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Alpha Arbutin

A. TECHNICAL DATA SHEET

B. EFFICACY OF ALPHA-ARBUTIN



A. TECHNICAL DATA SHEET

INCI NAME: Alpha-Arbutin
CHEMICAL NAME: 4-hydroxyphenyl- α -D-glucopyranoside
CAS No.: 84380-01-8
ELINCS No.: 440-470-8

CHARACTERISTICS

- The more effective, faster and safer approach to skin lightening, minimizes live spots.
- Promote lightening and an even skin tone on all skin types.
- Block epidermal melanin biosynthesis by inhibiting enzymatic oxidation of Tyrosine and Dopa.
- Higher stability and efficacy than β - form in the related beta-arbutin.

SPECIFICATION

Items	Standards
Appearance	White crystals or crystalline powder
Specific rotation	+174.0° ~ +186.0°
Assay (%)	≥99.0
Loss on drying (%)	≤0.5
Ignition residue %	≤0.5
PH value (1% solution)	5.0 - 7.0
Clarity of water solution	Transparency, colorless, none suspended matters
Melting Point	202.0~212.0℃
Hydroquinone	Negative
Lead	≤10 mg/kg
Arsenic	≤2 mg/kg
Mercury	≤1 mg/kg
Methanol	≤2000 mg/kg
Aerobic Bacterial	≤100 CFU/g
Molds	≤100 CFU/g
Yeast Count	≤100 CFU/g
Fecal Coliforms	Negative
Pseudomonas Aeruginosa	Negative
Staphylococcus Aureus	Negative

PROCESSING

ALPHA-ARBUTIN is soluble in cold water(151g/l at 20℃) and can be easily incorporated



into cosmetic formulation either warm(<70°C) or cold. Alpha-arbutin is stable in the pH-range of 3.5 to 6.5. In formulations Alpha-arbutin is compatible with UV filters and ethanol at concentrations of up to 50%.

USE LEVEL

0.2%(when formulated with an exfoliant or penetration enhancer) otherwise up to 2%.

SHELF LIFE: 3 years

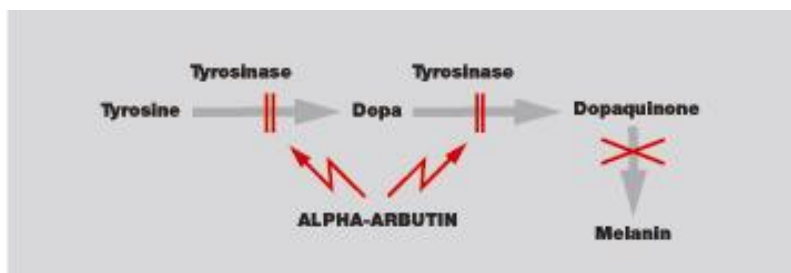
B. EFFICACY OF ALPHA-ARBUTIN

FUNCTION:

- Promotes lightening and an even skin tone on all skin types.
- Minimizes liver spots.
- Can reduce the degree of skin tanning after UV exposure.

PROPERTIES:

ALPHA-ARBUTIN blocks epidermal melanin biosynthesis by inhibiting enzymatic oxidation of Tyrosine and Dopa.



INHIBITION OF TYROSINASE IN VITRO

Alpha-arbutin shows impressive *in-vitro* tyrosinase inhibition on human cell lysates compared to β -Arbutin.



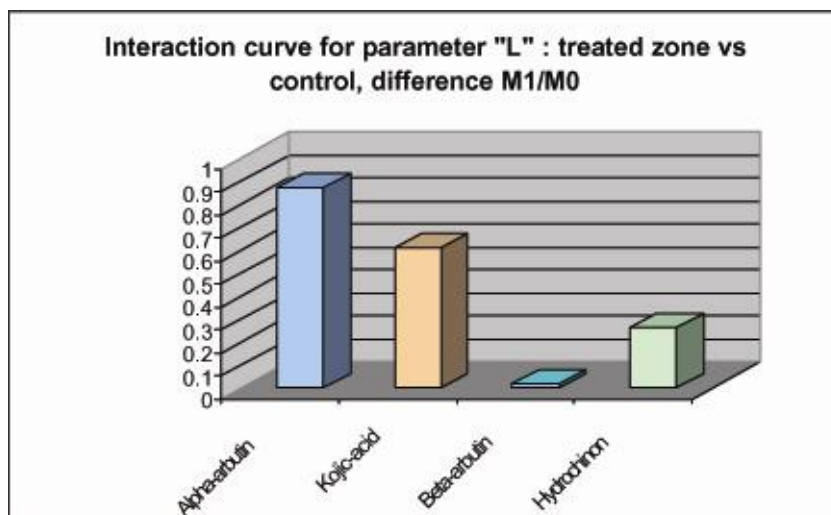
β -Arbutin: IC₅₀ = 9.0 mMol

Alpha-arbutin: IC₅₀ = 1.0 mMol

SHORT-TERM IN VIVO SKIN-LIGHTENING STUDY

A skin lightening study on 80 Chinese descent women demonstrated that an emulsion containing 1% ALPHA-ARBUTIN results in a faster and more pronounced skin lightening effect after 1 month when compared with other commonly used mono-substances at 1 % each.

Figure 2: The classification of lightening mono-substances according to the magnitude of their specific effect after 1 months.



IN VIVO LIVER SPOTS EFFICACY STUDY

ALPHA-ARBUTIN (2%) in a creme formulation shows liver spot improving efficacy after 3 months.

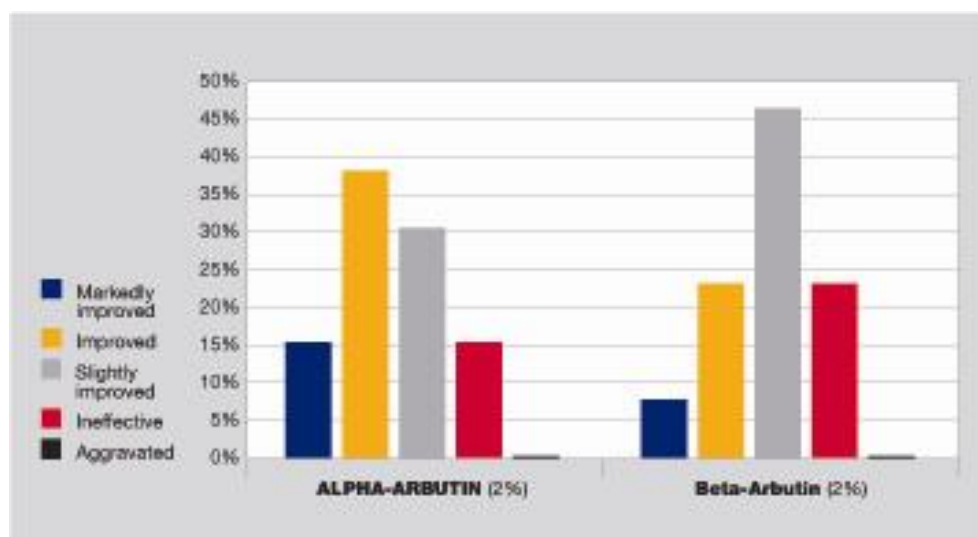


Figure 3: Satisfaction quotients relating to the evaluation of the liver spot reduction.

IN-VIVO TANNING INHIBITING EFFECT AFTER UV EXPOSURE

In a further *in-vivo* study using 0.5% ALPHA-ARBUTIN in a crème formulation a tanning inhibiting effect after UV exposure has been shown.

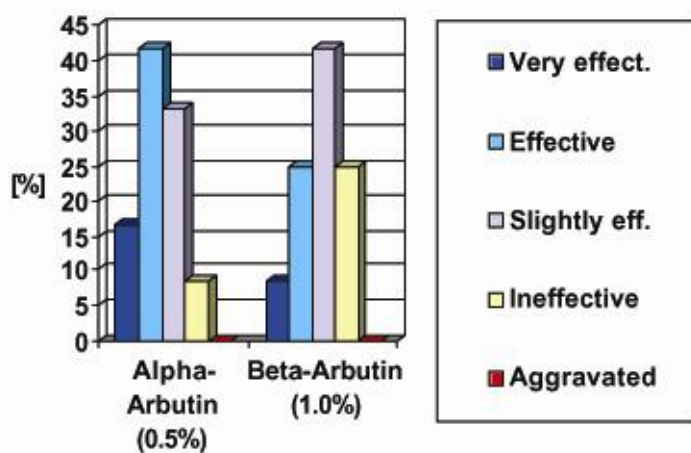


Figure 4: Skin tanning prevention after UV exposure.