



PRODUCT, DESCRIPTION AND EVIDENCE

REFERENCE: FS8-5

PUBLISH DATE: 09/08/2023

REPLENISH

This gel serum is specifically formulated for women managing the change and its effect on their skin such as redness, irritation and sensitivity as well as increased laxity, dryness and dullness. Combining ingredients such as Albatrellus Confluens (mushroom) and extract Chinese Hickory extract and which act to reduce skin sensitivity and skin redness. This potent age-defying serum also contains three peptides that promote the formation of new collagen and elastin in addition to supporting the skin's barrier to further reduce skin sensitivity, whilst helping to reduce the effect of elastase which can contribute to a loss in skin firmness at this time.

KEY BENEFITS

- Reduces skin discomfort by up to 100%
- Reduces skin redness by up to 90%
- Skin appears up to 16% smoother
- 25% improved appearance in skin elasticity
- Reduces the appearance of wrinkles by up to 39%
- Skin appears brighter and plumper
- Reduces microcirculation by up to 135%
- Inhibits elastase activity by 44%
- Increases collagen synthesis by up to 89%
- Improves the signs of dry skin by 20%
- Supports skin barrier function
- 24% reduction in skin redness
- Soothes red, irritated skin
- Increases collagen type synthesis by 36%
- Long-lasting skin hydration up to 72 hours
- Reduces the appearance of blemishes
- Stimulates elastin production by up to 94%
- Inhibits elastin glycation by 83%
- 23% reduction in wrinkle intensity
- Smooths the appearance of crow's feet by 9.5%

DIRECTIONS FOR USE

WARNINGS

For external use only. Avoid contact with eyes. If this occurs wash affected area thoroughly with water. If irritation occurs, discontinue use. Store this product below 40°C.

INGREDIENTS

Aqua, Glycerin, Aloe Barbadensis Leaf Extract, Propanediol, Silica, Sodium Acrylates Copolymer, Citrus Aurantium Dulcis Flower Extract, Punica Granatum Extract, Panthenol, Tocopherol, Saccharide Isomerate, Helianthus Annuus Seed Oil, Caprylic/Capric Triglyceride, Leuconostoc/Radish Root Ferment Filtrate, Engelhardtia Chrysolepis Leaf Extract, Piperonyl Glucoside, Albatrellus Confluens Extract, Palmitoyl Tripeptide-1, Palmitoyl Tetrapeptide-7, Sh-Oligopeptide-1, Lecithin, Butylene Glycol, Titanium Dioxide/Ci 77891, Pentylene Glycol, Pistacia, Lentiscus Gum, Sodium Lactate, Carbomer, Polysorbate 20, Pantolactone, Glyceryl Caprylate, Phenoxyethanol, Ethylhexylglycerin, Citric Acid, Sodium Benzoate, Potassium Sorbate, Ci 77491, Sodium Citrate, Mannitol.

ACTIVE INGREDIENTS

Palmitoyl Tripeptide-1 3mg*

Palmitoyl Tetrapeptide-7 1.5mg*

Sh-Oligopeptide-1 0.05mg*

Albatrellus Confluens (Mushroom) Extract 300mg*
 Citrus Aurantium Dulcis Flower Extract 1%
 Punica Granatum Extract 1%
 Saccharide Isomerate 0.6%
 Piperonyl Glucoside 320mg*
 Sodium Lactate 300mg*
 Panthenol 0.75%
 Engelhardtia Chrysolepis (Chinese Hickory) Leaf Extract 360mg*
 Aloe Barbadensis Leaf Extract 3.25%
 Leuconostoc/Radish Root Ferment Filtrate 800mg*
 Tocopherol 0.7%

PALMITOYL TRIPEPTIDE-1- & PALMITOYL TETRAPEPTIDE-7

Ingredient Claims:

Decreased wrinkle depth by up to 19.9%	Upregulates collagen synthesis for firmer, more elastic looking skin
Decreased wrinkle density by up to 32.9%	16% improvement in skin complexion
Skin appears up to 16% smoother	15.5% improvement in skin tone

A blend of two peptides: Palmitoyl Tripeptide-1 and Palmitoyl Tetrapeptide-7. Peptides are short chains of amino acids that can have various benefits for the skin. Peptide can benefit the skin in several ways, such as:

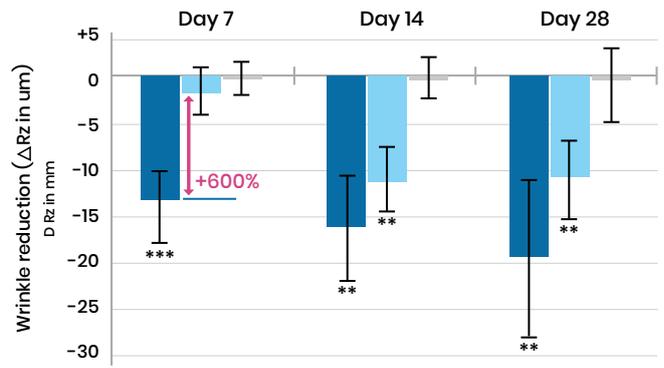
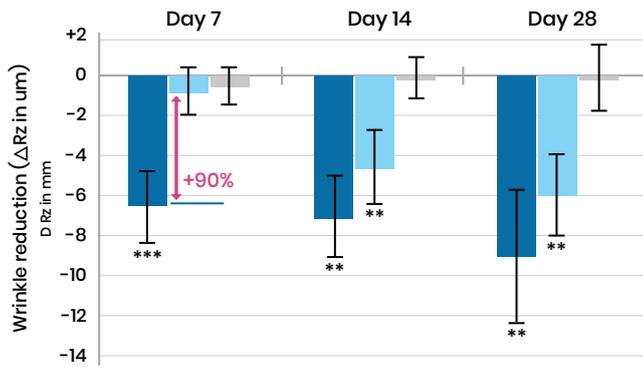
- Stimulate collagen production: Collagen is a protein that gives the skin its elasticity and firmness. Peptides can stimulate the production of collagen, which can help improve the appearance of fine lines and wrinkles and make the skin look more youthful.
- Improve skin texture: Peptides can also improve the texture of the skin by increasing its thickness and density. This can help reduce the appearance of fine lines, wrinkles, and other signs of ageing.
- Boost skin hydration: Peptides can help boost skin hydration levels by improving the skin's ability to retain moisture. This can help keep the skin soft, supple, and plump.
- Enhance skin elasticity: Peptides can also help enhance the skin's elasticity, which can help prevent sagging and improve the overall appearance of the skin.
- Reduce inflammation: Peptides can have anti-inflammatory properties, which can help reduce redness, irritation, and other signs of inflammation in the skin.

A blind, randomised clinical study with 28 volunteers twice daily applying cream including the active compound to half their face and one of their forearms and a placebo cream to the other half of the face and other forearm confirmed anti-wrinkle efficacy, reduction of wrinkle depth, volume and density, skin roughness and complexity, as well as a decrease of the area occupied by deep wrinkles, and an increase in skin tone.

Comparison of the effects of Palmitoyl Tripeptides vs. placebo after 56 days (2 months)

Parameters	Palmitoyl Tripeptides	Placebo
% area occupied by wrinkles > 200 um	-39.4**	4.3 ^{n.s.}
Wrinkle density	-32.9**	-9.9 ^{n.s.}
Roughness	-16.0**	-1.4 ^{n.s.}
Complexity	-16.2**	-4.2 ^{n.s.}
Mean volume of a main wrinkle	-23.3**	-8.7*
Mean depth of a main wrinkle	-19.9**	-3.2 ^{n.s.}

n.s.: non-significant
 *: significant (p < 0.05)
 **: highly significant (p < 0.01)



Significant effects compared to benchmark and placebo and day 0

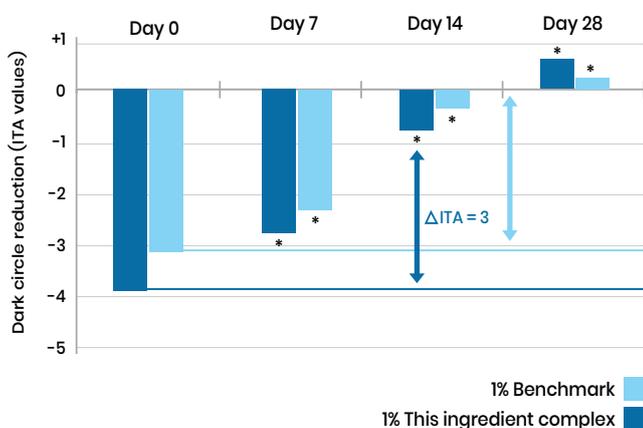
**vs. day 0 & Placebo
 ***vs. day 0, Benchmark & Placebo p<0.05

Placebo █
 1% Benchmark █
 1% This ingredient complex █

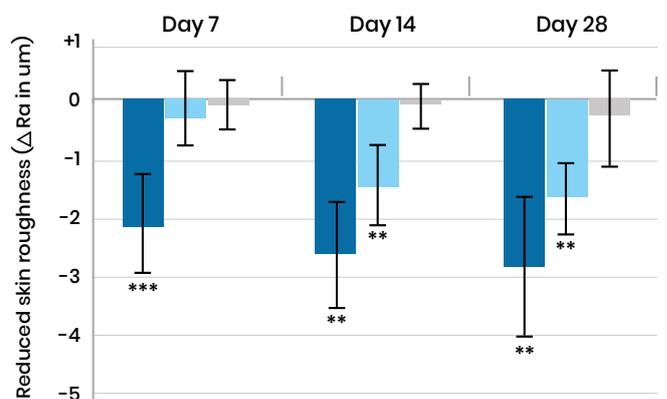
Repair of the papillary dermis

28 female volunteers aged from 51 to 72 years, mean age 59. Twice daily application of cream containing 3% of Palmitoyl Tripeptides for 2 months to one half of the face and the forearm (inner and UV-exposed outer forearm) against placebo.

after 2 months	Inner Forearm	Outer Forearm
THICKNESS	-9.8%/TO up to -23%, p<0.01	-9.8%/TO up to -33%, p<0.01
	93% volunteers	86% volunteers
	-11%/placebo, p<0.01	-14.4%/placebo, p<0.01
DENSITY	+11.4%/TO up to +44%, p<0.01	+11.5%/TO up to +45%, p<0.01
	68% volunteers	82% volunteers
	+15.2%/placebo, p<0.01	+15.1%/placebo, p<0.01
AGE GAIN	-3.8 YEARS	-5.5 YEARS



Significant compared to benchmark and placebo



**vs. day 0 & Placebo
 ***vs. day 0, Benchmark & Placebo p<0.05

Placebo █
 1% Benchmark █
 1% This ingredient complex █

**Variation in DEJ macromolecules/papillary dermis with age;
effect of **Palmitoyl Tripeptides** on these components 5 days after topical application**

	Collagen I	Collagen IV	Collagen VII	Collagen XVII	Nidogen-1
Variation with age (in %)	(↓)-8%; p<0.2	(↓)-11%; p<0.05	(↓)-17%; p<0.01	(↓)-31%; p<0.01	(↓)-15%; p<0.01
Placebo (AFU)	20.80 + 4.02	10.51 + 2.95	12.56 + 2.01	4.64 + 1.05	5.09 + 2.55
Palmitoyl Tripeptides 3% (AFU)	23.79 + 2.96	11.18 + 2.28	14.99 + 3.75	5.37 + 2.29	5.83 + 4.04
Variation (%) vs. placebo	(↑)+14.40%; p<0.01	(↑)+6.4%; p<0.05	(↑)+20.30%; p<0.01	(↑)+15.84%; p<0.01	(↑)+14.49%; p<0.01

AFU: Arbitrary Fluorescence Unit; (↑) = increase (↓) = decrease

After 2 months of daily application of Palmitoyl Tripeptides, the following points were observed:

- reduction in the mean depth of the main wrinkle (-19.9%) and in its volume (-23.3%).
- reduction in roughness (-16%) and complexity (-16.2%), a surface “lifting” parameter.
- decrease in the area occupied by deep wrinkles (>200 µm) (-44%), giving rise to a decrease in density (-32.9%).
- increase in skin tone (+15.5%).

A blind, randomised clinical study with 28 volunteers twice daily applying cream including the active compound to half their face and one of their forearms and a placebo cream to the other half of the face and other forearm confirmed anti-wrinkle efficacy, reduction of wrinkle depth, volume and density, skin roughness and complexity, as well as a decrease of the area occupied by deep wrinkles, and an increase in skin tone.

Links:

<https://www.mdpi.com/2079-9284/4/2/16#B16-cosmetics-04-00016>

[Data on file](#)

PALMITOYL TRIPEPTIDE-1

The various forms of peptides act upon collagen found in the body and particularly the skin. The most abundant form of collagen in the body is type collagen I, which is the collagen primarily responsible for repairing the skin. Collagen type III is found alongside collagen type I and works much in the same way, though it is not as tough as collagen I.

Palmitoyl

Tripeptide-1 mimics the relationship between the growth factors involved in the skin’s healing process and the production of collagen. Essentially, Palmitoyl Tripeptide-1 tricks the skin into producing more collagen to repair the skin, improve elasticity and

minimise the appearance of fine lines and wrinkles. Palmitoyl Tripeptide-1 is a powerful skincare ingredient to combat aging, but like most skincare ingredients it works more effectively when used in combination with other anti-ageing peptide ingredients. When used as part of a good skin-care routine, Palmitoyl Tripeptide-1 can help skin repair damage by stimulating collagen production. The result is younger, smoother and stronger skin.

In a study with 15 women, a cream containing palmitoyl tripeptide-1 was applied twice daily for four weeks, leading to statistically significant reductions in wrinkle length, depth and skin roughness. Another study applied both vehicle and palmitoyl tripeptide-1 to the skin of 23 healthy female volunteers for four weeks.

Sources

<https://www.mdpi.com/2079-9284/4/2/16/html>

https://farma.com.ro/articles/2021.3-4/RJPhP_2021_3-4_Art-01.pdf

<https://pubmed.ncbi.nlm.nih.gov/18503476/>

PALMITOYL TETRAPEPTIDE-7

Palmitoyl Tetrapeptide-7 (It was also formerly known and marketed as Palmitoyl Tetrapeptide-3. Palmitoyl Tetrapeptide-7 consists of a short chain of four amino acids (a.k.a. GQPR peptide or glycineglutamineproline-arginine) connected to palmitic acid.

Palmitic Acid is a fatty acid added to improve the peptide's oil solubility and thus skin penetration. Palmitoyl Tetrapeptide-7 serves as an anti-inflammatory after exposure to UVB-irradiation. In vivo reflectance confocal microscopy studies indicated that a blend of Palmitoyl Oligopeptide and Palmitoyl Tetrapeptide-7 enhanced the extracellular matrix structure compared to placebo. Sixty healthy photoaged volunteers were tested over 12 months with a formulation containing Palmitoyl Tetrapeptide-7. A reduction of facial wrinkles was documented by this long-term use.

Palmitoyl Tetrapeptide-7 used in conjunction with Palmitoyl-Oligopeptide. They can boost the growth of the connective tissues and naturally increasing the production of collagen in the skin; when the production of collagen is increased, the skin can heal and rejuvenate itself.

It serves as an anti-inflammatory after exposure to UVB-irradiation. In vivo reflectance confocal microscopy studies indicated that a blend of palmitoyl oligopeptide and palmitoyl tetrapeptide-7 enhanced the extracellular matrix structure compared to placebo.

A reduction of facial wrinkles was documented by this long-term use. Better skin appearance was related to the deposition of fibrillin-rich microfibrils in the papillary dermis of treated skin.

Sources

<https://pubmed.ncbi.nlm.nih.gov/25817264/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4950680/>

<https://pubmed.ncbi.nlm.nih.gov/19438432/>

SH-OLIGOPEPTIDE-1

Ingredient Claims:

Improves skin elasticity by 25%	Strengthens skin barrier
Reduces the appearance of wrinkles	Stimulates fibroblasts
Accelerates skin repair	Reduces appearance of scars

Sh-Oligopeptide-1, also known as Synthetic Human Epidermal Growth Factor (EGF), is a synthetic version of the naturally occurring EGF. Sh-Oligopeptide-1 is identical to EGF. A trace amount of EGF can strongly promote skin cell division and growth, and it can also stimulate the synthesis and secretion of extracellular macromolecules (such as hyaluronic acid and glycoproteins).

Sh-Oligopeptide-1 provides a number of skincare benefits, such as:

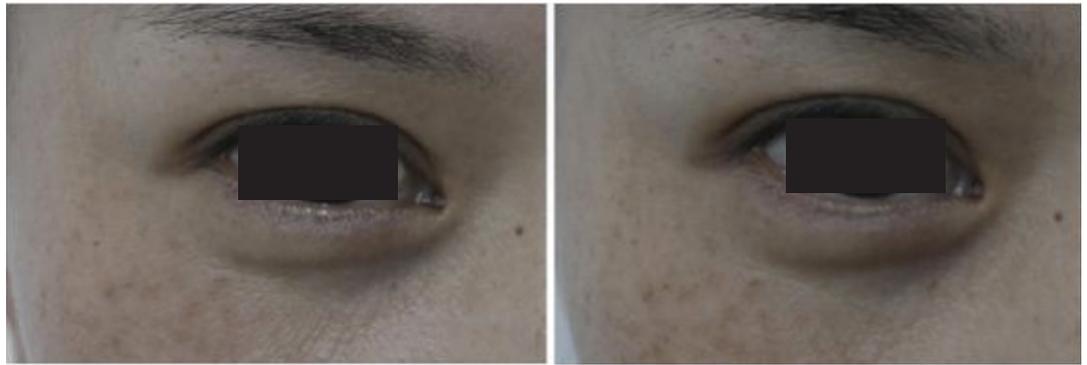
- Promoting dermis fibroblasts, increasing skin elasticity.
- Promotes cell regeneration, leaving skin smooth and delicate, and reduce wrinkles.
- Strengthens the skin barrier against external harmful substances.
- Speeds up the repair process, including sun repair after acne repair (prevents scar formation).
- Microcirculation, promotes metabolic waste, reduce lipofuscin deposition and improves fading of scars.

Serum containing 0.2% Sh-Oligopeptide-1. The serum was used in the corner of the eyes twice a day for 8 weeks.

Before Treatment

After Treatment

Volunteer A



Volunteer B



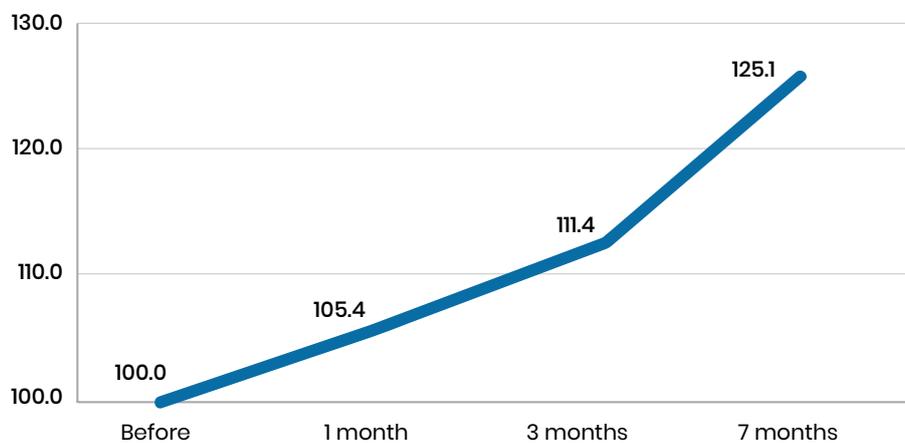
Serum containing 0.2% Sh-Oligopeptide-1. The serum was used around the eyes twice a day for 12 weeks.

Before Treatment

After Treatment



Skin Elasticity Improvement



Links:

<https://pubmed.ncbi.nlm.nih.gov/23819985/>

<https://pubmed.ncbi.nlm.nih.gov/30300691/>

<https://pubmed.ncbi.nlm.nih.gov/27109378/>

ALBATRELLUS CONFLUENS (MUSHROOM) EXTRACT

Ingredient Claims:

Protects the skin from oxidative damage	Calms irritated skin
Hydrates and plumps the skin	Reduces appearance of fine lines and wrinkles
Skin appears brighter and smoother	

Albatrellus Confluens extract is derived from a type of mushroom that grows in northern Europe and Asia. While there is limited research on the specific skin benefits of Albatrellus Confluens extract, mushrooms in general are known to contain a variety of bioactive compounds that can have beneficial effects on the skin. Some of the potential skin benefits of Albatrellus Confluens extract include:

- **Antioxidant properties:** Mushrooms contain high levels of antioxidants, which can help to protect the skin against damage from free radicals and environmental stressors. This can help to prevent premature aging, wrinkles, and other signs of skin damage.
- **Anti-inflammatory properties:** Albatrellus Confluens extract may have anti-inflammatory properties, which can help to soothe and calm irritated or inflamed skin. This can be particularly beneficial for those with sensitive or acne-prone skin.
- **Hydration:** Mushrooms are known to contain polysaccharides, which can help to hydrate and plump the skin. This can help to reduce the appearance of fine lines and wrinkles and leave the skin looking smoother and more radiant.
- **Brightening:** Some mushrooms contain natural skin-brightening compounds, such as kojic acid, which can help to fade dark spots and hyperpigmentation. This can help to even out the skin tone and improve the overall appearance of the skin.

Links:

https://hero.epa.gov/hero/index.cfm/reference/details/reference_id/8311608

<https://www.mathewsopenaccess.com/full-text/anti-melanoma-agents-derived-from-fungal-species>

https://www.researchgate.net/publication/247819987_Studies_on_Chemical_Components_of_Mushroom_Part_II_Tyrosinase_Inhibitors_from_Albatrellus_confluens

<https://annalsmicrobiology.biomedcentral.com/articles/10.1007/s13213-017-1261-7>

CITRUS AURANTIUM DULCIS FLOWER EXTRACT (SWEET ORANGE EXTRACT)

Ingredient Claims:

Skin lifting effect of up to 17.2%	Reduces appearance of wrinkles by up to 39%
Increases type I collagen synthesis by up to 89%	6% improvement in skin smoothness
Stimulates skin renewal by 50%	Protects the skin from oxidative damage
Soothes inflamed skin	

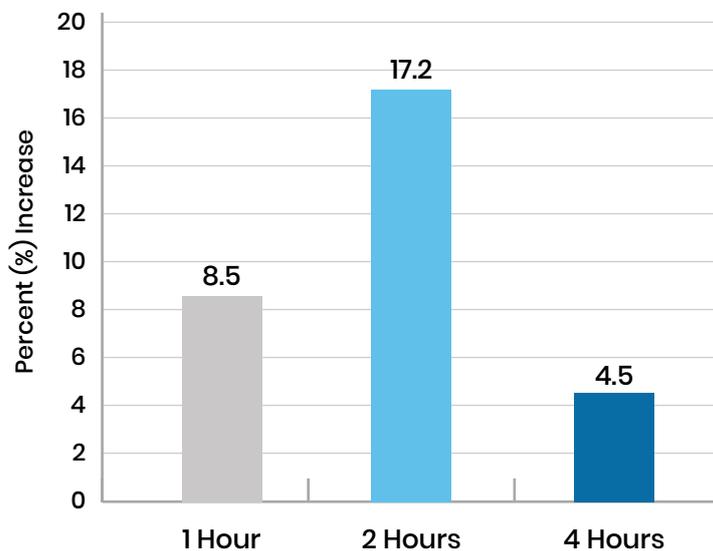
Sweet orange extract is derived from the peels of the Citrus sinensis fruit, which is a type of citrus fruit. It contains a variety of bioactive compounds that can have beneficial effects on the skin. The low molecular weight of sweet orange extract allows for maximum efficacy for deeply nurtured cells, bringing the following benefits:

- Stimulate the proliferation of fibroblasts.
- Increase cellular propagation and metabolism.

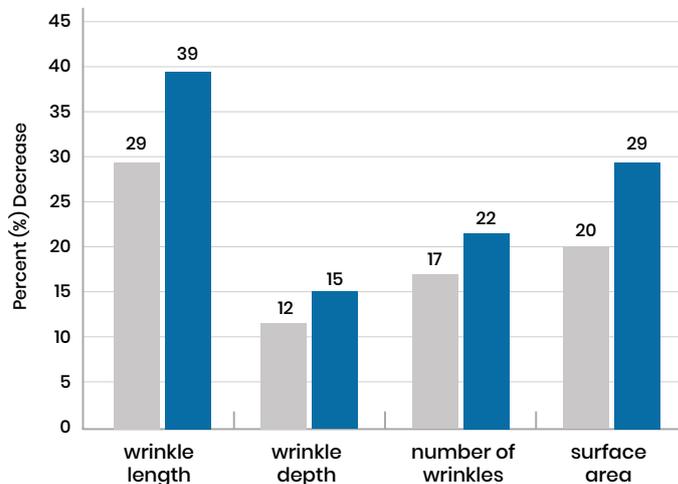
- **Antioxidant properties:** Sweet orange extract is rich in vitamin C, which is a powerful antioxidant. Antioxidants can help to protect the skin against damage from free radicals and environmental stressors, which can lead to premature aging, wrinkles, and other signs of skin damage.
- **Skin brightening:** Vitamin C is also known to have skin-brightening properties. It can help to reduce the appearance of dark spots and hyperpigmentation, leaving the skin looking brighter and more even toned.
- **Anti-inflammatory properties:** Sweet orange extract may have anti-inflammatory properties, which can help to soothe and calm irritated or inflamed skin. This can be particularly beneficial for those with sensitive or acne-prone skin.
- **Hydration:** Sweet orange extract is also rich in natural sugars, which can help to hydrate and plump the skin. This can help to reduce the appearance of fine lines and wrinkles, leaving the skin looking smoother and more youthful.
- **Aromatherapy benefits:** In addition to its potential skin benefits, sweet orange extract is also known for its uplifting and energising scent. It can help to reduce stress and anxiety and promote a sense of well-being.

13 volunteers aged between 34 and 67 years old trialed a cream containing 1% Sweet Orange extract.

In-vivo Skin Lifting Durability Assay



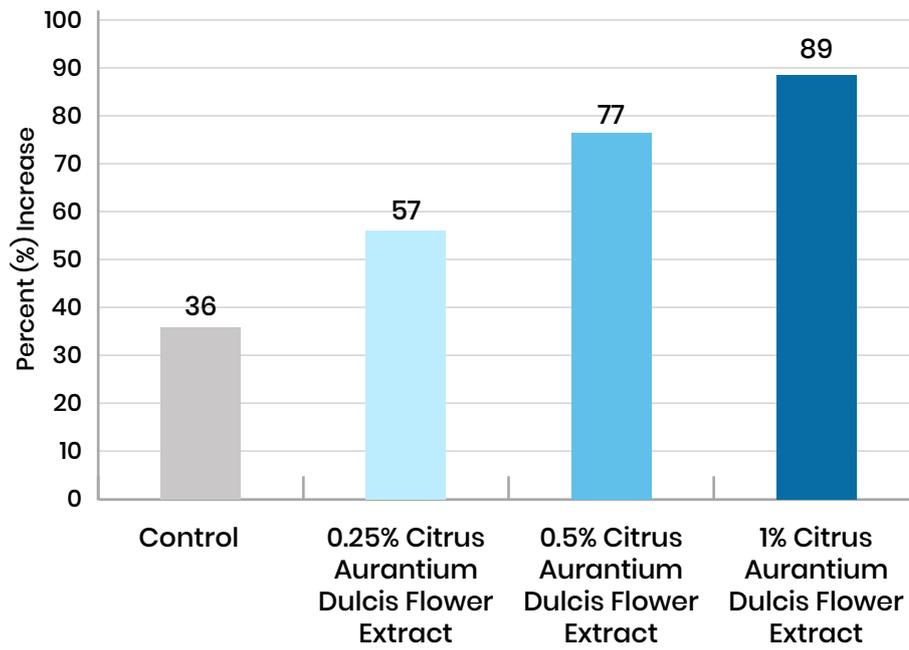
In-vivo Wrinkle Reduction Assay



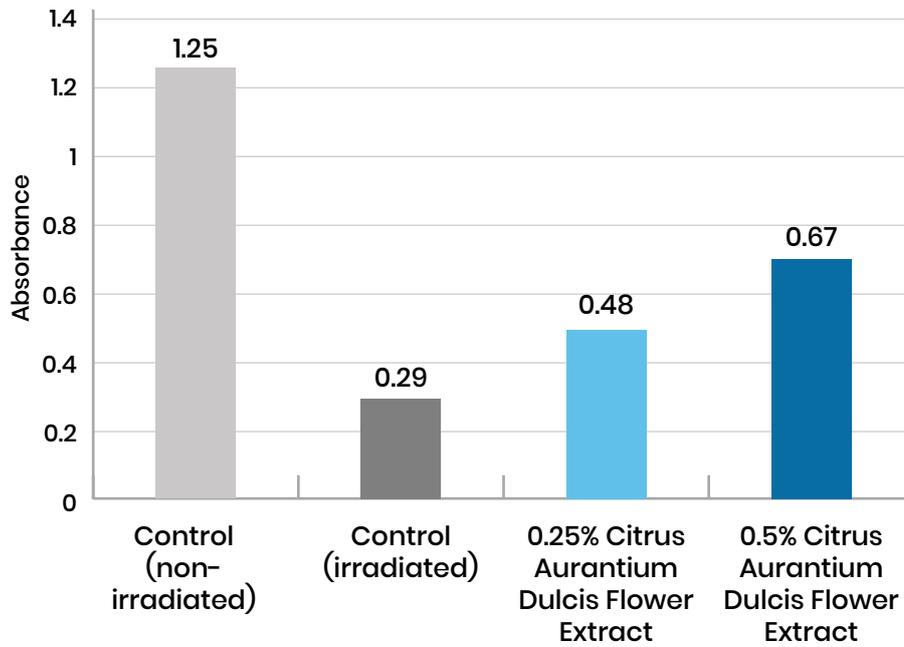
10 volunteers aged between 36 and 70 years old trialed a cream 0.25% Citrus Aurantium Dulcis Flower Extract applied to the outer eye area (crow's feet) twice daily for 60 days.

■ 30 Days
■ 60 Days

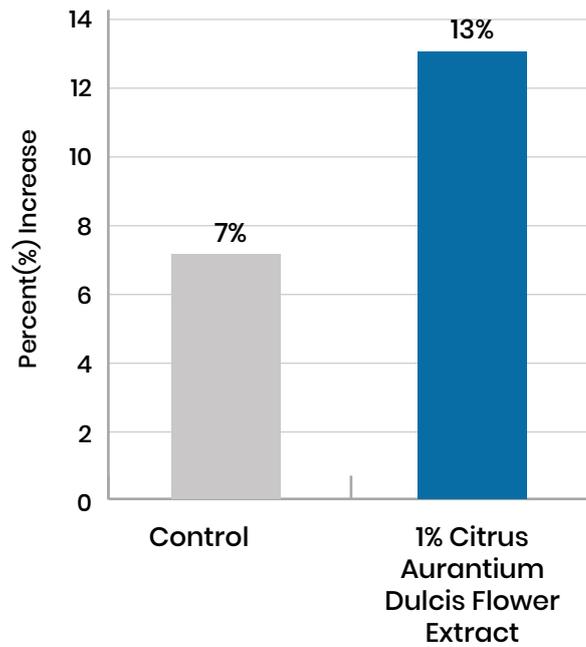
In-vitro Collagen I Synthesis Assay



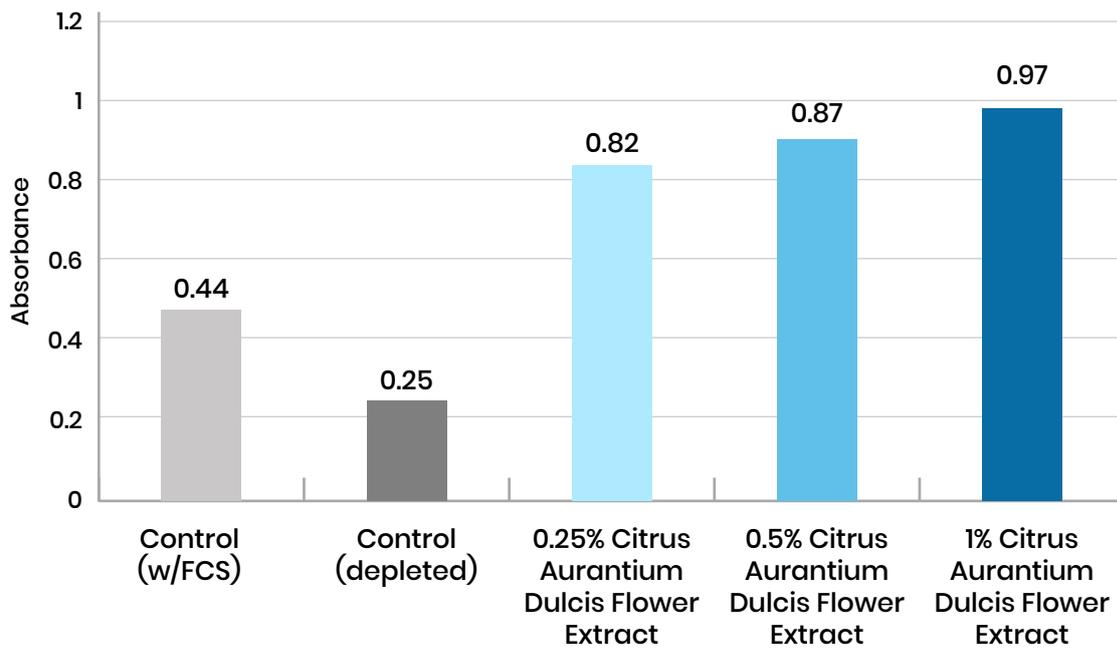
In-vitro Fibroblast Revitalisation Assay



In-vivo Increase in Smoothness Assay



In-vivo Increase in Cellular Proliferation



Links:

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<https://content.iospress.com/articles/biofactors/bio00949>

<https://talenta.usu.ac.id/JCNaR/article/view/9322>

<https://www.scitepress.org/PublishedPapers/2019/95155/95155.pdf>

[Data on file](#)

PUNICA GRANATUM EXTRACT (POMEGRANATE EXTRACT)

Ingredient Claims:

Skin lifting and tightening effect	Helps to prevent the formation of wrinkles
Protects the skin from oxidative damage	

Pomegranate is a juicy, bright red fruit that is considered a superfruit because of its unique antioxidant benefits as well as its high nutritional value. A distinct pomegranate extract which is extracted along with its high molecular weight carbohydrates. When applied on the skin, this ingredient provides immediate tightening and lifting benefits that help reduce the appearance of sagging and wrinkles.

Links:

<https://pubmed.ncbi.nlm.nih.gov/35128669/>

<https://pubmed.ncbi.nlm.nih.gov/31298147/>

<https://pubmed.ncbi.nlm.nih.gov/34416060/>

SACCHARIDE ISOMERATE

Ingredient Claims:

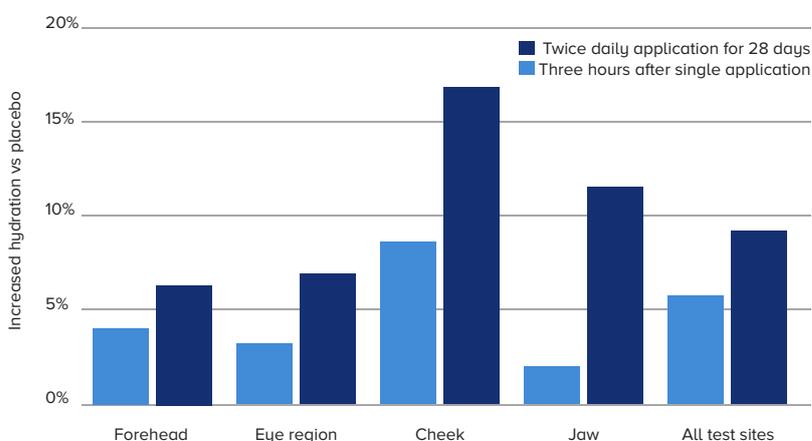
20% reduction in trans epidermal water loss	Long-lasting skin hydration up to 72 hours
Strengthens skin barrier function	Improves the signs of dry skin by 20%

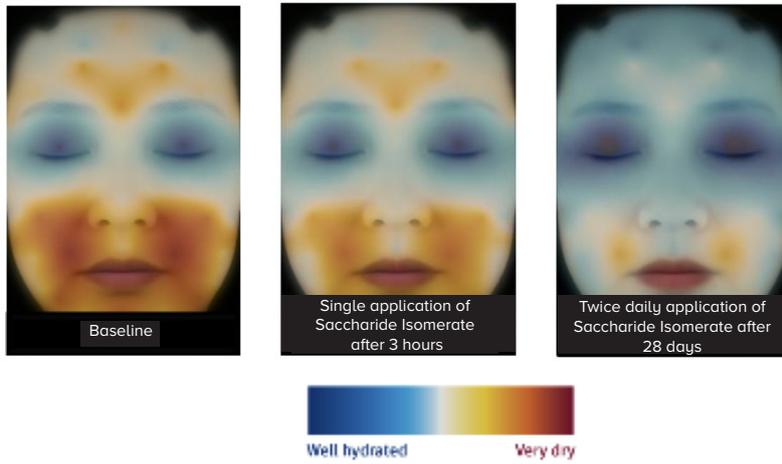
Saccharide Isomerate Complex is a 100% plant-derived carbohydrate complex, similar to that found in human skin. The molecules bind to the skin, preventing epidermal water loss, delivering immediate & long-lasting hydration for up to 72 hours. As a vegan hyaluronic acid booster, Saccharide Isomerate complex contains no animal by-products, so you can be confident that this product is cruelty-free and highly efficacious.

Saccharide Isomerate Complex is clinically proven to provide short and long-term hydration. The case study image below shows the increase in hydration to the stratum corneum after 3 hours and after 28 days, where Saccharide Isomerate Complex was applied twice per day.

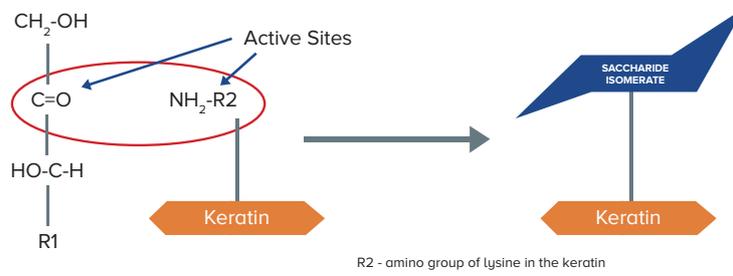
Saccharide Isomerate vs. Placebo

After twice daily application of Saccharide Isomerate Complex, there is a significant improvement in hydration across all facial areas. Just 3 hours after a single application, the excessively dry cheek area is significantly more hydrated.

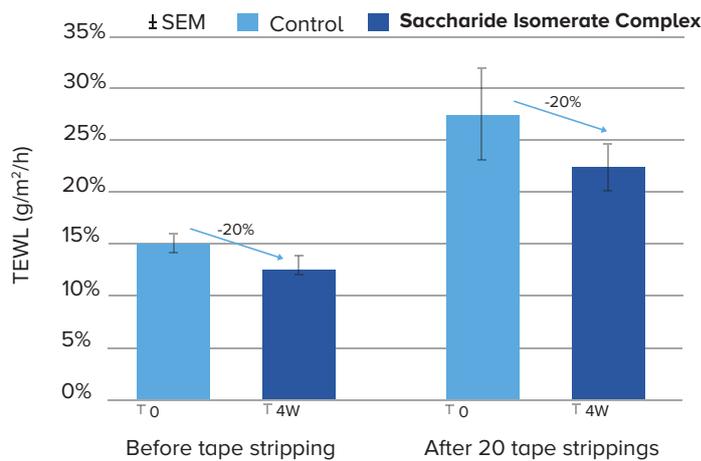




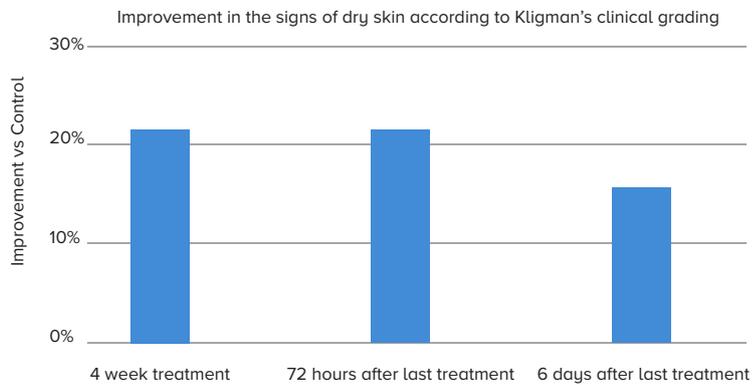
The in-vivo and in-vitro studies have proven the unique binding of this Saccharide Isomerate Complex to the free amino group of lysine in keratin. After 4 weeks of continuous use, Saccharide Isomerate improves the signs of dry skin by 20%, with effects lasting long after the final application 6 days later. This binding function allows the Saccharide Isomerate Complex to connect with the top layer of the skin, locking in moisture.



Saccharide Isomerate Complex in an aqueous solution improves and strengthens the skin barrier function as shown by the 20% reduction in trans-epidermal water loss before and after 20 successive tape strips after a 28-day application.



After 4 weeks of continuous use, Saccharide Isomerate Complex improves the signs of dry skin by 20%, with effects lasting long after the final application 6 days later.



Link: [1. International Journal of Cosmetic Science, 2015, 37, 595-605](#)

Link: [2. International Journal of Cosmetic Science, 2016 38, 217-223](#)

Link: [3. Data on file.](#)

Link: [4. Data on file.](#)

Link: [5. G.Padberg, J. Soc.Cosmetic Chemists 23, 271-279, 1972](#)

PIPERONYL GLUCOSIDE

Ingredient Claims:

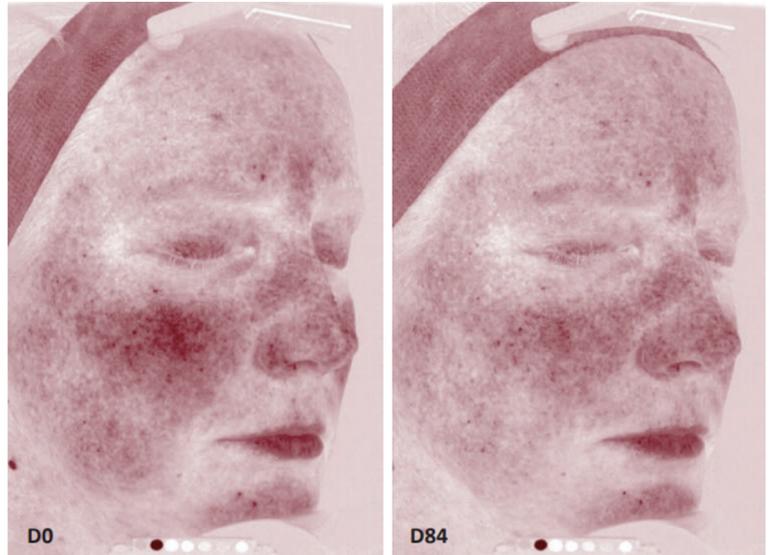
Reduces skin redness by 24%	Reduces blood vessel diameter by up to 13.5%
Skin appears brighter and smoother	Evens skin tone and reduces skin inflammation
Reduces the appearance of blemishes	

Piperonyl glucoside is a natural compound derived from the sassafras plant. While there is limited research on the specific skin benefits of piperonyl glucoside, it exhibits several benefits for the skin, including:

- **Anti-inflammatory properties:** Piperonyl glucoside may have anti-inflammatory properties, which can help to soothe and calm irritated or inflamed skin. This can be particularly beneficial for those with sensitive or acne-prone skin.
- **Antioxidant properties:** Piperonyl glucoside is a powerful antioxidant that can help to protect the skin against damage from free radicals and environmental stressors. This can help to prevent premature aging, wrinkles, and other signs of skin damage.
- **Skin brightening:** Piperonyl glucoside is believed to have skin-brightening properties, which can help to reduce the appearance of dark spots and hyperpigmentation, leaving the skin looking brighter and more even-toned.
- **Moisturising:** Piperonyl glucoside is also believed to have moisturising properties, which can help to hydrate and plump the skin, reducing the appearance of fine lines and wrinkles.
- **Acne-fighting:** Piperonyl glucoside may have anti-bacterial properties, which can help to fight acne-causing bacteria on the skin.

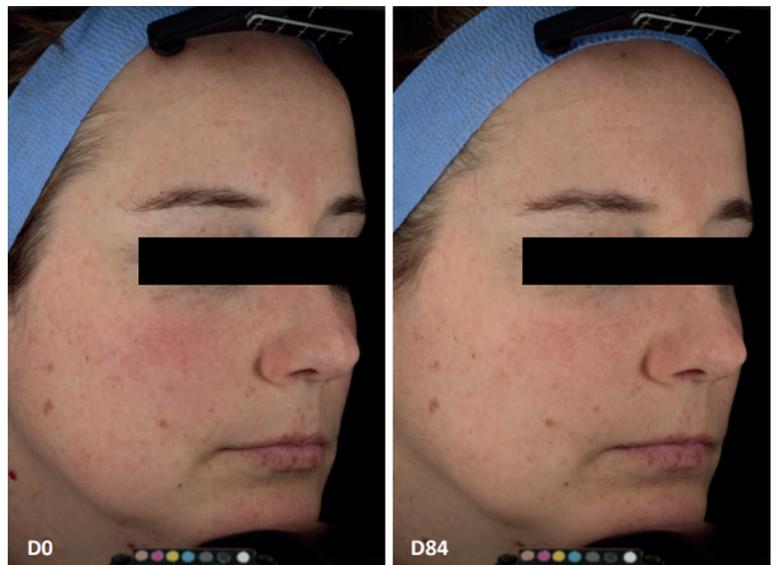
Illustration of Piperonyl Glucoside effect on redness

- -24% of occupied surface on average.
- Up to -68% of occupied surface.



Images with cross-polarized light

- -15% of clinical scoring on average.
- Up to -40% of clinical scoring.

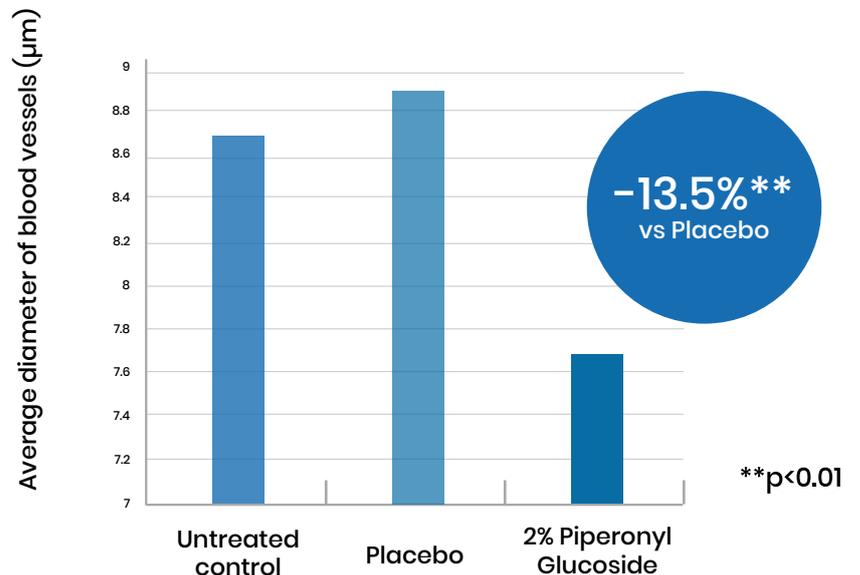


By controlling angiogenesis and reorganising blood vessels networks, Piperonyl Glucoside visibly reduces redness in intensity and surface area for a more radiant complexion.

Reduction of the diameter of the vessels.

Ex vivo study on explants treated by topical application at D0, D2 and D4 with 2% Piperonyl Glucoside vs Placebo or vs untreated control. At D6, measurement of the average diameter of vessels by image analysis.

By structuring the vessels, Piperonyl Glucoside allows to reduce their diameter.



Links:

<https://doctorschar.com/sassafras-sassafras-officinale/>

https://link.springer.com/chapter/10.1007/978-1-59259-020-9_23

SODIUM LACTATE

Ingredient Claims:

Hydrates the skin and reduces flakiness	Anti-microbial activity
Can reduce the appearance of blemishes	Improves skin tone by helping to remove old skin cells

Sodium lactate is a salt that is derived from lactic acid, which is a natural acid that is produced by the body during exercise. While sodium lactate is often used as a preservative in skincare products, it also has several potential benefits for the skin, including:

- **Moisturising:** Sodium lactate is a natural humectant, which means that it helps to attract and retain moisture in the skin. This can help to keep the skin hydrated and prevent dryness, flakiness, and other signs of dehydration.
- **Exfoliating:** Sodium lactate is also an alpha-hydroxy acid (AHA), which means that it has exfoliating properties. It can help to gently remove dead skin cells from the surface of the skin, revealing smoother, brighter, and more even-toned skin.
- **Anti-ageing:** AHAs like sodium lactate can also help to stimulate collagen production in the skin, which can help to reduce the appearance of fine lines, wrinkles, and other signs of ageing.
- **Skin brightening:** Sodium lactate is believed to have skin-brightening properties, which can help to reduce the appearance of dark spots and hyperpigmentation, leaving the skin looking brighter and more even-toned.
- **Anti-bacterial:** Sodium lactate has been shown to have antibacterial properties, which can help to fight acne-causing bacteria on the skin.
- Overall, sodium lactate can be a valuable ingredient in skincare formulations, particularly for those with dry, dull, or ageing skin.

Links:

<https://www.sciencedirect.com/science/article/abs/pii/S0190962296906027>

ENGELHARDTIA CHRYSOLEPIS LEAF EXTRACT (CHINESE ALDER LEAF EXTRACT)

Ingredient Claims:

Stimulates elastin production by up to 94%	Reduces elastase activity by 22%
Increases collagen type synthesis by 36%	

Engelhardtia Chrysolepis leaf extract, also known as Chinese alder leaf extract or Huang Bai Ye extract, is derived from the leaves of the Engelhardtia Chrysolepis tree. This extract is known to have several skin benefits, including:

- **Anti-inflammatory properties:** Engelhardtia Chrysolepis leaf extract contains compounds that have anti-inflammatory properties, making it an effective ingredient for soothing irritated or inflamed skin.
- **Antioxidant properties:** This extract is rich in antioxidants, which help to protect the skin from damage caused by free radicals, such as pollution and UV rays.
- **Anti-ageing properties:** Engelhardtia Chrysolepis leaf extract contains flavonoids and other compounds that help to reduce the appearance of fine lines and wrinkles and improve skin elasticity.
- **Moisturising properties:** This extract has hydrating properties that help to keep the skin moisturised and prevent dryness, making it an excellent ingredient for those with dry or dehydrated skin.

- Brightening properties: Engelhardtia Chrysolepis leaf extract has been shown to help brighten the skin and even out skin tone, giving the skin a more radiant and youthful appearance.

Table 1: Changes in elastin production by fibroblasts of different ethnic origins, different ages and different genders, effect of Engelhardtia Chrysolepis Leaf Extract.

Elastin ($\mu\text{m}^2/\text{cell}$)	Caucasian		Chinese	Caucasian
	44 years	47 years	48 years	2 years
Control	457.0 \pm 62.5	252.0 \pm 54.0	8.5 \pm 1.9	292.7 \pm 43.4
60mg* Engelhardtia Chrysolepis Leaf Extract	745.2 \pm 106.7	386.6 \pm 29.5	16.4 \pm 2.8	434.5 \pm 16.6
Engelhardtia Chrysolepis Leaf Extract vs control	+63%	+53%	+94%	+48%
Significance	p<0.01	p<0.01	p<0.01	p<0.01

Table 2: Changes in the quality of elastic fibre produced by fibroblasts: fibre length, number of fibres and complexity of the fibre network, effect of Engelhardtia Chrysolepis Leaf Extract.

	Caucasian; 44 years		
	Fibre Length ($\mu\text{m}^2/\text{cell}$)	Number of fibres / 1000 cells	Network complexity / 1000 cells
Control	4.4 \pm 0.5	487 \pm 85.9	180 \pm 33.9
60mg* Engelhardtia Chrysolepis Leaf Extract	50 \pm 2.6	7043 \pm 393.8	2997 \pm 181.0
Engelhardtia Chrysolepis Leaf Extract vs control	x12.5	x14.5	x16.7
Significance	p<0.01	p<0.01	p<0.01

Results

Table 3: Reduction of elastase activity, effect of Engelhardtia Chrysolepis Leaf Extract.

Collagen VII ($\mu\text{m}^2/\text{ml}/10^6$ cells)		
Control	0.052 \pm 0.004	Reference
60mg* Engelhardtia Chrysolepis Leaf Extract	0.041 \pm 0.003	-22%; p<0.01
120mg* Engelhardtia Chrysolepis Leaf Extract	0.029 \pm 0.003	-44%; p<0.01

Table 4: Change in collagen-VII synthesis measured by the ELISA method on human keratinocytes in culture, effect of Engelhardtia Chrysolepis Leaf Extract.

	Collagen VII ($\mu\text{m}^2/\text{ml}/10^6$ cells)	Variation
Control	17 \pm 2	Reference
60mg* Engelhardtia Chrysolepis Leaf Extract	23 \pm 1	+36%; p<0.01

Links:

<https://www.sciencedirect.com/science/article/abs/pii/S0021967308014416>

<https://www.sciencedirect.com/science/article/abs/pii/S1674638418300108>

ALOE BARBADENSIS LEAF JUICE (ALOE VERA)

Ingredient Claims:

Soothes irritated skin	Moisturises and hydrates dry skin
Reduces trans epidermal water loss	Encourages skin healing and improves skin's overall condition
Improve skin elasticity	

The botanical name of Aloe Vera is Aloe Barbadensis miller. It belongs to Asphodelaceae (Liliaceae) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea-green colour plant. The Aloe vera plant has been known and used for centuries for its health, beauty, medicinal and skin care properties. The name Aloe vera derives from the Arabic word "Alloeh" meaning "shining bitter substance," while "vera" in Latin means "true". 2000 years ago, the Greek scientists regarded Aloe vera as the universal panacea. The Egyptians called Aloe "the plant of immortality.

It grows mainly in the dry regions of Africa, Asia, Europe and America. Aloe Barbadensis is a useful additive for cosmetics as it has many different properties to counteract the effects of ageing and to protect the skin. Aloe barbadensis, or Aloe Vera, is a succulent plant which offers many benefits and is suited for all skin types, especially dry, damaged, broken, sensitive and irritated skin. It offers anti-inflammatory, antimicrobial, antioxidant, humectant and soothing and anti-itch properties for skin. Aloe Vera contains Vitamin B complex, folic acid, Vitamin C and carotene, which is a precursor of Vitamin A.

Aloe soothes the skin, prevents trans epidermal water loss (TEWL). It cools and hydrates the skin, moisturises and promotes healing from breakouts. Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids.

Links:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2763764/>

https://www.researchgate.net/publication/334123567_Review_on_Aloe_Vera

LEUCONOSTOC RADISH ROOT FERMENT FILTRATE (FERMENTED RADISH ROOT EXTRACT)

Ingredient Claims:

Boosts moisture content in the skin	Helps to prevent the growth of harmful bacteria which cause blemishes
Soothes irritated skin	Gently exfoliates the skin for a more radiant complexion

Leuconostoc radish root ferment filtrate is a natural antimicrobial ingredient that is derived from fermented radish roots. It has become a popular ingredient in skincare products due to its ability to act as a preservative and provide several benefits for the skin. Here are some of the skin benefits of Leuconostoc radish root ferment filtrate:

- **Natural preservative:** Leuconostoc radish root ferment filtrate has antimicrobial properties that make it an effective natural preservative in skincare products. This can help to extend the shelf life of the product without the use of harsh synthetic preservatives.
- **Moisturising:** Leuconostoc radish root ferment filtrate is a humectant, which means it has the ability to attract and retain moisture in the skin. This can help to improve the overall hydration and plumpness of the skin.
- **Gentle exfoliation:** Leuconostoc radish root ferment filtrate contains natural enzymes that can help to gently exfoliate the skin, removing dead skin cells and promoting a smoother, more radiant complexion.
- **Antimicrobial:** Leuconostoc radish root ferment filtrate has antimicrobial properties that can help to prevent the growth of harmful bacteria on the skin, which can contribute to acne and other skin irritations.
- **Soothing:** Leuconostoc radish root ferment filtrate has been shown to have soothing properties, which can help to calm and reduce inflammation in the skin.

Moisturisation using 1% in cream compared to base cream without active.

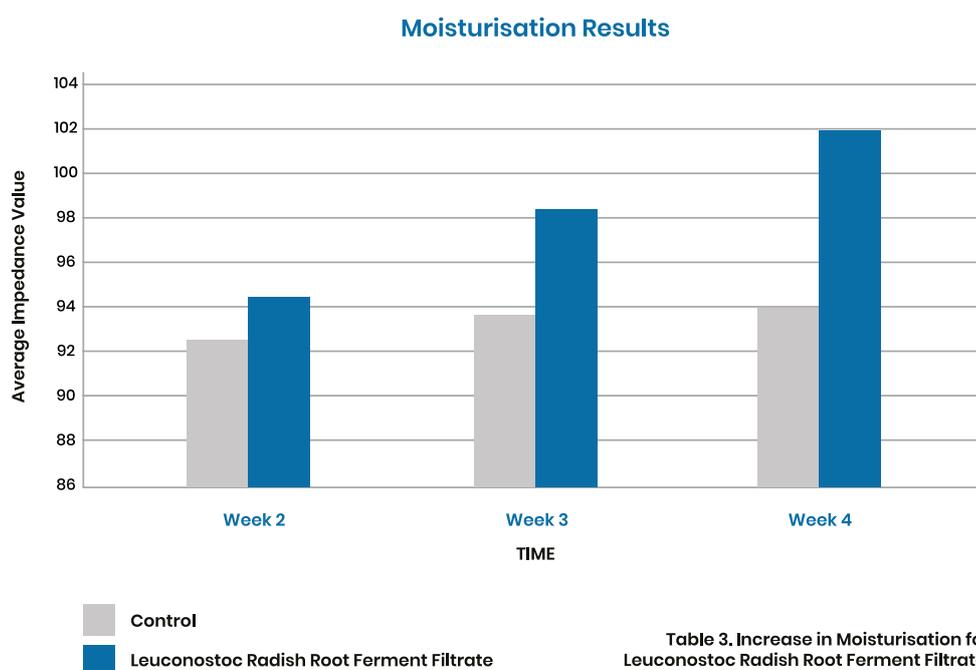


Table 3. Increase in Moisturisation for Leuconostoc Radish Root Ferment Filtrate

Links:

[Data on file](#)

<https://pubmed.ncbi.nlm.nih.gov/25779084/>

<https://pubs.acs.org/doi/full/10.1021/jf5063588>

TOCOPHEROL (VITAMIN E)

Ingredient Claims:

Protects the skin from oxidative damage caused by environmental stressors	Promotes scar healing
Soothes dry, irritated skin	Helps to protect the skin from sun damage
Promotes skin cell turnover	Potent antioxidant that reduces the signs of ageing

Tocopherol or Vitamin E is an important fat-soluble antioxidant and has been in use for more than 50 years in dermatology. It is an important ingredient in many cosmetic products. It protects the skin from various deleterious effects due to solar radiation by acting as a free-radical scavenger.

Vitamin E is one of the most well-known and researched antioxidants for the body and for skin. Vitamin E occurs naturally in human skin but can become depleted due to constant environmental exposure in the absence of sun protection.

Vitamin E has been shown to help reduce the appearance of scars by promoting tissue regeneration and increasing collagen production. Vitamin E also has anti-inflammatory properties that can help soothe irritated skin and reduce redness and swelling. In addition, vitamin E exhibits brightening properties that help improve the appearance of dark spots and uneven skin tone by promoting cell turnover and reducing melanin production.

Experimental studies suggest that vitamin E has photoprotective properties and is a powerful antioxidant.

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4976416/>

*mg/kg