

*Editorial*

## Special Issue on “Microbial Ecology of Anaerobic Digestion”

**Sabine Kleinsteuber**

Department of Environmental Microbiology, Helmholtz Centre for Environmental Research (UFZ),  
Permoserstr. 15, 04318, Leipzig, Germany; E-Mail: sabine.kleinsteuber@ufz.de

*Received: 4 June 2014 / Accepted: 5 June 2014 / Published: 5 June 2014*

---

Anaerobic digestion (AD) is an efficient and sustainable way of using organic carbon from residual biomass and organic waste for the production of renewable energy, while simultaneously recycling nutrients and cleaning up waste streams. The process relies on complex microbial communities comprised of diverse functional guilds; these communities have manifold metabolic pathways and interactions. In contrast to the conventional view of an anaerobic digester as a black box, advanced microbiological methods have paved the way for understanding and even controlling complex microbial networks. Nowadays, microbial resource management is crucial for technological progress in AD, and offers new perspectives concerning sustainable waste management, renewable energy production, resource efficiency, and advanced bio-refineries; these perspectives lead to novel applications of AD processes that go beyond biogas as the main product.

The current Special Issue emphasizes recent progress, based on a detailed understanding of the AD microbiome, in metabolic pathway engineering/modeling, systems modeling, and in the control and optimization of microbial processes in AD technology.

The scope includes:

- anaerobic digestion
- microbial resource management
- AD microbiome
- microbial networks
- metabolic modeling
- metabolic engineering
- methanogenesis
- syntrophy
- anaerobic bioreactors
- anaerobic fermentation

We hope that you will share our enthusiasm for this promising special issue theme and look forward to working with you to make it a leader in its field.

© 2014 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).