

Nanotechnology meets full scale biogas plants

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In our laboratory, we are developing microarrays (biochips) to study microbial communities from various habitats, among them anaerobic biogas reactors. Literature studies and clone library studies give evidence to a wide variety of *Bacteria* and *Archaea* in anaerobic sludges and there are indications for a dependence of community diversity on the substrate composition.

On the other end of our work we are designing small-scale biogas plants of the type BIO4GAS™ and aim at an optimization of energetic efficiency. Among the goals is a biogas plant that does not need any mechanical stirring but just relies on hydraulic and gas pressure.

The great challenge in our work is to integrate knowledge of the involved microbiota, the intermediates that are produced, the quality of the biogas in terms of methane content on the one side and H₂S content on the other, and on the substrate use efficiency.

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