Sun Protect Commiphora

The global cell protection

A STORY

The Commiphora | *Commiphora wightii, Burseraceae*
The precious tree of the myrrha

As a small tree growing wild in East Africa, Middle East and India, it is very resistant to temperature changes and dryness. Myrrha, the famous resin, extracted from its trunk, was used in the momification technics in the civilization of Ancient Egypt and, in Ayurveda, for healing properties against skin deseases, nevralgic deseases and, arterioslerosis. It represents Myrrha's teardrops; Myrrha was the daughter of king Theias, who, according to the Metamorphosis written by the poet Ovid, gave birth to Adonis, then, she was transformed in a myrrh tree.

Key points

An active plant cell
Developed to deliver the highest amount of original active molecules.

A high tech natural ingredient
Created to preserve and improve the identity and the benefits of a natural product.

A protective action
Protects the heart of skin cells and their environment

Because skin is day-to-day attacked by sun rays, especially UVB, it is necessary to protect it against their consequences inside skin cells and then to increase their defenses. For a stronger and better protected skin.

PRODUCT BENEFITS

Protection

Biological protection

Preserves DNA and limits DNA damages induced by UVB. Completes the action of a mineral or classical sunscreen.

Protecting

Increases skin own protection by modulating the skin's immune defense system.

Soothing

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

To be used in skincare or make-up products such as cream, fluid, serum, balm, lotion, milk, foundation, concealer, etc. In any colour cosmetic or skincare product intended to protecting skin.

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Related products | SUN PROTECT DATE PALM | GLOBAL PROTECT BLACKBERRY | WHOLE PROTECTION EDELWEISS

HOW IT WORKS

Sun Protect Commiphora: increasing internal mechanisms of skin cell protection

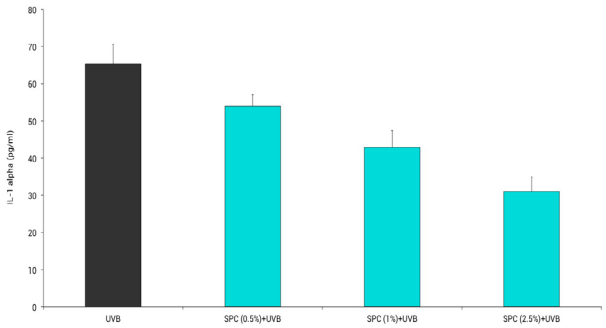
Sun Protect Commiphora acts both on the internal protection of epidermis cell and on the control of their defenses when they are «irradiated» by UVB. First, it provides anti-irritative and immuno-modulative actions, that give and extend a controlled and higher internal cell defense to keratinocytes. Second, it provides a biological protection while preserving their DNA, the element at the root of their operation.
Thanks to those actions, skin resists better external aggressions. It is therefore better protected against cell ageing due to those aggressions.

in vitro testing results

Study of the inflammation mediators

The inflammation is the answer of tissues to aggressions: all defense mechanisms through which they recognize, destroy and eliminate any foreign substances. Different types of cells take part in those mechanisms but in the epidermis, it is the keratinocytes we will study. The beginning of inflammation, its diffusion starting from the initial location involve chemical factors that are locally synthetized or at the state of inactive precursors. Naolys decided to study 2 inflammation mediators synthetized at the level of the keratinocytes.
- IL1-alpha is an intracellular messenger cytikine synthetized then stocked inside cell as an inactive precursor. It has many biological local and systemic functions (on expression of genes, cell proliferation, nervous system, etc.)
- PGE2 is an eicosanoïde, derived from phospholipids of cell membrans. PGE2 acts on smooth muscular fibers of vessels: vasodilatation, increase of permeability, œdema.

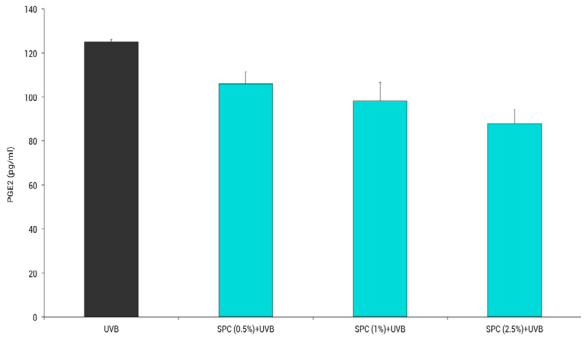
Study of the IL1-alpha



Decrease of IL1-alpha

→ At concentrations of 0.5%, 1% and 2.5%, decrease of IL1-alpha stimulated in reaction to the UVB rays respectively by 17%, 34% and 53%

Study of the PGE2



Decrease of PGE2

→ At concentrations of 0.5%, 1% and 2.5%, decrease of PGE2 stimulated in reaction to the UVB rays respectively by 15%, 21% and 30%

Technical information Formulating Sun Protect Commiphora

INCI name of cells	**form**	**aspect**	**concentration**	**dispersible**
commiphora myrrha leaf cell extract	cells (20%) in glycerin or sunflower oil (80%)	liquid	starting at 0.5%	in any formulation

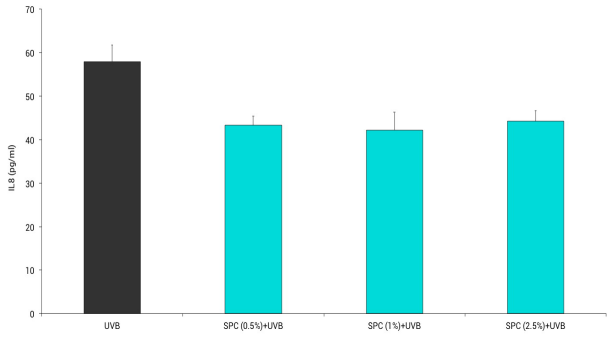
The skin's immune defense system and UV

The studies run those last years seem to show that exposition to UV rays can degrade the activity and the distribution of some key actors reponsible for the beginning of the immune response. But we know that the skin immune system is made of many immunocompetent cell types: Langherans cells, keratinocytes, lymphocytes T and melanocytes. And to communicate between themselves, those cells use natural proteins: cytokines. To asset the action of Sun Protect Commiphora, Naolys decided to study two cytokines, two interleukines, while checking the activity of lymphocytes,which are a variety of white blood cells (or leuco-cytes) that play a key part in the immune response. Interleukines belong to the cytokines family, that are natural glycoproteins (around hundred), synthetized by many types of cells, that might be located on cell membrans or to be secreted following a stimulation in the dermis or the epidermis. They are mediatory and regulator protein, or messengers between leucocytes (white blood cells) to give an immune response ; they work through receptors that are located on cells.

IL-8 is a cytokine synthetized by endothelial cells induced by the presence of some agents potentially pathogens.
IL-10 is a cytokine produced by different blood cells; they play a part in the regulation of the inflammatory reaction by decreasing the innate immune response.

As the irradiation made by UV rays on skin leads to a immuno suppression caracterized by an increase of interleukines and a decrease of the proliferation of lymphocytes, and that the action of Sun Protect Commiphora induces the decrease of those interleukines and a proliferation of lymphocytes, that means that Sun Protect Commiphoral plays a part of immuno-modulator by bringing back the balance modified by UV rays.

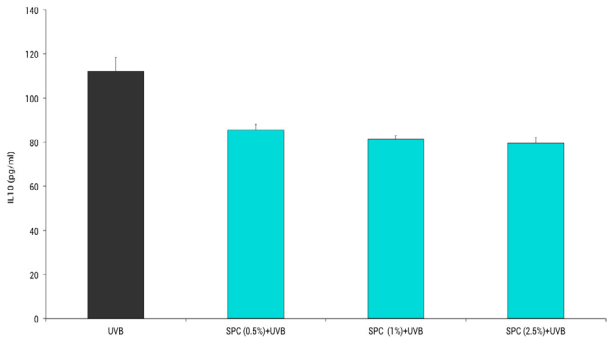
Study of the IL-8



Decrease of the IL-8

→ At concentrations of 0.5%, 1% and 2.5%, decrease of IL-8, respectively by 25%, 26% and 24%, after exposure to UVB, after 24 hours in contact

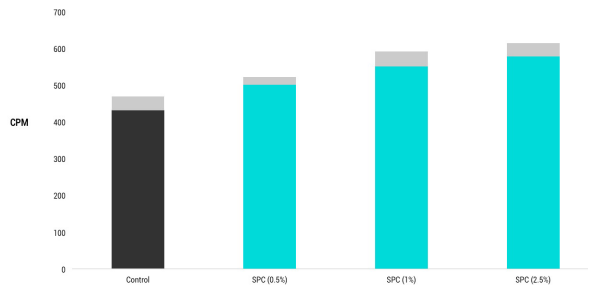
Study of the IL-10



Decrease of the IL-10

→ At concentrations of 0.5%, 1% and 2.5% decrease of IL-10, respectively by 24%, 28% and 29%, after exposure to UVB, after 24 hours in contact

Study of the lymphocytes

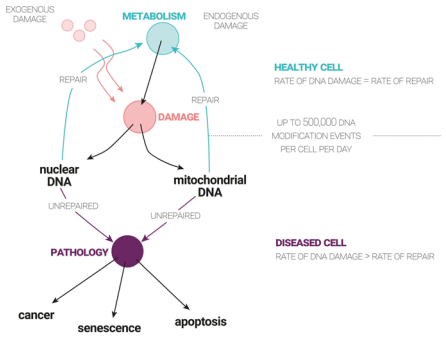


Increase of the proliferation of lymphocytes

→ At concentrations of 0.5%, 1% and 2.5% the product restores the proliferation of lymphocytes put in co-culture with irradiated keratinocytes after 24 hours in contact, respectively by 16%, 28% and 34%. That result corresponds perfectly with the decrease of the immunomodulating interleukines (IL-8 and IL-10)

The skin, UV and DNA

The exposition of skin to solar rays, UVA and UVB, stimulates skin ageing through the combination of several modifications at the level of epidermis and the dermis. Because UV rays constitute the most active part of the solar radiation that affect living organisms. UVB are absorbed essentially at the level of the epidermis and superficial dermis. When they have become damaged, cells become fragile and don't work properly. UV induce genetical mutations in cell DNA, especially UVB. According to new studies (2006), in skin, the global rate of de lesions made in DNA following a UVB irradiation is about 156 lesions/cell/J.m^{-2} when it is only about 0,024 lesion/cell/J.m^{-2} after a UVA irradiation.



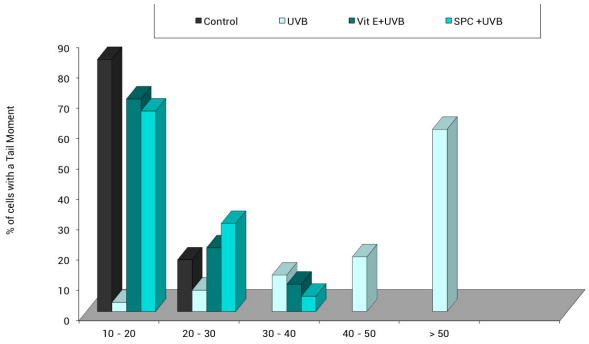
DAMAGES ON SKIN CELLS DNA BY UV AND OTHER SOURCES

Study of the cell DNA

To evaluate the effect of Sun Protect Commiphora on damages made by UV on DNA of epidermis cells, Naolys used the Comets test, also called «Single Cell Gel Electrophoresis» (SCGE). It is an electrophoresis technique on agarose microgel created at the end of seventies. It allows to detect and measure the deterioration of DNA induced by specific agents individualized cells. It is also used to evaluate DNA repairs after a chemical exposition or an irradiation.

Naolys used this test to measure damages caused on DNA of keratinocytes, by estimating the size of DNA in the tail of the comets after an irradiation of UVB rays. That size of DNA changed according to the irradiation dose.

Study of DNA fragmentation



Decrease of cell DNA fragmentation

→ At a concentration of 0.5%, the majority of irradiated cells (90%) have a «tail moment» higher than 30, and 60% of cells have a «tail moment» higher than 50. That result means that DNA of cells was very fragmented by UVB rays. Only 10% of cells present a «tail moment» lower than 30.
Treated with Sun Protect Commiphora, cells have no fragmentation (or tail moment) higher than 40. In conclusion, in the conditions of irradiation, SPC induces a significant decrease of the DNA fragmentation due to UVB rays.

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