Whole Protection Edelweiss

A global protection for skin

A STORY

The Edelweiss | *Leontopodium alpinum, Asteraceae*

The famous star from the Alpine glaciers

That hardy plant with a rhizome, that comes from Asia, grows in the montains in the central Europe between 900 and 3000 m. Thanks to its organs especially created to resist extrem climatic conditions (hairy leaves and stems, thick rhizome, sap resisting cold), it prefers rocky and sunny areas, difficullt to access. Since the end of the 19th century, when it began to be popular with the English and German tourists and climbers, it is officially protected in Switzerland. Nevertheless, it has been cultivated in fields as soon as its anti-oxidant and anti-inflammatory properties have been discovered, therefore its culture makes it less rare. Always popular through its images, pictures and movies, it is now not only the symbol of Swiss nationalism but it represents the quality of the Swiss products.

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
Provides a biological protection to epidermis cells

Because skin is continually aggressed by sun rays, it is necessary to protect it in a global way. To get a skin with a better resistance to fight external aggressions.

PRODUCT BENEFITS

Protection

Protective

Decreases damages made on skin cell DNA. Protects from environmental aggresssions.

Soothing

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

Anti-ageing

By protecting skin cells, helps to limit photo ageing.

Repairing

Helps to repair damages caused by free radicals.

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

NAOLYS

Related products | GLOBAL PROTECT BLACKBERRY | WHOLE PROTECTION RED FLOWERED SILK COOTON TREE | OXYRELAX CALIFORNIA POPPY

HOW IT WORKS

Whole Protection Edelweiss: supporting self defense mechanisms of epidermis cells

Whole Protection Edelweiss is dedicated to give skin means to protect itself by supplying a biological protection efficient up to the heart of skin cells, against two natural sources of aggressions, UVA and UVB. First with an action of protection at two levels, at a global level by contributing to release defense proteins and, at a deeper level, by protecting the DNA of epidermis cells. Then, it is efficient on irritation phenomena by limiting the release of inflammation mediators - they accentuate the sensation of irritation.
Thanks to those combinated actions, skin is protected longer and keeps its supply of defenses.

in vitro testing results

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 whereas UVA penetrate more dedply into skin.

Intense UV radiation kills most of skin cells and those that are not killed are severely damaged. When they have become damaged, cells become fragile and don't work properly. UV induce genetical mutations in cell DNA, especially UVB. UVA are very dimly absorbed by DNA bases but they can exciter groups of cell or photosensitizing atoms, thta will lead to the creation of free radicals that will also induce injuries on DNA. 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.

If UVA modify only indirectly cell DNA, they damage extra-cellular matrix and break fibres: skin loses firmness and elasticity. Therefore a high exposition to UVA causes a premature ageing of skin and increases wrinkle formation.

Study of the cell DNA

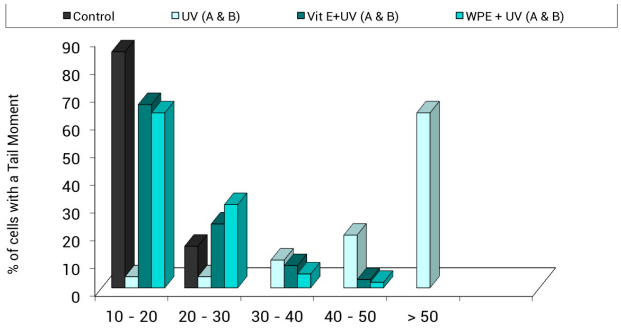
To evaluate the effect of Whole Protection Edelweiss on damages made by UV on DNA of epidermis cells, Naolys used the Comets test, also called «Single Cell Gel Electrophoresis» (SCGE). It is an electrophoresis technique on agarose microgel created at the end of seventies. It allows to detect and measure 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 and UVA rays. That size of DNA changed according to the irradiation dose.

Technical information on the formulation of Whole Protection Edelweiss

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

Study of DNA fragmentation



Decrease of the DNA fragmentation

→ At concentrations of 0.5%, the majority of irradiated cells (92%) have a «tail moment» higher than 30%, and 63% of cells have a «tail moment» higher than 50. That result means that DNA of cells was very fragmented by UVA and UVB rays. Only 8% of cells present a «tail moment» lower than 30. In the conditions of irradiation, the product Whole Protection Edelweiss induces a significant decreasing of the DNA fragmentation due to UVB and UVA rays.

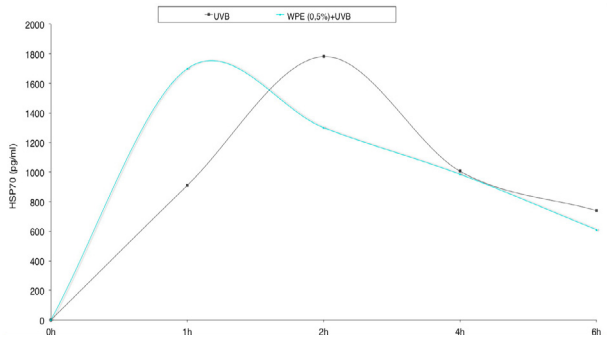
Study of the natural protection, HSP 70 - Heat Shock Proteins 70

To counterfight the stress coming from different origins (chemical or mechanical, either environmental, physiological or pathological), human cells produce specific defense proteins, especially stress proteins or heat shock proteins, that appear when the body experiences heat shocks. Because any temperature increase in our body, then in our skin, induces a protein modification, then damages their function.
Heat shock proteins are bioprotectors that preserve cells and their walls, by repairing special proteins, destroying too damaged proteins, and transporting proteins. The HSP 70 (70 Kdaltons is their molecular weight) regulate especially the stress coming from chemical aggressions (like heavy metals) and heat.

Therefore Naolys tested the protective effect of Whole Protection Edelweiss in its capacity to increase more rapidly the apparition of stress proteins (HSP70), that leads a preventive protection against damaging effects of UV.
With that mechanism, Whole Protection Edelweiss allows to repair more quickly damages induced by UVB rays and a better control of their synthesis.

→ In the test run by Naolys, the quantification of stress proteins has been performed with and without Whole Protection Edelweiss after irradiation of reconstructed epidermis to UVB. At the concentration of 0.5%, the protective effect has been translated by the speed of the apparition of stress proteins (HSP70) while maintaining the concentration of those proteins at the same level as the one induced by UVB rays only.

Study of HSP 70 (Heat Shock Proteins 70)



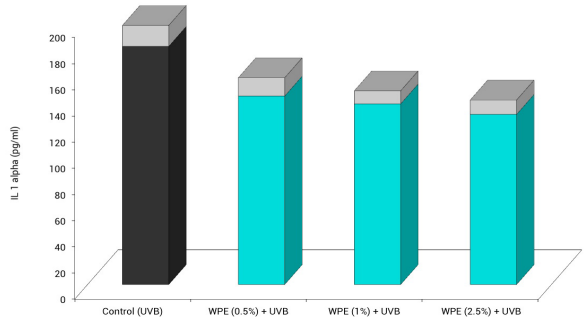
Kinetik of HSP70

Study of inflammation

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 3 inflammation mediators synthetized at the level of the keratinocytes of hair bulb, 2 famous cytokines and a prostaglandine.
- 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.)
- IL-6 is a pro-inflammatory cytokine, that regulates activation, growth and differentiation of lymphocytes. It belongs to the group of proteins that direct to the secretion of anti-bodies to fight against extra-cellular pathogens.
- 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 inflammation mediators

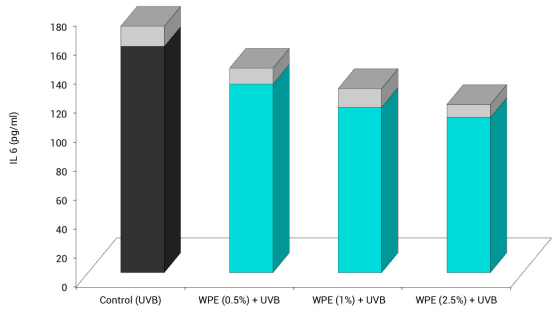
Study of the IL-1 alpha



Decrease of IL-1 alpha

→ At concentrations of 0.5%, 1% and 2.5%, decrease of IL-1alpha respectively by 21%, 24% and 29%

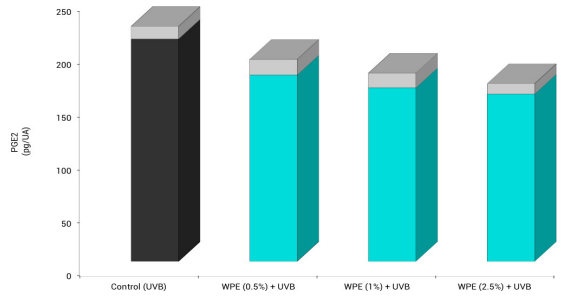
Study of the IL-6



Decrease of IL-6

→ At concentrations of 0.5%, 1% and 2.5%, decrease of IL-1alpha respectively by 17%, 27% and 31%

Study of the PGE2



Decrease of PGE2

→ At concentrations of 0.5%, 1% and 2.5%, decrease of PGE2 respectively by 16%, 22% and 25%