



Enhance MicroAlgae Project

Potential use of microalgae for the preparation of cosmetic products

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Who we are

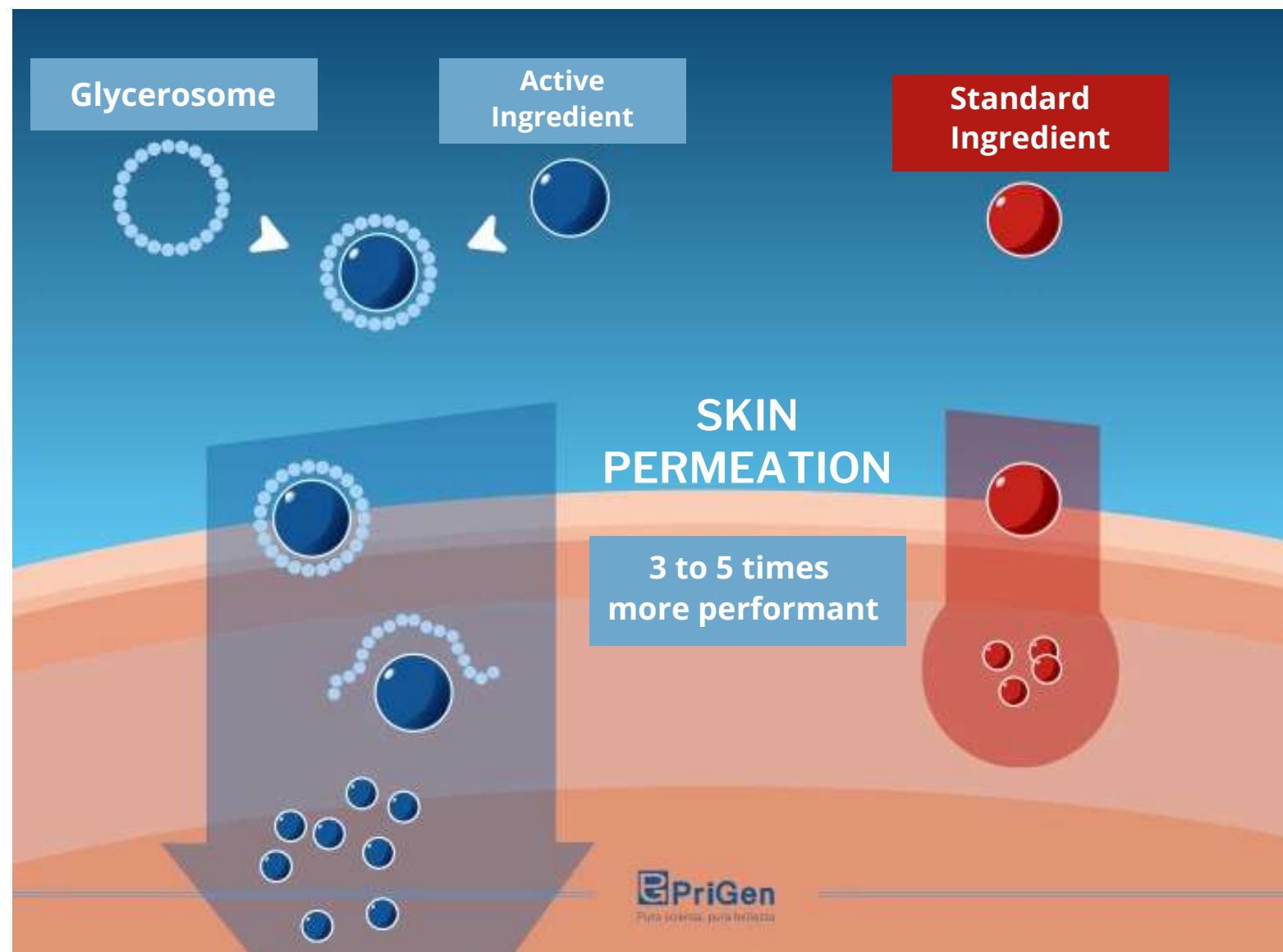
The company was founded in 2003, by a group of experienced managers and researchers in the fields of pharmaceutical biotechnology and cosmeceutical.

Over the last few years Prigen has participated in numerous public research calls for the implementation of research projects in partnership with CNR, the Universities of Milan, Naples and Cagliari and with different companies leader in the pharmaceutical field.

02 | A patented Technology



The Glycerosomal technology: An innovative Technology patented by Prigen in 2013.



- Increase skin permeation of active ingredients form 3 to 5 times compared to standard formulations
- Protect the active ingredient within the formulation
- Reduce the use of surfactants and aggressive substances.

Source: *Int J Pharm* 455 (2013) 66-74

GEN-HYAL SKINCARE

In 2007 Prigen develops GEN-HYAL® skincare: essential and non-aggressive formulations, formulated to offer the correct supply of active ingredients, minimizing the use of potential allergenic agents.

The concept of **Essentiality**

- Presence of active ingredients in very high concentration.
- No PEG, EDTA, Silicons, Paraffines etc.
- Dermatologically tested for sensitive skin.



COSMECEUTICALS, WHY?



THE INGREDIENT HAS TO BE:

- POWERFUL AND VERY EFFECTIVE
- AT VERY HIGH CONCENTRATION
- IN AN ESSENTIAL INCI LIST
- NON AGGRESSIVE

The Gen-Hyal Skincare Line

8 highly performing formulations developed to prevent and counteract the effects of aging, supporting and improving the health of the skin by offering the correct supply of active ingredients and minimizing the use of potential allergenic agents.

PLUS - 0,5% HA

50 ml
Daily serum



EXTREME - 1% HA

+ Vitamin E
50 ml
Lenitive



ELARGAN - 1% HA

+ Argan Oil
100 ml
Nourishing



EYES - 2% HA

+ Caffeine
15 ml
Draining &
Lifting



PREMIUM - 2% HA

30 ml
Hydrating
& Lifting



URBAN - 0,75% HA

+ Microalga
Tetraselmis
Suecica
30 ml
Regenerative



UV SHIELD - 0,5% HA

+ Microalga
Tetraselmis
Suecica
50 ml
SPF 30+
UVA/B



LIP CARE - 0,75% HA

+ Microalga
Tetraselmis
Suecica
10 ml
Long Lasting
Balm



COMPETENCES: FROM R&D TO MARKET

- 01 **R&D**
Own LAB for R&D,
activities focused
on the formulation
of creams, serums,
lotions, gels, etc.
- 02 **GMP**
Tech Transfer for
the GMP production
(third parties)
- 03 **PACKAGING**
Support for the choice
of Bottles & Pumps +
graphic design of
primary & secondary
packaging
- 04 **TESTES**
In-vivo or in-vitro
dermatological
tests (third parties)
- 05 **REGULATORY**
European
registration
(PIF & CPNP)
- 06 **SUPPORT**
Commercial &
marketing skills

Gen-Hyal & the Microalga Tetraselmis Suecica

Researchers from the A. Dohrn Zoological Station of Naples have discovered that the extract of Tetraselmis Suecica has not only antioxidant properties, but has the effect of stimulating the repair of cells damaged by oxidative stress*. Prigen in collaboration with Biosearch has developed 3 formulations: Urban Serum, Anti-Age UV Shield SPF 30+, Bioactive Lip Care; containing the Tetraselmis Suecica Extract, the marine micro-algae rich in beneficial products with a protective function.

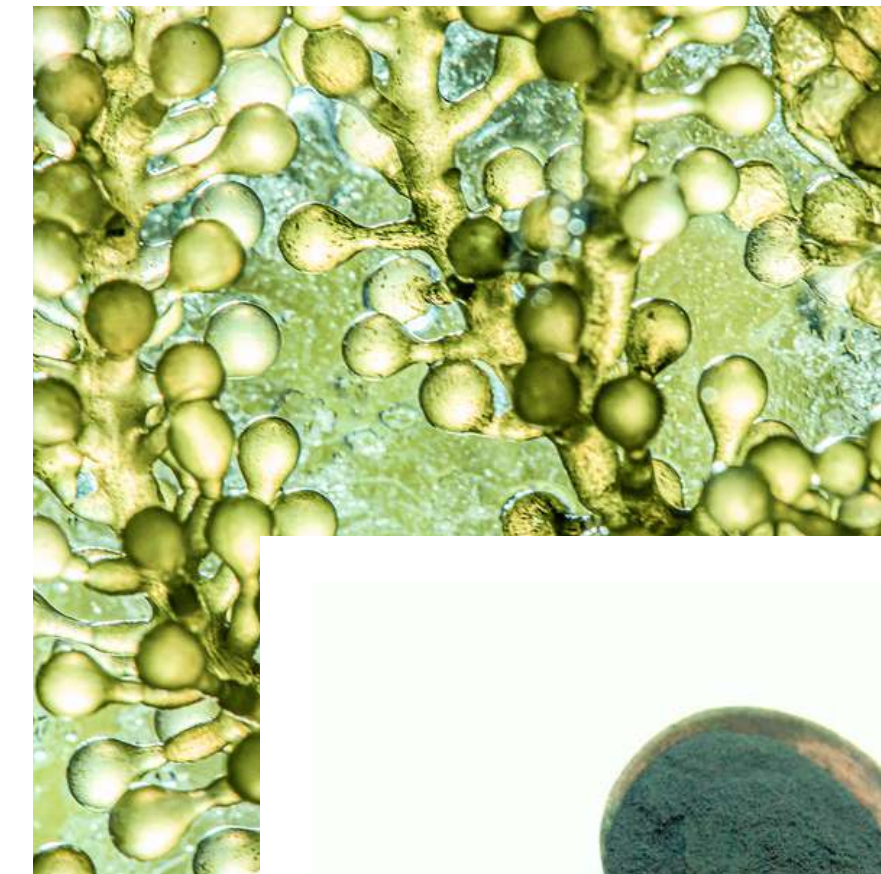


Tetraselmis suecica

*The green microalga Tetraselmis suecica reduces oxidative stress and induces repairing mechanisms in human cells. Clementina Sansone, Christian Galasso, Ida Orefice, Genoveffa Nuzzo, Elvira Luongo, Adele Cutignano, Giovanna Romano, Christophe Brunet, Angelo Fontana, Francesco Esposito & Adrianna Ianora. Sci. Rep., 7, 41215; (2017) 1-12

Opportunity & Benefit

- Sustainable resource
- Huge variety of species
- Very large diversity of algae and microalgae metabolites
- Rapid regeneration (bioreactors)
- High-value products
- Opportunity to change properties through modification of growing conditions
- “Green” sources that meets market needs



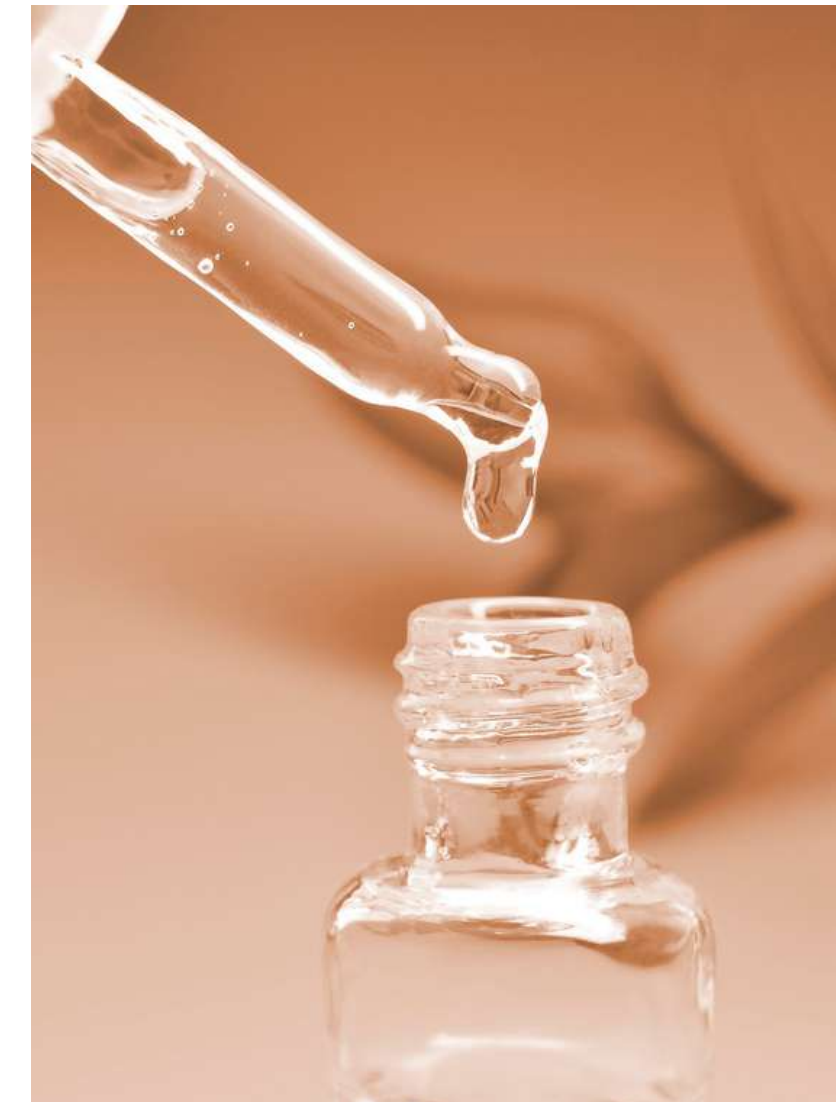
ACTIVE COMPOUNDS IN ALGAE AND MICROALGAE

In cosmetic products, algae and micro-algae extract are normally used for their high content of:

- polysaccharides and sulfated polysaccharides,
- proteins and bioactive peptides,
- phenolic compounds,
- polyphenols and phlorotannins,
- pigments (e.g., fucoxanthin)
- mycosporine-like amino acids.

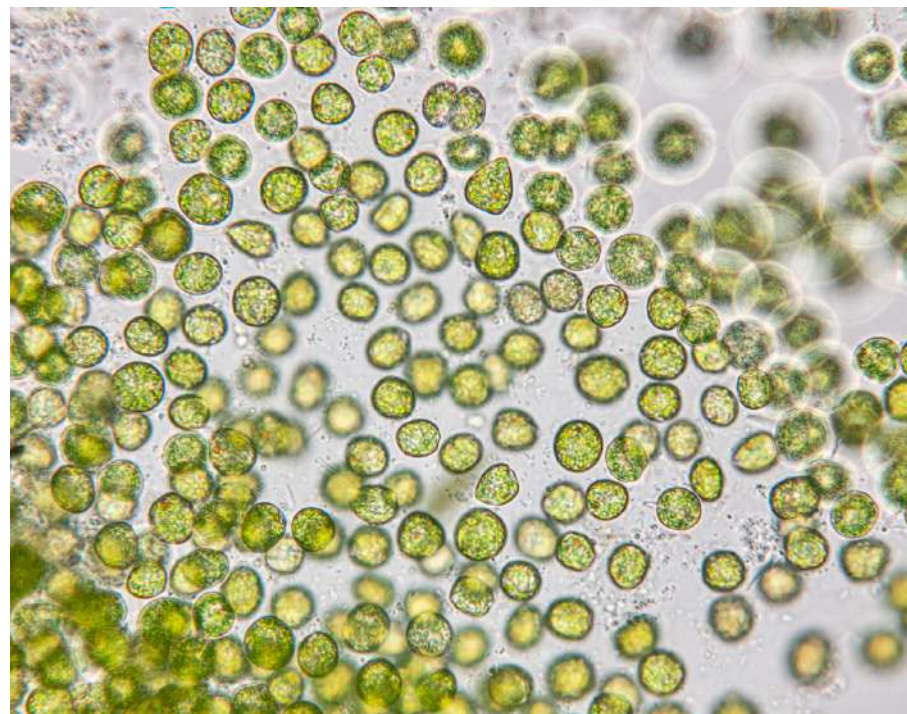


- REGULATE SEBUM PRODUCTION
- ATTENUATE THE APPEARANCE OF WRINKLES (anti-aging/photo-aging)
- ANTINFLAMMATORY PROPERTIES
- PROTECTIVE ACTION: antioxidant, antimicrobial and photoprotective
- DETOXYFING
- MOISTURIZING, SMOOTHING & SOOTHING ACTION
- LIPOLYTIC: ANTI-CELLULITE
- WHITENING PROPERTIES.



COMMERCIAL USE

The dominating species in commercial production are:



Chlorella
(*Chlorella vulgaris*)



Arthrospira
(*Spirulina*; *Spirulina platensis*)



Dunaliella
(*Dunaliella salina*)

Micro- and macroalgae exploitation models for the future European blue economy (CRAFTY) | Activity: HORIZON-CL6-2021-CIRCBIO-01-09

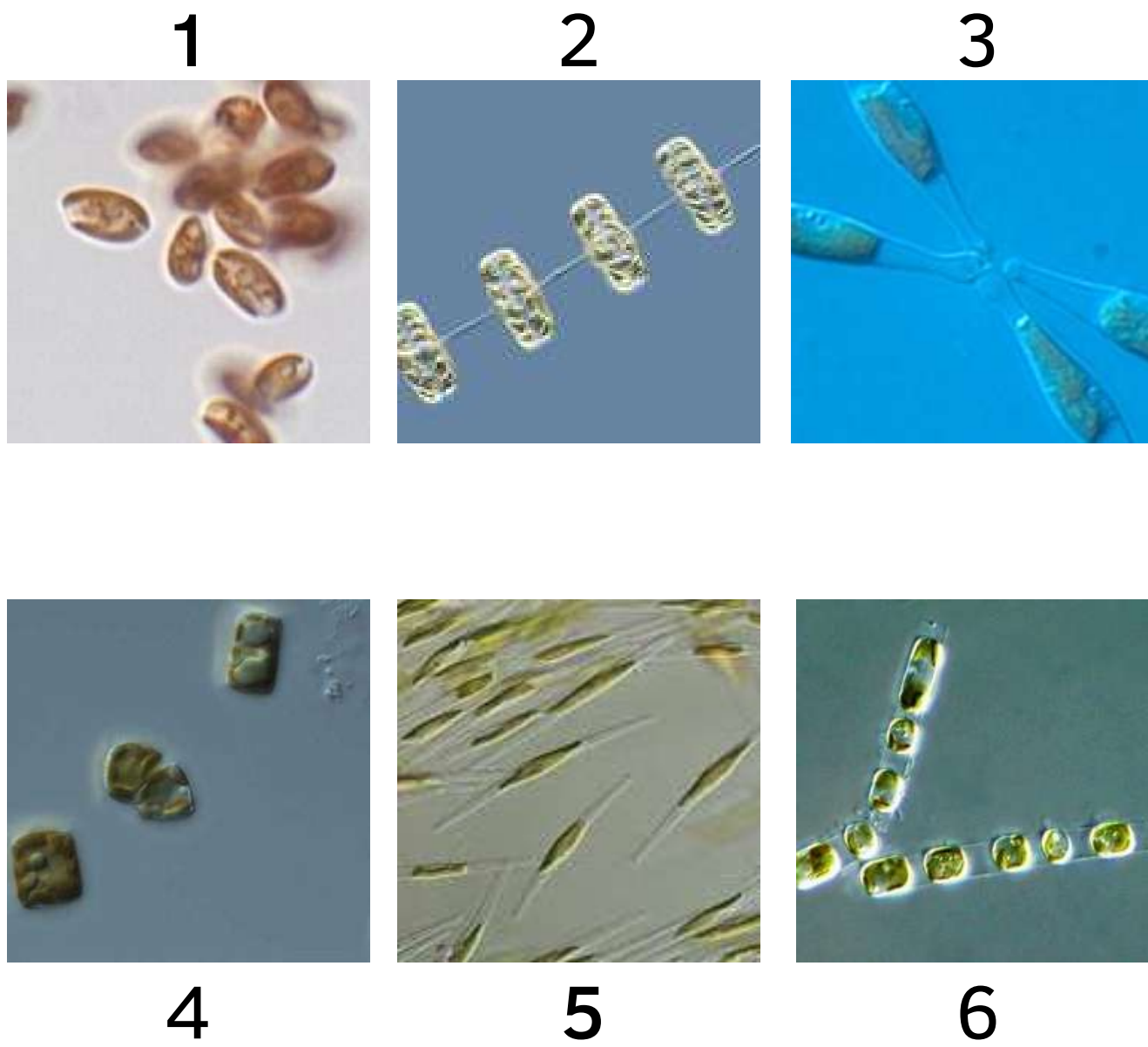
Participants:

- ASOCIACION NACIONAL DE FABRICANTES DE CONSERVAS DE PESCADOS Y MARISCOS, CENTRO TECNICO NACIONAL DE CONSERVACION DE PRODUCTOS DE LA PESCA **ES**
- UNIVERSITETET I TROMSOE - NORGES ARKTISKE **NO**
- UNIVERSITET 3 STAZIONE ZOOLOGICA ANTON DOHRN **IT**
- SWANSEA UNIVERSITY **UK**
- UNIVERSIDAD DE ALMERIA **ES**
- WAGENINGEN UNIVERSITY **NL**
- NEOALGAE MICRO SEAWEEEDS PRODUCTS SL **ES**
- PRIGEN **IT**
- CORPORACION ALIMENTARIA PENASANTA - CAPSA **ES**
- ALGINOR ASA **NO**
- SEAWEED SOLUTIONS AS **NO**
- ISEAMC (INTELLIGENT SEAFLOOR MONITORING AND CONSULTING) **DE**
- WIISE SRL **IT**
- LASER CONSULT MUSZAKI-TUDOMANYOS **ES**
- GAZDASAGI TANACSADO KORLATOLT FELELOSSEGU TARSASAG **HU**
- BLASZCZYK ANETA **PL**
- THE BIORENEWABLES DEVELOPMENT CENTRE LIMITED **UK**
- ZABALA INNOVATION CONSULTING, **SA**

Prigen with Stazione Zoologia Anton Dohrn, ANFARCO, University Of Almería, Wageningen University where mainly involved in the Business Case 1 / Cosmetics Beauty Skincare Products Line

Submitted project had a very high score but was not approved for funding

SELECTED MICRO-ALGAE: DIFFERENT SPECIES = DIFFERENT PROPERTIES



1. *Rhodomonas lens* (antioxidant, antimicrobial, and anti-inflammatory)
2. *Thalassiosira rotula* (antimicrobial and whitening)
3. *Phaeodactylum tricornerutum*: (anti-inflammatory, antioxidant)
4. *Cyclotella cryptica* (anti-inflammatory, antioxidant, immunostimulant)
5. *Cylindrotheca closterium* (anti-inflammatory, antioxidant)
6. *Skeletonema marinoi* -formerly *costatum* (anti-inflammatory, antioxidant)

These microalgae should have been used for the preparation of extracts or to obtain the active ingredients, characterized with in vitro tests to define the cosmeceutical efficacy, and then used for the preparation of cosmetic formulations.

The new microalgae-skincare line was targeting the following list of formulations:

FACE "MIST"

Very fluid sprayable texture for a daily soothing effect

RESTORING MASK

Developed regulate skin microbiome

CLEANSING GEL

Mild surfactants and purifying action

DENSE MAKE-UP REMOVER

Gentle cleansing + anti-oxidant properties

DEPIGMENTING ESSENCE

Skin lightening and brightening formula

LOTION FOR IMPURE SKIN

Antibacterial and purifying effect

THERMOREVERSIBLE BASED HYDROGEL MASK

Innovative face mask made by biocompatible polymers + active ingredients



Algae & Micro-algae are a good opportunity for the preparation of cosmetics, given their great biodiversity and availability of active ingredients.

Prigen is a high-strength company capable of developing innovative cosmetics containing microalgae extracts or derived compounds, combining the use of our innovative Glycerosome Technology to offer innovative, highly qualified and eco-friendly products.

Prigen is interested in developing new cosmetics, with extracts of Algae & Micro-algae or its derivatives, with anti-acne or whitening activities (Age Dark Spot)

For questions: g.tonon@prigen.it

Thank you for your attention!



ENHANCE
MICROALGAE

www.genhyalskincare.com



Interreg

Atlantic Area

European Regional Development Fund

