

Light&Energy Rose root

Relaunching the global skin activity.

A STORY

The Rose root | *Rhodiola rosea*, *Crassulaceae*
An adaptogen herb that comes in from the cold

Rediscovered and used in the fifties by Russians to increase physical capacities and to help promote cognitive functioning and reduce mental fatigue, for their cosmonauts and athletes, that perennial plant from 15 to 30 cm high grows spontaneously in the cold regions of Europe and Asia, especially in Siberia. But it was in the Scandinavian and North asiatic pharmacopeae for a long time. Its roots contain precious molecules like phenolic components, flavonoids, etc. that give it an adaptogen property, meaning it increases resistance towards biological and physico chemical stress factors. Used to create several food supplements all over the world, it is still studied by academics.

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 general energizing action

Increases cell energy and limits free radicals to producing radiant tone.

Because skin is sometimes tired, it is necessary to give it energy back, maintaining its original energetic balances and improving cell respiration. To get a skin more active, looking more radiant.



PRODUCT BENEFITS

Energy

Energizing

Improves skin metabolism. Helps to stimulate cell regeneration and all cell functions in the epidermis.

Anti-oxidant

Limits the creation of free radicals due to the physiological processes and free radicals induced by UVB.

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 relaunching skin cell activity.

Radiance

Helps skin to get a tone more radiant, by detoxifying and oxygenating skin cells.

HOW IT WORKS

Light&Energy Rose root: increasing cell metabolism through essential compatible actions

Light&Energy Rose root acts at the level of epidermis on three main activities: the production of energy, respiration and oxidation. First, it stimulates the production of global cell energy: it relaunches the synthesis of ATP, the energy form that is necessary to skin cells, at the level of mitochondria - the organits which degrade sugars to make energy. Second, it improves cell respiration, even when skin experiences hard conditions, which helps to increase the production of energy in the same time. Third, it protects epidermis against oxidation, the physiological oxidation and the one induced by UV rays, by limiting the creation of free radicals. And free radicals lead to deleterious effects in long and short terms, especially in the process of cell respiration. Thanks to those actions, skin cells can get a level of activity enough to perform all their functions, including those limited by ageing.

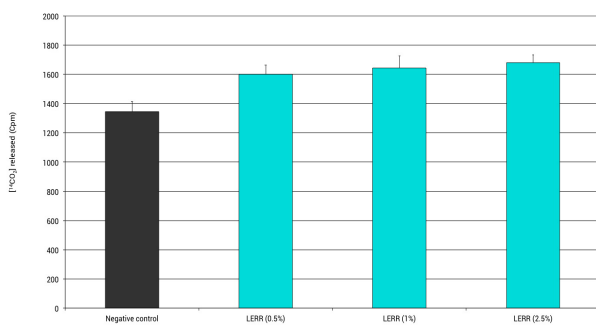
in vitro testing results

Study of cellular respiration

This is a redox chemical reaction which supplies energy to cells to grow and to function. Cells produce energy with glucides, as ATP through cell respiration.

The activity of Light&Energy Rose root on the cell and respiratory metabolism has been evaluated by the metabolization of glucose by the cells of the epidermis in hypoxia conditions. In vitro hypoxia conditions induce deep alterations of cell electromechanical functions, with an increase in the production of lactate, a fall in the quantity of ATP, ADP, and a loss of LDH. The reoxygenation of hypoxiated cells (a reversible state) normalizes the loss of lactate, induces a resynthesis of ATP and a reduction in the release of LDH. The decrease in superoxyde dismutase and glutathion peroxydase activity is reduced.

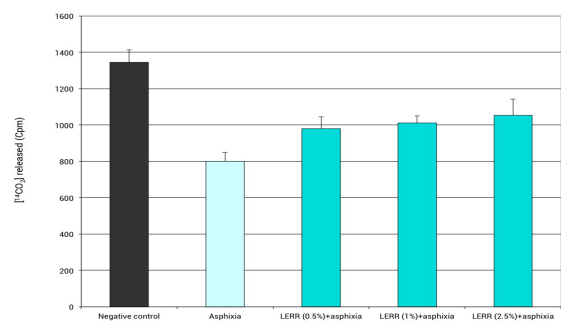
In the physiological conditions



Increase of CO₂ release

→ At concentrations of 0.5%, 1%, and 2.5%, in physiological conditions, increase of CO₂ release by 19%, 22% and 25%

In the conditions of asphixia



Increase of CO₂ release

→ At concentrations of 0.5%, 1% and 2.5%, in conditions of asphixia, increase of CO₂ release by 23%, 27% and 32%

Technical information Formulating Light&Energy Rose root

INCI name of cells
rhodiola rosea callus extract

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

aspect
liquid

concentration
starting at 0.5%

dispersible
in any formulation

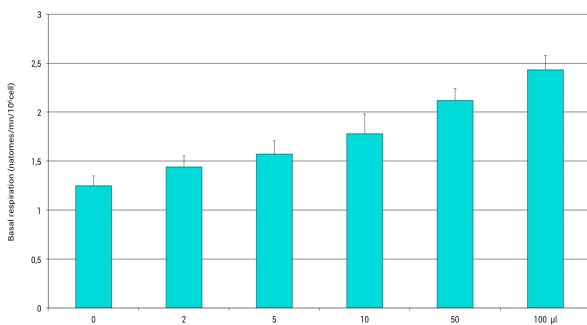
Study of cellular metabolism

Study of the energetic and respiratory metabolism of keratinocytes

To study cellular metabolism, Naolys studied cellular respiration in the consumption of oxygen and the synthesis of ATP that takes place at the end of the respiration process, to the ATP/ADP cycle.

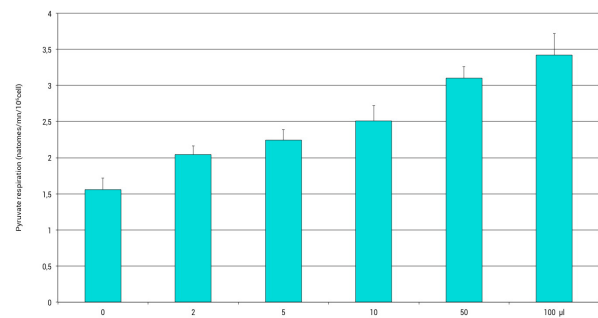
Cellular respiration is a redox chemical reaction which supplies energy to cells to grow and to function. Cells produce energy with glucides. But the energy released during oxidation of nutrients cannot be used directly by cells. It has to be caught by a transitional element, which is in majority, ATP (adenosine triphosphate), a nucleotide produced by mitochondrions, as its hydrolysis releases a high quantity of energy. But that transitional play and the fact that ATP stocks are not very important induce an intense renewal of that molecule. Therefore a continuous, quick and big production of ATP is needed. But that production decreases with ageing, as well as the ATP formation/regeneration cycle.

Respiration speed - oxygen consumption



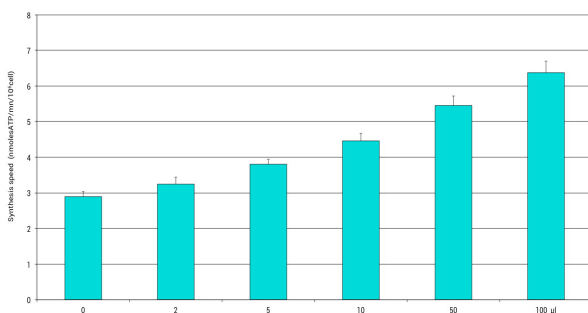
Increase of the speed of cell basal respiration

Respiration speed - oxygen consumption



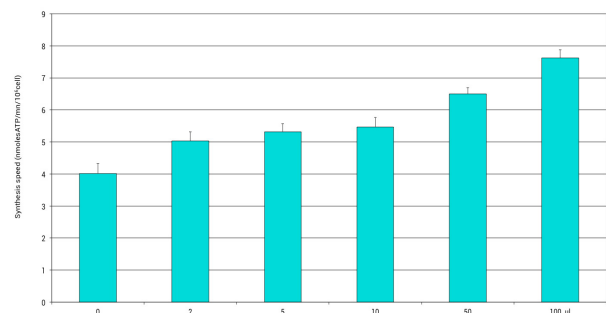
Increase of the speed of mitochondrial respiration

Speed of synthesis of ATP - basal cellular synthesis rate



Increase of the speed of the synthesis of ATP

Speed of synthesis of mitochondrial ATP



Increase of the speed of the synthesis of ATP

→ 0.5% concentration:

- increase of the speed of cell basal respiration
 - increase of the speed of mitochondrial respiration
 - increase of the speed of the synthesis of ATP (cell basal and mitochondrial)
 - simultaneous increase of ATP, ADP and AMP concentrations
- Stable energetic balance (stable EC)

Study of the lipid peroxidation

Because it is a reaction indicating oxidative stress, Naolys chose to study the release of MDA during physiological lipid peroxidation and lipid peroxidation induced by UVB.

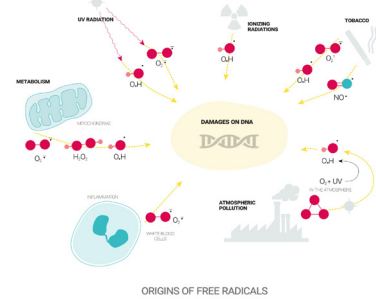
When we measure the MDA (malondialdehyde), one of the chemical products created by the chemical chain reaction induced by the free radicals, indicating of cytotoxicity by oxidative processes, then we have a good information about the anti-oxidant activity of a substance.

Normally, the endogenous production of free radicals (physiological lipid peroxydation) is counterbalanced by various defense mechanisms.

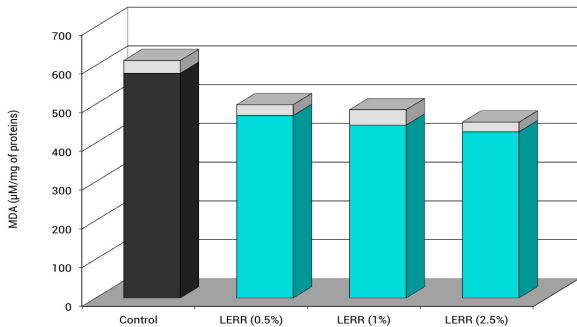
However, many situations can induce the appearance of an excess of free radicals (induced lipid peroxidation) such as intense exposition to sun, intoxication by certain chemical products, contamination by toxins, intense inflammatory reactions, etc.

These oxygenated free radicals attack phospholipid membranes, thereby altering the properties of the cell membrane.

They also induce the formation of lipid derived cytotoxic mediators which react with proteins. The consequences are numerous and can lead to several pathologies (inflammation, arteriosclerosis, etc.)



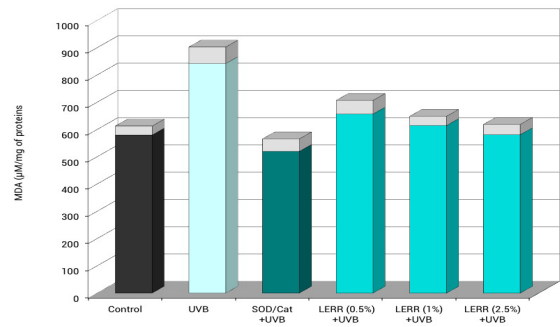
Lipid peroxidation in the physiological conditions



Decrease of MDA rate

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the physiological lipid peroxidation, which was translated by a decrease of the MDA rate by 19%, 23% and 26% respectively.

Lipid peroxidation induced by UVB



Decrease of MDA rate

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the lipid peroxidation induced by UVB (150mJ/cm²) which was translated by a decrease of the MDA rate by 22%, 27% and 31% respectively compared with protective enzymes SOD/catalase (-38%).