



**Special
chemicals**

SCH AlgaeTech™ Porphyridium

Marine polysaccharide complex for
hydration, barrier and skin
regeneration



Porphyridium cruentum

The microalgae

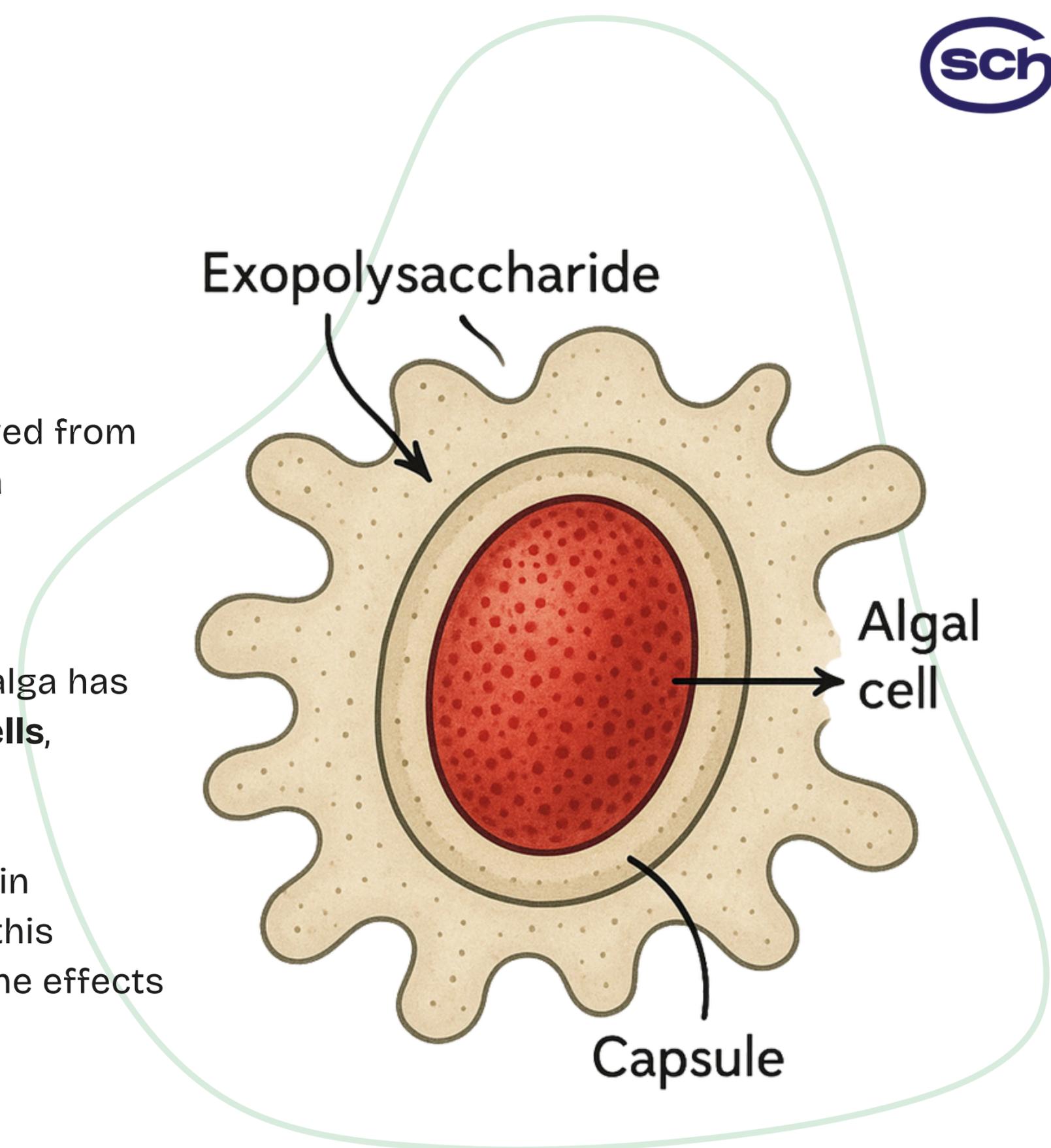
Origin

NATURAL PORPHYRIDIDIUM CRUENTUM EXTRACT

SCH AlgaeTech™ Porphyridium is a natural extract derived from the evolutionary strategy developed by the red microalga *Porphyridium cruentum*.

Faced with the threat of external agents or changes in its environment that could jeopardize its survival, this microalga has managed to protect itself **by forming a film around its cells**, allowing it to survive for millions of years.

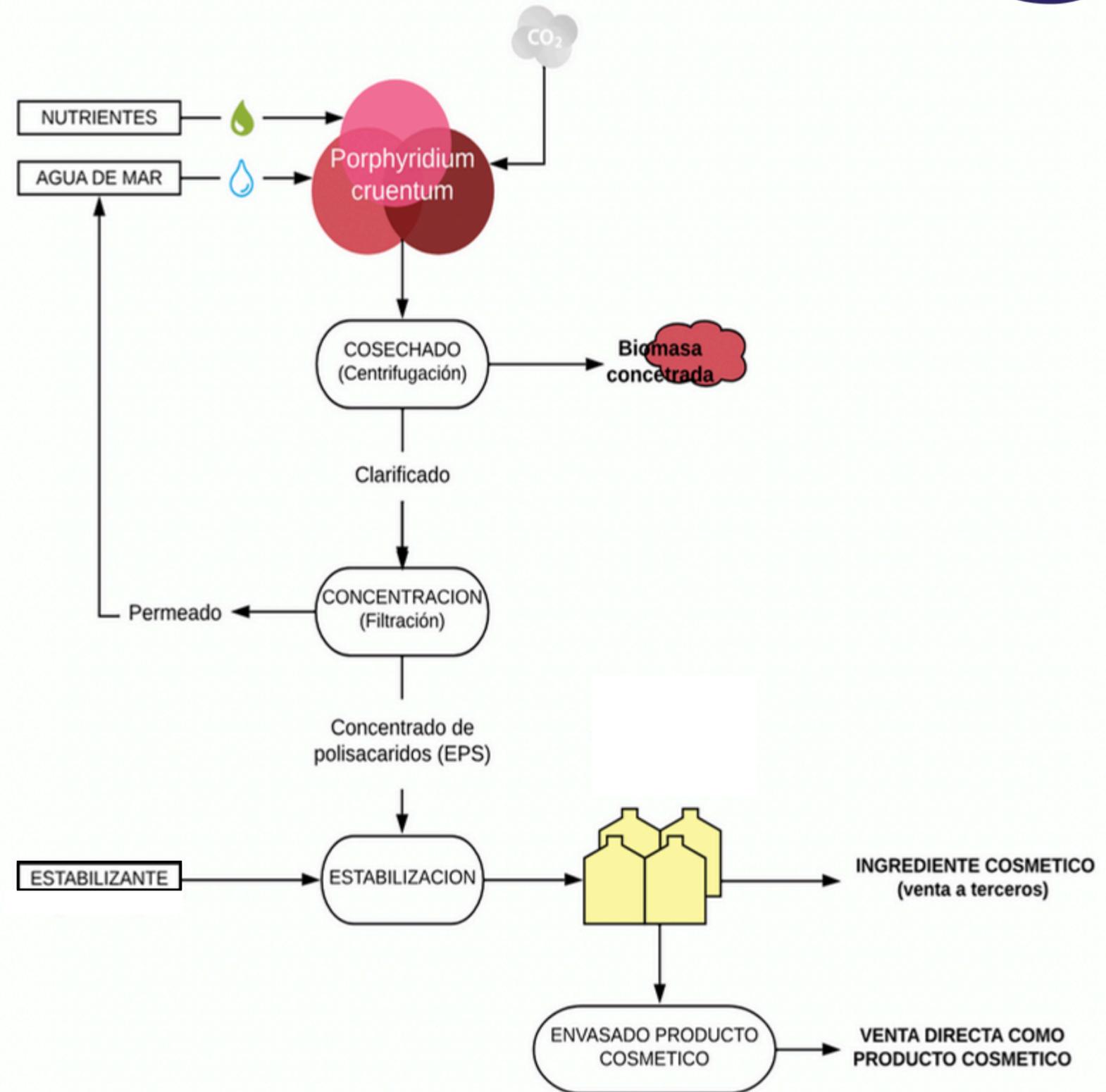
Inspired by this extraordinary mechanism, its application in cosmetics has been explored, with the aim of replicating this protective barrier on the skin and helping to counteract the effects of the environment and the passage of time.



From microalgae to bioactive

The **SCH AlgaeTech™ Porphyridium** production process involves solvent-free mechanical separation, followed by harvesting of the microalgae and separating the biomass and water to isolate the polysaccharides.

These polysaccharides are then concentrated, purified, and stabilized to ensure a pure, safe and effective active ingredient.



A microscopic view of numerous cells, likely bacteria or yeast, showing a variety of sizes and colors ranging from dark brown to bright red. The cells are densely packed in some areas and more sparse in others. A semi-transparent white box is overlaid on the bottom left of the image.

Sulfated exopolysaccharides

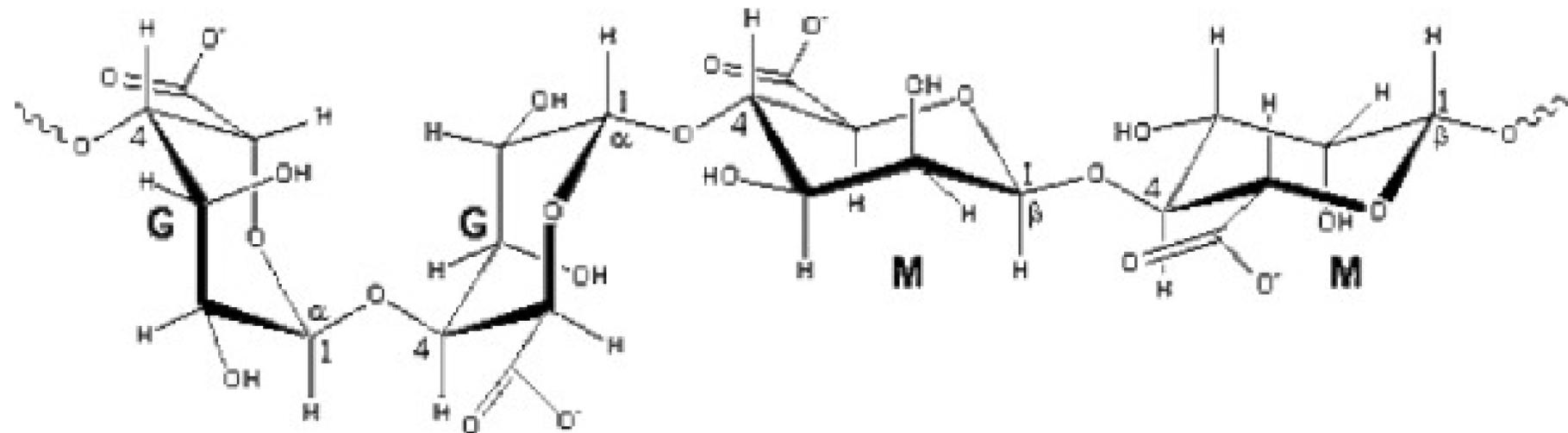
The bioactive

The EPS matrix

The sulfated exopolysaccharides of *Porphyridium cruentum* form a high molecular weight matrix (2 to 7×10^6 g/mol), composed primarily of **xylose, galactose, glucose and glucuronic acids**.

Their physicochemical characteristics, such as the **degree of sulfation and molecular weight**, are decisive in their multiple bioactivities, which include hydration, antioxidant protection, and anti-inflammatory properties, among others.

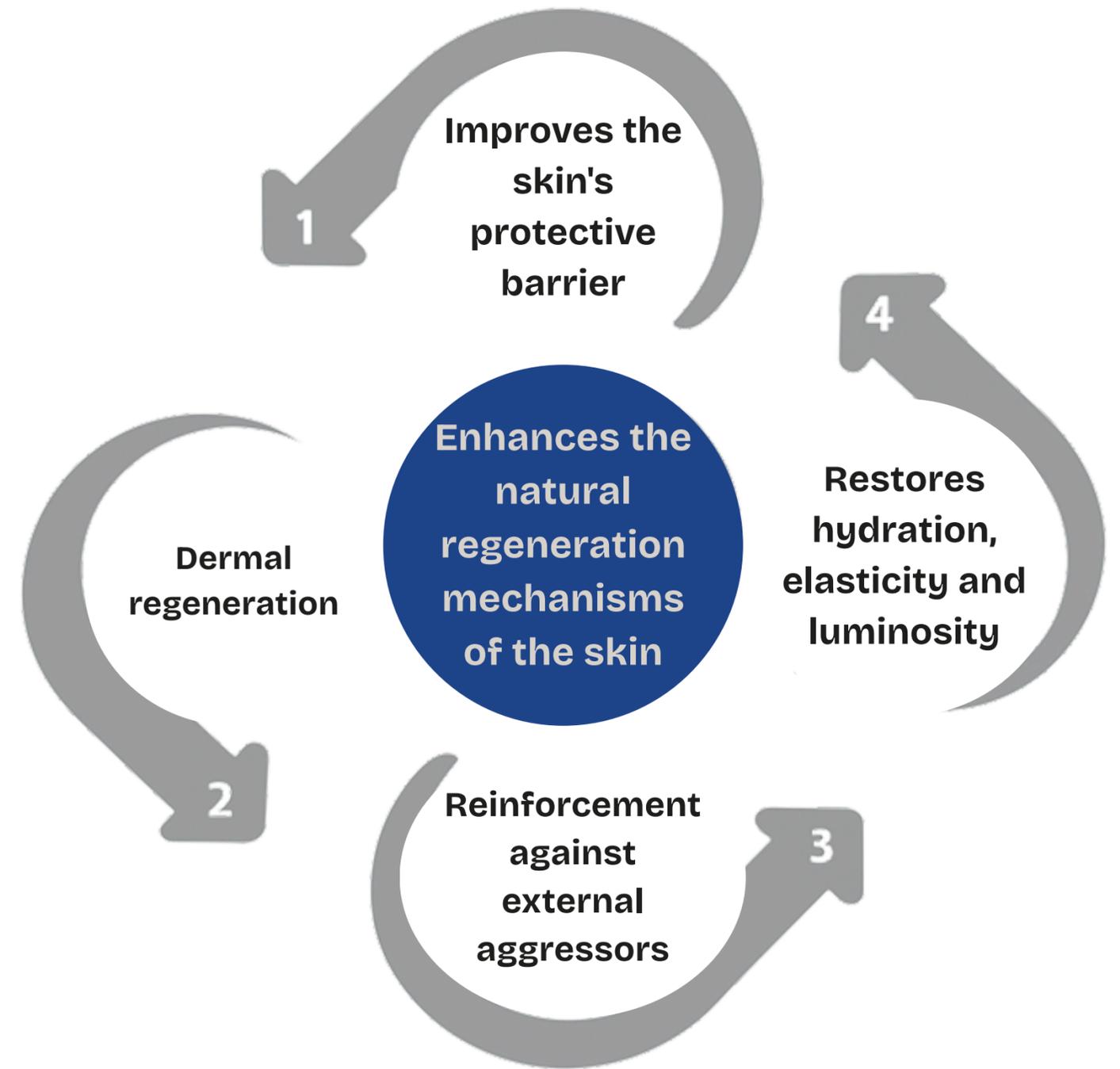
This unique structure confers unique properties.



More than a simple active

SCH AlgaeTech™ Porphyridium is not just a cosmetic ingredient: it's a biological trigger capable of transforming the skin from the stratum corneum to the dermal matrix. Its multifunctional nature offers comprehensive and measurable benefits:

- Strengthens the skin barrier
- Improves hydration, elasticity and radiance
- Antioxidant and anti-inflammatory action
- Antimicrobial effects
- Cell regeneration, also delaying the enzymatic action associated with aging



Proven efficacy

In vitro and in vivo studies

Proven effects and scientific evidence

Literature review

Scientific references that support the properties of EPS derived from *Porphyridium cruentum*: hydration, barrier reinforcement, elasticity, enzyme inhibition and collagen stimulation.

In vivo studies

Clinical evidence showing: increased hydration (up to +26%), reduced TEWL (-31%), improved elasticity (+15%), reduced sebum (-29%), increased microcirculation (+14.9%) and decreased body circumference (-21.6%).

In vitro studies

Demonstrated results: free radical reduction and anti-inflammatory effects in cellular models.

Dermatological compatibility and safety

HRIPT test confirms absence of allergenic potential; safety profile suitable for cosmetic use.

Documented cases in real conditions

Visual evidence and real-world clinical results support efficacy in final formulations.

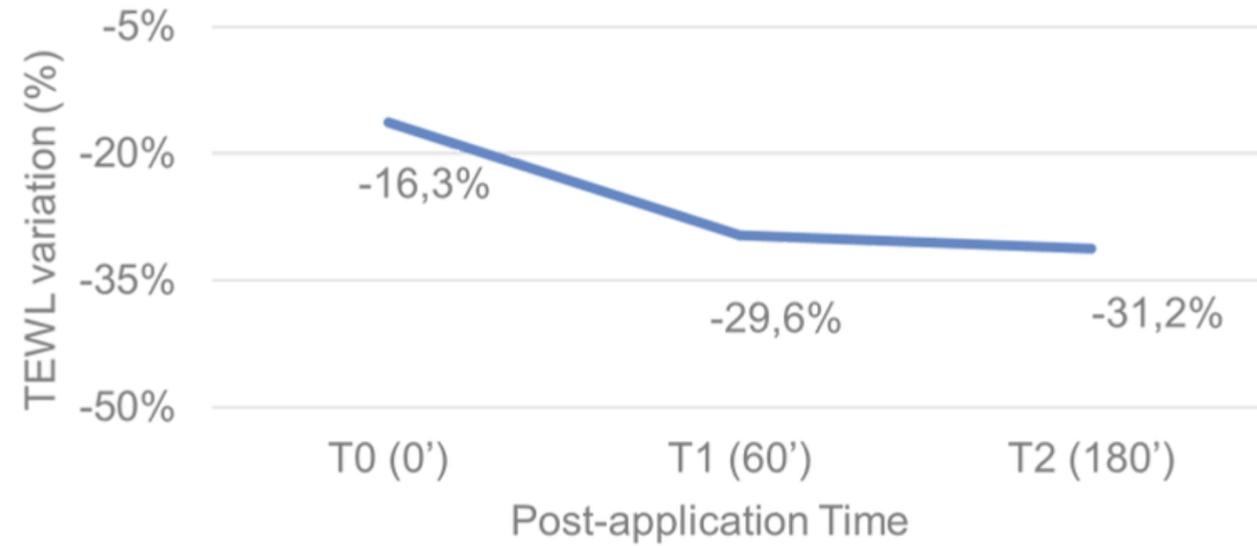
In vitro results*

Assay	Cell model	Parameter evaluated	Effective concentration	Observed effect	Significance
Antioxidant (ROS)	HaCaT	% of ROS-positive cells	0,5% / 1%	-21,8% / -39,7%	p < 0.05 / p < 0.01
Anti-inflammatory (IL-8)	HaCaT	IL-8 secretion (pg/mL)	0,5% / 1%	-24,3% / -15,3%	p < 0.05
Anti-pollution protection	HaCaT	Cell viability (MTT)	0,5% / 1%	+34,3% / +21,4%	p < 0.05 / NS
Detoxifying activity	HaCaT	Proteasomal activity (URF)	0,5% / 1%	+114,5% / +71,5%	p < 0.05
Cellular tolerance	HaCaT	Cell viability (MTT)	0,5% / 1%	>95%	-

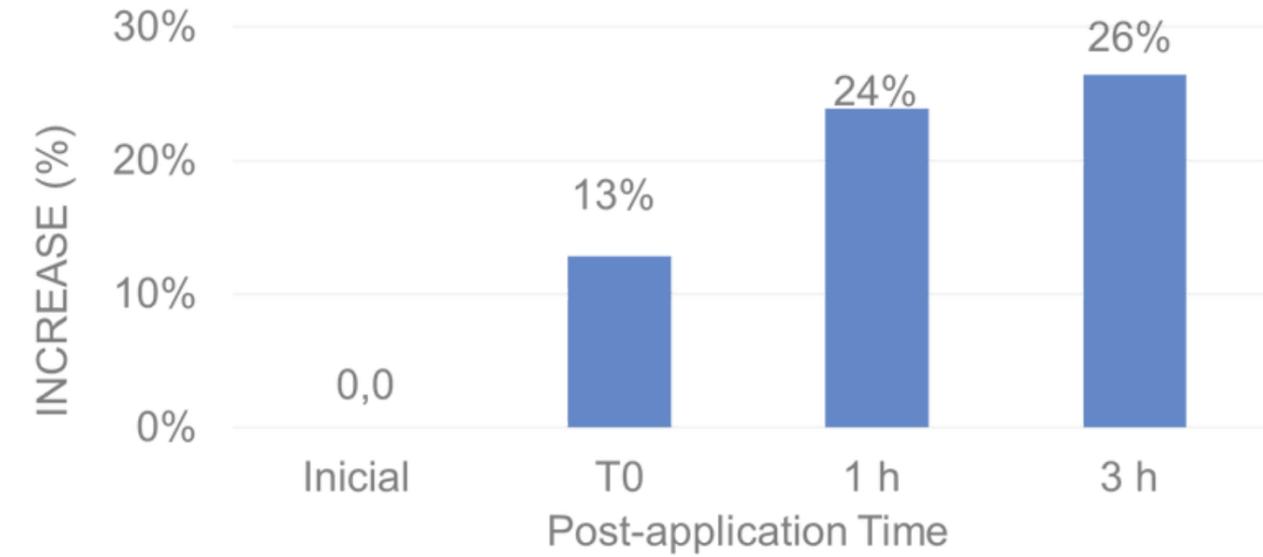
*Extended results of in vitro studies upon request

In vivo results*

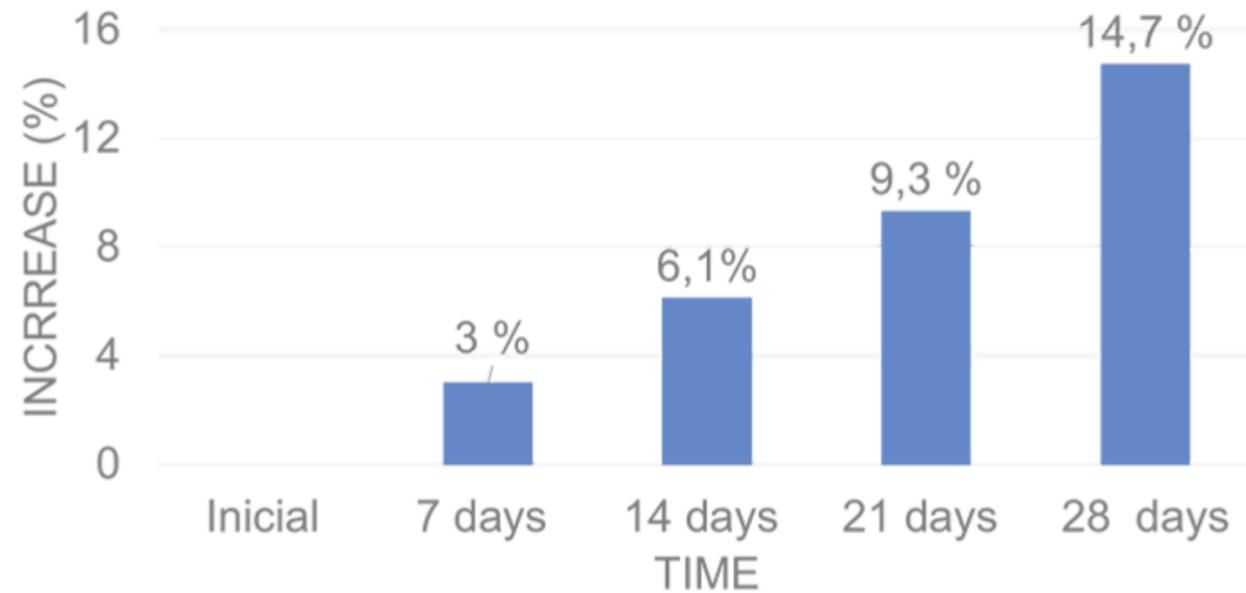
EVOLUTION OF SKIN BARRIER FUNCTION (TEWL)



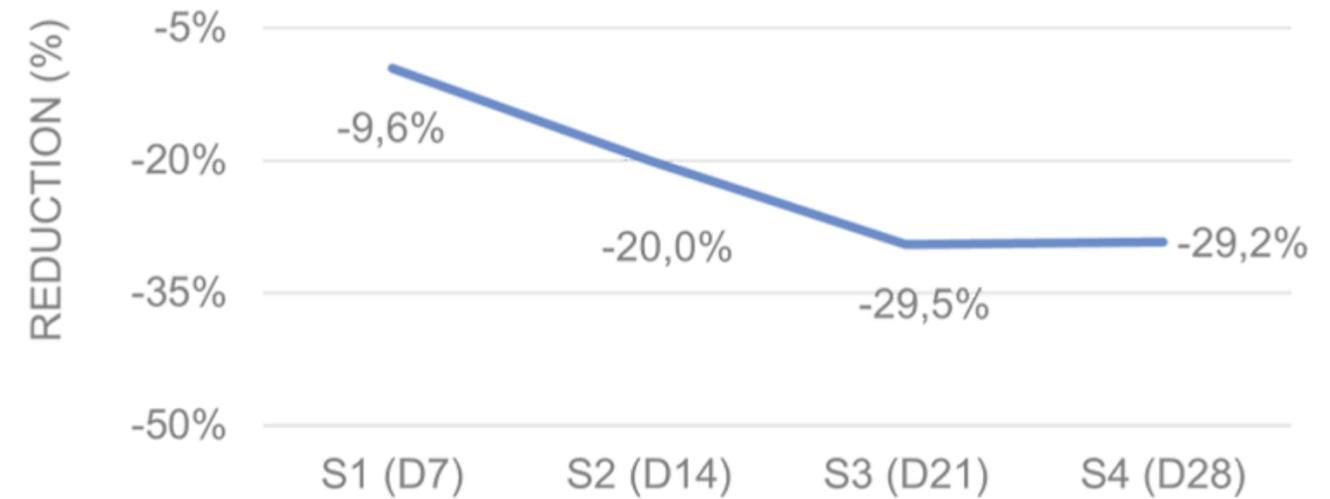
INCREASED SKIN HYDRATION



EVOLUTION OF THE MEAN INCREASE IN SKIN ELASTICITY



EVOLUTION OF SKIN SEBUM PRODUCTION



*Extended results of in vivo studies upon request

Documented cases

Sensitive or irritated skin



↓ TEWL (-31% in 60 min)
↑ Hydration (+26,7%)
Fast relief from redness and itching.

Acne-prone skin



↓ Sebum: 29,2% after 28 days
With anti-inflammatory and antibacterial action

Multifunction bioactive

- Repairs, soothes, hydrates and protects
- Anti-inflammatory and antioxidant
- Biomimetic action
- Visible efficacy, proven safety

Why Porphyridium?

Technical data

Technical sheet

Appearance → White color with a pleasant aroma

INCI → Porphyridium Cruentum Extract

Use and dosage → Facial and body care. Recommended dosage: 2-5%

Solubility → Soluble in water and compatible with emulsions

Emulsions → Can be emulsified without problems (70°C)

pH → Does not modify the pH of the formula

Viscosity → 6500 – 7500 cP. Viscosity measured with an NDJ-1 rotational viscometer (30 rpm, spindle 2)

Preservative system → Adjustable to customer needs

Surfactants → Surfactant compatibility: Does not alter the micelle in soaps or shampoos

Storage → Store in a dry place at room temperature



SCH AlgaeTech™ Porphyridium VS Benchmark

Parámetro	SCH AlgaeTech™ Porphyridium	Hyaluronic acid	Biosaccharide Gum-1	Fucoidans (brown algae)
Biological origin	Marine red microalgae (Porphyridium cruentum)	Bacterial fermentation (Streptococcus, Bacillus)	Bacterial fermentation (plant substrates)	Brown algae (Fucus, Ascophyllum...)
Hydration (in vivo)	💧 +26,7% (28 days)	💧 +10-20% (2-4 weeks, depends on MW)	💧 +34% in 7 days	💧 +15-20% (28 days, variable)
Elasticity / firmness	🧬 +14,7% / +17%	🧬 +5-10% (mild, low MW)	ND	🧬 Mejoras leves, datos variables
TEWL	🔒 -31,2% (28 days)	🔒 -10-15%	🔒 -10-12%	🔒 Variable, no consensus
Occlusivity / Filming	✅ Non-occlusive. Permeable bioadhesive film, "breathable barrier"	❌ Surface moisturizer, film-free	● Light, non-occlusive surface film	● Superficial, breathable bioactive film
Antioxidant	-21,8 to -39,7% ROS (in vitro)	No	Not documented	High (ROS scavenging)
Anti-inflammatory	-24,3 / -15,3% IL-8 (in vitro)	Weak, variable	Limited	Clear evidence (↓ COX-2, TNF-α)
Seborregulation	-29,2% sebum	No	No	Partial
Microcirculation	14,90%	ND	ND	Possible vascular improvement
Detox (proteasomes)	+114,5% / +71,5%	No	No	No
Sustainability	♻️ Closed marine farming, no GMOs or freshwater	Dependent on agricultural substrates	Fermentation, needs sugars	Wild collection, variable impact
Multifunctionality	✅ Hydration + Elasticity + TEWL + Sebum + Microcirculation + Antioxidant + Detox	💧 Superficial hydration	💧 Fast, superficial hydration	💧 Hydration + 🌿 Anti-inflammatory
Country of origin / production	Spain (EU)	🌍 (China, Japan, Europe, USA...)	France	France, Norway, Asia



Be Special



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