

PRODUCT, DESCRIPTION AND EVIDENCE

REFERENCE: FS7-46

PUBLISH DATE: 14/11/24

CALM

A revolutionary night cream meticulously formulated to deliver unparalleled skin rejuvenation while you sleep. Harnessing the power of innovative ingredients, this potent blend is specially designed to enhance your skin's natural radiance and vitality. Palmitoyl tripeptide-1 and palmitoyl tetrapeptide-7 work synergistically to stimulate collagen production, reducing fine lines and wrinkles for a youthful complexion. Chinese alder leaf extract provides antioxidant-rich nourishment, shielding your skin from environmental stressors. Glycogen and mastic gum promote deep hydration and improve the skin's moisture retention, unveiling a smoother, suppler texture. Niacinamide aids in fading dark spots and evening out skin tone, while Bakuchiol, a gentle alternative to retinol, enhances skin elasticity. Albatrellus Confluens extract combats inflammation and calms the skin, and Panthenol replenishes moisture, promoting a plump, dewy appearance. Saccharide isomerate locks in hydration, leaving your skin revitalised and replenished with a healthy glow. Awaken to a transformed complexion with this night cream, an elixir of science and nature that revitalises your skin's true potential.

KEY BENEFITS

- Decreases wrinkle depth by up to 19.9%
- Skin appears 16% smoother
- Stimulates elastin production by up to 94%
- Inhibits elastase activity by 44%
- Increases collagen type synthesis by 36%
- Reduces skin discomfort by up to 100%
- Reduces microcirculation by up to 135%
- Reduces skin redness by up to 90%
- Significantly reduces burning/tingling sensations
- Smooths the appearance of crow's feet by 9.5%
- 23% reduction in wrinkle intensity
- 130% improvement in skin hydration
- 38% reduction in skin sensitivity
- 12% reduction in skin dullness
- 23% increase in skin barrier function
- Skin appears 7% more radiant
- Refines the appearance of pores by up to 14.9%
- Reduces trans-epidermal water loss by 27%
- Calms irritated skin
- Long-lasting skin hydration up to 72 hours
- Improves the signs of dry skin by 20%

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, Niacinamide, Propanediol, Caprylic/Capric Triglyceride, C15-19 Alkane, Cetearyl Ethylhexanoate, Arachidyl Alcohol, Panthenol, Cetearyl Alcohol, Butylene Glycol, Behenyl Alcohol, Saccharide Isomerate, Bakuchiol, Coco-Caprylate/Caprate, Arachidyl Glucoside, Punica Granatum Fruit Extract, Glycogen, Albatrellus Confluens Extract, Engelhardtia Chrysolepis Leaf Extract, Xanthan Gum, Pistacia Lentiscus Gum, Carbomer, Leuconostoc/Radish Root Ferment Filtrate, Palmitoyl Tripeptide-1, Palmitoyl Tetrapeptide-7, Sodium Gluconate, Lecithin, Pentyleneglycol, Glucose, Glyceryl Caprylate, Sodium Lactate, Citric Acid, Pantolactone, Sodium Hydroxide, Sodium Citrate, Polysorbate 20, Phenoxyethanol, Ethylhexylglycerin.

ACTIVE INGREDIENTS

Palmitoyl Tripeptide-1 0.09mg
Palmitoyl Tetrapeptide-7 0.045mg
Engelhardtia Chrysolepis Leaf Extract (Chinese Alder Leaf Extract) 10.8mg
Albatrellus Confluens Extract 0.15%
Glycogen 0.3%
Pistacia Lentiscus Gum (Mastic Gum) 13.8mg

Niacinamide 4%
 Bakuchiol 0.5%
 Panthenol 1.5%
 Saccharide Isomerate 0.75%
 Leuconostoc/Radish Root Ferment Filtrate 12mg
 Punica Granatum Fruit Extract 0.4%
 Glycerin 6.9%
 Lecithin 12mg
 Caprylic/Capric Triglyceride 2.3%

PALMITOYL TETRAPEPTIDE-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.

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.

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.

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

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

Compared to TO (%)	Palmitoyl Tripeptides	Placebo
Surface occupied by deep wrinkles	-39.4**	4.3 ^{n.s.}
Main wrinkle density	-32.9**	-9.9 ^{n.s.}
Main wrinkle average depth	-19.9**	-3.2 ^{n.s.}
Main wrinkle average volume	-23.3**	-8.7*
Roughness	-16.0**	-1.4 ^{n.s.}
Complexity (Lifting effect)	-16.2**	4.2 ^{n.s.}
Elasticity	+5.5*	4.1 ^{n.s.}
Skin tone	+15.5**	6.5 ^{n.s.}

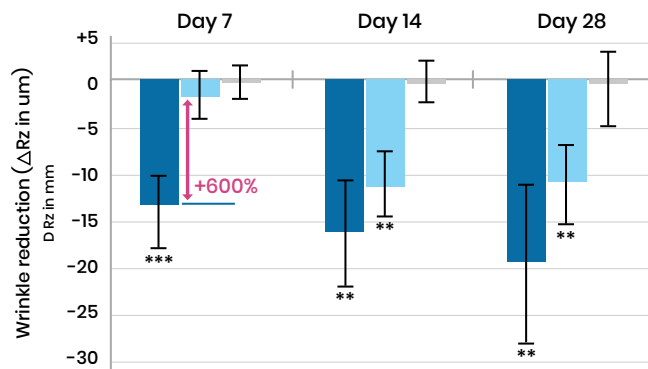
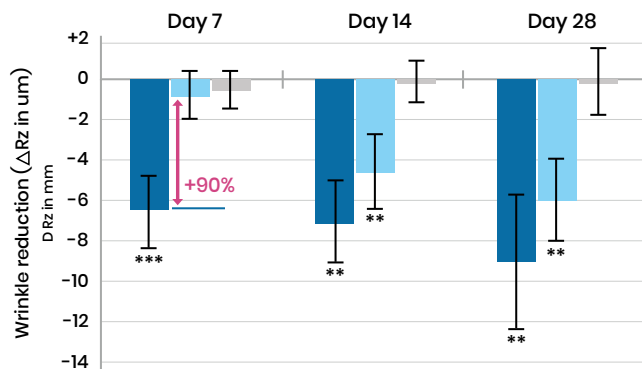
Comparison of the effects of
Palmitoyl Tripeptides vs. placebo after 56 days (2 months)

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)

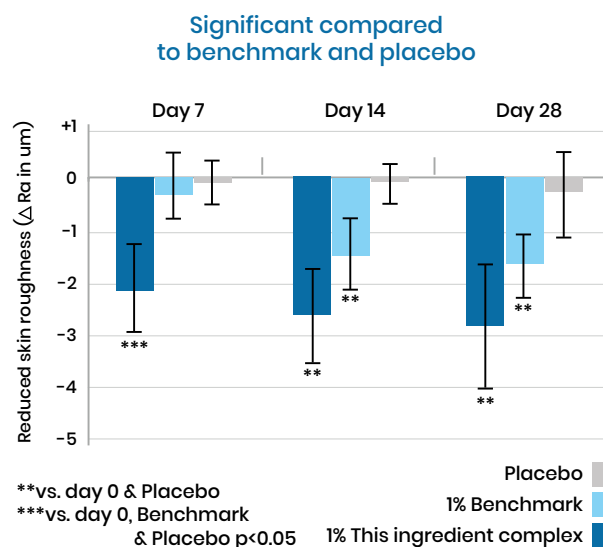
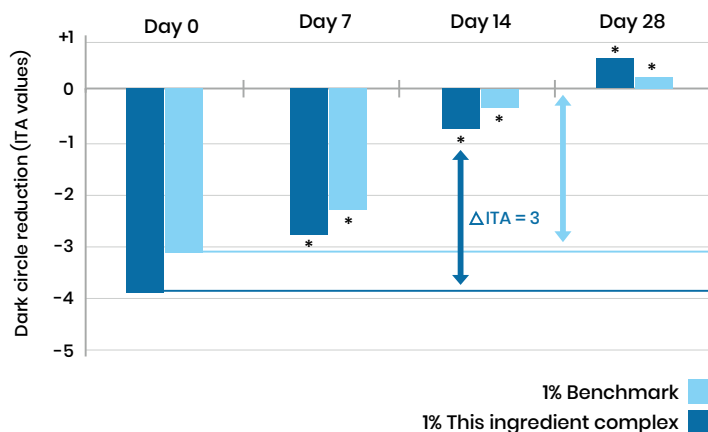


Significant effects compared to benchmark and placebo and day 0

**vs. day 0 & Placebo

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

Placebo
1% Benchmark
1% This ingredient complex



**vs. day 0 & Placebo

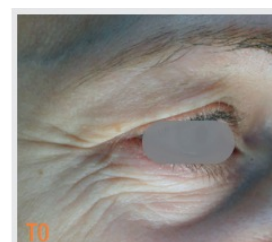
***vs. day 0, Benchmark & Placebo $p < 0.05$

Placebo
1% Benchmark
1% This ingredient complex

Anti-wrinkle efficacy, skin tone and elasticity

23 female volunteers aged from 42 to 67 years / Twice daily application on one half of a cream containing 3% of Palmitoyl Tripeptides against placebo, for 2 months. Assessment of the anti-wrinkle efficacy by profilometry, cutometry and photography compared to TO

Compared to TO (%)	Palmitoyl Tripeptides	Placebo
Surface occupied by deep wrinkles	-39.4**	4.3 ^{n.s.}
Main wrinkle density	-32.9**	-9.9 ^{n.s.}
Main wrinkle average depth	-19.9**	-3.2 ^{n.s.}
Main wrinkle average volume	-23.3**	-8.7*
Roughness	-16.0**	-1.4 ^{n.s.}
Complexity (Lifting effect)	-16.2**	4.2 ^{n.s.}
Elasticity	+5.5*	4.1 ^{n.s.}
Skin tone	+15.5**	6.5 ^{n.s.}



n.s. : non-significant

*: significant/TO ($p < 0.05$)

** : significant/TO ($p < 0.01$)

**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.

Links:

<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.

Links:

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

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

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

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.

In Vitro

Long-term in vitro tests on dermal fibroblasts were carried out with E. chrysolepis leaf titrated to correspond to 0.006% Engelhardtia Chrysolepis Leaf Extract The short-term, cell-free tests were conducted up to the equivalent of 0.036% Engelhardtia Chrysolepis Leaf Extract Tests on explants were carried out using a gel containing 0.036% Engelhardtia Chrysolepis Leaf Extract.

ICC=Immunocytochemistry; LC/MSMS (cf Gloassary).

Elastin production by Caucasian/Chinese cells (ICC)	+63% / +94% (p<0.01)
Production of elastin, MFAP4 and fibulin-5 (LC/MSMS)	x12.6 / x3.2 / x1.6 (p<0.01)
Quality of elastic fibres produced (length, number, complexity; ICC)	x12 / x14 / x17 (p<0.01)
Inhibition of elastase proteolytic activity	-44% (p<0.01)
Contraction/resilience	95% of control
Inhibition of elastin glycation	-83% (p<0.01)
Stimulation of elastin synthesis in the presence of glycating agent	x8.8 (p<0.01)
Distribution of vimentin in the presence of glycating agent	+19% (p<0.01)
Collagen-VII, -IV, and laminin 5	+148% / +27% / +17% (p<0.01)

In Vivo

Beneficial effects on the shape, biomechanical properties and relief of the face of Caucasian and Chinese volunteers following the use of Engelhardtia Chrysolepis Leaf Extract. Application on the face, by 90 Caucasian and Chinese volunteers, of an emulsion containing 0.036% Engelhardtia Chrysolepis Leaf Extract, or placebo, for 1 to 2 months. Monitoring improvement of the facial contour and jowl reduction. Improvement of viscoelastic properties (elasticity, firmness), observation of reduced sagging. Reduction of the height and volume of the fold of the upper eyelids. Reduction of the intensity of the marionette lines and crow's feet wrinkles.

Evaluation of facial contour and jowls	
Improvement in facial contour (N=30)	+5.1% (p<0.05 vs placebo)
Jowl volume (N=30)	-11.4% (p<0.05 vs placebo)
Jowls evaluated less sagging (N=35)	+20% (p<0.05 vs placebo)
Variation of the viscoelastic properties of the face	
Improvement in elasticity (N=35)	+8.2% (p<0.05 vs placebo)
Improvement in elasticity (N=51)	+14% (p<0.05 vs placebo)
Improvement in skin recovery (N=51)	+10.7% (p<0.05 vs placebo)
Skin evaluated firmer (N=51)	+9.9% (p<0.08 vs placebo)
Assessment of the upper eyelid fold; upper eyelid drooping	
Fold height (N=29)	-24.7% (p<0.05 vs placebo)
Fold volume (N=29)	-32% (p<0.05 vs placebo)
Fold surface (N=29)	-30% (p<0.01 vs placebo)
Eyelids evaluated less droopy (N=35)	+20% (p<0.05 vs placebo)
Eyes perceived to be less tired (N=38)	+41% (p<0.01 vs placebo)
Evaluation of the marionette line and crow's feet wrinkles	
Marionette lines depth (N=52), at 1 month	-14.8% (p<0.05 vs placebo)
Crow's feet roughness (N=30)	-9.5% (p<0.05 vs placebo)
Maximum wrinkle depth (N=30)	-10.4% (p<0.01 vs placebo)
Wrinkles evaluated less intense (N=25)	+23% (p<0.05 vs placebo)

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>

ALBATRELLUS CONFLUENS (MUSHROOM) EXTRACT

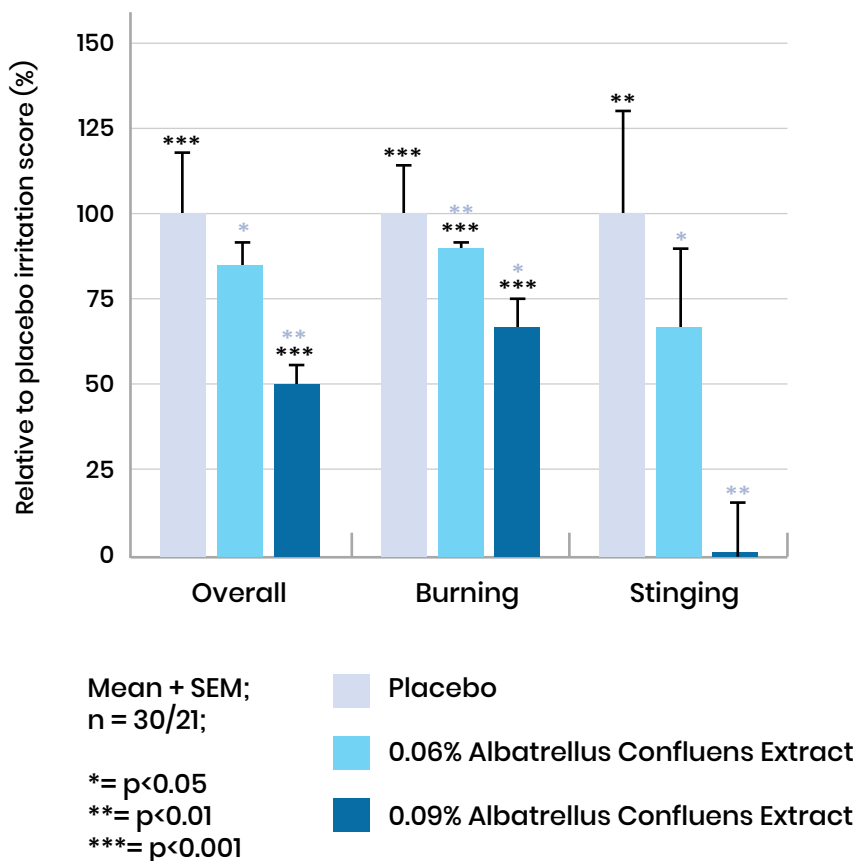
Ingredient Claims:

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	

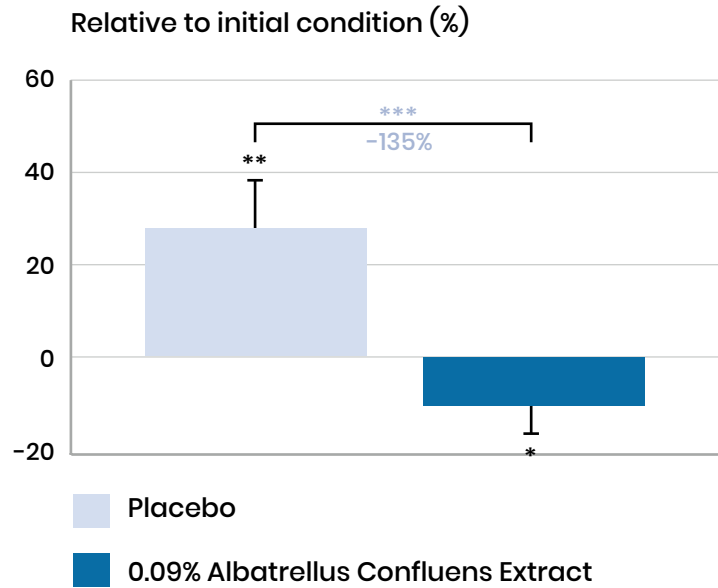
Albatrellus Confluens extract is derived from a type of mushroom that grows in northern Europe and Asia. While there is limited research on the specific skin benefits of Albatrellus Confluens extract, mushrooms in general are known to contain a variety of bioactive compounds that can have beneficial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

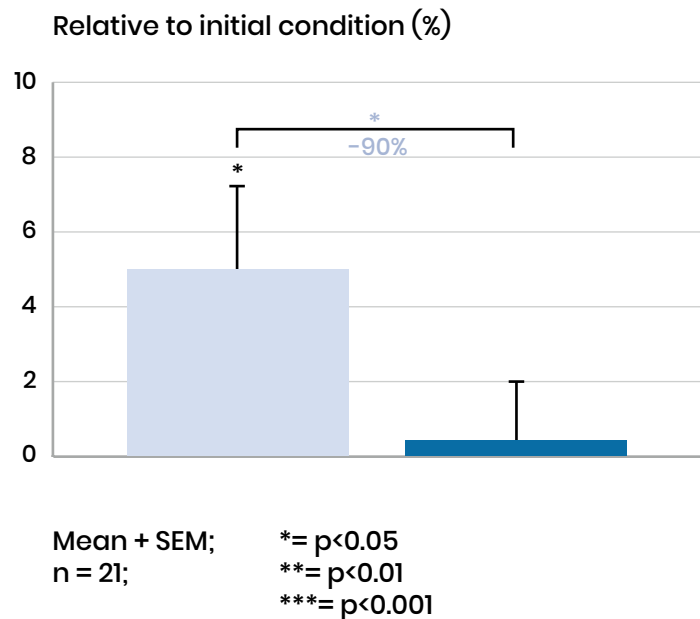
Immediate soothing of irritated skin



Reduction of microcirculation



Prevention of skin reddening



Overall discomfort was significantly reduced by 15 % with 0.06% Albatrellus Confluens extract and by almost 50 % with 0.09% Albatrellus Confluens extract. The main unpleasant sensations induced by activation of the TRPV1 receptor – burning and stinging – were significantly reduced to a concentration-dependent extent. 0.09% Albatrellus Confluens extract was able to completely suppress the stinging sensation of the irritant, so that the outcome was indistinguishable from the non-irritated baseline condition.

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>

GLYCOGEN

Ingredient Claims:

23% increase in skin barrier function	5% reduction in crow's feet wrinkle depth
38% reduction in skin sensitivity	75% reduction in fine line surface area
130% improvement in skin hydration	20% reduction in fine line depth
11% reduction in crow's feet surface area	Synergistic effect with hyaluronic acid
15% reduction in skin redness	Skin appears 7% more radiant
59% reduction in hyperpigmented area	56% improvement in skin tone
Increases collagen production by 60%	Increases hyaluronic acid production by 83%
Skin feels 36% smoother	12% reduction in skin dullness
85% reduction in hyperpigmentation intensity	

Sustainably sourced from sweet corn, glycogen is naturally occurring molecule in the body. It is converted to glucose by a process called glycolysis and used as an energy source. When the skin is exposed to stress (such as UV exposure), glycogen levels increase in order to improve the skin's cellular energy levels.

Glycogen has been shown to increase cellular metabolism and structural dermis proteins; glycosaminoglycans & fibroblasts. It is hypoallergenic, biocompatible with clinically proven benefits on the skin; smoothing wrinkles and fine lines, restoring radiance and correcting hyperpigmentation. A single molecule of glycogen in this formulation has a diameter of 70nm $\pm$ 5%, with a molecular weight of 15MDa.

+23% Skin Barrier

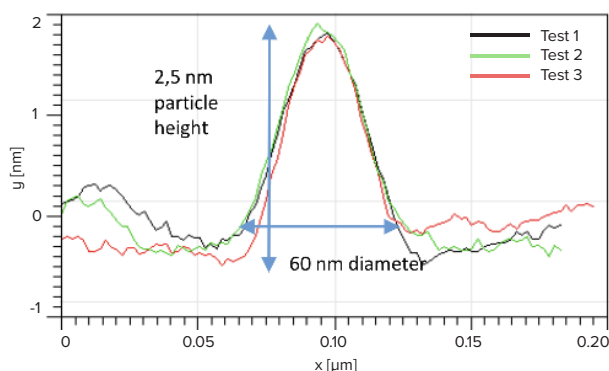
An in-vivo clinical study on 20 women showed a 23% increase in skin barrier function after 14 days, with 2 applications of this formulation per day vs. baseline.

-38% Skin Sensitivity

An in-vivo clinical study on 20 women showed a 38% reduction in skin sensitivity after 4 weeks with 2 applications of this formulation per day vs. baseline.

+130% Skin Hydration

An in-vivo clinical study on 13 volunteers showed a 130% increase in skin hydration 7 hours after 1 application of this formulation vs. baseline.



This formulation contains 'shape-shifting' glycogen. These glycogen molecules can alter their diameter and flatten to pass through the layers of the skin, allowing for deeper penetration into the dermis, resulting in a 130% increase in skin hydration.

The pore size between skin cells is known to be approximately 40nm. In the graph to the left, you can see how the glycogen particles height and diameter flatten to allow for deeper penetration into the dermis.

Glycogen is clinically proven to reduce wrinkles. An in vivo clinical study was conducted on 30 women, results are shown after 6 weeks with 2 applications per day vs. placebo.



Crow's feet reduction - 11% reduction in wrinkle area and 5% reduction in wrinkle depth.

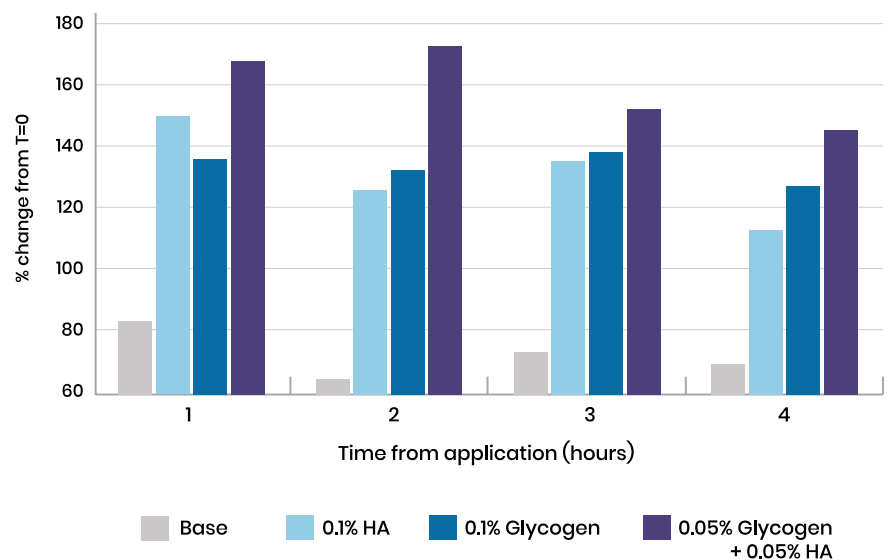


Line erasing - 75% reduction in wrinkle area and 20% reduction in wrinkle depth.

Barrier Function

Glycogen tightly holds water for long periods of time and boosts hydration performance when used on its own or in combination with HA (Hyaluronic Acid).

Great Hydration Performance⁴



- Glycogen at 0.1% improves skin hydration by 60% after 7 hours vs placebo.
- Glycogen boosts HA moisturising performance instantly and after 7 hours up to 40%.
- Glycogen was found to perform as well as HA, with the combination of these materials outperforming both materials individually, indicating some type of synergistic effect.
- +23% skin barrier function reinforced.
- -38% in skin sensitivity
- +130% in skin hydration

Radiance



Week 0

Week 6

Dark Spot Fighter



Week 0

Week 6

Radiance

Recovery of skin luminosity at 0.1% Glycogen

Up to:

- -15% redness
- +7% skin radiance
- +7% skin homogeneity

- -12% Dullness
- +56% Even skin tone
- -85% Hyperpigmentation intensity

A booster in cellular response

Glycogen increases the metabolic activity of fibroblasts. In vitro studies conducted on human fibroblast cells exposed to 0.05% after 36 hours revealed Glycogen increases cellular growth rate, Type 1 collagen production, and HA production.

Dark Spot Fighter

Skin tone enhancement at 0.3% Glycogen

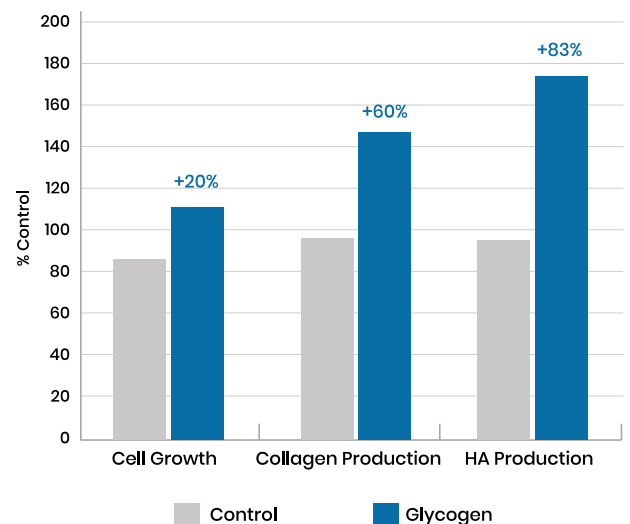
Up to:

- -59% in pigmentation area

Resulting in:

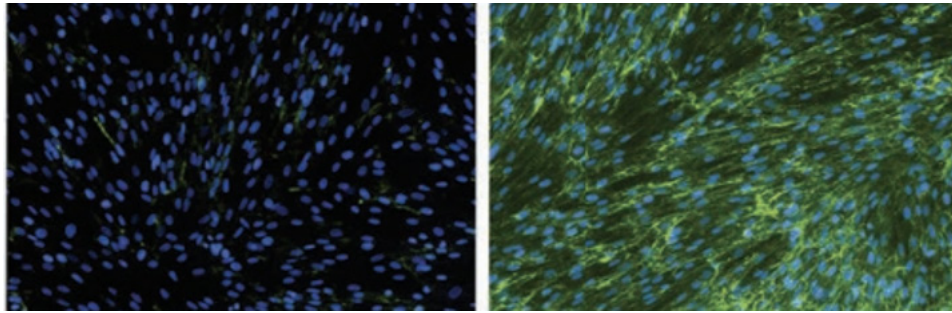
- +12% skin homogeneity

Cellular response of human fibroblast cells after 36 hours with and without Glycogen



Without Glycogen

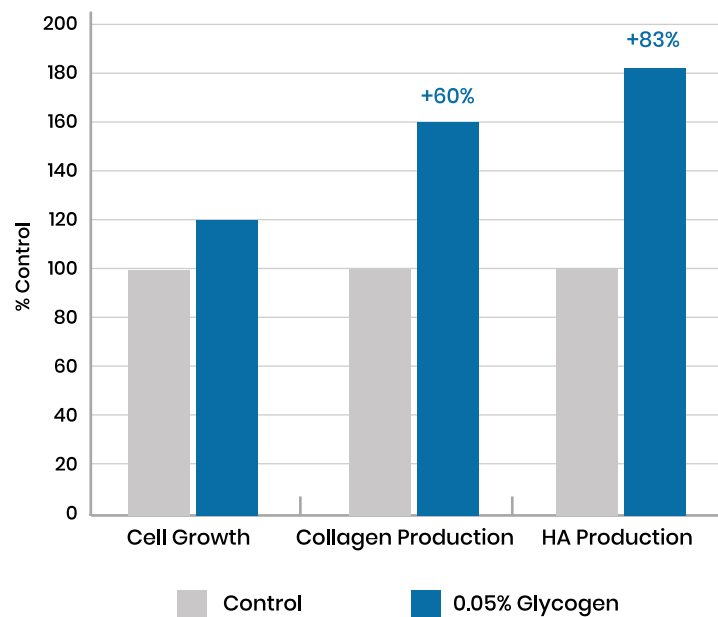
With Glycogen



Microscopic image of cells (blue) producing Type 1 collagen (green) with and without Glycogen.

Glycogen increases the metabolic activity of skin fibroblast cells.

Human fibroblast cells after 36 hours

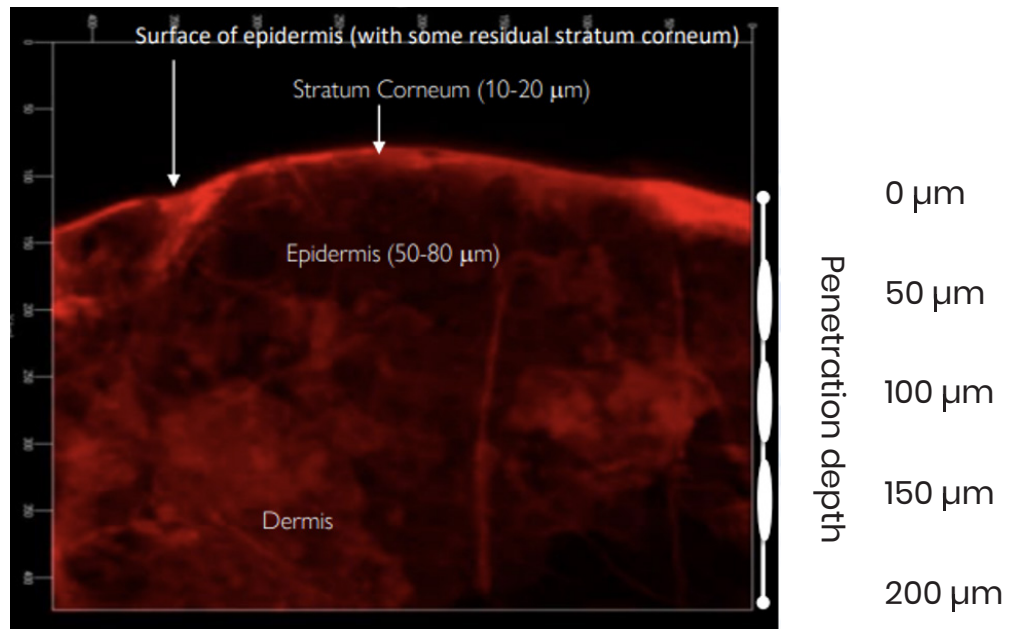


In vitro studies conducted on human fibroblast cells exposed to 0.05% after 36 hours revealed Glycogen increases cellular growth rate, collagen production, and hyaluronic acid production.

Penetration through human skin.

Confocal microscopy on cross-section of human skin incubated with rhodamine-labelled PHX

We have demonstrated that fluorescently labelled Glycogen penetrates human skin to depths corresponding to the dermal layer, suggesting that Glycogen formulated in a cream can reach live skin cells to enhance metabolism and promote the endogenous production of biopolymers essential for healthy skin.



Visible benefits on wrinkles

- +36% Skin smoothness
- -21% Fine Lines
- -22% Deep Wrinkles

In vivo, clinical study on 30 women (0.1% Glycogen), results after 6 weeks with 2 applications/day vs placebo.

Visible benefits on radiance

- -12% Dullness

In vivo, clinical study on 30 women (0.3% Glycogen), results after 4 weeks with 2 applications/day vs baseline.

- +56% Even skin tone
- -85% Hyperpigmentation intensity

In vivo, clinical study on 30 women (0.3% Glycogen), results after 6 weeks with 2 applications/day vs placebo.

Even Skin Tone

Radiance

Recovery of skin luminosity at 0.1% Glycogen

Up to:

- -15% redness
- +7% skin radiance
- +7% skin homogeneity

Dark spot fighter

Skin tone enhancement at 0.3% Glycogen

Up to:

- -59% in pigmentation area

Resulting in:

- +12% skin homogeneity



In vivo, clinical study on 30 womens results after 6 weeks with 2 applications/day vs placebo

Links:

[Journal of Applied Glycoscience, June 2021, pages 41–46](#)

[Journal of Clinical Biochemistry and Nutrition, July 2020, pages 29–35](#)

[Polymers, February 2018, pages 1–25](#)

[BBA Clinical, June 2016, pages 85–100](#)

[Data on file.](#)

PISTACIA LENTISCUS GUM (MASTIC GUM)

Ingredient Claims:

Improves skin elasticity by 20.4%	Increases skin density by 13.8%
Improves the appearance of wrinkles by 14%	Skin feels 6.4% smoother
Refines the appearance of pores by up to 14.9%	Reduces the appearance of blackheads by 40%
Regulates sebum production	Plant-based alternative to retinol

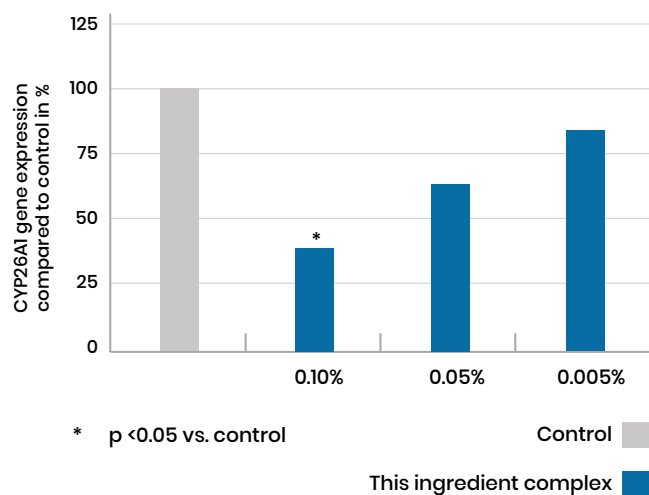
Known as a natural, plant-based alternative to retinol, mastic gum is an aromatic resin produced by the lentisk tree which grows on the Greek island of Chios (*Pistacia lentiscus* var. *Chia*). Mastic gum is excreted in the form of tears from the trunk and main branches when they are gently scratched on the surface. The extraction of the resin through this technique is a sustainable and centuries-old tradition that does not harm the tree and can be practiced for decades. Solidification of the resin results in an ivory translucent coloured drop (tear), which is collected, washed, and cleaned. Mastic was the first natural chewing gum in the ancient world, used to clean the teeth and freshen the breath but also to prevent digestive disorders.

Mastic gum works as an alternative to retinol by inhibiting CYP26 enzymes which are responsible for the elimination of retinoic acid in the skin. By inhibiting the CYP26 enzymes, retinoic acid levels can increase.

Mastic gum can provide the following benefits to the skin:

- Improved skin density and elasticity.
- Reduction in the appearance of crow's feet.
- Smooths the skin's texture.
- Reduces the appearance of wrinkles.
- Improves the appearance of imperfections.
- Reduces the appearance of pore size.

Inhibition of CYP26A1 Gene Expression in keratinocyte cells-retinol like effects



Cell culture: Human keratinocyte cell line (HaCaT)

Test substance: Niacinamist, different concentrations

Treatment: Treatment of cell cultures with test substance for 4 hours

Parameter: Gene expression of CYP26A1 (RT-qPCR)

Result: Clear concentration-dependent reduction in the expression of CYP26A1.

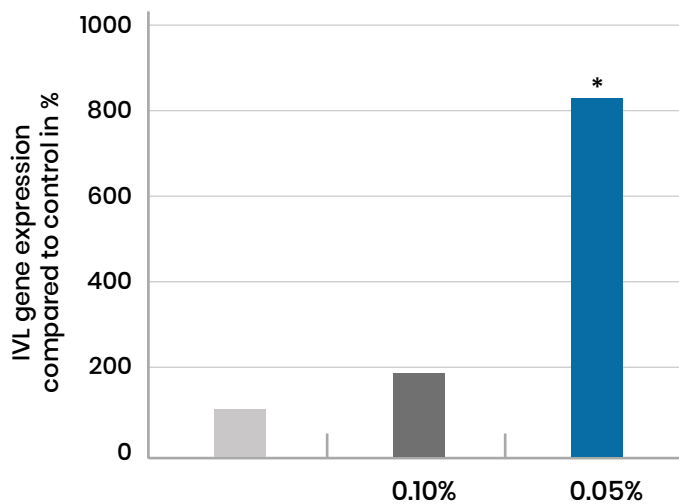
Retinoic Acid Boosting Effect in 3D Epidermis Model compared to control

Skin model: Reconstructed human epidermis (RHE)

Test substance: 0.008% of Pistacia Lentiscus (Mastic) Gum

Treatment: Treatment of skin models with test substance or the reference compound talarozole (10nM), a well-known inhibitor of CYP26 enzymes

Parameter: Gene expression on involucrin, which is known to be upregulated by retinoic acid and marker of retinoic acid activity (RT-qPCR).



Protein abundance on involucrin in the RHEs (immunostaining and microscopy)

* p < 0.01 vs. control

Control

Reference (talarozole)

0.008 % This ingredient complex



**Strong upregulation of IVL gene expression
by +720% compared to control**

This ingredient clearly enhanced the abundance of involucrin in the epidermis compared to control. It also has a retinoic acid boosting effect that is like the effect of the CYP26 inhibitor talarozole.

Topical application of this ingredient can enhance retinoic acid levels in the skin.

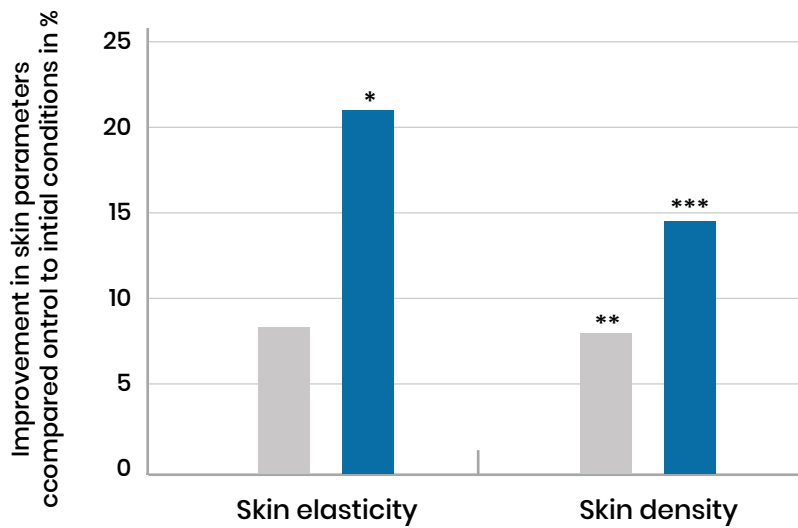
Anti-ageing effect with Pistacia Lentiscus (Mastic) Gum

Test product: Cream with 460mg Pistacia Lentiscus (Mastic) Gum or placebo

Volunteers: 18 (F, 40yr – 70yr) with wrinkles on the crow's feet region and signs of photo-ageing on the face and inner forearms

Application: Application on the face and inner forearms twice daily for 28 days

Parameters: Skin elasticity in the face. Epidermis-dermis density on the forearm



Increased Skin density & skin elasticity.

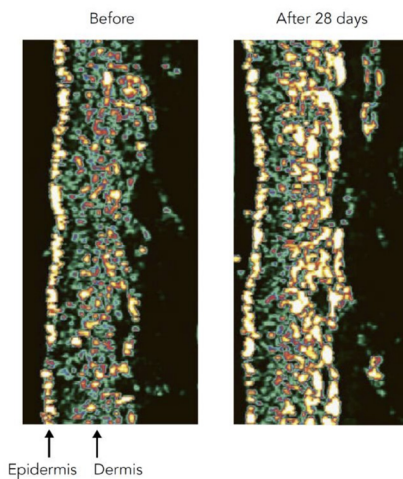
- * p < 0.001 vs. Initial conditions
- ** p < 0.01 vs. Initial conditions
- *** p < 0.001 vs. Initial conditions and p < 0.05 vs. placebo

Control 
460mg Pistacia
Lentiscus Gum 



This ingredient complex significantly improved:

- Skin elasticity by +20.4%
 - Skin density by +13.8%
- After 28 days of application



Improved epidermis-dermis density was also visible in the ultrasonographic images after 28 days of this ingredient complex application.

By retaining endogenous retinoic acid levels in the skin, this ingredient demonstrates strong anti-ageing effects.

Improved epidermis-dermis density was also visible in the ultrasonographic images after 28 days of this ingredient application.

By retaining endogenous retinoic acid levels in the skin, this formulation demonstrates strong anti-ageing effects.

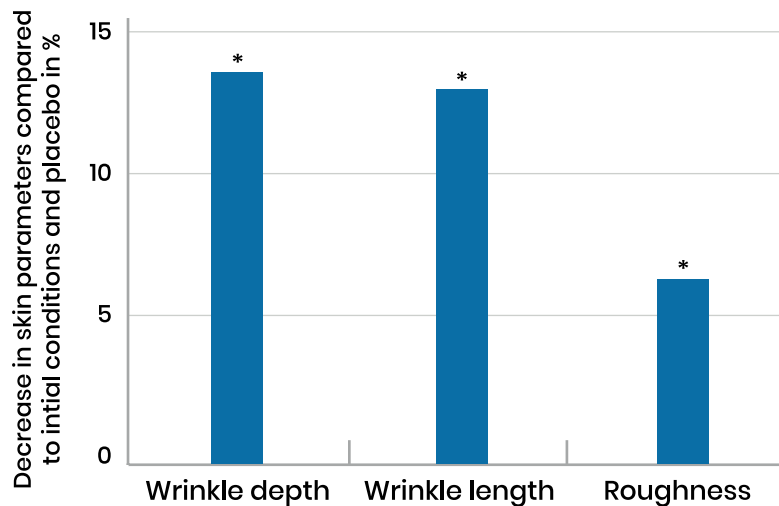
Immediate Anti-wrinkle and Smoothing effect

Test product: Cream with 460mg Pistacia Lentiscus (Mastic) Gum or placebo

Volunteers: 22 (F, 42yr – 65yr) with wrinkles on the crow's feet region

Application: Single application on the periorbital area, measurements after 30 mins

Parameters: Wrinkle depth, wrinkle length and skin roughness.



*p <0.05 vs. Initial conditions and placebo

460mg Pistacia
Lentiscus Gum



This formulation was able to significantly improve:

- Wrinkle depth by +20.4%
- Wrinkle Length by +13.7%
- Skin Roughness by +6.4%

After only a single application

Before

After 30 minutes



Photographs: Visible reduction of wrinkles in photographs taken of the volunteers before and 30 minutes after the application.

Questionnaire: 82% of the volunteers confirmed that the contour of their eyes appeared smoothed and that the eye region was immediately lifted.

This formulation not only provides long-term anti-ageing effect due to its retinoic acid-boosting efficacy but also offers immediate lifting effects in the crow's feet area after only a single application.

Pore Refinement compared to initial conditions

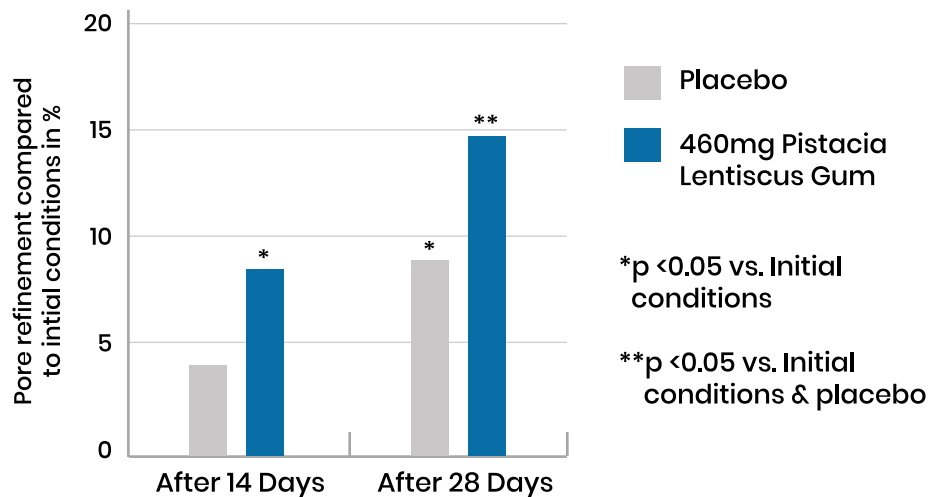
Volunteers: 20 Caucasian woman (24 to 61 yr, mean: 42.8yr) with enlarged pores

Test product: 460mg Pistacia Lentiscus (Mastic) Gum, placebo

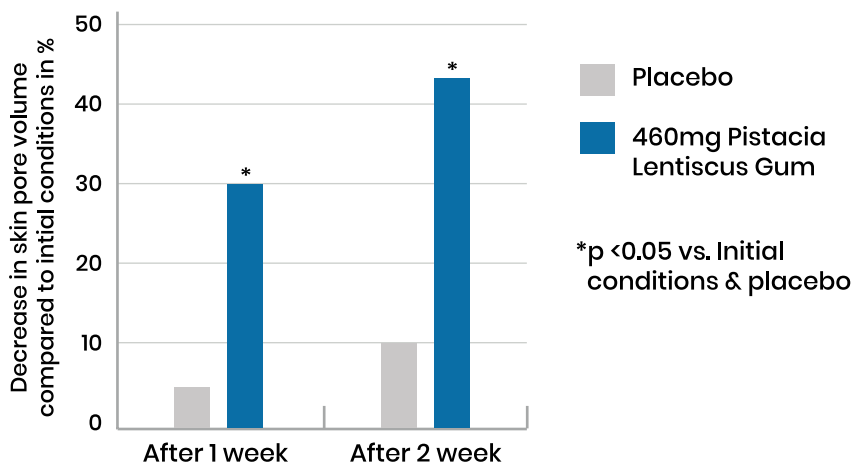
Application: Twice daily for 28 days

Test area: Face

Parameter: Pore refinement (skin roughness)



↓ This formulation refined pores:
• By +8% after 14 Days
• By almost +15% after 28 Days
Pore refining effect in 95% of the volunteers



Improves Pore Appearance

Volunteers: 23 (F, 21yr – 48yr) Asian, with oily skin with impurities

Test product: Cream + 460mg Pistacia Lentiscus (Mastic) Gum, placebo

Application: Twice daily for 14 days, on one half of the face and the corresponding placebo on the other half of the face.

Parameters: Pore volume and pore count.
Pore appearance.

Pore Volume

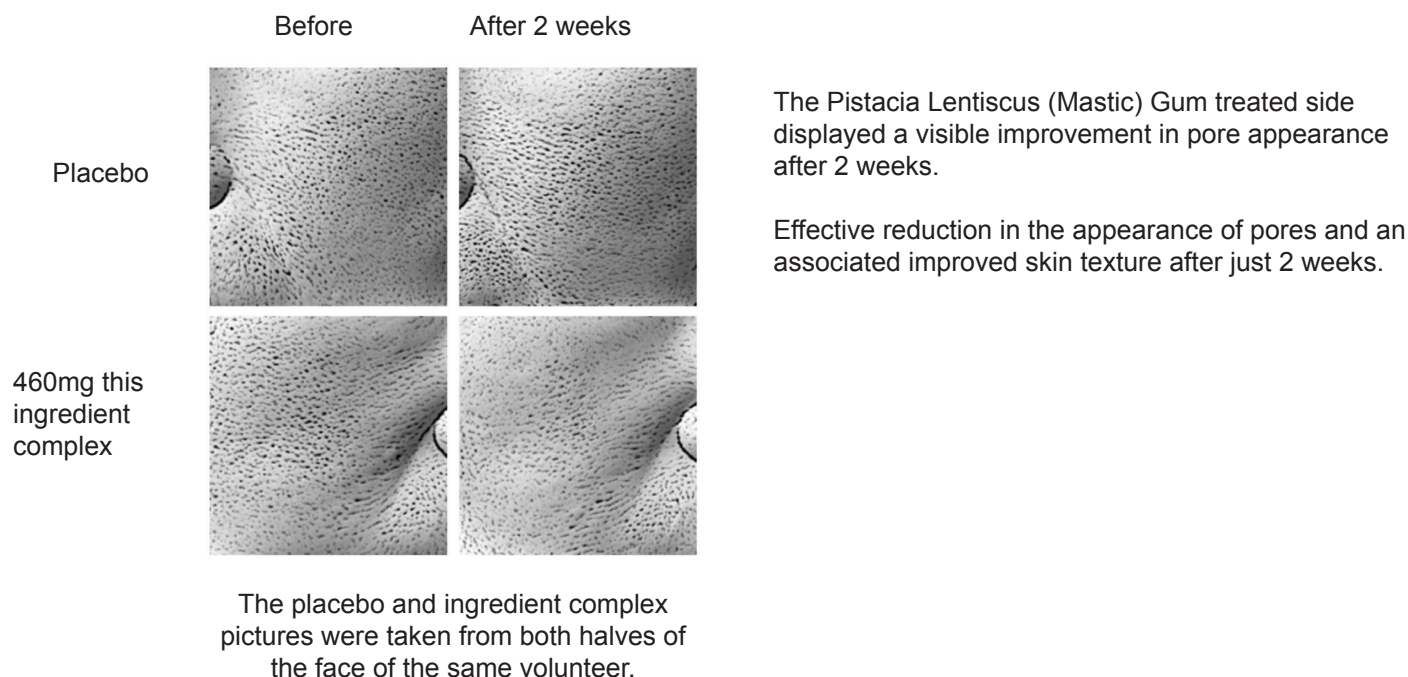
This formulation reduced pore volume by:

- 30.3% after 1 week
- 41.7% after 2 weeks

Pore Count

Additionally this formulation reduced pore count by:

- 20.5% after 1 week
- 30.3% after 2 weeks



Link: [Data on file](#)

NIACINAMIDE (VITAMIN B3)

Ingredient Claims:

Reduces trans-epidermal water loss by 27%	Inhibits melanin production in the skin
Improve skin elasticity	Reduces the appearance of pores
Powerful antioxidant that reduces level of reactive oxygen species in the skin	Stimulates the synthesis of collagen
Brightens skin tone	Reduces the signs of aged skin

Also known as vitamin B5, niacinamide has multiple skin-improving properties that tackle signs of ageing, UV damage and pigmentation.

It has a stabilising effect on epidermal barrier function by a reduction in transepidermal water loss and an improvement in the moisture content in the skin. It has been shown to improve the elasticity of the skin and reduce the appearance of wrinkles. Rebalances skin tone Reduces discoloration.

Niacinamide also exhibits antioxidant activity, significantly reducing the level reactive oxygen species in skin.

Niacinamide has also been shown to repair UV-induced DNA damage, in turn reducing the signs of photo-ageing.

Niacinamide has skin lightening effects with topical application, decreasing the appearance of hyperpigmentation by inhibiting melanin production.

Niacinamide can also help to build keratin which helps keep skin firm and healthy, it can also help your skin grow a lipid or ceramide layer which then helps to stop trans epidermal water loss and increases hydration.

Research has also indicated that 5% Niacinamide can help with hyperpigmentation after 4 weeks of continued use, this is thought to be related to increased collagen production.

Link: <https://pubmed.ncbi.nlm.nih.gov/17147561/>

Link: <https://pubmed.ncbi.nlm.nih.gov/17147561/>

Link: <https://pubmed.ncbi.nlm.nih.gov/17147561/>

Link: <https://www.komen.org/breast-cancer/survivorship/complementary-therapies/niacinamide/>

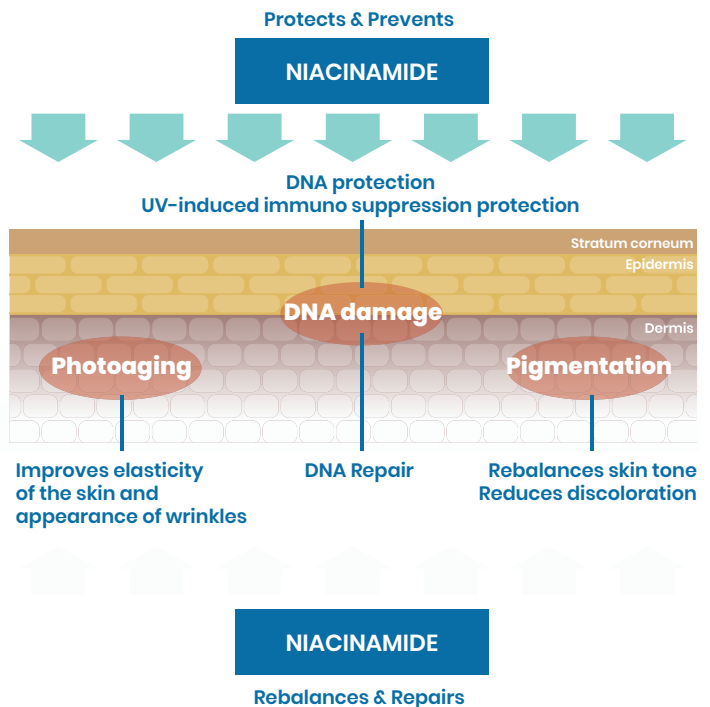
Links:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6824628/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7950568/>

<https://pubmed.ncbi.nlm.nih.gov/20061726/>

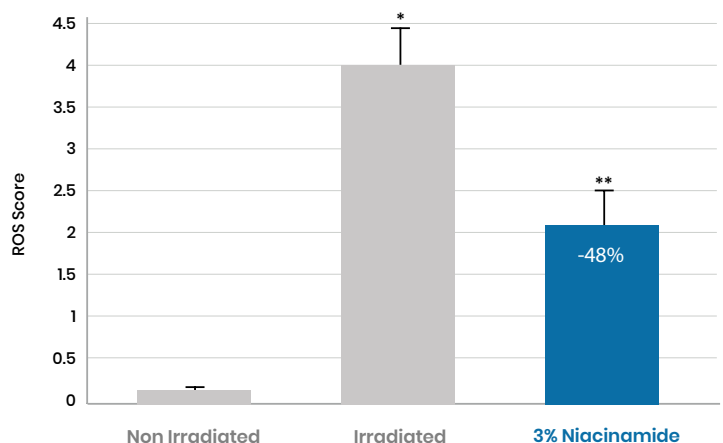
Exposure to sun light acts together with the normal ageing process to prematurely age our skin. UV radiations are also triggering excessive or uneven skin pigmentation as well as skin cancer development. Niacinamide showed to be effective in tackling UV damage: from protecting and repairing UV stressed skin to maintain its beautiful glow and elasticity.



Overview of Niacinamide benefits for UV-stressed skin: DNA protection, anti-aging, skin tone.

Blue light was shown to significantly increase oxidative stress in skin by inducing reactive oxygen species (ROS). ROS can in turn cause damage to proteins and lipids. In the case of proteins this can occur in the form of carbonylated proteins. This renders proteins non-functional.

Result: Niacinamide significantly reduces ROS in human skin in response to blue light irradiation.



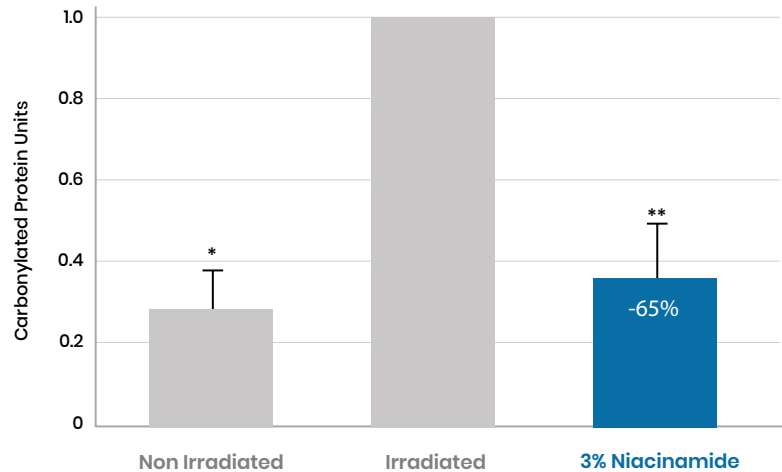
* $p < 0.001$ vs. non-irradiated control

** $p < 0.01$ vs. irradiated control

Influence of topical application (ex vivo human skin) of 3% Niacinamide on blue light induced ROS formation. 100j/cm² irradiation at 380-470nm, max at 420nm. Skin samples were harvested 24hr after irradiation. DSM Study.

Result: Niacinamide significantly reduces carbonylated protein levels in human skin in response to blue light irradiation.

Niacinamide significantly reduces ROS in human skin in response to blue light irradiation. Blue light from solar irradiation, computer or smartphones evokes similar effects as UV-light and penetrate even deeper into the skin.



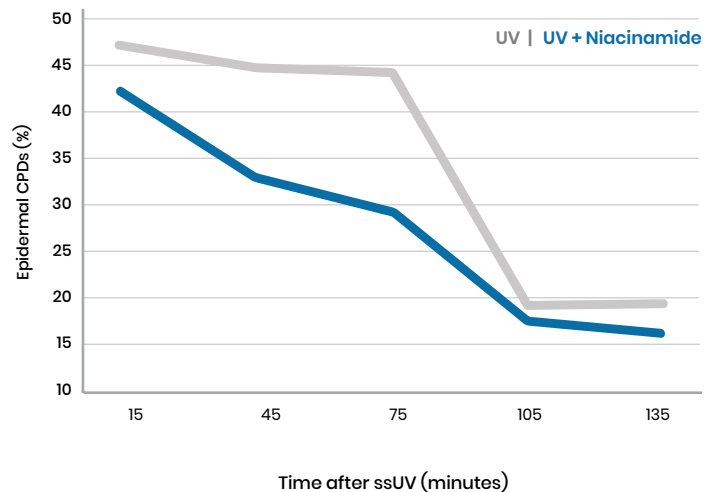
* p < 0.01 vs. irradiated control
 ** p < 0.05 vs. irradiated control

Influence of topical application (ex vivo human skin) of 3% Niacinamide on blue light induced carbonylated proteins formation. 100J/cm² irradiation at 380-470nm, max at 420nm. Carbonylated proteins were extracted from the epidermal part of the skin tissues 48hr post irradiation. DSM Study.

Repair of UV induced DNA damage

Niacinamide has been shown to enhance the repair of DNA damage in human keratinocytes and in human skin. It also has the potential to prevent UB-induced immune suppression. In the study, ex vivo skin was treated with 50um Niacinamide before being exposed to low solar simulated UB (ssUV). The 5 epidermal Cyclobutane Pyrimidine Dimer (CPDs) has been quantified via immunostaining. DNA damage directly results in the formation of CPDs.

Result: Niacinamide significantly enhances the repair of CPD photolesions in human skin.

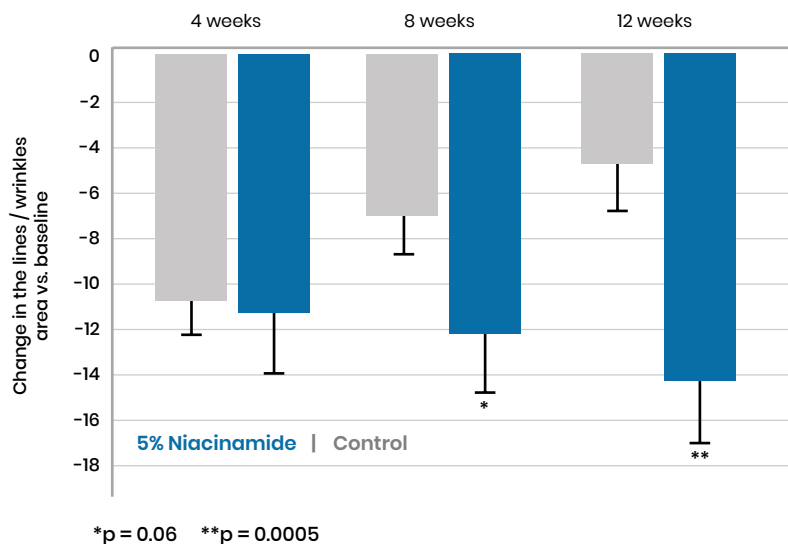


Influence of 50um Niacinamide on CPD level. Ex vivo human skin exposed to 4J/cm² ssUV.

Effect on fine lines and wrinkles

Because it selectively stimulates the synthesis of collagen Niacinamide will help to maintain the firmness and smoothness of the skin, reducing the appearance of wrinkles. Several in vivo clinical trials have demonstrated significant improvements at Caucasian, Japanese and Taiwanese female volunteers. In the table, a double-blind, placebo-controlled, split-face, left-right, randomised 12-week study in 50 Caucasian volunteers.

Result: 5% Niacinamide shows significant improvement in fine lines and wrinkles following both 8 and 12 weeks of treatment.

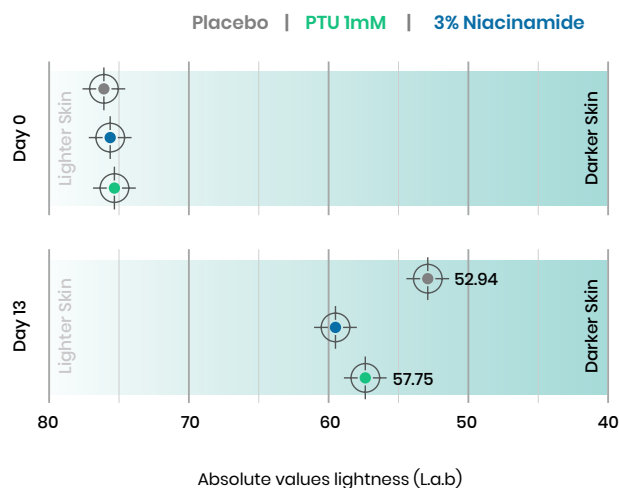


Influence of niacinamide on facial skin fine lines / wrinkles (measured as linear depression area in mm²) vs. control. Data obtained from quantitative computer image analysis.

Reduced pigmentation in 3D skin model

The reconstituted human skin model is a co-culture of normal human keratinocytes and melanocytes. The positive control PTU (Phenylthiourea) and the test substance Niacinamide were applied topically on a daily base for 13 days.

Result: Niacinamide shows skin lightening properties versus placebo in 3D skin model.

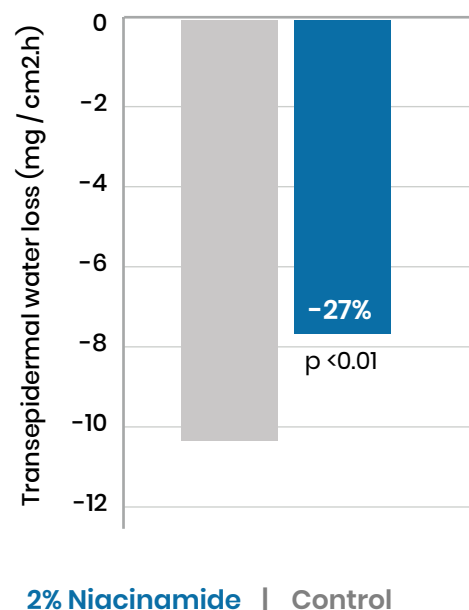


Influence of Niacinamide and PTU on the pigmentation development over 13 days. Measured in luminosity units [L*(D65)] compared to a white reference (L = 100). DSM Study.

Skin barrier integrity

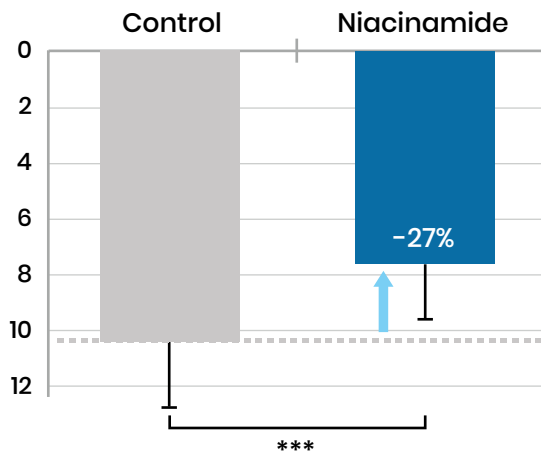
Trans epidermal water loss (TEWL), is used to study the water barrier function of our skin. The integrity of the stratum corneum is an indicator of the strength of the barrier. It was evaluated by measuring the TEWL after tape stripping of stratum corneum.

Result: TEWL was reduced by 27% when skin was treated twice daily with 2% Niacinamide for 4 weeks.



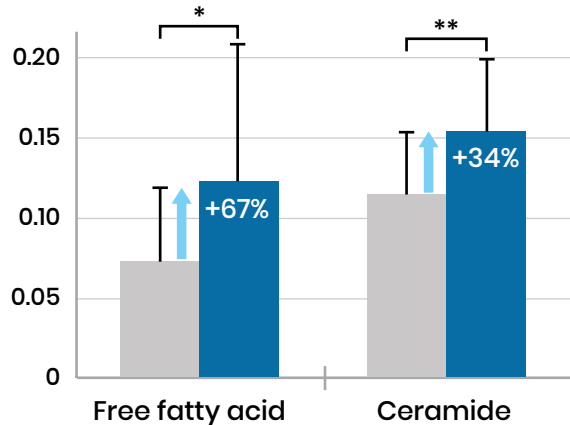
Influence of topical application of 2% niacinamide on TEWL

Transepidermal water loss (mg/cm².h)



TEWL was reduced by 27% when skin was treated twice daily with 2% Niacinamide for 4 weeks

Increased ceramide and free fatty acids level (ug/mg protein) in stratum corneum after Niacinamide treatment

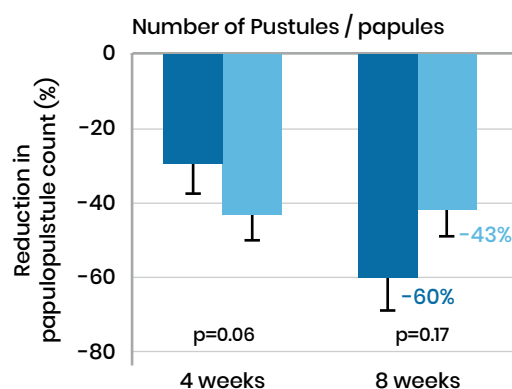
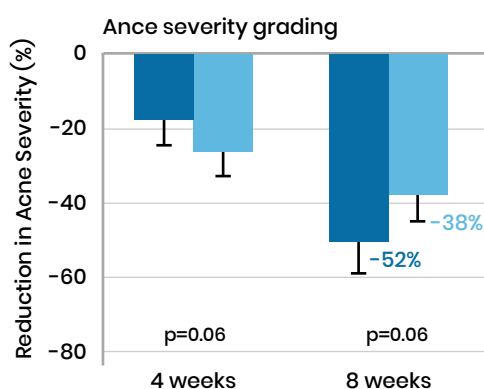


*p <0.01; **p<0.05; ***p<0.01

Control 2% Niacinamide

Niacinamide PC helps to keep hydrated and normalize the skin by balancing ceramide and fatty acids in stratum corneum

Results of several clinical trials with 4% Niacinamide vs 1% Clindamycin



76 men and women (aged 13-35) with moderate inflammatory acne vulgaris for 8 weeks. Measurement by dermatologist (ance severity according to modified Cook grading by Allen and Smith)

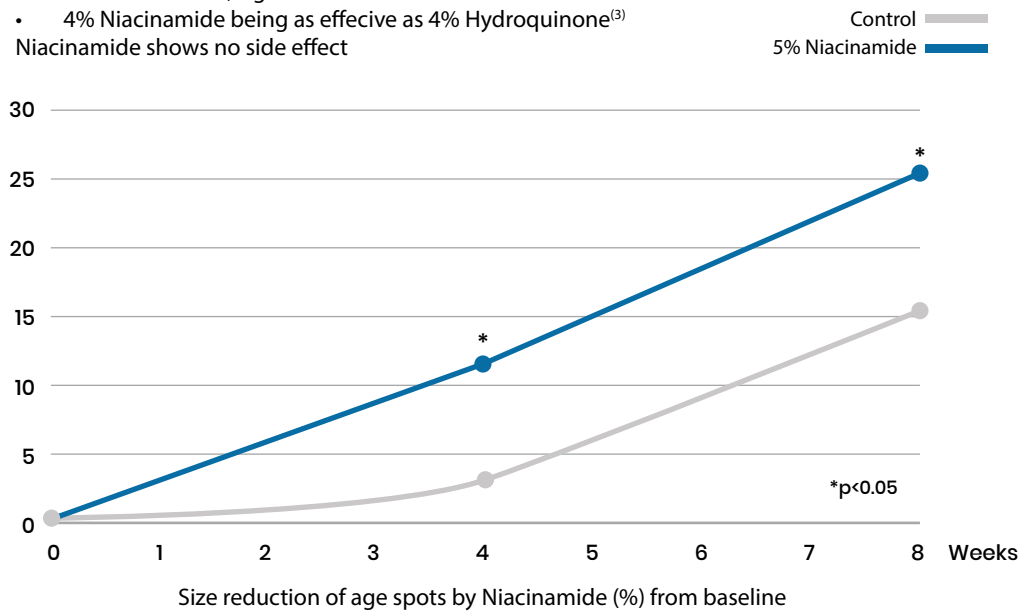
4% Niacinamide Gel 1% Clindamycin Gel

Niacinamide is safe and effective in helping even out skin tone

Niacinamide is an effective skin lightening compound showing in several high quality clinical trials

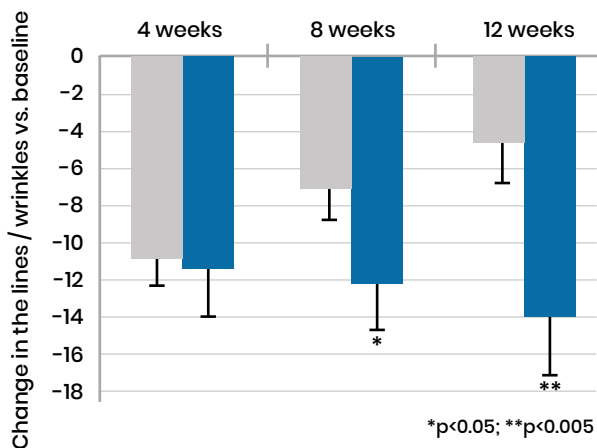
- effects at 2 & 5%, significant at 5%^(1,2)
- 4% Niacinamide being as effective as 4% Hydroquinone⁽³⁾

Niacinamide shows no side effect



Significant reduction of fine lines

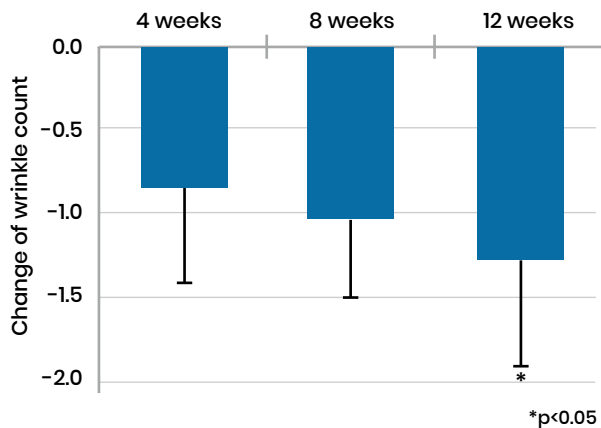
Caucasian female volunteer



Treatment with 5% Niacinamide shows significant improvement in fine lines and wrinkles following both 8 and 12 weeks of treatment.

Significant wrinkle reducing effects

Taiwanese female volunteer



Significant decrease (-51.6%) of wrinkle count with 4% Niacinamide after 12 weeks vs baseline.

Control 2% Niacinamide

Links:

[Data on file](#)

<https://pubmed.ncbi.nlm.nih.gov/17147561/>

<https://www.komen.org/breast-cancer/survivorship/complementary-therapies/niacinamide/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6824628/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7950568/>

<https://pubmed.ncbi.nlm.nih.gov/20061726/>

Bakuchiol

Ingredient Claims:

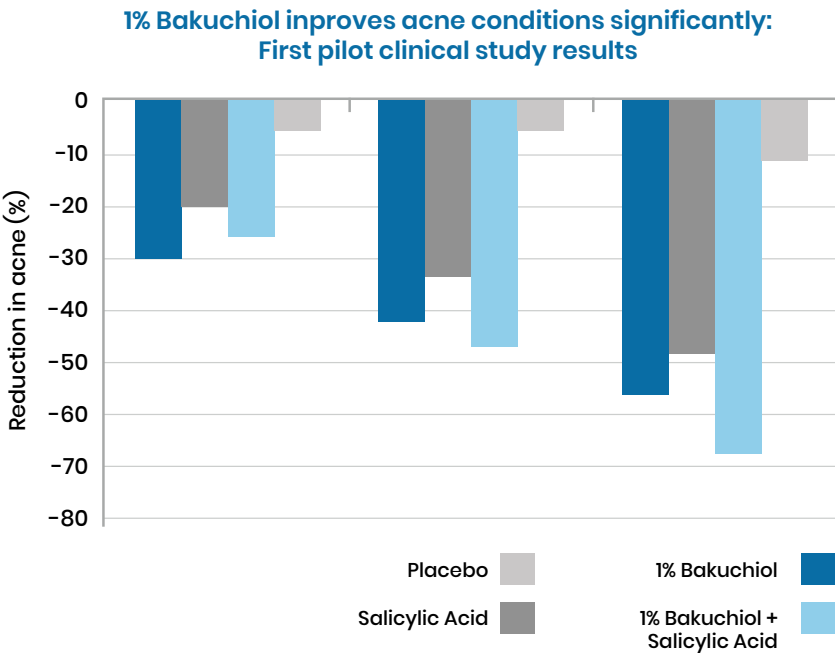
20% decrease in wrinkle depth (0.5% bakuchiol)	Up to 16% increase in skin moisture content (1% bakuchiol)
21% decrease in skin roughness (0.5% bakuchiol)	Reduces the appearance of blemishes by up to 57% (1% bakuchiol)
Inhibits elastase activity by up to 40% (0.5% bakuchiol)	

Bakuchiol is a plant-based ingredient that has gained popularity in skincare products in recent years as a natural and gentler alternative to retinol. It is derived from the seeds and leaves of the *Psoralea corylifolia* plant, also known as the babchi plant, and has several potential benefits for the skin, including:

- **Anti-ageing:** Bakuchiol has been shown to have anti-ageing properties, including reducing the appearance of fine lines, wrinkles, and other signs of ageing. It helps to stimulate collagen production, which can improve the skin’s elasticity and firmness.
- **Moisturising:** Bakuchiol has moisturizing properties that can help to improve the skin’s hydration levels and prevent dryness and flakiness.
- **Brightening:** Bakuchiol can help to brighten the skin and improve its overall tone and texture. It can reduce the appearance of dark spots and hyperpigmentation, resulting in a more even and radiant complexion.
- **Gentle:** Bakuchiol is considered a gentler alternative to retinol, which can be irritating to some people, especially those with sensitive skin. It has been shown to have similar benefits to retinol without causing the same side effects, such as redness and peeling.
- **Anti-inflammatory:** Bakuchiol has anti-inflammatory properties that can help to reduce redness, inflammation, and irritation of the skin. Bakuchiol has inhibitory activity against pro-inflammatory enzymes, such as phospholipase A2. It can be particularly beneficial for people with acne-prone or sensitive skin.

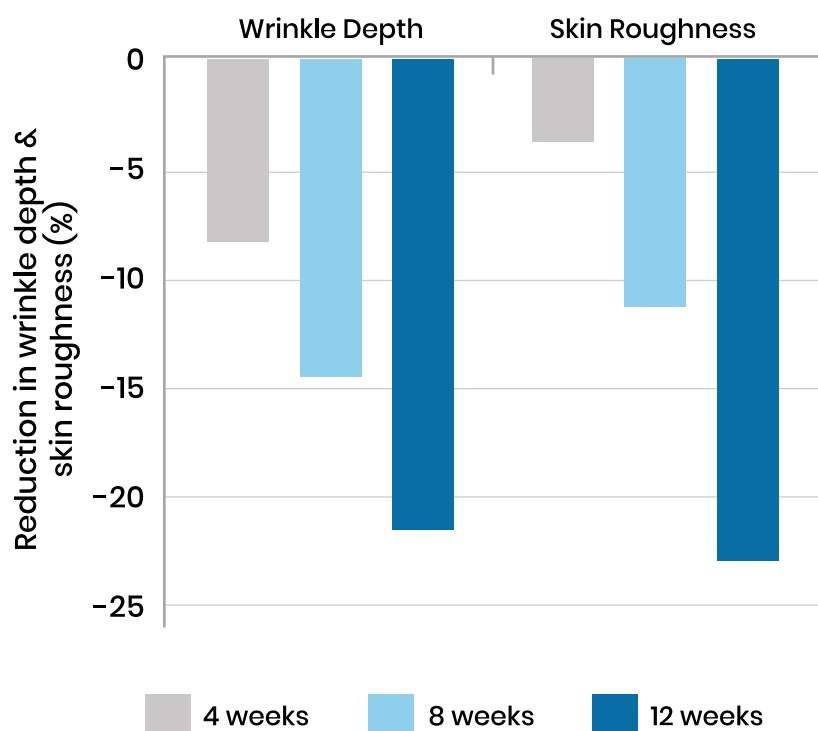
A study of 60 female subjects with sensitive mild to moderate photodamaged skin were enrolled in a 12-week study. Subjects used a naturally based cleanser and moisturiser containing 1% bakuchiol twice daily.

Results of the study showed the skincare products were well tolerated and efficacious in terms of investigator-assessed improvement in visual smoothness, tactile smoothness, clarity, radiance, overall appearance and global anti-ageing. The skincare products containing bakuchiol demonstrated a 16% increase in skin moisture content.

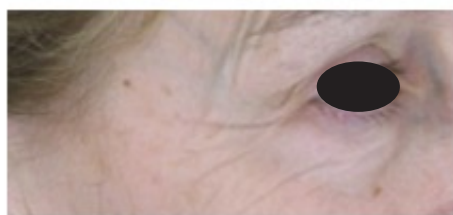
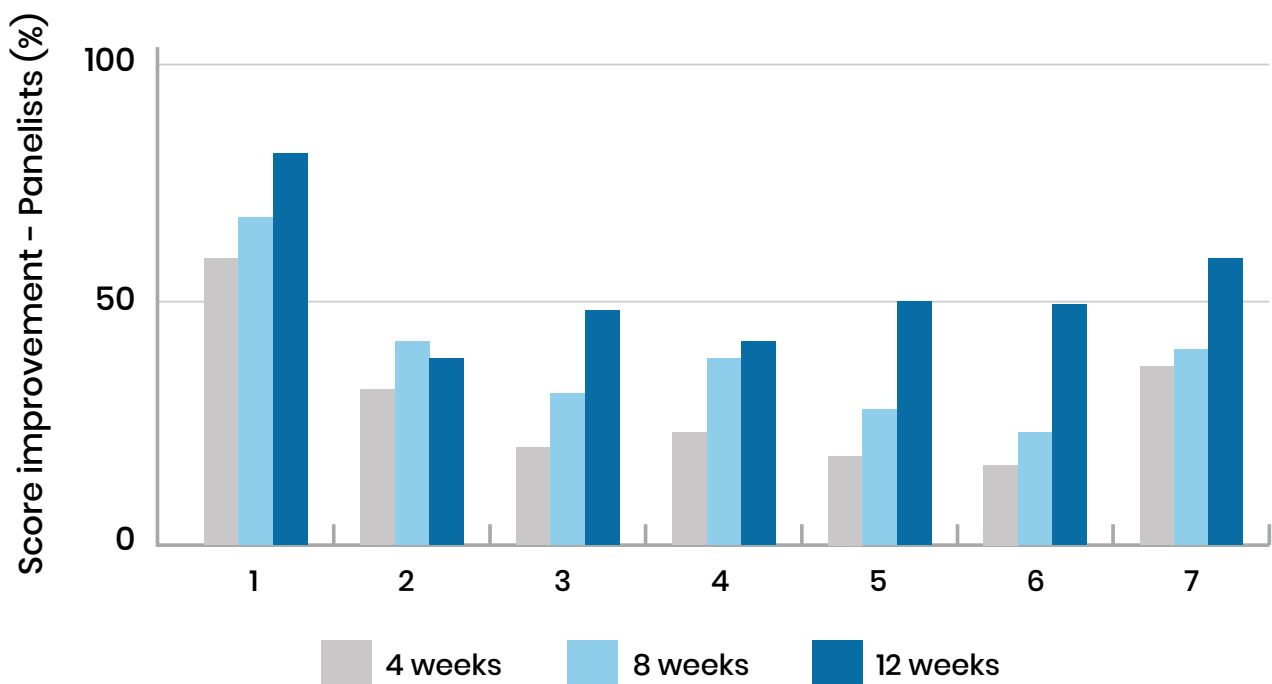
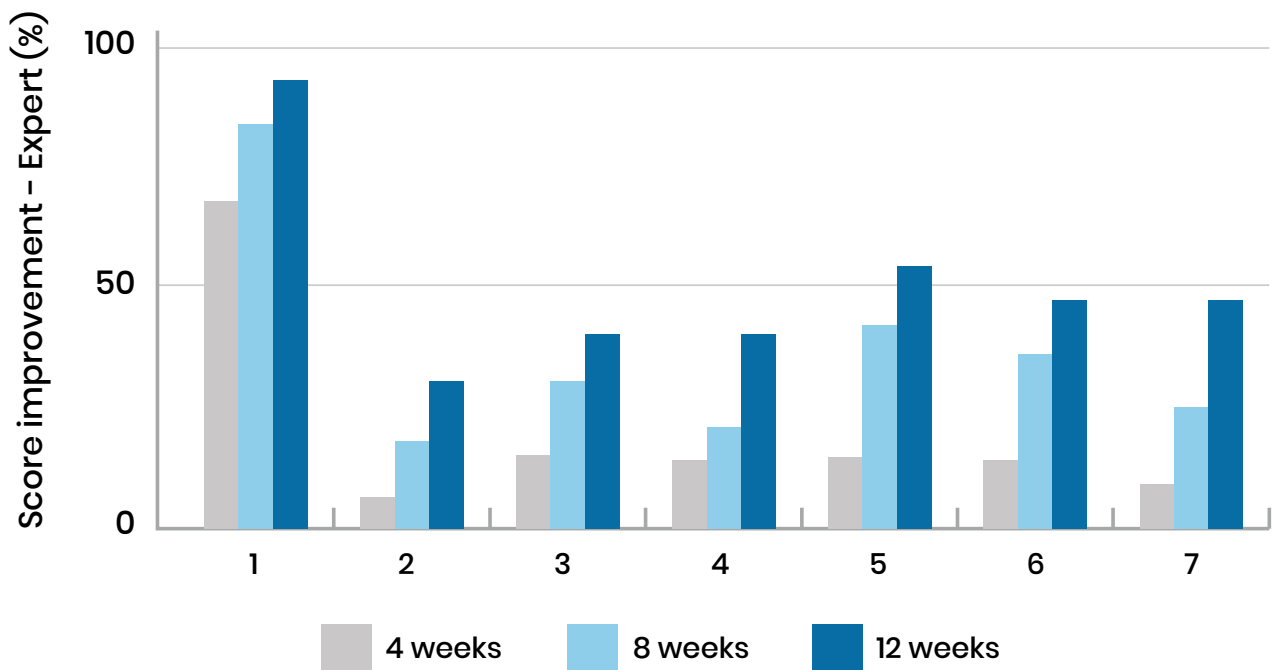




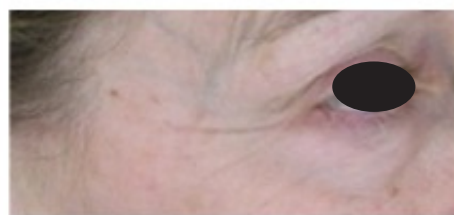
0.5% Bakuchiol clinically proven to reduce multiple signs of ageing



0.5% Bakuchiol Reduction in wrinkles

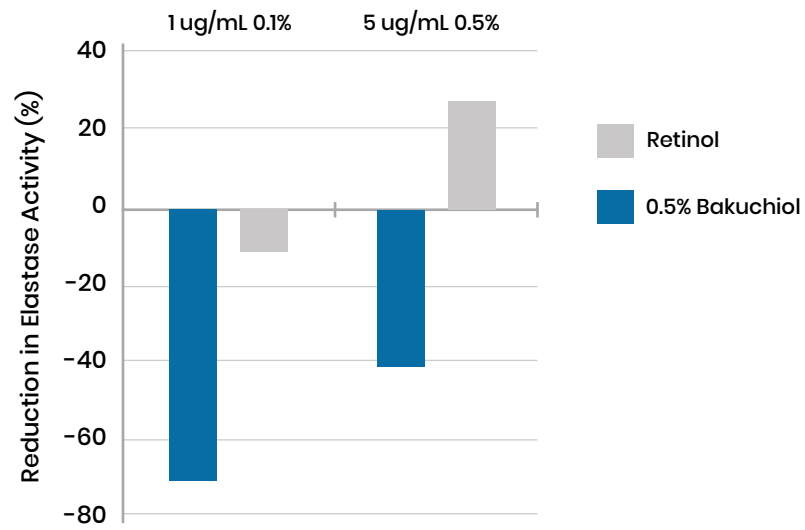


Before treatment



After 12-week treatment

Elastase Inhibitory Activity: Bakuchiol vs Retinol



Second Pilot Clinical: Panelist ID 7, Front



BASELINE



AFTER 6 WEEKS

Second Pilot Clinical: Panelist ID 7, Left



BASELINE



AFTER 6 WEEKS

Second Pilot Clinical: Panelist ID 9, Left

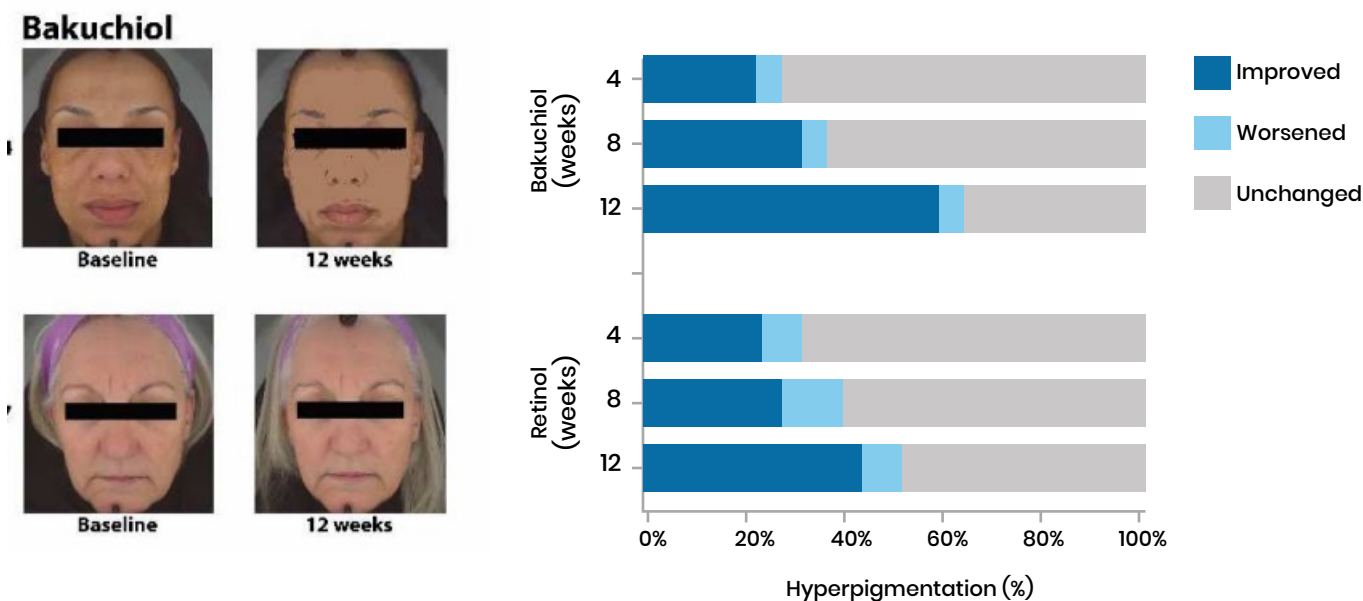


BASELINE



AFTER 6 WEEKS

A randomised, double-blind, 12-week study in which 44 subjects were asked to apply either 0.5% bakuchiol cream twice daily or 0.5% retinol cream daily. A facial photograph and analysis system was used to obtain and analyse high-resolution photographs of subjects at 0, 4, 8, and 12 weeks. Subjects also completed tolerability assessment questions to review side effects. During study visits, a board-certified dermatologist, blinded to study group assignments, graded pigmentation and redness.



Links:
<https://pubmed.ncbi.nlm.nih.gov/33346506/>
<https://pubmed.ncbi.nlm.nih.gov/8910867/>
<https://pubmed.ncbi.nlm.nih.gov/29947134/>
<https://pubmed.ncbi.nlm.nih.gov/35674758/>
<https://pubmed.ncbi.nlm.nih.gov/36176207/>
[Data on file](#)

Saccharide Isomerate

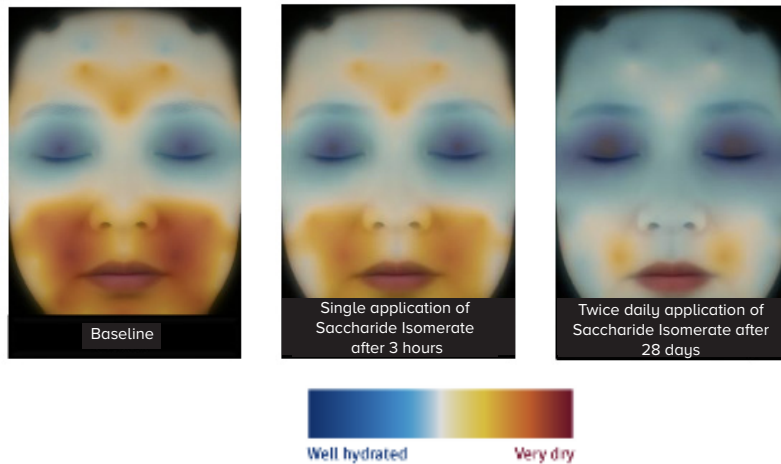
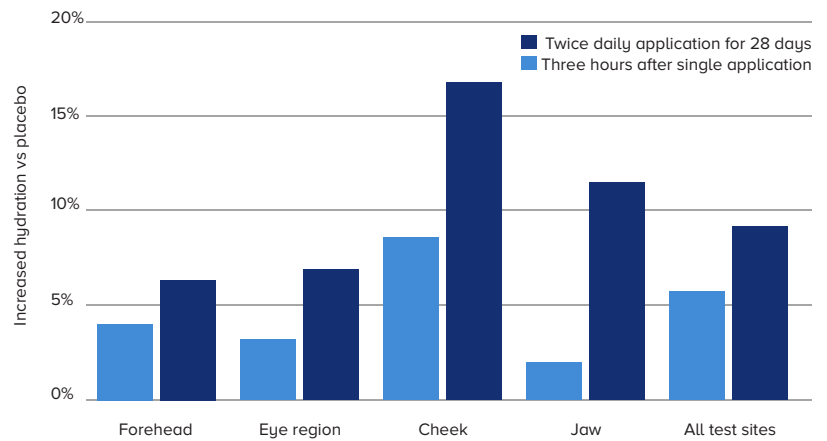
Ingredient Claims:

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%

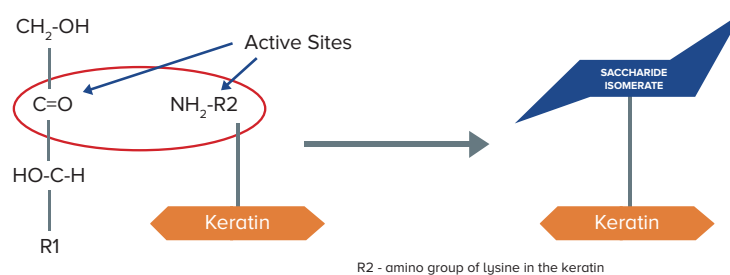
Saccharide Isomerate Complex is a 100% plant-derived carbohydrate complex, similar to that found in human skin. The molecules bind to the skin, preventing epidermal water loss, delivering immediate & long-lasting hydration for up to 72 hours. As a vegan hyaluronic acid booster, Saccharide Isomerate complex 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.

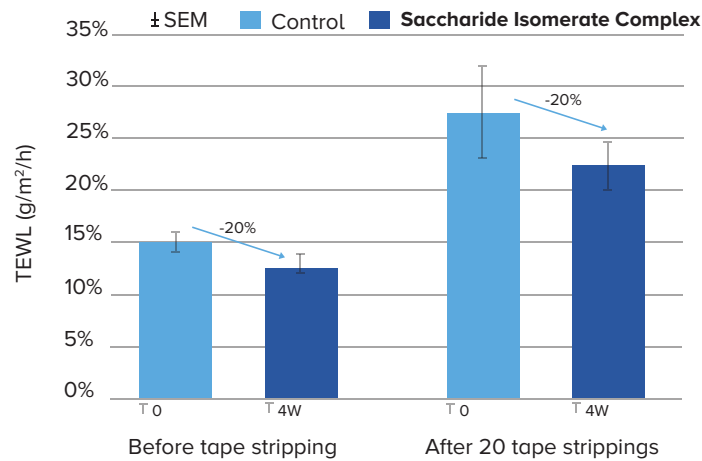
Saccharide Isomerate vs. Placebo
After twice daily application of Saccharide Isomerate Complex, there is a significant improvement in hydration across all facial areas. Just 3 hours after a single application, the excessively dry cheek area is significantly more hydrated.



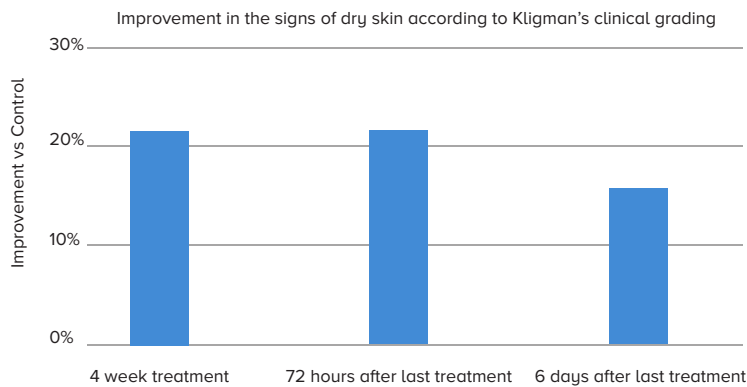
The in-vivo and in-vitro studies have proven the unique binding of this Saccharide Isomerate Complex to the free amino group of lysine in keratin. After 4 weeks of continuous use, Saccharide Isomerate improves the signs of dry skin by 20%, with effects lasting long after the final application 6 days 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 functions 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](#)

Panthenol (Vitamin B5)

Ingredient Claims:

Provides intense moisturisation	Improves skin elasticity
Promotes wound healing	Improves skin texture and skin tone
Soothes red, irritated skin	Enhances skin barrier function

Also known as pro-vitamin B5, Panthenol effectively penetrates the skin and provides a number of benefits:

- **Moisturising:** Panthenol is a humectant, which means that it helps to attract and retain moisture in the skin. This can help to improve the skin's hydration levels by decreasing trans epidermal water loss and reduces dryness and flakiness.

- Soothing: Panthenol has anti-inflammatory properties that can help to calm and soothe irritated or sensitive skin. This makes it useful for people with conditions like eczema, rosacea, or acne.
- Healing: Panthenol can help to support the skin's natural healing process by promoting cell regeneration and tissue repair. This can help to reduce the appearance of scars and improve overall skin health.
- Anti-ageing: Panthenol can help to improve the appearance of fine lines and wrinkles by increasing the skin's elasticity and suppleness. It can also help to improve skin texture and tone.
- Enhances skin barrier: Panthenol can help to strengthen the skin's natural barrier function, reducing moisture loss and protecting the skin from external stressors.

Links:

<https://pubmed.ncbi.nlm.nih.gov/21982351/>

<https://pubmed.ncbi.nlm.nih.gov/27545858/>

<https://www.scinapse.io/papers/3564442>

<https://www.tandfonline.com/doi/full/10.1080/09546634.2016.1214235>

[Data on file.](#)

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.

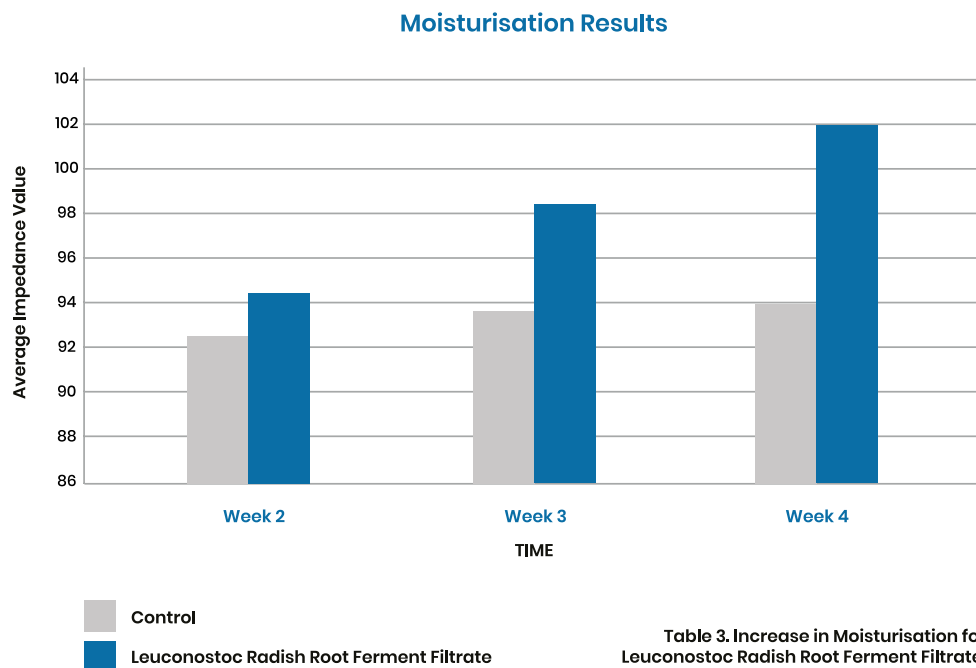
Links:

[Data on file](#)

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

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

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



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.

Sources

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

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

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

Glycerin

Ingredient Claims:

Excellent moisturising properties	Enhances skin elasticity
Calms and soothes irritated skin	Promotes skin barrier function
Reduces trans epidermal water loss	Soothes hot or sunburned skin

Glycerin is a humectant which is present in all-natural lipids. Derived from natural substances by hydrolysis of fats and by fermentation of sugars. This palm-free vegetable Glycerin is widely used in cosmetic products and provides the following benefits:

- **Moisturising:** Glycerin has excellent moisturising properties. It attracts and retains moisture from the environment, helping to hydrate the skin and prevent dryness. It forms a protective layer on the skin, reducing water loss and maintaining its natural moisture balance.
- **Skin barrier repair:** Glycerin can support the skin's barrier function by strengthening the outermost layer of the skin, known as the stratum corneum. This can help improve the skin's ability to retain moisture and protect it from external irritants.
- **Soothing and calming:** Glycerin has soothing properties that can help alleviate skin irritation, itching, and inflammation. It can be beneficial for conditions such as eczema, psoriasis, or dry, sensitive skin.
- **Anti-ageing effects:** Glycerin has the ability to improve the appearance of fine lines and wrinkles. By maintaining skin hydration, it can enhance the skin's elasticity and firmness, giving it a smoother and more youthful appearance.
- **Compatibility with various skin types:** Glycerin is generally well-tolerated by different skin types, including sensitive and acne-prone skin. It is non-comedogenic, meaning it won't clog pores or contribute to breakouts.
- **Enhances product effectiveness:** Glycerin is often used as a key ingredient in skincare formulations because it helps other ingredients penetrate the skin more effectively. It can enhance the delivery of active ingredients, allowing them to work more efficiently.
- **Cooling effect:** Glycerin has a cooling effect on the skin, making it useful in products such as facial mists or soothing gels. It can provide relief for hot or sunburned skin.

Links:

[International Journal of Cosmetic Science, August 2016, ePublication](#)

[British Journal of Dermatology, July 2008, pages 23-34](#)

[Journal of Cosmetic Dermatology, June 2007, pages 75-82](#)

[Proceeding of the National Academy of Sciences, June 2003, pages 7,360-7,365](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8395744/>

Lecithin

Ingredient Claims:

Supports cell integrity	Softens and moisturises the skin
Reduces skin inflammation	Strengthen skin barrier function

Lecithin is a naturally occurring compound found in various foods, including egg yolks, soybeans, and sunflower seeds. Lecithin plays a vital role in biological systems, particularly in cell membranes. It acts as an essential building block for the phospholipid bilayer, which forms the structural framework of cell membranes. The amphiphilic nature of lecithin allows it to align and form a lipid barrier, regulating the passage of substances in and out of cells and maintaining cell integrity. Scientific research specifically focused on the skin benefits of lecithin, suggest its properties elicit several potential benefits:

- **Moisturisation:** Lecithin is an emollient, which means it helps to soften and soothe the skin. It can create a protective barrier that locks in moisture, preventing dryness and promoting hydration.
- **Enhances skin barrier function:** Lecithin contains phospholipids, such as phosphatidylcholine, which are similar in structure to the skin’s natural lipids. These lipids help strengthen the skin’s barrier function, improving its ability to retain moisture and protect against environmental irritants.
- **Anti-ageing effects:** Some studies suggest that lecithin may have anti-ageing properties. Phospholipids in lecithin can help maintain the integrity and fluidity of cell membranes, potentially reducing the signs of ageing, such as wrinkles and fine lines.
- **Enhances penetration of other ingredients:** Lecithin has emulsifying properties, making it useful in cosmetic formulations. It can help other active ingredients penetrate the skin more effectively, allowing them to exert their beneficial effects.
- **Anti-inflammatory properties:** Lecithin contains choline, a nutrient that has anti-inflammatory properties. By reducing inflammation, lecithin may help calm irritated or inflamed skin conditions.

Links:

<https://pubmed.ncbi.nlm.nih.gov/24246994/>
<https://pubmed.ncbi.nlm.nih.gov/35500405/>

Caprylic/Capric Triglyceride (Coconut Oil)

Ingredient Claims:

Skin feels softer and smoother	Reduces signs of skin inflammation
Supports skin barrier function	Protects the skin from oxidative damage

Derived from coconut oil and Glycerin, it’s considered an excellent emollient and skin-replenishing ingredient. This ingredient’s value for skin is made greater by the fact that it is considered gentle. It has also been shown to have a number of skin benefits, such as:

- **Moisturising:** Coconut oil is known for its excellent moisturising properties. It can help hydrate and nourish the skin, making it feel softer and smoother.

- Anti-inflammatory effects: The fatty acids found in coconut oil, such as lauric acid, may have anti-inflammatory properties. Applying coconut oil topically might help soothe irritated or inflamed skin conditions, such as eczema, psoriasis, or sunburn.
- Antimicrobial properties: Coconut oil contains antimicrobial compounds, including lauric acid, capric acid, and caprylic acid. These compounds have the potential to fight against certain types of bacteria, fungi, and viruses that can cause skin infections or acne.
- Skin barrier support: The natural fats present in coconut oil can help reinforce the skin barrier, which is essential for maintaining healthy skin. By strengthening the barrier, coconut oil may help protect the skin from environmental damage and retain moisture.
- Antioxidant activity: Coconut oil contains antioxidants, such as vitamin E, which can help protect the skin from free radical damage. Free radicals are unstable molecules that can contribute to premature ageing and skin damage.

Links:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5796020/>

<https://pubmed.ncbi.nlm.nih.gov/19665786/>

<https://pubmed.ncbi.nlm.nih.gov/20645831/>

<https://pubmed.ncbi.nlm.nih.gov/7922442/>

<https://pubmed.ncbi.nlm.nih.gov/19134433/>

*mg/kg

