Healthy Perfection (Vitis flower)²

Restructuring for a uniform skin surface





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A STORY

Vine flower sister cells: Merlot and Cabernet Sauvignon

To combat the skin imperfections that we have to deal with on a daily basis, Naolys has developed an unusual active ingredient concept: the combination of two cell strains from the same species - vines - for enhanced action due to the complementary nature of the molecules synthesized by these cells. Two strains of red grape vines, Merlot and Cabernet Sauvignon, are the varieties that are the richest in polyphenols (tannins and anthocyanins). These multifunctional molecules are synthesized by vines, and are present in very large quantities in Naolys' plant cells.



Two active plant cells

Developed to deliver the highest amount of original active molecules.

A high tech ingredient

by internal disorders.

Two cell types from the same species with complementary molecules.

A general restructuring action Repairs and protects skin affected

Because the skin suffers from various types of damage - such as broken skin or inflammation - that can profoundly change its appearance (e.g. acne, irritation, shaving cuts, ingrown hairs, dryness, etc.), it is necessary to strengthen its internal repair and protection mechanisms. For stronger, more uniform skin.



PRODUCT BENEFITS

Tone enhancer

Healing

Helps to reconstruct skin tissue.

Enhances complexion Encourages a radiant, uniform complexion.

Moisturising, anti-drying Restores moisture balance,

maintains water in the epidermal layers.

Energizing, nutritional

Strengthens oxygen supply, encourages better metabolism. Detoxifying.

Soothing

Calming, reduces inflammatory processes. Helps to reduce redness.

Protects (antioxidant and regulates skin flora)

Reduces the formation of free radicals, strengthens internal antioxidant protection. Strengthens anti-microbial defences. Re-establishes the skin's natural level of acidity.

To be used in products such as creams, oils, masks, serums, essences etc. Any cosmetic product (face and body) intended to repair and make the skin's surface uniform. All skin types, especially sensitive skin.

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Related products: PURIFY ALOE VERA | SOOTHING LIGHT APPLE TREE | HYDRASOOTHING INDIAN OLIBANUM | REVIVE SEQUOIA



HOW IT WORKS

Healthy Perfection (Vitis flower)²: repairs damaged skin



SKIN IMPERFECTIONS

Chronic and temporary skin imperfections

Whatever our skin type, we are susceptible to everyday skin problems such as seasonal dryness, blackheads and inflammation for seborrheic skin, redness for sensitive skin, small cuts during shaving for men, scars etc.

When these imperfections are not due to problems of a medical nature, they are due to multiple imbalances that cause the skin's surface structure to deteriorate: it becomes swollen, red or irregular in certain places, and basically loses its uniformity.

These imperfections may come from a lack of oxygenation, dehydration, overproduction of sebum due to bacterial infection, or some form of external threat.

Tiredness and age cause several basic cell mechanisms to slow down, such as cell respiration or micro-circulation, and therefore healing, and can also cause an intensification of inflammatory phenomena.

Although these imbalances cause changes that are visible at the skin's surface, their repair can involve numerous elements and mechanisms located in the first two layers of the skin: the epidermis and the dermis.

Healthy Perfection (Vitis flower)²: in-depth restructuring of the skin while also strengthening cellular defence mechanisms

To obtain a blemish-free skin surface, Healthy Perfection (Vitis flower)² acts in two stages: by specifically treating damage, and by strengthening the skin's natural defences.

Accelerates full repair

Healthy Perfection (Vitis flower)² first helps to complete the healing of skin damage, from the reduction of inflammation to tissue reconstruction: damage causes inflammation and redness that Healthy Perfection (Vitis flower)² will endeavour to regulate, while also helping cells to multiply and to synthesize more tissue thanks to a supply of oxygen and nutrients, and a better elimination of toxins. The cells are then able to defend themselves more efficiently.

Healthy Perfection (Vitis flower)² enables the skin to repair damage by itself more quickly.

Thanks to its broad spectrum of anti-inflammatory, energizing and protective properties, Healthy Perfection (Vitis flower)² rebalances the skin's complexion, making it smoother and more radiant.

Strengthens natural defences

To ensure better oxygenation of the cells manufacturing cell tissue, which must also defend themselves against damage due to general oxidation, it directly reduces the production of free radicals and increases the synthesis of enzymes that block their formation.

During their repair activity, the cells have to deal with bacterial and microbial attacks, since microbes and bacteria enter damaged skin more easily. Healthy Perfection (Vitis flower)² increases the production of anti-microbial peptides in the epidermis.

Finally, since the skin barrier, or hydrolipidic film, localised at the skin's surface is the the body's vital physical barrier against pathogenic agents, Healthy Perfection (Vitis flower)² helps to strengthen it by maintaining water in the epidermis for longer, while at the same time re-establishing its natural level of acidity.

Healthy Perfection (Vitis flower)² enables the skin to defend itself more effectively against environmental threats.

CLINICAL TEST RESULTS

A general reduction in imperfections after 28 days

IN VITRO TEST RESULTS

A global restructuring effect

Soothing effect

 \rightarrow Due to a decrease in the inflammation mediators: IL1-alpha by 21%, IL-6 by 20%, TNF- alpha by 19%, VEGF by 17% and TGF-beta by 17%

Nutritional and detoxifying action

→ Due to an increase in micro-circulation (22% decrease in nitric oxide)

Energizing effect

→ Due to an increase in cell respiration (release of CO_2) of 18% in physiological conditions and 22% in asphyxia conditions

Reconstructing effect

 $\rightarrow\,$ Due to an increase in neo-synthesis of collagens of 21% and of proteoglycans of $18\%\,({\rm average})$

Declaration of the panel

- \rightarrow **79%** of women reported that their skin was more radiant
- ightarrow 79% of women reported that imperfections were less visible
- → 58% of women reported that their skin felt less irritated

At a concentration of 0.5%

Regulating action on skin flora

 $\rightarrow\,$ Due to an increase in anti-microbial peptides: LL-37 by $16\%\,$ and beta defensin 2 (HBD-2) by $18\%\,$

Antioxidant effect

 $\rightarrow\,$ Due to a decrease in the creation of reactive oxygen species (ROS) induced by UVA and UVB light (28% after 3 hours)

 $\rightarrow\,$ Due to an increase in superoxide dismutase (SOD) and catalase activity

Anti-dryness effect

 $\rightarrow\,$ Due to a 35% increase in water retention in the epidermis after 30 mins, and a 23% decrease in transepidermal water loss after 60 mins

At a concentration of 0.5%

Clinical test results

Healing and rebalancing action after 28 days

Increase in skin aspects



Decrease of 31% of imperfections Decrease of 27% of brown marks Increase of 30% of skin uniformity

Study conditions:

→ Tests were carried out for 28 days on a sample of women aged 18 to 35 years-old, with combination or oily skin, with traces of acne, at least 10 lesions (blackheads or microcysts) and at least 5 inflammatory lesions (nodules, papules) and pigmentation defects (scars) → Measures by clinical scoring and pH meter

- → Application twice a day
- → Emulsion with 0.5% of Healthy Perfection (Vitis flower)² (dispersion, 20% cells)



DAY 0

Y 28

Technical information on the formulation of Healthy Perfection (Vitis flower)²

INCI name of cells

Vitis vinifera (Grape) flower cell extract (China compliant)

form cells (20%) in alv

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

concentration starting at 0.5%

dispersible in any formulation (emulsion, lotion, fluid)

Rebalancing of the skin's pH



In vitro tests results

Restructuring 1: accelerating repair while soothing

The primary task of Healthy Perfection (Vitis flower)² is to heal the lesion and/or reduce inflammation, if it is only a case of inflammation. It acts at various levels in the healing process, which takes place in three stages: reduction in general inflammation, increase in cellular activity and reconstruction of cellular tissue.

The healing process is slowed down by several factors:

- age weakens the immune system
- external threats (tobacco, pollution, etc.) can impede oxygenation
- · poor blood circulation results in a poor supply of nutritional substances for the cells engaged in the healing process

Healthy Perfection (Vitis flower)2's objective is to restore tissue continuity as quickly as possible by acting on all three of these mechanisms.



Reduction in general inflammation

The appearance of inflammation mediators

The inflammation that is triggered by the appearance of a lesion (or an overproduction of sebum) is necessary to combat bacteria in the area. During this phase, leukocytes (white blood cells) infiltrate the wound, remove "waste" (clots, damaged cells and microbes), and release growth factors and cytokines produced by cells in the epidermis. Naolys has selected several of these: the interleukins IL-6, IL1-alpha, VEGF (Vascular endothelial growth factor) and TGF-beta (Transforming Growth Factor-beta).

II-6, IL1-alpha and TNF-alpha are pro-inflammatory cytokines.

VEGF and TGF-beta stimulate the proliferation and migration of endothelial cells. TGF-beta also regulates pro-inflammatory cytokines. While this inflammation is necessary, its intensity can eventually be harmful and result in chain reactions that damage the skin. It is therefore necessary to significantly reduce this inflammation, due to the cytokines, and bring it down to a lower level, that does not pose a long-term risk. Due to its action on the inflammation mediators especially increased by lipopolysaccharids (LPS) which are a toxic important component of the external membran of gram-negative bacteria, Healthy Perfection (Vitis flower)² helps to reduce the long-term inflammation.

Study of inflammation mediators exposed to lipopolysaccharids (LPS)

In a co-culture reconstituted monocytes and epidermis





Decrease of IL-6

IL-6 (pg/ml)

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, after 24 and 30% respectively.



Decrease of TNF-alpha

TNF-alpha (pg/ml)

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, after 24 hours of incubation, TNF-alpha decreases by 19%, 26% and 30% respectively.

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, after 24 hours of incubation, IL1-alpha decreases by 21%, 27% and 32% respectively





Decrease of IL1-alpha



Decrease of VEGF

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, VEGF decreases by 17%, 24% and 34% respectively.

Decrease of TGF-beta

Control

TGF-beta (pg/ml)

→ At concentrations of 0.5%, 1% and 2.5%, TGF-beta decreases by 17%, 23% and 29% respectively.

LPS

HP(VF)² (0.5%)+LPS

HP(VF)² (1%)+LPS

HP(VF)² (2.5%)+LPS

Increase in cellular activity

Skin repair requires rapid action, and so it is vital that the cells respond as quickly as possible. To encourage their response, Healthy Perfection (Vitis flower)² helps the cells in the epidermis to function more efficiently by increasing their nutrient and oxygen supply, thereby increasing their energy production. Their activity can be slowed down by age or free radicals: this is what happens in the case of intense inflammation.

Improving the nutrient and oxygen supply

Blood microcirculation

Microcirculation is the blood circulation system within which gas exchanges (oxygen/carbon dioxide) take place. This network enables the nourishment of cells and the removal of break-down products, it also maintains blood pressure and ensures the vasomotor reactivity necessary for regulating blood flow, in addition to the usual endothelial functions (coagulation, etc.).

Naolys has verified Healthy Perfection (Vitis flower)²'s effect by testing the quantity of nitric oxide, a vasodilating gas released by fibrous cells present in the blood cells. Due to its effect on vasodilation (by reducing nitric oxide), Healthy Perfection (Vitis flower)² improves the supply of nutrients to the cells involved in the healing process.

Boosting energy production

Cell respiration

Cell respiration is an oxidation reduction reaction that provides the energy necessary for cells to function. The cells produce energy from carbohydrates, in the form of ATP, through cell respiration. Healthy Perfection (Vitis flower)²'s effect on cellular metabolism and respiration was evaluated by the metabolization of glucose by epidermal cells in hypoxic conditions, which causes this metabolization to decrease, and hence also the production of ATP. The effect of Healthy Perfection (Vitis flower)²'s activity could thus be clearly observed.

Due to its effect on respiration, Healthy Perfection (Vitis flower)² improves the energy production of the cells involved in the healing process.

Study of nitric oxide, the primary EDRF (Endothelium Derived Relaxing Factor)



Decrease of nitric oxide

→ At concentrations of 0.5%, 1% and 2.5%, after irradiation to UVB (100 mJ/cm²), decrease of nitric oxide respectively by 22%, 31% and 36% in endothelial cells treated with Healthy Perfection (Vitis flower)² before (increase of 41% of nitric oxyde in the non treated endothelial cells).

Study of cellular respiration

Released [14CO2] (cpm)

HP(VF)² (A1=0.5%; A2=1%; A3=2.5%)
HP(VF)²+Asphyxia (B1=0.5%; B2=1%; B3=2.5%)



Increase of the release of CO₂

→ At concentrations of 0.5%, 1% and 2.5%, in physiological conditions, the release of CO₂ increases by 18%, 22% and 26% respectively and, in asphixia conditions, the release of CO₂ increases by 22%, 29% and 34% respectively.

Reconstruction of skin tissue

Following a lesion in the dermis

Less than a week after the skin has been broken, it begins to fill the break by manufacturing skin tissue from fibroblasts in the dermis. These cells produce two components essential for the skin's support: collagen, the fibrous structural protein component, and proteoglycans, macro-molecules composed of a protein and a glycosaminoglycan, which attract water. Fibroblasts are nourished by amino acids released during the breakdown of the blood clot by macrophages, and use the fibrin network as a "matrix" to deposit the collagen; this is the granulation layer. Later the collagen fibres mature. The wound retracts and the granulation tissue, lacking water and blood vessels, forms scar tissue. At the end of the process, epidermal cells capable of division multiply and begin to cover the granulation tissue, starting from the edges of the wound, eventually closing the wound when this initial layer of cells has completely formed. The presence of regulated growth factors (see first part, inflammation) enables keratinocytes to multiply and enhances regeneration of the skin at the epidermal scale.

Naolys has evaluated Healthy Perfection (Vitis flower)²'s effect on the synthesis of these two essential components: collagen and proteoglycans. Due to the increase in the production of collagen and proteoglycans, Healthy Perfection (Vitis flower)² helps to accelerate the reconstruction of skin tissue.



In a co-culture fibroblasts and reconstituted epidermis







 \rightarrow At concentrations of 0.5%, 1% and 2.5%, after 72 hours of incubation, the collagens rate increases by 21%, 28% and 33% respectively.



Increase of the proteoglycan synthesis

→ At concentrations of 0.5%, 1% and 2.5%, after 72 hours of incubation, the peri-membran proteoglycans rate increases by 18%, 27% and 30%, the transmembran proteoglycans rate increases by 16%, 23% and 26% and the matricial proteoglycans rate increases by 21%, 26% and 34% respectively.

Restructuration 2: strengthening cellular defence

To ensure better defence of the epidermal cells, thereby enhancing their operation and preventing new inflammation and lesions, Healthy Perfection (Vitis flower)² works to strengthen the natural defences of the cells affected by both internal attacks (physiological lipid peroxidation, in particular from oxygenation) and external attacks (light radiation, bacteria and other microbes entering through wounds). And also to restore a good skin barrier: a well-balanced physical line of defence.

Strengthening anti-oxidant defences

Free radicals

The production of free radicals is twofold: endogenous (metabolism, stress, intense inflammatory reactions, etc.) and exogenous (exposure to light or chemicals, pollution, etc.). However, the production of free radicals attacks our skin in different ways: oxidizing cell membranes (lipid peroxidation), and proteins generally, ultimately damaging the cell DNA.

Because the healing process and inflammatory responses lead to increased production of free radicals that destroy cells in the long term, Naolys decided to verify Healthy Perfection (Vitis flower)²'s activity in terms of the overall production free radicals, and also its action on the two main antioxidant enzymes: SOD (superoxide dismutase) and catalase, SOD accelerates the transformation of superoxide ions into hydrogen peroxide which catalase then converts into water and oxygen, thereby preventing the formation of carbon dioxide in the blood and also the formation of toxins and mutations in the DNA.

Due to its direct and indirect antioxidant action on free radicals, Healthy Perfection (Vitis flower)² strengthens the skin's natural antioxidant defences.



Decrease of total ROS

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the reactive oxygenated species (ROS) after 30 min of irradiation of the keratinocytes treated with Healthy Perfection (Vitis flower)² before, respectively by 20%, 26% and 29% and, after 3 hours of irradiation of 28%, 31% and 36%, compared to the non treated control.



Increase of SOD activity

→ At concentrations of 0.5%, 1% and 2.5%, after irradiation of the keratinocytes treated with Healthy Perfection (Vitis flower)² before, increase of the SOD activity respectively by 20%, 24% and 30% after 30 min, and of 17%, 20% and 25%, after 3 hours compared to the non treated control.



THE CELLULAR ANTIOXIDANT SYSTEM

Study of catalase activity Induction by UVA/UVB



Increase of catalase activity

→ At concentrations of 0.5%, 1% and 2.5%, after irradiation of the keratinocytes treated with Healthy Perfection (Vitis flower)² before, increase of the catalase activity respectively by 23%, 26% and 33% after 30 min, and of 20%, 23% and 28%, after 3 hours compared to the non treated control.

Strengthening the chemical (anti-microbial) barrier



THE CHEMICAL SKIN BARRIER

Anti-microbial peptides in the chemical skin barrier

While a strengthening of the water balance (see next paragraph) enhances the physical skin barrier, there is a "chemical" barrier alongside this physical barrier, constituted of antibiotic peptides capable of controlling bacterial growth in the skin layers, and if necessary combating infections. They are expressed in the epidermis, either in the outermost zones, and stored in the corneous layer, or deeper in the living part of the skin.

Naolys has selected two major anti-microbial peptides in the skin: Beta defensin 2 and LL-37.

Study of anti-microbial peptides (AMP)

Beta defensin 2 (HBD-2)

Beta defensin 2 (HBD-2) is a peptide, and is the first human defensin produced by epithelial cells stimulated by contact with microorganisms or cytokines such as TNF-alpha and IL1-alpha. The HBD-2 gene and protein are expressed locally in keratinocytes associated with skin lesions for example. It is active against candida and gram-negative bacteria.

hCAP-18/LL-37

LL-37 is a peptide produced by the proteolysis of hCAP-18 (human cathelicidin antimicrobial protein), a protein that is not expressed in healthy skin but induced in the keratinocytes found in inflamed areas of skin. Once released from hCAP18, LL-37 has a rapid action. It has broad-spectrum antibacterial properties (especially against staphylococcus aureus).

Due to the increase in the release of AMPs, Healthy Perfection (Vitis flower)² strengthens the chemical skin barrier.

Study of beta defensin 2 (HBD-2)



Increase of beta defensin 2 (HBD-2)

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, in physiological conditions, beta defensin 2 (HBD-2) increases significantly by 18%, 23% and 27% respectively.





Increase of LL-37

 \rightarrow At concentrations of 0.5%, 1% and 2.5%, in physiological conditions, LL-37 increases significantly by 16%, 20% and 24% respectively.

Strengthens the physical cutaneous barrier

Hydration of the hydrolipidic film

Strengthening the skin barrier is Healthy Perfection (Vitis flower)²'s third line of action This involves strengthening the physical shield against external attacks after the implementation of chemical defences during the healing or inflammation reduction processes.

In the corneous layer, the epidermis consists of corneocytes (full of keratin and substances that enable the fixing of water), fat (phospholipids from the differentiation of keratinocytes) and water. Together, these lipids and water form the hydrolipidic film, which is part of this natural skin barrier, because it helps to ensure the uniformity of the skin's surface.

If the skin lacks water, it may produce excess sebum, known as reactional seborrhoea, which can then result in blackheads, inflammation, etc. Due to an increase in the skin's water reservoir and a decrease in transepidermal loss, Healthy Perfection (Vitis flower)² restores water balance, re-establishing a high-quality skin barrier and helping to reduce excessive production of sebum.



HYDRATION (TRANSEPIDERMAL WATER LOSS AND WATER IN THE EPIDERMIS)



Study of retained water - epidermis

Study of the dynamic water (TEWL or transepidermal water loss) – epidermis



Increase of water retention

→ At concentrations of 0.5%, 1% and 2.5%, increase of water retention in the dehydrated epidermis at T0+15 min respectively by 27%, 31% and 34%, and at T0+30 min, respectively by 35%, 38% and 42% compared to non treated controls.

Decrease of the trans-epidermic transfer of the treated water

→ At concentrations of 0.5%, 1% and 2.5%, decrease of the trans-epidermic transfer of the treated water [$^{\circ}$ H]-H₂O, at T0+15 min respectively by 33%, 35% and 39% and, at T0+30 min, respectively by 29%, 31% and 35% and, at T0+60 min 23%, 26% and 29% compared to non treated controls.



See also

Essential Being Egyptian blue lily Essential Being Indian jasmine First Light Snow lotus First Light Strawberry tree Full Detox Eucalyptus Full Detox Ylang Ylang Pure Light Chinese peony Purify Aloe vera Purify Apothecary's rose Purify White water lily Refine Ginger Unwind Sacred lotus

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