

16098.

AC Cinnamon Liposome

Even Skin Tone
Antioxidant
Revitalizing



VEGAN



SEPHORA
CLEAN



CREDO
CLEAN



GLOBALLY
COMPLIANT



ISO 16128



THE FEATURES.

Rooted in centuries of botanical tradition, cinnamon has long been treasured for its rich aroma, warming character, and remarkable versatility. Derived from the bark of *Cinnamomum cassia*, this timeless botanical is reimagined through modern delivery technology in AC Cinnamon Liposome, where nature-inspired science meets next-generation skin brightening. Through innovative liposomal encapsulation, AC Cinnamon Liposome is designed to enhance the delivery of these botanical components, supporting a more targeted approach to the appearance of uneven skin tone. Ideal for complexion-enhancing treatments, this multifunctional active brings together botanical heritage, antioxidant care, and modern cosmetic innovation.

*INCI: Water & Cinnamomum Cassia Bark
Extract & Phospholipids*

TECHNICAL DATA SHEET.

AC Cinnamon Liposome

THE STORY.

Few botanicals evoke the same sense of indulgence and familiarity as cinnamon. From its rich, aromatic bark to its centuries-old presence in beauty rituals and traditional wellness practices, cinnamon carries a story that transcends cultures and generations. Once treasured as a rare and precious commodity, this iconic spice has become a symbol of comfort, vitality, and natural luxury. Today, as consumers gravitate toward recognizable botanicals with meaningful origins, cinnamon offers brands an opportunity to transform a familiar ingredient into an unexpected expression of modern skincare.

AC Cinnamon Liposome brings this beloved botanical into the spotlight through innovative liposomal technology, pairing the antioxidant potential of *Cinnamomum cassia* with a science-inspired approach to more even-looking skin. Its distinctive botanical identity creates opportunities for complexion-perfecting treatments that feel both approachable and elevated. By blending a universally recognizable ingredient with sophisticated delivery technology, AC Cinnamon Liposome allows brands to tell a story that is equal parts nostalgic and innovative—turning the warmth of cinnamon into the allure of luminous skin.



THE SCIENCE.

Beyond its distinctive aroma, *Cinnamomum cassia* contains a complex profile of naturally occurring phenolic compounds that contribute to its antioxidant potential. Research has identified procyanidins as bioactive constituents of *cassia* bark with demonstrated antioxidant activity.¹ Additional investigations of *Cinnamomum cassia* bark extracts have demonstrated free radical-scavenging activity and inhibition of lipid peroxidation, highlighting the botanical's ability to interact with oxidative processes.^{2,3} These findings are particularly relevant to cosmetic science, as oxidative stress contributes to the deterioration of skin lipids, proteins, and other components involved in maintaining healthy-looking skin. By exploring cinnamon's naturally occurring antioxidant chemistry, AC Cinnamon Liposome offers a botanical-inspired approach to supporting skin exposed to everyday environmental stressors.

Cinnamon's potential extends beyond antioxidant activity to the biochemical pathways responsible for skin pigmentation. Tyrosinase, an enzyme central to melanogenesis, catalyzes the conversion of L-tyrosine to L-DOPA and the subsequent oxidation of L-DOPA to dopaquinone, initiating reactions that ultimately contribute to melanin formation.⁴ Phenolic constituents isolated from *Cinnamomum cassia* have been shown to exhibit tyrosinase-inhibitory activity *in vitro*, further highlighting the species as a source of compounds relevant to pigmentation research.⁵ Together, these findings provide a foundation for exploring cinnamon-derived actives in formulations designed to promote a more even-looking complexion.

The relationship between oxidative stress and skin pigmentation further highlights the value of multifunctional botanical ingredients. Reactive oxygen species (ROS), which can accumulate following exposure to environmental stressors, are involved in cellular signaling pathways that influence melanogenesis.⁶ Elevated oxidative stress can contribute to pigmentation-related responses, reinforcing the importance of addressing both oxidative processes and melanin synthesis when developing complexion-focused cosmetic solutions.⁶ By combining the antioxidant potential of *Cinnamomum cassia* with its documented tyrosinase-inhibitory activity, AC Cinnamon Liposome draws upon complementary scientific mechanisms to support the development of formulations targeting visible discoloration and uneven skin tone.

THE TECHNICAL DETAILS.

INCI. Water & Cinnamomum Cassia Bark Extract & Phospholipids

CAS. 7732-18-5 & 84961-46-6 & 123465-35-0

EINECS. 231-791-2 & 284-635-0 & N/A

EUROPE. Compliant

USA. Compliant

CHINA. Compliant

Origin. Botanical/Bacteria

Natural Antimicrobial. Lactobacillus Ferment

Preservatives. None

Solvents Used. Water

Appearance. Viscous Liposomal Dispersion, Yellow/Tan to Amber

THE FORMULATION TIPS.

pH Stability. 4 - 7

Temperature Stability. Product may change appearance if exposed to cold temperatures during storage or shipment. Gently warm to 45 - 50 °C and mix under normal appearance is restored.

Use Level. 1 - 10%

Ionic State. Nonionic

Alcohol Compatibility. Compatible with up to 40% alcohol at 10% use level

Solubility. Water Dispersible

Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

AC Cinnamon Liposome

THE BENEFITS OVERVIEW.

Even Skin Tone Tyrosinase Inhibition



Antioxidant Oxygen Radical Absorbance Capacity (ORAC) Assay



Radical Scavenging Reactive Oxygen Species (ROS) Scavenging Assay



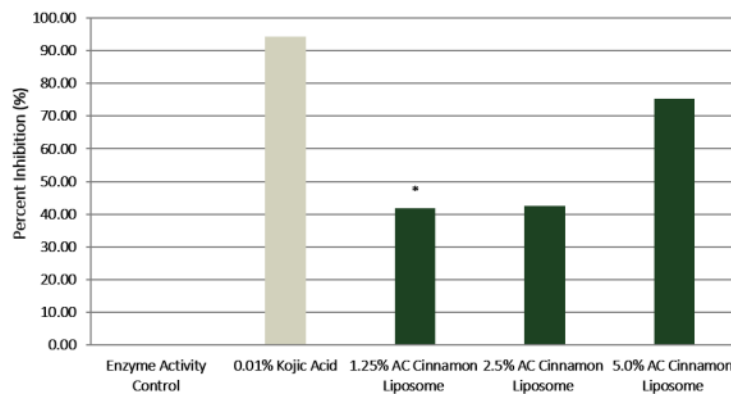
THE EFFICACY.



Even Skin Tone

To evaluate the skin-evening potential of AC Cinnamon Liposome, an *in vitro* tyrosinase inhibition assay was conducted to assess its ability to inhibit a key enzyme involved in melanin production. AC Cinnamon Liposome was tested at concentrations of 1.25%, 2.5%, and 5.0%, alongside kojic acid, a well-established tyrosinase inhibitor used as a positive control. Enzymatic activity was monitored over 60 minutes using a colorimetric assay, measuring changes in absorbance at 510 nm to determine the percentage of tyrosinase inhibition.

Tyrosinase Inhibition



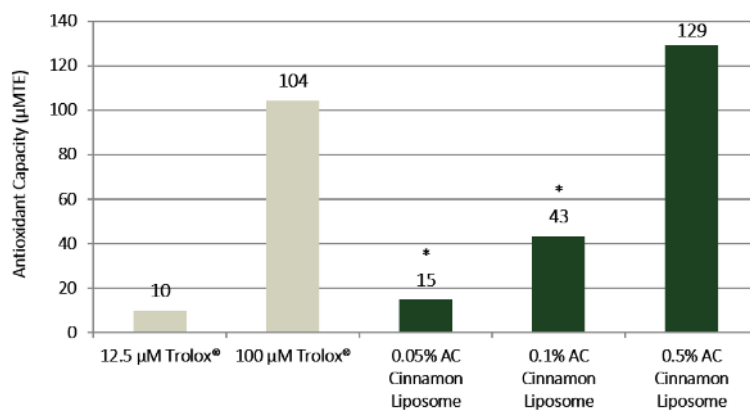
Inhibited tyrosinase by -42% at a 2.5% use level



Antioxidant

To evaluate the antioxidant potential of AC Cinnamon Liposome, an *in vitro* Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to assess its ability to neutralize free radicals associated with oxidative stress. AC Cinnamon Liposome was tested at concentrations of 0.05%, 0.1%, and 0.5%, alongside Trolox®, a water-soluble vitamin E analog used as the antioxidant reference standard. The assay measured the ingredient's ability to protect a fluorescent probe from damage caused by peroxyl radicals over approximately two hours, with antioxidant capacity expressed as micromolar Trolox equivalents (μMTE).

ORAC Assay



Increased antioxidant capacity by +24% compared to 100 μM Trolox®

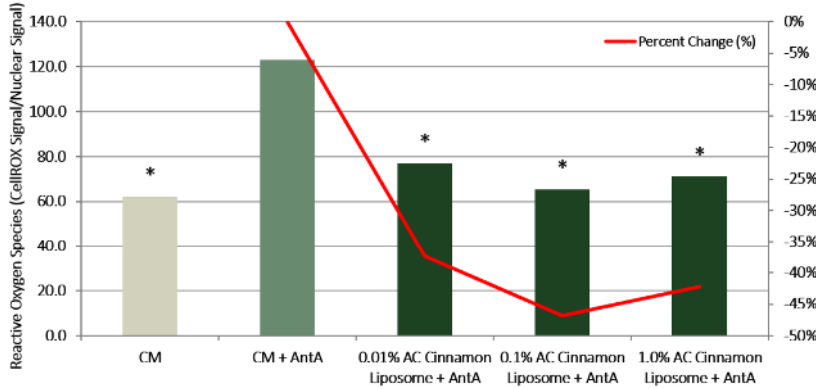
AC Cinnamon Liposome

THE EFFICACY CONTINUED.

Radical Scavenging

To evaluate the cellular antioxidant potential of AC Cinnamon Liposome, an *in vitro* Reactive Oxygen Species (ROS) Scavenging Assay was conducted using human dermal fibroblasts. AC Cinnamon Liposome was tested at concentrations of 0.01%, 0.1%, and 1.0% to assess its ability to reduce oxidative stress induced by Antimycin A, a compound used to stimulate excess ROS production. Following an 18-hour treatment, intracellular ROS levels were quantified using CellROX™ Orange fluorescent technology, with Hoechst staining used to normalize measurements to cell number.

ROS Scavenging Capacity



**Reduced
ROS levels
by -47% at
a 0.1%
use level**

References:

1. Dai, J., Liu, Z., Ma, L., Yang, C., Bai, L., Han, D., Song, Q., Yan, H., & Wang, Z. (2024). Identification of procyanidins as α -glucosidase inhibitors, pancreatic lipase inhibitors, and antioxidants from the bark of Cinnamomum cassia by multi-bioactivity-labeled molecular networking. *Food Research International*, 192, 114833.
2. Lin, C.-C., Wu, S.-J., Chang, C.-H., & Ng, L.-T. (2003). Antioxidant activity of Cinnamomum cassia. *Phytotherapy Research*, 17, 726-730.
3. Yang, C.-H., Li, R.-X., & Chuang, L.-Y. (2012). Antioxidant activity of various parts of Cinnamomum cassia extracted with different extraction methods. *Molecules*, 17(6), 7294-7304.
4. Chang, C.-T., Chang, W.-L., Hsu, J.-C., Shih, Y., & Chou, S.-T. (2013). Chemical composition and tyrosinase inhibitory activity of Cinnamomum cassia essential oil. *Botanical Studies*, 54, 10.
5. Ngoc, T. M., Lee, I., Ha, D. T., Kim, H., Min, B., & Bae, K. (2009). Tyrosinase-inhibitory constituents from the twigs of Cinnamomum cassia. *Journal of Natural Products*, 72(6), 1205-1208.
6. Denat, L., Kadekaro, A. L., Marrot, L., Leachman, S. A., & Abdel-Malek, Z. A. (2014). Melanocytes as instigators and victims of oxidative stress. *Journal of Investigative Dermatology*, 134(6), 1512-1518.

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