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ACB

Botanical Sugar Complex

Wound Healing

Stylist Approved

Nourishing

Active Concepts

VEGAN

SEPHORA CLEAN

CREDO CLEAN

GLOBALLY COMPLIANT

COSMOS COMPLIANT

ISO 16128

THE FEATURES.

ACB Botanical Sugar Complex transforms cassava-derived tapioca starch into a modern cosmetic active through Lactobacillus fermentation, unlocking a bioavailable blend of simple sugars and carbohydrates designed to nourish skin and hair. Far beyond traditional sugar exfoliants, this fermented complex delivers barrier nourishment and microbiome-friendly nutrients that help create an optimal environment for healthy skin and hair. The result is a naturally derived ingredient that brings a touch of sweetness to formulation.

INCI: Tapioca Starch & Lactobacillus Ferment Lysate

TECHNICAL DATA SHEET.

ACB Botanical Sugar Complex

THE STORY.

Sweetness has long been a term of endearment, but in modern formulation, sugar is becoming a powerful act of care for skin and hair. ACB Botanical Sugar Complex captures this idea by transforming cassava-derived tapioca starch into a sophisticated cosmetic ingredient that nourishes, protects, and revitalizes. Inspired by the comforting familiarity of sugar yet engineered for advanced performance, this ingredient offers brands an appealing and scientifically grounded way to deliver care that feels indulgent while supporting skin and hair health.

Native to South America, cassava has sustained cultures for centuries, prized for the versatile starch known as tapioca. Today, tapioca has gained global recognition—from bubble tea to gluten-free nutrition—but its potential extends far beyond food. Cassava starch contains a rich carbohydrate profile along with naturally occuring micronutrients that make it uniquely suited for personal care applications. While traditional sugars have historically been used as exfoliants, carbohydrate complexes derived from starch reveal a deeper layer of functionality, providing skin-supportive nutriends that help provide increase barrier function and promote a healthy environment.

THE SCIENCE.

Botanical carbohydrates derived from cassava represent an emerging class of multifunctional cosmetic ingredients capable of supporting skin and hair health through multiple biological pathways. Tapioca starch is composed primarily of polysaccharides which provide a reservoir of carbohydrate molecules, shown to be capable of interacting with the skin surface and contributing to moisture regulation and film formation. These polysaccharides can create a lightweight protective matrix on the skin, helping reduce transepidermal water loss (TEWL) and improving the sensory and structural performance of topical formulations. In addition to their researched rheological benefits, plant-derived starches are increasingly recongized as biodegradable alternaives to synthetic polymers in cosmetic systems while providing favorable skin compatibility and stability.[1]

Beyond their stuctural role in formulations, complex carbohydrates can actively support tissue repair and hair fiber health. Polysaccharides and carbohydrate-rich botanical extracts have demonstrated the ability to promote wound healing by stimulating fibroblast proliferation, supporting extracellular matrix deposition, and enhancing cellular migration during the repair proces. These mechanisms help accelerate re-epithelialization ad restore damaged skin barrier structures. Additionally, carbohydrates can benefit hair and scalp by improving moisture retention and forming lightweight protective films along the hair shaft, which helps reduce mechanical damage and improve fiber integrity. Research has shown that carbohydrate-based polysaccharides can enhance scalp hydration and provide conditioning benefits that improve hair manageability, strength, and overall appearance.[2,3]

The combination of tapioca-derived carbohydrates and Lactobacillus fermentation lysates creates a synergistic system that delivers both structural and biological benefits to skin and hair. Together, these mechanisms help create an environment that supports healthier-looking skin and scalp, and enhances overall cosmetic performance, demonstrating the value of fermented botanical carbohydrates as multifunctional actives in modern personal care formulations.

THE TECHNICAL DETAILS.

INCI. Tapioca Starch & Lactobacillus Ferment Lysate
CAS. 9005-25-8 & 68333-16-4
EINECS. 232-679-6 & N/A
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

Origin. Botanical/Bacteria
Natural Antimicrobial. Lactobacillus Ferment Lysate & Leuconostoc/Radish Root Ferment Filtrate*
Preservatives. None
Solvents Used. None
Appearance. Slight Hazy to Hazy, Colorless to Light Yellow Liquid

THE FORMULATION TIPS.

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

Ionic State. Nonionic
Alcohol Compatibility. Compatible with 40% alcohol at a 1-10% use level
Solubility. Water Soluble
Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

** Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0–22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.*

ACB Botanical Sugar Complex

THE BENEFITS OVERVIEW.

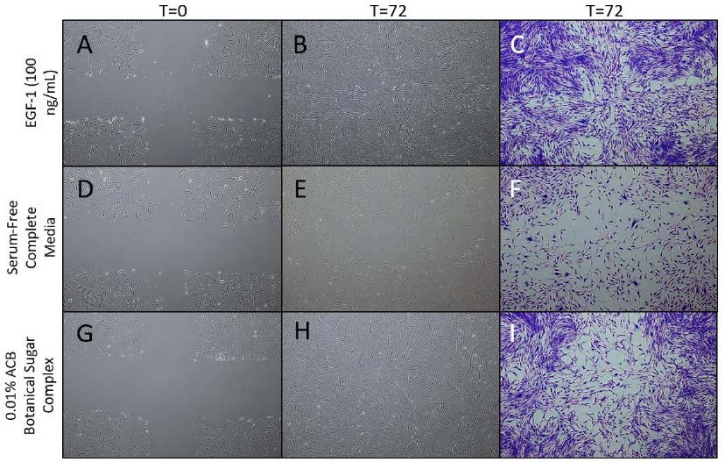
Wound Healing *Scratch Assay*

Stylist Approved *Salon Half-Head Study*

THE EFFICACY.

Wound Healing

An *in vitro* scratch assay was performed to evaluate the wound healing potential of ACB Botanical Sugar Complex using human dermal fibroblasts. Fibroblasts were cultured to confluency in a 6-well plate before a linear scratch was created to simulate a wound area devoid of cells. Cells naturally migrate and proliferate toward the gap to repair the "wound," allowing the rate of closure to be used as an indicator of wound healing activity. Following scratch creation, wells were treated with either 0.01% ACB Botanical Sugar Complex and controls. Images were captured immediately after scratching and every 24 hours for up to 72 hours to monitor cell migration and wound closure.



Increased scratch closure by +16.9% compared to CM

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A salon half-head study was conducted to evaluate the perceived hair benefits of ACB Botanical Sugar Complex when incorporated into a shampoo and conditioner. Five volunteers aged 20–45 participated in the blinded study, where one half of the head was treated with a base shampoo and conditioner (control) while the other half received the same formulations containing 2.0% ACB Botanical Sugar Complex. Baseline photographs were taken prior to treatment, after which participants underwent the shampoo and conditioning process. Wet and dry sensory evaluations were completed.

Salon Half-Head Study

Increased shine by +23%

References:
1. Infante, V. H. P., et al. (2024). Application of tapioca and corn starches as an alternative for synthetic polymers in cosmetic products. Brazilian Journal of Pharmaceutical Sciences.
2. Kim, H. S., Kim, Y. J., & Lee, H. K. (2018). Polysaccharides as therapeutic agents for wound healing. International Journal of Biological Macromolecules, 109, 803–810. https://doi.org/10.1016/j.ijbiomac.2017.11.146
3. Zhang, L., Wang, Y., Wu, D., Xu, M., & Chen, J. (2021). Biological activities and cosmetic applications of plant polysaccharides. International Journal of Biological Macromolecules, 183, 2000–2010. https://doi.org/10.1016/j.ijbiomac.2021.05.050

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