

# SpotLight Goji

*For soothing depigmentation defence*



NAOLYS ACTIVE CELLS

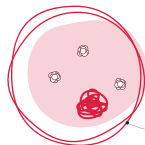
# SpotLight Goji

*For soothing depigmentation defence*

Because life exposes our skin to various environmental and endogenous factors, it's crucial to effectively address skin concerns, such as pigmentation irregularities, inflammation, and oxidative damage, to ensure healthier, radiant, even-toned skin.

## A BOTANICAL STORY

### Unveiling the untamed beauty elixir The Goji (*Lycium barbarum*)



LYCIUM BARBARUM CELL

*The Goji plant, *Lycium barbarum*, has small, red or orange-red fruit that grow on a woody shrub belonging to the Solanaceae family. Native to Asia, particularly China, Tibet, and Mongolia, this exotic gem has been cultivated for millennia for its dual health and beauty benefits. In traditional Chinese medicine, the Goji's reputation as a source of vitality, enriched with antioxidants, vitamins (notably vitamin C), and essential minerals, has long been cherished. Its benefits include boosted immune defences, brighter skin, and improved clarity of vision. In modern times, this radiant fruit has risen to superfood stardom, captivating the world with promises of both health and aesthetic enhancement. Known as "The Beauty Elixir", the Goji is also a valued ingredient in cosmetic formulations, in which its antioxidant properties help to slow the passage of time, offering not just skincare, but a radiant, age-defying appeal embodying the untamed spirit of the Himalayas.*



## PRODUCT BENEFITS

### Brightening

**Whole active plant cells** containing only natural compounds produced by the plants

**A high-performance active ingredient** that benefits the skin and prioritizes environmental sustainability

**Brightening action, soothes inflammation** while shielding against free radicals

## TECHNICAL INFORMATION

**INCI name of the Active plant cells**  
Lycium Barbarum Callus Lysate Extract (and) Water

**Form**  
cells (20%) in glycerin or sunflower oil (80%)

**Aspect**  
liquid

**Concentration**  
starting at 0.5%

**Dispersible or soluble**  
in any formulation type (emulsion, lotion, fluid)

NAOLYS

**IN VITRO TEST RESULTS**  
At the concentration of 0.5%

Brightening and Pigmentation Correction

**Skin brightening and radiance**  
**Correction of pigmentation irregularities**

- Due to a **18%** reduction in melanin synthesis
- And **19%** reduction in tyrosinase activity

Soothing

**Calming, decreases irritations**  
**by increasing the level**  
**of skin tolerance**

- Interleukin 1- $\alpha$  increases by **25%**
- Interleukin 6 increases by **21%**
- Prostaglandin E2 increases by **18%**

Antioxidant

**Slows down general cell oxidation,**  
**reduces excessive production**  
**of free radicals**

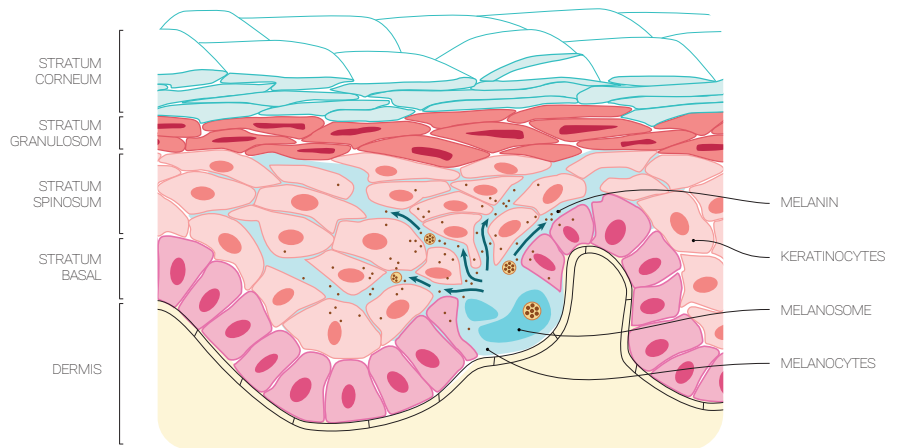
- Decreases release of MDA, **20%** physiological conditions and **24%** induced conditions.

**HOW IT WORKS**

## The Complex Relationship Between Melanin, Tyrosinase, and Skin Pigmentation

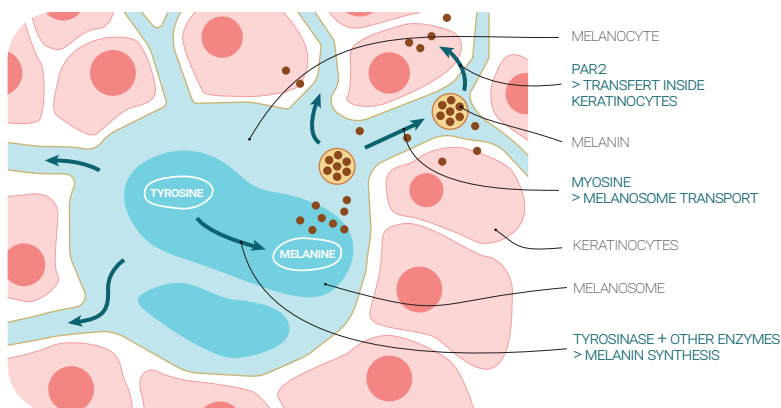
Melanin, a vital biological pigment that determines skin, hair, and eye colour, is synthesized by specialized skin cells called melanocytes, located in the basal layer of the epidermis. This process, melanogenesis, is orchestrated by the enzyme tyrosinase, initiating the conversion of the amino acid tyrosine into dopaquinone, a melanin precursor.

The pivotal role of tyrosinase activity cannot be overstated. Elevated activity expedites the conversion of tyrosine into dopaquinone, intensifying melanin production. Controlled tyrosinase activity is instrumental in sustaining a harmonized melanin profile.



REPRESENTATION OF EPIDERMAL LAYERS AND MELANIN FORMATION AND DISPERSION

The melanin produced embarks on a journey from melanocytes to keratinocytes, outer skin layer cells. Its dispersion within keratinocytes determines skin colouration. Overproduction in specific areas leads to dark spots, pigment inconsistencies, and hyperpigmentation, while insufficient production results in lighter skin tones.



MELANIN SYNTHESIS, MELANOSOMES TRANSPORT AND KERATINOCYTES TRANSFERT

Melanin synthesis, tyrosinase activity, and skin pigmentation thus form a tightly woven nexus. It can be employed to either reduce melanin production or target its presence.

This dual-pronged approach can result in a more uniform and lighter complexion, notably reducing the visibility of pigmentation spots, including age spots and those induced by sun exposure.

Our approach extends to the control of tyrosinase activity. By modulating this critical enzyme's function, we effectively curb the acceleration of melanin production. This not only addresses existing pigmentation issues but also acts pre-emptively to deter the emergence of new spots and irregularities.

**SpotLight Goji optimizes skin complexion and tone through its dual approach of reducing melanin production and regulating tyrosinase activity.**

## HOW IT WORKS

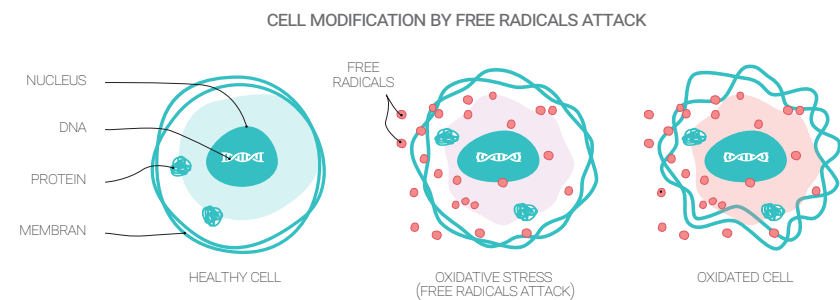
# The Crucial Role of Inflammation and Oxidative Stress in Achieving Brighter and More Even-Toned Skin.

Cutaneous pigmentation, melanin synthesis, and tyrosinase activity are essential elements to consider in the quest for brighter and more even-toned skin. However, they are not the only factors influencing skin health and appearance. Inflammation and oxidative stress also play pivotal roles in skin conditions and complexion.

### Managing Inflammation:

Inflammation is a complex biological response to various stimuli, including UV radiation, pollutants, and other environmental factors. It can lead to skin irritation, redness, and discomfort.

**SpotLight Goji has the potential to manage inflammation by soothing and calming the skin. It does so by addressing the synthesis of specific mediators within the skin, including cytokines and prostaglandins.**



### Antioxidant Protection:

The skin is constantly exposed to free radicals, which are highly reactive molecules that can damage skin cells and lead to premature aging.

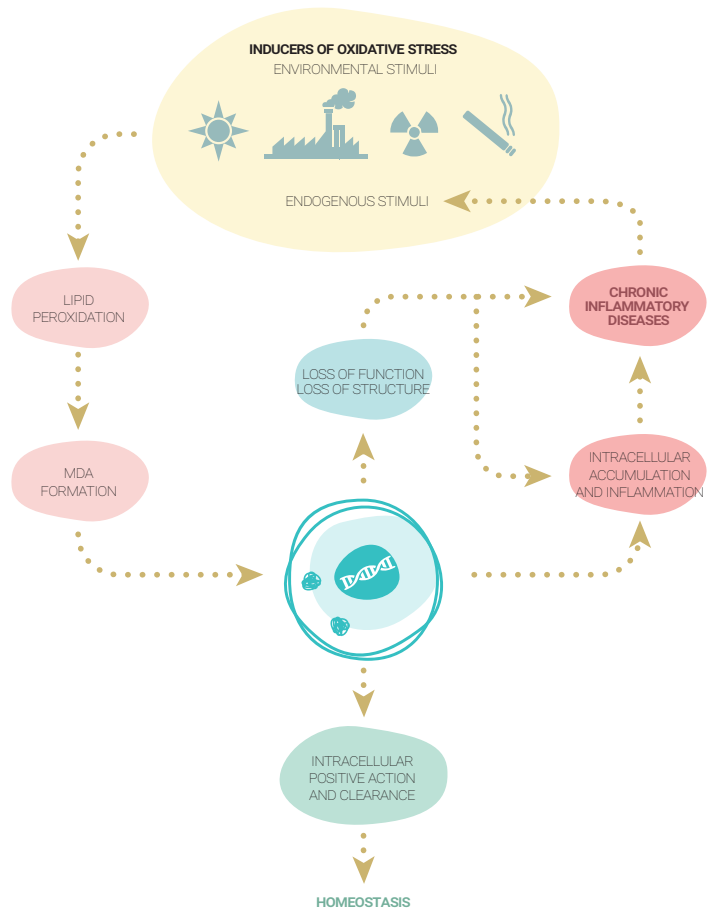
Lipid peroxidation is a complex biochemical process that occurs in cells when oxidative stress, primarily caused by free radicals, damages the lipids (fats) within cell membranes. This process can result from various external factors such as exposure to UV radiation, pollution, or toxins, as well as internal factors like metabolic processes.

The process begins when free radicals, which are highly reactive molecules with unpaired electrons, attack and damage the lipids in cell membranes. This damage can lead to the creation of lipid radicals.

Lipid radicals, formed during initiation, react with nearby lipids, triggering a chain reaction. This reaction causes further damage to the cell membrane lipids, resulting in the formation of lipid peroxides.

**Spotlight Goji effectively mitigates the harmful impacts of oxidative stress on the skin, protecting cells functions from both natural and induced oxidation.**

By addressing not only pigmentation irregularities but also inflammation and oxidative stress, SpotLight Goji provides a holistic approach to skin care. It promotes a brighter and more even complexion while ensuring that the skin remains soothed, protected, and resilient in the face of environmental challenges.



ORIGIN AND IMPACT OF FREE RADICALS ON CELLS

## In vitro tests results

### SpotLight Goji's role in managing cutaneous pigmentation

In the pursuit of skincare innovation, Naolys carried out in-depth research to showcase the remarkable potential of **SpotLight Goji** as an effective regulator of melanin synthesis and tyrosinase activity.

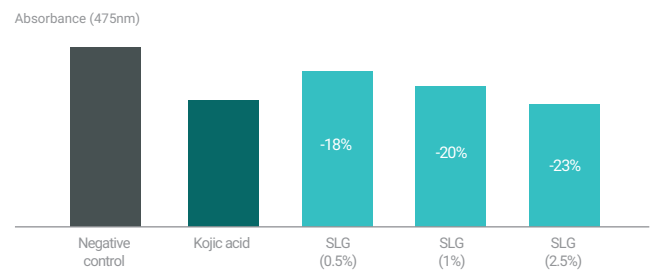
#### Melanin Synthesis

Cutaneous pigmentation, responsible for skin colouration, hinges on melanin's presence and distribution. The distribution of melanin dictates the array of skin tones. **SpotLight Goji** has the power to influence this complex melanin synthesis process, effectively reducing melanin production at its core. As a result, it possesses the potential to **brighten the skin and rectify pigmentation irregularities**.

The study involves an examination of the nature and properties of melanin synthesis that occurs within the cell.

The test uses a positive control, kojic acid, for benchmarking and comparing the effects of our test substance. Kojic acid is often used in the cosmetic and beauty industry for its skin-lightening properties.

#### Study of melanin synthesis



#### Decrease of melanin production

→ At concentrations of 0.5%, 1%, and 2.5%, SpotLight Goji induced a significant reduction in melanin production by 18%, 20%, and 23%, respectively, compared to the positive control (kojic acid), which showed a 29% reduction on its own.

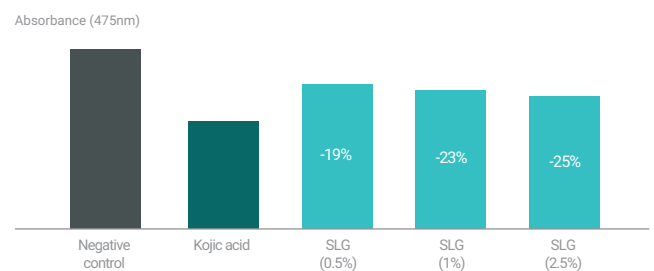
#### Tyrosinase Activity

The tyrosinase enzyme is at the epicentre of melanin production. Elevated tyrosinase activity accelerates melanin production, leading to skin darkening and hyperpigmentation. **SpotLight Goji** engages with this pivotal enzyme, subtly modulating its activity. By effectively inhibiting tyrosinase, **SpotLight Goji** paves the way for **reduced melanin synthesis**, ultimately resulting in brighter skin and enhanced control over pigmentation.

The aim of the test is to measure the tyrosinase enzyme's performance in converting tyrosine into melanin, providing insights into its role in skin pigmentation.

The results are compared to the same positive control (kojic acid) for reference.

#### Study of tyrosinase activity



#### Decrease of tyrosinase activity

→ SpotLight Goji, at concentrations of 0.5%, 1%, and 2.5%, induced a significant reduction in tyrosinase activity by 19%, 23%, and 25%, respectively, compared to the positive control (kojic acid), which showed a 32% reduction.

**SpotLight Goji** demonstrates a significant influence on the regulation of cutaneous pigmentation.

**By inhibiting tyrosinase activity and diminishing melanin production in the skin, it proves valuable in reducing the appearance of dark spots, hyperpigmentation, and various skin pigmentation concerns. However, its benefits extend beyond pigmentation control, as it also possesses anti-inflammatory properties.**

## SpotLight Goji's role in managing inflammation

An essential aspect of the exploration of skin health has been understanding how **SpotLight Goji** influences the complex phenomenon of skin inflammation. Inflammation, a vital part of the body's defence system, plays a pivotal role in recognizing, combating, and neutralizing threats. In terms of skincare, it often manifests as redness, irritation, and discomfort.

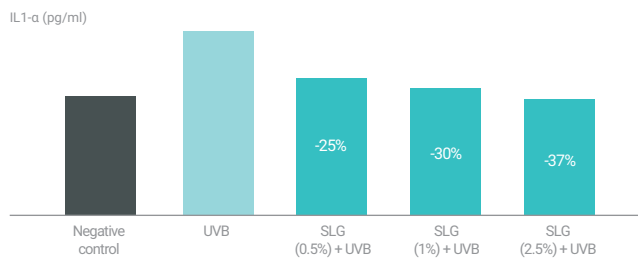
**Naolys chose to study three inflammation mediators synthesized at the level of the keratinocytes. These consisted of two cytokines and one prostaglandin.**

**IL1-alpha:** this is an intracellular messenger cytokine synthesized and then stored inside cells as an inactive precursor. It has numerous biological functions, both local and systemic, influencing gene expression, cell proliferation, and the nervous system.

**IL-6:** a pro-inflammatory cytokine that regulates the activation, growth, and differentiation of lymphocytes. It belongs to the group of proteins that direct the secretion of antibodies to combat extracellular pathogens.

**PGE2:** an eicosanoid derived from the phospholipids of cell membranes. PGE2 acts on the smooth muscle fibres of blood vessels, causing vasodilation (enlargement of blood vessels), increased permeability (allowing easier passage of substances), and the formation of oedema (accumulation of fluid in tissues).

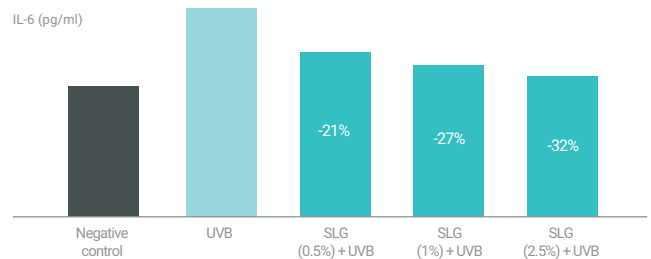
### Study of IL1-alpha



#### Decrease of IL1-alpha

→ The results demonstrate that Interleukin 1-α release was increased by UVB compared to the negative control. This release was inhibited by SpotLight Goji at concentrations of 0.5%, 1% and 2.5% by 25%, 30% and 37% respectively.

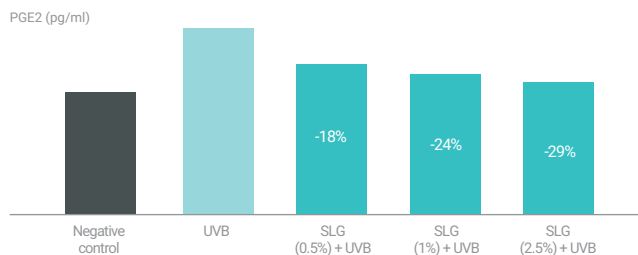
### Study of IL-6



#### Decrease of IL-6

→ The results demonstrate that Interleukin 6 (IL-6) release was increased by UVB compared to the negative control. This release was inhibited by SpotLight Goji at concentrations of 0.5%, 1% and 2.5% by 21%, 27% and 32% respectively.

### Study of PEG2



#### Decrease of PEG2

→ The results demonstrate that Prostaglandin E2 (PGE2) release was increased by UVB compared to the negative control. This release was inhibited by SpotLight Goji at the concentrations of 0.5%, 1% and 2.5% by 18%, 24% and 29% respectively.

**Spotlight Goji** demonstrates a remarkable ability to effectively **inhibit irritative and inflammatory responses**.

By doing so, **Spotlight Goji** goes beyond mere soothing and comfort, aiming to **revitalize and rejuvenate the complexion**, promoting a healthier and more vibrant skin appearance.

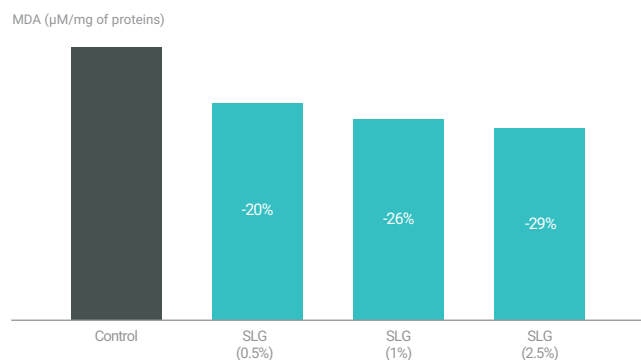
## SpotLight Goji and its antioxidative role

Malondialdehyde (MDA) is one of the end-products of lipid peroxidation. It is a small molecule that is generated when polyunsaturated fats in cell membranes are oxidized. MDA is considered a reliable biomarker for assessing lipid peroxidation and oxidative stress in cells and tissues.

The measurement of MDA therefore serves as an invaluable tool in measuring the extent of oxidative damage induced by the various agents that are key players in cellular dysfunction.

Naolys has undertaken a comprehensive investigation, encompassing both physiological conditions, demonstrating a substantial reduction in physiological MDA production attributed to **SpotLight Goji**, and induced conditions, highlighting its significant **cell protection against UVB-induced** lipoperoxidation by effectively decreasing MDA production.

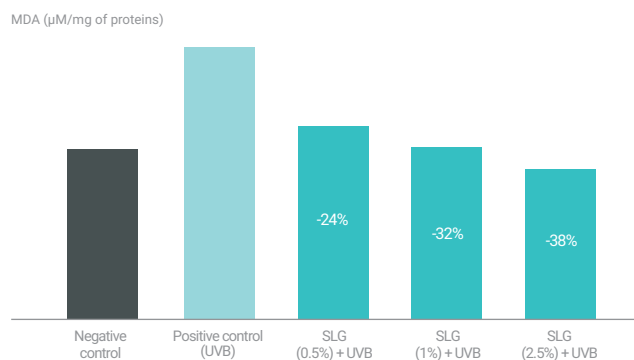
### Study of MDA In physiological conditions



#### Decrease of MDA

→ The results obtained demonstrate significant protection by the Goji product at concentrations of 0.5%, 1.0% and 2.5% against the physiological lipoperoxidation with reductions of 20%, 26% and 29% respectively compared to the negative control.

### Study of MDA In induced conditions



#### Decrease of MDA

→ The results obtained demonstrate significant protection of the Goji product at concentrations of 0.5%, 1% and 2.5% against UVB-induced lipoperoxidation with reductions in MDA of 24%, 32% and 38% respectively compared to the positive control.

The decrease in MDA production emphasizes the protective function of **SpotLight Goji** in addressing both physiological and induced lipid peroxidation, showcasing its anti-free radical properties.

**Spotlight Goji** effectively alleviates the detrimental effects of oxidative stress on the skin, resulting in healthier and revitalized skin.

The benefits of SpotLight Goji go beyond managing skin pigmentation, it also has antioxidant and anti-inflammatory properties for healthy, luminous skin.





## See also

Bright Light Madonna lily  
Inside Light Poet's narcissus



