Ectoine

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Seedling Bio

https://www.seedlingbio.com/

Product Introduction

Ectoine is a cyclic amino acid derivative with good hydrophilicity.

CAS No.: 96702-03-3

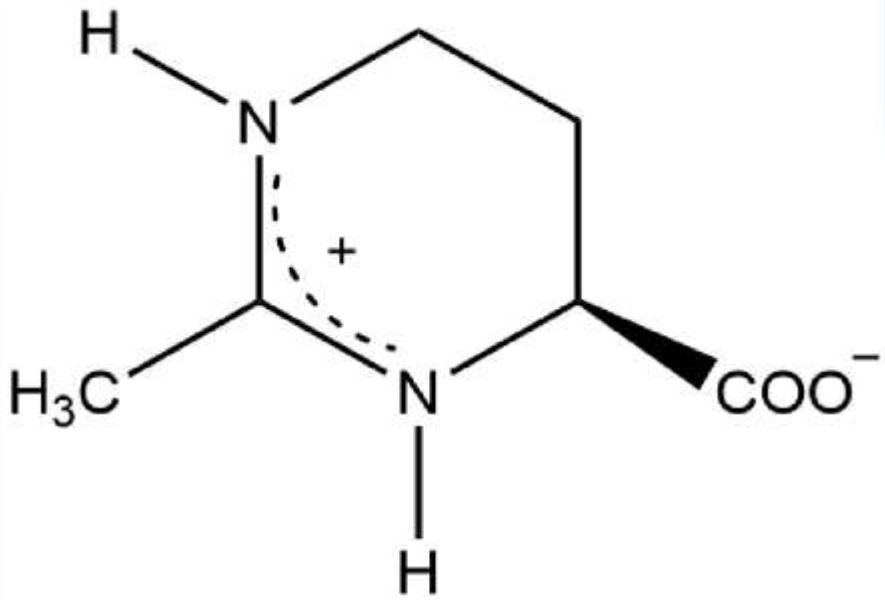
Appearance: White crystal or powder

Solubility: Soluble in water

Storage: Store at room temperature, keep sealed, dry, and away from light

Content: HPLC≥98%

Purity: HPLC≥99%



Product Introduction

Ectoine is derived from extreme microorganisms - halophiles which can survive and reproduce in high-salt environments

In 1985, ectoine was discovered in microorganisms living in the salt lakes of the Egyptian desert. Under high temperature, dryness, strong UV radiation, and high salinity, halophilic bacteria will produce a natural protective ingredient in the outer layer of the cell - ectoine, which is a substance for self-protection and life maintenance. Under extreme conditions of high salt, high temperature, and strong UV radiation, ectoine protects halophilic bacteria from harm. Studies have shown that ectoine also has a good repair and protection effect on the skin.

Production process

Using glucose as the main raw material, ectoine is biosynthesized through fermentation. After separation and purification steps such as filtration, chromatography, decolorization, crystallization, and drying, the final product with a purity of more than 99% is obtained.

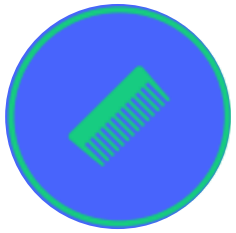
Product Introduction-Product quality standards

Recommended addition amount

- The recommended addition amount is 0.3~2%, and the highest historical usage of resident products is 7%

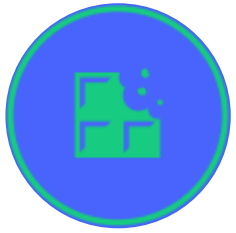
Appearance	White or off-white powder	Pb	≤10mg/kg
Content	≥98.0%	As	≤2mg/kg
Purity	≥99.0%	Hg	≤1mg/kg
Specific rotation	139.0°~145.0°	Cd	≤5mg/kg
pH	6.0~8.0	Total plate count	≤100cfu/g
Loss on drying	≤1.0%	Mold and yeast	≤50cfu/g
Ignition residue	≤1.0%	Thermotolerant coliforms	Negative
Light transmittance	≥98.0%	Pseudomonas aeruginosa	Negative
Chloride	≤0.05%	Staphylococcus aureus	Negative

Efficacy

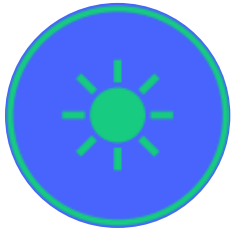


Anti-aging

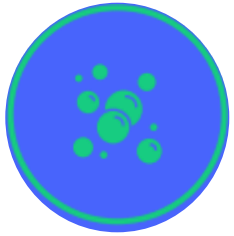
Strengthens the skin barrier



Repair



Anti-photoaging



Moisturizing

Anti-inflammatory

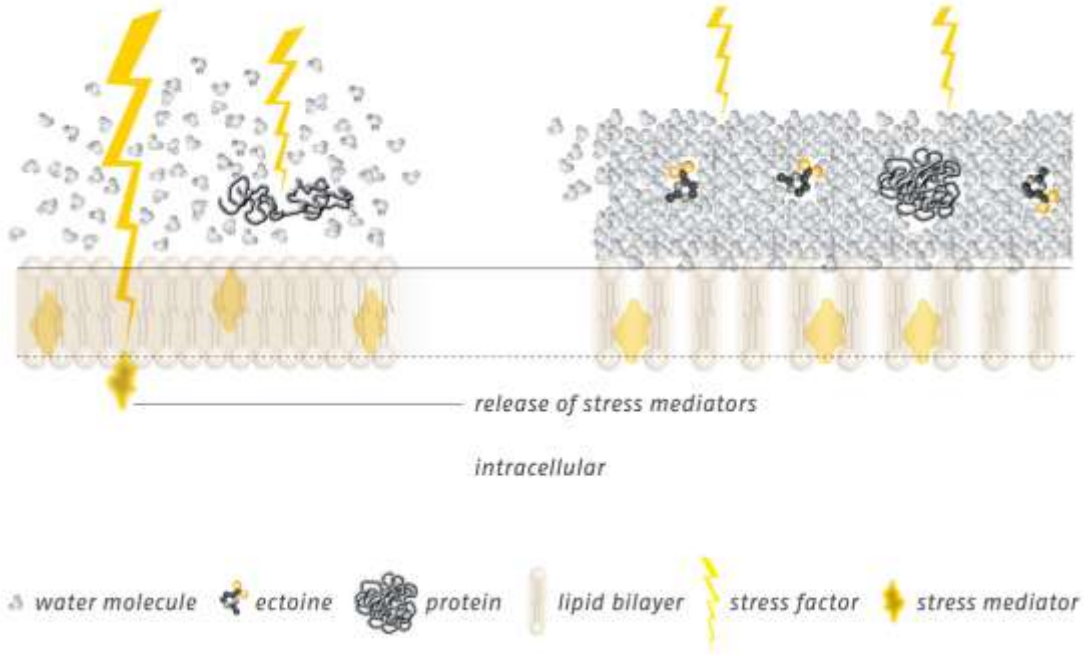
Mechanism of action

Ectoine hydro complex form a hydration shell around cells, enzymes, proteins and other biomolecules with the effects of protecting, nourishing and stabilizing.

Ectoine binds to surrounding water molecules to form so-called "ectoine hydro complex"

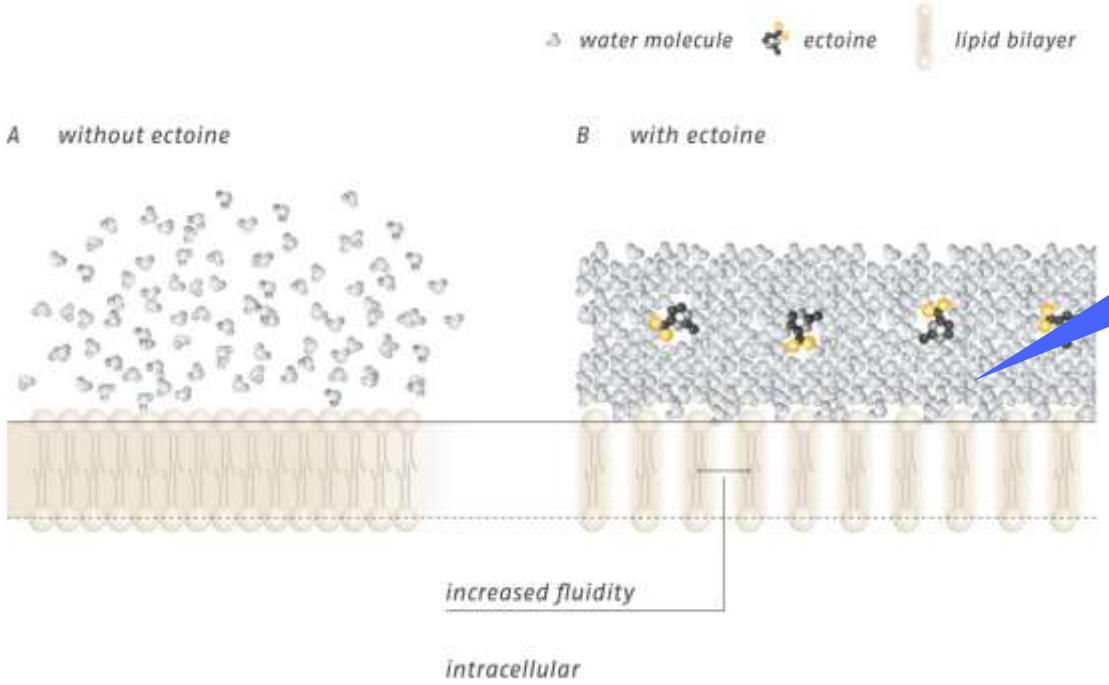
Without Ectoine protection, external damaging stress factors directly penetrate biological molecules

With the protection of ectoine hydro complex, the damage to cells caused by stress factors is prevented



The protective mechanism of Ectoine is very simple: due to the presence of "ectoine hydro complex", stress factors can no longer harm cells, thus preventing cell damage.

Mechanism of action



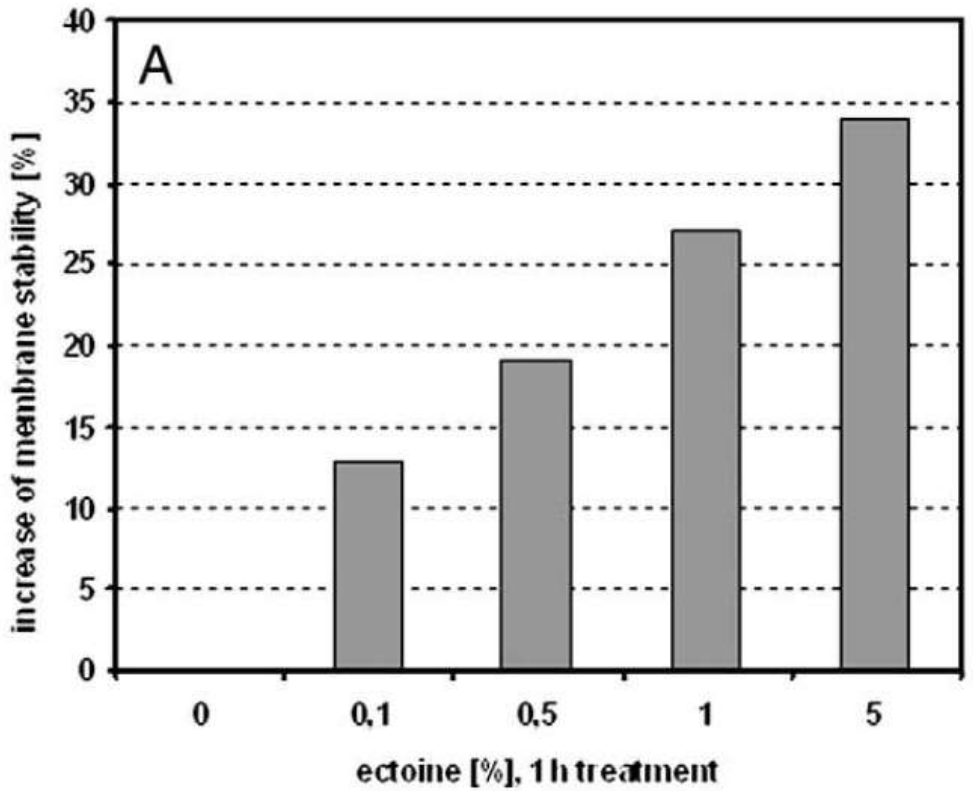
The lipid bilayer in the stratum corneum is more hydrophobic, strengthening the skin's self-regulating barrier function

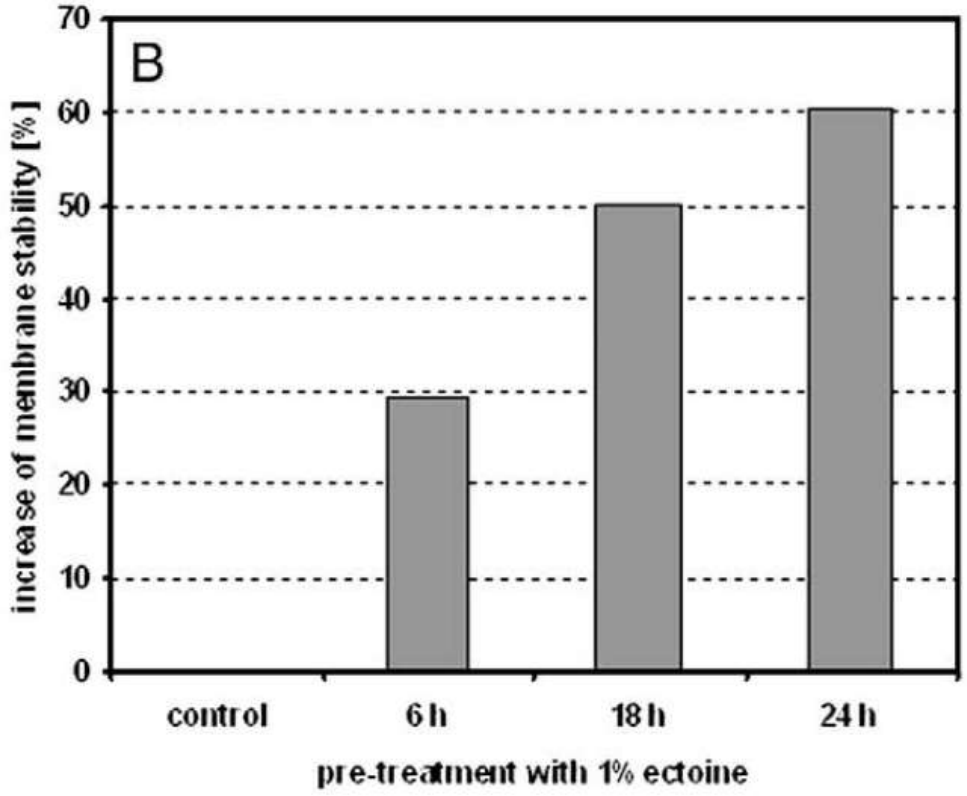
- Increase cellular immunity
- Repairs UV damage and keeps skin youthful
- Improve the skin's ability to lock in moisture, making the skin moisturized and radiant
- Anti-inflammatory, soothing and stabilizing

A) Lipid bilayer in water: The bilayer is stabilized by hydrophilic interactions between the head groups.

B) Lipid bilayers in aqueous ectoine: ectoine water complexes lead to increased interactions between the head groups and water and increased membrane fluidity.

Maintain cell membrane stability and resist damage to the skin barrier caused by surfactants

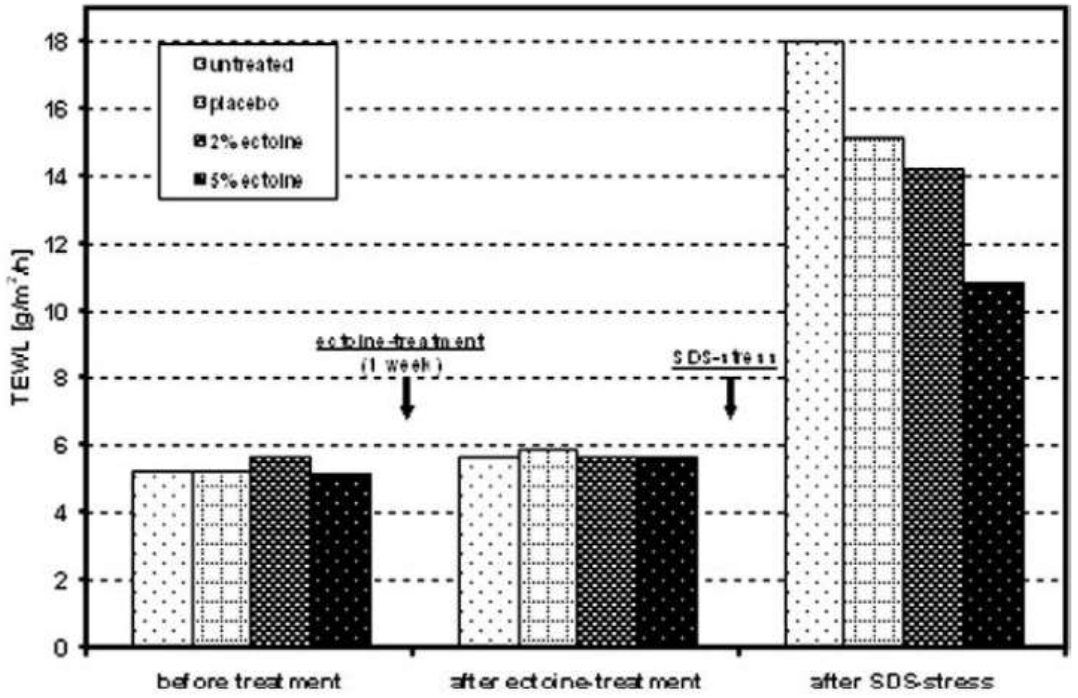




Compared with untreated red blood cells, red blood cells pretreated with ectoine can effectively resist cell membrane damage caused by the surfactant SDS. The higher the concentration of ectoine and the longer the treatment time was, the more significant the effect of preventing damage would be.

*Citation: Graf R, Anzali S, Buenger J, et al. The multifunctional role of ectoine as a natural cell protectant[J]. Clinics in Dermatology, 2008, 26(4):326-333.

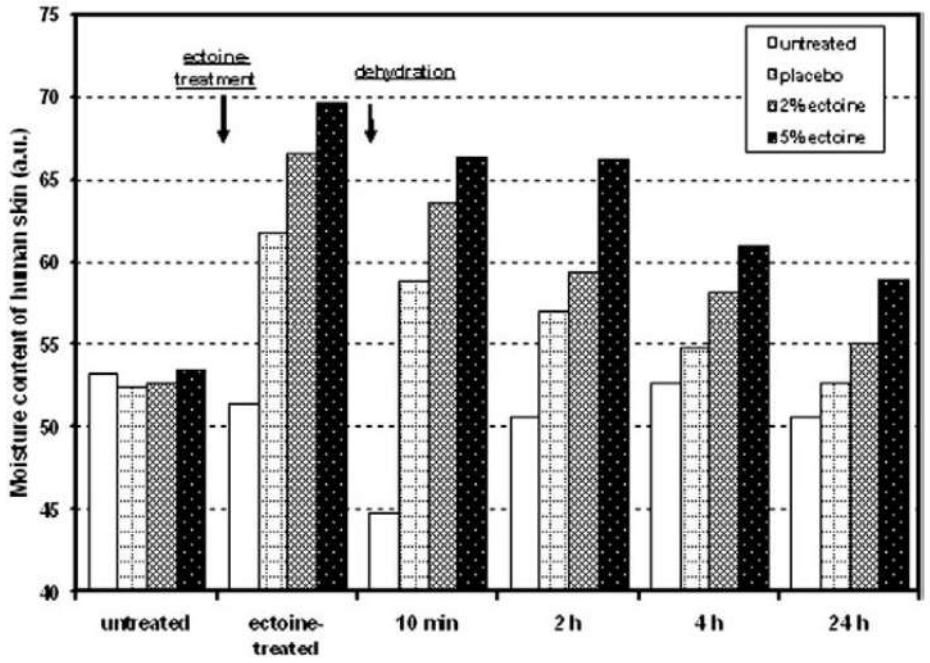
Protects against skin moisture loss caused by surfactants

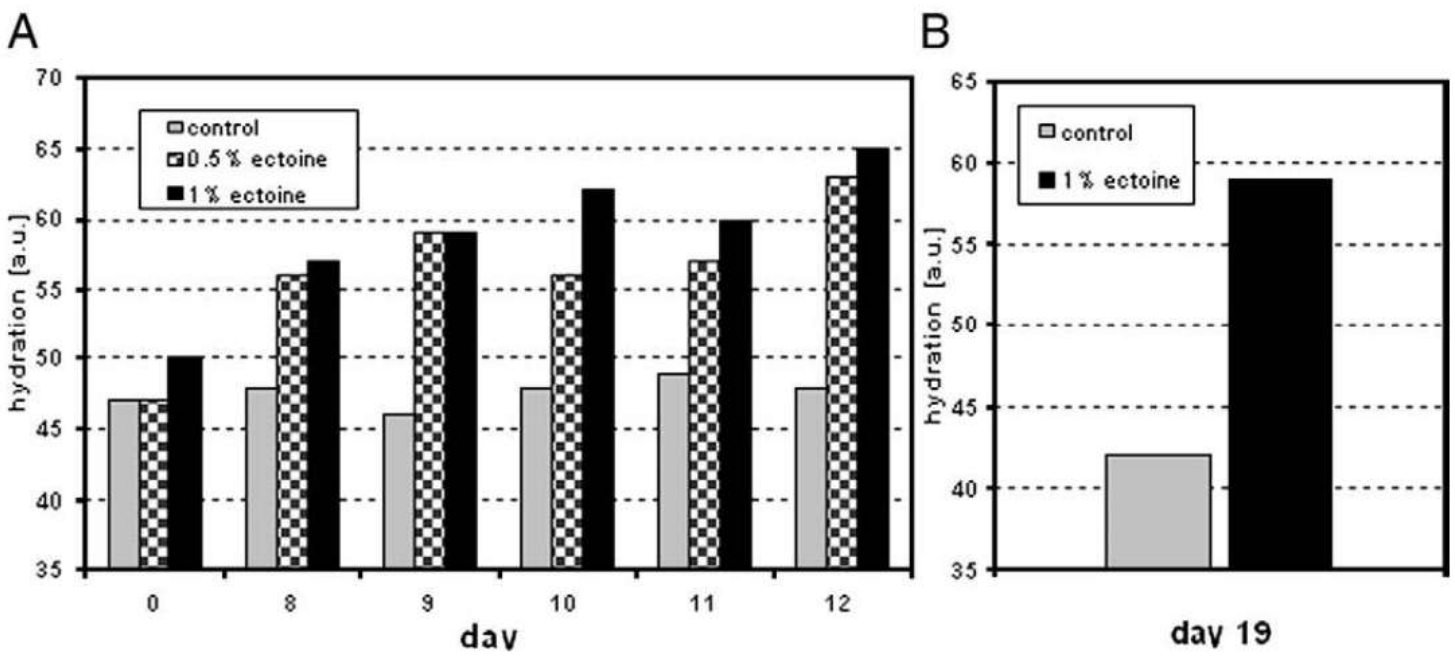


Human experiments have shown that pretreatment with ectoine can effectively reduce epidermal water loss caused by the surfactant SDS.

* Citation: Graf R, Anzali S, Buenger J, et al. The multifunctional role of ectoine as a natural cell protectant[J]. Clinics in Dermatology, 2008, 26(4):326-333.

Resist skin moisture loss and provide long-lasting moisturizing



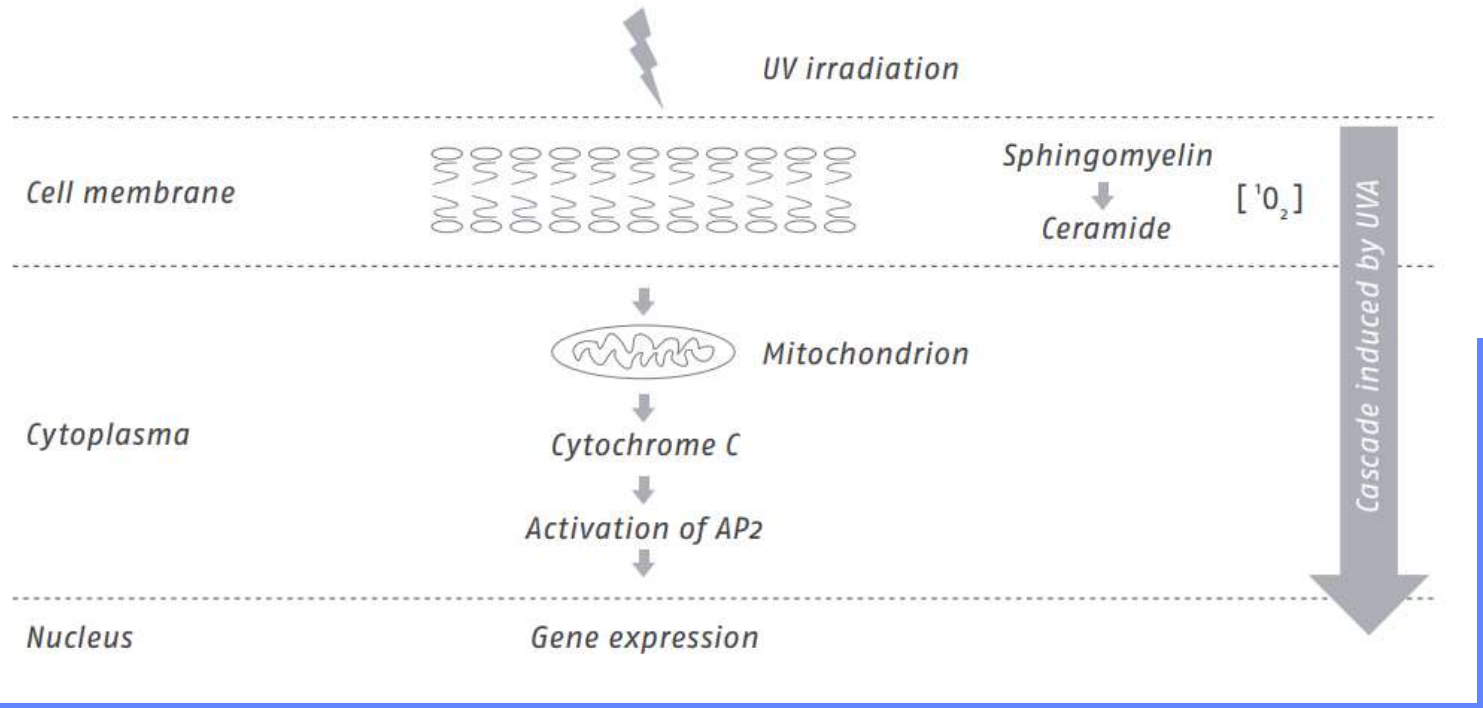


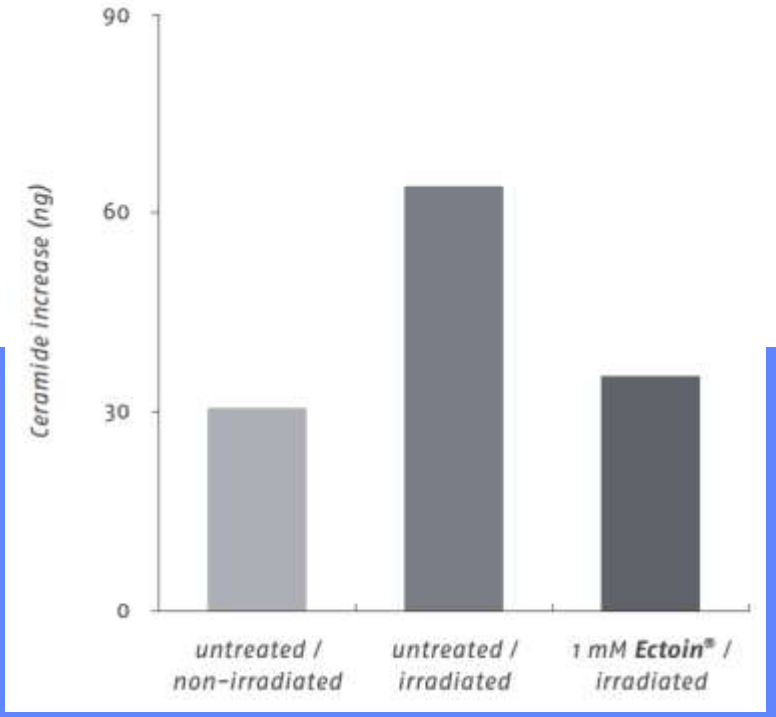
Human experiments have shown that the use of ectoine can maintain higher water content in the skin compared to a placebo (3% glycerol).

After using ectoine, the skin remained highly hydrated after 7 days, indicating that ectoine has a long-lasting moisturizing effect.

* Citation: Graf R, Anzali S, Buenger J, et al. The multifunctional role of ectoine as a natural cell protectant[J]. Clinics in Dermatology, 2008, 26(4):326–333.

Reduces inflammatory response caused by UV radiation



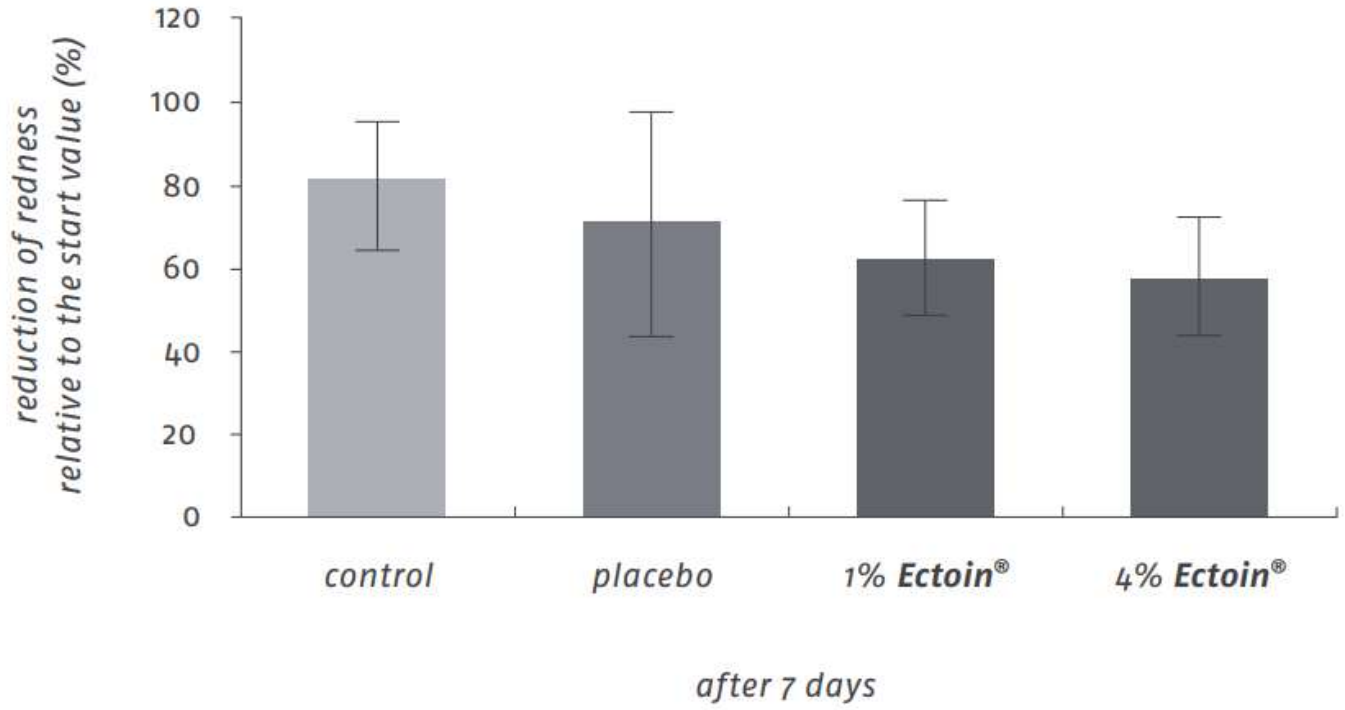


UVA irradiation causes the release of ceramide, an inflammatory factor in the cell membrane, inducing an inflammatory response.

Pre-treatment of human keratinocytes with ectoine can significantly reduce the release of ceramide after UVA irradiation and alleviate the inflammatory response.

*Data resource: bitop AG ECTOIN® Product Information

Reduces skin irritation caused by surfactants



Human experiments showed that after using 4% ectoine for 7 days, the severity of skin rash caused by surfactant SDS treatment was reduced by 23%, effectively improving skin condition.

* Citation: Graf R, Anzali S, Buenger J, et al. The multifunctional role of ectoine as a natural cell protectant[J]. Clinics in Dermatology, 2008, 26(4):326–333.

Application

Fields	Effects	Applications
Cosmetic	It can enhance the skin's moisturizing and antioxidant abilities, thereby effectively reducing skin aging, dryness and other problems	Used in various cosmetics, such as skin care products, sunscreen, lipstick, etc.
Medicine	It has good biocompatibility and biosafety and can be used as an effective protective agent	Used to treat and prevent a variety of skin diseases, allergic reactions and inflammation

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Applications & Cases

Functional cosmetics

Applications & Cases - Cosmetics Brands

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GUERLAIN
PARIS
法国娇兰

Product Advantages

High yield

- Advanced biosynthesis technology
- Production ranks at the leading level in the industry

High purity

- Mature purification and refining process, finished product purity > 99%, stable quality
- The production environment is strictly controlled, and no harmful substances remain

Low cost

- No need for high-salt environment, mild production conditions, environmentally friendly process
- Use glucose as the main raw material, with significant cost advantages

Welcome to cooperate

Thanks for watching

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