

Algemene gegevens	
PPS-nummer	AF EU 14003
Titel	Renewable Systems Engineering (RENESENG)
BAPS nummer	-
Topsector en innovatiethema	-
Projectleider (onderzoek)	Ana M. López Contreras
PPS-coördinator (namens private partij)	-
Contactpersoon overheid	-
Status (lopend of afgerond)	lopend
Type onderzoek (F, T of V)	
Werkelijke startdatum	01-11-2013
Werkelijke einddatum	-
Korte omschrijving bijdrage DLO aan project	Dit project betreft een EU project, waar DLO een PhD student begeleid. De bijdrage van DLO is gefocust op de fermentatie van suikers naar chemicaliën, met name 1,2-propanediol, 2,3-Butanediol en n-propanol.

Highlights
In het eerste jaar van het project is gekijken naar de producten van fermentatie van de zeewier <i>Ulva lactuca</i> naar chemicaliën. De anaerobe fermentatie route van de suiker rhamnose geeft 1,2-propanediol als belangrijkste product, gevolgd door butanol en aceton.

Aantal opgeleverde producten in 2014			
Wetenschappelijke artikelen	Rapporten	Artikelen in vakbladen	Inleidingen/ workshops/ invited lectures
1 (in voorbereiding)	1 (niet openbaar)	0	1 trainingschool 2 invited lectures 1 poster

Opgeleverde producten
<p><u>Wetenschappelijk artikelen</u></p> <p>Running title: "Use of <i>Ulva lactuca</i> as feedstock for animal feed and chemicals production using a Biorefinery approach" Lopez-Contreras et al, in preparation</p>
<p><u>Inleidingen/ workshops/ invited lectures</u></p> <p><i>Description of the 1st Trainingschool RENESENG</i></p> <p>The 1st RENESENG training school focused on the expertises and knowledge of the organising partners. The theme of the training school was: "Biorefinery integration and sustainable development: Industrial cases using Biotechnology".</p> <p>As lecturers of the school, a mix of academics and of senior scientists in industry were scheduled to give a good overview of the state-of-the-art in their respective research fields.</p> <p>A total of 25 participants attended the school. From these participants, 14 were affiliated to the RENESENG network and the rest were external. Of the external participants, most came from The Netherlands (industry and academia) and several from Norway (industry and academia).</p> <p>The training school consisted of three whole days, as follows:</p> <p>Day 1 (3/11/2014) Theme: Fermentation-based biorefineries</p> <p>Chair: Adrie Straathof, including the following topics:</p> <ul style="list-style-type: none"> - Introduction on biomass use and industrial biotechnology <li style="padding-left: 20px;">Chapter 1, lecturer: Gerrit Eggink, Wageningen UR - Pretreatment of lignocellulosic biomass

- Chapter 2, lecturer: Solange Mussatto, Delft University of Technology
- Using mixed cultures for biomass valorization,
- Chapter 3, lecturer: Robbert Kleerebezem, Delft University of Technology
- Recovery of biorefinery products and overall process structure
- Chapter 4, lecturer: Adrie Straathof, Delft University of Technology
- Exercise: Synthesis of a biorefinery

Antonis Kokossis, NTUA

- Sustainability assessment
- Chapter 5, lecturer: Miao Guo, Imperial College London
- Design of lignocellulosic hydrolysate fermentation
- Chapter 6, lecturer: Sef Heijnen, Delft University of Technology
- Poster session

Day 2 (4/11/2014) Theme: Biomass refinery

Chair: Ana M. López Contreras, including the following topics:

- Cultivation of seaweeds for biorefinery
- Chapter 7, lecturers: Willem van Brandenburg, Ana M. López Contreras Wageningen UR
- Enzymatic hydrolysis of biomass
- Chapter 8, lecturer: Rob Bakker, Wageningen UR
- Lignin valorization in lignocellulosic biorefineries
- Chapter 9, Richard Gosselink, Wageningen UR
- Introduction to modelling and simulation tools for biorefineries
- Chapter 10, lecturer Athanassios Nikolakopoulos, NTUA
- Visit to Food and Biobased Research Facilities, Wageningen
- Visit to AlgaeParc and Seaweed station, Wageningen

Day 3 (5/11/2014) Theme: Scale-up-scale-down of bioprocesses

Chair: Els Schulten, including the following topics:

- Scale-up of bioprocesses – principles
 - Chapter 11, lecturer: Henk Noorman, DSM and TU-Delft
 - Upstream processing
 - Chapter 12, lecturer: Luuk van der Wielen, TU-Delft
 - Modeling of food-related fermentations
 - Chapter 13, lecturer: Jeroen Hugenholtz, Corbion-Purac
 - Tour through Bioprocess Pilot Facility: upstream section, fermentation section, downstream section
 - Workshop: my project and the Bioprocess Pilot Facility
- Chair: Els Schulten, Bioprocess Pilot Facility

Invited lectures

‘Seaweeds for production of biofuels’, Ana M. López-Contreras (2014), Mie Bioforum on lignocellulose degradation and biorefinery, 18-21 Nov Nemunosato Resort, Tsu, Japan

„Seaweed biorefinery: production of acetone, butanol and ethanol from native North Sea seaweed species“, Ana M. López-Contreras, Paulien Harmsen, Wouter Huijgen, Jaap W. van Hal and Jacco van Haveren (2014), Marine Biotechnology congress, 29 May- 1 June (Mie University, Tsu, Japan)

Posters

“Fuels and Chemicals from green Seaweed” Nazareno Scaccia, Servé W. M. Kengen, Gerrit Eggink, John van der Oost and Ana M. Lopéz-Contreras (2014). Presented at the 1st RENESENG trainingschool, November 3-5, Delft and Wageningen, The Netherlands