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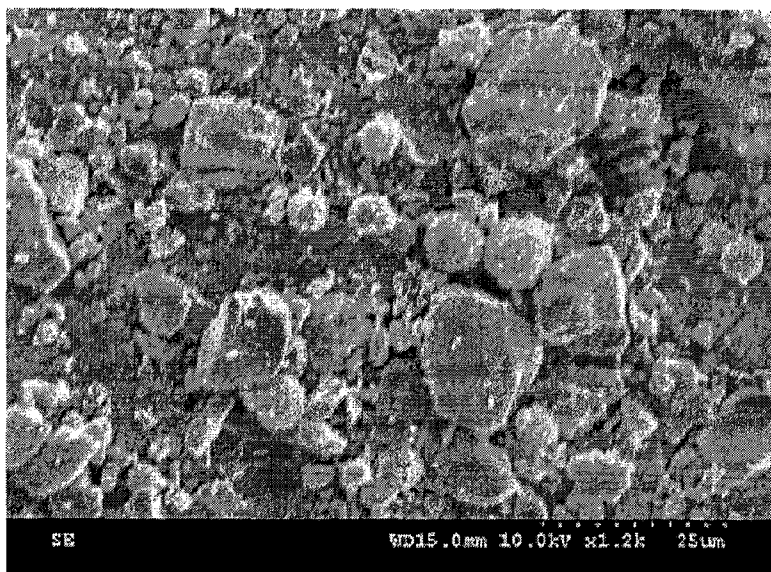
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(54) Title: COMPLEX POWDER CONTAINING MOGEOSEOG, THE PREPARATION METHOD THEREOF, AND THE COSMETIC COMPOSITION CONTAINING THE SAME



(57) Abstract: The present invention relates to a complex powder containing Muyu stone, a preparation method thereof, and a cosmetic composition containing the same. More particularly, the present invention relates to a complex powder containing Muyu stone that improves the rough feeling of use and the dark tone of Muyu stone itself by compounding with a spherical or flat powder, the preparation method thereof, and the cosmetic composition containing the same.

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**【DESCRIPTION】****【Invention Title】**

COMPLEX POWDER CONTAINING MOGEOSEOG, THE  
PREPARATION METHOD THEREOF, AND THE COSMETIC  
5 COMPOSITION CONTAINING THE SAME

**【Technical Field】**

The present invention relates to a complex powder containing  
Mogeoseog (hereinafter, Mogeoseog is called Muyu stone), a preparation method  
thereof, and a cosmetic composition containing the same. More particularly, the  
10 present invention relates to a complex powder containing Muyu stone that  
improves about the rough feeling of use and the dark tone of Muyu stone itself by  
compounding with a spherical or flat powder, the preparation method thereof,  
and the cosmetic composition containing the same.

**【Background Art】**

15 According to the Compendium of Materia Medica(Bencao Gangmu,  
Volume 10, 346p) written by Li Shizhen in the Ming Dynasty, Mogeoseog  
(Muyu stone) is called 'Tai yi yu liang' as a scientific name, and is a dark red  
pelite with additional purple colors formed in the sea at a time presumed to be  
550million years ago. According to records written in Cheongeonneung period of  
20 China in the past, it was produced in the south and north of Mt. Tai, and  
presently it is also produced at Mantoushan located in Jinan in Shandongsheng in  
China at present.

Muyu stone has as great an emission capacity of far infrared rays as Jade,  
and is confirmed to emit far infrared rays at an emissivity of 0.93(40℃), having  
25 emission power of  $3.74 \times 10^2 \text{W/m}^2 \mu\text{m}$  at experiments of emission of far infrared

rays. The far infrared ray emitted from Muyu stone has the capacities of promoting an excretion of waste product and heavy metal in the human body, maintaining suitable water amount in the human body, purifying working (preventing inhabitation of bacteria and mold, purifying contaminant, and so on) and promoting metabolism, due to increased perspiration, in addition to capacities of warming and promoting the circulation of blood. In addition, because the Muyu stone contains required mineral substances, such as Se, Cr, Mn, and Si, and trace elements, such as P, Be, Co, Zn, and Ge, in the human body, then it can promote the circulation of blood, prevent hypertension and have an anti-aging action. Especially when applied to skin as a material of cosmetic composition, the Muyu stone has effects of promoting the circulation of blood and giving warmth by emitting far infrared rays and by containing mineral substances and trace elements.

To achieve the above-mentioned effects, at present, Muyu stone is sold as an applied product to an auxiliary instrument for health, such as a bed, floor paper, and so on. However, up to now, there has been no example of application to a cosmetic composition. There are difficulties of application because Muyu stone has a rough feeling during use on applying to skin, due to having an irregular shape and a particle size of 5~30 $\mu$ m. In addition, Muyu stone has a limitation on applying to a cosmetic composition, because the peculiar dark reddish brown of Muyu stone causes a problem of mixing colors on using a cosmetic material.

**【Disclosure】**

**【Technical problem】**

Therefore, the inventors of the present invention have conducted intensive studies to solve the above-mentioned problems and to develop a complex powder that has an effect on improving the circulation of blood. As a result, the inventors have found that the feeling of use and tone of Muyu stone is improved by adhering Muyu stone powder to the surface of a flat powder or spherical powder using a binder and by preparing a complex powder pulverizing revolving ball mill, and this results in completion of the present invention.

Therefore, an object of the present invention is to provide a complex powder containing Muyu stone suitable for use in a makeup cosmetic composition, a preparation method thereof, and a cosmetic composition containing the same.

#### **【Technical Solution】**

To achieve the above object, there is provided a method for preparing a complex powder containing Muyu stone, comprising the steps of:

(i) Forming a first compounding powder by adhering Muyu stone powder to the surface of a spherical or flat powder using silicon derivative binder in solvent; and

(ii) Forming a second compounding powder by grinding the first compounding powder using a revolving ball mill.

Preferably, the flat powder is talc and the spherical powder is silica.

Further, the present invention provides a complex powder containing Muyu stone prepared by said method and a cosmetic composition containing the same.

Hereinafter, the present invention is explained in more detail.

In the present invention, Muyu stone is pulverized by an atomizer grinder to reduce the particle size of the Muyu stone, then separation is

performed by 300 mesh, so that preferably the particle size is about 50 $\mu$ m.

In the present invention, the spherical powder or the flat powder is selected and compounded to complement the feeling of use and tone of Muyu stone, and to make the Muyu stone suitable for makeup cosmetic composition.

5 The spherical powder is at least one selected from the group consisting of silica, inorganic powder of titanium dioxide, polymethyl metacrylate, nylon and organic macromolecule of cellulose, and preferably silica is used in the present invention because silica has a smooth feeling of use as a material of the representative makeup cosmetic composition of a spherical shape.

10 The flat powder is at least one selected from the group consisting of talc, sericite, mica and cerium oxide, and preferably talc is used in the present invention because talc has remarkable adhesion to skin as an inorganic powder of flat shape.

In the present invention, by forming a Muyu stone complex powder  
15 using spherical silica or flat talc, it is designed that Muyu stone is improved regarding the feeling of use and tone. However, as a result of compounding Muyu stone powder with spherical silica or flat talc, it is ascertained that compounding Muyu stone powder with spherical silica or flat talc is not favorable, and that they become separated.

20 Therefore, to solve this problem, Muyu stone powder having a surface of spherical silica or flat talc may be prepared by introducing a silicon derivative binder.

The method for preparing complex powder containing Muyu stone according to the present invention comprises the steps of:

25 (i) Forming a first compounding by adhering Muyu stone powder to the surface of a spherical or flat powder using silicon derivative binder in solvent;

and

(ii) Forming a second compounding powder by grinding the first compounding powder using a revolving ball mill.

Preferably, talc is used as the flat powder and silica is used as the spherical powder at step (i).

Also, at step (i), the silicon derivative binder is selected from the group consisting of bishydroxyethoxypropyl dimethicon, cetyl PEG/PPG(10/1) dimethicone and dimethyl siloxane methyl(polyoxyethylene)-siloxene-copolymerbishydroxyethoxypropyl dimethicone as material having interfacial activity power. In addition, the binder has an absorbing property between the hydrophobic/hydrophilic surface of silica and talc and the hydrophilic surface of Muyu stone. Preferably bishydroxyethoxypropyl dimethicon is used, as it has the best absorbing property as a binder and also has the best feeling of use.

Preferably the composition of the first compounding powder comprises 1 to 5 wt% of the binder, 5 to 50 wt% of Muyu stone and 45 to 94 wt% of the spherical or flat powder, based on the total weight of the complex powder composition.

The complex powder containing Muyu stone prepared by the said method of the present invention is used for makeup cosmetic compositions, and the amount used can be selected properly according to a formulation.

There is no particular limitation in the formulation of the makeup cosmetic composition with complex powder containing Muyu stone prepared by the present invention. The makeup cosmetic composition may be any type of formulation, such as foundation, powder, facepack and the like.

Further, in the perspective of each formulation of a cosmetic composition, those skilled in the art can select properly with no difficulty and

compound other components besides the complex powder containing said Muyu stone according to formulations of other cosmetic compositions, objects for use, and the like.

**【Description of Drawings】**

5           FIG. 1 is an SEM picture showing a complex of Muyu stone powder with flat talc.

          FIG. 2 is an SEM picture showing a complex of Muyu stone powder with spherical silica.

          FIG. 3 is a tone comparison picture of Muyu stone (left), Muyu stone-  
10 silica complex (center) and Muyu stone-talc complex (right).

          FIG. 4 is a graphic diagram showing a rise in skin temperature with the application of Muyu stone using an IR analyzer.

          FIG. 5 is a picture of the facial photography with the application of Muyu stone using an IR analyzer.

15           FIG. 6 is a graphic diagram showing hematocrite amount analysis with the application of Muyu stone.

**【Best Mode for Carrying Out the Invention】**

          Hereinafter, the present invention will be described in further detail by way of the following examples. However, these examples are provided for the  
20 purpose of illustration only and should not be construed as limiting the scope of the invention, which will be apparent to one skilled in the art.

**[Example 1]**

          First, 30g of Muyu stone of average particle diameter  $40\mu\text{m}$  was



dispersed in 300g of ethanol, 1g of binder DC5562 and 69g of talc(Talc 13R) were added, and the mixture was stirred and filtrated. Next, it was dried sufficiently at 70 to 90°C (drying may be carried out sufficiently performed at a vacuum drier for 6 to 9 hours. This process may be used to remove the ethanol, however it is not a fixed condition), to produce a first compounding powder. The first compounding powder was put in a revolving ball mill and treated for 3hours to produce a second compounding powder, thereby preparing the Muyu stone-talc complex powder.

As a result of observing the Muyu stone-talc complex powder obtained at the said process by an electron microscope, it was proved that the complex of Muyu stone-talc was formed (see FIG. 1).

Also, by using the talc, it was found that the Muyu stone-talc complex powder showed the soft feeling of use and excellent adhesion, and it was confirmed that the problem of the dark tone of Muyu stone was also reduced because the tone of the Muyu stone-talc complex powder was remarkably bright, as shown at FIG. 3(right).

#### [Example 2]

Muyu stone-spherical silica complex powder was prepared by using the same method as described in Example 1, except that a spherical silica(KSP101) of average particle diameter 0.5~5 $\mu$ m was used instead of talc.

As a result of observing Muyu stone-silica complex powder obtained at the said process by an electron microscope, it was confirmed that the surface of the spherical silica was almost covered with Muyu stone (see FIG. 2).

Also, by using the spherical silica, it was found out that the Muyu stone-silica complex powder showed the smooth and light feeling of use, and it was

confirmed that the problem of the dark tone of Muyu stone was also reduced because the tone of the Muyu stone-silica complex powder was remarkably bright, as shown in FIG. 3(center).

5 [Test Example]

To confirm an effect of promoting the circulation of blood of a cosmetic composition with the complex containing Muyu stone, Muyu stone-talc complex powder prepared by using the said process was applied to foundation.

20 testees used the said cosmetic composition for 3 weeks, and an  
10 experiment was performed by using the cosmetic composition containing no Muyu stone as a control(vehicle). The variation of skin temperature was measured by an IR camera, and the hematocele amount of skin was measured by an LDI. As seen at FIG. 4 and FIG. 5, as a result of analyzing change of skin temperature after 1, 2 and 3 weeks, it was confirmed that the skin temperature of  
15 the overall face was raised, in particular the skin temperature of the cheeks was raised remarkably, compared with the facial condition before using the cosmetic composition with complex powder containing Muyu stone of the present invention. The analyzed result of the IR camera is shown in FIG. 5. From the test results of using the cosmetic composition with complex powder containing Muyu  
20 stone, it was confirmed that skin temperature was raised on the whole (see FIG. 4).

Also, as a result of analyzing the hematocele amount by an LDI, as seen at FIG. 6, it was confirmed that there was an improving effect on the circulation of blood, compared with the control vehicle.

25 Therefore, it was confirmed that the cosmetic composition with complex powder containing Muyu stone raised skin temperature and had the effect of

improving the circulation of the blood.

**【Industrial Applicability】**

As can be seen from the foregoing, the present invention provides the  
5 effect of improving the circulation of the skin blood and the solution of the  
problem of the rough feeling of use and dark tone of existing Muyu stone, by the  
complex powder compounding Muyu stone with spherical or flat powder. In  
particular, the Muyu stone-silica complex powder and Muyu stone-talc complex  
powder compounding Muyu stone with spherical silica and flat talc, respectively,  
10 can be applied to makeup cosmetic compositions.

**【Claims】**

1. A Muyu stone complex powder prepared by adhering Muyu stone to a powder of spherical or flat shape.
- 5 2. The Muyu stone complex powder of claim 1, wherein the complex powder promotes the circulation of blood.
3. The Muyu stone complex powder of claim 1, wherein the flat powder is at least one selected from the group consisting of talc, sericite, mica and cerium  
10 oxide.
4. The Muyu stone complex powder of claim 1, wherein the spherical powder is at least one selected from the group consisting of silica, titanium dioxide, polymethyl methacrylate, nylon and cellulose.  
15
5. A method for preparing Muyu stone complex powder, comprising the steps of:
  - (i) Forming a first compounding powder by adhering Muyu stone powder to the surface of a spherical or flat powder using silicon derivative binder  
20 in solvent; and
  - (ii) Forming a second compounding powder by grinding the first compounding powder using a revolving ball mill.
6. The method for preparing Muyu stone complex powder of claim 5,  
25 wherein the silicon derivative binder is selected from material having interfacial activity power.

7. The method for preparing Muyu stone complex powder of claim 6, wherein the silicon derivative binder is selected from the group consisting of bishydroxyethoxypropyl dimethicon, cetyl PEG/PPG(10/1) dimethicone and
- 5 dimethyl siloxane methyl(polyoxyethylene)-siloxene-copolymerbishydroxyethoxypropyl dimethicone.
8. A makeup cosmetic composition containing the Muyu stone complex powder of any of claims 1 to 4.

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# FIGURES

FIG. 1

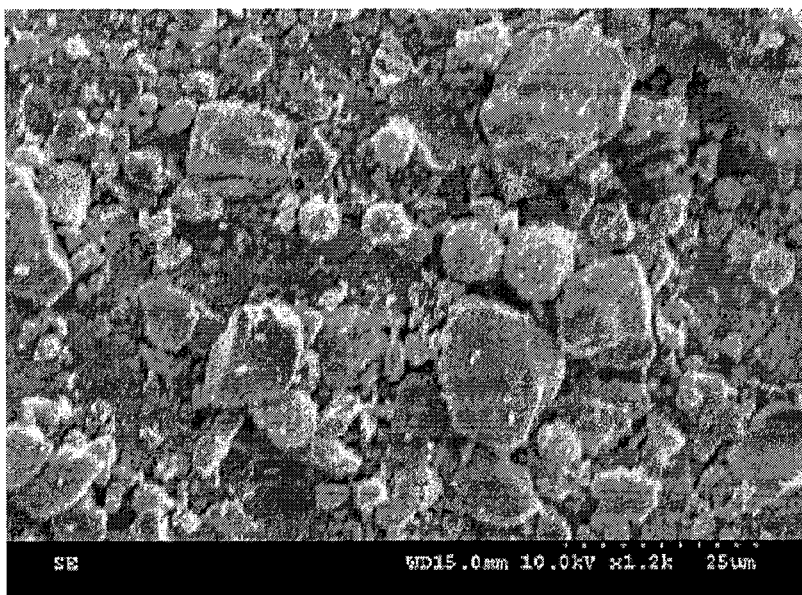


FIG. 2

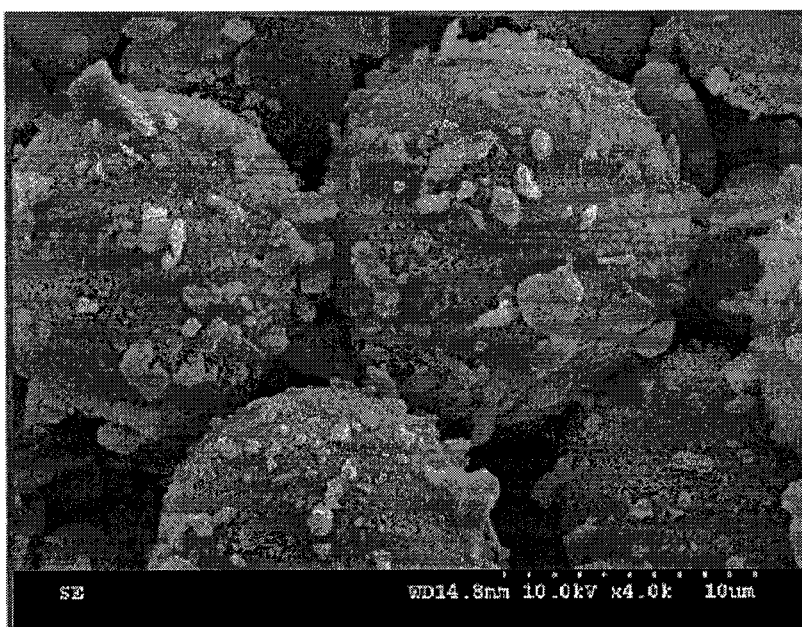


FIG. 3

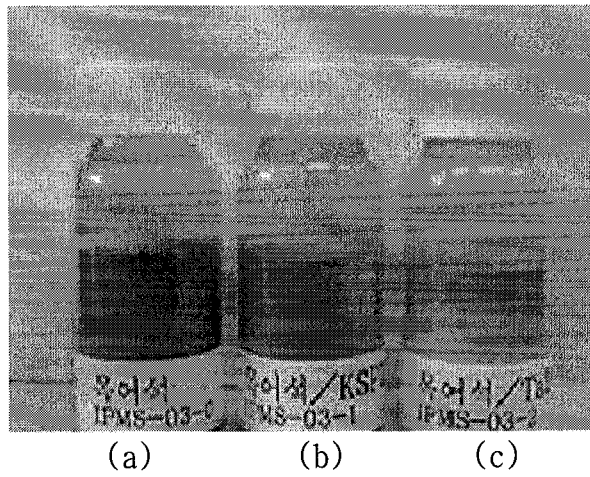


FIG. 4

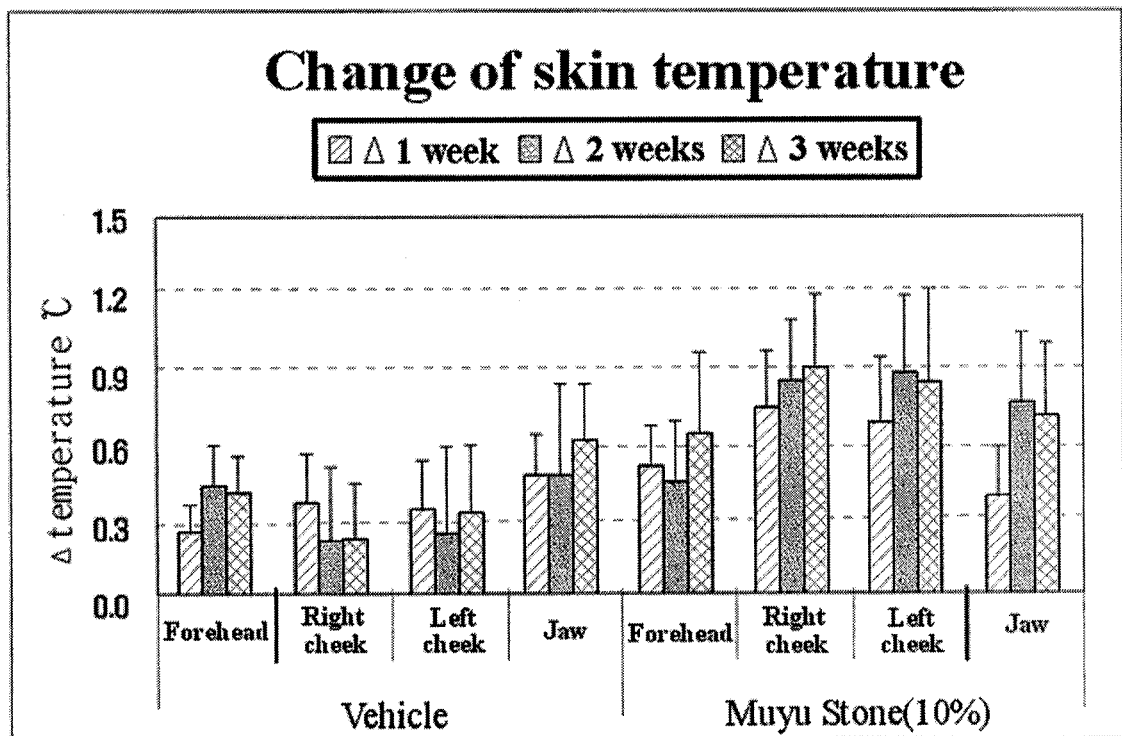


FIG. 5

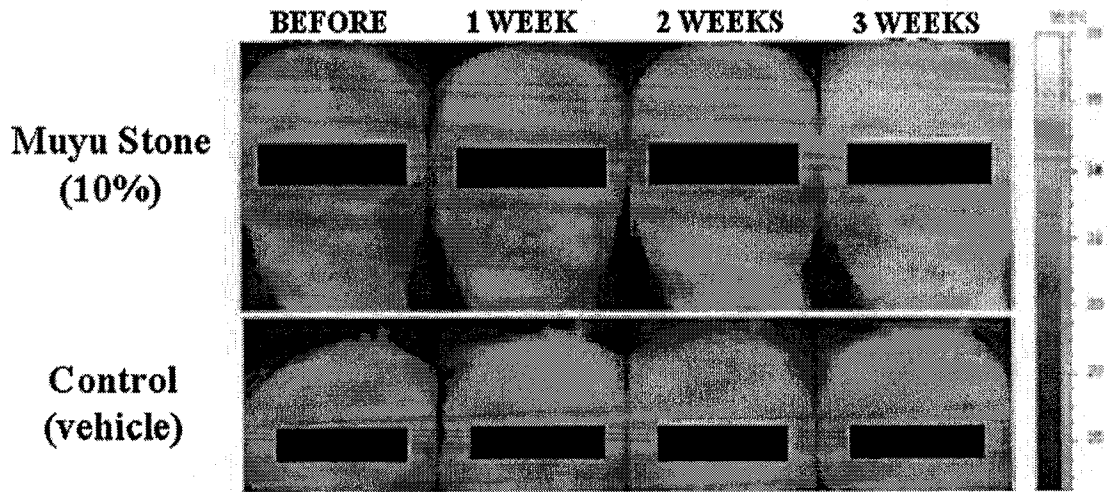
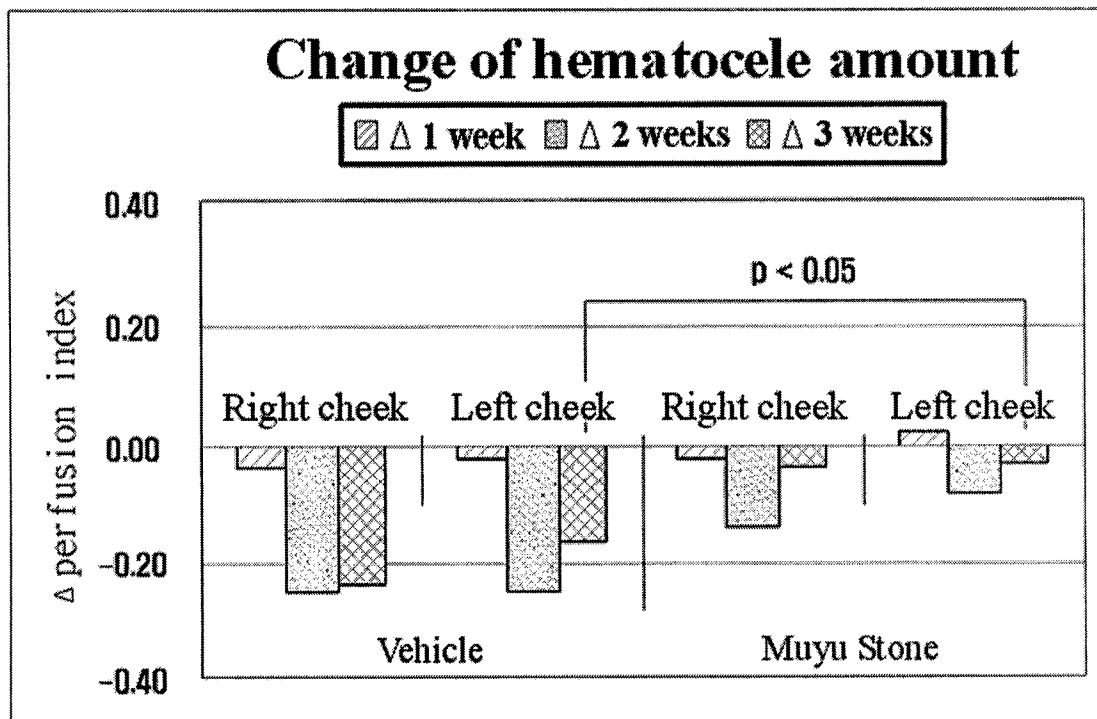


FIG.6





## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2006/005056**A. CLASSIFICATION OF SUBJECT MATTER***A61K 8/19(2006.01)i*

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)

IPC 8 as above

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean Patents and Applications for Inventions since 1975Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
eKIPASS, CA**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-2004-0031360 A (KOJUNG KIM)13 April 2004 see claim 1, p.1	1-8
A	KR 10-2005-0104483 A (JONGBUN LEE) 3 November 2005 see p.1. 2	1-8

 Further documents are listed in the continuation of Box C. See patent family annex.

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR2004031360A	13.04.2004	none	
KR2005104483A	03.11.2005	none	