## Change of microbial community distribution using pyrosequencing technique in anaerobic treatment of PTA wastewater



The petrochemical process utilizing purified terephthalic acid (PTA) as a raw material generates wastewater, which includes a variety of hazardous organic chemicals such as para-toluic acid, terephthalic acid, benzoic acid, and acetic acid. The wastewater has been treated by using anaerobic bioreactor due to recovering energy through the form of methane biogas and treating simultaneously. In this study, anaerobic fed-batch reactor for PTA wastewater treatment was operated to monitor the change of microbial community distribution which related to process efficiencies and biogas yields using barcoded pyrosequencing technique. In an archaeal community, Methanobacterium and Methanosaeta were predominated, on the other hand, Proteobactria and Firmicutes were in majority in phylum levels of bacterial community. During accumulation of benzoic acid in the reactor, Proteobacteria decreased along with the increase of Firmicutes, indicating reduction of Proteobacteria might be a reason of the malfunction of the anaerobic PTA wastewater treatment process.