

**- Skin care to support the improvement of skin problems and
transparency -**

Development of beauty ingredients to increase the skin capacitor

KOSÉ Corporation (HQ: Chuo-ku, Tokyo, President & CEO: Kazutoshi Kobayashi) found that the spaces between the cells in the horny layer can be expanded and the skin's moisture and transparency can be improved by using the lotion we developed by blending Butcher's broom root extract and loquat leaf extract, focusing on the metabolism of the cell adhesion factors that exist in the horny layer of the skin surface. This finding has been applied to our new product, which will be released this autumn.

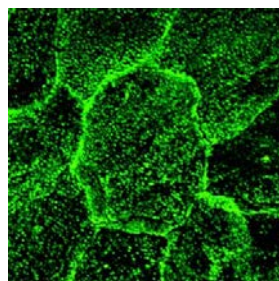
Damaged skin are caused by differences in the horny layer structure.

The horny layer in the skin's outermost layer is important tissue related to water holdings. In order to know what is taking place in skin without sufficient moisture even after skin care, the conditions of the horny layer of healthy skin and p damaged skin were observed using a microscope. While the spaces between the horny layer cells are wide enough in healthy skin, those in damaged skin are narrower, which revealed that there are major differences between the horny layer structures in healthy skin and damaged skin. In other words, the spaces between the horny layer cells, what we call the "skin capacitor," are narrow in damaged skin, resulting in a decrease in the quantity of intercellular lipids that can be retained in the horny layer. Consequently, the skin becomes less transparent and less moist, and the horny layer ages.

What prevents the production of the skin capacitor?

As a result of advancing the study on the cell adhesion factors that connect horny layer cells with each other, it was revealed that the cell adhesion factors are expressed in the marginal region of the horny layer cells in healthy skin, while those in damaged skin exist over the entire cell surface of the horny layer cells (Figure 1). In light of this result, we consider that the spaces between the cells of healthy skin are expanded to the maximum since the cells adhere to each other only at the marginal region and a large quantity of intercellular lipids can be retained.

Skin with aged horny layer



Healthy skin

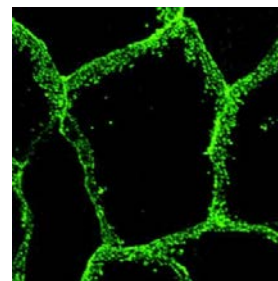


Figure 1 Bright green parts indicate the cell adhesion factors (overhead view of the skin).

Beauty ingredients that support the metabolism of cell adhesion factors

Since the cell adhesion factors are metabolized/degraded during the process whereby epidermal cells transform into the horny layer in healthy skin, an ingredient to promote its metabolism was explored. As a result, it was found that the combination of two beauty ingredients, Butcher's broom root extract and loquat leaf extract, have the effect of supporting the metabolism of cell adhesion factors.

The condition of the cell adhesion factors was observed before and after the preparation containing these beauty ingredients was applied to the skin, which revealed that the method of expression changed after use (Figure 2). This suggests that the lotion preparation including Butcher's broom root extract and loquat leaf extract has the effect of expanding the spaces between horny layer cells and leading the skin to a healthier state.

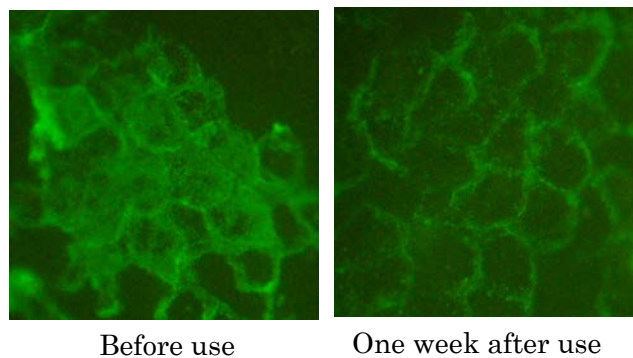


Figure 2 Effect of the preparation including the beauty ingredients on the cell adhesion factors

Effect of the change of the horny layer structure on the skin

Furthermore, a one-month continuous use study was conducted in ten subjects to examine the effect of the compound preparation. As a result, it was found that the moisture content and transparency were significantly improved, and the ability to absorb water from the outside and retain it also increased. We believe that the usage of the compound preparation including Butcher's broom root extract and loquat leaf extract helped to expand the spaces between the horny layer cells as well as to improve the ability to absorb and retain water and the entire skin condition, which increased the moisture content and transparency of the skin (Figures 3 and 4).

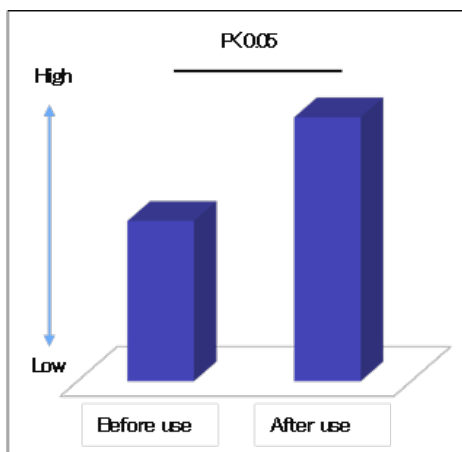


Figure 3 Change in the moisture

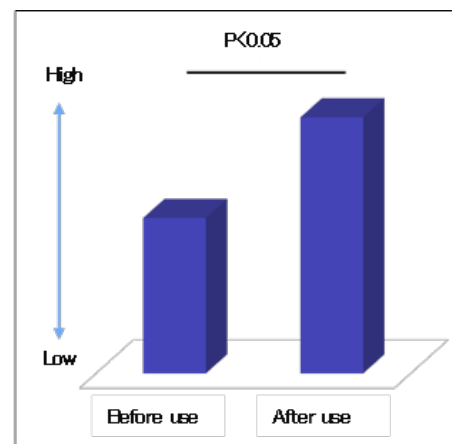
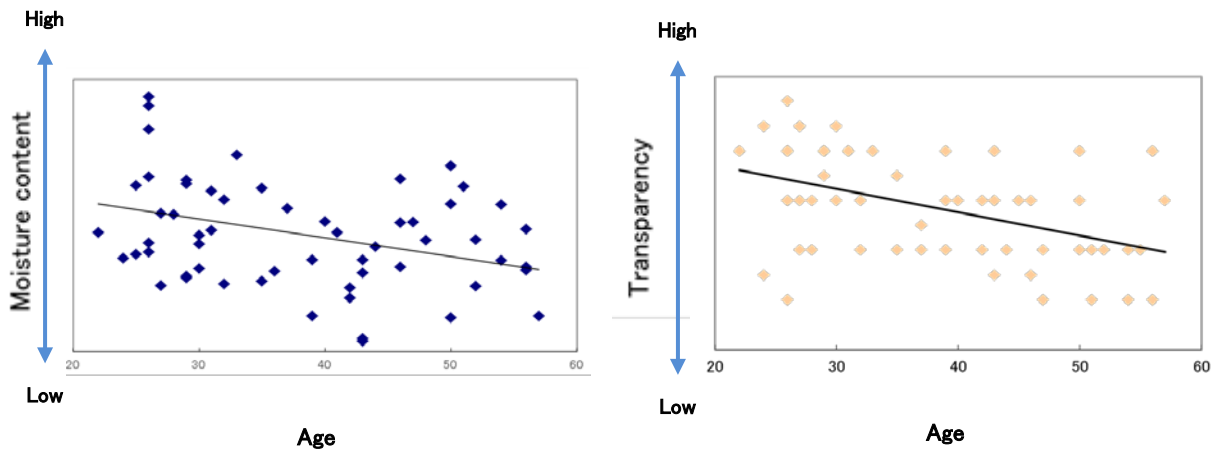


Figure 4 Change in transparency

Supporting Documentation

Age-related decline in moisture content and transparency of the skin

The moisture content and transparency of the skin tend to decrease with aging, which is strongly related to the condition of the skin's surface tissue, called the horny layer. A decrease in the water retaining ability of the horny layer due to aging lowers its light permeability, which makes the skin less transparent. We have continued the study by reasoning that the fundamental improvement of the horny layer's condition is required in order to achieve the more moist, transparent, and beautiful state that everyone longs for.



Beauty ingredients

<Butcher's broom>

A liliaceae plant native to the northern part of Europe. In Europe, it is used to treat symptoms such as swelling and inflammation. It has the effect of increasing the production of fillagrin, a source of natural moisturizing factor (NMF). It is anticipated to promote the formation of a healthy horny layer.

<Loquat>

A rosaceous plant native to the central southern area of China. In Japan, its infused leaves are used to treat symptoms such as skin inflammation and heat rash. The anti-inflammatory and antioxidant effects of loquat leaf help to create an environment that enables the skin to activate.