



ASTAPLANCTON®G8

Advanced scavenger of reactive species

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Dual action

Reactive Oxygen Species - Reactive Carbonyl Species



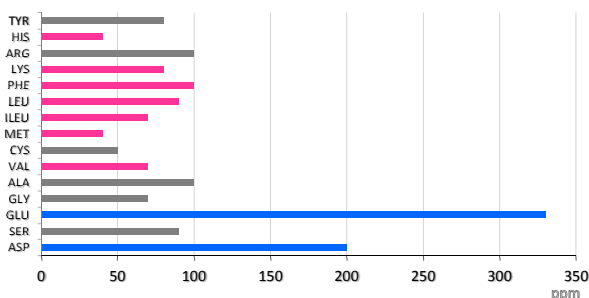
Skin deterioration is exacerbated by different kinds of reactive species (*e.g.* oxidative or carbonyl species) which induce irreversible damage to skin cells and skin aging.

ASTAPLANCTON® G8 can capture both oxygen and carbonyl species. It is an aqueous extract prepared from the green vegetative cells of *Haematococcus pluvialis* cultured in optimal nutritional conditions under moderate light intensity, adequate temperature and pH. It is supplemented with sea water.

Mechanisms of action

ASTAPLANCTON® G8 provides balanced composition in amino acids and minerals

➤ Amino acids (ppm)



ASTAPLANCTON® G8 contains excellent composition in amino acids, specially in essential amino acids (red bars) that the body does not produce on its own.

The major amino acids present are glutamic acid and aspartic acid (blue bars).

Aspartic acid and glutamic acid play an important role in generating cellular energy.

Amino acids enhance water retention and skin hydration by providing hygroscopic properties to the *stratum corneum*.

➤ Macrominerals (ppm)

Sodium	: 1307
Magnesium	: 1103
Potassium	: 671
Phosphorus	: 190
Calcium	: 77.5

➤ Trace minerals (ppm)

Iron	: < 5
Silicon	: < 5
Manganese	: 1.6
Zinc	: 1.3
Copper	: 1.1
Selenium	: 0.4
Iodine	: < 0.25

ASTAPLANCTON® G8 contains balanced composition in minerals and trace elements.

Sodium and potassium help regulate hydration cellular exchanges.

Magnesium activates numerous enzymes. It increases cell defence mechanisms. It is involved in collagen synthesis.

Phosphorus plays important functions in all energetic processes.

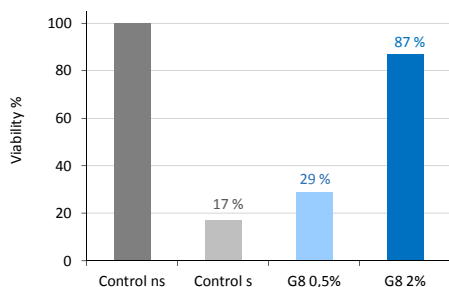
Calcium regulates several metabolic functions. It enhances the growth and differentiation of keratinocytes.

The efficient chemical composition of ASTAPLANCTON® G8 allows to boost skin metabolism.

With 2% active the stimulation of mitochondrial activity reaches +13% (*In vitro* test on reconstituted skin).

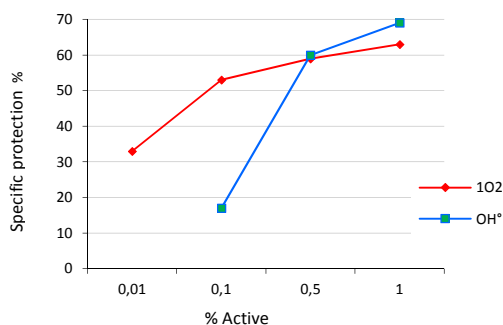
ASTAPLANCTON® G8 captures reactive oxygen species (ROS) mediators of the oxidative stress

ASTAPLANCTON® G8 targets the deterioration of skin cells and their components (DNA and proteins) caused by oxidative stress.



Reconstituted skins submitted to Rose Bengal and UVA irradiation ($10 J.cm^2$). Viability evaluated by MTT test.

ASTAPLANCTON® G8 actively quenches singlet oxygen, an important ROS linked to UVA exposition.



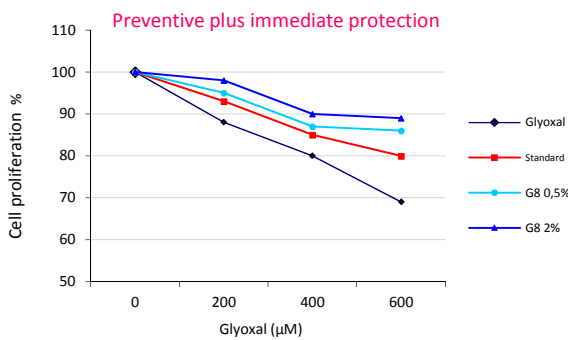
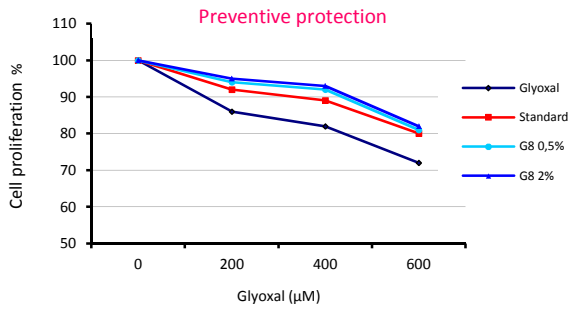
3D assay on plasmid DNA. Experiments based on repair reaction of DNA.

Results: Singlet oxygen IC 50 = 0.037%
Hydroxyl radical IC 50 = 0.35%

ASTAPLANCTON® G8 protects DNA from degradation caused by both singlet oxygen and hydroxyl radical.

ASTAPLANCTON® G8 captures reactive carbonyl species (RCS) mediators of the carbonyl stress

Stress carbonyl results from the formation of reactive carbonyl species RCS produced by various ways e.g. oxidative cleavage of proteins, reactions with aldehydes during lipid peroxidation, glycation. RCS are key reactive intermediates yielding AGEs that cause damage to cellular proteins. Glyoxal is an important RCS in the formation of AGEs.



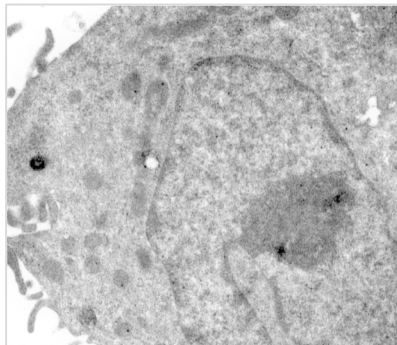
Human keratinocytes submitted to different doses of glyoxal in the presence or absence of active (0.5% or 2%). Standard: D-penicillamine (red line).

Glyoxal introduced at different times in order to study the kind of active protection before stress (preventive protection) and before and during stress (preventive plus immediate protection).

ASTAPLANCTON® G8 equals (sometimes exceeds) the protective performance of D-penicillamine, a proven carbonyl scavenger.

ASTAPLANCTON® G8 offers both a preventive and immediate protection.

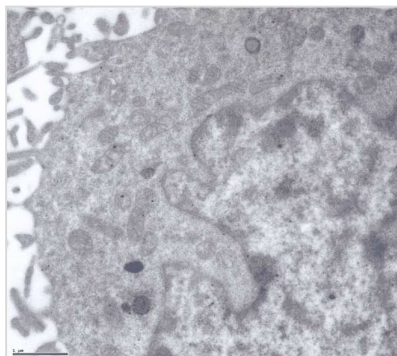
Whatever the ways of introduction, ASTAPLANCTON G8 is able to reduce the deleterious effects of glyoxal on human keratinocytes.



Control untreated cells



Treated cells with glyoxal



Treated cells with glyoxal + 2% active

Observations by transmission electron microscopy of keratinocytes submitted to glyoxal (600 µM) for 24h in the absence or presence of 2% active.

ASTAPLANCTON®G8 preserves the cell fine structure against glyoxal effects, specially the nucleus and mitochondria structures.

By preventing damage caused by glyoxal, ASTAPLANCTON®G8 avoids the formation of AGEs, thus protects proteins against RCS.

