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THE FEATURES.

A C Phytocoll PF is a preservative-free, watersoluble, and botanical ingredient developed by Active Concepts to provide moisturizing, skin hydrating, and collagen-boosting benefits to cosmetic and personal care formulations. This combination of yeast extract and leuconostoc/ radish root ferment filtrate, which is a natural antimicrobial, offers plenty of micronutrients that have the power to condition and nourish the skin. This ingredient will leave your skin hydrated, moisturized, and revitalized.

Yeast Extract

Actions

Moisturizing Hydrating Great for skin Conditioning Nourishing Revitalizing

TECHNICAL DATA SHEET.





Note: Product may change appearance if exposed to cold temperatures during shipment or storage. If this happens, please gently warm to 45-50°C and mix until normal appearance is restored.

THE STORY.

Since the 1930s, yeast extracts have been used in medications for their wound healing abilities. Through the progression of technology, recovering a protein fraction from the extract of fermented yeast has facilitated this possibility. This scientific advancement lead to the study of protein extracts which discovered their beneficial effects on wound healing and enhanced collagen synthesis. Nowadays, there are more than five hundred assorted proteins that have been identified in *Sachcaromyces cerevisiae*, with further findings of such healing properties to be correlated to peptides. As short molecules can easily penetrate the skin's epidermis, the use of peptides as ingredients in cosmetics has grown exponentially.

Stemmed from yeast autolysis, yeast extracts are soluble fractions containing a complex mixture of amino acids, peptides, carbohydrates, nucleic acids, vitamins, and minerals. This helps make yeast extract one of the most utilized natural inducers for *in vitro* cultures to help trigger the formation of secondary metabolites. AC Phytocoll PF was developed by Active Concepts to offer a water-soluble, botanical ingredient capable of providing moisturizing and skin hydrating benefits while helping to boost collagen synthesis for a younger, healthier complexion.

THE SCIENCE.

With its various assortment of micronutrients, yeast extract offers a wide array of benefits to be further implemented in cosmetic and personal care applications. Yeast amino acids can be used as hair and skin conditioning agents, acting as a humectant, while peptides from yeast have been used to stimulate skin healing. Through research on yeast, studies have indicated that since peptides have a low molar mass, they are the reason for the growth of yeast enzymes. It is theorized that peptides up-regulate cellular growth factors that lead to skin healing, resulting from the stimulation of angiogenesis and granulation tissue, as well as new collagen synthesis. Peptides have also been shown to act as excellent humidifiers with their ability to bind water in their structure. This property of peptides is used in certain preparations to help improve hydration and barrier function, which is why many skincare products use peptides to treat wrinkles.

Additionally, yeast-derived insoluble glucan was shown in a previous study to strongly inhibit adipogenic differentiation, along with supporting wound healing initiatives and significantly lowering skin irritation. Another study suggested that glucan from the cell wall of baker's yeast could be implemented as an active ingredient for cosmetic purposes due to an experiment that showed carboxymethyl glucan (CM-glucan) protecting skin cells against the reduction of antioxidant molecules when exposed to UV-A irradiation. This combination of impactful yeast constituents provides further clarity of yeast extract's many uses in the cosmetic and personal care industry. AC Phytocoll PF may be used to capitalize on the benefits associated with yeast and yeast extract in a variety of cosmetic and personal care formulations.

AC Phytocoll PF





Moisturization/Hydration Assay.

Moisturizing Moisturization/Hydration Assay

Collagen Analysis

Collagen synthesis Sirius Red/Fast Green



Cell viability & Cellular Viability Assay metabolism Analysis Oxygen Radical Antioxidant Absorbance Capacity

(ORAC) Assay

THE EFFICACY.



Experimental (2.0% AC) **Phytocoll PF in Base** Lotion) Base Lotion

Untreated

An in vivo study was conducted over a period of three weeks to evaluate the moisturization benefits of AC Phytocoll PF. 10 M/F subjects

Improved moisture levels by 61.62% after 4 weeks compared to untreated control (tested at 2%)

Moisturizing.

Increases moisturization 8 skin hydration

Sirius Red/Fast Green Collagen Analysis.

Sirius Red/Fast Green Collagen Assay was conducted to assess the changes in collagen synthesis by AC Phytocoll PF treated in vitro cultured human dermal fibroblasts. Human dermal fibroblasts were seeded into 24-well tissue culture plates and allowed to grow to confluency in complete DMEM. 1%, 0.1%, and 0.01% concentrations AC Phytocoll PF were added to the serum-free DMEM and incubated with fibroblasts for 24 hours. IGF-1 was used as a positive control. From the results, we can assume AC Phytocoll PF is suitable for cosmetic applications designed to boost collagen synthesis to aid in providing a younger and healthier complexion.



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