

only be observed with the help of a microscope.

In addition to improving the absorption of the active ingredients, during penetration into the skin, the emergence of the needlelike crystals also stimulate the immune system of the skin, enabling production of new collagen and fibers by the skin, and thereby improving the dermal structure and increasing the flexibility and elasticity of the skin.

The active ingredients can be mixed with the needlelike crystals and then applied onto the skin; or, the active ingredients can be applied after applying the needlelike crystals. A homogeneous liquid will be resulted after mixing with the active ingredients. The needlelike microstructure of the crystals is invisible to the naked eyes. For the kinds of the active ingredients, the present application will make no specific definition. For example, the active ingredients can be an active ingredient for cosmetic use. The active ingredients for cosmetic use can be classified based on their effects such as moisturizing, whitening, anti-aging or the like. Specifically, the active ingredients can be a hyaluronic acid, a collagen, a vitamin C, a vitamin B3, an aloe, an arbutin, a linolenic acid, a botulinum toxin, a hepatic cell, a sheep placenta extract, a human placenta extract, various enzymes or the like. The method of the present invention can be used alone or in combination with an existing transdermal transportation system so as to achieve better effects.

In addition, for the dosage form of the product, the crystals can be formed as a liquid dosage form, a paste dosage form, a gel dosage form or the like by using the existing processes and active ingredients.

After being applied onto the skin, the absorption of the needlelike crystals can be promoted by means such as manual patting, massaging, kneading, pressing or the like.

In addition, as a preferred embodiment of present invention, after the needlelike crystals and active ingredients being applied, additional transdermal transportation techniques, for example, iontophoresis, electrophoresis, electroporation, water jetting, air jetting, micro-needle based devices, ultrasound, laser dermabrasion and other dermabrasion treatments and the like, may be used to further enhance the absorption of the needlelike

synergistic effect. Based on the above-described principles of the present application, the non-invasive transportation method provided by the present application is useful in various cosmetic methods. In conclusion, the present application aims to provide a non-invasive transportation method which is useful in various fields where it is necessary to promote the transdermal absorption of the substance through the skin.

To better illustrate the non-invasive transportation method provided by the present application, the present application will be described with specific examples.

Example 1

1. Cosmetics, grease and dust were cleaned off the subjects' face with cleansing emulsion and cleaning gel.
2. Active ingredients were applied onto the subject's face for multiple times, 1 ml each time, specifically:

- a. 1 ml of the active ingredients were applied onto and uniformly covered on the facial skin;

- b. another 1 ml of the active ingredients were applied onto and uniformly covered on the facial skin as the previously applied active ingredients on the facial skin dried due to absorption and evaporation;

- c. steps a and b were repeated until a total of 5 ml of the active ingredients were used; and

- d. the time length from the initial application to the last application of the active ingredients was recorded.

Comparative Example 1

On the fifth day after receiving the treatments of Example 1, the subjects received the treatments of Comparative Example 1, so as to avoid interference from the previous trial to the following trial and ensure the conditions of the skin in Example 1 and Comparative

WHAT IS CLAIMED IS:

1. A cosmetic, non-therapeutic, and non-invasive transportation method, characterized in comprising:

applying needlelike crystals onto skin,

wherein the needlelike crystals form a micro-channel array in epidermis layer, whereby active ingredients are transported into the skin through the micro-channel array,

wherein the needle-like crystals comprises raphide crystals.

2. The cosmetic, non-therapeutic, and non-invasive transportation method according to claim 1, characterized in that said applying needlelike crystals onto skin comprises:

mixing the needlelike crystals with the active ingredients prior to applying them onto the skin.

3. The cosmetic, non-therapeutic, and non-invasive transportation method according to claim 1, characterized in that said applying needlelike crystals onto skin comprises:

applying the needlelike crystals onto the skin prior to applying the active ingredients onto the skin.

4. The cosmetic, non-therapeutic, and non-invasive transportation method according to any one of claims 1 to 3, characterized in further comprising:

using additional transdermal transportation method(s) to facilitate transportation of the active ingredients into the skin,

wherein the additional transdermal transportation method(s) include, but are not limited to, iontophoresis, electrophoresis, electroporation, water jetting, air jetting, micro-needle based devices, ultrasound, laser dermabrasion and other dermabrasion treatments.

5. The cosmetic, non-therapeutic, and non-invasive transportation method according to any one of claims 1 to 3, characterized in further comprising:

pressing or kneading the skin to facilitate absorption of the active ingredients.

6. The cosmetic, non-therapeutic, and non-invasive transportation according to claim 1, wherein said raphide crystals comprise calcium oxalate.

7. The cosmetic, non-therapeutic, and non-invasive transportation according to claim 6, wherein said raphide is isolated from a plant of the *Lasia* genus.

8. The cosmetic, non-therapeutic, and non-invasive transportation according to claim 7, wherein the plant is *Lasia spinosa*.

9. The cosmetic, non-therapeutic, and non-invasive transportation according to any one of the preceding claims, wherein the needlelike crystals exhibit a width of 0.3 to 8 μm .