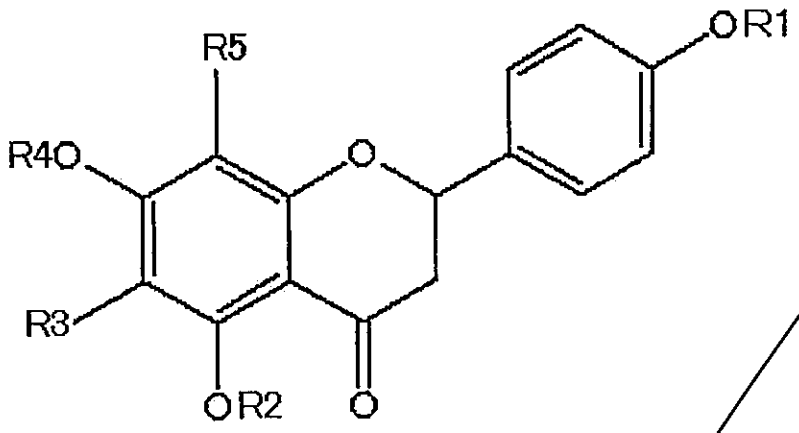
Claims

1. An external preparation for skin, comprising:

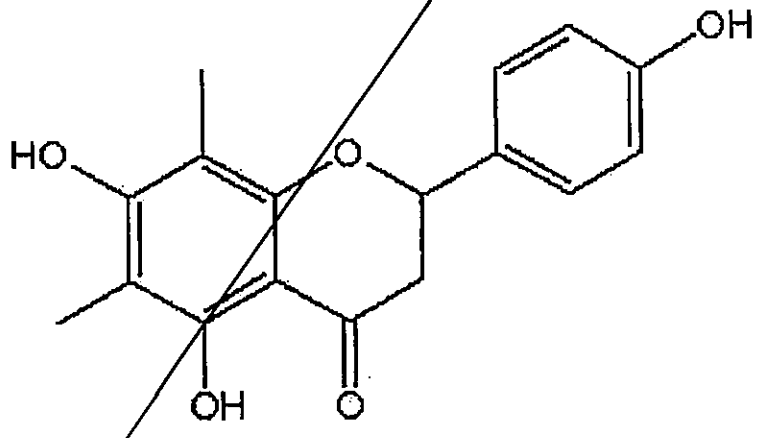
a flavanone derivative represented by the following general formula (1) and/or a salt thereof:



general formula (1)

wherein R1, R2, R3, R4, and R5 each independently represent a hydrogen atom or an alkyl group with 1 to 4 carbon atoms.

2. The external preparation for skin according to claim 1, wherein the flavanone derivative is farrerol.



farrerol

3. The external preparation for skin according to claim 1 or 2, comprising:

an extract of *Hypericum erectum, Guttiferae* which contains 10^{-6} to 0.1% by mass of the flavanone derivative and/or the salt thereof.

4. The external preparation for skin according to any one of claims 1 to 3, which is used for normalizing a skin structure.

5. The external preparation for skin according to claim 4, wherein the normalization of the skin structure is to remodel a disordered collagen fiber bundle structure of the dermis.

6. The external preparation for skin according to claim 4, wherein the normalization of the skin structure is to regenerate a skin defect area.

7. The external preparation for skin according to claim 4, wherein the normalization of the skin structure is to regenerate the skin defect area and to promote occlusion of the defect area by a regenerated tissue.

8. The external preparation for skin according to claim 6 or 7, wherein the skin defect is due to wound.

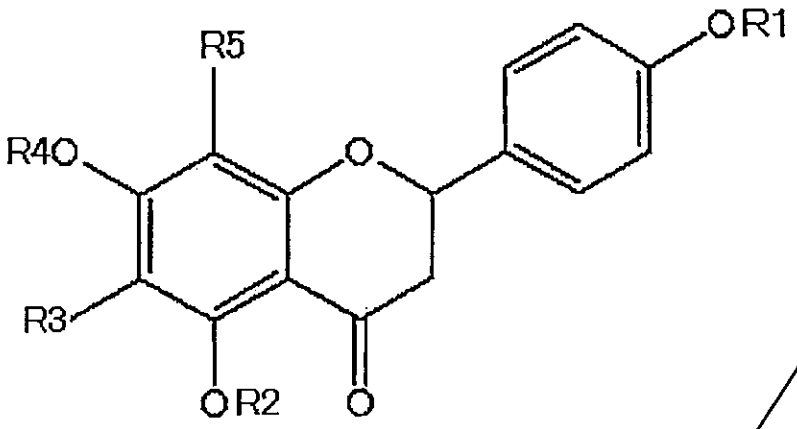
9. The external preparation for skin according to any one of claims 1 to 8, wherein the content of the flavanone derivative and/or the salt thereof is 1×10^{-6} to 1% by mass.

10. The external preparation for skin according to claim 4, wherein the normalization of the skin structure is to enhance an effect of keratinocytes to increase a collagen production ability of fibroblast.

11. A method of enhancing an effect of keratinocytes to increase a collagen production ability of fibroblast in vitro,

comprising:

administering a flavanone derivative represented by the general formula (1) and/or a salt thereof under a coexistence of keratinocytes with fibroblasts in vitro:



general formula (1)

wherein R1, R2, R3, R4, and R5 each independently represent a hydrogen atom or an alkyl group with 1 to 4 carbon atoms.

12. The method according to claim 11, wherein the flavanone derivative is farrerol.

13. The method according to claim 11 or 12, wherein the dosage of the flavanone derivative and/or the salt thereof is 10^{-8} M or more.

14. The method according to any one of claims 11 to 13, comprising:

administering an extract of *Hypericum erectum* containing the flavanone derivative and/or the salt thereof.

15. The method according to any one of claims 11 to 14, wherein the collagens are procollagen.

16. A method of screening a substance with a wound-healing effect, comprising:

culturing normal animal fibroblasts in the presence of a test substance;

preparing a collagen gel by adding a collagen medium solution to an obtained culture;

culturing the fibroblasts in the collagen gel in the presence of the test substance;

forming a defect area in the collagen gel;

culturing the fibroblasts under a coexistence of the collagen gel having the defect area with the test substance; and

observing the degree of filling or reduction of the defect area during the culture.

17. The screening method according to claim 16, further comprising:

culturing normal animal fibroblasts in the absence of a test substance;

preparing a collagen gel by adding a collagen medium solution to an obtained culture;

culturing the fibroblasts in the collagen gel in the absence of the test substance;

forming a defect area in the collagen gel;

culturing the fibroblasts while placing the collagen gel having the defect area in the absence of the test substance; and

observing the degree of filling or reduction of the defect area during the culture, wherein when the degree of filling or reduction of the defect area in the presence of the test substance is larger than the degree of filling or reduction of the defect area in the absence of the test substance, it is determined that the test substance has a wound-healing promoting effect.

18. The screening method according to claim 17, wherein when the volume of the defect area in the presence of the test substance is 85% or less of the volume of the defect area in the absence of the test substance, it is determined that the test substance has

a wound-healing promoting effect.

19. The screening method according to any one of claims 16 to 18, wherein the normal fibroblasts are of human origin.

20. The screening method according to any one of claims 17 to 19, comprising the following steps:

(1) culturing normal animal fibroblasts separated into individual cells in a medium containing a test substance and a medium free of the test substance;

(2) preparing a collagen gel by adding a collagen medium solution to a culture obtained in (1);

(3) suspension-culturing the normal fibroblasts in the collagen gel of (2) using the same medium as that of (1);

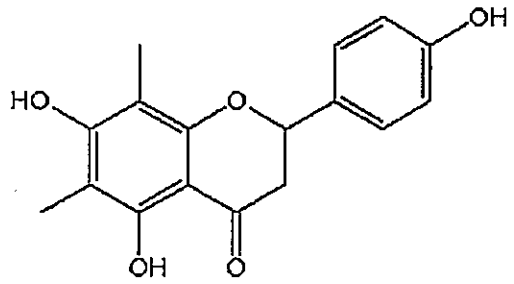
(4) forming a defect area by punching out the center portion of the collagen gel by a punch when the size of the collagen gel is reduced to about 1/5 to 1/10 of the size at the time of preparing the collagen by the addition of the collagen medium solution;

(5) dropping a collagen solution on a well of a plate , and mounting and culturing the collagen gel prepared in (4) on the well to allow the collagen gel to attach on the bottom of the well; and

(6) culturing the collagen gel using the same medium as that of (1) and observing the degree of filling or reduction of the defect area during the culture.

Claims

1. A skin external preparation for improving wrinkles, comprising farrerol or a salt thereof, or farrerol and the salt thereof.



farrerol

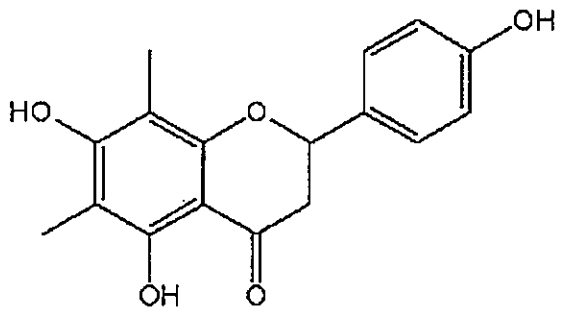
2. The skin external preparation according to claim 1, wherein the content of farrerol or the salt thereof, or farrerol and the salt thereof is 1×10^{-6} to 1% by mass.

3. The skin external preparation according to claim 1, comprising:

an extract of *Hypericum erectum Thunberg (Guttiferae)* which contains farrerol or the salt thereof, or farrerol and the salt thereof.

4. The skin external preparation according to claim 3, wherein the content of farrerol or the salt thereof, or farrerol and the salt thereof in the extract is 10^{-6} to 0.1% by mass.

5. A skin external preparation for healing a wound, comprising farrerol or a salt thereof, or farrerol and the salt thereof.



farrerol

6. The skin external preparation according to claim 5, wherein the content of farrerol or the salt thereof, or farrerol and the salt thereof is 1×10^{-6} to 1% by mass.

7. The skin external preparation according to claim 5, comprising: an extract of *Hypericum erectum Thunberg (Guttiferae)* which contains farrerol or the salt thereof, or farrerol and the salt thereof.

8. The skin external preparation according to claim 7, wherein the content of farrerol or the salt thereof, or farrerol and the salt thereof in the extract is 10^{-6} to 0.1% by mass.