



## ASTAPLANCTON® HA

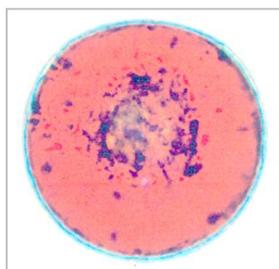
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Astaxanthin helps for  
Potent UVA-UVB protection

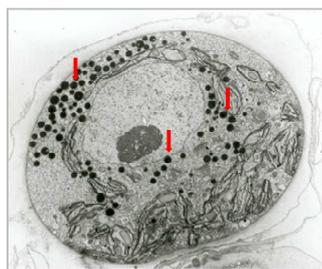


ASTAPLANCTON® HA counters UV-induced skin damage and offers both UVA and UVB protection of skin cells. It is an oily extract prepared from red, non-motile resting stage of *Haematococcus pluvialis*.

In association with ASTAPLANCTON G8, the protective performances increase. The complex serves as a duo-system able to prevent skin damage and ameliorate skin deterioration caused by both UV radiations and reactive species.



Morphology of an aplanospore



Fine structure of an aplanospore

Under certain environmental conditions, especially high light intensity, the microalga *Haematococcus pluvialis* differentiates from the green vegetative stage to form aplanospores in a resting stage.

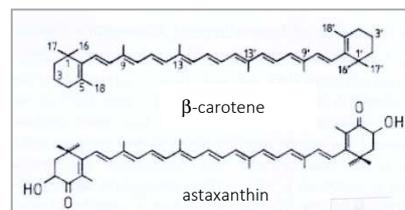
The cell volume increases. Large secondary carotenoids, mainly astaxanthin appear in the cytosol. Astaxanthin is clearly apparent by electron microscopy as extraplastidic dark globules distributed around the nucleus.

## Mechanisms of action

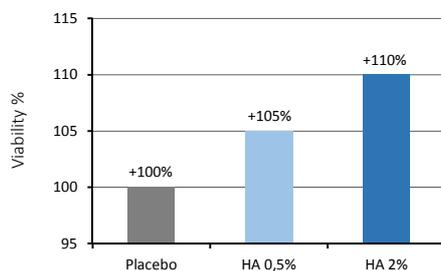
The UV protection of ASTAPLANCTON® HA is linked to the presence of astaxanthin.

The astaxanthin molecule is similar to that of the  $\beta$ -carotene but the small structural differences confer large differences in the chemical and biological properties of the two molecules.

Astaxanthin is a powerful antioxidant that can act both as quencher of singlet oxygen and scavenger of free-radicals. Its superior antioxidant properties appear 550 times stronger than vitamin 3 and 40 times stronger than  $\beta$ -carotene.

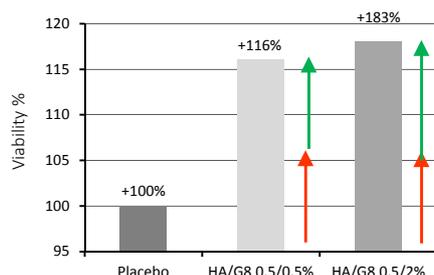


### ASTAPLANCTON® HA stimulates the cellular metabolism



Reconstituted skins submitted to two doses of active (0.5% and 2%). MTT test. Statistical validation.

ASTAPLANCTON® HA very significantly enhances the mitochondrial activity of reconstituted skins from 0.5% concentration.

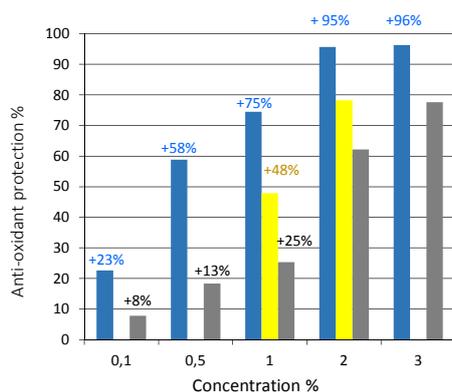


Reconstituted skins submitted to a combination of ASTAPLANCTON® HA (0.5%) + ASTAPLANCTON® G8 (0.5% or 2%). MTT test. Statistical validation.

Astaplancton® G8 →  
Astaplancton® HA →

This stimulated action is improved when ASTAPLANCTON® G8 is joined in.

### ASTAPLANCTON® HA shows an anti-oxidant protection superior to that of tocopherol



DPPH assay. Standard: tocopherol (grey lines). Comparison with sunflower seed oil alone (yellow lines).

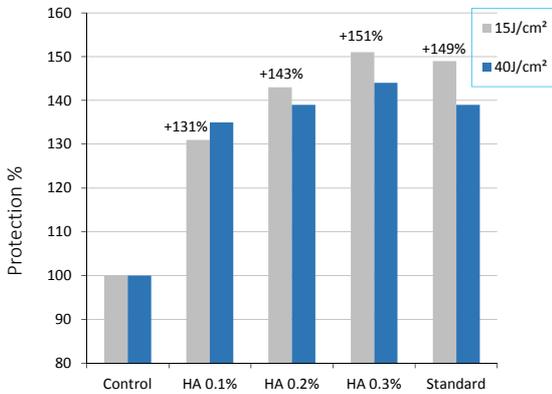
ASTAPLANCTON® HA is a powerful scavenger of free radicals.

- Its anti-free radical performance reaches 75% with 1%.
- This anti-free radical activity (blue lines) is better than those of
  - tocopherol ■
  - Sunflower seed oil alone ■

## ASTAPLANCTON® HA protects against both UVA and UVB radiations

UVA radiation accelerates skin aging and the formation of wrinkles for it penetrates deeply into the dermis and damages the collagen and elastin fibers located there.

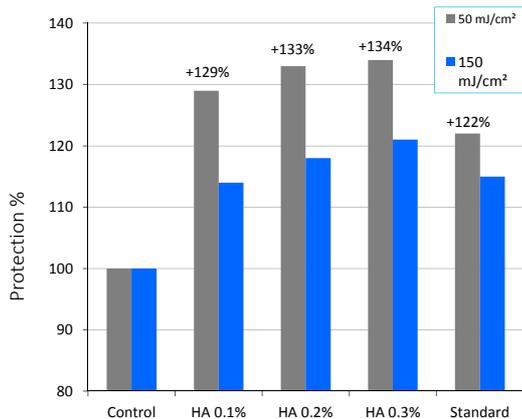
UVB is more powerful and more aggressive than UVA radiation. Although it only penetrates the epidermis, it produces the dangerous effect of sunburn. It also stimulates the pigment cells to induce skin pigmentation. Similar to UVA, UVB radiation accelerates premature aging and the formation of wrinkles.



Human keratinocytes irradiated with UVA (2 doses: 15 J.cm<sup>2</sup> or 40 J.cm<sup>2</sup>) in the presence of absence of active (0.1% - 0.2% - 0.3%). Viability evaluated by MTT assay. Standard: tocopherol - dose 5.10<sup>-4</sup>M. Statistical validation.

With 0.1% ASTAPLANCTON® HA, the viability reaches  
 +131% with the UVA dose of 15 J.cm<sup>2</sup>  
 +135% with the UVA dose of 40 J.cm<sup>2</sup>

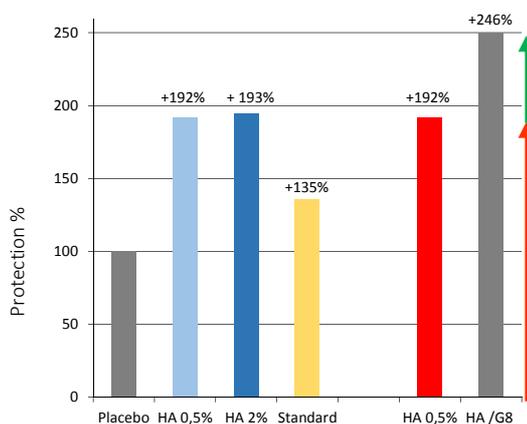
ASTAPLANCTON® HA protects against UVA radiation.



Human keratinocytes irradiated with UVB (2 doses: 50 mJ.cm<sup>2</sup> or 150 mJ.cm<sup>2</sup>) in the presence of absence of active (0.1% - 0.2% - 0.3%). Viability evaluated by MTT assay. Standard: tocopherol dose 5.10<sup>-4</sup>M. Statistical validation.

With 0.1% ASTAPLANCTON® HA, the viability reaches  
 +129% with the UVB dose of 50 mJ.cm<sup>2</sup>  
 +114% with the UVB dose of 150 mJ.cm<sup>2</sup>

ASTAPLANCTON® HA protects against UVB radiation.



Reconstituted skins submitted to gels (2 mg/cm<sup>2</sup>) with either ASTAPLANCTON HA alone (0.5% - 2%) or combination ASTAPLANCTON HA (0.5%) - ASTAPLANCTON G8 (2%) under UVB irradiation (dose 200 mJ.cm<sup>2</sup>). Standard: tocopherol dose 0.5 mg/ml. Statistical validation.

This experiment confirms the UVB protection of ASTAPLANCTON® HA

+192% with 0.5%  
 +193% with 2%

The UVB protection is ameliorated when 2% ASTAPLANCTON® G8 is joined in.

+246% when HA 0.5% + G8 2%

Astaplancton® G8 →  
 Astaplancton® HA →

## ASTAPLANCTON® HA

Astaxanthin helps  
for  
potent UVA-UVB protection

### Algal source

The microalga *Haematococcus pluvialis* is a unique "cell factory" that exhibits high metabolic plasticity by re-allocating macromolecules resources in response to variations of its life cycle under nutritional conditions.



## Cosmetic benefits

ASTAPLANCTON® HA offers efficient anti-radical properties linked to the presence of astaxanthin. It offers both UVA and UVB protection of cells against photodamage thus helps to delay skin photoaging.

In association with ASTAPLANCTON® G8, ASTAPLANCTON® HA behaves as highly potent protective duo-system to combat accelerated skin aging, especially extrinsic aging

The ASTAPLANCTON® COMPLEX (ASTAPLANCTON® G8 + ASTAPLANCTON® HA) represents an innovative and remarkable approach for protective skin care.

Thanks to ASTAPLANCTON® COMPLEX, the skin is effectively protected against damage produced by several kinds of reactive species responsible to oxidative and carbonyl stress which leads to premature aging, wrinkling, DNA damage and other age-related issues.

## Cosmetic applications

Skin care: protective products, anti-aging products.

Recommended use levels: 0.5% - 2%.

## Characteristics

INCI names *Helianthus annuus* seed oil  
*Haematococcus pluvialis* extract

CAS n° 8001-21-6

EINECS n° 232-273-9

Oily liquid red colored.

Preservative free.

Packing size: 1Kg – 5Kg – 10 kg.



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