

Unwind Sacred lotus

Relaxing your skin



NAOLYS ACTIVE CELLS

Unwind Sacred lotus

Relaxing your skin

Since our skin, like the rest of our body, is subjected to occasional and ongoing types of stress, it inevitably gets damaged. By impairing the functionality of its key cells, stress reduces the skin's radiance and accelerates its ageing. By acting on the skin's reception of key neurotransmitters and hormones modulated by stress, Unwind Sacred lotus enables the skin to regain its balance, and therefore to function better.

For relaxed skin, that radiates well-being.

A VEGETAL STORY

Nelumbo nucifera, Nelumbonaceae

With a stalk that can be up to 1.80 m long, its large, pinkish-white, delicately scented flower rises above the water in ponds. A perennial plant native to South-east Asia, the sacred lotus is associated with Buddha and the creation myth in the Hindu religion. It is a sacred plant, a symbol of purity and divine beauty. Entirely edible, it is cultivated and consumed throughout Asia; however, the fragility of its rhizomes makes industrial production very difficult. It is used in several traditional Asian medicines and its seeds can be stored for decades without deterioration.



PRODUCT BENEFITS

Balancing

Radiance

Helps to restore a more radiant complexion.

Anti-redness

Calms red skin.

Relaxing

Helps relax skin cells by reducing biochemical stress (action on the release of melatonin).

Soothing

Facilitates reduction of the sensation of irritation. Calming.

Antioxidant

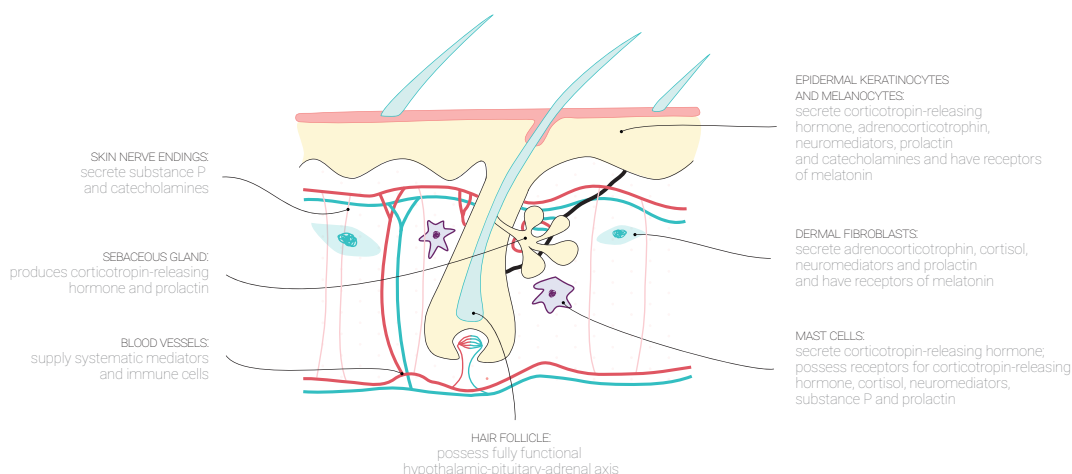
Reduces oxidative stress and the damage it causes.

HOW IT WORKS

Unwind Sacred lotus: an action at the heart of the cutaneous nervous system

What do we commonly call stress? Stress consists of a biochemical response to a stimulus, that can be physical or psychological, which is broken down into three phases: shock, resistance and exhaustion. Shock: the heart rate goes into overdrive, vascular tone and blood sugar levels fall, releasing adrenaline which increases the heart rate and oxygenates the tissues. If the stimulus persists, we move on to the resistance phase: the body synthesizes several hormones (endorphins, dopamine, cortisol, serotonin, and sex hormones) that make the body stronger. But if the stress persists, we move into the exhaustion phase - the energy expenditure is too high - which leads to fatigue, anger, even depression and loss of sleep.

However, stress does not stop with the brain's neuro-hormonal production, it also affects the skin. This is because the skin has several production and reception sites for neurotransmitters and hormones, which also react to stress-causing events.



THE CONSEQUENCES OF STRESS ON THE SKIN

This reaction consists of the release or inhibition of neuromediators and neurohormones (about 30 in the skin), chemical substances that transmit neuronal information, such as pain and irritation, which can also modify the functioning of skin cells. Regulating these syntheses allows the skin and the body as a whole to regain the balance necessary to re-establish normal function.

Unwind Sacred lotus: relaxing the skin to regain balance

A two-stage relaxation, which takes place first at the level of an influx generating cutaneous stress symptoms and then at the level of clearly identified stress symptoms.

Regulating the synthesis of neurotransmitters and neurohormones

In its final phase, stress deregulates the secretion and reception of these key molecules, this can then alter the structure of skin cells, leading to skin conditions ranging from acne to psoriasis. Keratinocytes have several neurotransmitter receptors, in particular melatonin, a key hormone in the protection against cell oxidation and the regulation of sleep, substance P, related to the transmission of pain information, CGRP involved in inflammation, and acetylcholine, that regulates sweating and vasodilation.

Unwind Sacred lotus contributes to a feeling of well-being by modulating the release of neurotransmitters and neurohormones in the epidermis.

Until inflammation and oxidation are reduced

According to recent studies, it also appears that stress can directly reinforce not only inflammation in the skin cells already induced by the synthesis of CGRP, but also another form of stress, oxidative stress due to the creation of ROS (reactive oxygen species), which are then less regulated

by melatonin, and which, in turn, generate cellular dysfunction through the destruction of the cell membrane.

Unwind Sacred lotus reduces the sensation of irritation by reducing inflammation.

Unwind Sacred lotus reduces direct cell damage by reducing membrane oxidation.

Thanks to its modulo-regulatory action on neurotransmitters and neurohormones and their skin receptors, Unwind Sacred lotus helps the skin to regain its radiance, for the complexion to be more uniform, and generally contributes to the skin's well-being.

CLINICAL TEST RESULTS

A significant increase in radiance

Declaration of the panel

- **95%** of women reported that their skin was brighter
- **95%** of women said their skin appeared radiant and firmer
- **95%** of women said their skin seemed regenerated and relaxed

At the concentration of 0.5%

IN VITRO TEST RESULTS

A general soothing effect

A relaxing effect

- Increase of the expression of the receptor MT1 (of the melatonin) at the level of keratinocytes of **55%** in conditions of natural senescence and of **62%** in conditions of photo induced senescence
- Decrease of the expression of the substance P and its receptor (**-18%** and **-14%**), of the CGRP (**-12%**), and acetylcholine (**-18%**)

Soothing effect

- Decrease of the inflammation – expression of the IL-1 alpha (**-24%**), IL-6 (**-20%**) and PGE2 (**-21%**)

Antioxidant effect

- Decrease of the lipid peroxidation – release of the MDA (**-21%**)

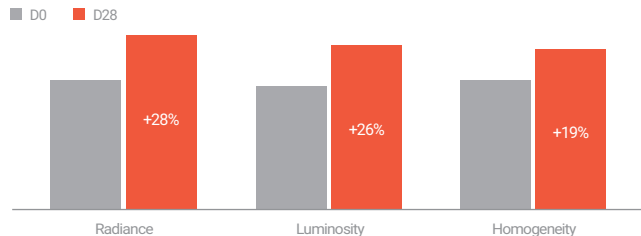
At the concentration of 0.5%

Clinical test results

Improvement of the skin tone – radiance, redness and irritation (application twice a day) after 28 days

Improvement of the skin tone

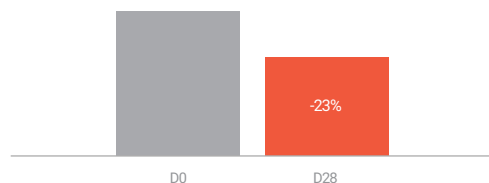
Effect on the complexion and cutaneous state by clinical scoring



- Increase of radiance of 28%**
- Increase of luminosity of 26%**
- Increase of tone homogeneity of 19%**
- Decrease of redness of 23%**
- Decrease of irritation of 33%**

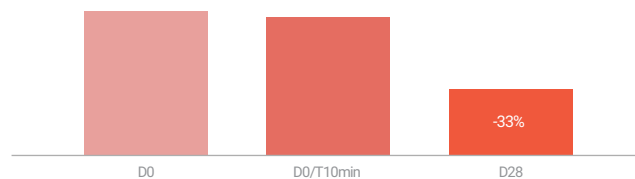
Reduction of redness

Measurement of the parameter (a*) on the cheeks on 20 volunteers



Reduction of irritation

Mean of the cumulative scores in 20 volunteers (stinging test)



DAY 0



DAY 28

Conditions of the study:

- Test carried out for 28 days on a sample of 20 women aged 25 to 65 years
- Application twice a day
- Emulsion with 0.5% of Unwind Sacred lotus (20% cells)

Technical information on the formulation of Unwind Sacred lotus

INCI name of cells

Nelumbo nucifera leaf cell extract

form

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

aspect

liquid

concentration

starting at 0.5%

dispersible

in any formulation
(emulsion, lotion, fluid)

In vitro tests results

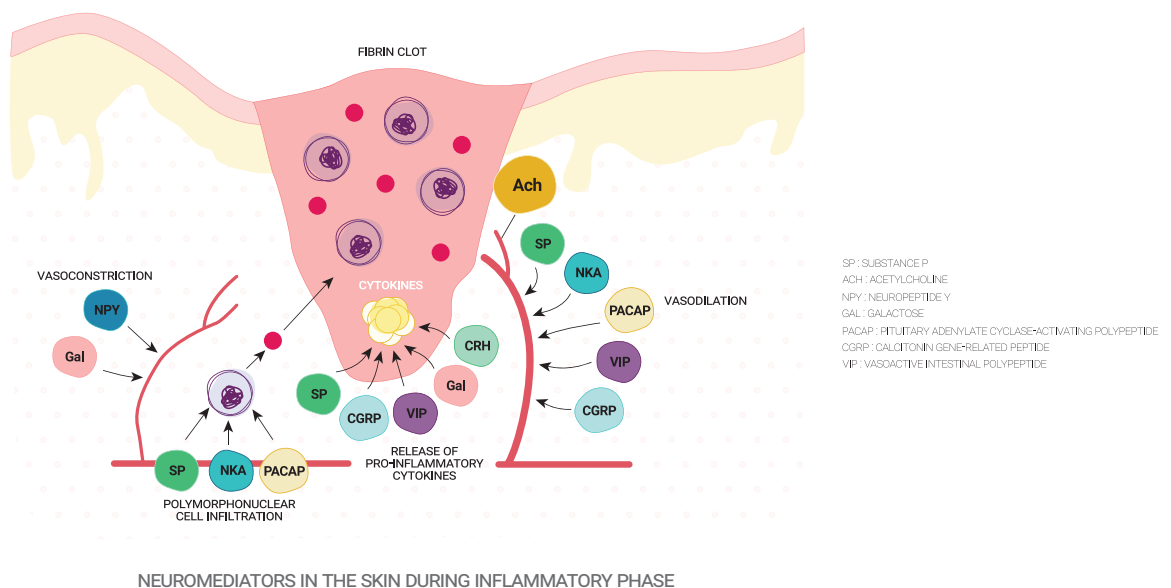
Relaxing the skin: by modulating neurotransmitters and a neurohormone that plays a role the skin's well-being

The cutaneous nervous system

This is part of the peripheral nervous system - the set of nerves that enable information to travel between the central nervous system (comprising the brain, spinal cord and retina) and the rest of the body (the "periphery"). It is rich and complex because the three skin layers, epidermis, dermis and hypodermis are equipped with nerves. As the skin is in constant contact with the external environment, it interacts with various external physical factors (thermal, mechanical, electrical, UV rays) and chemical factors of various origins (allergens, inflammation). It also responds to stimuli from the bloodstream and to emotional stress. Furthermore, the central nervous system can directly or indirectly modulate major skin functions such as vasomotricity, thermoregulation, hair erection (goose bumps), the barrier function, tissue growth and differentiation, wound healing, immune response and inflammation. Indeed, there are very important relationships between nerve fibres and skin cells: cutaneous nerve fibres produce numerous neurotransmitters (substance P, vasoactive intestinal peptide (VIP), somatostatin, calcitonin gene-related peptide (CGRP), gastrin-releasing peptide (GRP), neuropeptide Y, histidine-isoleucine peptide (HIP), neurotensin, neurokinins A and B, bradykinin, acetylcholine, catecholamines, endorphins and enkephalins) and neurohormones (prolactin, melanotropin (MSH) or corticotropin (ACTH)). In turn, skin cells (epidermal, dermal and immune) can not only produce but also express receptors for these neurotransmitters.

Naolys decided to study the effect of Unwind Sacred lotus on melatonin and three neuromediators in the cutaneous nervous system: substance P, calcitonin gene-related peptide or CGRP, and acetylcholine.

Neurotransmitters are chemical molecules that transmit messages from one neuron to another at synapses. The molecule released by a neuron upon stimulation binds to a receptor on another neuron, resulting in the transmission of nerve impulses, or to a receptor on a target cell, resulting in various effects on an organ.



Neurotransmitters studied by Naolys

Substance P

Among the peptides involved in the transmission of the pain message, substance P is the best known, as it was the first to be discovered. Secreted by the free endings of C-fibres (amyelinated nerve fibres), it has a vasodilatory action which causes algogenic inflammation (which causes pain).

CGRP

CGRP is a peptide that plays a role in inflammation and has a vasodilatory action.

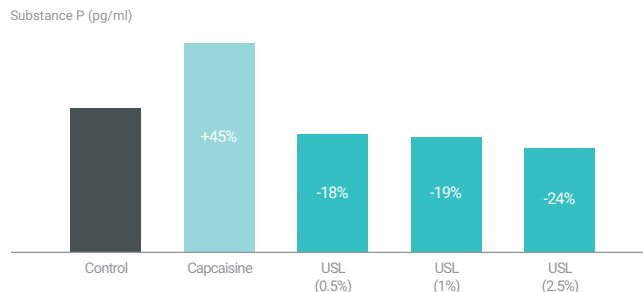
Acetylcholine

Acetylcholine is a neuromediator in the autonomic cutaneous nervous system located in the dermis. At this level, the nerve fibres are found in particular in the blood and lymphatic vessels, the hair erector muscles and the hair follicles: they are essential in the regulation of the sweat glands, vasomotricity, blood flow, and hence thermoregulation. In the skin, acetylcholine plays an important role in the regulation of sweating.

In the following *in vitro* tests, the referent used is capsaicin, a chemical reagent from pepper, which can excite sensory fibres, in this case it can release substance P or CGRP. The effect is called a neurogenic inflammation.

Decreased expression of three neurotransmitters

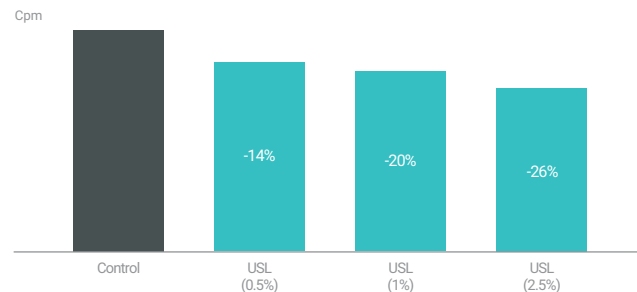
Study of the substance P



Decrease of the release of the substance P

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the release of substance P, respectively by 18%, 19% and 24% compared to the untreated control.

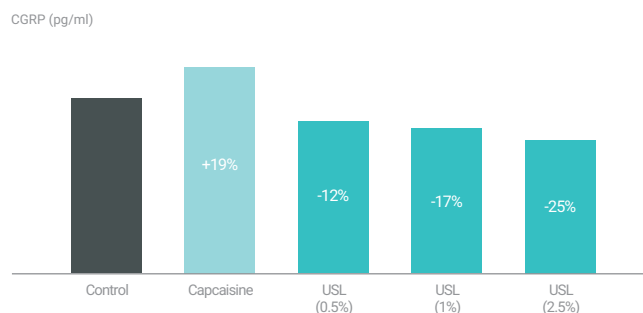
Study of the substance P (receptor)



Decrease of the fixation of substance P on its receptor

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the fixation of substance P on its receptor respectively by 14%, 20% and 26% compared to the untreated control.

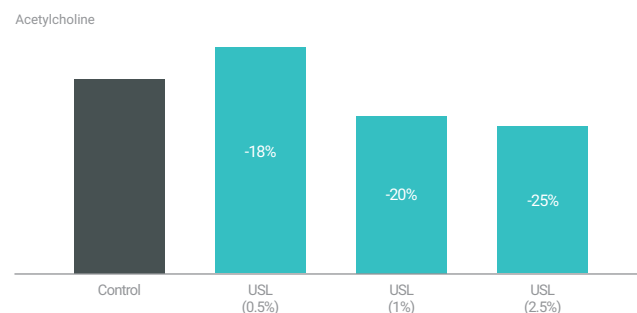
Study of the release of the CGRP



Decrease of the CGRP release

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the release of the CGRP respectively by 12%, 17% and 25% compared to the untreated control.

Study of the acetylcholine



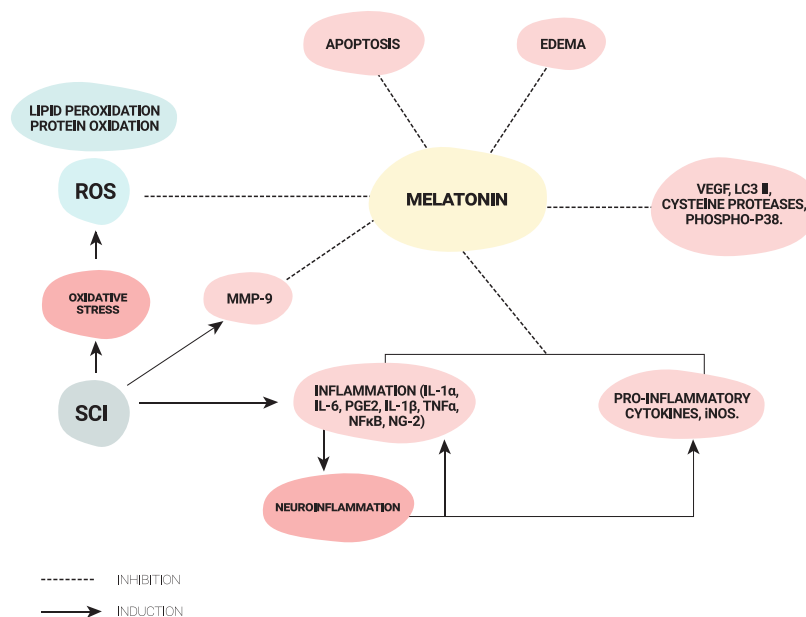
Decrease of the acetylcholine release

→ At concentrations of 0.5%, 1% and 2.5% decrease of the release of acetylcholin respectively by 18%, 20% and 25% compared to the untreated control.

Melatonin is integrated into this system in that it is synthesized from the neurotransmitter serotonin, and secreted into the bloodstream and can reach relatively distant organs. Melatonin, whose chemical name is N-acetyl-5-methoxytryptamine, is a neuro-hormone, or molecule synthesized by the epiphysis (pineal gland), and has several properties, the best known of which is that of facilitating sleep and playing a role in the alternation between wakefulness and sleep.

But melatonin is also a powerful antioxidant that plays an important role against oxidative stress factors and stimulates the activity of several antioxidant enzymes and also modulates the release of inflammation mediators.

Naolys therefore studied the expression of melatonin in keratinocytes.



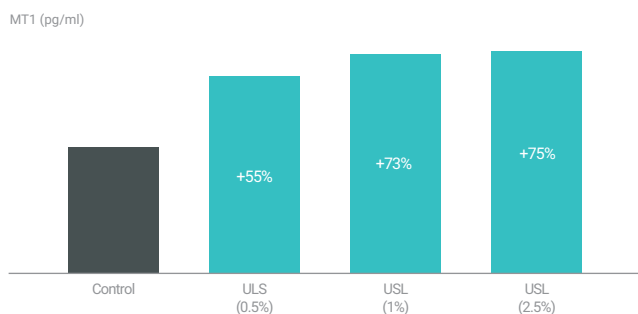
MELATONIN - INTERACTIONS

Increased melatonin expression

Study of melatonin and its receptor

Assessment of the expression of receptor MT1 at the level of keratinocytes

Conditions of the natural cell senescence - donor aged of 62 years

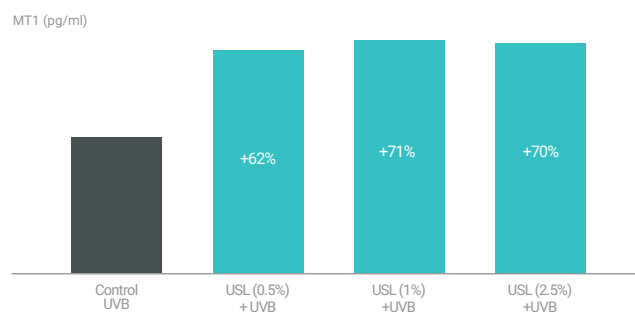


Increased melatonin expression

→ At concentrations of 0.5%, 1%, and 2.5%, increase of the expression of the receptor MT1 respectively of 55%, 73% and 75%.

Assessment of the expression of receptor MT1 at the level of keratinocytes

Conditions of the photo induced senescence (UVB 100 mJ/cm²) - donor aged of 15 years



Increased melatonin expression

→ At concentrations of 0.5%, 1%, and 2.5%, increase of the expression of the receptor MT1 respectively of 62%, 71% and 70%.

Relaxing the skin by reducing inflammation and oxidation in the epidermis

Because stress and melatonin depletion induce both increased inflammation and oxidation, we also looked specifically at the action of Unwind Sacred lotus on the classic key mediators of inflammation: IL-1 alpha, IL-6 and PGE2, and its anti-free radical effect by studying lipid peroxidation.

Relaxing by reducing inflammation

Inflammation is the tissue's response to stress: it consists of all the defence mechanisms through which any foreign substance is recognized, destroyed or removed. Different types of cells take part in these mechanisms but in the epidermis it is the keratinocytes that we will study. The start of inflammation, and its diffusion from its initial location, involves chemical factors which are synthesized locally or take the form of inactive precursors. Naolys studied three inflammation mediators synthesized in the hair bulbs, two well-known cytokines and a prostaglandin.

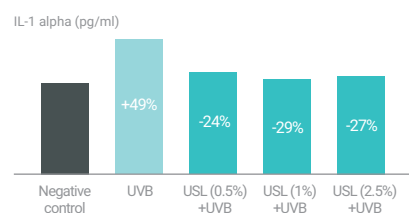
- **IL-1 alpha** (interleukin alpha) is an intracellular mediating cytokine that is synthesized and stored in the cell as an inactive precursor. It has several systemic and local biological functions (in gene expression, cell proliferation, the nervous system, etc.)

- **IL-6** (interleukin 6) is a pro-inflammatory cytokine, which regulates the activation, growth and differentiation of lymphocytes. It belongs to the group of proteins that controls the secretion of antibodies to fight extracellular pathogens.

- **PGE2** (prostaglandin E2) is an eicosanoid, derived from the phospholipids of cell membranes. It acts on vessels' muscular fibres: vasodilation, increased permeability, oedema.

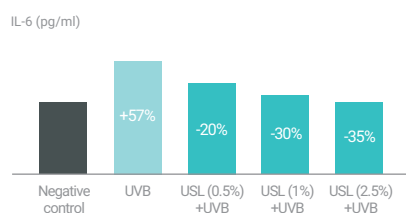
Reduction of three inflammation mediators

Study of inflammation mediators



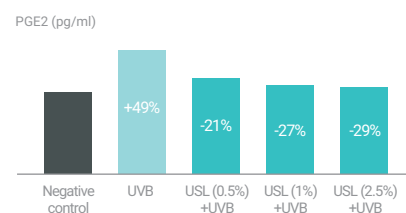
Decrease of IL-1 alpha

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the release of IL-1 alpha respectively of 24%, 29% and 27%.



Decrease of IL-6

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the release of IL-6 respectively of 20%, 30% and 35%.



Decrease of PGE2

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the release of PGE2 respectively of 21%, 27% and 29%.

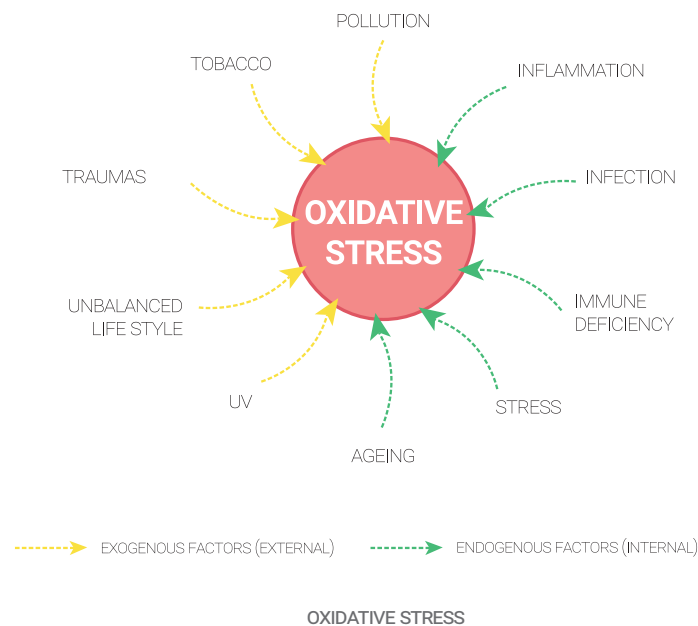
Relaxing by reducing oxidation

Oxidative stress, the other stress

Stress such as the decrease in melatonin induces a decrease in the skin's antioxidant defence.

Our body's antioxidant protection systems are often overwhelmed in our daily lives for many reasons, including stress (see diagram).

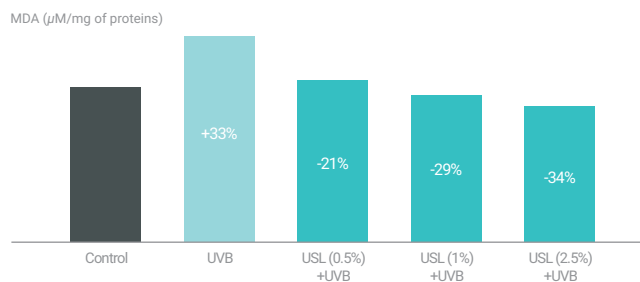
This is called oxidative stress. Oxidative stress is simply the imbalance between, on the one hand, the production of ROS (reactive oxygen species) and, on the other hand, the ability to neutralize these toxic compounds (thanks to SOD/catalase, for example) before they cause any damage such as oxidized cell membranes, denatured proteins, destructured DNA, etc.



We therefore decided to test the activity of Unwind Sacred lotus on the oxidation of skin cells, in particular by studying the release of MDA (malondialdehyde), a product formed during the lipid peroxidation of cell membranes during exposure to UV light (in a stress situation).

Reduction of lipid peroxidation

Study of the lipid peroxydation - anti radical activity



Decrease of MDA

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the lipid peroxidation induced by the UVB, translated by a decrease of the MDA rate respectively of 21%, 29% and 34%.



See also

Essential Bieng Indian jasmine

First Light Snow lotus

Full Detox Ylang Ylang

Healthy Perfection (Vitis flower)²

Pure Light Chinese peony

Purify Apothecary's rose

Purify Aloe vera

Refine Ginger



