

【CLAIMS】**【Claim 1】**

A device for measuring skin changes caused by blue light, comprising:

at least one light source for irradiating light of a blue light band at different

5 light amounts to a plurality of test areas set on a skin area to be tested; and

a control unit for detecting a minimum pigmentation point among the test areas and calculating a light amount of the corresponding test area as a minimum pigmentation dose (MPD) for blue light.

10 **【Claim 2】**

The device for measuring skin changes caused by blue light according to claim 1, wherein the control unit adjusts either light intensity or irradiation time or both such that the light amount of the light source is larger at least twice than an average ultraviolet light amount.

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【Claim 3】

The device for measuring skin changes caused by blue light according to claim 1, wherein the light source is configured to irradiate light in a range between 450 and 470 nm.

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【Claim 4】

The device for measuring skin changes caused by blue light according to

claim 1, wherein the control unit calculates and compares a first MPD and a second MPD of test areas to which a blue light blocking product to test is not applied and test areas to which the blue light blocking product to test is applied, respectively.

5 **【Claim 5】**

The device for measuring skin changes caused by blue light according to claim 4, wherein the blue light blocking product is a blue light shield product, and

Protection grade of Blue-light (PB) of the blue light shield product is calculated by [Equation 1]:

10 [Equation 1]

$$\text{Protection grade of Blue-light (PB)} = \frac{\text{MPD of skin with blue light blocking product}}{\text{MPD of skin without blue light blocking product}}$$

【Claim 6】

A method for measuring skin changes caused by blue light, comprising:

15 setting a plurality of test areas on a skin area to be tested, and irradiating light of a blue light band at different light amounts to the test areas; and

detecting a minimum pigmentation point among the test areas, and calculating a light amount of the corresponding test area as a minimum pigmentation dose (MPD) for blue light.

20 **【Claim 7】**

The method for measuring skin changes caused by blue light according to

claim 6, wherein either light intensity or irradiation time or both is adjusted such that the light amount of the blue light is larger at least twice than an average ultraviolet light amount.

5 **【Claim 8】**

The method for measuring skin changes caused by blue light according to claim 6, wherein the blue light band ranges from 450 to 470 nm.

【Claim 9】

10 The method for measuring skin changes caused by blue light according to claim 6, wherein the minimum pigmentation point is determined based on whether a contour of the test area is formed, whether pigmentation occurred at a preset area or more of the test area, or whether a change in melanin index before and after blue light irradiation is equal to or larger than a preset value or a preset percentage.

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【Claim 10】

The method for measuring skin changes caused by blue light according to claim 6, comprising:

calculating a first MPD of test areas to which a blue light blocking product to
20 test is not applied; and

calculating a second MPD of test areas to which the blue light blocking product is applied.

【Claim 11】

The method for measuring skin changes caused by blue light according to claim 6 or 10, wherein the skin area is a skin area of Fitzpatrick skin type III or above.

5 【Claim 12】

The method for measuring skin changes caused by blue light according to claim 11, wherein the blue light blocking product is a blue light shield product, and

Protection grade of Blue-light (PB) of the blue light shield product is calculated by [Equation 1]:

10 [Equation 1]

$$\text{Protection grade of Blue-light (PB)} = \frac{\text{MPD of skin with blue light blocking product}}{\text{MPD of skin without blue light blocking product}}$$

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