ACB Yogurt Extract

Calcium and Collagen
Vitamins and Minerals
Natural Exfoliation

BACKGROUND
Yogurt is widely recognized for its health benefits. The principal of these have often been attributed to the vitamins, calcium and mineral content. In addition to its traditional role as a food product, yogurt is used to improve skin conditions. First developed as early as 2000 BC in Middle-Eastern civilizations, yogurt was a way to preserve milk. One type of yogurt is thought to have originated by nomadic tribes of Eastern Europe and Western Asia. However, fermented and cultured milks may actually predate recorded history.

Yogurt is produced by inoculating milk with L. bulgaricus and S. thermophilus. Not unexpectedly, milk contains significant concentrations of growth factor. Researchers have reported that bovine milk contains platelet-derived growth factor (PDGF), Insulin-like growth factors (IGF-I, IGF-II), as well as transforming growth factor (TGF-â). These growth factors, present in the whey or liquid fraction, stimulate fibroblast proliferation as well as the production of extra cellular proteins such as collagen. Collagen is described as the protein that forms the structural grid that holds other skin structures in place, thus an important skin molecule. It plays a role somewhat similar to that of steel rods in a reinforced concrete block. Collagen gives the skin its strength and durability.

SCIENCE
As with any other protein, collagen is composed of amino acids. Yet, it is unusually rich in a few specific amino acids, hydroxyproline, lysine and glycine. Many believe that foods or supplements rich in these amino acids may benefit the skin by stimulating collagen production. Increasing collagen production is important because the age-related decline in the collagen synthesis is partly responsible for the signs of skin aging such as wrinkles and sagging. One of the important concepts to consider is that the aforementioned growth factors are proteins. In any Inflammatory event, protease (for protein breakdown)

Benefits of ACB Yogurt Extract
- A Natural Exfoliator
- Intense Moisturization
- Great in any formulation
ACB Yogurt Extract activity is increased. If a single growth factor is applied to the skin, it is likely that its effects will be inhibited by the presence of endogenous proteases. A field of interest where yogurt is receiving a great deal of attention is probiotics. A probiotic is "an organism that contributes to the health and balance of the intestinal tract; also referred to as ‘friendly’, ‘beneficial’, or ‘good’ bacteria which when ingested act to maintain a healthy intestinal tract and help fight illness and disease". Probiotics are found in live microbial food supplements and fermented foods such as yogurt. They are known as non-pathogenic microorganisms that may significantly improve one's health. They inhabit one's intestinal tract, skin, urogenital tract, oral and nasal cavities, and any area that is exposed to the outside world. Lactic Acid Bacteria (LAB) produce a variety of health benefits.

Studies have shown increase immune function, more efficient mineral metabolism, and beneficial changes in flora. A single mechanism is not responsible for the benefits. Specific and non-specific immune responses occur as a result of probiotic treatment. It is generally speculated that presentation of LAB to the immune system relaxes it from environmentally induced hyper-vigilance. One of the main products produced by LAB is lactic acid. Lactic acid, being a member of the alpha hydroxy acids or AHAs, works on the skin's lipids by dismantling them, which allow the dead cells' outer layer to fall off. This process is done by their ability to weaken bonds which hold dead skin cells together, thus provoking the dead cells to shed from the skin's surface.

**BENEFITS**

AHAs have obtained the approval of the FDA as agents capable of penetrating the skin's barrier, thus increasing the turnover rate of cells and lowers the outer skin's thickness. Lactic acid is an excellent moisturizing ingredient beneficial for most hyper-proliferate skin conditions. While probiotic treatments typically focus on gastrointestinal or urogenital health, new research shows that it may have utility in the treatment of atopic eczema. In this study, infants fed formula enriched with bacteria (Bifidobacterium lactic Bb12 or Lactobacillus strain GG (ATCC53103)) showed a significant reduction in atopic eczema. While there is a current lack of research dedicated to the effects of probiotics applied directly to the skin, it is interesting to speculate as to the benefits.

**EFFICACY DATA**

ACB Yogurt Extract exhibited antioxidant activity comparable to 200µM Trolox. The antioxidant capacity of ACB Yogurt Extract increased as the concentration increased, as a result we can assure that its ability to minimize oxidative stress is dose dependent. ACB Yogurt Extract began exhibiting antioxidant activity at a 2.5% concentration and was designed for versatility in any formulation.

![ORAC Assay](image)

Figure 1. Antioxidant capability
ACB Yogurt Extract

As seen in Figure 2, ACB Yogurt Extract exhibited positive results by increasing cell metabolism. The increase in fluorescent signal indicates an increase in cellular metabolism and viability post ACB Yogurt Extract treatment. ACB Yogurt Extract is suitable for cosmetic applications designed to increase cell viability and metabolism.

Figure 2. Cellular Viability

As seen in Figure 3, the cellular renewal assay indicates that ACB Yogurt Extract is capable of increasing cellular renewal by 13.63% when compared to controls.

Figure 3. Cellular Renewal

References
3) Yager DR, et al. Ability of chronic wound fluids to degrade peptide growth factors is associated with increased levels of elastase activity and diminished levels of proteinase inhibitors. Wound Rep Reg 5:23-32. 1997