



Full Energy Vanilla

Stimulating cellular functions

A STORY

The vanilla | *Vanilla planifolia*, *Orchidaceae*
A universal sweet aroma more and more desired

The most famous orchid for our taste is a long epiphytic climbing plant with waxy ephemeral flowers, which grow spontaneously in tropical forests in Central America, where they are pollinated by a syngle type of bee. As its culture has been developped out of this area, its pods with the well known aroma are obtained through human pollinization, making them very expensive. Therefore a synthetic aroma was created in the 19th century. Aztecs first used vanilla to flavour their cocoa drink, today it has become a universal ingredient in food and perfume industries. Besides vanilline showed anti-oxydant and antimicrobial properties proven by studies. In Central America, the traditional medicine would recommend it to cure impotence and neurasthenia.

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.
- An energizing action**
Increases cellular energy production and cell regeneration.

Because skin is tired sometimes, it is necessary to help it to get back its energy and vitality by strenghtening its elementary functions. To get a skin more radiant, more beautiful, more resistant.



PRODUCT BENEFITS

Energy

Energizing

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

Regenerating

Increases epidermis cell regeneration and reinforces the protective skin barrier.

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.

Anti-oxidant

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

HOW IT WORKS

Full Energy Vanilla: relaunching elementary cellular processes

Full Energy Vanilla relaunches cell energy in epidermis by increasing cell energetic production, that is creating through respiration in cell mitochondriae. It contributes to boost chemical reactions (oxidations), that supply ATP, the source of elemental energy for cells, by maintaining the global energetic balance respect (energetical homeostasia), meaning that it keeps a balance between degradation processes (catabolism) and synthesis processes (anabolism). Those processes are inclined to unbalance with ageing. Besides, it minimizes the production of free radicals, that lead many cell disorders in short and long term. Indeed they can limit the cellular activity at the level of the mitochondrial respiration.

In the same time, it helps to balance the regeneration of epidermis in terms of production of keratinocytes, a process that decreases with ageing.

Thanks to those actions, skin cells can get back a level of activity to fill their functions, including those limited by ageing.

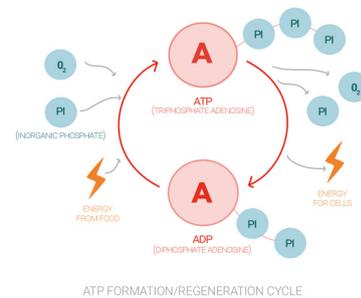
in vitro testing results

Study of cellular metabolism - epidermis

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.



Technical information to formulate Full Energy Vanilla

INCI name of cells
vanilla planifolia leaf cell extract

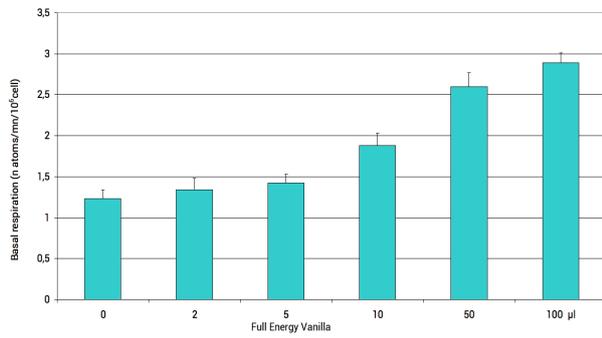
form
cells (20%) in glycerin or sunflower oil (80%)

aspect
liquid

concentration
starting at 0.5%

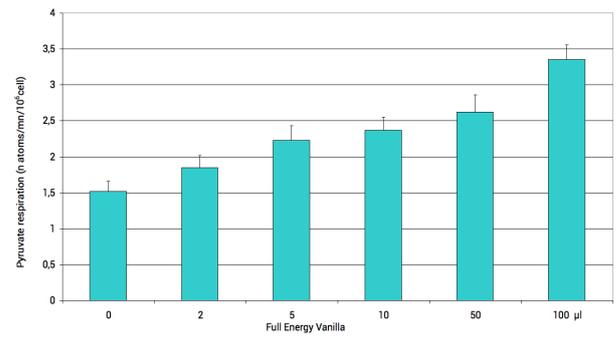
dispersible
in any type of formulation

Respiration speed - oxygen consumption



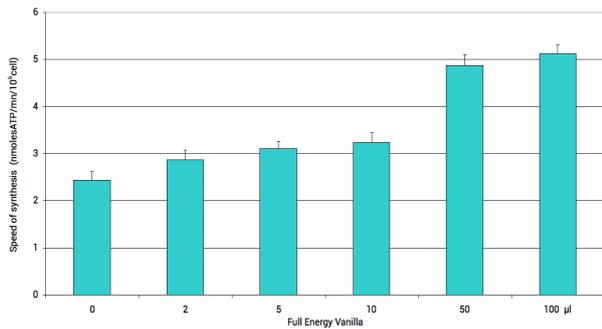
Increase of the speed of cell basal respiration

Respiration speed - oxygen consumption



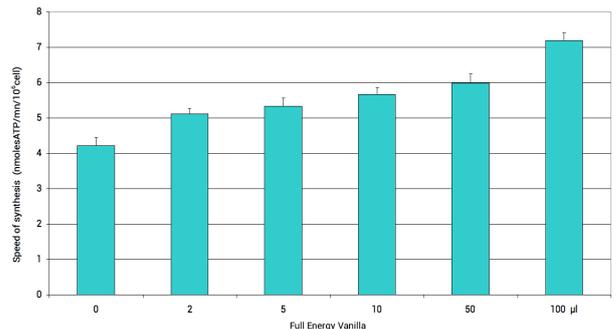
Increase of the speed of mitochondrial respiration

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

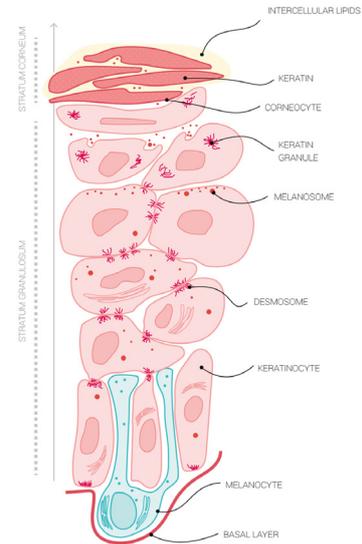
→ **At 0.5% concentration:**

- increase of the speed of cell basal respiration
- increase of the speed of mitochondrial respiration
- increase of the speed of the synthesis of ATP (basal cellular and mitochondrial synthesis)
- simultaneous increase of ATP, ADP and AMP concentrations

Stable energetic balance (stable EC)

Study of cell renewal - epidermis level

The epidermis, the superficial layer of skin is first made of cells called keratinocytes which renew non stop according to a 21 days cycle That renewal of the epidermis is made thanks to the cell proliferation and the differentiation that keep the balance of adult tissues, therefore keratinocytes, divide at the level of the basal layer of the epidermis, which is mainly made of non differentiated cells and migrate to the surface changing their form: they lose their nuclei and load hard filaments of keratine. When they reach the cornified layer, they become corneocytes, dead cells that create a solid membran (thanks to keratine) impermeable and protective: the protective natural barrier of the epidermis. Those built up corneocytes will naturally break away and be shed. The alteration of that balance, essential to the good of tissues called homeostasis is responsible for physical changings linked to ageing: skin wilting because of the decrease of cell proliferation, lack of healing in case of wounds, loss of hair...



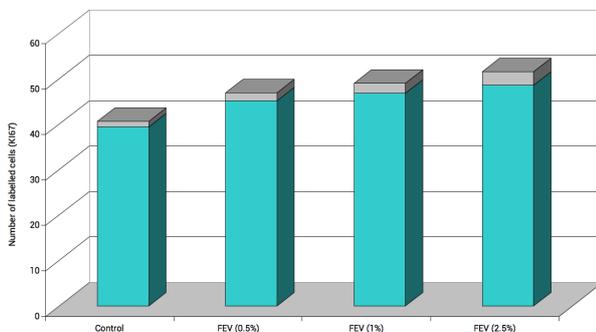
THE EPIDERMIS AND KERATINISATION PROCESS

Study of the proliferation of epidermis cells

To study the proliferation of epidermis cell, Naolys uses KI67, an anti-gene to mark cell proliferation.

Studies have been made on reconstructed epidermis.

Study of epidermis cell proliferation



Increase of KI 67

→ At concentrations of 0.5%, 1% and 2.5%, stimulation of the proliferation of keratinocytes in the basal layer for treated epidermis respectively by 15%, 19% and 23%

Study of 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.

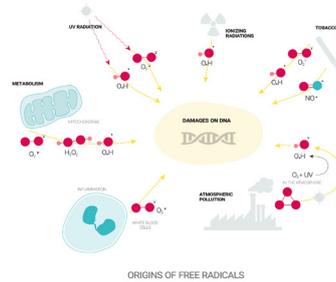
When we measure the MDA (malondialdehyde), one of the chemical products created by the chemical chain reaction induced by the free radicals, indicating of cytotoxicity by oxidative processes, then we have a good information about the anti-oxidant activity of a substance.

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

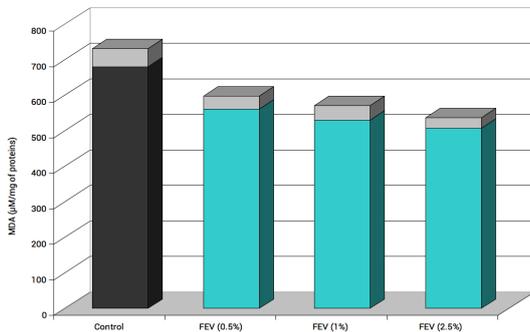
However, many situations can induce the appearance of an excess of free radicals (induced lipid peroxidation) such as intense exposition to sun, intoxication by certain chemical products, contamination by toxins, intense inflammatory reactions, etc.

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.)



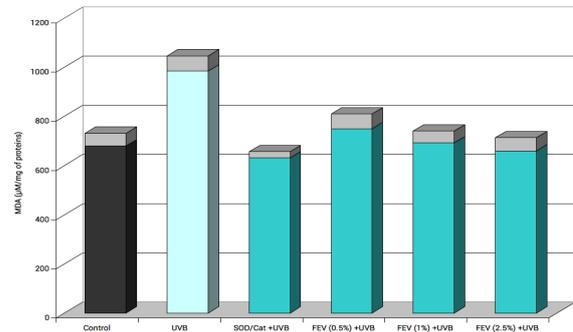
Lipid peroxidation in the physiological conditions



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 respectively by 18%, 22% and 25%

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 respectively by 24%, 30% and 33% compared to protective enzymes SOD/catalase (-36%).