Helena Nadais, J Biotechnol Biomater 2017, 7:4 (Suppl)
DOI: 10.4172/2155-952X-C1-078

18th Biotechnology Congress

October 19-20, 2017 | New York, USA

Helena Nadais

University of Aveiro, Portugal

Biotechnology as a tool for improving resource recovery from complex industrial wastewaters

Biological anaerobic treatment systems are valuable tools for resource recovery from organic wastewaters thus representing an important contribution for circular economy. Traditionally anaerobic systems have been associated with energy production from organic wastes yet these systems are frequently hindered by several limitations stemming from the biological nature of the underlying processes. Biotechnology tools are important aids for systems' monitoring, operation and improvement. Several operational strategies may be used to adapt microbial consortia for the degradation of complex substrates and improve the performance of high-rate anaerobic systems used for treating concentrated industrial wastewaters. A methodology combining conventional molecular techniques based on DNA extraction, amplification and cloning of genes that codify for 16S subunit of ribosomal RNA, followed by sequencing of clones previously selected by analysis of polymorphisms of restriction fragments (RFLP) may be applied for the monitoring of microbial populations striving in anaerobic systems. The development of an adapted microbial population supported by the application of easy-to-use biotechnology monitoring tools results in significant improvements of methane production from complex industrial wastewaters with high fat content. Biotechnology is thus an indispensable instrument for the optimization of resource recovery from wastes and for the integration of wastewater treatment systems with the concept of circular economy

Biography

Helena Nadais has a MSc (1988) and a BSc (1993) in Chemical Engineering from Instituto Superior Técnico of Lisbon University and has a PhD (2002) in sciences applied to the environment from the University of Aveiro. Since 2003, she is the Assistant Professor in the Environment and Planning Department at the University of Aveiro. Her research interests are centered on biological processes for water treatment and for the treatment and material and energetic valorization of wastewaters and wastes. She has more than 50 international scientific publications

nadais@ua.pt