



BIOBASED PIGMENTS AND HIGHER VALUABLES FROM ALGAE

Algae as micro-biofactory for higher valuables

Introduction

- There is a need for new sustainable resources for chemicals and healthy food/feed
- Algae convert CO₂, nutrients and light, and offer potential as renewable feedstock

Aim:

- Exploring the potential of algae compound for industrial application, focussing on higher valuables such as pigments and extracellular polymers

Expected benefits & opportunities:

- Natural pigments
- Extracellular polymeric substance (EPS) like polysaccharides with bioactive and functional (rheology) properties
- Others: proteins, carotenoids, lipids, ...



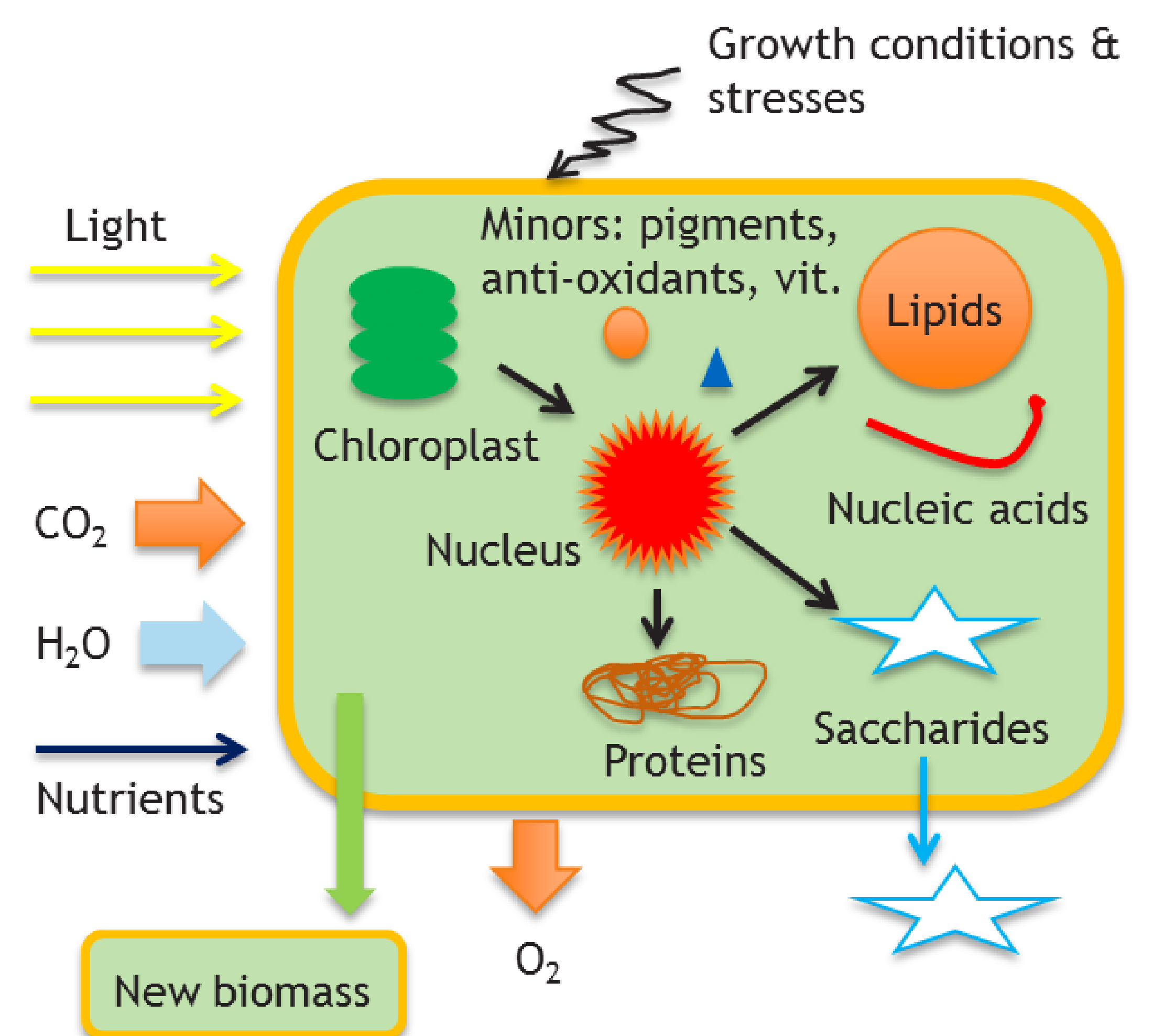
Pigments



C-Phycocyanin



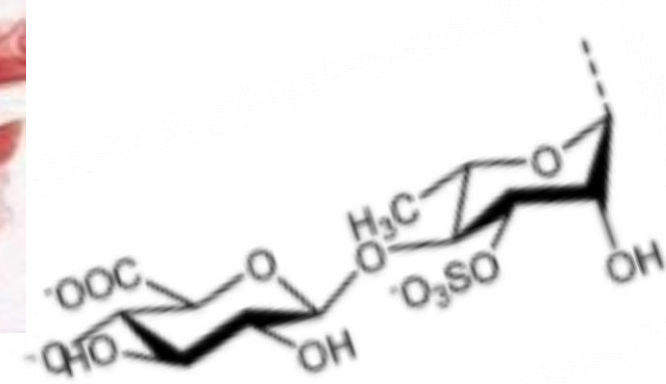
Phycoerythrin



Polysaccharides



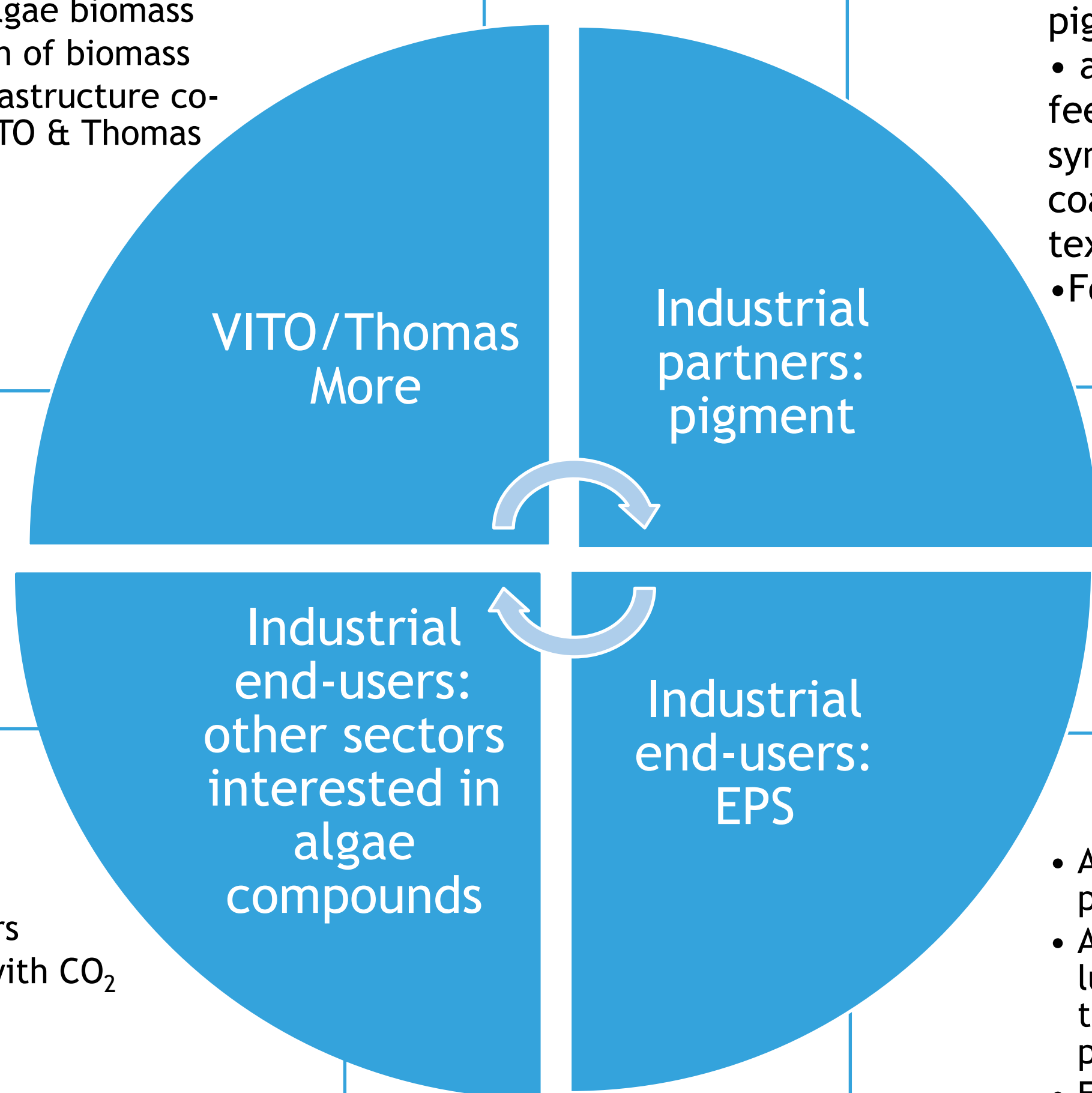
Sulphated polysaccharides (bioactive)



Lubricant

Possible project consortium

- Production of algae biomass
- Harvest of algae biomass
- Fractionation of biomass
- Sunbuilt infrastructure co-owned by VITO & Thomas More



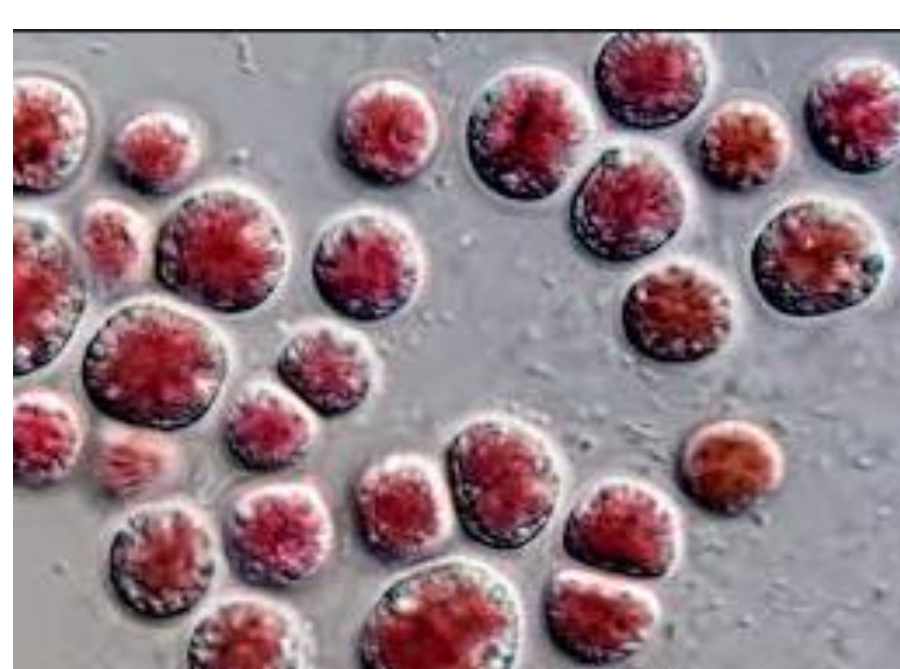
- Application test for pigments from algae
- application: food, feed, pharmaceutical synthetic materials, coatings, leather, textiles, etc.
- Formulations

- Algae growers
- Companies with CO₂ exhausts
- ...

- Application tests for polysaccharides
- Application fields: lubricants, thickeners, preservatives
- Formulation in products



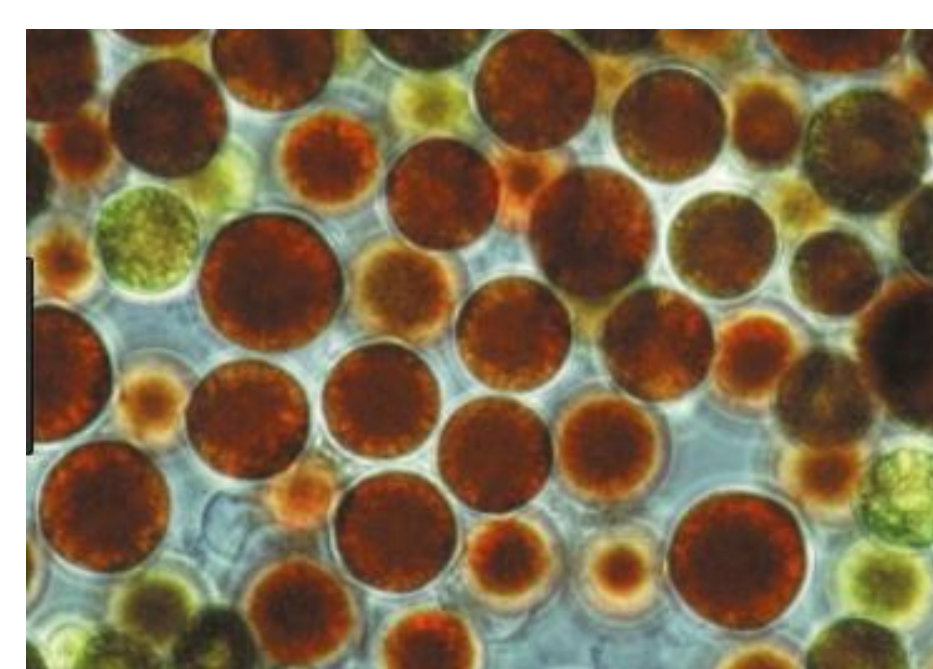
Spirulina
(bleu pigment = C-phycocyanin)
(proteins)



Porphyridium
(red pigment = phycoerythrin)
(polysaccharides)



Haematococcus
(red pigment = carotenoids)



Dunaliella
(brown pigment = carotenoids)

For more information:

Roel Vleeschouwers
(roel.vleeschouwers@vito.be)

Leen Bastiaens
(leen.bastiaens@vito.be)

Sabine van Miert
(sabine.vanmiert@thomasmore.be)