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THIS SHEET HAS BEEN REPLACED

It is known to use L-2-oxothiazolidine-4-carboxylic acid in cosmetic or dermatological compositions intended for topical application.

Such compositions can be intended to prevent hair loss or to stimulate the regrowth of hair, as described in EP-656,201.

Procysteine is also known, from patent FR-2,742,658, as an agent for depigmenting or bleaching human skin.

However, procysteine has a certain level of instability, in particular when it is in the presence of water. Thus, when it is introduced into a cosmetic composition, in particular a composition comprising water, its efficacy decreases over time. In addition, the composition into which it is introduced shows signs of degradation: coloration, odour, after a certain period of storage, these being unacceptable to users.

Consequently, there is currently a need for a composition which can be used in the cosmetic and dermatological fields, containing L-2-oxothiazolidine-4-carboxylic acid, the latter remaining stable over time.

The Applicant has now discovered that the combination of L-2-oxothiazolidine-4-carboxylic acid (I) with a polyol (II), in specific amounts by weight, is unexpectedly stable, in particular when this combination is introduced into a medium containing water.

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A first subject of the invention is thus the combination of L-2-oxothiazolidine-4-carboxylic acid or procysteine, denoted as compound (I), with at least one compound belonging to the polyol class, denoted as compound (II), the amounts by weight of compounds (I) and (II) being respectively denoted as [I] and [II] and following the relationship $[I]/[II] \leq 1/4$.

Preferably $[I]/[II] \leq 1/5$ and even more preferably $[I]/[II] \leq 1/10$.

The subject of the invention is also a cosmetic composition comprising the above combination and water. This composition comprises a cosmetically acceptable support, of which water is one of the constituents. The elements of the support will be chosen in particular such that the compositions according to the invention are non-irritant, non-toxic and non-allergenic.

Preferably, the composition according to the invention comprises:

- L-2-oxothiazolidine-4-carboxylic acid (I)
- at least one polyol (II)
- water

the amounts by weight of the components (I) and (II) being respectively denoted as [I] and [II] and following: $[I]/[II] \leq 1/4$,

the amount of water being less than or equal to 35% by weight relative to the total weight of the composition, preferably less than or equal to 30%, even more

preferably less than or equal to 20%.

Such compositions make it possible to transport procysteine stably over time without any loss of this active agent's efficacy.

The term polyol is understood to denote a compound of linear, branched or cyclic, saturated or unsaturated alkyl type bearing at least two -OH functions on the alkyl chain, as well as the polymers (polyethers) of these polyhydroxylated alkyl compounds. Preferably, it is an alkyl compound having from 2 to 12 carbon atoms, and even more preferably from 2 to 8 carbon atoms. Advantageously, this alkyl compound contains 2 or 3 carbon atoms.

The polyol used according to the invention can be chosen in particular from: glycerol, ethylene glycol, propylene glycol, polymers and copolymers of glycerol, of ethylene glycol and of propylene glycol, such as, for example, dipropylene glycol and hexaglycerol.

Among the polyols which can be used according to the invention, mention may also be made of: sorbitol, hexylene glycol, butylene glycol, pentylene glycol, butyldiglycol, 1,2,3-trihydroxyhexane.

The subject of the invention is, more particularly, a composition as described above, characterized in that it is intended for the depigmentation or bleaching of human skin or of human head hair or other hair.

The subject of the invention is also a composition as described above, characterized in that it is intended to prevent hair loss or to stimulate the regrowth of the hair.

Advantageously, the composition according to the invention comprises from 0.01 to 10% by weight of L-2-oxothiazolidine-4-carboxylic acid, preferably from 0.1 to 5%, even more preferably from 0.5 to 3%, by weight relative to the total weight of the composition.

The composition of the invention can be in any pharmaceutical form usually used for topical application, in particular in the form of an aqueous, aqueous-alcoholic or oily solution, an oil-in-water or water-in-oil emulsion or a multiple emulsion, an aqueous or oily gel, a solid, pasty or liquid anhydrous product, a dispersion of oil in an aqueous phase using spherules, it being possible for these spherules to be polymer nanoparticles such as nanospheres and nanocapsules or lipid vesicles of ionic and/or nonionic type.

This composition can be more or less fluid and have the appearance of a white or coloured cream, an ointment, a milk, a lotion, a serum, a paste or a mousse. It can optionally be applied to the skin or to the hair in aerosol form. It can also be in solid form and, for example, in stick form. It can be used as a care product and/or as a make-up product. It can also be in the form of a shampoo or conditioner.

In a known manner, the composition of the invention can also contain the usual adjuvants in the cosmetic and dermatological fields, such as hydrophilic or lipophilic gelling agents, hydrophilic or lipophilic active agents, preserving agents, antioxidants, solvents, fragrances, fillers, screening agents, pigments, odour absorbers and dyestuffs. The amounts of these various adjuvants are those used conventionally in the fields considered and, for example, from 0.01 to 20% of the total weight of the composition. Depending on their nature, these adjuvants can be introduced into the fatty phase, into the aqueous phase, into the lipid vesicles and/or into the nanoparticles.

When the composition of the invention is an emulsion, the proportion of the fatty phase can range from 5 to 80% by weight, and preferably from 5 to 50% by weight, relative to the total weight of the composition. The oils, the emulsifiers and the co-emulsifiers used in the composition in emulsion form are chosen from those used conventionally in the field considered. The emulsifier and the co-emulsifier are present in the composition in a proportion ranging from 0.3 to 30% by weight, and preferably from 0.5 to 20% by weight, relative to the total weight of the composition.

As oils which can be used in the invention, mention may be made of mineral oils (liquid petroleum jelly), oils of plant origin (avocado oil, soybean

oil), oils of animal origin (lanolin), synthetic oils (perhydrosqualene), silicone oils (cyclomethicone) and fluoro oils (perfluoropolyethers). Fatty alcohols (cetyl alcohol), fatty acids and waxes (carnauba wax, ozokerite) can also be used as fatty substances.

As emulsifiers and co-emulsifiers which can be used in the invention, mention may be made, for example, of fatty acid esters of polyethylene glycol, such as PEG-20 stearate, and fatty acid esters of glycerol, such as glyceryl stearate.

As hydrophilic gelling agents, mention may be made in particular of carboxyvinyl polymers (carbomer), acrylic copolymers such as acrylate/alkylacrylate copolymers, polyacrylamides, polysaccharides, natural gums and clays, and, as lipophilic agents, mention may be made of modified clays such as bentones, metal salts of fatty acids, hydrophobic silica and polyethylenes.

Vitamins, keratolytic agents and/or desquamating agents (salicylic acid and its derivatives, α-hydroxy acids, ascorbic acid and its derivatives), anti-inflammatory agents, calmants and mixtures thereof can be used in particular as active agents. The combination according to the invention can also be combined with other depigmenting agents, such as cojic acid or hydroquinone and its derivatives, which makes it possible to use the latter agents at doses that are less toxic to the skin. The combination according to the invention can also be combined with

other anti-hair-loss and/or hair-regrowth agents. In case of incompatibility, these active agents and/or the combination according to the invention can be incorporated into spherules, in particular ionic or nonionic vesicles and/or nanoparticles (nanocapsules and/or nanospheres) so as to isolate them from each other in the composition.

Advantageously, the aqueous phase of the composition is neutralized by adjusting its pH to a value between 6 and 8.

The subject of the invention is also the use of at least one polyol to stabilize procysteine.

The subject of the invention is, in addition, a process for stabilizing procysteine in a cosmetic composition, this process consisting in incorporating at least one compound chosen from polyols into the said composition.

EXAMPLES

The examples which follow are given by way of illustration of the invention. The percentages are given by weight relative to the total weight of each constituent of the composition.

EXAMPLE 1: Facial depigmenting cream:

Procysteine	1%
Apricot oil	3%
Triethanolamine	1%
Aluminium starch octenyl succinate	3%
Nylon powder	7%

Cyclomethicone and dimethicone copolyol	20%
Phenyltrimethicone	4%
Propylene glycol	6%
Glycerol	23%
EDTA	q.s.
Preserving agents	q.s.
Water	31.5%

EXAMPLE 2: Facial depigmenting cream:

Procysteine	1%
Apricot oil	3%
Fillers	10%
Cyclomethicone	12.5%
Cyclomethicone and dimethicone copolyol	20%
Phenyltrimethicone	4%
Propylene glycol	6%
Glycerol	23%
EDTA	q.s.
Preserving agents	q.s.
Water	19%

CLAIMS

1. Combination, characterized in that it consists of at least L-2-oxothiazolidine-4-carboxylic acid denoted as compound (I), with at least one compound belonging to the polyol class, denoted as compound (II), the amounts by weight of compounds (I) and (II) being respectively denoted as [I] and [II] and following the relationship $[I]/[II] \leq 1/4$.

2. Combination according to Claim 1, characterized in that $[I]/[II] \leq 1/5$, preferably $[I]/[II] \leq 1/10$.

3. Combination according to either of the preceding claims, characterized in that the polyol is a compound of linear, branched or cyclic, saturated or unsaturated alkyl type having from 2 to 12 carbon atoms, bearing at least two -OH functions on the alkyl chain, as well as the polymers of these polyhydroxylated alkyl compounds.

4. Combination according to the preceding claim, characterized in that the polyol is chosen from: glycerol, ethylene glycol, propylene glycol, polymers and copolymers of glycerol, of ethylene glycol and of propylene glycol, sorbitol, hexylene glycol, butylene glycol, pentylene glycol, butyldiglycol, 1,2,3-trihydroxyhexane.

5. Cosmetic composition, characterized in that it comprises:

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- L-2-oxothiazolidine-4-carboxylic acid (I)
- at least one polyol (II)
- water

the amounts by weight of the components (I) and (II) being respectively denoted as [I] and [II] and following: $[I]/[II] \leq 1/4$.

6. Cosmetic composition according to Claim 5, characterized in that the amount of water is less than or equal to 35% by weight relative to the total weight of the composition, preferably less than or equal to 30%, even more preferably less than or equal to 20%.

7. Composition according to either of Claims 5 and 6, characterized in that it is intended for the depigmentation or bleaching of human skin or of human head hair or other hair.

8. Composition according to either of Claims 5 and 6, characterized in that it is intended to prevent hair loss or to stimulate the regrowth of the hair.

9. Composition according to any one of Claims 5 to 8, characterized in that it comprises from 0.01 to 10% by weight of L-2-oxothiazolidine-4-carboxylic acid, preferably from 0.1 to 5%, even more preferably from 0.5 to 3%, by weight relative to the total weight of the composition.

10. Composition according to any one of Claims 5 to 9, characterized in that the aqueous phase

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is neutralized by adjusting its pH to a value between 6 and 8.

11. Use of at least one polyol to stabilize procysteine.

12. Process for stabilizing procysteine in a cosmetic composition, this process consisting in incorporating at least one compound chosen from polyols into the said composition.

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