



Algemene gegevens	
Nummer	AF-EU-14006
Titel	MIRACLES: Multi-product Integrated Biorefinery of Algae
Topsector (A&F of T&U)	A&F
Projectleider (onderzoek)	Dr. Lolke Sijtsma
Contactpersoon overheid	Cor Wever
Status (lopend of afgerond)	Lopend
Type onderzoek (F, T of V)	T
Werkelijke startdatum	1 November 2013
Werkelijke einddatum	30 Oktober 2017
Korte omschrijving inhoud	DLO is involved in the development and management of integrated biorefinery technology, employing mild disruption, green extraction and fractionation technologies to produce multiple specialty products from microalgae biomass.

Highlights
<p>Microalgae are a promising feedstock for the sustainable supply of commodities and specialties for food and non-food products. Despite this potential, currently implementation is limited, mainly due to unfavourable economics. Major bottlenecks are the lack of available biomass at acceptable costs and the absence of appropriate biorefinery technologies. MIRACLES is an industry-driven R&D and innovation project aimed at developing integrated, multiple-product biorefinery technologies for the production of specialties from microalgae for application in food, aquaculture and non-food products.</p> <p>During the second year of the project analysis of the overall chemical composition of the selected algal strains for the project has been extended. Bead milling and homogenisation appeared suitable technologies for cell disruption methods but need optimization. New technologies for protein fractionation and lipid extraction were developed.</p>

Opgeleverde producten
<p>http://www.wageningenur.nl/nl/project/MIRACLES-1.htm</p> <p>Bienvenida Gilbert-López, José A. Mendiol, Javier Fontecha, Lambertus A. M. van den Broek, Lolke Sijtsma, Alejandro Cifuentes, Miguel Herrero, Elena Ibáñez. (2015) Downstream processing of <i>Isochrysis galbana</i>: a step towards microalgal biorefinery. <i>Green Chemistry</i> 17 (2015)9. p. 4599 - 4609. http://pubs.rsc.org/en/content/articlelanding/2015/gc/c5gc01256b?iscitedby=True#!divAbstract</p> <p>Hans Reith, Bert Lemmens, Hans Kleivdal, Lolke Sijtsma, Philippe Willems, Carlos Unamunzaga, Elke Breitmayer, Macarena Sanz, René Wijffels (2015). Production of specialties for food, aquaculture and non-food applications via multi-product biorefinery of microalgae: Progress of the EU FP7 project MIRACLES. 2nd EABA and EC Algae contractors conference and the 9th international algae congress. Lisbon, 1-3 December 2015</p>