16882.

Phytofuse Rejuvenate®

Moisturizing
Sensory
Pro-Collagen

Active Concepts

VEGAN

SEPHORA CLEAN

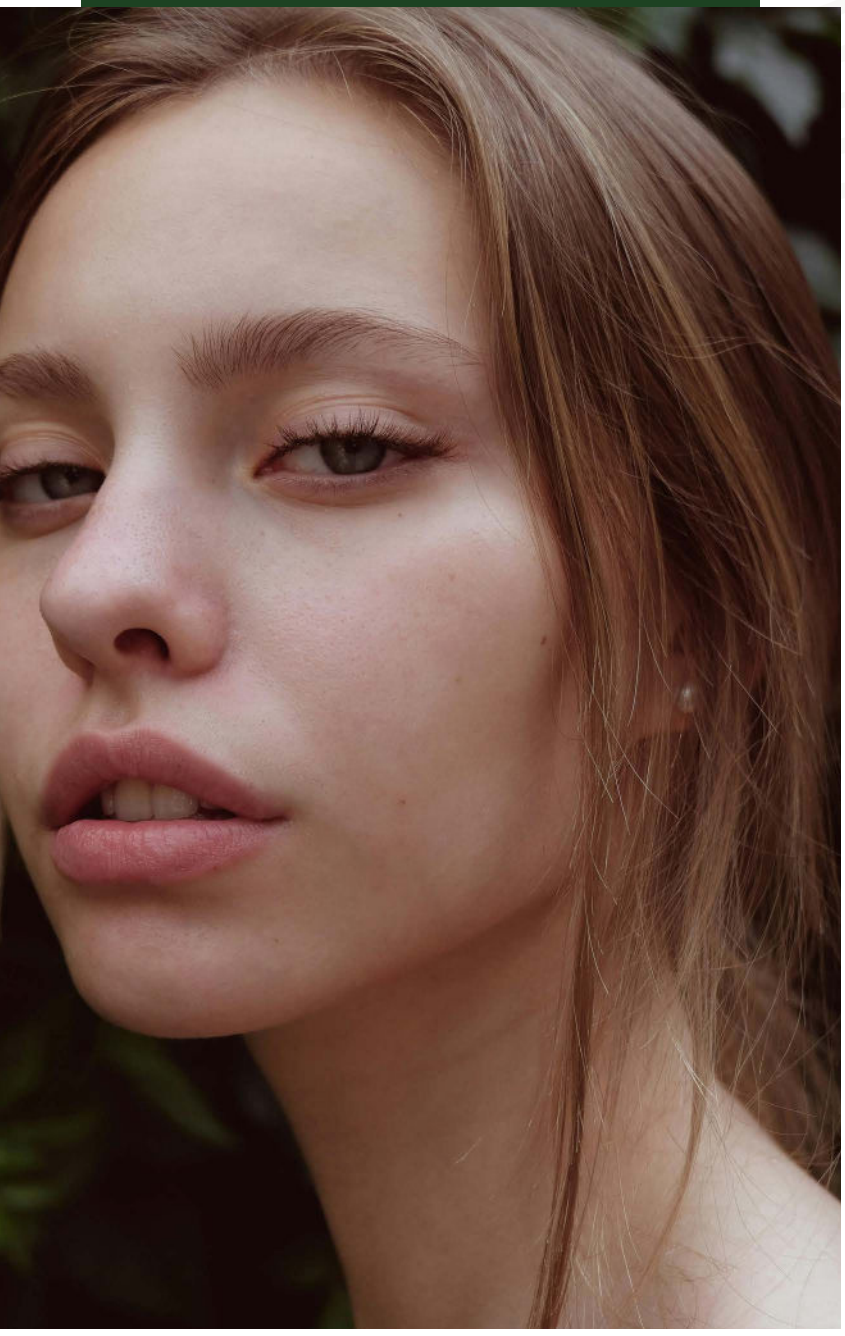
CREDO CLEAN

GLOBALLY COMPLIANT

COSMOS COMPLIANT

ISO 16128

PRODUCT PASSPORT



THE FEATURES.

Derived from *Salvia hispanica* (chia), an ancient superfood revered for its strength and resilience, Phytofuse Rejuvenate® is a natual high-performance polysaccharide active designed to support skin repair, comfort, and longevity. When hydrated, chia seeds naturally release a unique mucilaginous polysaccharide with exceptional film-forming and water-binding properties. Active Concepts has carefully isolated this bioactive fraction to create a functional ingredient that delivers immediate skin soothing benefits and long-lasting moisturization. Phytofuse Rejuvenate® offers a modern interpretation of an ancient botanical.

INCI: Salvia Hispanica Seed Extract

TECHNICAL DATA SHEET.

Phytofuse Rejuvenate®

THE STORY.

Rooted in ancient wisdom yet designed for modern formulations, Phytofuse Rejuvenate® draws inspiration from chia, an enduring botanical long celebrated for its resilience and restorative power. Native to arid regions of Central and Southern Mexico, chia has evolved to thrive where water is scarce, producing a unique, hydrophilic seed mucilage that protects, nourishes, and preserves vitality. Today, this same survival intelligence is reinterpreted for skin.

The word "chia" translates to "strength" in ancient Mayan culture — a fitting origin for an ingredient designed to reinforce skin as it ages. As skin gradually loses elasticity, resilience, and its ability to recover, Phytofuse Rejuvenate® helps restore balance by soothing inflammation, supporting wound repair, and delivering long-lasting hydration. Historically used by Mayan and Aztec civilizations to calm irritation and promote healing, chia's regenerative legacy lives on through this modern, skin-compatible technology.

Phytofuse Rejuvenate® is where ancestral strength meets contemporary skin science, offering protection, repair, and sensorial refinement in one versatile, plant-powered active.

THE SCIENCE.

Polysaccharides are multifunctional biopolymers that play a critical structural role in biological systems, acting as molecular scaffolds that stabilize cell membranes, extracellular matrices, and intercellular communication networks. In skin biology, naturally occuring polysaccharides, such as hyaluronic acid, β-glucans, and plant-derived mucilages, are essential for maintaining hydration, elasticity, and tissue integrity through their ability to bind water, form protective films, and support cellular repair processes.[1,2]

As skin ages or is exposed to environmental stressors such as ultraviolet radiation, pollution, and transepidermal water loss, endogenous polysaccharide levels decline, compromising barrier function and accelerating dehydration, inflammation, and collagen degradation.[3] This disruption manifests visibly as dryness, fine lines, reduced elasticity, and impaired wound healing. High-performance film-forming polysaccharides can compensate for this loss by creating a breathable, biomimetic scaffold at the skin surface, reinforcing barrier integrity while allowing endogenous repair mechanisms to proceed beneath,[4]

Emerging research highlights that high molecular weight polysaccharides exert biological activity beyond passive hydration. β-glucansand structurally complex plant polysaccharides have demonstrated immunomodulatory effects, influencing cytokine signaling pathways and reducing pro-inflammatory mediators such as interleukin-6 (IL-6), a key driver of inflammaging and matrix metalloproteinase (MMP) activation.[5,6] By attenuating IL-6-mediated inflammatory cascades, these polysaccharides help preserve extracellular matrix architecture and support long-term skin resilience.

Chia seed mucilage is a naturally occuring polysaccharide complex released upon hydration, forming a highly viscous, water-binding matrix with pronounced film-forming behavior. This mucilage exhibits thixotropic properties, meaning it transitions from high viscosity at rest to lower viscosity under shear — an attribute that enhances spreadability, sensory elegance, and formulation flexibility while maintaining structural integrity on the skin.[7] Through a proprietary isolation and biotransformation process, Active Concepts has refined and structurally optimized this mucilage into Phytofuse Rejuvenate®, yielding a higher molecular weight polysaccharide system with enhanced scaffolding performance. Once applied, this biopolymer network forms a cohesive, adaptive film that reinforces the skin barrier, reduces inflammatory signaling, and creates an optimal microenvironment for wound repair and regeneration.

THE TECHNICAL DETAILS.

INCI. Salvia Hispanica Seed Extract
CAS. 93384-40-8
EINECS. 297-250-8
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

Origin. Botanical/Bacteria
Natural Antimicrobial. Lactobacillus Ferment
Preservatives. None
Solvents Used. None
Appearance. Light Yellow to Amber, Hazy Viscous Gel

THE FORMULATION TIPS.

pH Stability. 4 - 7
Temperature Stability. Prevent exposure to temperatures above 25°C as exposure may cause darkening and/or instability
Use Level. 1 - 10%

Ionic State. Anionic
Alcohol Compatibility. Compatible with up to 10% alcohol at 10%
Solubility. Water Soluble
Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

Phytofuse Rejuvenate®

THE BENEFITS OVERVIEW.

Collagen Boosting *High Resolution Skin Imaging Study & Sirius Red Fast Green Analysis*

Stylist Approved *Salon Half-Head Study*

Anti-Inflammatory *IL-6 ELISA*

Hydrating *Moisturization & TEWL*

Cellular Senescence *SA-Beta-gal Activity*

Wound Healing *Scratch Assay*

Sensorial Attributes *Sensory Analysis & Triangle Test*

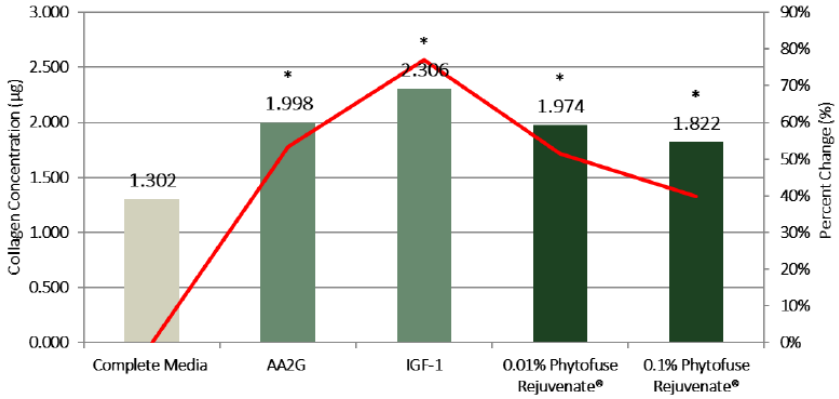
Antioxidant *ORAC & ROS*

THE EFFICACY.

Collagen Boosting

A Sirius Red/Fast Green Collagen Assay was conducted to assess the *in vitro* effect of Phytofuse Rejuvenate® to trigger collagen synthesis in dermal fibroblasts. The results indicate that Phytofuse Rejuvenate® stimulates collagen synthesis which may assist cosmetic applications designed to enhance collagen deposition and provide a younger and healthier dermal complexion. Collectively, increases in collagen production may lead to improvements in dermal-epidermal junction integrity as well as an improved scaffolding matrix.

Sirius Red Fast Green Analysis

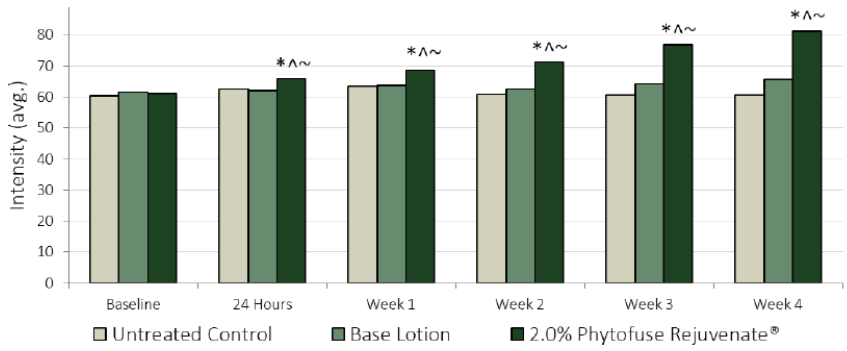


Boosted collagen synthesis by +52%

Collagen Boosting

A four-week High Resolution Skin Imaging Study was conducted to evaluate the ability of Phytofuse Rejuvenate® to support collagen fiber density in the skin. Ten healthy volunteers (ages 23–45, Fitzpatrick skin types I–III) applied 0.2 g of test materials to designated forearm sites twice daily, with ultrasound measurements collected weekly. Collagen fiber density was assessed using ultrasound signal intensity, where higher reflection intensity correlates with increased dermal collagen content.

High Resolution Skin Imaging

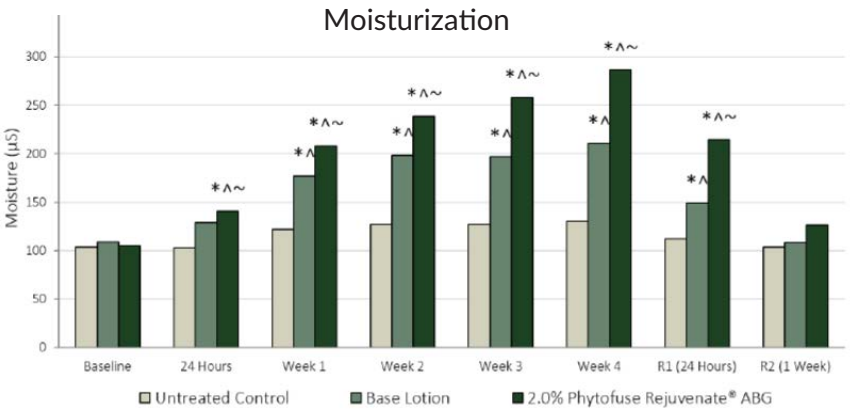


Increased collagen density by +23%

THE EFFICACY CONTINUED.

Hydrating

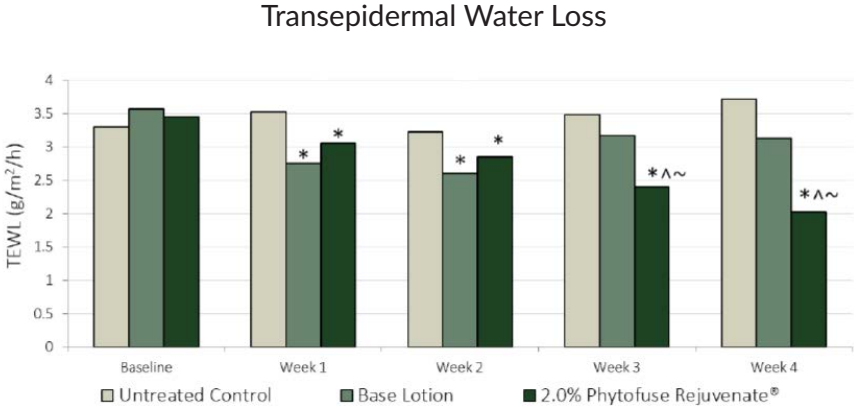
A four-week Moisturization Study was conducted to evaluate the hydrating efficacy of Phytofuse Rejuvenate®. Ten healthy volunteers (ages 23–45, Fitzpatrick skin types I–III) applied 0.2 g of test materials to designated forearm sites twice daily. Skin hydration was measured weekly using a conductance-based probe that assesses moisture levels in the upper layers of the skin, with additional measurements taken 24 hours and one week after product discontinuation to assess lasting hydration.



Augmented skin moisturization by +172%

Hydrating

A four-week transepidermal water loss (TEWL) study was conducted to evaluate the moisture retention and barrier-supporting properties of Phytofuse Rejuvenate®. Ten healthy volunteers (ages 23–45, Fitzpatrick skin types I–III) applied 0.2 g of test materials to designated forearm sites twice daily. TEWL was measured weekly using a probe that quantifies water vapor flux from the skin surface, with lower TEWL values indicating improved barrier function.

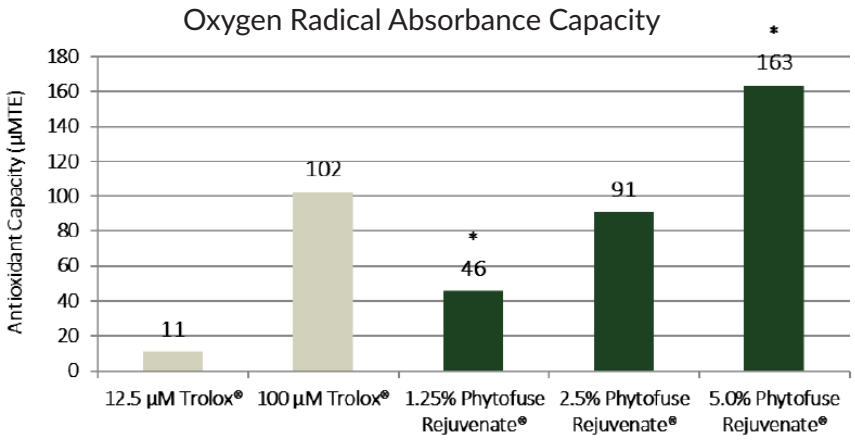


Decreased TEWL by -41%

THE EFFICACY CONTINUED.

Antioxidant

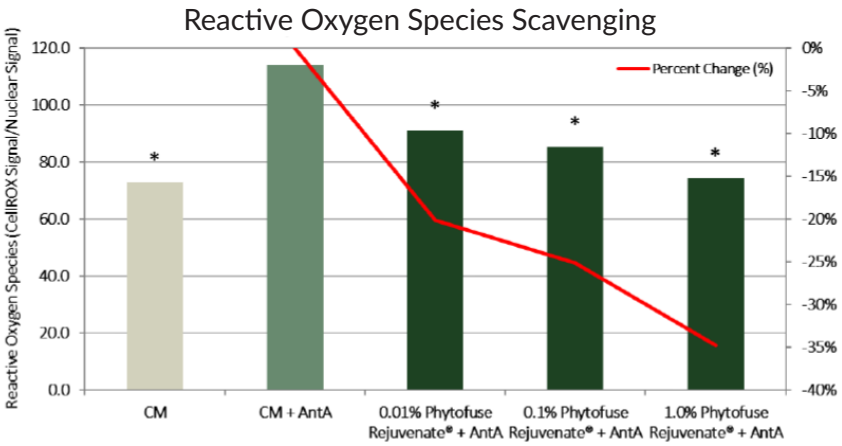
An Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to evaluate the antioxidant potential of Phytofuse Rejuvenate®. The assay measures the ability of the ingredient to neutralize peroxyl radicals by monitoring the protection of a fluorescent probe from oxidative damage over time. Phytofuse Rejuvenate® was tested at multiple concentrations and benchmarked against Trolox®, a water-soluble vitamin E analog, with antioxidant capacity expressed as Trolox® equivalents (TE). Fluorescence decay was monitored kinetically, and antioxidant activity was quantified using area-under-the-curve analysis.



Increased antioxidant capacity by +40%

Antioxidant

Low-level oxidative stress is a normal cellular process, but excessive reactive oxygen species (ROS) induced by UV exposure, pollution, and aging accelerate cellular damage and skin aging. A ROS scavenging assay was conducted in human dermal fibroblasts to evaluate the ability of Phytofuse Rejuvenate® to mitigate supraphysiological oxidative stress. Cells were treated with increasing concentrations of the ingredient and exposed to Antimycin A to induce mitochondrial and non-mitochondrial ROS, with oxidative stress quantified using CellROX™ Orange and normalized to nuclear content via Hoechst staining. Results were analyzed across three independent experiments using one-way ANOVA to assess statistical significance.

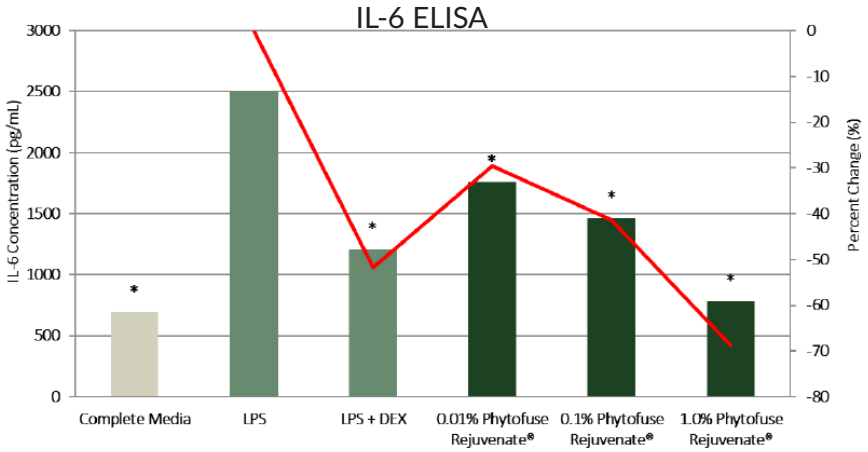


Reduced ROS levels by -20%

THE EFFICACY CONTINUED.

Anti-Inflammatory

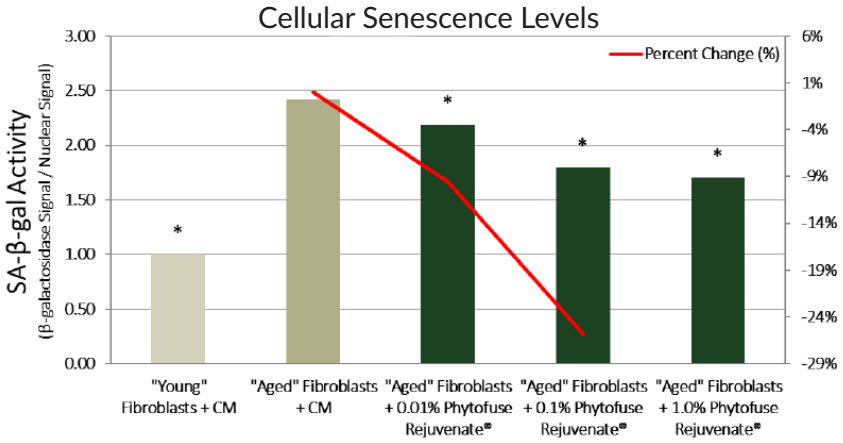
An IL-6 ELISA was performed to evaluate the ability of Phytofuse Rejuvenate® to modulate pro-inflammatory signaling in human dermal fibroblasts. Cells were stimulated with lipopolysaccharide (LPS) to induce inflammation and treated with increasing concentrations of the ingredient, with dexamethasone serving as a positive anti-inflammatory control. IL-6 levels were quantified using a colorimetric sandwich ELISA and calculated against a standard curve. Results from three independent experiments were analyzed using one-way ANOVA to determine statistical significance.



Decreased cellular inflammation by -30%

Cellular Senescence

A Cellular Senescence Assay was conducted to evaluate the ability of Phytofuse Rejuvenate® to reduce age-associated senescence in human dermal fibroblasts. Aged cells (high passage) were treated with the ingredient and compared to young (low passage) fibroblasts, with senescence quantified using SA-β-galactosidase activity normalized to nuclear content via Hoechst staining. Fluorescent signals were measured using SPiDER-βGal and Hoechst dyes to provide a normalized assessment of senescent burden. Results from three independent experiments were analyzed by one-way ANOVA.



Reduced SA-β-gal activity by -26%

THE EFFICACY CONTINUED.

Wound Healing

A Scratch Assay was performed to evaluate the wound healing and cell migration activity of Phytofuse Rejuvenate® in human dermal fibroblasts. Confluent cell monolayers were mechanically wounded and treated with the ingredient, with epidermal growth factor (EGF-1) and vitamin E used as positive and market-standard controls, respectively. Cell migration and wound closure were monitored over 72 hours using microscopy and quantified via ImageJ analysis. Results were expressed as percent scratch closure and migration rate to assess wound healing efficacy.

Scratch Assay

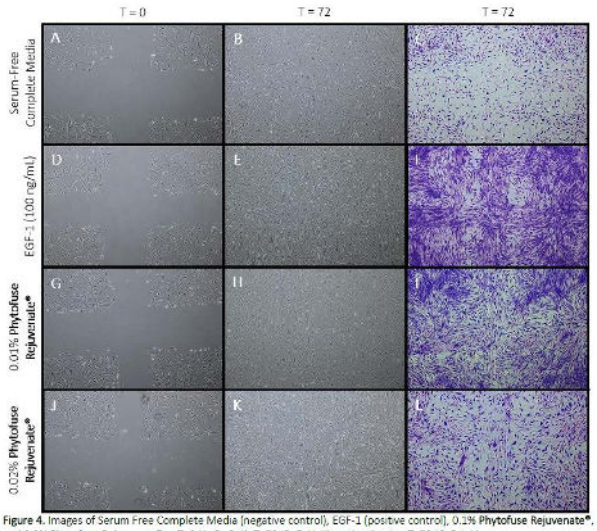


Figure 4. Images of Serum Free Complete Media (negative control), EGF-1 (positive control), 0.1% Phytofuse Rejuvenate®, and 0.2% Phytofuse Rejuvenate® at T=0 (A, D, G, J), T=72 (B, E, H, K), and stained at T=72 (C, F, I, L).

Increased scratch closure by 95% after 72 hours

Triangle Test & Sensory Analysis

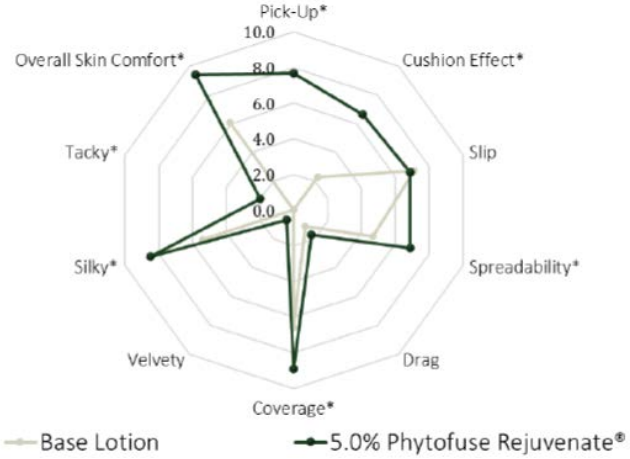
A Sensory Evaluation was conducted with 10 healthy volunteers who applied three blinded lotion treatments to designated forearm sites. Participants assessed perceived sensory differences between treatments and identified which sample contained Phytofuse Rejuvenate®, with all feedback recorded for analysis. Additionally, a randomized Sensory Study was conducted with 10 healthy volunteers who evaluated two lotion treatments on the forearm, rating predefined sensory attributes on a 1–10 scale. Statistical differences between treatments were assessed using t-tests with significance set at $p \leq 0.05$.

Triangle Test

	Correct Identification	Incorrect Identification
Observed	10	0
Expected	3.33	6.667
$(Observed-Expected)^2/Expected$	13.36003	6.667
X^2	20.027	
Critical Value (P=0.005, df=1)	3.841	

Increased perceived sensory benefits

Sensory Analysis



THE EFFICACY CONTINUED.

Stylist Approved

A Salon Half-Head Study was conducted to evaluate the perceived hair benefits of Phytofuse Rejuvenate® in a shampoo and conditioner on wet and dry hair. These results indicate Phytofuse Rejuvenate® improves the perceived benefits with wet and dry hair when added to shampoo and conditioner at recommended use levels. Collectively, ACB Kale Protein Blend demonstrates visual and perceived hair characteristics which contribute to a healthier looking hair appearance.

Baseline | Base Shampoo and Base Conditioner | 2.0% Phytofuse Rejuvenate®

Improves anti-frizz by +25%

Baseline | Base Shampoo and Base Conditioner | 2.0% Phytofuse Rejuvenate®

Enhances hydration by +15%

References:
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