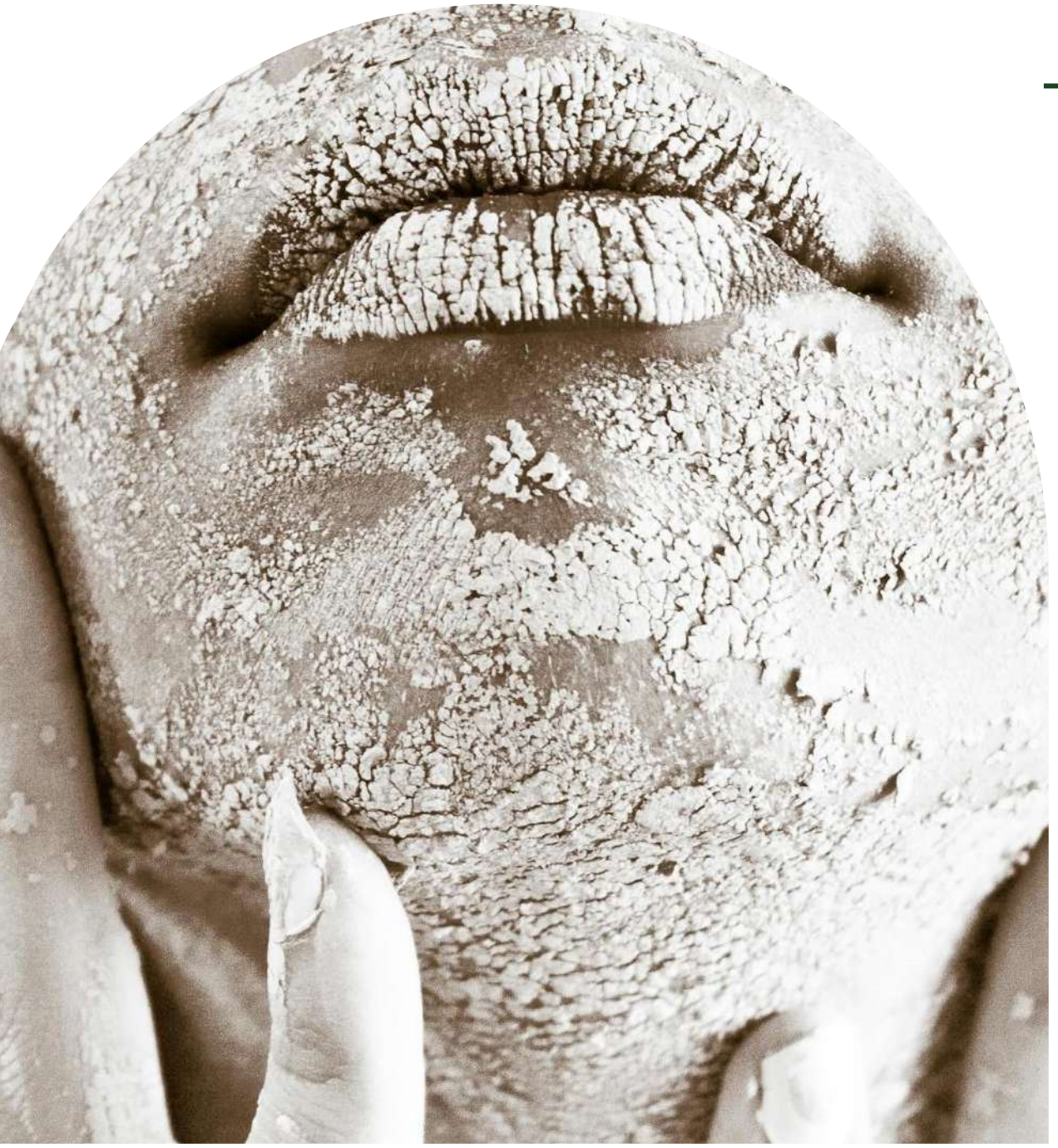

AC Pina Colloida
INCI : Water & Ananas Sativus (Pineapple) Fiber Crosspolymer & Lactobacillus Ferment
Active Concepts

Warning Attention

Record temperatures are being observed worldwide, altering our clothing and grooming habits. The increasing **heat** and worsening **pollution** are influencing trends in the fashion and beauty industries.

The market for skincare products with **anti-pollution** properties is projected to reach $1.4 billion by the close of 2031[1], and consumers are turning to **more technologically advanced** products for sun protection.

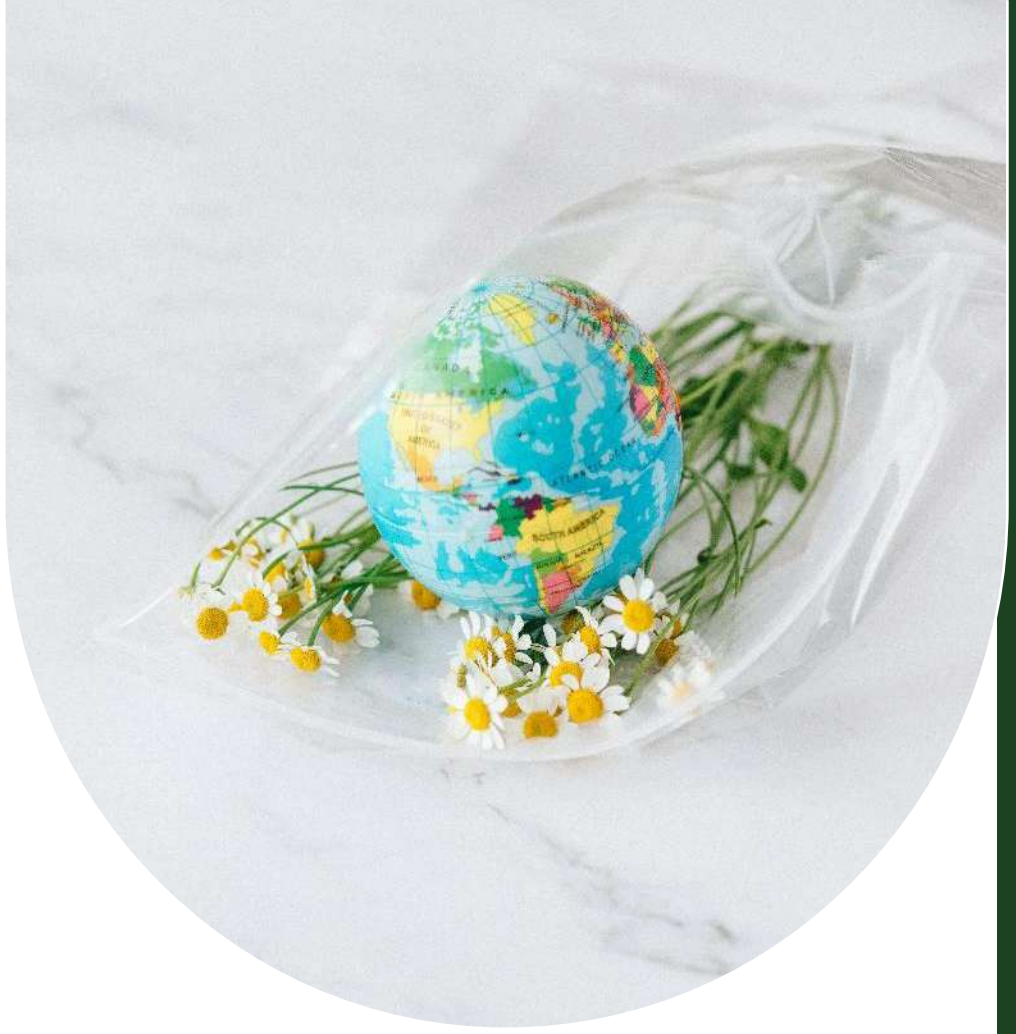


Under Attack

The aging and quality of skin and hair can be directly influenced by global warming. Presently, the risk of skin damage induced by UV rays is progressively rising due to climate change, and the skin and hair lack inherent mechanisms to shield themselves adequately from the sun and environmental stress.

As the **beauty industry** undergoes an **eco-conscious** transformation, consumers are becoming more aware of the **environmental impact** of their daily routines and are actively seeking high performance products without causing harm to the planet.[2]

Addressing the global necessity to **mitigate harm** from **petrochemical pollutants**, eco-friendly and biodegradable solutions have become imperative.



The Eco-Conscious Transformation

How can we counteract the impacts on our skin and hair resulting from the constantly shifting and tumultuous climate of the planet with a sustainable impact?

Our responsability

is to **initiate** the cosmetic industry's **supply chain** with natural and sustainable solutions. As biotechnology progresses, we can offer **innovative approaches** to obtain biopolymers and enhance their performance.

Our objective

Develop an innovative eco-solution for safeguarding hair & skin.

- Creating a novel natural polymer
- Acting as a shield against environmental factors
- Promoting eco-friendliness through sustainable sourcing

Green Switch

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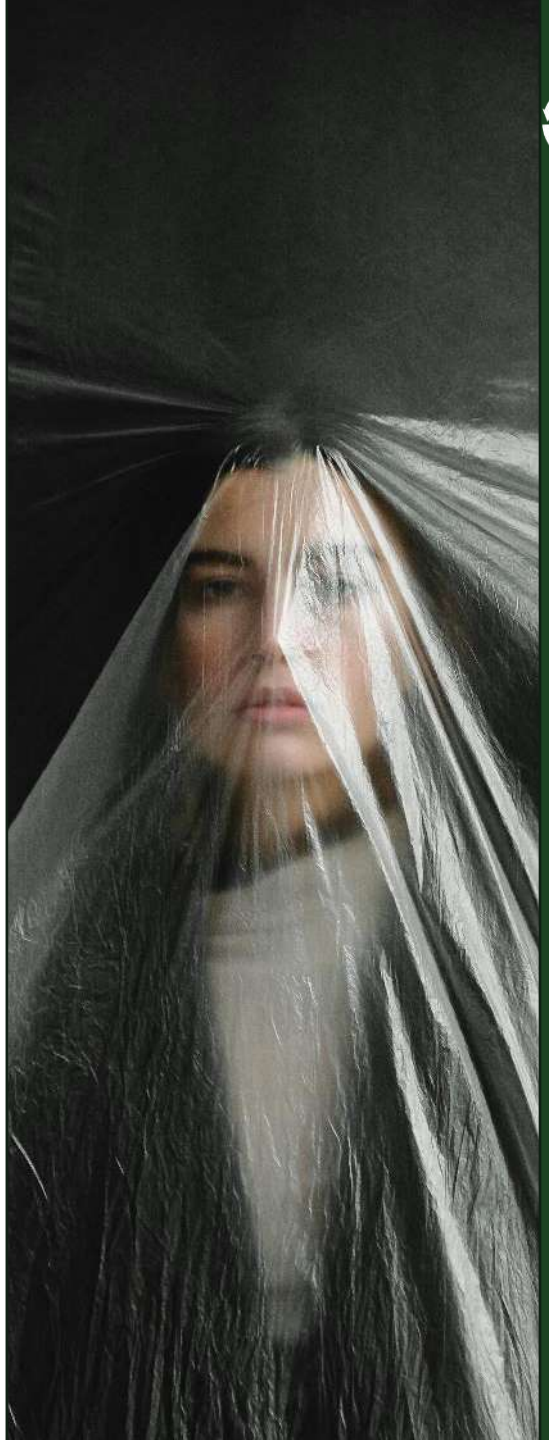
Polymers, large molecules with repeating structural units connected by covalent chemical bonds, include natural polymers like cellulose found in nature.

Biodegradable polymers offer **eco-friendly choices**, but unmodified types may **lack strength** and water resistance. Researchers explore enhancement techniques.[3]

Enhancement methods for biodegradable polymers may **raise complexity** and carbon footprint by demanding more materials and energy. **Reevaluating** both the techniques and aspects involved in **ingredient modification** is crucial for the sustainable development of polymers.



Biomaterials Science

The **environmental challenges** linked to the **energy crisis**, production, disposal, and recycling of synthetic fiber-based polymer composites have inspired the exploration of **eco-friendly natural fibers**, with the aim of introducing innovative biopolymers and eco-textiles.

At Active Concepts, we embrace diverse realms of science and industry. Exploring solutions from food to fashion, we identify **potential alternatives** in technology and fiber sources that could contribute to **sustainable practices** for the creation of our novel ingredient.

PALI

Ecoalf

Source: Ecoalf Website

Piñayarn®

offers a 100% plant-based, recyclable, and biodegradable textile solution for a world otherwise dominated by petroleum-based textiles and resource intense virgin fibres.

Source: Anans Anam Website

Pineapple leaf fiber (PALF) is valued for its high cellulose content and strength. Processing pineapple crown leaves (PCL) contributes to pollution and agricultural issues. PALF finds use in textiles, paper, and polymers, but burning leaves harms the environment. Repurposing PCL waste as a cellulose source addresses pollution, leveraging its renewable nature. This strategy tackles environmental challenges by utilizing pineapple crown leaves sustainably.

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Pina-Appeal

Pineapple, a non-climacteric fruit, ranks **third** globally in cultivation after banana and citrus, being consumed worldwide. Major producers include Costa Rica, the Philippines, and Brazil. Each plant yields 40-60 tonnes per hectare, generating about 40–50 leaves or 2.3 kg of pineapple leaves per shoot. This abundance results in substantial **by-products**, especially pineapple leaves, totaling approximately **3 billion tons annually**[4].

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Global agricultural post-harvest waste poses a pressing issue, often being burned, discarded, or used solely as organic fertilizer without generating additional income and contributing to pollution. These wastes are rich in cellulose, hemicellulose, and lignin.

Goal is repurpose

Repurposing a portion of this waste offers a promising solution to minimize waste and introduce a beneficial sourcing strategy for producing new biopolymers.

Upcycling Strategy

Agricultural waste is a major contributor to pollution, with millions of tons of crops either abandoned or burned annually, releasing harmful greenhouse gases. However, there's a sustainable alternative in PALF, which transforms this waste into valuable products, effectively reducing pollution and promoting a closed-loop system in the circular economy.

For our sourcing, we strategically identified three local methods to acquire pineapple crowns, meeting the requirements of our production sites.

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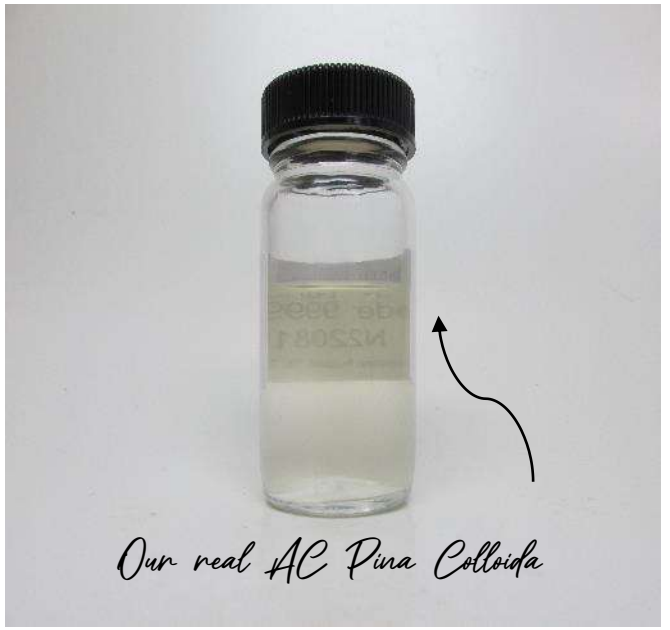
Upcycled Sourcing

Pineapple crowns are utilized from a local grocery store in the United States that would have otherwise been discarded as waste, saving approximately 2.6 metric tons. These crowns are sustainably used to extract fibers and are sourced from a certified Costa Rican supplier practicing sustainable cultivation.

US



In Italy's Piemonte region, our European pineapple crown supplier prioritizes quality, health, and sustainability. They annually discard 8,500 Costa Rican pineapple crowns, repurposing them in line with their commitment to innovation and eco-conscious practices.

EU

In Taiwan, a local family farm partners with us to supply pineapple crowns. Focusing on pineapple, our supplier creates culturally significant pineapple cakes, with most fruit sourced locally. Emphasizing non-toxic, pesticide-free practices, they distribute fresh produce in community markets, ensuring fruit freshness and consumer healthiness.

Asia

Acquiring discarded pineapple crowns

Mechanical crushing of crowns and treatment resulting in pineapple leaf fiber (PALF) extract

Fermentation of yeast with PALF solution

Extraction under specific conditions of yeast polysaccharides/PALF cross-linked polymer

Addition of *Lactobacillus* ferment.

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Manufacturing Process

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The Name

Pina [Piña] . pineapple in Spanish

Colloida [Colloid] . is a dispersion of polymer particles in a continuous liquid phase.

→ Representing the idea of the PALF solution & polymer functionality

Pina Colloida similarity to [Pina Collada] cocktail

→ Idea of enjoying time & sun

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