



KIMARINE®

Takes the offensive against city pollution

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*Protects the skin from daily stress factors
sun exposure, cigarette smoke, exhaust fumes*

Protects against free radicals & UVA-induced damage



The skin receives in permanence signals that modify its physiology. It may constantly combat the oxidative stress and adapt to environment changes. Remedy to oxidative stress is difficult. Much more effective is the way of prevention that consists of

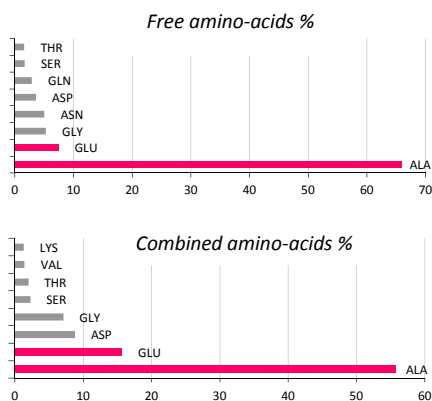
- minimizing the consequences of free radical formations
- strengthening the natural antioxidative mechanism by administering substances that act as anti-reactive oxygen species.

GELYMA proposes KIMARINE® a patented low molecular fraction extracted selectively from the edible brown alga *Undaria pinnatifida* collected in the Bassin of Thau (south of France).

KIMARINE® ensures biological protection of the skin against reactive oxygen species and over-polluted environments characterized by high amounts of exhaust fumes, cigarette smoke and heavy metals (e.g. lead and cadmium).

Mechanisms of action

KIMARINE® contains balanced composition in nutrients



KIMARINE® contains all amino-acids playing important roles in hydration maintenance and energy production. Alanine and glutamic acid constitute more than 73 % of the total free amino acid pool and more than 61 % of the total pool (red bars).

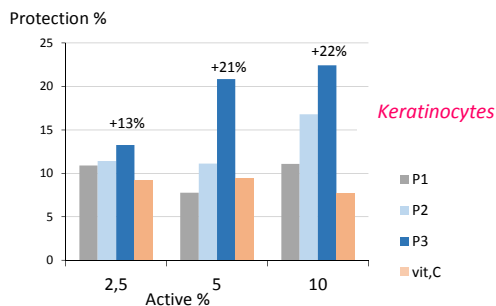
KIMARINE® shows well-balanced mineral composition with high contents in potassium (1700 ppm*), and magnesium (164 ppm*) and all trace elements essential for skin protection.

* data from a control batch.

KIMARINE® allows efficient regulation and powerful stimulation of deficient cell metabolism.

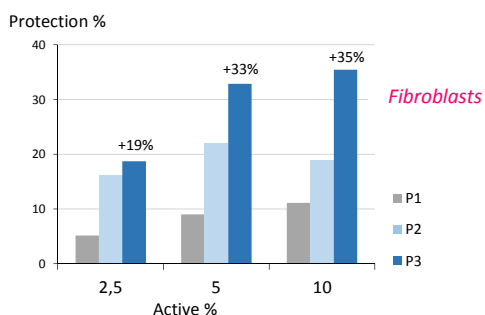
KIMARINE® protects against free radicals and UVA –induced damage

► Protection against superoxide anion and hydrogen peroxide



Keratinocytes and fibroblasts submitted to the system hypoxanthine-xanthine oxidase known to generate superoxide anion and hydrogen peroxide. Active added (2.5% - 5% -10%) according to several ways: P1 before radical aggression during 24h, aggression without active – P2 during radical aggression – P3 before and during radical aggression.

Standard: vit.C – dose $5.10^{-5}M$ (grey lines).

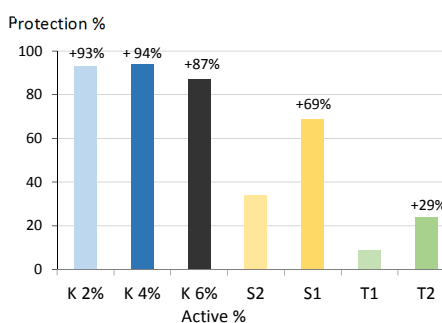


KIMARINE® produces dose-dependent protection against free radicals for both cell types: keratinocytes and fibroblasts.

KIMARINE® is able of penetrating cells, to protect them against intracellular free radicals (P1).

KIMARINE® is also able of intercepting free radicals to act against immediate toxicity (P2). Results confirmed in P3.

► Protection against UVA



Keratinocytes submitted to UVA radiation (0.24 J.cm²) for 5 hours in the presence of active (K2%-K4%-K6%).

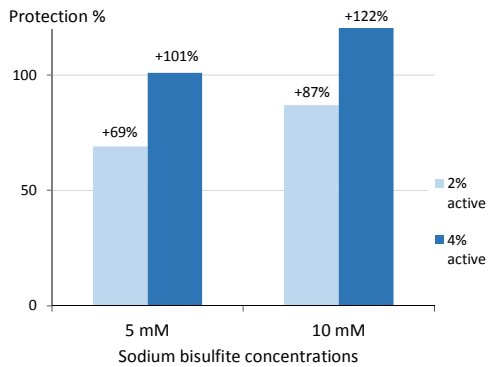
Standards:

silymarin doses S1- $2.5.10^{-4} M$ and S2 - $5.10^{-4}M$
 tocopherol doses T1- $2.5.10^{-4} M$ and T2 - $5.10^{-4}M$.

KIMARINE® (2% - 4% - 6%) shows an effective protective activity against UVA irradiation, better than standards.

KIMARINE® protects against city pollutants

► Protection against exhaust fumes

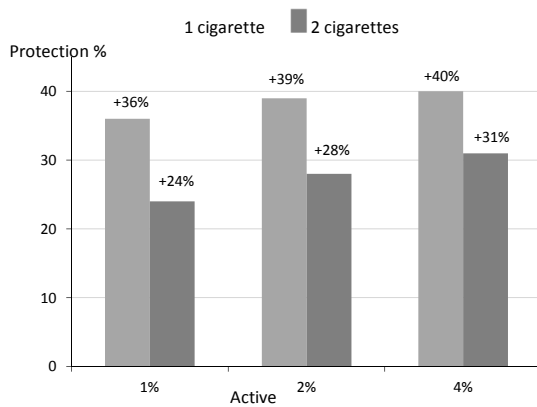


Air pollution is one of the most ancient problems for the environment. Sulphur dioxide results from the combustion of sulphur present in combustibles (fuel, coal) with ambient oxygen. It gives exhaust fumes. Associated with suspended particles, it becomes ubiquitous and dangerous air pollutant which is unsafe for health. This irritating gas is very soluble in water. It is transformed into bisulfite and metabisulfite very toxic for cells.

Fibroblasts submitted to two doses of sodium bisulfite (5mM and 10mM). Active added (2% - 4%) during aggression.

At 2% and 4% KIMARINE protects against sodium bisulfite.

► Protection against cigarette smoke

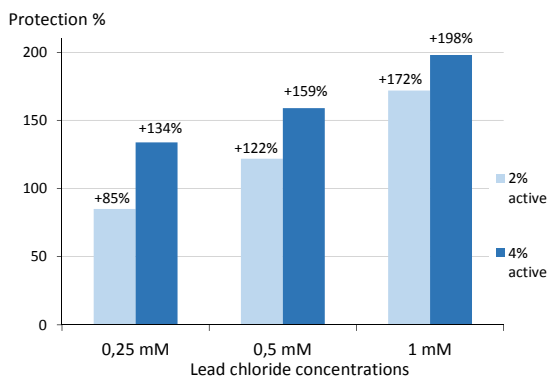


Cigarette smoke contains numerous oxidants estimated at more than one thousand million by inhalation. Tobacco combined with solar light shows cumulative effects for premature aging process.

Fibroblasts submitted to 3 concentrations (1% - 2% - 3%) of a solution cigarette smoke-DMSO with two doses of cigarette (1 cigarette - 2 cigarettes) during 30 min. 2% Kimarine added during aggression.

At 2% KIMARINE® protects against cigarette smoke.

► Protection against heavy metals



Lead and cadmium are listed among the most toxic heavy metals. They may accumulate within organisms and cause toxicity with eventual carcinogenic properties.

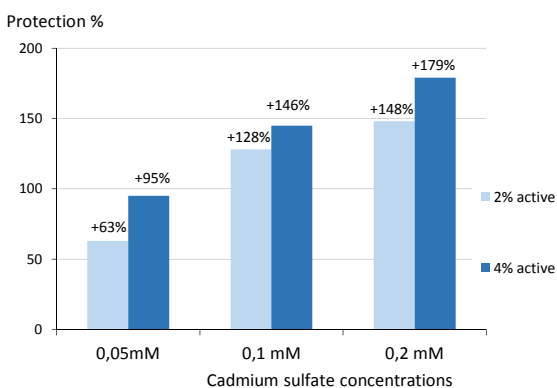
Lead is toxic in the blood and in the kidneys.

Cadmium is the respiratory irritant responsible for the poisonous Itai-Itai disorders in Japan.

Fibroblasts submitted to three concentrations of heavy metals solutions:

PbCl₂ - doses 0.25 - 0.5 - 1 mM for 30 min

CdSO₄ - doses 0.05 - 0.1 - 0.2 mM for 15 min.



At 2% and 4% KIMARINE® protects against both heavy metals.

KIMARINE® preserves the skin from the damaging effects of daily pollution.

Algal source

Undaria pinnatifida, known as “wakame” plays a major role in East Asian markets. It is a highly prized delicacy.

In Japan, this alga is recognized as an important marine resource, sold in bundles or cut up as “Kizami-wakame”. It is also presented as “subo boshi wakame” (dried under the sun), “shibori wakame” (washed with sea water and then dried under the sun) “Shionuki wakame” (washed with soft water then dried under the sun), “zoen wakame”(raw, salted then vacuum-packed)“iudoshi zoen wakame” (boiled then salted).

In France, this seaweed is authorized as edible foods for human consumption from 1988.

In the United States, it is recognized GRAS.

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Patent FR 2 837 383



Cosmetic benefits

KIMARINE® offers a highly effective skin protection from the damaging effects of free radicals and external irritants such as exhaust fumes, cigarette smoke and heavy metals.

By increasing the natural defenses of the skin against harsh environmental factors, KIMARINE® helps minimize skin reactions and fights for preserving the skin's beauty.

Cosmetic applications

Daily, anti-pollution and purifying skin and hair care - Anti-aging care - Skin tone lightening care - Products for sensitive and stressed skins.

Recommended use levels: 2% - 5%.

Characteristics

INCI names water CAS n° 7732-18-5 EINECS n° 231-791-2
 Undaria pinnatifida extract

Limpid liquid light yellow colored.

Preservatives by selection: microcare SB or phenoxyethanol or phenoxyethanol+chlorphenesin.

Packing size: 1kg -5kg -10 kg.



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