

# Centwort

**Plant part:** Leaf

**Scientific name:** *Centella asiatica*

**INCI name:** Centella Asiatica Extract

**IECIC 2015 name:** CENTELLA ASIATICA EXTRACT



[www.tsocaldonia.co.uk](http://www.tsocaldonia.co.uk)



## Introduction to Centwort

*Centella asiatica*, commonly called centella, Asiatic pennywort or gotu kola, is an herbaceous flowering annual plant of the family Apiaceae. It is native to India and widely distributed in Asian countries.

It is used as a medicinal herb in Ayurvedic medicine and traditional Oriental medicine to **treat skin diseases and wounds**.

It is also used in Sri Lankan cuisine, where it is called gotu kola, referring to the conical-shaped leaf.



Centwort



- Several scientific research studies reported the use of *C. asiatica* in the **treatment of wounds** and in **promoting wound healing**.
- The topical application of *C. asiatica* on the wound increased the rate of healing by **stimulating the production of type I collagen**.
- It also **decreases overactive inflammatory reactions**.
- *C. asiatica* contains **four principle bioactive compounds**, asiatic acids, madecassic acid, asiaticoside and madecassoside, in which asiaticoside was identified as the main active constituent responsible for wound healing.



## History of Gotu Kola

According to an Indian folklore, an injured tiger often rubbed against *C. asiatica* to heal its wounds. Because of this story, *C. asiatica* is well known as “tiger’s herb” in Asia and was traditionally applied on the skin for **wound healing and soothing effects**.

*C. asiatica* is now commonly found in a broad range of products such as **toothpastes, cosmetics and medicines**.



## South Korean Market Trends: Cica

The word “**cica**” is commonly used in South Korea to describe products with *Centella asiatica* as an **active ingredient**. The origin of the word signifies **soothing effects that heal scars**.

Ever since cica creams made their introduction into the South Korean market, the number of product launches containing *C. asiatica* has boomed. In January 2016 to October 2017, **82% of product launches** comprising of cica in South Korea contained Centella Asiatica Extract [1].

[1] Mintel (2019) ‘Why K-beauty is Crazy About Cica Creams’. Available at: <http://clients.mintel.com/> (Accessed: 30 July 2019).





## Expanding Market Trends: Cica

With cica becoming more of a **global trend** and with more research being carried out on its **beneficial effects**, new skincare products are being launched.

More claims are being made, helping cica to enter the **anti-ageing and skin brightening** sectors.

The usage of *Centella asiatica* is also spreading out into new skincare product categories such as **sun sticks and body mists** [2].

[2] Mintel (2018) 'South Korean Skincare Product Trends for 2019'. Available at: <http://clients.mintel.com/> (Accessed: 30 July 2019).



# *In vitro* Efficacy Evaluation

## Anti-inflammatory Effect

- COX-2 Inhibition Activity

## Wound Healing Effect

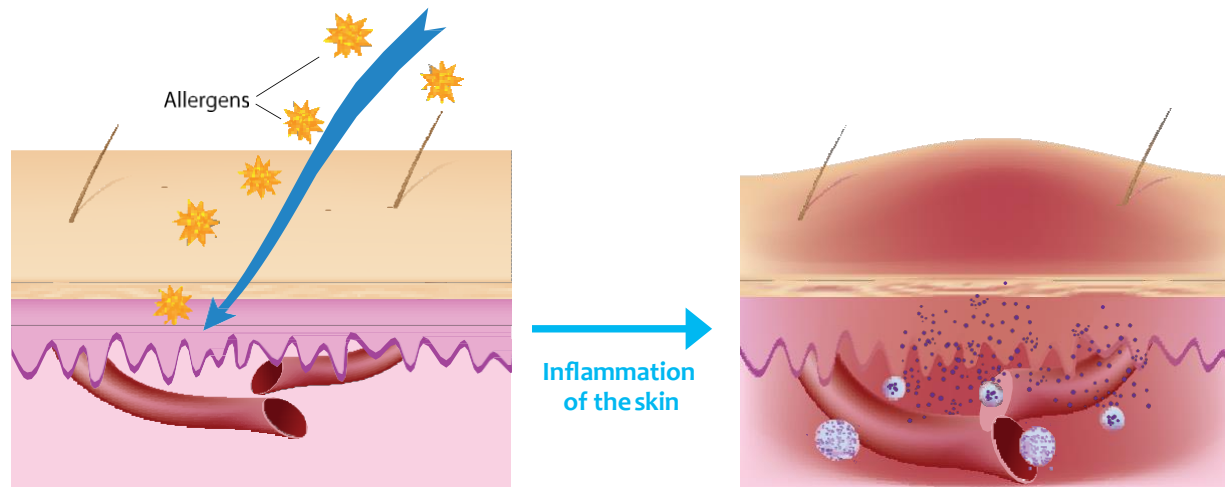
- Scratch Wound Healing Assay

## Anti-allergic Effect

-  $\beta$ -hexosaminidase Release Inhibition Activity



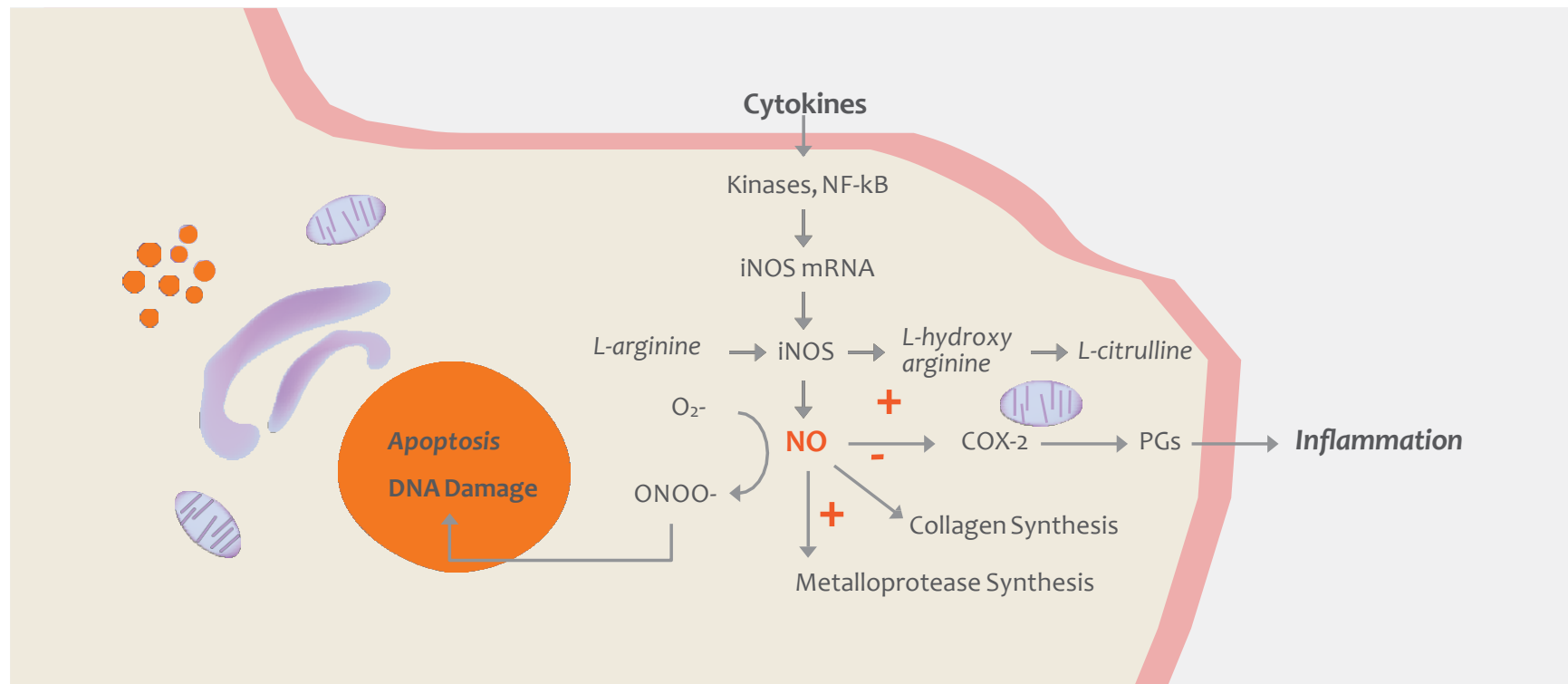
# What is Inflammation?



Inflammation is part of the complex biological responses to a wide range of harmful stimuli including injury, tissue necrosis, infection, and irritants. The purpose of inflammation is to destroy (or contain) the damaging agent, initiate repair processes and return the damaged tissue to useful function. The symptoms of inflammation are redness, swelling, heat and pain, which are caused by increased blood flow into the tissue. The immune system is responsible of protecting our body from the harmful stimuli and maintaining homeostasis. Disorders of the immune system can result in autoimmune diseases, inflammatory diseases and cancer. In an attempt to protect the body, the immune system might overreact to the stimuli and this might cause allergy or inflammatory reactions.



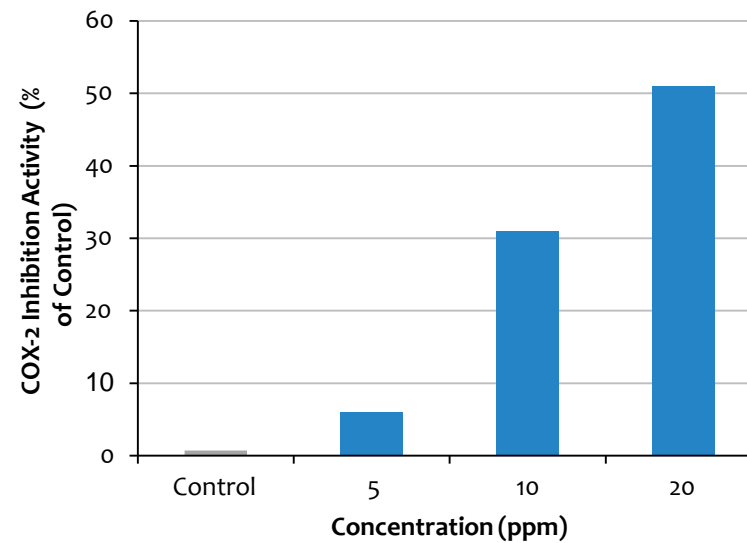
# Inflammation Mechanism



# Anti-inflammatory Effects of Centwort (*in vitro*)

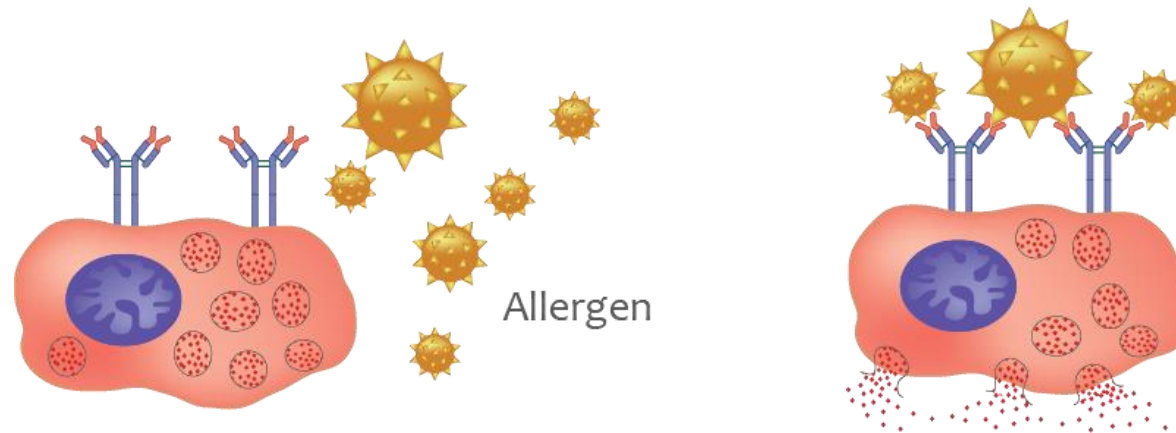
## Anti-inflammatory Effect

COX-2 Inhibition Activity in Macrophages (RAW 264.7)



# Allergic Reaction: Beta-hexosaminidase Release

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Immediate allergy is caused by a chemical mediator released from the basophile and mast cells via cell degranulation, due to the reaction between an immunoglobulin E (IgE) antibody bound with the IgE receptor on the cell membrane and an antigen.

Because mast cells play essential roles in provoking the pathogenesis of allergic reactions via the degranulation process, measuring the degree of degranulation reflects the level of mast cell activation.  $\beta$ -hexosaminidase released by these cells during this process has been reported to be a suitable marker for determining the degree of degranulation.

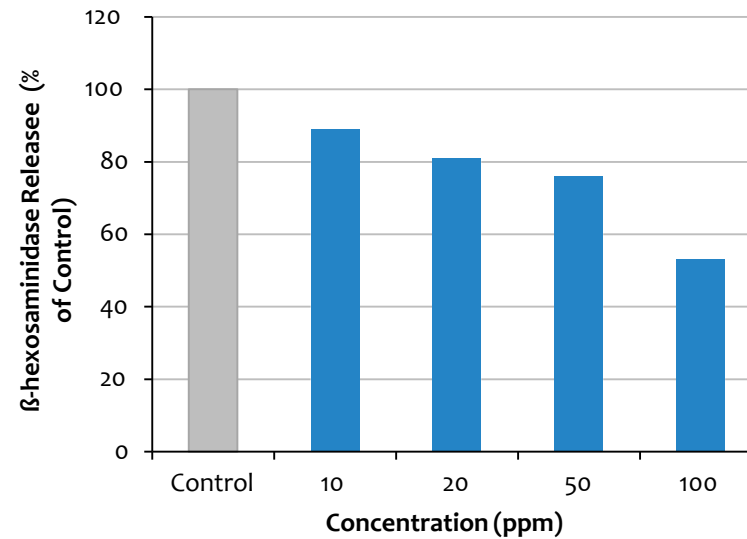
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# Anti-allergic Effects of Centwort (*in vitro*)

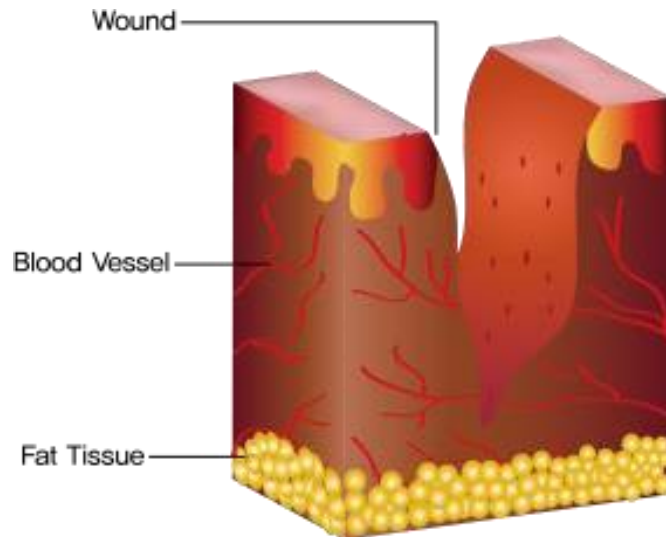
## Anti-allergic Effect

$\beta$ -hexosaminidase Release Inhibition in Basophils (RBL-2H<sub>3</sub>)



# Wound Healing Assay

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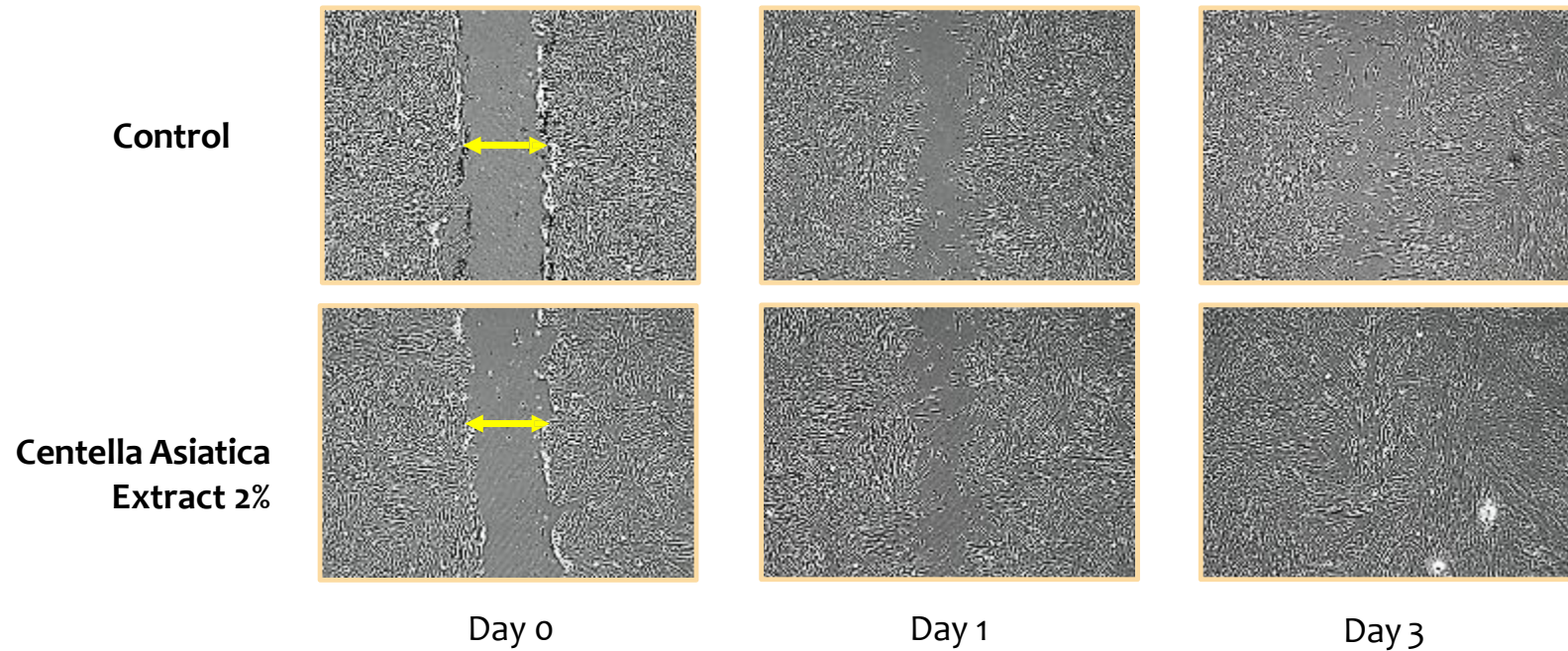


Scratch Wound Healing Assay has been widely adapted and modified by researchers to study the effects of a variety of experimental conditions. For instance, gene-knockdown or chemical compound treatment on cell migration and proliferation.

The basic principle of the assay is that a “wound gap” in a cell monolayer is created by scratching, followed by monitoring the “healing” of this gap by cell migration and growth towards the center of the gap, hereby filling up the “gap”. Factors that alter the motility and/or growth of the cell can lead to the increased or decreased rate of “healing” of the gap.

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# Wound Healing Effects of Centwort (*in vitro*)



After 24 hours of culture, cells (HDFn) were scratched with a 200  $\mu$ L pipette tip and cultured for an additional 48 hours. Photos for the stained monolayer were taken with a microscope.



# Product Information

**Product Name :** Centwort

**INCI name :** Centella Asiatica Extract  
(China Compliant)

**Dosage :** 1 – 3%

**Formulation :** Add to the formulation  
when the temperature is lower than 55°C.  
Recommended to add after the cooling process.

**Storage :** Avoid direct light or UV.  
Keep it in a cool and dry area.





## The Secrets of Caledonia

The Secrets of Caledonia (TSOC) is a supplier of natural cosmetic ingredients inspired by Scottish traditional herbal medicine. Taking advantage of Scotland's biodiversity and working in collaboration with established Scottish herbalists, we aim to provide the most effective and innovative natural ingredients at the highest quality.



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