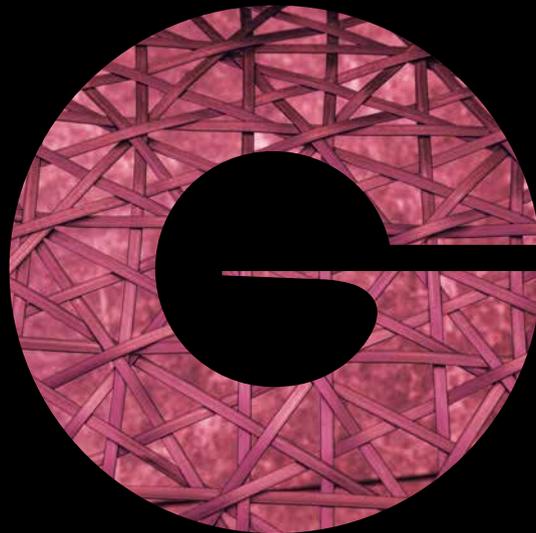


Active Beauty
Unilucent™ HR-14
Bioactivation of skin radiance and firmness

Crafted by green technology



Focus on the product

Radiance: defined by the optical properties of the skin

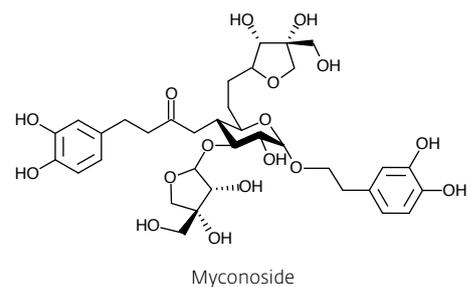
Different skin structures determine the skin's optical properties. Parts of the incident light are diffused and reflected on the skin's surface. One part is absorbed, whereas other parts penetrate the skin and are diffused and reflected by various structures, e.g. melanin pigments in the epidermis or fibres in the extracellular matrix (ECM) of the dermis such as elastin and collagen. The way the light is diffused on the skin surface and in the deeper layers determines whether skin appears radiant or dull.

Skin loses its radiance over time...

The natural ageing process as well as external factors such as UV radiation, air conditioning, unbalanced diet or insufficient sleep, can diminish important skin functions. These reduce the skin's antioxidant capacity or the synthesis of ECM proteins, while the activity of ECM degrading enzymes is increased. As a result, skin texture is weakened, skin loses elasticity and its natural radiance. There is a need for protection of the structures and for stimulation of the renewal mechanisms in order to maintain skin functionality and skin radiance.

Unilucent™ HR-14: a scientific discovery coming from the “resurrection plant”...

Unilucent™ HR-14 is based on *Haberlea Rhodopensis*, a so called resurrection plant, meaning that it is able to survive total water loss for several years. Once watered, *Haberlea Rhodopensis* will rehydrate and resume complete functionality within a short time. This survival strategy is based on the plant's ability to protect its vital functions by accumulating key molecules during its life. Unilucent™ HR-14 is an *Haberlea Rhodopensis* extract that is extremely rich in a unique compound : myconoside, a polyphenol glucoside with outstanding antioxidant properties.



... to recover youthful radiance by waking up genes of firmness

Unilucent™ HR-14 has proven its ability to maintain the fibroblast activity even under oxidative stress, by stimulating genes synthesis of elastin and other ECM markers (collagen VI, collagen XVI, MTI-MMP) in senescent fibroblasts. Furthermore, it prevents UV-induced protein oxidation in the dermis. An in vivo study on 20 subjects showed a significant increase in skin elasticity and also in skin radiance compared to placebo in only two weeks.

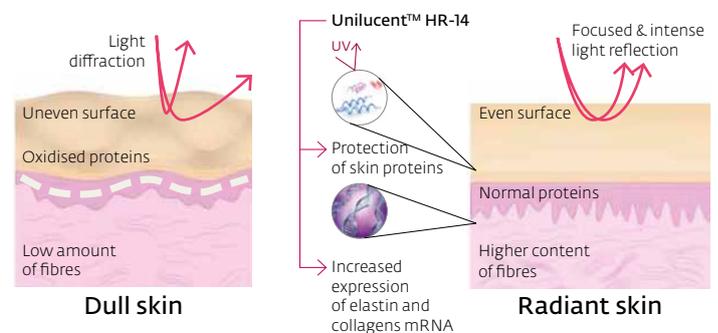
Biological activity

Mechanism - Dual Mode of Action

Natural ageing and harmful external factors lead to a reduced antioxidant capacity and an excessive release of degrading proteinases, so called Matrixmetalloproteinases (MMPs). Oxidation and enzymatic degradation of the dermis proteins will therefore damage the skin structure. Moreover, the fibroblast activity is diminished, so the resynthesis of the important dermis components, like collagen and elastin is impaired as well. The natural system of synthesis and degradation is thus out of balance and this results in a weakened skin texture and loss of radiance.

Unilucent™ HR-14 acts on two levels:

- ▶ Stimulation of the dermis genes expression, particularly elastin and three other ECM markers (collagen VI, collagen XVI, MTI-MMP), even under stressed conditions
- ▶ Protection of the dermis proteins from oxidation

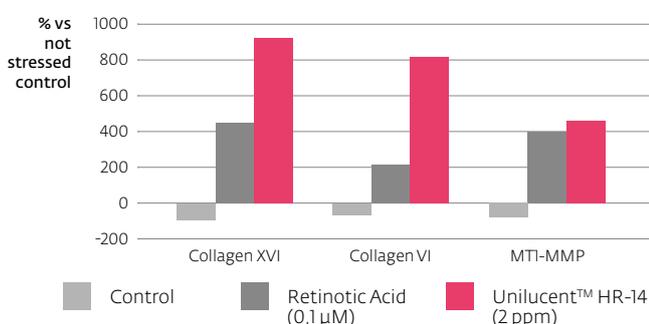


Stimulation of expression of firmness genes (*in vitro* tests)

Unilucent™ HR-14 was tested for its ability to stimulate elastin, collagen VI, collagen XVI and MTI-MMP mRNA synthesis in normal human dermal fibroblasts stressed with H₂O₂. It was compared to retinol or retinoic acid as a benchmark.

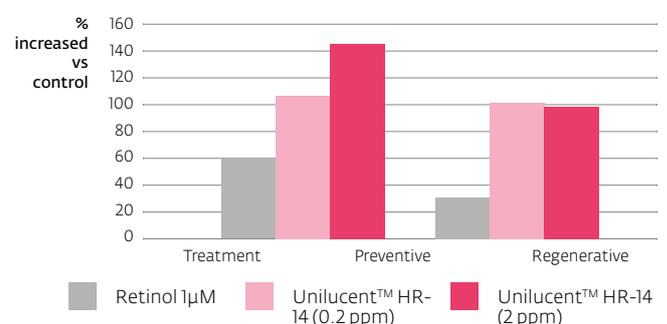
Preventive protocol: pre-incubation with tested compounds before stress and ageing phase, re-seeding, and post treatment with tested compounds (on elastin and ECM markers genes expression tests). Regenerative protocol: stress and ageing phase, re-seeding, post-treatment with tested compounds (on elastin gene expression test).

ECM markers mRNA in H₂O₂ stressed fibroblasts



Results: Unilucent™ HR-14 stimulates collagen XVI, collagen VI and MTI-MMP mRNA synthesis in the presence of oxidative stress (preventive activity). This activity was superior to retinoic acid for each marker.

Elastin mRNA synthesis in H₂O₂ stressed fibroblasts



Results: Unilucent™ HR-14 stimulates elastin mRNA synthesis in the presence of oxidative stress (preventive activity) and also after the stress phase (regenerating activity). Both activities were superior to retinol.

Additionally, an increase of +69%* of pro-collagen 1 release in H₂O₂ aged fibroblasts was measured with 200ppm of Unilucent™ HR-14 versus control conditions.

*p<0.05 compared to control, Student's t Test

Efficacy

Protection from dermal protein oxidation (*ex vivo* evaluation)

Unilucent™ HR-14 was tested for its ability to protect dermal proteins in human skin explants from UV-induced oxidation. It was compared to a non-irradiated and to a non-treated control.

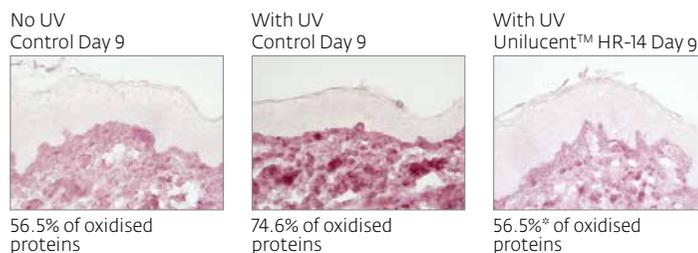
Full thickness skin explants were treated with 3% Unilucent™ HR-14 or saline (control) solutions for 2 h/day for 8 consecutive days. On day 5 UV irradiation was conducted 2 hours after treatment. Samples were taken on day 6 and day 9, they were assessed for the oxidative damage to proteins by immunostaining and digital image analysis (Olympus Cell^D software).

Results: Unilucent™ HR-14 significantly reduces UV-induced dermis protein oxidation.

Interestingly, the UV-induced oxidation increase was completely eliminated in the explants treated with Unilucent™ HR-14.

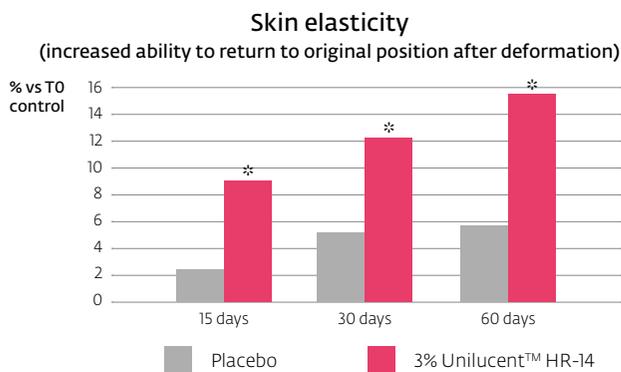
*p<0.01 compared to irradiated control, Student's t Test

Protein oxidation in UV-irradiated dermis (result given in % area with oxidised proteins)

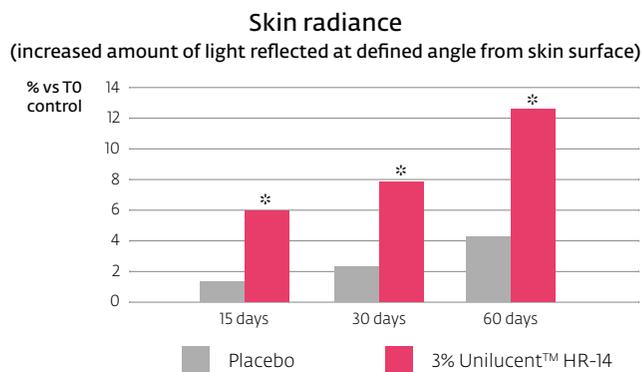


Increase in skin elasticity and skin radiance (clinical efficacy)

To check the efficiency of firmness genes expression increase and protein oxidation prevention under UV stress, a complete clinical test was performed. A cream containing 3% Unilucent™ HR-14 was compared to placebo in a double-blind study on 20 human volunteers. The products were applied twice per day for 60 days on either half of the face. Skin elasticity (Cutometer) and skin radiance (Spectrophotometer) were evaluated after 15, 30 and 60 days.



*p<0.01 compared to irradiated control, Student's t Test



*p<0.05 compared to placebo, Student's t Test

Results: Unilucent™ HR-14 significantly increases both skin elasticity (+9%) and skin radiance (+6%) already after 15 days. This further improves after 60 days, +15% in skin elasticity and +13% in skin radiance.

Summary



Technical information

INCI:	Water (and) Haberlea Rhodopensis Leaf Extract
Origin:	Plant extract
Certification:	Cosmos approved
Preservation:	Preserved with Benzyl Alcohol and Dehydroacetic Acid
Appearance:	Clear to slightly opalescent, yellowish liquid
Solubility:	Water soluble
Dosage:	1-3%
Processing:	Can be added at the end of the formulation process under stirring or homogenising or can be heated for a short time with the water phase of a formulation. Formulate at pH between 5.5 and 6.5 and temperature below 40°C

Claims

Claims:	Radiance enhancing, restructuring, firming, protecting from environmental stress
Applications:	Anti-ageing skin care products, mature skin care, face/neck/body sculpting, eye contour, sun/after sun care, hand creams, skin radiance products, brightening products (in combination with other actives)

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