



Surplus electricity to biogas via hydrogen

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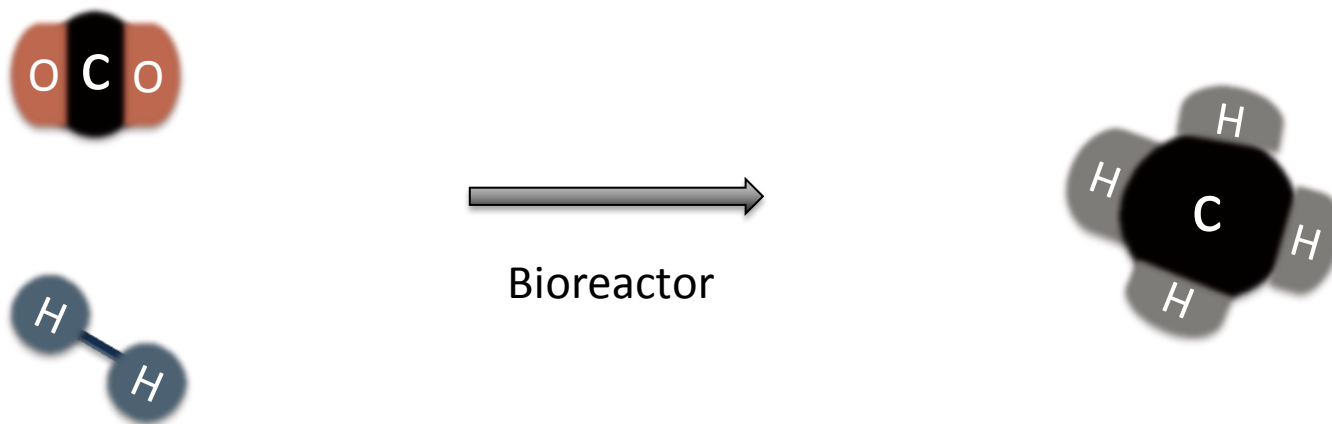
Funded by
the European Union

Project agenda

- Introduction
- Objectives
- Tasks & Methodology
- Outcome

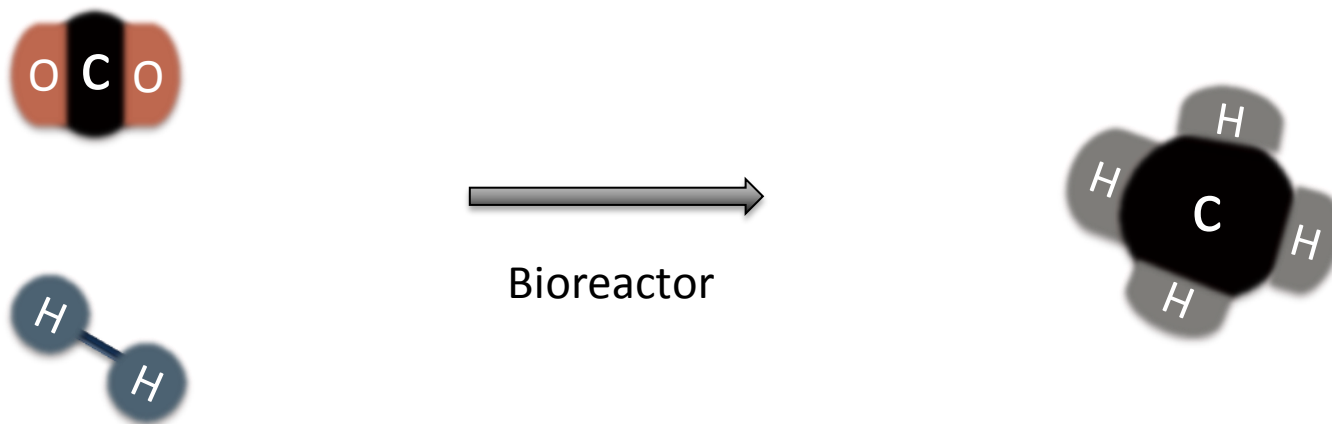
Introduction

Bio – Sabatier reaction and its potential



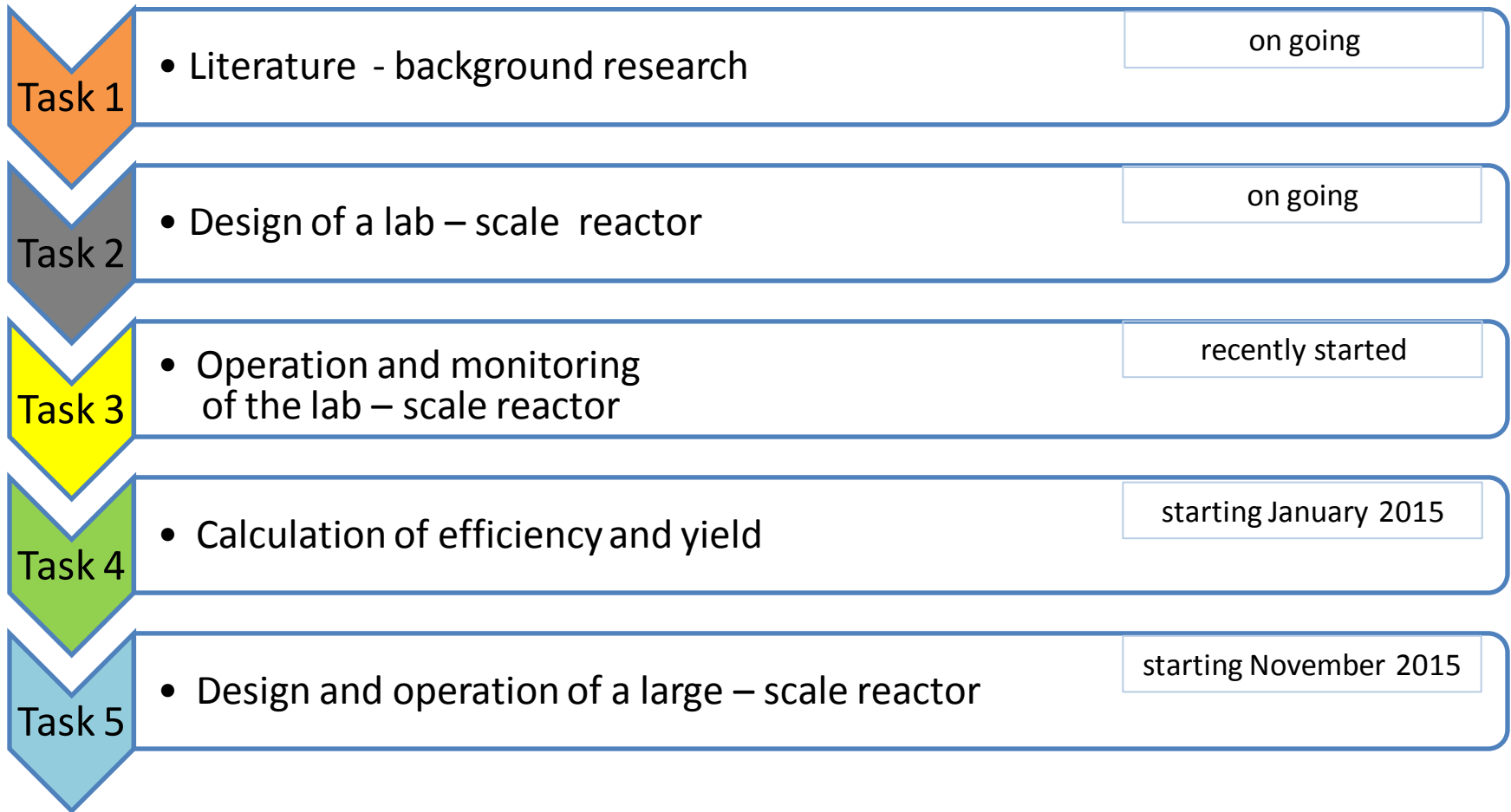
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Bio – Sabatier reaction and its potential

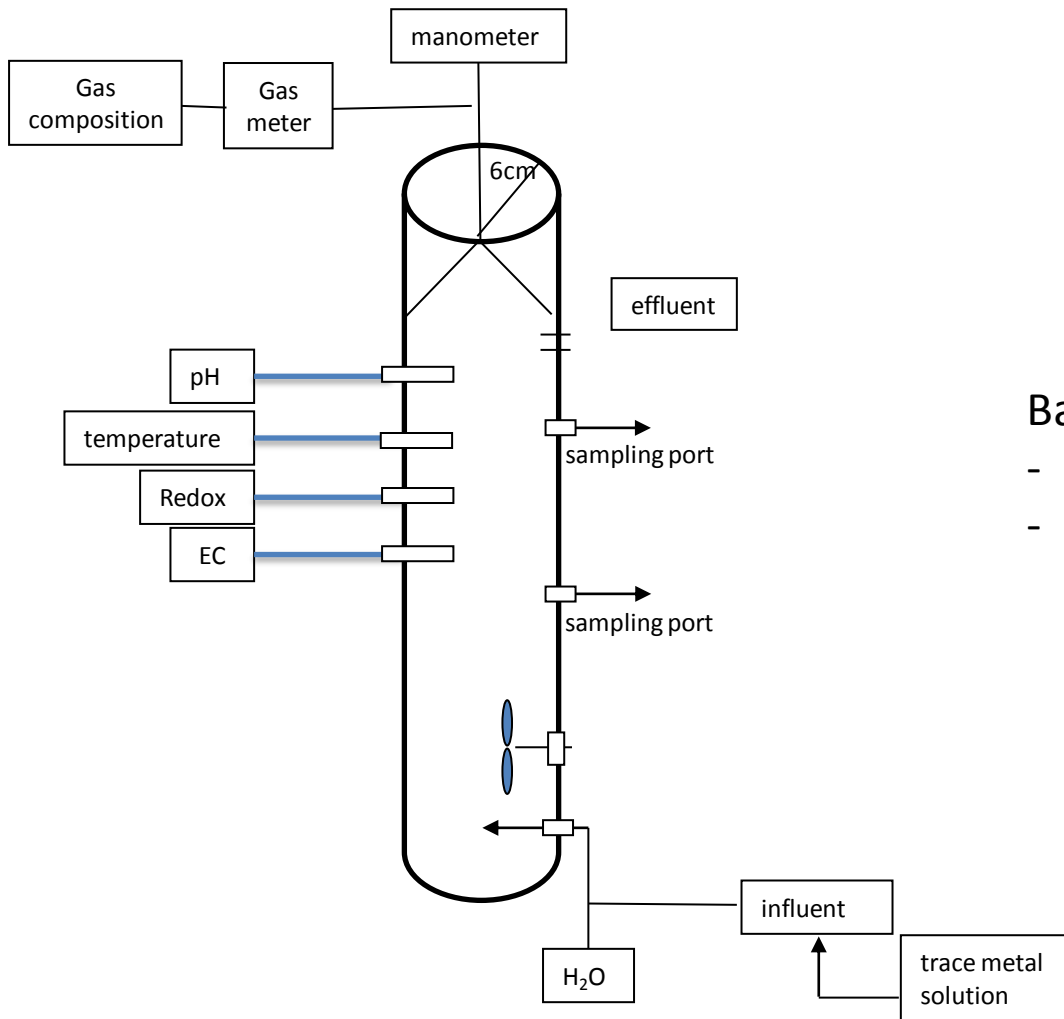


Biogas yield – its CH₄ percentage

Tasks & methodology



Experimental configuration



Operational conditions:

- maintained at 37° C
- digested sludge as inoculum
- excess sludge as substrate

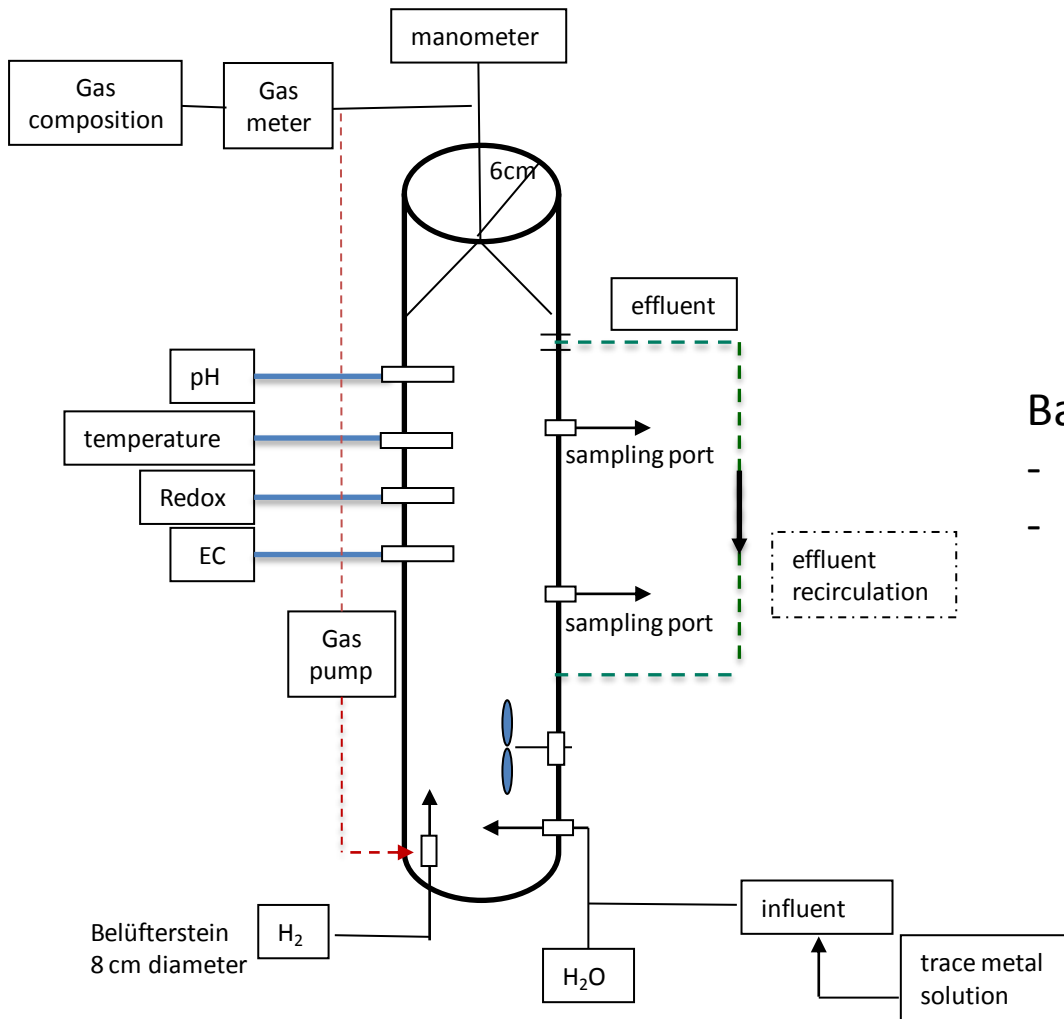
Batch tests:

- maintained at 37° C
- methane potential



Picture 1: Batch test bottles

Experimental configuration



Operational conditions:

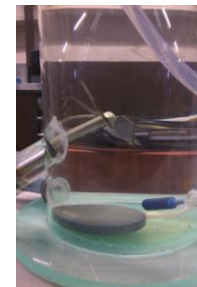
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Picture 1: Batch test bottles



Picture 2: Ceramic diffusers

Modifications:

- stirring velocity
- effluent recirculation
- biogas recirculation

Experimental configuration



Operational conditions:

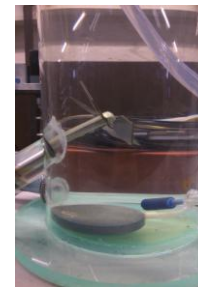
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Picture 1: Batch test bottles



Picture 2: Ceramic diffusers

Modifications:

- stirring velocity
- effluent recirculation
- biogas recirculation

Outcome

The expected outcome of this project is:

- To implement an efficient process for converting the excessive renewable energy into CH₄
- To decrease biogas upgrading costs
- The possible use of biogas as an alternative to natural gas
- The use of the existing infrastructure system for storing electricity



Thanks for listening



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www.qub.ac.uk/questor