



Pretreatment

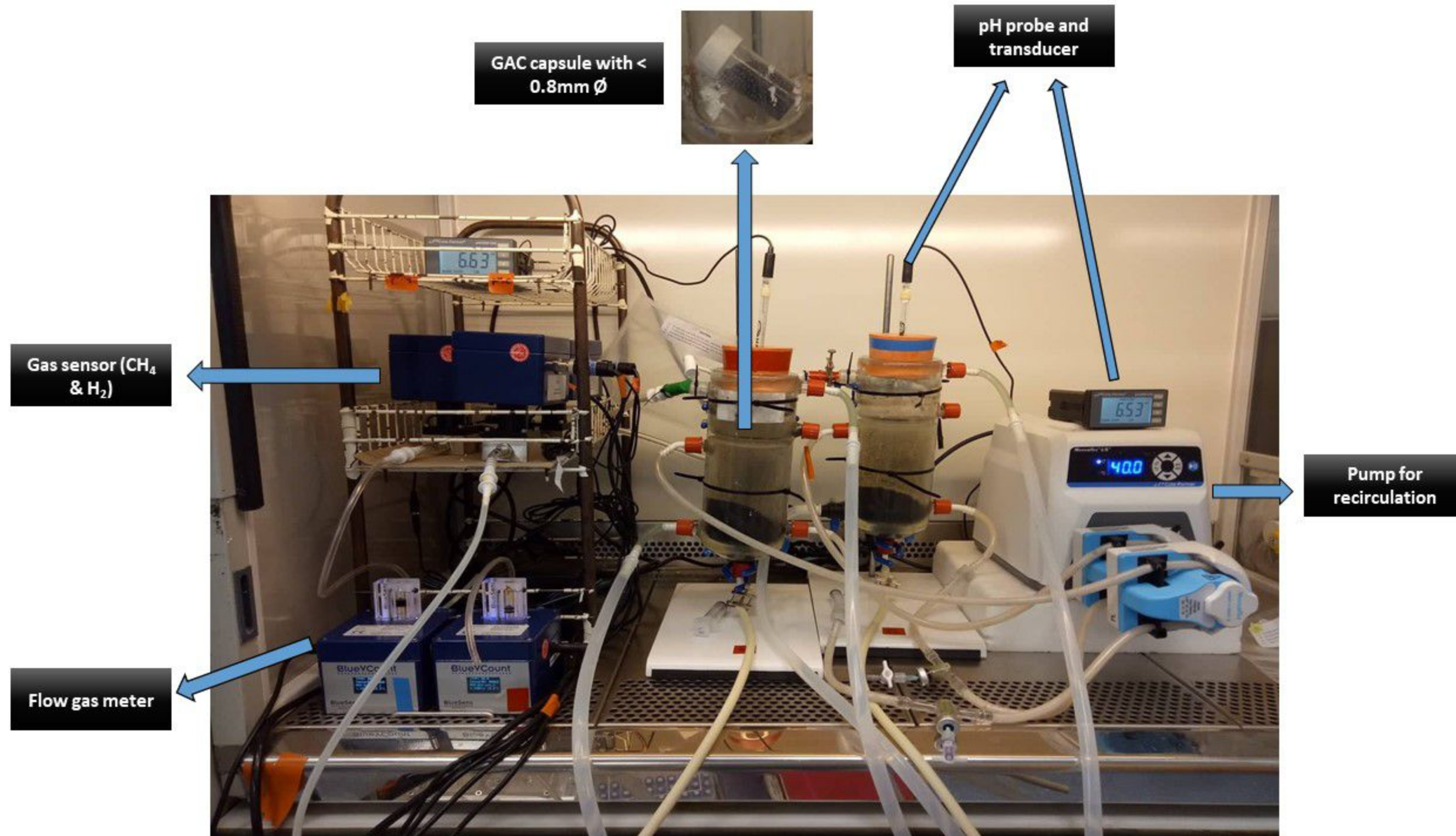
Preatreatment of FOGs and
methane production

Preatreatment of solids and
VFA recovery

Lactic acid



Lea Tan



This set-up is a fed-batch reactor with side stream recirculation flow at 1.5 m/h and 37°C. It is fed with real dairy wastewater taken and with gas sensors (CH₄ and CO₂) and flow meter attached at the end. One reactor is taken as the control while GAC is added to the other, contained in a small capsule with < 0.8 mm diameter holes.

Food Waste bioconversion through Lactic Acid Fermentation

Simone Pau, Lea Chua Tan and Piet N. L. Lens

Mesophilic Condition : 37 °C

Initial Concentrations: 8 gVS(substrate)/L; 2 gVS(Inocula)/L

Inoculum/Substrate: 4 VS/VS

Inocula: Granular Sludge, Digested Dairy Gold Sludge, Primary Sludge, Food Waste

Substrate: Synthetic Food Waste

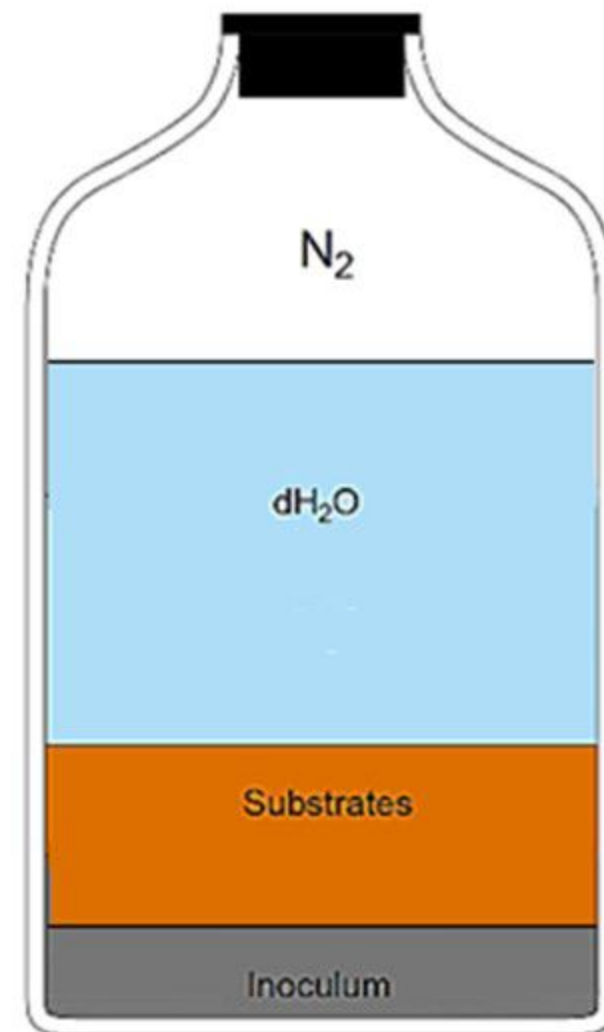
Time: 96 h

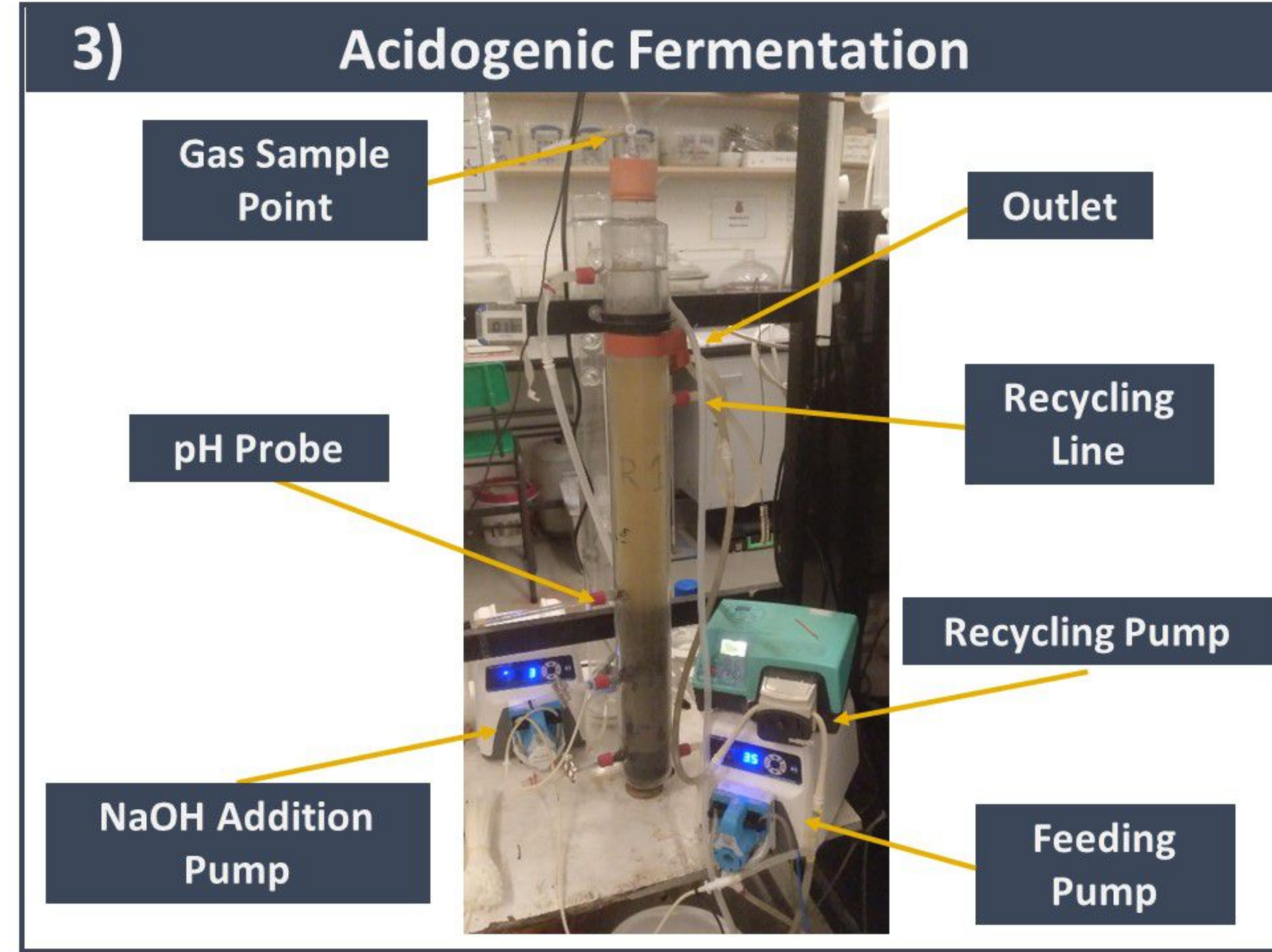
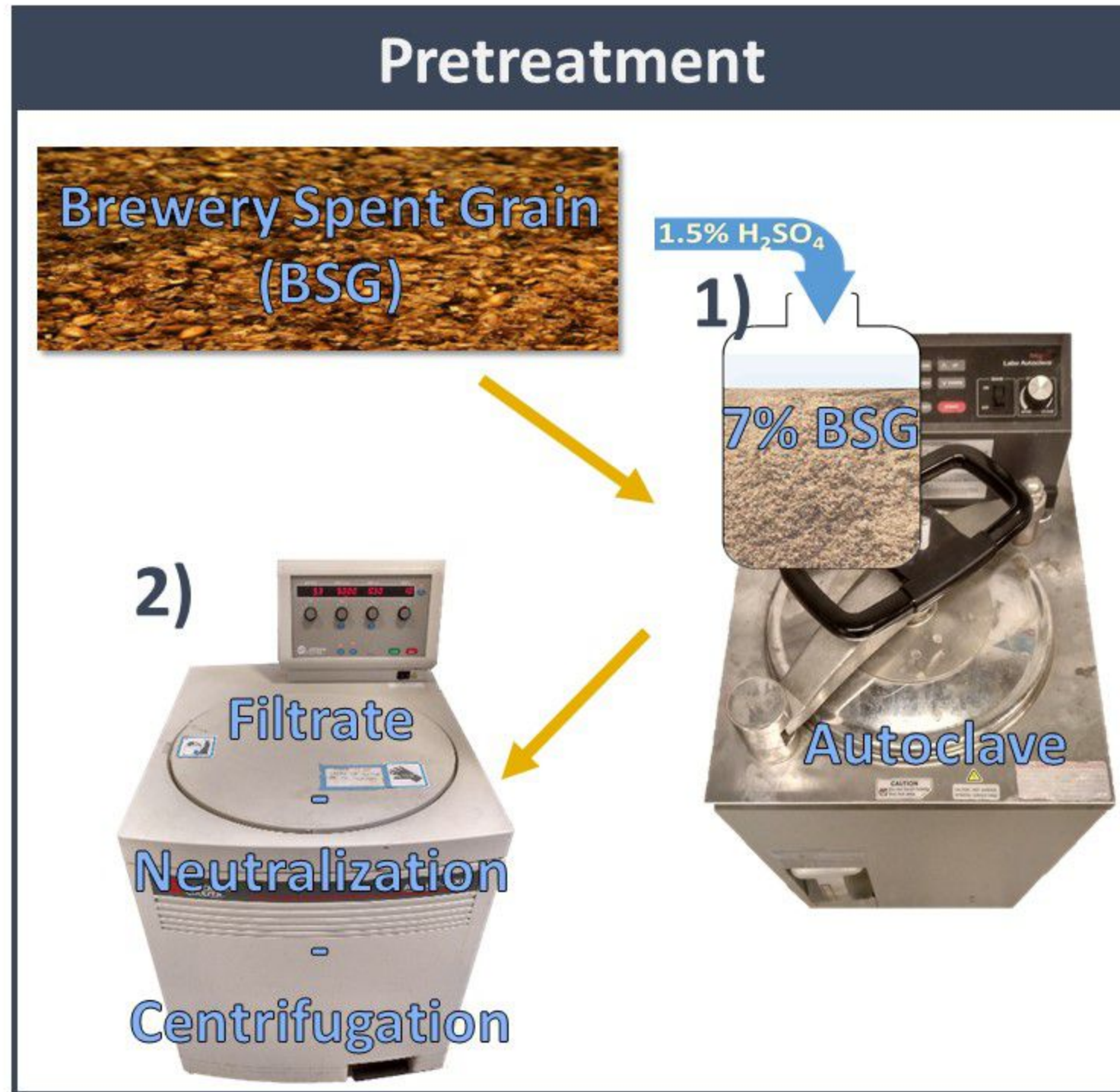
Hour for Liquid sampling:

0, 4, 8, 12, 24, 36, 48, 72, 96

Working Volume: 200 mL

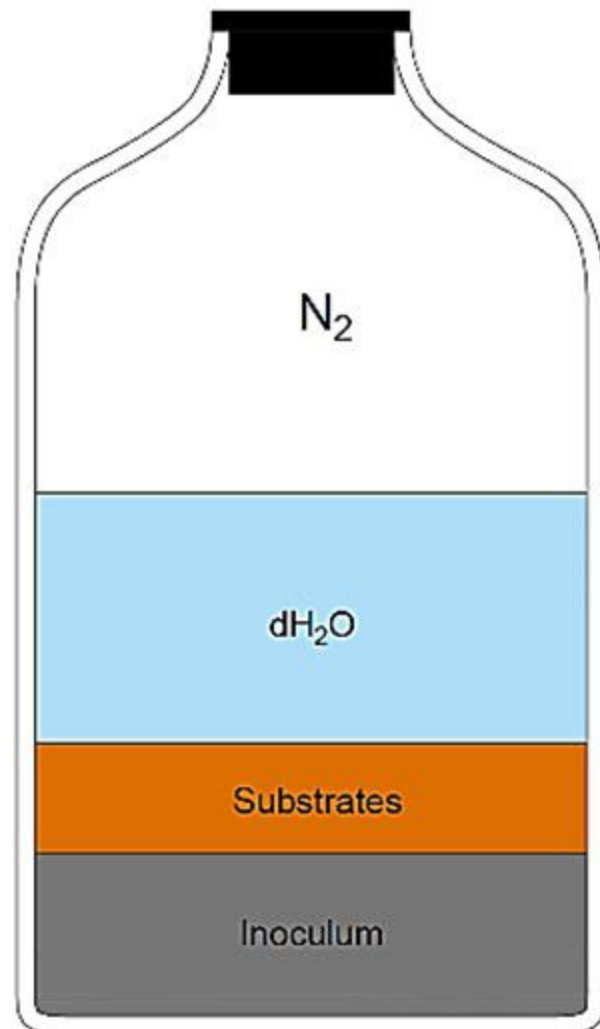
Head Space Volume: 50 mL





This process is divided mainly in three different steps. The first two steps are related with the pretreatment process, 1) hydrolysis and 2) recovery and neutralization, of the brewery spent grain to obtain a leachate rich in carbohydrates easily fermentable by microorganism. The third step is the acidogenic fermentation. The leachate is fed under different hydraulic retention times in the reactor. Temperature, pH and up-flow velocity are kept constant.

Armando Oliva



Working Volume → 150 mL

Head Space Volume → 100 mL

Mesophilic AD → 37 °C

Wet AD → 1.8% TS

Inoculum/Substrate → 1.5 VS/VS

Inoculum → Granular Sludge

Substrates → Almond Shell

Spent Coffee Grounds

Hazelnut Skin



Day for gas sampling:
1, 2, 4, 6, 9, 12, 16, 20, 25, 30, 35, 40, 45

Day for liquid sampling
0, 1, 2, 4, 6, 9, 12, 20

Batch assays to study the effect of Selenate and Selenite concentration on anaerobic digestion of fat slurry from dissolved air flotation

Mohanakrishnan Logan



Toxicity test for investigation of the effect of concentration of selenate and selenite on anaerobic digestion utilising DAF slurry is conducted in 60 ml working volume (30 ml DAF slurry and 30 ml distilled water) incubated at 30 °C on an orbital incubator shaker (*Gallenkamp*) at 120 rpm. 1.5 g of wet anaerobic sludge is used as inoculum for the study.

Selenate and selenite is added at the concentration of 0 (Control), 0.05, 0.1, 0.25, 0.5 mM to evaluate the toxicity on biomethane production.

The non-inhibitory concentrations which has effect on biomethane production determined from toxicity test will be employed for the batch degradation test in 250 ml working volume at 30 °C and 120 rpm with 6.2 g of wet anaerobic sludge.