

## Programme Young Algaeneers Symposium, April 3 – 5 2014

### Wednesday, April 2<sup>nd</sup>

#### Time

17:00 – 19:00 *Registration opening*

### Thursday, April 3<sup>rd</sup>

#### *Plenary session I (location: Corum; Montpellier)*

**Common day YAS 2014/Alg'n'chem - Which algae processes and equipments up to algae-bioraffineries?**

07:30 *Registration opening*

08:30 *Welcome to the Young Algaeneers Symposium 2014 (YAS2014)*

08:45 *Introduction Posten, C. (Karlsruhe University, Germany)*

09:15 *Introduction Pruvost, J. (GEPEA, France) Photobioreactor engineering for solar microalgae cultivation: methodology and applications.*

09:45 *Discussion*

10:00 *Break*

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|-------|-------------------------------|--|
| 10:15 | <b>Pirwitz, K.</b>            | Establishment of a multi-stage production system with photosynthetic microorganisms  |
| 10:30 | <b>Lemasson, C.</b>           | Continuous autotrophic hydrogen production by <i>Chlamydomonas reinhardtii</i> in a two-stage photobioreactor                    |
| 10:45 | <b>Romari, K.</b>             | From strain selection to large scale production: Wild strain or engineered microalgae? - Autotrophy, mixotrophy or heterotrophy? |
| 11:00 | <b>Remmers, I. (YAS 2014)</b> | Lipid production in <i>Phaeodactylum tricornutum</i> under simulated outdoor conditions  |

11:15 *Discussion*

11:30 **Poster session**

12:30 *Lunch*

#### *Plenary session II (location: Corum; Montpellier)*

13:30 *Introduction Katsikis, N. (Schott AG, Germany)*

14:00 **Barrut, B.** Partial microalgae harvesting efficiency by flotation-flocculation in a vacuum gaslift

14:15 **Fresewinkel, M. (YAS 2014)** Process design of methane production from a metabolite excreted by immobilised algae

14:30 **Turon, V.** New insights on heterotrophic microalgae growth on dark fermentation effluents

15:45 **Lépine, O.** Real examples of microalgae bio-refining for the development of sustainable business models

15:00 *Discussion*

15:15 **Solé, M. (YAS 2014)** Codigestion of (pretreated) microalgae and primary sludge: closing the loop in wastewater treatment algal systems

15:30 **Delrue, F.** Thermochemical conversion of microalgae biomass, an alternative to the lipid extraction and conversion pathway



15:45	<b>Torres, A.</b>	Energy recovery through the anaerobic digestion of the residual microalgae biomass from a biodiesel production process
16:00	<b>Schmid-Staiger, U.</b>	New automation strategy for two-stage lipid production tested in an outdoor pilot plant
16:15	Discussion	
16:30	Conclusions	
17:30	End of the day	
17:45	Trip to Narbonne	
20:00	Welcome Dinner (Narbonne)	

## Friday, April 4th

### Time

08:15	<b>Meeting point; Trip to IUT of Narbonne</b>
08:45	<b>Introduction YAS Symposium : Olivier Bernard; INRIA, France</b>
09:05	<b>Introduction YAS Symposium : Jean-Philippe Steyer; INRA, France</b>
09:30	<b>Introduction : Packo Lamers; Wageningen, The Netherlands</b>
10:00	<i>Break</i>

### 10:20 **Plenary session III (location: IUT Narbonne) - New challenges for future** Presentation : 15 min (oral) + 5 min (questions)

- 1. Bellini, S.** Spectral Measurement Method coupled with an Optical Model of Microalgal Cells to Retrieve the Cell Concentration and Mean Diameter of Culture Samples in the Context of Culture Monitoring
- 2. Besson, A.** Mechanism of autoflocculation-flotation of microalgae in hypersaline water.
- 3. Fret, J.** Process optimization for the reuse of growth medium during the cultivation of *Nannochloropsis* sp. in the ProviAPT microalgae production system
- 4. Heining, H.** Internal Illumination of photobioreactor via Wireless Light Emitter – a proof of concept.
- 5. Rajakumar, P.** *Chlamydomonas reinhardtii* as an Oral Vaccine Candidate for Infectious Bronchitis Virus

12:00 Keynote lecturer : **Emma Granqvist** : Publisher; Plant and Algal Sciences; Elsevier  
How to Write a Great Research Paper, and Get it Accepted by a Good Journal

12:30 *Lunch (IUT Narbonne)*

### 13:40 **Parallel session IV (location: IUT Narbonne)** Presentation : 15 min (oral) + 5 min (questions)

#### IV.A How to enhance algae lipid production? Key methods

- 1. De winter, L.** Microalgae on a time schedule: Circadian rhythms in the cell cycle and biomass composition of *Neochloris oleoabundans*
- 2. Mulder, K.** Effect of initial biomass concentration on carotenoid and triacylglycerol (TAG) metabolism in (i) nitrogen depleted and (ii) nitrogen replenished *Chlorella zofingiensis*
- 3. Moutel, B.** Assessing *Botryococcus braunii* hydrocarbon production potential using original functional and physiological screening approach



4. Taleb, A. Development of a screening methodology of microalgae strains for biodiesel application
5. Bodénès, P. Microalgal cell's electroporation for lipid extraction: a real time study in a microfluidic device

#### IV.B Microalgae-based biorefinery: the future of C,N,P sequestration and recycling

1. Muhammad, L. Investigation of effect of different CO<sub>2</sub>/Air ratios on the growth of *Chlorella Vulgaris* for biomass production and CO<sub>2</sub> fixation in photo-bioreactor:
2. Meier, L. Photosynthetic CO<sub>2</sub> uptake by microalgae: an attractive tool for biogas upgrading
3. Weickert, S. Productivity comparison of the green alga *Chlorella sorokiniana* cultivated on fermentation gas and technical carbon dioxide using Flat Panel Airlift Photobioreactors.
4. Uggetti, E. Recycling of anaerobic digestion effluents in microalgae culture
5. Lizzul, A. Growth of *Chlorella sorokiniana* on Anaerobic Digestate within a 20 Litres Airlift Photobioreactor.

#### IV.C Optimizing culture conditions

1. Kazamia, E. Exploiting synthetic communities for cultivation of microalgae
2. Piltz, B. Immobilized phototrophic communities for nutrient recovery from human urine
3. Perin, G. Generation and selection of genetically manipulated algae strains for improved performances in photobioreactors.
4. Markina, D. Optimization of autotrophic growth of *Chlamydomonas reinhardtii*
5. Benattia, S, E. Nonlinear Model Predictive Control of Microalgae Culture

15:20

Break

15:40

#### Parallel session V (location: IUT Narbonne)

Presentation : 15 min (oral) + 5 min (questions)

##### V.A Wastewater treatment for N,P removal: from the lab to real case studies

1. Posadas Olmos, E. Microalgae-based domestic wastewater treatment in enclosed tubular and open biofilm photobioreactors
2. Michels, M. Growth of *Tetraselmis suecica* in a tubular photobioreactor on waste water from a fish farm
3. Drakopoulou, S. Effects of nitrogen and phosphorus concentrations on the growth of freshwater microalgae *Chlorococcum sp.*
4. Wagner, D. An Activated Sludge Model for Mixed Green Microalgae (ASM-A): model identification and calibration

##### V.B Microalgae as a cell factory for the production of molecules of interest

1. Lui, Y. Genetically Engineering Cyanobacteria to Produce Limonene for use as a Biofuel
2. Mooij, P. Enrichment and long term stability of a culture of storage compound producing microalgae
3. Schwerna, P. Effect of cultivation parameters on the biosynthesis of antiviral Sulfoquinovosyldiacylglycerides in *Porphyridium purpureum*



4. **Fachet, M.** Analysis of cellular properties during carotenogenesis in *Dunaliella salina* using flow cytometry

#### V.C Genetic tools for microalgae

1. **De Jaeger, L.** Superior Triacylglycerol (TAG) accumulation in starchless mutants of *Scenedesmus obliquus*
2. **Charrier, A** Identification and expression studies of genes encoding high affinity nitrate/nitrite transporters in *Tisochrysis lutea*
3. **De Mooij, T.** Productivity of antenna size mutants in microalgae mass culture
4. **Stoffels, L.** Synthesis of Antibacterial Bacteriophage Proteins in Microalgae

17:30 Visit of Salinalgue (Gruissan) and visit of INRIA/INRA-LBE/CNRS-LOV (LBE Narbonne) microalgae research installations

19:00 Free time

20:30 Gala dinner (French gastronomy)

#### Saturday, April 5th

Time

09:00

**Plenary session VI (location: Library Narbonne) - Presentation: 15 min (oral) + 5 min (questions)**  
**Global view of algae biotechnology: from genes to industrial applications**

1. **Benvenuti, J.** Screening of microalgae on fatty acid productivity and photosynthetic efficiency under nitrogen starvation
2. **Al-Hoqani, U.** Development of chloroplast transformation methodology for *Nannochloropsis gaditana*
3. **Camacho-Rodriguez, J.** Influence of temperature, average irradiance and dilution rate on eicosapentaenoic acid and pigments production by *Nannochloropsis gaditana* indoors culture destined to aquaculture
4. **Klok, A, J.** Simultaneous growth and lipid accumulation: customising biomass composition in continuous microalgae production

10:20 Break

- 10:40 5. **Steinbush, S.** Solar Biofuels Research Centre (SBRC) – Comparison of reactor systems and process parameters under identical conditions
6. **Blanken, W.** Biofilm growth of *Chlorella sorokiniana* in the Algidisk system: an rotating biological contactor based photobioreactor
7. **Mendez, L.** *Chlorella vulgaris* anaerobic biodegradability: effect of thermal pretreatment at increasing biomass loads
8. **Passos, F.** Modelling anaerobic digestion of microalgae grown in wastewater treatment systems using ADM1

12:00 Symposium Summary

12:30 End of YAS 2014

12:30 Lunch

