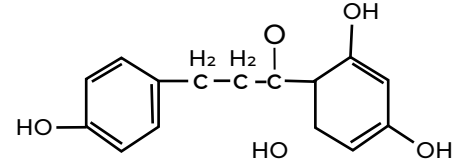


IWHITE PHLORETIN

Phloretin is a polyphenol with dihydrochalcone structure with superior performance than others tyrosinase inhibitors



Activity

Phloretin inhibitory effect on tyrosinase is superior to Arbutin and Kojic Acid. Adding phloretin to cosmetics, its penetration rate can increase by 3-5times.



Origin

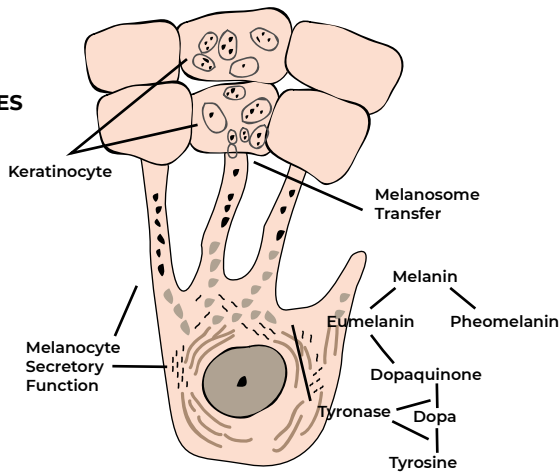
- Phloretin is obtained from Apple plant of the genus apple subfamily.
- Apple is native to central and southeast Europe, central and western

Asia, and Sinkiang of China. - Apple trees grow well in cool, dry temperate regions

- Apple is rich in carbohydrates, vitamins and micronutrients. It is given the nickname "fruit of wisdom" and "fruit of memory"

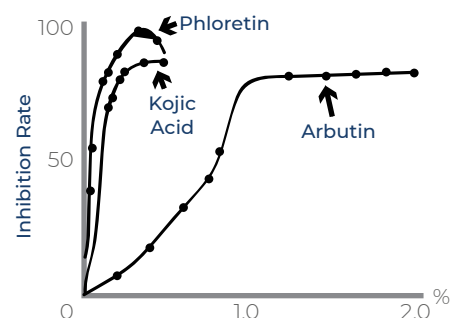
KERATINOCYTES

MELANOCYTE



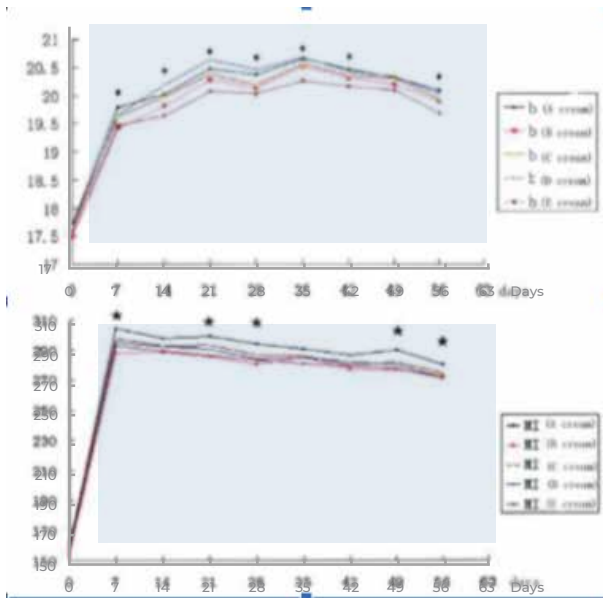
Inhibitory effect when compare with Kojic acid and Arbutin

Phloretin Concentration %	0.12	0.18	0.24	0.30	0.36	0.42	
Phloretin inhibit tyrosinase %	81.0	81.9	92.2	98.2	93.2	85.7	
Arbutin Concentration %	0.6	0.8	1.0	1.4	2.5	3.0	0.6
Arbutin inhibit tyrosinase %	28.0	49.1	78.5	79.1	78.7	78.8	28.0
Kojic Concentration %	0.09	0.12	0.15	0.35	0.4	0.5	
Kojic inhibit tyrosinase %	72.6	74.5	76.8	78.3	85.2	84.6	

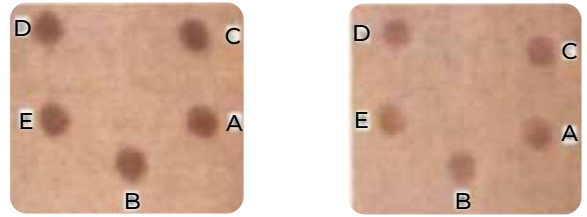




Clinical assays



No logro entender la informacion



(a) Before the test (b) After 8 weeks

Cream A: Control
Cream B: 3% Arbutin
Cream C: 0.5% Phloretin
Cream E: 3% Phloretin
Cream D: 1% Phloretin

3% Phloretin in cream



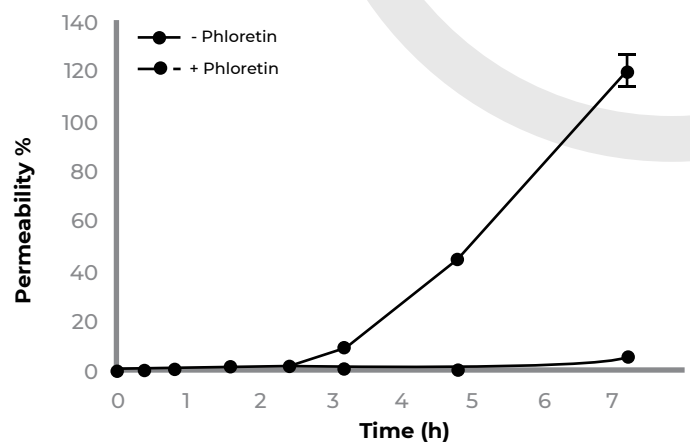
Synergistic effect

Phloretin + Arbutin

Concentration	Inhibition Ratio (%)
Phloretin 0.5% + Arbutin 2%	100.0
Phloretin 0.45% + Arbutin 2.5%	100.0
Phloretin 0.52% + Arbutin 1.2%	98.52
Phloretin 0.65% + Arbutin 1.0%	89.91%

Phloretin + Kojic Acid

Concentration	Inhibition Ratio (%)
Phloretin 0.5% + Kojic 0.25%	85.5
Phloretin 0.45% + Kojic 0.18%	100.0
Phloretin 0.52% + Kojic 0.12%	100.0
Phloretin 0.65% + Kojic 0.06%	98.6





Application

Function

Whitening, skin lightening, spots.

Type

Skin toner, Serum, Gel, Lotion, Cream



Technical data

1. Product information

Appearance	Powder
Color	White
Odor	Characteristic
Active ingredient content	>98%
Moisture	<5%
INCI name	Phloretin
Storage condition	Keep in a cold, dry and ventilated lightless place.

2. Formulation instruction

Use with Kojic Acid and Arbutin to improve the whitening performance. Soluble in Butanediol.

Recommended dosage 0,3-1%



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