

New skincare benefit discovered in “humus extract”

a natural ingredient from aged ancient soil

KOSÉ Corporation (President & CEO: Kazutoshi Kobayashi, HQ: Chuo-ku, Tokyo) has discovered that the “humus extract” from nutrients accumulated in the soil over a long period of time can reduce skin problems by minimizing pores and increasing skin cell turnover. We will make use of this research outcome in our product development, starting with a new line of products due out this summer.

The “humus extract” is obtained from a special “humus soil” which contains ancient plants and marine organisms and is aged with natural water. In this type of soil, harvested only in limited regions, the process of biodegradation and fermentation occurred repeatedly over a long period of time. The “humus extract” contains various minerals and amino acids, including a high molecular organic acid called “fulvic acid”. This distinctive substance “fulvic acid” has recently been found to enhance the growth of phytoplankton and seaweeds. This is considered a reason why the river water flowing from bountiful forests is essential for sustaining the ocean’s ecosystem. Although the “humus extract” has already been used in beverages and cosmetics, its specific effect and action mechanism were yet to be clarified. KOSÉ recently focused on the effect of the “humus extract” on the skin, and conducted a study about the application of the extract in cosmetic products.



Figure 1. Humus soil



Figure 2. Humus extract

Effect of minimizing pores

To study the effect of a formulation containing “humus extract” on the skin, we performed a patch test*1 on 10 subjects using the formulation containing “humus extract” and the blank control. The formulation containing “humus extract” was found to have reduced the number of noticeable pores (Figure 3, Figure 4) and made the skin surface smoother as the skin replica images show (Figure 5). This result indicates that the “humus extract” can smooth the rough skin and minimize pores.

*1 Randomized parallel-group study. Study period: 4 weeks.



Before use



After 4-week use

Figure 3. Comparison of images of noticeable pores

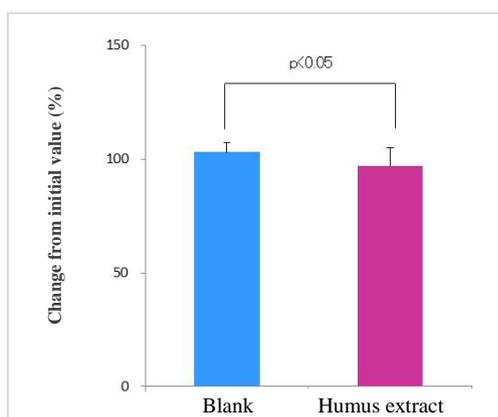


Figure 4. Effect of humus extract on noticeable pores

Effect of increasing the skin cell turnover

In order to study the skin smoothing effect of the formulation containing the “humus extract” in more detail, we looked at the effect of the formulation containing the “humus extract” on stratum corneum turnover. After dye-marking the stratum corneum with dihydroxyacetone, we applied the formulation containing the “humus extract” and the blank control and obtained the turnover rate by measuring the change in skin color over time. The result shows that the “humus extract” has the effect of increasing stratum corneum turnover (Figure 6).

Effect on the activity of a stratum corneum desquamation enzyme

We applied the formulation containing the “humus extract” and the blank control twice daily to the specified sites on the right and left sides for 2 weeks. We then extracted an enzyme solution from the stratum corneum before and after use, reacted it with the fluorescently-labeled substrate of kallikrein 5 (KLK5)^{*2} and used the fluorescence intensity to measure the activity of KLK5 per unit cell protein. The result shows that the “humus extract” increases stratum corneum turnover by enhancing the activity of KLK5 (Figure 7).

^{*2} An enzyme that increases normal cell turnover in the human stratum corneum.

The above indicates that the ingredient “humus extract” has a great benefit of improving the proper function of the skin. A patent application has been filed based on these research results. And the report about the pore minimizing effect was presented at the 30th Meeting of the Japanese Humic Substances Society (November 23, 2014).

KOSÉ’s mission in research and development is to provide safe cosmetics. In order to bring worry-free cosmetics to our customers, we consider it important to explore the natural resources created over a long period of time, and find new use for them through scientific research. KOSÉ will continue to develop safe and highly effective products.

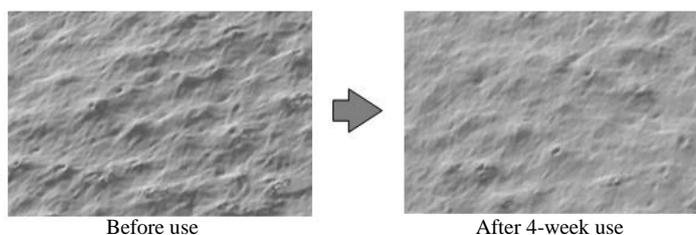


Figure 5. Effect of humus extract in improving rough skin (high-efficacy example, skin replica image)

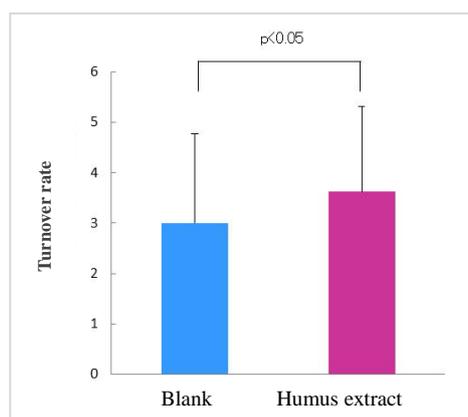


Figure 6. Effect of humus extract on stratum corneum turnover

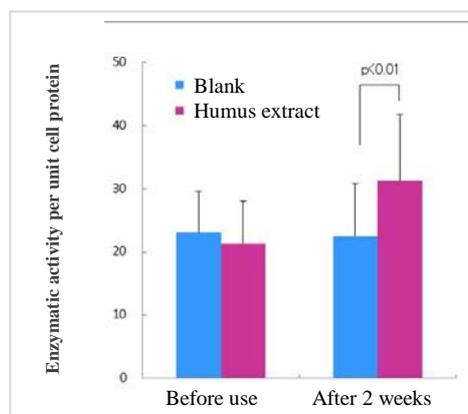


Figure 7. Effect of humus extract on KLK5