

Skin Whiteners



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Hyperpigmentation (dark skin areas) is characterized by an increased production and accumulation of melanins or an increased number of melanocytes. Melanins are dark colored pigments produced by special skin cells, called melanocytes. Hyperpigmentation can be inherited or, more often, acquired by a number of causes including photoaging, hormonal changes (contraceptives, pregnancy, menopause), repeated and prolonged exposure to the sun, and chronic skin irritations, inflammation or skin diseases.

Dark skin areas may be of cosmetic relevance especially if they occur in the face or other uncovered body areas. Many efforts have been devoted to screening and testing recognized and putative depigmenting agents. In addition, physical therapies, such as lasers, are currently under investigation to treat hyperpigmentation.

Depigmenting (Skin-Whitening) Agents

The production of melanin in the melanocytes is a highly complicated process involving a variety of proteins, enzymes, and amino acids. Consequently, there are several possibilities where the synthesis of melanin can be inhibited or decreased. The depigmenting compounds that are currently used achieve depigmentation by one of the following mechanisms (see table below).

Most Used Skin-Whiteners

Inhibit Melanotropin (MSH) Activity

Undecylenoyl-Phenylalanine

Inhibit Tyrosinase Synthesis

Tretinoin

Inhibit Tyrosinase Activity

Bearberry Extract, Arbutin, Kojic Acid, Hydroquinone, Aleosin, Azelaic Acid

Inhibit UV-Induced Melanin Synthesis

Vitamin C & Vitamin E

Chamomile Extract

Removal of Pigmented Skin Cells

Alpha-Hydroxy Acids (Glycolic acid, Salicylic Acid, Lactic Acid)

Liquiritin

The ideal depigmenting compound should have a potent, rapid and selective bleaching effect on hyperactivated melanocytes, carry no short- or long-term side-effects and lead to a permanent removal of undesired pigment.

Two depigmenting components that fulfill these criterias include undecyl-phenylalanine (**SkinWhite MSH**) and bearberry extract combined with vitamin C (**SkinWhite BLE**).

SkinWhite MSH is a modified amino acid that inhibits the activity of melanotropin (MSH). As MSH stimulates the production of melanin at multiple steps, inhibition of MSH is therefore a powerful method to depigment the skin. In fact, SkinWhite MSH has been shown to inhibit the melanin synthesis in melanocytes at a much higher degree than kojic acid or arbutin, two other widely used skin whiteners. The potency of inhibition is about in the range of hydroquinone which, however, has been suggested by the FDA to be removed from the market due to hazards seen with long-term treatments (currently, products that contain up to 2% hydroquinone are sold in the U.S. without a prescription, and up to 4% with a prescription).

In clinical studies with 64 Caucasian and Asian people a 3-month treatment with SkinWhite MSH gave the following results: in 86% dark skin areas significantly lightened (measured by melanin index), in 83% skin tone more radiant and uniform, in 73% reduction of dark spots, and in 96% smoother skin. First effects could be observed already after one week.

SkinWhite MSH is a white powder and has excellent stability in cosmetics. The typical use level is 1 - 2%. SkinWhite MSH is not suited to be added directly into commercial cream or lotions since it is not soluble in cold water or oil. It must be melted in the oil phase at 80°C/176°F and incorporated into a formula before the emulsification takes place.

SkinWhite MSH can also be combined with other skin whiteners including kojic acid, arbutin, alpha-hydroxy acids, hydroquinone or SkinWhite BLE.

SkinWhite BLE is a skin lightening agent made from bearberry leaves extract (arctostaphylos uva-ursi) combined with a special vitamin C (magnesium ascorbyl phosphate). In a clinical study with 40 Asian women the skin was lightened approximately 80% more than with Arbutin after a 3-months treatment. The complexion became clearer and much brighter. The efficacy was evaluated by Colorimetry (Chromameter).

SkinWhite BLE is clear yellowish solution that is soluble in water. The recommended use level is 4 - 8% or only 1 % when it is combined with exfoliants such as alpha-hydroxyacids (e.g. salicylic acid). Theoretically, SkinWhite BLE can be added directly to finished retail products but there are no efficacy data available.

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