Microbes in waste management make our blue planet greener

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Soft, bio-based technologies interlink waste production and product demand at a low ecological footprint. The presentation emphasises the need for smart Microbial Resource Management to lower the costs and environmental impact in the waste and wastewater management sector. New molecular tools allow the microbial resource manager to investigate who is doing what at which efficiency, and how can the various processes of degradation, decomposition, biomethanisation and product formation be best controlled.

The presentation will highlight a couple of approaches for optimization of biological recycling and treatment processes,

- Recycling of biomass ash from incineration plants
- Enhanced hydrolysis by anaerobic fungi (Neocallimastigomycota)
- Energy-efficient wastewater treatment by Anaerobic Ammonia Oxidation with the DEMON® process
- Protein production from wastes aided by the microbiota of the maggots of the black-soldier-fly
- Lactate production from organic wastes

The few examples emphasize the increasing importance of microbiology in the waste management sector, creating an entirely new job profile, the Microbial Resource Manager. The main target of this kind of manager is to utilize the metabolic potential of microorganisms from all three domains of life (Eukarya, Bacteria and Archaea) and ultimately to make our blue planet greener.