July 07, 2025

Acquires Patent for Mechanism of Action of Kuzu Lactic Acid Bacteria (SkinBarrier Lactic Acid Bacteria™) in Improving Skin Barrier Function

We are pleased to announce the **acquisition of a new patent (Patent No. 7674804 : Trans-Epidermal Water Loss Inhibitor) regarding the mechanism of action for improving skin barrier function** of "Kuzu Lactic Acid Bacteria (SkinBarrier Lactic Acid Bacteria™)," which was launched in 2020.

■ Patented Mechanism of Action

We have identified the following effects of Kuzu Lactic Acid Bacteria (SkinBarrier Lactic Acid Bacteria™).

✓ **Significant Suppression of Trans-Epidermal Water Loss (TEWL)**
Even in skin with impaired barrier function due to external stimuli, the Kuzu Lactic Acid Bacteria-treated group showed suppressed TEWL increase, maintaining skin moisture. This forms the foundation for preventing dry skin and retaining moisture.

✓ **Promotion of Gene Expression of Stratum Corneum Barrier Proteins**
Involucrin, filaggrin, and transglutaminase 1 are essential proteins for stratum corneum barrier construction. Kuzu Lactic Acid Bacteria were confirmed to promote the gene expression of these proteins, suggesting a potential for stratum corneum strengthening.

✓ **Improvement in Dermal Collagen Density**
Evaluation of collagen structure in skin cross-sections showed an increase in collagen density in the group that ingested Kuzu Lactic Acid Bacteria, indicating its contribution to maintaining skin elasticity and firmness.

Based on these findings, it has become clear that Kuzu Lactic Acid Bacteria (SkinBarrier Lactic Acid Bacteria™) possess multifaceted effects, including the maintenance and improvement of the skin barrier, moisturizing, strengthening of dermal structure, and immune activation.

■ Future Developments

We will promote product development that supports both internal and external beauty, primarily focusing on ingredients based on this patent. We will continue to expand applications into various fields such as cosmetics, foods with functional claims, and quasi-drugs, strengthening our proactive proposals to domestic and international markets.

■ About Kuzu Lactic Acid Bacteria

Kuzu Lactic Acid Bacteria were launched in 2020. They are heat-treated dead cells of lactic acid bacteria (Leuconostoc mesenteroides) isolated from kuzu, processed into nanoparticles, and standardized to 2 trillion lactic acid bacteria per gram. We have acquired trademarks for two brands, "SkinBarrier Lactic Acid Bacteria™" and "ImmunoRise Lactic Acid Bacteria™", and are expanding sales according to their respective appeal themes.


Kuzu

″ SkinBarrier Lactic Acid Bacteria™″ is developed with a focus on skin-oriented approaches. We have discovered its effects in suppressing skin moisture evaporation and improving the gene expression of cornified envelope, which is crucial for skin barrier function. Clinical trials have shown that daily intake of 100 billion CFU (50mg/day) for 6 weeks resulted in an improving trend in moisture evaporation from the cheeks and arms, as well as collagen scores. An increasing trend in salivary IgA, an antibody for mucosal immunity, was also confirmed.

″ImmunoRise Lactic Acid Bacteria™″ is developed with a focus on the immune system. Through joint research with Inouetenkyokudo Co., Ltd., a long-established kuzu manufacturer of Yoshino Honkuzu, and Chubu University, we have identified its effects in promoting IL-12 production, an indicator of immune activation, and increasing virus levels in the lungs and bronchoalveolar lavage fluid, as well as neutralizing antibody titers against influenza virus. A clinical trial targeting preschoolers confirmed that daily intake of 100 billion CFU (50mg/day) for two months reduced the incidence of viral infections. In other human trials, an increase in IgA levels was confirmed, suggesting an improvement in immune defense function, especially a reduction in the risk of viral infections by strengthening the mucosal barrier.

Sincerely,
Oryza Oil & Fat Chemical Co., Ltd.