

Role of probiotics for balanced skin microflora

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Time and again it has been emphasized that our skin, the body's largest sense organ, plays a very important role in protecting the internal organs of our body. The skin is in continuous contact with the external environment and in turn is under constant threat of harmful microbes and pollution. It is thus evident that one has to make an effort to protect the skin and keep it healthy at all times.

Healthy skin can prevent various skin problems and even delay aging of skin. It is the first line of defense against antigens, pollutants and pathogens.

Normal skin has its own versatile but specific microflora. Evolutionary adaptation by these microbes helps them to survive the harsh environmental conditions that one's skin is exposed to. They have the primary function to occupy a niche in the skin and not allow the proliferation of other harmful or pathogenic bacteria. However under immunosuppressed conditions such as trauma, injury or changes in the immune defense, the resident microflora may be affected by the pathogenic microflora from the environment. Pathogenic microflora being more aggressive in nature, cause harm to the resident microflora making them more susceptible to infections. This poses danger to the host with disturbed skin integrity. This includes a disruption in barrier function, skin pH and osmotic potential. To bring about bacterial equilibrium is thus vital for healthy skin.

The most ideal, quick and effective way to restore skin integrity and balance the microflora is the topical application of probiotics. For thousands of years, probiotics have been the vital part of diets in the form of fermented milk and vegetable products such as yogurt and pickles, and are credited, in part, for the relatively low rates of chronic, age-related diseases that prevail - especially in Mediterranean and Middle Eastern regions¹.

What are Probiotics; how do they work?

According to the definition of the United Nations Food and Agriculture Organization and the World Health Organization (FAO/WHO) probiotics are: *"Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host."* Most of the probiotics are bacteria, normally found in the healthy

human gastrointestinal tract. Many different strains of probiotic organisms are in use, which have different but overlapping benefits².

Role of Probiotics in Cosmetics: Hope in a Jar!

In recent days people have started understanding the importance of probiotics not only in keeping our gut microflora balanced but skin health as well, as our skin acts as a barrier to the invading pathogens.

The current scientific trend, in skin research, is about understanding the composition and role of skin's microflora. Because of this *probiotic strategy*, almost limitless possibilities have come up in recent research attempts, which emphasizes on a close link between physical, immunological and cell biological properties of the skin and its microflora in regulating skin barrier functions³.

Several clinical trials have suggested that probiotics in skin care may have the potential to transform skin at a dermal and sub-dermal level. It has been found that supplementation of probiotics reduced cellular damage and promoted cellular renewal. Probiotics have also found to be slowing the process of aging by - stimulating the skin's immune system, preventing collagen damage and by involving in skin hydration process².

Hence, owing to its unique biological activity and the special role of the skin, probiotic nutrients in personal care products has a relatively wide range of uses.

LactoSpore® for healthy skin



Sabinsa Corporation offers two different grades of probiotics: 6 Billion spores/g and 15 Billion spores/g from Bacillus coagulans.

Bacillus coagulans, formerly known as *Lactobacillus sporogenes* (LactoSpore®) is a shelf stable (at room temperature) probiotic, with clinically documented efficacy in supporting health and wellness. With the safe and effective use of LactoSpore® (*Bacillus coagulans*

* Sabinsa Corporation

MTCC5856) it can be suggested for its incorporation in cosmetic products such as anti acne face wash and moisturizing cream. LactoSpore® contains a large number of non-pathogenic, viable lactobacilli that retain viability during preparation in cosmeceutical dosage forms and during storage before use. The spores are thermostable as against viable *L. acidophilus* cells which may not withstand several formulation conditions.

In vitro evaluation

Since the major challenge to use probiotics in topical formulations is its stability and recoverability, an experiment was initiated to evaluate the same. LactoSpore® was formulated at the concentration of 100 million spores/ gm in a cream and face wash. Initial trials considering appropriate overage and recovery loss were conducted and found to retain 60% viability in the cream and 40% in acne face wash.

The effect of preservative (NeolonePE, 0.4% w/w) was also evaluated and found no significant difference on the viability of LactoSpore® in the cream and anti acne face wash - indicating the preservative does not affect LactoSpore® viability.

LactoSpore® has been successfully commercially used in an all-natural handcrafted soap which provides *B. coagulans* topically for supporting healthy skin. LactoSpore® provides probiotic support to the skin which may not only act to restore residential and safe skin microflora, but improve skin immunity and in turn strengthen the skin barrier. This also helps improve skin moisturization by reducing transepidermal water loss (TEWL)⁴. Value addition of topical formulations with probiotics may thus be recommended to individuals with sensitive skin or low immunity for faster restoration of skin bacterial equilibrium.

In summary, preserving the integrity between skin structure and barrier function is vital. In the field of dermaceuticals, the most effective way of addressing this issue is by adding specific probiotic nutrients into skin care products, which will strengthen the skin integrity and optimize the skin's microflora, thereby boosting the skin's own protection and barrier function, and protects the skin from the core.

References

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