Living Lab Biobased Brazil
Education Research Innovation

Assignment internship Chemistry of Chemical Engineering student

Living Lab Biobased Brazil
The Living Lab Biobased Brazil is a transnational Living Lab in the field of Biobased Economy, created in 2014 by a consortium of Dutch Universities of Applied Sciences in collaboration with several Brazilian universities. The Living Lab helps students with internships and graduation projects in Brazil and the Netherlands with the focus on Biobased Economy. We also help students finding accommodation, and offer buddy support, Portuguese/Dutch classes, a bye-bye meeting and an introduction weekend in Brazil or the Netherlands.

In return the Living Lab expects you contribute to the Living Lab blog. You have to blog about your personal and internship experiences during your stay in the Netherlands. We also expect you to participate in the mini symposium at the end of each semester.

These events help you to increase your personal network and is focused on your personal development! For more information please see: http://www.biobasedbrazil.org/

University information
Avans University of Applied Sciences was founded on 1 January 2004 following a merger of Hogeschool Brabant and Hogeschool 's-Hertogenbosch. At Avans University of Applied Sciences, around 29,000 students study 54 different courses. 2,400 employees work at 20 schools, 4 support units and 1 Learning and Innovation Centre.

Students, lecturers, professors and education professionals together form a lively network within our educational institution. Knowledge and competency development is the driving force and the connecting factor behind this.

Our varied and modern learning environment enables each student to develop his or her skills and ambitions to their maximum potential.

Our inspiring lecturers are experts in their fields and have a thorough knowledge of learning processes, enabling them to challenge students to push their boundaries and excel. The schools have structured their curricula, teaching and examinations based on our educational vision. We collaborate with a wide range of companies, professions and organizations as part of its teaching and research activities.

For more information please see the promotional YouTube video
https://www.youtube.com/watch?v=5nsPBlE04Q4 :

Research project
Pyrolysis of Macauba oil soap to produce biofuel using auger reactor

Introduction

Biofuels have recently become more attractive because of their environmental benefits and the uncertainties concerning petroleum availability. Among the different possible raw materials extractives-based triglycerides (i.e., esters of free fatty acids with glycerol) in plants present a promising source for producing conventional diesel-type fuels.

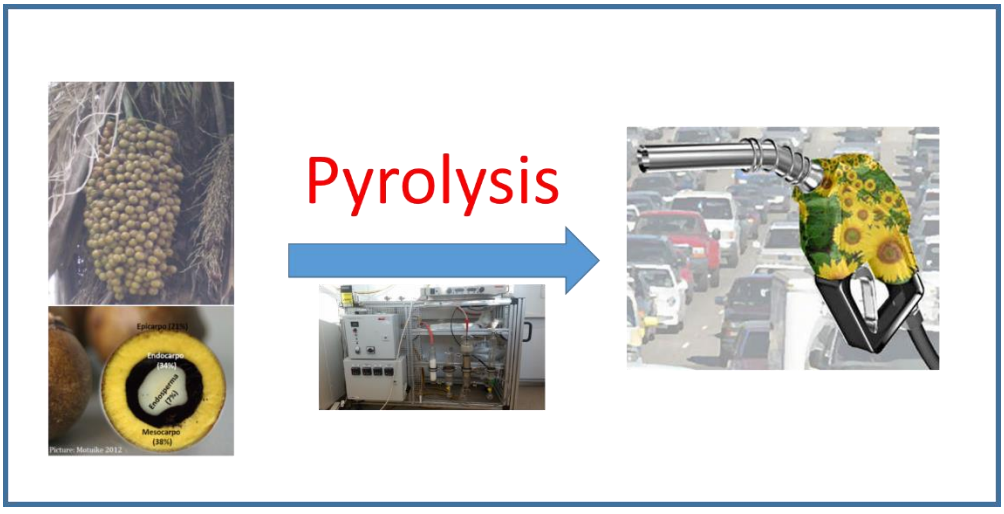
Macauba is a palm tree native to Brazil, which is frequently found on pastures. Macauba (Acrocomia aculeata) oil can be produced without land use change and in an economically and socially sustainable way. Therefore, it is a promising material to produce biofuel.

In general, pyrolysis is one of the most promising technologies applied to biomass utilization. The saponification of triglycerides prior to pyrolysis offers a way to yield pyrolysates with a composition similar to that of diesel fuel. This treatment also facilitates to some extent the pyrolytic process. Moreover, pyrolysates of saponified vegetable oils compared, for example, to neat triglycerides seem to contain less chemically bound oxygen.

In 2015 the CoEBB in Avans Hoogschool has developed an auger type biomass pyrolyzer with a capacity of 300 g/h. CoEBB is cooperating with the Federal University of Minas Gerais in Brazil (UFMG) to develop a new way of energy and/or materials supply systems by making using of the biomass Macauba in Brazil.

Activities

- Collect data based on the established method , assessment of the yield of the pyrolysis products – oil, gas & char of Macauba oil soaps.
- Establish a conversion model which describes the performance of the pyrolysis of Macauba oil soaps in terms of input versus output.
- Environmental effects and economy analysis.



Final product
The student will write a report that contains an overview of all activities and findings.

Starting date
September 2016. The length of the assignment is approximately 5 months (20 weeks). The student who will execute the assignment get a fee of €550,- per month.

The intern will be part of a research team lead by the adviser and supervised by a professors of the Biobased energy group. For more information please see: https://www.coebbe.nl/

Desirable skills/qualities of the student
Good knowledge of the English language is required. The background of the student is chemical engineering or chemistry at studies at undergraduate, graduate or PhD level.

Interested?
Please contact the following person of your home university:

Brazilian University	Contact person	Contact information
UFMG	Daniel Rotsen	minasmundi3@dri.ufmg.br
UFV	Prof. Vladimir Oliveira Di Iorio	dri@ufv.br
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