

# Bicoalgae® ω3 (Omega-3)



## Harnessing Algae for the Fight Against Inflamed Skin

Algae is a powerful ingredient for skin care, having formulators and consumers interested in products containing this gem from the sea. Studies show how certain algae help mitigate common skin conditions linked to chronically inflamed skin. Bicoalgae® ω3 is clinically proven to be effective for disorders tied to inflamed skin such as pigmentation, sunspots, red spots on rosacea-prone skin, and pustules or large pores on problematic skin.

### About

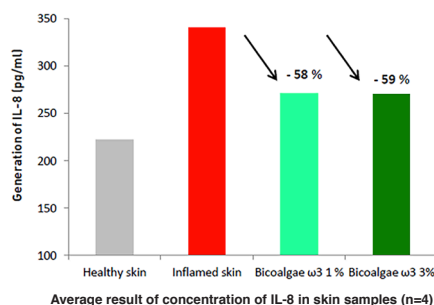
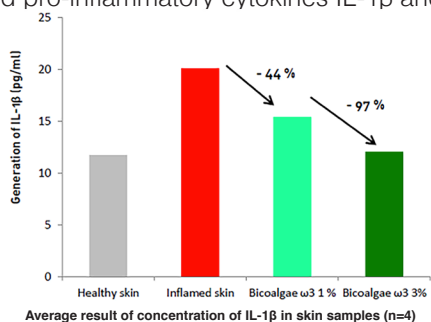
Bicoalgae® ω3 (Omega-3) is a natural origin delivery system with targeted delivery of two microalgae extracts rich in Omega-3 fatty acids. *N. gaditana* is a rich source of Omega-3 EPA and *I. galbana* of Omega-3 DHA. Bicoalgae® ω3 has a double encapsulation which stabilizes the microalgae bioactives. It is clinically proven for barrier function, melanin reduction, and other disorders related to chronically inflamed skin.

## The Fight Against Inflamed Skin

Both endogenous and exogenous factors may cause skin inflammation. When these elements are in play, it affects the capacity of the body to respond against stressors. It may also be detrimental to skin by accelerating aging and damaging the Skin Matrix, EDJ and Dermis.<sup>1,2</sup> Inflamed skin is present at all stages of acne lesion development<sup>3</sup> and is associated with skin conditions such as Rosacea.<sup>4</sup> Microalgae are the primary source of Omega-3 fatty acids EPA & DHA and they have an impact in several skin processes such as inflammatory conditions.

## Decrease of Pro-Inflammatory Cytokines

Constant release of ROS and pro-inflammatory cytokines characterize chronic skin inflammation while a decrease of pro-inflammatory cytokines in inflamed tissues indicate improvement of inflamed skin. Bicoalgae ω3 decreased the level of the age-related pro-inflammatory cytokines IL-1β and IL-8 in inflamed skin.



Non treated and treated (Bicoalgae ω3 1% and 3%) inflamed organotypic cultures of human skin explants were put in the presence of bacterial Lipopolysaccharides (LPS), which simulate a generic skin inflammation. After 24 hours of incubation, the cytokines IL-1β and IL-8 were calculated.

## Key Takeaways

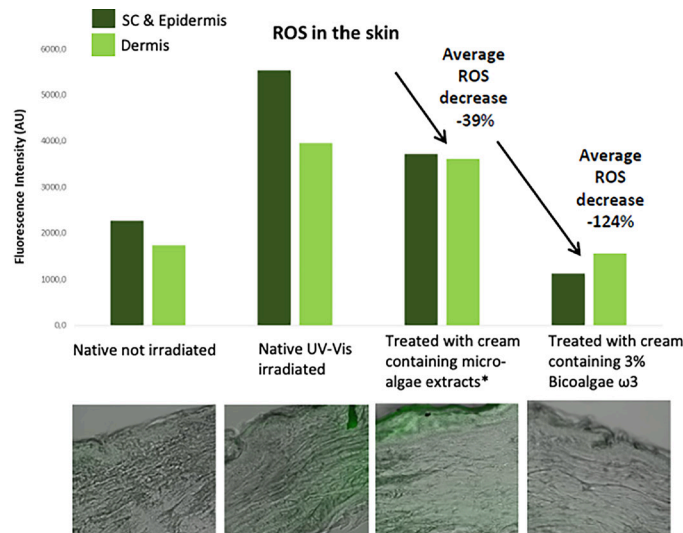
- Contains two microalgae extracts rich in EPA and DHA Omega-3 fatty acids
- Clinically proven for barrier function, melanin reduction, and other disorders related to chronically inflamed skin
- Targeted delivery of microalgae into epidermal layer

## UV Vis Induced Oxidative Stress

Bicoalgae ω3 leverages Bicosome technology, allowing for targeted delivery of the active, increasing the efficacy of the microalgae extracts in the SC, epidermis and dermis areas.

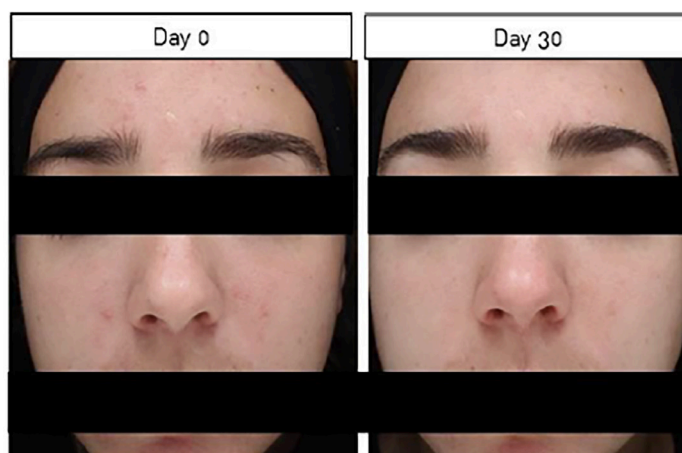
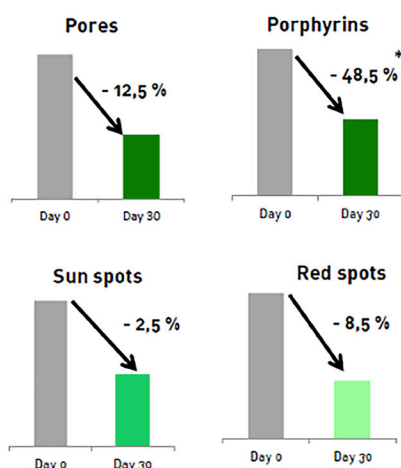
*\*Microalgae extracts were incorporated into cream at use levels that would be found in 3% Bicoalgae ω3*

*Skin samples were treated with a cream containing either 3% Bicoalgae ω3 or the microalgae extracts\* and incubated for 24h. Samples were then incubated for 30 min with dichlorofluorescein diacetate (DCFH-DA) at 40°C, a fluorescent marker that reacts with ROS. Samples were then irradiated with UV-Vis at 500 W/m<sup>2</sup> for 30 min. Samples were observed by optical microscopy using fluorescence filters to show and quantify ROS presence.*



## Bicoalgae® ω3 – In vivo study

A study conducted with 20 adult volunteers, averaging 36 years old, all with chronic mild to moderate inflammatory acne and/or rosacea. Participants used a cream containing Bicoalgae ω3 at 3% 2x/day over 30 days and the following measurements were carried out at 0 and 30 days under Dermatological control: Skin Barrier function, melanin reduction, decrease of sunspots and red spots, pore reduction, clinical evaluation, patient self-assessment and aesthetic evaluation of product in formulation. *Select results below, please reach out for complete in vivo results.*



*Visia® was used to evaluate changes in skin color hyperpigmentation (freckles, melasma), red areas (vascular disorders due to acne, rosacea, spider veins, inflammation, presence of large pores and porphyrins, at the beginning and end of the study. Bicoalgae ω3 cream decreased number of surface bacteria, pores and skin spots*

## Formulation Guidelines

- Post-add to the O/W emulsion upon cooling down
- Recommended dosage: 1-3%
- Optimum pH range: 4-8
- Preferred processing temperature: <55 °C
- Do not dissolve Bicoalgae ω3 in solvents
- Process with low shear
- Do not use in formulations with alcohol content of >15%
- Avoid harsh surfactants and strong oxidants, such as peroxides

## INCI

Aqua, lecithin, glycerin, *isochrysis galbana* extract, *nannochloropsis gaditana* extract, tocopherol, beta-sitosterol, squalene, phytic acid, sodium benzoate, potassium sorbate, citric acid

## References:

1. Zhuan & Lyga, 2014. Inflammaging in Skin and Other Tissues – The roles of Complement System and Macrophage. *Inflammation & Allergy – Drug targets*, 13, 153 – 161.
2. Zhang & Duan, 2018. Fighting against Skin Aging: The way from Bench to Bedside. *Cell transplantation*, 27 (5), 729 – 738.
3. Tanghetti E. 2013. The Role of Inflammation in the Pathology of Acne. *J Clin Aesthet Dermatol*. 2013 Sep; 6(9): 27–35.
4. Weiss, E., Katta R. Diet and rosacea: the role of dietary change in the management of rosacea. 2017. *Dermatol Pract Concept*. 2017 Oct; 7(4): 31–37.