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Introduction:

Probiotics are considered important roles in skin health, wellbeing, and microbiome-associated skin disease. Some specific probiotic strains, including Bifidobacterium, Saccharomyces, Enterococcus, Bacillus, and Lactobacillus, have been demonstrated for health benefits. The entire human body surface, including hair and skin, is colonized by a wide variety of microorganisms, including bacteria, fungi, and viruses. The scalp surface also provides a distinct micro environment to the microbiome, primarily arising from the host skin's physiological conditions, which include sebum content, moisture, pH, and topography of the hair. In general, skin sites are roughly classified into three groups, based on their microenvironments, which are: moist, dry, and sebaceous groups. Among these skin site groups, scalp belongs to the sebaceous group. Sebaceous glands of the scalp produce a large amount of oily sebum. These studies showed that the major bacterial genera on the scalp are Cutibacterium (Propionibacterium) and Staphylococcus. When compared with normal scalp, the scalp with dandruff had a decreased population of Cutibacterium and an increased population of Staphylococcus. Since bacteria can change the state of the scalp, does the use of microbial active substances have the same effect. To verify this, we used Lactococcus Ferment Lysate in an in vivo study on 40 volunteers with reported problematic scalp. INCI: Lactococcus Ferment Lysate, based on a lysate of Lactococcus lactis. This probiotic lactic acid-producing bacterium is grown under specific conditions, after which the obtained cells are lysed, a process involving the killing and destruction of the bacterial cells. The Lactococcus Ferment Lysate which essentially contains the cell debris of this bacterium – such as cell fragments, like DNA, metabolites, cytoplasmic compounds, we found Lactococcus Ferment Lysate addresses those processes of particular importance for the scalp. Making the scalp more robust will make it less sensitive. Improving its barrier function helps it lock in water much more effectively. Scalp becomes more moisturized and also addresses excessive sebum production, which is another important concern for many consumers

Materials & Methods:

Materials and Methods

A shampoo containing 3% Lactococcus Ferment Lysate was tested against the same shampoo without Lactococcus Ferment Lysate (placebo, vehicle) in an in vivo study on 40 volunteers with reported problematic scalp. Twenty volunteers tested the placebo shampoo, and 20 volunteers tested the shampoo with Lactococcus Ferment Lysate. During 4 weeks the volunteers washed their hair with the shampoos on alternate days. The volunteers were requested to wash their hair for at least 2 minutes every time before rinsing out.



Sebufix® and Corneofix®

Sebufix®: In addition to well-established quantitative measurements of sebum, the use of Sebufix® is more qualitative. The foils are available in a convenient feeder and can be easily removed. Very fast measurement without glue has no occlusive effects on the skin, thus avoiding incorrect results. The measurement is not affected by the skin's hydration level (sweating).

Corneofix®: is a special adhesive tape collecting corneocytes (flakes of dead cells). The number, size and thickness of the corneocytes indicate the desquamation/hydration level of the stratum corneum. When mounted on the Visioscan® camera, the desquamation can be evaluated by its software.



Results & Discussion:

Results

After the 4-week treatment with the shampoos, the results were clear: the scalp of the volunteers who had washed their hair with the shampoo containing Lactococcus Ferment Lysate showed healthier improvement was 55%, had reduced the oiliness of the scalp more than 30%, 85% of the volunteers who had used the shampoo with Lactococcus Ferment Lysate stated that their scalp felt less oily. After 1 week-3 treatments with the shampoo 55% of the volunteers who had washed their hair with the shampoo containing Lactococcus Ferment Lysate had perceived an improvement in the overall condition of their scalp.



Discussion

This study just an in vivo text. It showed Lactococcus Ferment Lysate improving its barrier function helps it lock in water much more effectively. Scalp becomes more moisturized. Also addresses excessive sebum production, which is another important concern for many consumers. But we didn't test the distribution of bacteria on the surface. Next we will use Lactococcus Ferment Lysate in normal scalp and the scalp with dandruff analysis Cutibacterium and Staphylococcus distribution. Study its effect on dandruff



Conclusions:

Effective scalp care is demanding, both from a biological and a formulation point of view. The scalp is unique and presents unique problems, and consumers show high interest in personal care products that are beneficial for their scalp, products which treat scalp dryness, oiliness and sensitivity. When it comes to the application and use of cosmetic products, the average consumer mostly wants convenience. Effective treatment of the scalp with a shampoo is, therefore, eminently important. The shampoo with lactococcus Ferment Lysate clearly outperformed the placebo shampoo in both the objective and subjective analyses of their efficacy.

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