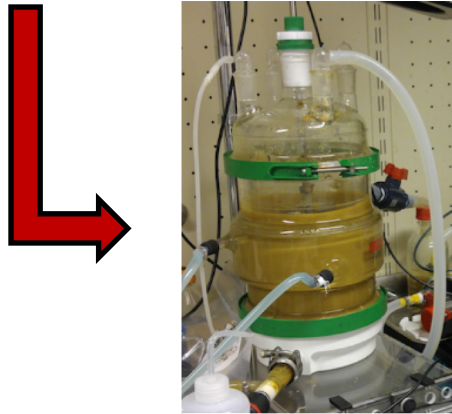


# Designing a novel dynamic-membrane reactor for the production of volatile fatty acids

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Complex polymeric organic wastes

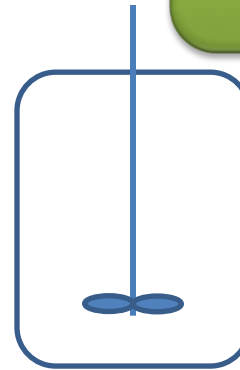


Anaerobic dynamic membrane reactor  
1<sup>st</sup> Phase

VFA rich effluent



VFA rich effluent



Platform chemicals

2<sup>nd</sup> Phase bioreactor

Solid organic wastes (food waste, sewage sludge, crop waste, manure) can be used as a substrate for anaerobic technologies for the production of energy and valuable chemicals. However, most solid wastes contain lignocellulosic components, which are recalcitrant to microorganisms under anaerobic conditions and decrease the process yield. A novel bionic membrane bio-reactor has been developed in order to enhance the microbial activity of hydrolytic and acidogenic populations. The reactor design is based on the natural mechanisms occurring for the degradation of lignocellulosic components in a rumen (cow's stomach). Microbial analyses are being performed while different design parameters are tested in order to develop a similar hydrolytic microbial community as can be found in the rumen. This first step is crucial for the production of methane or platform chemicals with high economical value.