preferably having 2 to 10 carbon atoms, and more preferably having 2 to 6 carbon atoms, such as glycerin, as well as alkylene glycols such as propylene glycol, butylene glycol, pentylene glycol, hexylene glycol, dipropylene glycol, and diethylene glycol;
glycol ethers (in particular, having 3 to 16 carbon atoms) (such as (C_1-C_4) alkyl ethers of mono-, di-, or tripropylene glycol, and (C_1-C_4) alkyl ethers of mono-, di-, or triethylene glycol); and mixtures thereof.

The cosmetic composition according to the present invention may comprise the aforementioned water-miscible organic solvent(s) in an amount ranging from 0.1 to 30% by weight, preferably ranging from 5 to 25% by weight, and more preferably ranging from 10 to 20% by weight, with respect to the total weight of the composition. In particular, it is preferable that ethanol is contained in an amount of 0.1 to 15% by weight, if ethanol is present in the composition. It is also preferable that alkylene glycol(s) is/are contained in an amount of 0.1 to 25% by weight, if alkylene glycol(s) is/are present in the composition, with respect to the total weight of the composition.

The cosmetic composition according to the present invention may further comprise Vitamin E or a derivative thereof.

The Vitamin E derivative is not particularly limited, and examples thereof include, for example, tocopherol acetate and the like.

The blending amount of Vitamin E or the derivative thereof in the cosmetic composition according to the present invention is not particularly limited, and preferably ranges from 0.01 to 5% by weight on the basis of the total weight of the composition.

The cosmetic composition according to the present invention may further comprise at least one fatty compound.

The fatty compound may be in the form of a liquid or a solid. Here, "liquid" means that the fatty compound is in the form of a liquid or a paste (non-solid) at room temperature (25°C) under atmospheric pressure (760 mmHg). As the liquid fatty compound, oils generally used in cosmetics can be used alone or in combination thereof.

The oil may be a non-polar oil such as a hydrocarbon oil, a silicone oil, or the like; a polar oil such as a vegetable oil and an ester oil; or a mixture thereof.

As examples of hydrocarbon oils, mention may be made of, for example, linear or branched hydrocarbons such as mineral oil (liquid paraffin), liquid vaseline, liquid naphthalene, and the like; hydrogenated polyisobutene, isoeicosan, squalane, squalene, and decene/butene copolymer; and mixtures thereof.

As examples of silicone oils, mention may be made of, for example, linear organopolysiloxanes such as dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane, and the like; cyclic organopolysiloxanes such as octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, and the like; and mixtures thereof.

As examples of vegetable oils, mention may be made of, for example, linseed oil, camellia oil, macadamia nut oil, corn oil, mink oil, olive oil, avocado oil, sasanqua oil, castor oil, safflower oil, jojoba oil, sunflower oil, almond oil, rapeseed oil, sesame oil, soybean oil, peanut oil, and mixtures thereof.

As examples of ester oils, mention may be made of, for example, diisopropyl adipate, dioctyl adipate, 2-ethylhexyl hexanoate, ethyl laurate, cetyl octanoate, octyldodecyl octanoate, isodecyl neopentanoate, myristyl propionate, 2-ethylhexyl 2-ethylhexanoate, 2-ethylhexyl octanoate, 2-ethylhexyl caprylate/caprate, methyl palmitate, ethyl palmitate, isohexyl laurate, hexyl laurate, isocetyl stearate, isopropyl isostearate, isodecyl oleate, glyceryl tri(2-ethylhexanoate), pentaerythrithyl tetra(2-ethylhexanoate), 2-ethylhexyl succinate, diethyl sebacate, and mixtures thereof.

The fatty compound may be a wax. Here, "wax" means that the fatty compound is substantially in the form of a solid at room temperature (25°C) under atmospheric pressure (760 mmHg), and has a melting point generally 35°C or more. As the waxy fatty substance, waxes generally used in cosmetics can be used alone or in combination thereof.

For example, the wax may be chosen from carnauba wax, microcrystalline waxes, ozokerites, hydrogenated jojoba oil, polyethylene waxes such as the wax sold under the name "Performalene 400 Polyethylene" by the company New Phase Technologies, silicone waxes, for instance poly(C_{24}-C_{28})alkylmethyldimethylsiloxane, such as the product sold under the name "Abil Wax 9810" by the company Goldschmidt, palm butter, the C_{20}-C_{40} alkyl stearate sold under the name "Kester Wax K82H" by the company Kester Keunen, stearyl benzoate, shellac wax, and mixtures thereof. For example, a wax chosen from carnauba wax, candelilla wax, ozokerites, hydrogenated jojoba oil and polyethylene waxes is used. In at least one embodiment, the wax is preferably chosen from candelilla wax and ozokerite, and mixtures thereof.

The cosmetic composition according to the present invention may comprise the fatty compound in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 1% by weight, relative to the total weight of the composition.

The fatty compound may be combined with a fatty acid such as stearic acid, myristic acid, or the like; a higher alcohol such as cetyl alcohol, stearyl alcohol, octyldodecanol, or the like; and the like.

The cosmetic composition according to the present invention is preferably intended for whitening the skin.

The whitening cosmetic composition of the present invention is a topical composition for applying on the surface of the body of human beings for the purpose of whitening, and is preferably a cosmetic composition for topical application on the skin. The term "whitening" means all effects of inhibiting the production and/or deposition of melanin, and includes inhibiting the production of melanin, and reducing the produced melanin, as well as lightening color.

In addition to kojic acid, the cosmetic composition according to the present invention may further comprise at least one additional whitening active ingredient.

As examples of the aforementioned additional whitening active ingredients, mention may be made of, for example, ascorbic acid or derivatives thereof, tranexamic acid or derivatives thereof, resorcinol or derivatives thereof, alkoxysalicylic acid or salts thereof, adenosine phosphate or salts thereof, hydroquinone or glycosides thereof or derivatives thereof, glutathione, 4-(4-hydroxyphenyl)-2-butanol, magnolignan (5,5'-dipropyl-biphenyl-2,2'-diol), placenta extracts, chamomilla recutita, and the like.

Ascorbic acid has a D-configuration or L-configuration, and the L-configuration one is preferably employed. Ascorbic acid is also referred to as vitamin C, and has effects of inhibiting the production of melanin due to the strong reduction effects of ascorbic acid. The derivatives of ascorbic acid may be salts of ascorbic acid, and the salts of ascorbic acid are preferably selected from sodium ascorbate, magnesium ascorbyl phosphate, and sodium ascorbyl phosphate. The derivatives of ascorbic acids may be glycosides of ascorbic acid or esters of ascorbic acid. As an example of glycosides of ascorbic acid, mention may be made of,

for example, ascorbyl glucoside. As examples of esters of ascorbic acid, mention may be made of, for example, silyl ascorbate, tocopheryl ascorbate, and alkyl ascorbates. As the alkyl ascorbate, methyl ascorbate or ethyl ascorbate is preferably used. In particular, ascorbyl glucoside is preferable. Ascorbic acid or derivatives thereof can be used alone or in combination with two or more types thereof.

As detailed examples of derivatives of ascorbic acid, mention may be made of, for example, 5,6-di-O-dimethylsilyl ascorbate, which is commercially available as PRO-AA from Exsymol SAM; dl-alpha-tocopheryl-2-l-ascorbyl phosphate which is commercially available as SEPIVITAL EPC from Senju Pharmaceutical Co., Ltd.; sodium ascorbyl phosphate which is commercially available as Stay-C 50 from Roche; ascorbyl glucoside which is commercially available from Hayashibara Biochemical Labs., Inc.; 3-O-ethyl ascorbic acid; and the like.

Ascorbic acid or the derivative thereof is preferably used in combination with a copolymer of styrene and maleic anhydride. In particular, at least one part of the maleic anhydride unit of the aforementioned copolymer is preferably hydrolyzed. The aforementioned hydrolyzed maleic anhydride unit may be in the form of an alkaline salt such as a sodium salt, a potassium salt, a lithium salt, or the like. The aforementioned maleic anhydride unit preferably occupies 0.4 to 0.9 mol per one mol of the entire copolymer, and the ratio of the maleic anhydride unit and the styrene unit is preferably 50:50. In particular, it is preferable that the ratio of the maleic anhydride unit and the styrene unit be preferably 50:50, and an ammonium salt or sodium salt be used. By employing ascorbic acid or the derivative thereof in combination with the aforementioned copolymer, stability of ascorbic acid or the derivative thereof is improved. As the aforementioned copolymer, for example, a copolymer of styrene and maleic anhydride (50/50) in the form of an ammonium salt in a concentration of 30% in water, which is commercially available as product number SMA 1000 H (trademark) from Atofina Chemicals Inc.; or a copolymer of styrene and maleic anhydride (50/50) in the form of a sodium salt in a concentration of 40% in water, which is commercially available as product number SMA 1000 H Na (trademark) from Atofina Chemicals Inc., can be used. The aforementioned copolymer is used in a concentration ranging from 0.1 to 20% by weight, and preferably ranging from 0.1 to 10% by weight, with respect to the total weight of the whitening agent for topical application.

As examples of derivatives of tranexamic acid, mention may be made of dimmers of tranexamic acid (such as hydrochloric acid trans-4-(trans-aminomethylcyclohexanecarbonyl)aminomethylcyclohexane carboxylic acid), esters of tranexamic acid and hydroquinone (such as 4'-hydroxyphenyl trans-4-aminomethylcyclohexane carboxylate), esters of tranexamic acid and gentisic acid (such as 2-(trans-4-aminomethylcyclohexanecarbonyloxy)-5-hydroxybenzoic acid and salts thereof), tranexamic amides (such as trans-4-aminomethylcyclohexanecarboxylic acid methylamide and salts thereof, trans-4-(p-methoxybenzoyl)aminomethylcyclohexane carboxylic acid and salts thereof, and trans-4-guanidinomethylcyclohexane carboxylic acid and salts thereof), and the like.

As examples of derivatives of resorcinol, mention may be made of, for example, 4-n-butylresorcinol (Rucinol) and the like.

An alkoxysalicylic acid is a compound in which any one of hydrogen atoms in the 3-position, the 4-position, or the 5-position of salicylic acid is substituted by an alkoxy group. The aforementioned alkoxy group is preferably any one of a methoxy group, an ethoxy group, a propoxy group, an isopropoxy group, a butoxy group, and isobutoxy group, and is more preferably a methoxy group or an ethoxy group. As specific examples of such a compound, mention may be made of, for example, 3-methoxysalicylic acid, 3-ethoxysalicylic acid, 4-methoxysalicylic acid, 4-ethoxysalicylic acid, 4-propoxysalicylic acid, 4-isopropoxysalicylic acid, 4-butoxysalicylic acid, 5-methoxysalicylic acid, 5-ethoxysalicylic acid, 5-propoxysalicylic acid, and the like. Salts of the alkoxysalicylic acids are not particularly limited. As examples thereof, mention may be made of, for example, alkali metal salts or alkaline earth metal salts such as sodium salts, potassium salts, calcium salts, and the like, ammonium salts, amino acid salts, and the like. A potassium salt of 4-methoxysalicylic acid is preferable.

As examples of adenosine phosphate or salts thereof, mention may be made of, for example, disodium adenosine phosphate, and the like.

As examples of glycosides of hydroquinone, mention may be made of, for example, hexose glycosides such as hydroquinone alpha-D-glucose, hydroquinone beta-D-glucose, hydroquinone alpha-L-glucose, hydroquinone beta-L-glucose, hydroquinone alpha-D-galactose,

hydroquinone beta-D-galactose, hydroquinone alpha-L-galactose, hydroquinone beta-L-galactose, and the like; pentose glycosides such as hydroquinone alpha-D-ribose, hydroquinone beta-D-ribose, hydroquinone alpha-L-ribose, hydroquinone beta-L-ribose, hydroquinone alpha-D-arabinose, hydroquinone beta-D-arabinose, hydroquinone alpha-L-arabinose, hydroquinone beta-L-arabinose, and the like; amino sugar glycosides such as hydroquinone alpha-D-glucosamine, hydroquinone beta-D-glucosamine, hydroquinone alpha-L-glucosamine, hydroquinone beta-L-glucosamine, hydroquinone alpha-D-galactosamine, hydroquinone beta-D-galactosamine, hydroquinone alpha-L-galactosamine, hydroquinone beta-L-galactosamine, and the like; urocanic acid glycosides such as hydroquinone alpha-D-glucuronic acid, hydroquinone beta-D-glucuronic acid, hydroquinone alpha-L-glucuronic acid, hydroquinone beta-L-glucuronic acid, hydroquinone alpha-D-galacturonic acid, hydroquinone beta-D-galacturonic acid, hydroquinone alpha-L-galacturonic acid, hydroquinone beta-L-galacturonic acid, and the like; and the like. Among these compounds, hydroquinone beta-D-glucose (hereinafter, referred to as "arbutin") is preferable. As examples of derivatives of hydroquinone or glycosides thereof, mention may be made of, for example, salts of hydroquinone or glycosides thereof. In particular, as examples of arbutin derivatives, mention may be made of, for example, 6-O-caffeoylarbutin, and the like.

As the additional whitening active ingredients, in particular, L-ascorbic acid or derivatives thereof, tranexamic acid or derivatives thereof, arbutin or derivatives thereof, and Rucinol are preferable, and ascorbic acid glycosides such as L-ascorbic acid glucoside are further preferable.

The blending amount of the additional whitening active ingredient in the whitening agent for topical application of the present invention is not particularly limited, and commonly ranges from 0.01 to 20% by weight, preferably ranges from 0.01 to 15% by weight, and more preferably ranges from 0.01 to 10% by weight, on the basis of the total weight of the whitening agent for topical application.

In the cosmetic composition according to the present invention, in addition to the aforementioned essential components (A), (B), and (C), as well as the aforementioned additional components, components typically employed in cosmetics, specifically, water-soluble polymers, acids, bases, salts, pigments, antioxidants, UV absorbing agents, whitening agents, blood circulation accelerators,

metal chelators, sebum controllers, powders, astringents, skin softeners, surfactants other than the aforementioned component (B), oils, organic solvents, silicones, silicone derivatives, natural extracts derived from animals or vegetables, waxes, and the like can be appropriately selected and employed within a range which does not impair the effects of the present invention.

The form of the cosmetic composition is not particularly limited, and may take various forms such as a W/O emulsion, an O/W emulsion, an aqueous gel, an aqueous solution, or the like. In addition, the cosmetic composition may be any of skin cosmetics, hair cosmetics, makeup cosmetics, cleansing cosmetics, nail cosmetics, cosmetics for use on mucosa such as lips, and the like, and is preferably skin cosmetics. It is preferable that the cosmetic composition according to the present invention is not in the form of an emulsion, but in the form of an aqueous solution such as a cosmetic water.

In the case of the present invention being a cosmetic water, the aforementioned cosmetic water is preferably transparent or preferably has a uniform outer appearance. Here, the expression "transparent" means allowing light to pass through without causing any deviation due to refraction or reflection. The transparency of a composition such as a cosmetic water can be measured by means of a turbidimeter. For example, a portable turbidimeter model 2100 P (trade mark) manufactured by Hach can be employed in order to measure the transparency ranges of a composition. When a composition has a measured turbidity value ranging from 0 to 250 NTU, the composition can be considered as being transparent.

The cosmetic composition according to the present invention can be used in a cosmetic treatment process containing the step of applying the cosmetic composition onto the skin. The process is, in particular, suitable for removing brownish pigmentation blemishes, for example, caused by external factors such as UV rays, and/or blemishes caused by, for example, internal factors such as aging and the like, and/or is suitable for lightening brown skin.

EXAMPLES

The present invention will be described in more detail by way of examples, which however should not be construed as limiting the scope of the present invention.

Examples 1 to 9 and Comparative Examples 1 to 4

The following compositions according to Examples 1 to 9 and Comparative Examples 1 to 4, shown in Tables 1 and 2, were prepared by the following steps:

(a) heating the components in phase A up to about 80°C and homogenizing them with a propeller,
(b) heating the components in phase B up to about 60°C,
(c) cooling the mixture obtained in the step (a) to about 60°C,
(d) pouring the components in phase B into the mixture of the components in phase A after the step (c),
(e) homogenizing the mixture obtained in the step (d) with a propeller for 10 minutes,
(f) cooling the mixture obtained in the step (e) to about 30°C, and
(g) pouring the components in phases C and D into the mixture obtained in the step (f).

For Examples 1 to 9 and Comparative Examples 1 to 4, the stability thereof was observed for 6 months at room temperature, and evaluated 6 months later in accordance with the following criteria.

Good: Stable (no sediment was observed)
X: Unstable (sediment was observed).

The results are shown in Tables 1 and 2.

Table 1

	Component	Ex. 1	Ex. 2	Ex. 3	Ex. 4	Ex. 5	Ex. 6	Ex. 7	Ex. 8	Ex. 9
A	Water	64.29	64.29	64.29	64.29	64.29	64.29	64.29	64.29	64.29
	Glycerin	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
	Butylene Glycol	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
	PPG-10 Methyl Glucose Ether	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	PPG-120 Methyl Glucose Dioleate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Methyl Gluceth-10	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	Disodium EDTA	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	Preservative	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
B	PPG-6 Decyltetradeceth-30	0.40	-	-	-	-	-	-	-	-
	PPG-13 Decyltetradeceth-24	-	0.40	-	-	-	-	-	-	-
	PPG-5 Ceteth-20	-	-	0.40	-	-	-	-	-	-
	PPG-8 Ceteth-20	-	-	-	0.40	-	-	-	-	-
	PEG-40 Hydrogenated Castor Oil	-	-	-	-	0.40	-	-	-	-
	Polysorbate 80	-	-	-	-	-	0.40	-	-	-
	PPG-4 Ceteth-20	-	-	-	-	-	-	0.40	-	-
	PPG-4 Ceteth-10	-	-	-	-	-	-	-	0.40	-
	PPG-6 Decyltetradeceth-12	-	-	-	-	-	-	-	-	0.40
	Tocopherylacetate	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Fragrance	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
C	Water	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
	Sodium Citrate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Citric Acid	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	Kojic Acid	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
	Triethanolamine	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
	Sun Screening Agent	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10	2.10
D	Ethanol	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Stability		Good	Good	Good	Good	Good	Good	Good	Good	Good

Table 2

	Component	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4
A	Water	64.29	64.29	64.29	64.29
	Glycerin	5.00	5.00	5.00	5.00
	Butylene Glycol	6.00	6.00	6.00	6.00
	PPG-10 Methyl Glucose Ether	0.80	0.80	0.80	0.80
	PPG-120 Methyl Glucose Dioleate	0.10	0.10	0.10	0.10
	Methyl Gluceth-10	1.50	1.50	1.50	1.50
	Disodium EDTA	0.05	0.05	0.05	0.05
	Preservative	0.60	0.60	0.60	0.60
B	PPG-60 Hydrogenated Castor Oil	0.40	0.40	-	-
	Sorbeth-30 Tetraisostearate	-	-	0.40	-
	Polysorbate 60	-	-	-	0.40
	Tocopherylacetate	0.01	0.01	0.01	0.01
	Fragrance	0.06	0.06	0.06	0.06
C	Water	10.00	10.00	10.00	10.00
	Sodium Citrate	0.10	0.10	0.10	0.10
	Citric acid	0.13	0.13	0.13	0.13
	Kojic acid	-	0.50	0.50	0.50
	Triethanolamine	0.36	0.36	0.36	0.36
	Sun Screening Agent	2.10	2.10	2.10	2.10
D	Ethanol	8.00	8.00	8.00	8.00
Stability		Good	X	X	X

It is clear from Comparative Example 1 that the presence of kojic acid is the origin of the unstability of the composition. It is also clear that the combinations of kojic acid and selected non-ionic surfactants render the composition stable, and that the other non-ionic surfactants cannot render the composition stable over time.

CLAIMS

1. A cosmetic composition comprising:
kojic acid; and
at least one non-ionic surfactant selected from the group consisting of polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers, polyoxyethylenated (30-50 EO) hydrogenated castor oils, and polyoxyethylenated (15-30 EO) mono- or tri-oleates; and
water in an amount of 50% or more relative to the total weight of the composition.

2. The cosmetic composition according to Claim 1, wherein the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-6 Decyltetradeceth-12, PPG-13 Decyltetradeceth-24, PPG-6 Decyltetradeceth-20, PPG-4 Ceteth-1, PPG-8 Ceteth-1, PPG-4 Ceteth-10, PPG-4 Ceteth-20, PPG-5 Ceteth-20, PPG-8 Ceteth-20, and PPG-23 Steareth-34.

3. The cosmetic composition according to Claim 2, wherein the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-6 Decyltetradeceth-20, PPG-5 Ceteth-20, PPG-8 Ceteth-20, and PPG-23 Steareth-34.

4. The cosmetic composition according to Claim 3, wherein the polyoxyethylenated (1-40 EO) and polyoxypropylenated (1-30 PO) alkyl (C_{16}-C_{24}) ethers are selected from the group consisting of PPG-6 Decyltetradeceth-30, PPG-13 Decyltetradeceth-24, PPG-5 Ceteth-20, and PPG-8 Ceteth-20.

5. The cosmetic composition according to any one of Claims 1 to 4, wherein the polyoxyethylenated (30-50 EO) hydrogenated castor oils are selected from the group consisting of PEG-30 Hydrogenated castor oil, PEG-40 Hydrogenated castor oil and PEG-50 Hydrogenated castor oil.

6. The cosmetic composition according to Claim 5, wherein the polyoxyethylenated (30-50 EO) hydrogenated castor oil is PEG-40 Hydrogenated castor oil.

7. The cosmetic composition according to any one of Claims 1 to 6, wherein the polyoxyethylenated (15-30 EO) mono- or tri-oleates are selected from the group consisting of Polysorbate 80 and Polysorbate 85.

8. The cosmetic composition according to Claim 7, wherein the polyoxyethylenated (15-30 EO) mono- or tri-oleate is Polysorbate 80.

9. The cosmetic composition according to any one of Claims 1 to 8, wherein the non-ionic surfactant is present in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 2.5% by weight, relative to the total weight of the composition.

10. The cosmetic composition according to any one of Claims 1 to 9, wherein the kojic acid is present in an amount of 0.01% to 5% by weight, preferably 0.1% to 3% by weight, and more preferably 0.5% to 2% by weight, relative to the total weight of the composition.

11. The cosmetic composition according to any one of Claims 1 to 10, wherein the composition further comprises at least one perfume.

12. The cosmetic composition according to Claim 11, wherein the perfume is present in an amount of 0.01% to 1% by weight, preferably 0.01% to 0.5% by weight, and more preferably 0.01% to 0.3% by weight, relative to the total weight of the composition.

13. The cosmetic composition according to any one of Claims 1 to 12, wherein the composition further comprises at least one fatty compound in an amount of 0.01% to 10% by weight, preferably 0.01% to 5% by weight, and more preferably 0.01% to 1% by weight, relative to the total weight of the composition.

14. The cosmetic composition according to any one of Claims 1 to 13, wherein the composition is intended for whitening the skin.

15. A cosmetic treatment process for the skin, comprising applying the cosmetic composition according to any one of Claims 1 to 14 onto the skin.

INTERNATIONAL SEARCH REPORT

International application No
PCT/JP2010/053180

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K8/49 A61K8/86 A61Q19/02
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A61K A61Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No
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