Illuminate EFX™

360° Skin renewing solution

Illuminate EFX™

INCI : Propanediol (and) Hydroxycinnamic Acid

CAS #: 57-55-6, 7400-08-0

EC #: 200-338-0, 231-000-0

Antioxidant

Improves the appearance of skin discoloration

Improves Texture & Tone

Improves skin radiance and brightness

Improves the appearance of fine lines & wrinkles

Skin brightening system consisting of a solution of pure Hydroxycinnamic Acid (HCA) and Propanediol designed to erase photo-aging.

HCA is a potent antioxidant typically found in aloe, shown to exhibit a protective effect on cells and biological tissues. Free of ethoxylates for clean beauty formulations, Illuminate EFX™ contains HCA and is designed to erase signs of photo-aging, improve skin radiance and tone, and reduce skin texture and hyperpigmentation for 360° anti-aging benefits.

In a variety of in vitro, ex vivo and in vivo studies, HCA was shown to have the following properties:

- Tyrosinase inhibitor 5 times better than kojic acid in-vitro mushroom tyrosinase assay
- Exhibits significant reduction of human tyrosinase activity in pigmented human reconstructed epidermis
- Naturally-occurring compound with potent protection against free radicals
- Exhibits minimal metabolism in the skin
- Clinical improvements of skin tone, and appearance of age spots, facial redness, dark circles and freckles
- HCA can prevent appearance of UV-induced erythema and subsequent pigmentation in human skin[1]

Recommended applications

Illuminate EFX™ is suitable for a variety of personal care applications as an active ingredient.

Skin Care

Body Care

China IECIC 2015

VEGAN

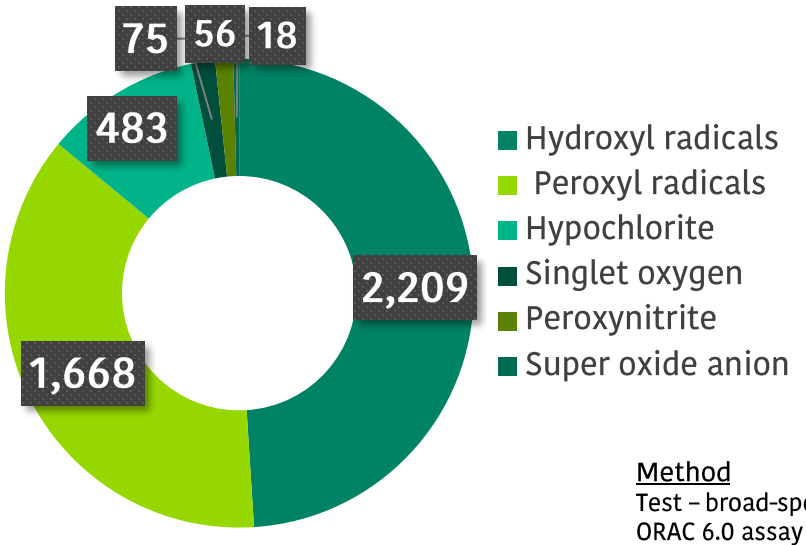
ISO16128 - NOI 80-100%

[1] Y.K. Seo, et. al., "Effects of p-coumaric acid on erythema and pigmentation of human skin exposed to ultraviolet radiation" Clin. and Exp. Derm., 36, 260-266 (2010)

Vantage

Hydroxycinnamic acid – an effective anti-oxidant

HCA is an excellent anti-oxidant as seen by the high ORAC score.



Method

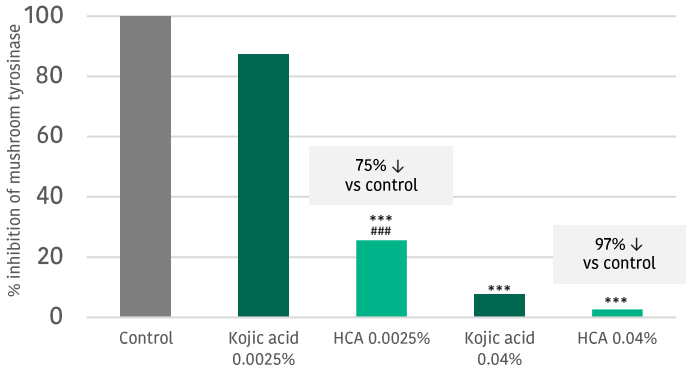
Test – broad-spectrum anti-oxidant analysis by comprehensive ORAC 6.0 assay

Measurement - antioxidant capacity against six primary reactive oxygen species peroxyl, hydroxyl, peroxynitrite, superoxide anion, singlet oxygen, and hypochlorite

Results in micromole Trolox Equivalency per gram (or milliliter) of a test material.

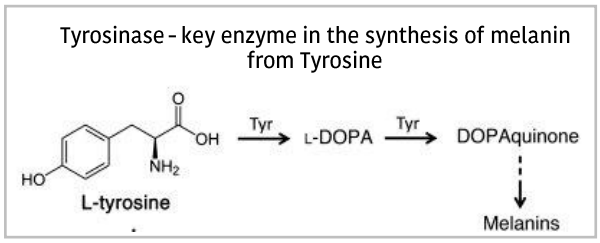
Inhibition of Mushroom Tyrosinase

HCA inhibits mushroom tyrosinase by 97% and was more effective than Kojic acid



*** statistically significant (p<0.001) vs control
statistically significance (p<0.001) vs Kojic acid (0.0025%)
NS statistically not significance compared to control

Principle



Method

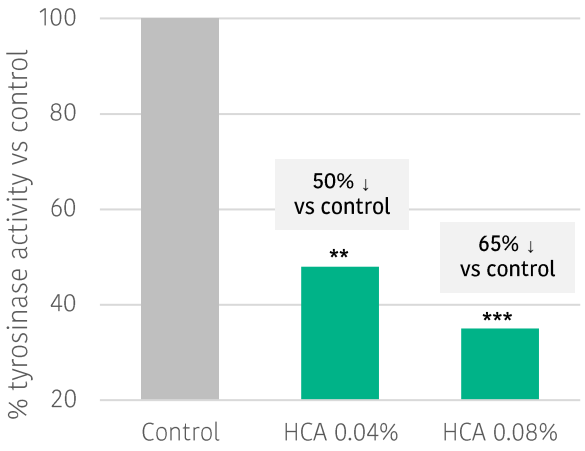
- Mushroom tyrosinase (Sigma, EC 1.14.18.1, activity 3960 units/mg) solution and the test compound or benchmark were mixed in a spectrophotometer cell using Phosphate buffer
- Test compound HCA (0.04% or 0.0025%) equivalent to Illuminate EFX™4 at 0.3% or 0.02% respectively
- Benchmark – Kojic acid (0.04% or 0.0025%)
- Equipment - UV-visible spectrophotometer
- Absorbance read continuously for 30 minutes.

Inhibition of Human Tyrosinase

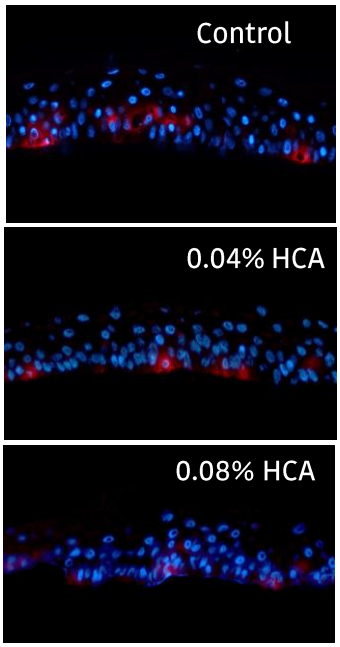
HCA inhibits Human tyrosinase in reconstructed human skin model by 65%

Method

- Reconstructed human epidermis (RHE) were topically treated (n=3) with 5 mg/cm² medium containing Hydroxycinnamic acid - 0.04 and 0.08% final concentration (equivalent to HCA at 0.3% or 0.6% respectively)
- Incubation period: 7 days with test compounds or no treatment (control).
- Method for image capture: Fluorescence intensity was measured by epifluorescence microscopy and values were normalized to the epidermal surface.
- RHE treated with HCA at all concentrations did not show any loss of viability



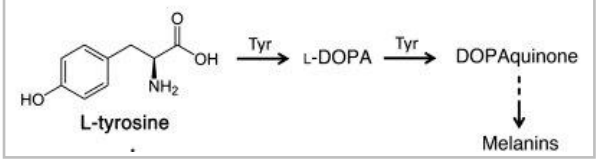
statistically significant ***(p<0.001) and ** (p<0.01) vs control
Hydroxy cinnamic acid used in this study was dissolved in Propanediol



Fluorescence staining : Blue - DAPI Stain for cell nuclei. Red = Cy3 conjugated solution for tyrosinase activity.

Principle

Tyrosinase - key enzyme in the synthesis of melanin from Tyrosine

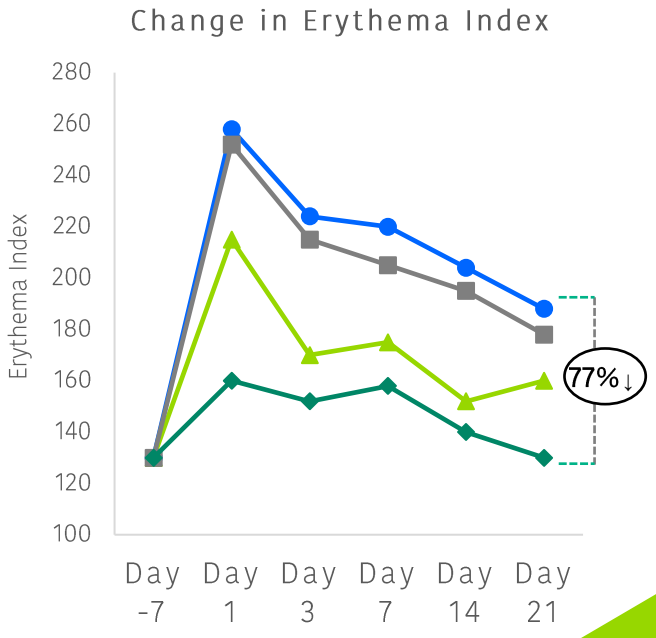


Effect on UV-induced Erythema

HCA prevents UV-induced erythema by 77% and was more effective when used prior to UV exposure

The control and 1.5% PCA cream products were applied twice daily to the skin of the forearm of 21 subjects before and after ultraviolet (UV) irradiation to determine whether they could prevent erythema formation.
Skin color was measured by L*a*b* and Spectrophotometer CM2002 followed by ITA calculation,

Legend	Group	Day -7 to Day 0	Day 0	Day 1 thru 21
	Untreated	No treatment	Irradiation	No treatment
	Control	Control cream	Irradiation	Control cream
	PCA post irradiation	Control cream	Irradiation	PCA cream
	PCA cream	PCA cream	Irradiation	PCA cream



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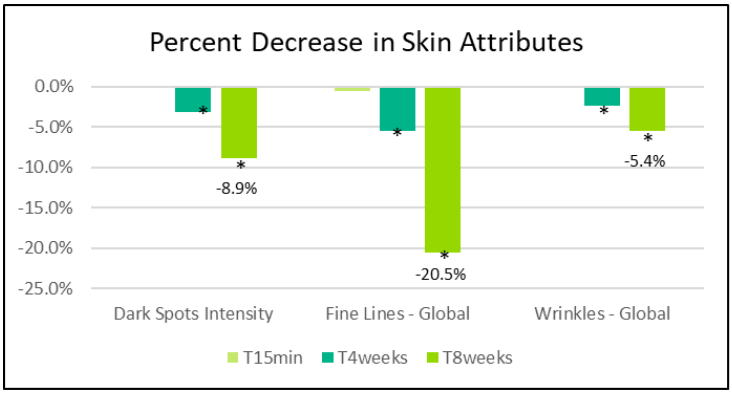
Illuminate EFX™

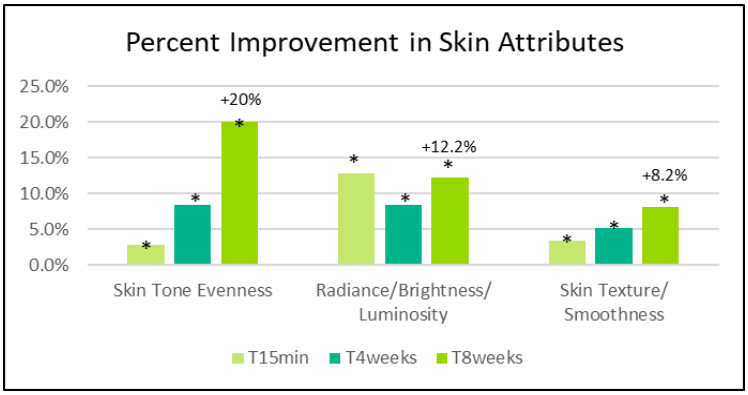
360° Skin renewing solution

Appearance	Light Yellow Liquid
Odor	Mild
Preservative system	None
Storage & Handling	Store in cool dark place
Recommended Use Level	1-3%

Expert clinical grading of skin attributes

A statistically significant improvement was observed for the product at 15 minutes after one application and after four and eight weeks of 2x/day product use for Skin Tone Evenness, Radiance/Brightness/Luminosity and Skin Texture/Smoothness compared to baseline





Assessment of skin tone benefits

Image analysis indicates a clear improvement in skin radiance at 4 and 8 weeks