20351PF.

ACB

Wasabi Extract PF

Skin Barrier
Antioxidant
Nourishing

Active Concepts

VEGAN

SEPHORA CLEAN

CREDO CLEAN

ISO 16128



THE FEATURES.

Rooted in Japanese botanical tradition, ACB Wasabi Extract PF harnesses the unique bioactive properties of *Wasabia japonica* to deliver multifunctional benefits for modern cosmetic formulations. Beyond its culinary heritage, wasabi contains a diverse phytochemical profile recognized for their antioxidant and antimicrobial potential. Combining traditional botanical knowledge with modern cosmetic science, ACB Wasabi Extract PF offers an innovative, naturally derived approach to skin protection and modern formulation performance.

***INCI**: Lactobacillus/Wasabia Japonica Root Ferment Extract*

TECHNICAL DATA SHEET.

ACB Wasabi Extract PF

THE STORY.



Bold, vibrant, and unmistakably Japanese, wasabi is a botanical that commands attention. Best known for its signature kick and place in Japanese cuisine, this distinctive green plant carries a rich cultural heritage that extends far beyond the dining experience. Its unexpected transition into beauty offers a fresh perspective on an ingredient consumers already recognize, but rarely associate with skincare.

In a beauty landscape increasingly inspired by global traditions and unconventional botanicals, wasabi offers brands an opportunity to tell a story that feels both culturally rooted and refreshingly unexpected. Its striking green identity and instantly recognizable name create an engaging foundation for formulations that challenge conventional ingredient narratives.

ACB Wasabi Extract PF brings this intriguing botanical into modern personal care, inviting brands to embrace the unexpected and transform a familiar culinary icon into a distinctive beauty experience. From Japanese-inspired skincare rituals to bold, botanical-forward collections, wasabi offers a memorable ingredient story that stands out in an increasingly crowded beauty market.

THE SCIENCE.

The biological potential of *Wasabia japonica* extends beyond its distinctive sensory characteristics, originating from a diverse composition of naturally occurring phytochemicals. Among these are phenolic compounds, flavonoids, glucosinolates, and isothiocyanates, which have attracted scientific interest for their antioxidant and protective properties. Phenolic compounds and flavonoids are particularly recognized for their ability to interact with reactive oxygen species (ROS), helping to limit oxidative reactions that can compromise cellular structures. Research examining different tissues of *Wasabia japonica* has demonstrated measurable antioxidant activity, supporting the plant's potential as a source of bioactive compounds for cosmetic applications.[1]

Oxidative stress is an important contributor to visible skin aging, particularly when environmental exposures such as ultraviolet radiation and pollution overwhelm the skin's natural antioxidant defenses. Excessive ROS accumulation can contribute to lipid peroxidation, protein damage, and alterations in the extracellular matrix, ultimately influencing the appearance of skin firmness, elasticity, and overall vitality. Wasabi-derived phytochemicals have been investigated for their ability to participate in antioxidant defense processes, including free radical scavenging and cellular protective responses.[2] These findings provide a scientific foundation for exploring fermented wasabi extracts in cosmetic formulations designed to help defend against oxidative stress and maintain healthier-looking skin.

Beyond antioxidant activity, wasabi-derived compounds have also been studied for their interactions with cellular signaling processes. Certain compounds associated with wasabi are known to influence calcium-permeable sensory receptors, highlighting a potential connection between botanical compounds and intracellular calcium signaling. Calcium serves as an essential secondary messenger in skin physiology, participating in processes associated with cellular communication, epidermal differentiation, and barrier homeostasis.[3]

By combining the botanical heritage of *Wasabia japonica* with emerging research into antioxidant activity and cellular signaling, ACB Wasabi Extract PF offers a distinctive approach to multifunctional skin and scalp care, connecting traditional plant knowledge with modern cosmetic innovation.

THE TECHNICAL DETAILS.

INCI. Lactobacillus/Wasabia Japonica Root Ferment Extract
CAS. N/A
EINECS. N/A
EUROPE. Compliant
USA. Compliant
CHINA. Compliant

Origin. Botanical/Bacteria
Natural Antimicrobial. None
Preservatives. None
Solvents Used. None
Appearance. Yellow to Light Green Liquid, Product May Brown With Age

THE FORMULATION TIPS.

pH Stability. 4 - 7
Temperature Stability. Product may change appearance if exposed to cold temperatures during storage or shipping. Gently warm to 45- 50 °C and mix.
Use Level. 1 - 5%

Ionic State. Nonionic
Alcohol Compatibility. Compatible with up to 50% alcohol at 5%
Solubility. Water Soluble
Pro Tips. It is recommended that this product is added to the batch in cooldown to maintain appearance

ACB Wasabi Extract PF

THE BENEFITS OVERVIEW.

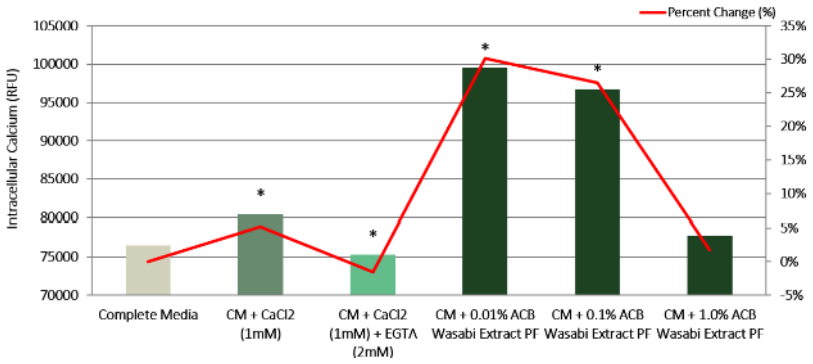
Skin Barrier	*Intracellular Calcium Assay*
Antioxidant	*Oxygen Radical Absorbance Capacity (ORAC) Assay*
Free Radical Scavenging	*Reactive Oxygen Species (ROS) Scavenging Assay*

THE EFFICACY.

Skin Barrier

An *in vitro* intracellular calcium assay was conducted to evaluate the effects of ACB Wasabi Extract PF on calcium signaling in normal human epidermal keratinocytes. Cells were treated with 0.01%, 0.1%, or 1.0% ACB Wasabi Extract PF, and intracellular calcium levels were quantified using the Fluo-4 Direct™ Calcium Assay, which measures calcium-dependent fluorescence.

Intracellular Calcium Assay

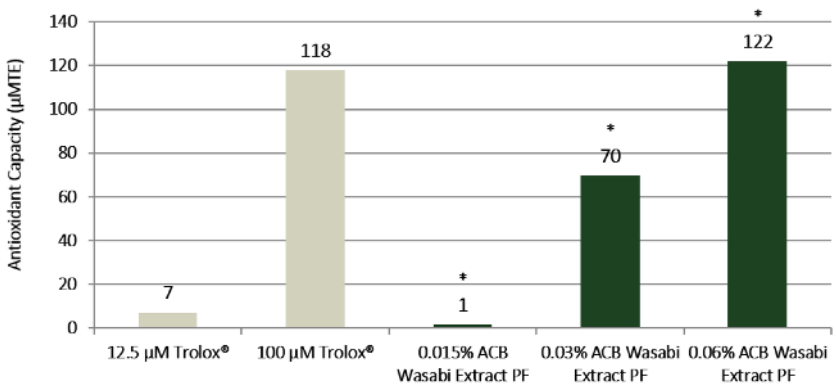


Enhanced intracellular calcium levels by +30%

Antioxidant Protection

An *in vitro* Oxygen Radical Absorbance Capacity (ORAC) assay was conducted to evaluate the antioxidant potential of ACB Wasabi Extract PF through its ability to neutralize peroxyl radicals. Formulations containing 0.015%, 0.03%, and 0.06% ACB Wasabi Extract PF were evaluated using a fluorescein-based assay, with Trolox®, a water-soluble vitamin E analog, serving as the antioxidant reference standard. Antioxidant capacity was measured through fluorescence preservation and expressed as micromolar Trolox equivalents (µMTE), with three independent experiments performed in duplicate.

ORAC



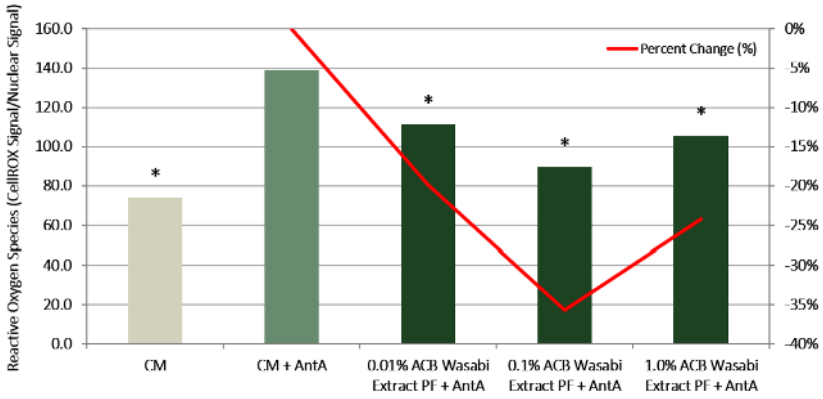
0.06% ACB Wasabi Extract PF exceeded antioxidant potential of 100 µM Trolox®

THE EFFICACY CONTINUED.

Free Radical Scavenging

An *in vitro* Reactive Oxygen Species (ROS) Scavenging Assay was conducted to evaluate the antioxidant efficacy of ACB Wasabi Extract PF in normal human dermal fibroblasts exposed to oxidative stress. Cells were treated with 0.01%, 0.1%, or 1.0% ACB Wasabi Extract PF for 18 hours before exposure to Antimycin A, a mitochondrial electron transport chain inhibitor used to induce ROS production. Intracellular ROS levels were quantified using CellROX™ Orange fluorescence and normalized to Hoechst nuclear staining, with three independent experiments performed in duplicate.

ROS Scavenging Capacity



Reduced ROS levels by -36%

References:
1. Shin, S. W., Ghimeray, A. K., & Park, C. H. (2014). Investigation of total phenolic, total flavonoid, antioxidant and allyl isothiocyanate content in the different organs of Wasabi japonica grown in an organic system. African Journal of Traditional, Complementary and Alternative Medicines, 11(3), 38–45.
2. Korenori, Y., Tanigawa, S., Kumamoto, T., et al. (2011). Dynamics of Nrf2 and Keap1 in ARE-mediated NQO1 expression by wasabi 6-(methylsulfinyl)hexyl isothiocyanate. Journal of Agricultural and Food Chemistry, 59(22), 11975–11982.
3. Cattani, C., Scarponi, C., Morelli, M., et al. (2026). TRPA1 as a key regulator of keratinocyte homeostasis and inflammation in human skin. Cells, 15(2), 192.

Active Concepts LLC
Lincolnton, NC - USA
Tel +1 704-276-7100
info@activeconceptsllc.com

Active Concepts SRL
Bareggio, (Milano) ITALY
Tel +39 02 90360719
info@activeconcepts.it

Active Concepts LLC, Asia
Kaohsiung, Taiwan
Tel + 886 73599900
info-asia@activeconceptsllc.com.tw

Website
www.activeconceptsllc.com

Social Media
@activeconceptsglobal

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