



积雪草 Gotu Kola ツボクサ

Organic *Centella asiatica* extract

Anti-aging - Soothing - Hydration - Skin restructuring - Anti-wrinkles - Detoxification

100% organic

High triterpene content



Centella asiatica is used in Chinese and Indian traditional medicine as a rejuvenating product and also in pharmaceutical applications. It has beneficial effects on skin and wound healing by improving a wide range of cutaneous parameters. These biological effects are mediated by triterpenes such as asiaticoside, madecassoside, asiatic acid and madecassic acid.

GREENPHARMA® DEVELOPED AN ORIGINAL PROCESS TO PRODUCE A **UNIQUE** ORGANIC EXTRACT WITH AN **EXCEPTIONAL CONCENTRATION** OF THE **ACTIVE TRITERPENES**.

Scientific background

It has been demonstrated that ***Centella asiatica*** extract and their major constituents alone exert their wound healing properties by increasing the level of collagen I synthesis in fibroblasts.

Bonté F. et al, Influence of asiatic acid, madecassic acid and asiaticoside on human collagen I synthesis.

Planta Med., 1994, 60, 133-135

It has also been demonstrated that **madecassoside**, but not **asiaticoside**, is able to increase significantly collagen III secretion by normal human dermal fibroblasts.

Bonté F. et al, Asiaticoside and madecassoside activity on human fibroblast type I and III collagen secretion.

Ann. Pharm. Fr., 1995, 53, 38-42

Several other experiments demonstrated the anti-inflammatory effect of the **asiaticoside**.

Wan J. et al, Antipyretic and anti-inflammatory effects of asiaticoside in lipopolysaccharide-treated rat through up-regulation of heme oxygenase-1.

Phytother. Res., 2013, 1136-1142

Recently, it was shown that ***Centella asiatica*** extract and their heterosides are able to enhance the skin barrier function by stimulating the production of several differentiation markers such as involucrin, loricrin and filaggrin.

Petit V. et al, New findings on heterosides of *Centella asiatica* in enhancing the skin barrier function.

IFSCC 2014, Paris

Triterpenes from ***Centella asiatica*** were also shown to stimulate extracellular matrix accumulation *in vivo*.

Maquart F. X. et al, Triterpenes from *Centella asiatica* stimulate extracellular matrix accumulation in rat experimental wounds.

Eur. J. Dermatol., 1999, 289-296

Centella asiatica extracts are able to inhibit metalloproteinase-1, hyaluronidase and elastase, three major skin enzymes implicated in the catabolism of extracellular matrix resulting in skin-aging and loss of skin hydration.

Nema N. K. et al. Matrix metalloproteinases, hyaluronidase and elastase inhibitory potential of standardized extract of *Centella asiatica*.

Pharm. Biol., 2013, Vol 51(9): 1182-1187

Centella asiatica extracts are able to stimulate autophagy, a key element in the skin detoxification process.

Ling Y. et al. Protective effect of madecassoside on H2O2-induced oxidative stress and autophagy activation in human melanocytes.

Oncotarget., 2017, May 7; 8(31): 51066-51075

Centella asiatica extracts are able to stimulate mitophagy with antioxidative response by increasing NRF2 gene expression, another key element in the detoxification process.

Gray N. E. et al. *Centella asiatica* modulates antioxidant and mitochondrial pathways and improves cognitive function in mice.

J. Ethnopharmacol., 2016, Mar 2; 180: 78-86



THE ORIGIN OF THE PRODUCT

Centella asiatica (L.) Urb. also known as Gotu kola, belongs to the *Apiaceae* family. This plant grows in temperate and tropical swampy areas in many world regions. This is an important medicinal herb used both in traditional pharmacopeia and in modern medicine.

Many scientific studies demonstrated that the biological activities attributed to *Centella* are due to the presence of a variety of pentacyclic triterpenoids also called **centellosides**, represented by four major compounds: asiaticoside, madecassoside and their genins. Scientific studies also demonstrated a **significant variation in content** of centellosides. These variations are governed by a combination of parameters such as the **climate**, the **seasons of harvest** and the **genotype**.

Identifying a good sourcing in terms of quality, traceability, reproducibility, sustainability and high level in bioactives is a key element to develop a product with a strong biological activity.

In order to respect all these criteria, the aerial part of organic *Centella asiatica* harvested in **Madagascar** were used to produce our **organic *Centella asiatica* extract**.

The final extract is obtained after alcoholic maceration, filtration and drying of the crushed leaves. Organic alcohol was used to have a 100 % organic product.

ORGANIC *CENTELLA ASIATICA* EXTRACT

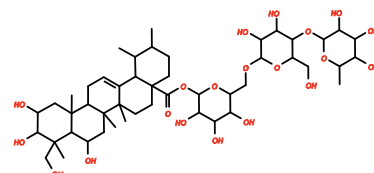
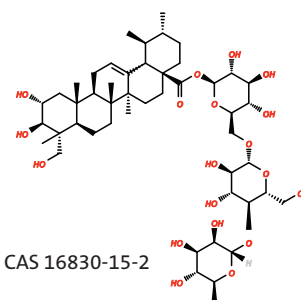
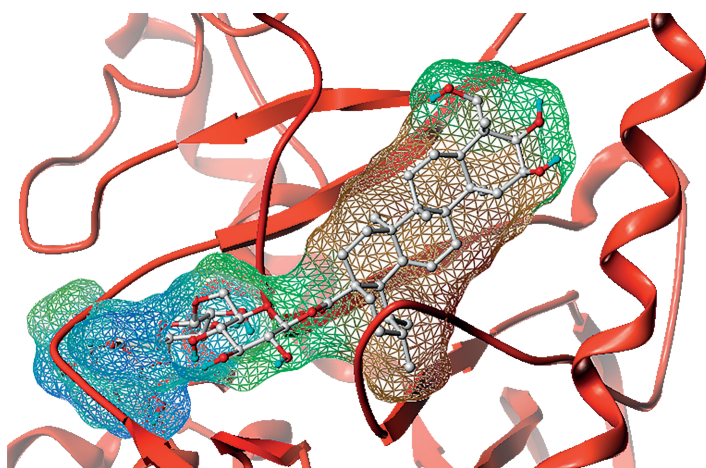
Specification sheet

PRODUCT INFORMATION

Reference	GPEX000592
Source	<i>Centella asiatica</i> (L.) Urban
INCI name	CENTELLA ASIATICA EXTRACT
EINECS/ELINCS	283-640-5
CAS	84696-21-9
Content	Triterpenoids: Asiaticoside, Madecassoside, Asiatic acid, Madecassic acid
Storage	in a fresh, dry and dark place



ACTIVE MOLECULES



TECHNICAL DATA

	TECHNIQUES	SPECIFICATION
Triterpenoids	HPLC	≥ 25%
Appearance	Visual	Pale yellow to ochre powder
Odor	Organoleptic	Characteristic
Solubility	Visual	Partially soluble in hot water
Moisture content	Loss on drying	≤ 5.0%
Total plate count	NF ISO 21149	≤ 100cfu / g
Yeast & Mold	NF ISO 16212	≤ 100cfu / g
<i>Escherichia coli</i>	NF ISO 21150	Absence / g
<i>Staphylococcus aureus</i>	NF ISO 22718	Absence / g
<i>Pseudomonas aeruginosa</i>	NF ISO 22717	Absence / g

ORGANIC *CENTELLA ASIATICA* EXTRACT

Formulation

Recommended use level	From 0.1% to 0.5%
Solubility	Ethanol: 2% Propylene glycol: 2% Partially soluble in hot water Compatible with oils, glycerin and classical solubilizers
Incorporation	Temperature below 85°C Emulsion: Disperse <i>Centella asiatica</i> extract into the oil phase Other formulations: disperse <i>Centella asiatica</i> in a premix with glycerin or other solubilizer before introducing into aqueous phase
Type of formulations	Emulsions (O/W and W/O) Serums Cream-gels Milks and Toners Foaming gels
Applications	Anti-aging skin care Collagen boosters Repair formulas Stretch marks Anti-pollution skin care

Suggested content in final product:
from **0.1%** to **0.5%**

Technical data

INCI name: *Centella asiatica* extract

Plant origin: Madagascar

China: approved

COSMOS: certified 100% organic

