

# ACB Botanical Sugar Complex



Starch  
 Powerful Ferment  
 Natural Carbohydrate  
 Simple Sugars  
 Enhanced Bioavailability

## BACKGROUND

Hey Sugar, do we have some news for you? As sweet as the sound of this southern pet name, sugar can be used as a delicious, topical indulgence for your skin and hair! Using tapioca, a starch derived from the cassava plant, Active Concepts has created **ACB Botanical Sugar Complex** to provide a brand-differentiating product that's hard to resist. Now that's sweet.

Native to South America, tapioca has enjoyed a recent surge in popularity as a gluten-free thickening agent in the nutritional industry. Tapioca is enjoyed throughout the world as the primary constituent of bubble tea, but is also an essential staple in certain cultures due to its distinct composition of carbohydrates, vitamins, minerals and organic compounds. Rich in fiber, protein and "good" cholesterol, tapioca also boasts low levels of saturated fat, sodium and bad cholesterol.<sup>1</sup> However, those components are not what distinguishes tapioca for use in personal care products. As a complex starch, Cassava derived sugars contain an active carbohydrate profile that offers a wide range of cosmetic benefits. Traditional sugar based materials are used as exfoliators, but sugars derived from starch have undeniable function properties that are foolish to ignore.

Though Cassava has traditionally been used as an herbal remedy in which tapioca starch is applied directly to the skin as a treatment for sores. Today, tapioca starch is a vital tool used in developing countries to fight dehydration.<sup>2</sup> In addition, aside from the current documented properties of Cassava, the plant is being studied for a variety of its other byproducts, which have been found to be potentially useful in gene therapies for various cancers.

## SCIENCE

Starches and sugars by nature contain a high proportion of carbohydrates. Leading Research shows that carbohydrates have innumerable cosmetic uses.

**Code Number: 20039**

**INCI Name:** Tapioca Starch & Lactobacillus Ferment Lysate

**INCI Status:** Conforms

**REACH Status:** Complies

**CAS Number:** 9005-25-8 & 68333-16-4

**EINCS Number:** 232-679-6 & N/A

**Origin:** Botanical

**Processing:**

GMO Free

No Ethoxylation

No Irradiation

No Sulphonation

**Additives:**

Preservatives: None

Antioxidants: None

Other additives: None

**Solvents Used:** Water

**Appearance:** Slightly Hazy to Hazy Liquid

**Soluble/ Miscible:** Water Soluble

100% Biodegradability

**Microbial Count:** <100 opg,

No Pathogens

**Suggested Use Levels:** 1.0 - 10.0%

**Suggested Applications:**

Moisturizing, Wound Healing

Antioxidant, Increases Cellular

Metabolism

## Benefits of ACB Botanical Sugar Complex

- Ideal for Haircare
- Increase Cell Metabolism
- Intense Moisturization

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From barrier protection to increasing cellular metabolism, carbohydrates can help promote healthy skin and hair. As a source of quality simple sugars, Tapioca starch is useful in increasing cellular viability by providing a nutrient rich environment for the skins natural microbiome to flourish.<sup>3</sup> Through fermentation, the nutrients associated with long chain carbohydrates extracted from tapioca starch are more readily available for uptake into the skin and hair. The use of these refined sugars in formulation also plays on a new study confirming the use of complex natural sugars as antioxidants, as seen in our Oxygen Radical Absorbance Capacity results; **ACB Botanical Sugar Complex** brings antioxidant capability packaged in a nourishing, non-irritating raw material.

Sugars and long chain carbohydrates are abundant in nature, but the choice to use Cassava was simple. Not only is it sustainable for large-scale product manufacturing, but the plant itself contains an inexplicably high number of micronutrients such as Copper and Iron, which are vitally important as enzymatic oxidative cofactors, cell transporters, and nutrient absorption/utilization aids. As the industry continues to move away from animal-derived products, it is imperative to seek out viable alternative sources.

## BENEFITS

Active Concepts has taken a forward approach in its product development, surveying nutritional, health and wellness trends in order to identify opportunities for potential cosmetic and personal care applications. **ACB Botanical Sugar Complex** harnesses the benefits of tapioca starch through the fermentation of cassava root with Lactobacillus. By fermenting cassava root, we are able to isolate tapioca starch to provide our customers with a product that improves cellular metabolism and acts as a wound healing agent. Additionally, the fermentation of botanicals results in enhanced bioavailability of the active, increasing the skin and hair benefits by enhancing the ability of these constituents to be more readily absorbed. Incorporating **ACB Botanical Sugar Complex** into skin and hair care formulations is recommended if the final formulation requires strong moisturizing, wound healing, and antioxidant properties tied to an increase in cellular metabolism and viability.

## EFFICACY DATA

In this study, **ACB Botanical Sugar Complex** was tested to evaluate its effects on the viability of normal human dermal fibroblasts (NDHF). At concentrations of 1%, 0.1%, and 0.01% **ACB Botanical Sugar Complex**, nor the preservatives contained therein exhibited any inhibition of cell viability. It can be concluded that at normal use concentrations **ACB Botanical Sugar Complex** is not cytotoxic.

### Cellular Viability Assay

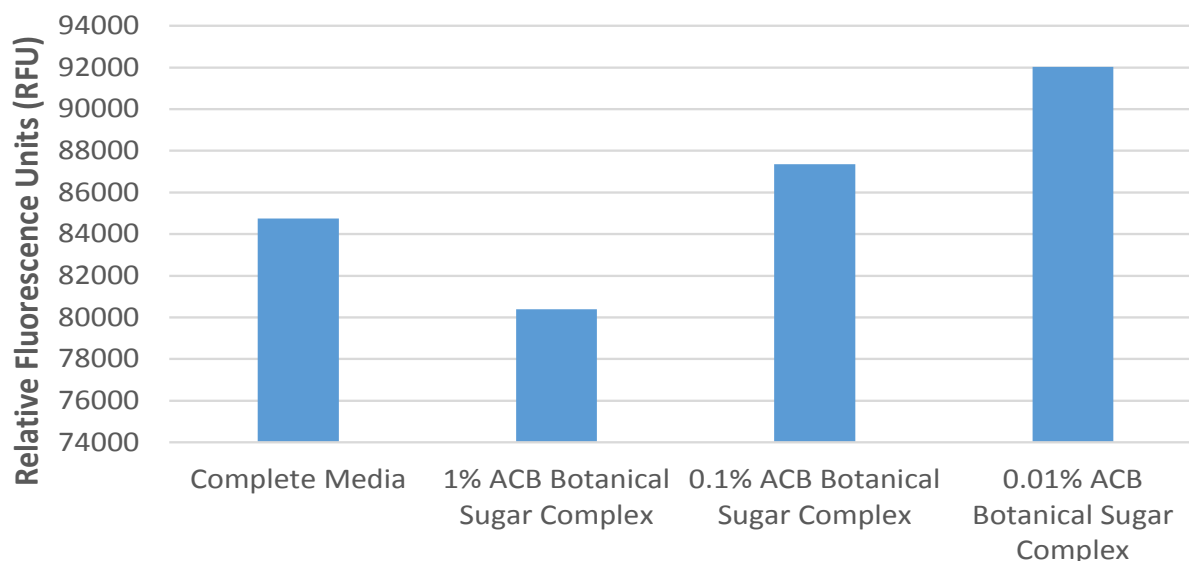


Figure 1. Cellular Viability

# ACB Botanical Sugar Complex

As shown in figure 2, **ACB Botanical Sugar Complex** exhibited antioxidant activity comparable to 200µM Trolox®. The antioxidant capacity of **ACB Botanical Sugar Complex** increased as the concentration increased. As a result we can assure that its ability to minimize oxidative stress is dose dependent. It can therefore be concluded that **ACB Botanical Sugar Complex** is capable of providing antioxidant properties.

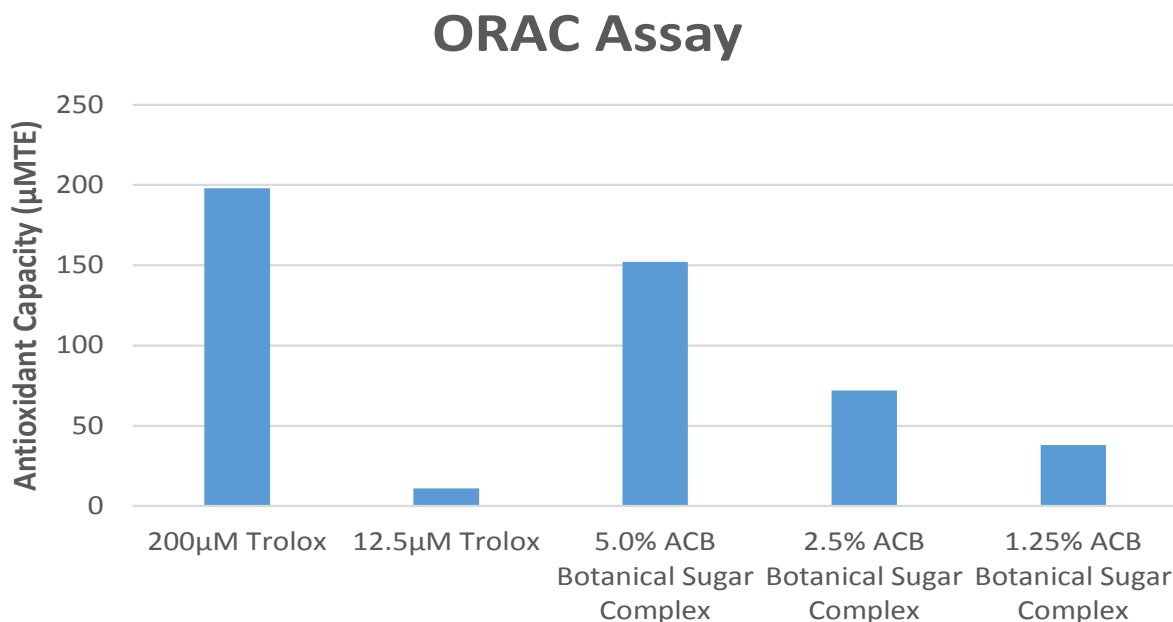


Figure 2. Antioxidant Capability

References

- 1) Valles, M. et al. USPTO, US5496861, Cosmetics Containing enzymatically debranched starch.
- 2) Sztetli, J. et al. 1982. Starch. Cyclodextrins in Food, Cosmetics and Toiletries. 34(11): 379-385
- 3) Kreopke, R. et al. USPTO, US20050255058 A1, Tapioca in cosmetic preparations.