Special Issue

Anaerobic Digestion Process from the Viewpoint of Chemical, Biochemical and Microbiological Aspects

Message from the Guest Editor

Anaerobic digestion (AD) is the well-known process of using biomass to produce biogas as an alternative energy source. Despite the many advantages of AD, this process is burdened with complexity, including a high risk of operational instability and sensitivity to changes in environmental conditions. The complexity of the process includes both chemical, biochemical, and microbiological aspects. In terms of the chemistry aspect of the process, the compounds that inhibit the process, those released during the process, as well as those that are part of the biomass, remain problematic. Biochemical and microbiological aspects include the genetic and morphological properties of anaerobic microorganisms and the relevant metabolic pathways. The efficiency of the AD process is highly dependent on microbial community dynamics which are affected by biochemical, environmental, and operational conditions. Metagenomic analyses, used in the study of AD microbiomes, provide insight into the microbial community composition, dynamics of development, and activity or functionality of microbes. Research is mainly conducted to optimize AD but also to achieve specific engineering goals.

Guest Editor

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