



ANAEROBIC DIGESTION WITHOUT BIOGAS?

Robbert Kleerebezem,

Delft University of Technology, Department of Biotechnology, Julianalaan 67, Delft, The Netherlands.

r.kleerebezem@tudelft.nl

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Anaerobic digestion for the production of methane containing biogas is the classic example of a resource recovery process that combines stabilization of particulate organic matter or wastewater treatment with the production of a valuable end-product. Attractive features of the process include the production of a single end-product from a heterogeneous feedstock, and in-situ product separation of the gaseous end-product. Despite these intrinsic attractive properties of the process, the economic added value of the biogas produced is limited, enabling the development of alternative processes that yield higher-value end-products. Typically the production of higher value end-products from low value feedstock and industrial wastewater proceeds via intermediate production of organic acids (and carbon dioxide and molecular hydrogen). Optimization of organic acid production from particulate feedstocks and wastewater for development of the organic acid based resource recovery route receives significant research attention. The organic acid stream generated as such, has no economic value, but if organic acids can either be concentrated via membrane separation or (bio)converted to an end-product that can easily be separated from the liquid, an attractive biomass processing scheme can be developed. Attractive end-products of organic acid processing include polyhydroxyalkanoates, medium chain length fatty acids, or other organic molecules using bio-electrochemical systems. Overall we suggest that these novel bioprocessing routes for conversion of low value feedstock to higher added value products will contribute to a sustainable future and will change the economic status of organic waste.