

Calmomile

Plant part: Flower

Scientific name: *Chamomile*

INCI name: Chamomilla Recutita (Matricaria) Flower Extract

IECIC 2015 name: Chamomilla Recutita (Matricaria) Flower Extract

Plant Story

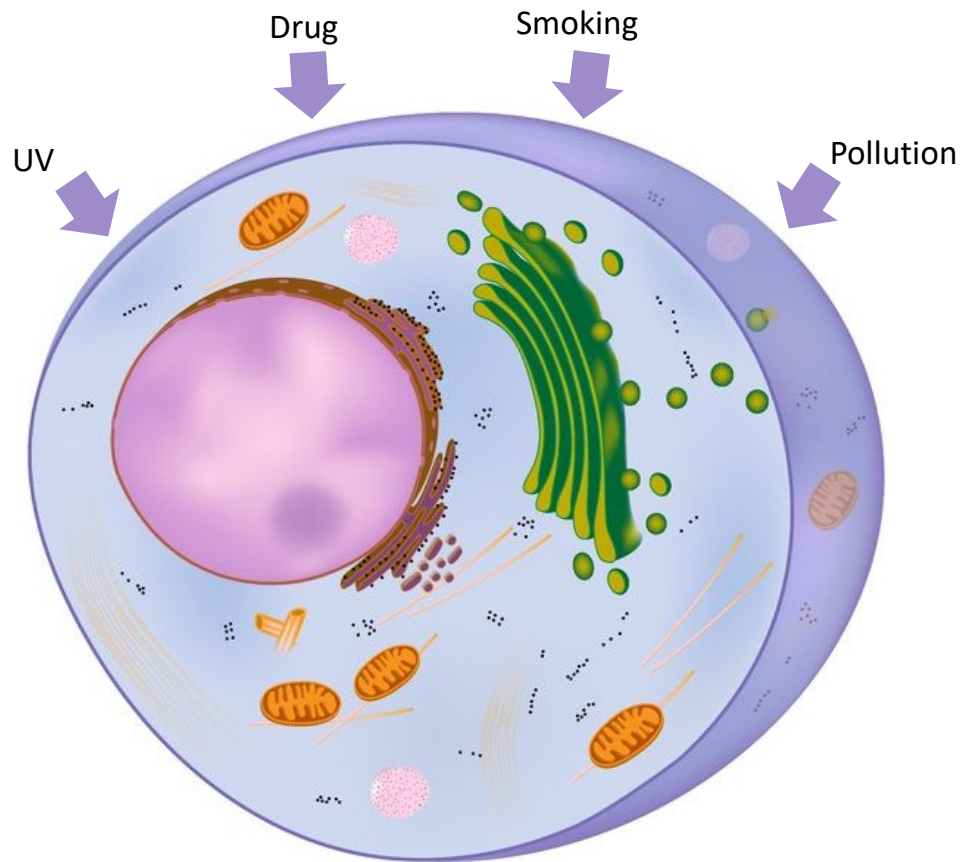


Hamamelis virginiana is a small deciduous tree with yellow flowers and native to eastern North America. *H. virginiana* is commonly known as witch hazel or American witch hazel. European horticulturists started to use witch hazel for ornamental purposes. Native Americans used the bark of witch hazel as a traditional medicine for wound healing and eye problems. A decoction of witch hazel twigs and bark can be distilled, and the witch hazel water is used as a skin toner. Witch hazel ointment has been a commercial product in Germany since 1878, and it has shown positive effects on skin injuries and topical inflammation.

A study about witch hazel ointment on diaper dermatitis showed that the effect of witch hazel ointment was as good as dexpanthenol, which was used as a positive control. The anti-inflammatory activity of witch hazel distillate lotion on UVB-induced erythema was also reported.

Oxidative Stress

Reactive Oxygen Species (ROS) can be increased by



Intracellular ROS may induce

- DNA damage
- Lipid peroxidation
- Amino acid oxidation: protein damage
- Oxidation of co-factors: enzyme inactivation
- Chronic inflammation

ROS

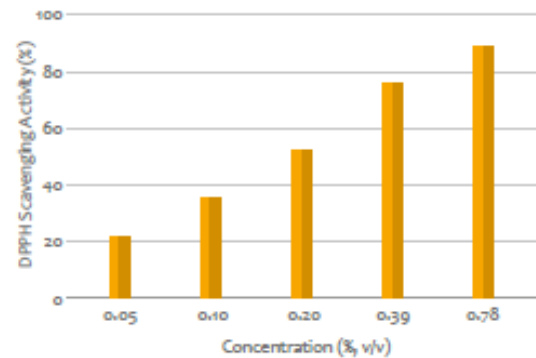


Skin Aging

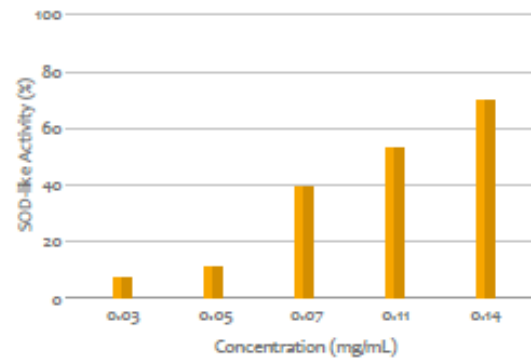
Inflammation

Anti-Oxidant Effects of Calmomile

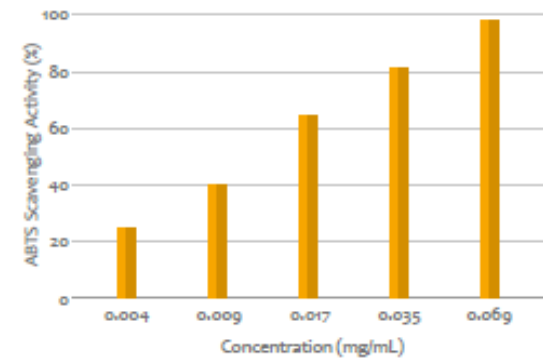
Anti-oxidation Effect (*in tubo*)
Free Radical Scavenging Activity



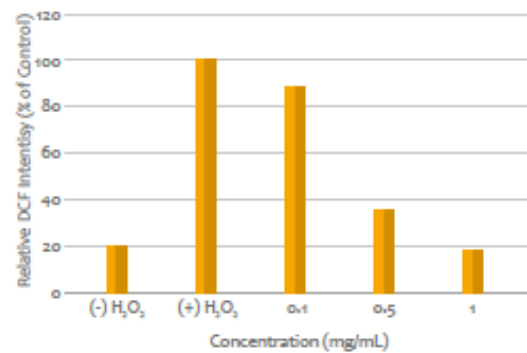
Anti-oxidation Effect (*in tubo*)
Superoxide Scavenging Activity



Anti-oxidation Effect (*in tubo*)
ABTS Radical Cation Scavenging Activity

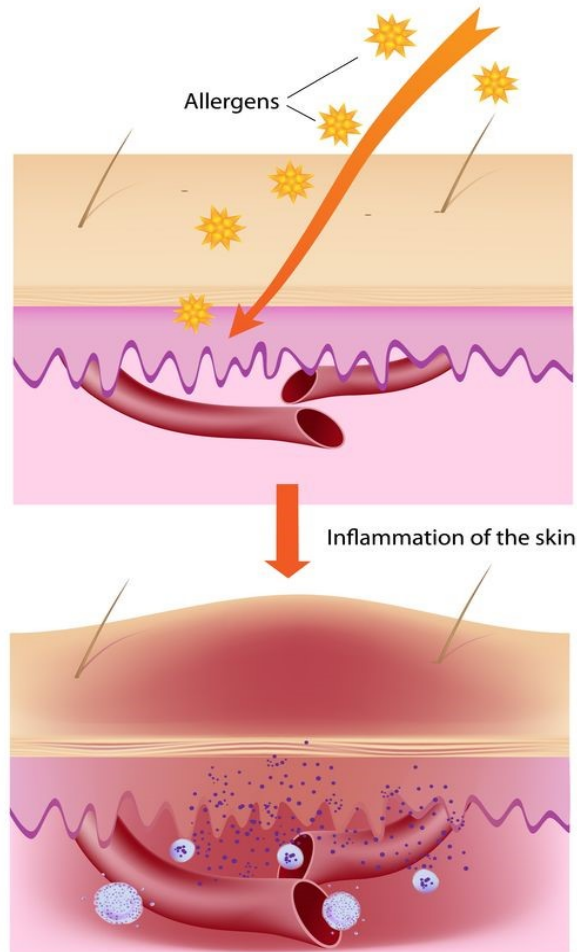


Anti-oxidation Effect (*in vitro*)
ROS Inhibition Activity



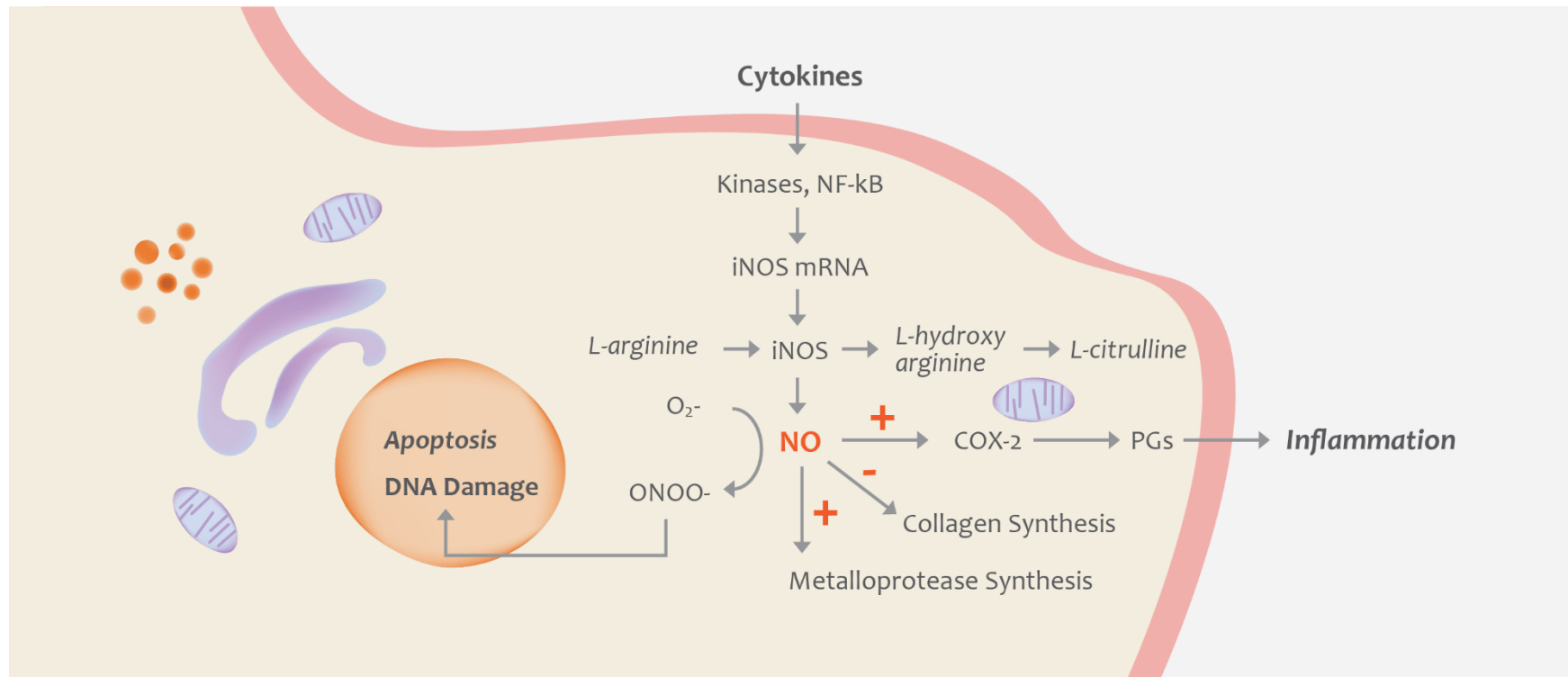
When applying various anti-oxidant measurement techniques from DPPH to free radicals, it was confirmed that Chamomile have excellent anti-oxidant efficacy.

What is Skin Inflammation?



Inflammation is part of the complex immunological responses to a wide range of harmful stimuli including skin injury, tissue necrosis, infection, and irritants. The immune system is responsible for protecting our body from the harmful stimuli and of maintaining homeostasis. Like any other part of the body, the skin can be involved in immune responses. Inflammation in the skin often causes a rash to form. It's a response from the immune system to conditions such as bacterial/viral/fungal infections, allergic reactions, heat, and sunlight. The symptoms of skin inflammation are rash, skin redness, blisters or pimples, warmth, and thickening of the skin in the affected area.

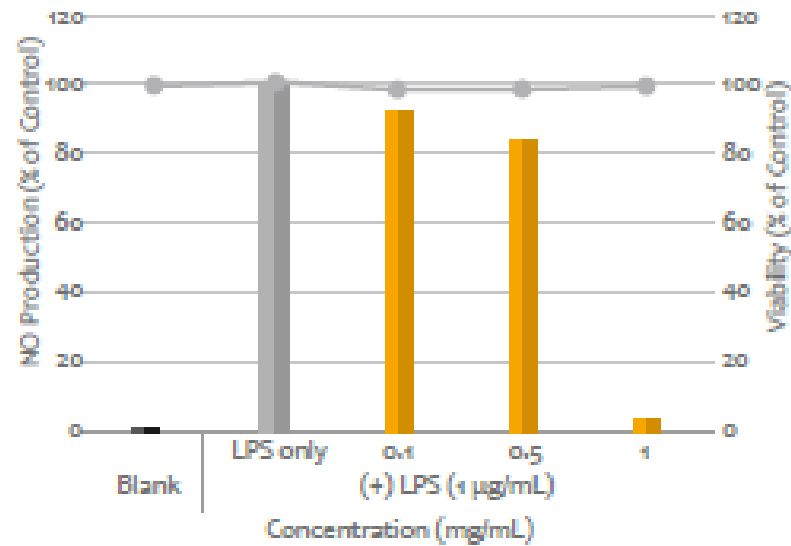
Inflammation Mechanism



Anti-Inflammation Effect of Calmomile

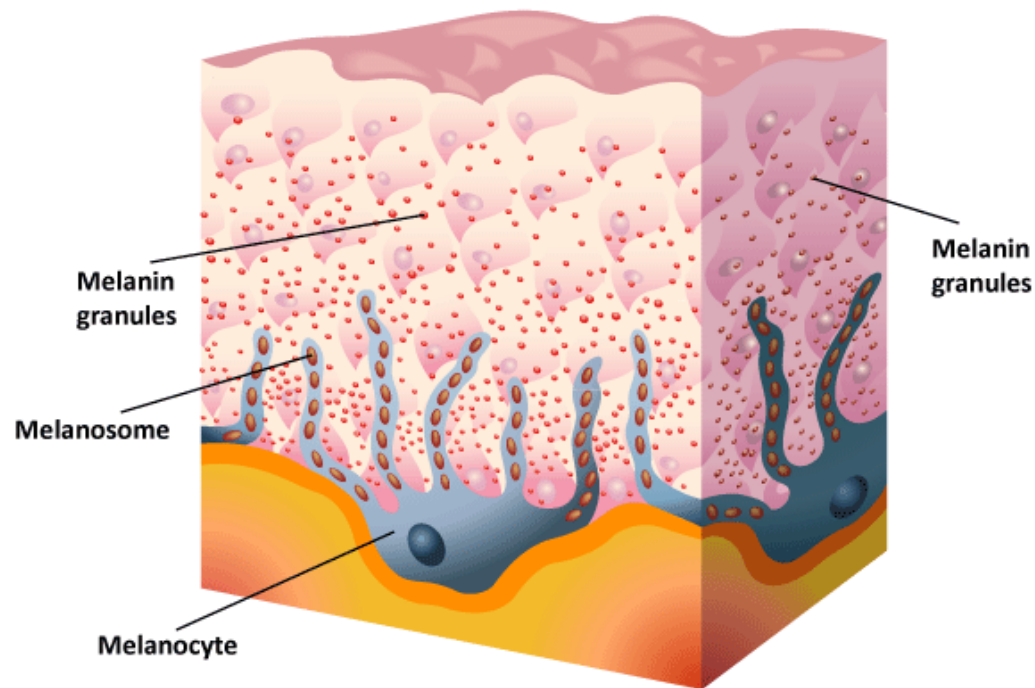
■ Anti-inflammation Effect (in vitro)

NO Synthesis Inhibition



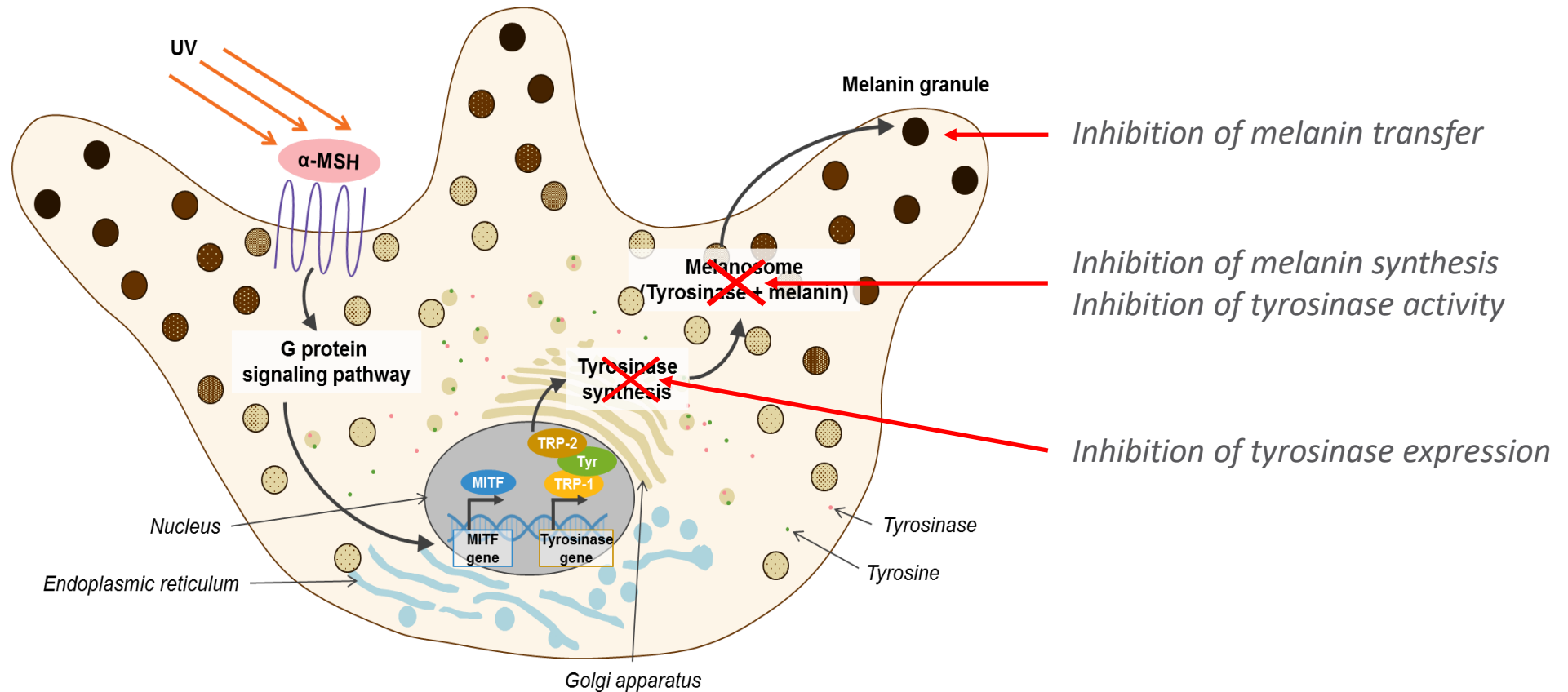
In the NO-based anti-inflammatory experiment, an inflammation reduction effect of approximately about 100% was observed in the 1% treatment.

Skin Pigmentation



Melanin plays an important role in protecting human skin from the harmful effects of solar ultraviolet (UV) radiation and in scavenging toxic drugs and chemicals. Melanin is synthesized in melanocytes located at the dermal/epidermal border. Epidermal melanocytes occur at an approximate ratio of 1:10 among basal keratinocytes and distribute the melanin they produce to approximately 40 overlying suprabasal keratinocytes via their elongated dendrites and cell-to-cell contacts. Skin pigmentation problems, such as melasma, freckles, age spots and dark spots, are caused by the abnormal accumulation of melanin in keratinocytes.

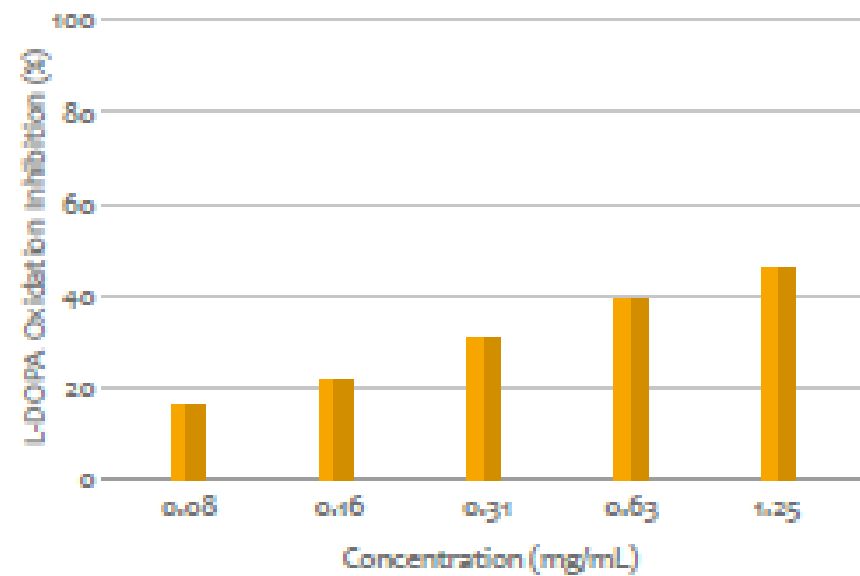
Melanin Synthesis & Skin Brightening Action



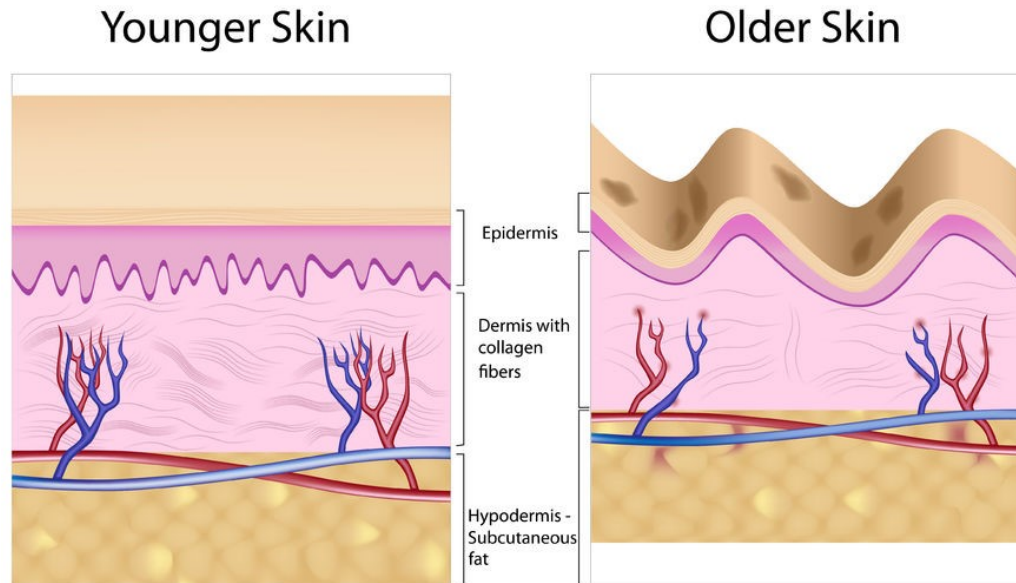
Upon exposure to UV radiation, DNA damage triggers cytokines, growth factors and other inflammatory factors to stimulate melanin production. Melanin is synthesized in melanocytes through a series of oxidative reactions involving amino acid tyrosine in the presence of the enzyme tyrosinase. This leads to the production of melanin, and melanin granules synthesized in the melanocytes are transferred to keratinocytes.

Skin Brightening Effect of Calmomile

■ Skin Brightening Effect (in tubo) Inhibition of L-DOPA Oxidation



Skin Aging and Wrinkle Formation



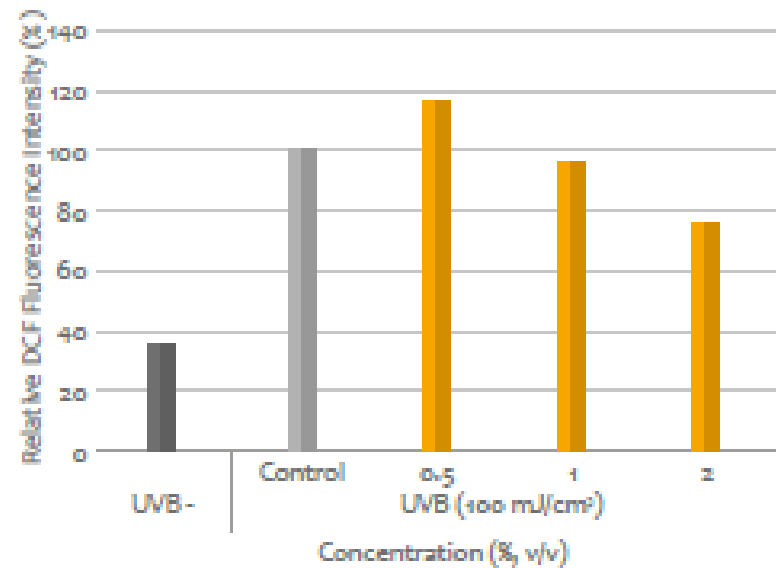
❖ Skin aging is noted by

- a decrease of elasticity
- formation of wrinkles and fine lines
- degradation of collagen
- thinner and weaker skin
- damaged connective tissues

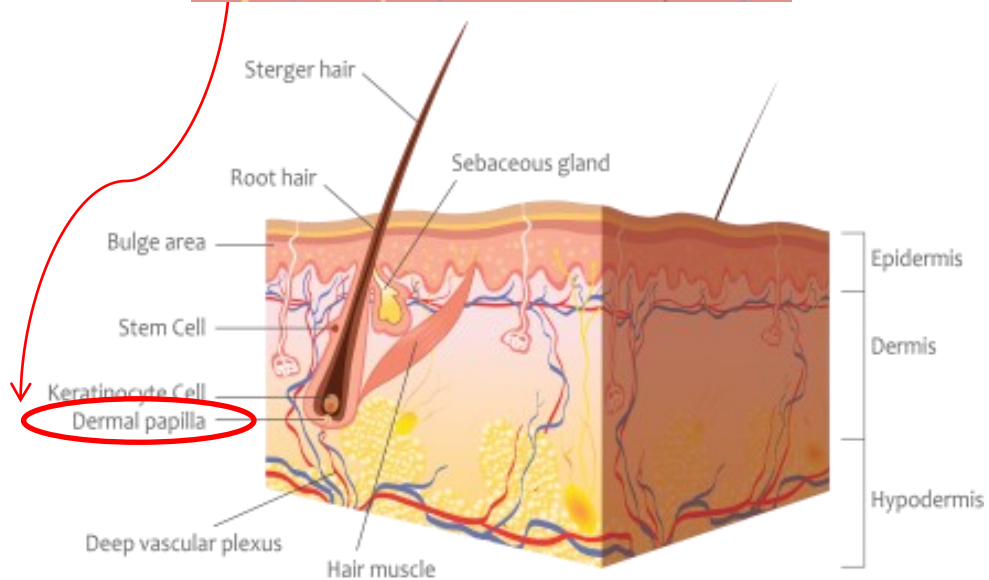
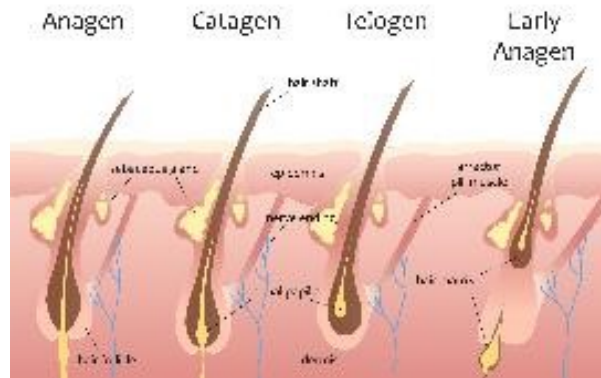
Skin changes with increasing age due to both intrinsic and extrinsic factors. Intrinsic skin aging is determined by genetic factors, hormonal status and metabolic reactions such as oxidative stress. One of the most important extrinsic skin aging is induced by UV radiation by sun exposure, referred to as photoaging. Smoking cigarettes and environmental pollution are also important factors in premature skin aging and wrinkle formation

Anti-Photoageing Effect of Calmomile

Anti-photoageing Effect (in vitro) UVB-induced ROS Inhibition Activity



Hair Growth Cycle



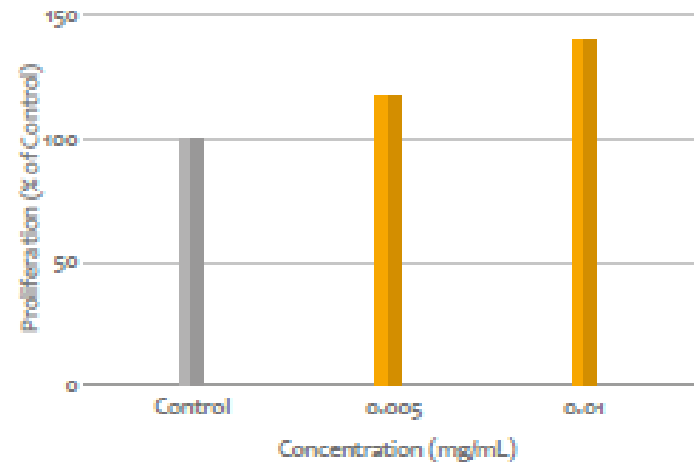
Hair Growth Cycle

- Anagen: Hair grows thick
- Catagen: Hair roots start degenerating
- Telogen: Growth stops completely
- Early anagen: Old hair falls out and new hair grows

Human Dermal papilla cells (HDPCs) comprise a group of specialized fibroblasts. HDPCs play a critical role in regulating hair follicle development and periodic regeneration. Human hair growth has a unique repetitive cycle composed of the anagen, catagen, and telogen phases.

Hair Growth Effect of Calmomile

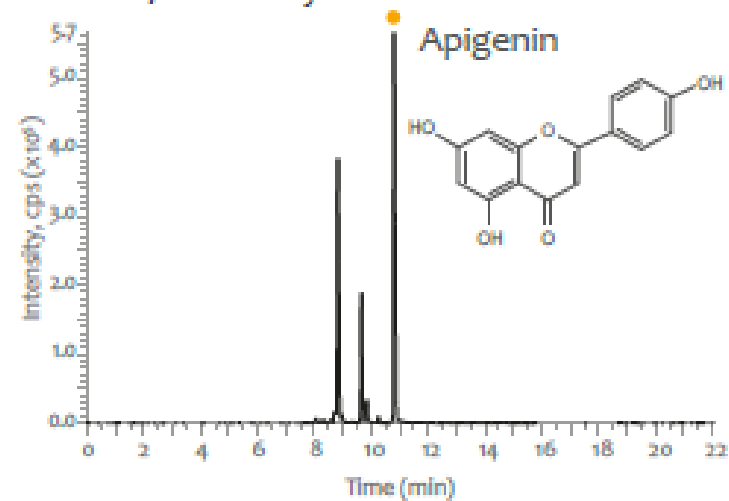
Hair Growth Effect (in vitro) Hair Cell Proliferation



As a result of measuring the growth rate of dermal papiller cells (dermal papilla cells), 0.01% of Calmomile Extract powder was treated and showed about 140% proliferative capacity compared to control.

Active Compound of Calmomile

Active Compound LC-MS/MS Analysis



Qualitative analysis of Apigenin, known as an effective substance for antioxidant, was performed using Lc-MS/MS.

Product Information

Product Name : Calmomile


INCI name : Chamomilla Recutita (Matricaria) Flower 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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