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Fubin Yin, Hongmin Dong, Wanqin Zhang, Zhiping Zhu, Bin Shang

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Fubin Yin, Hongmin Dong*, Wanqin Zhang, Zhiping Zhu, Bin Shang

Institute of Environment and Sustainable Development in Agriculture, Chinese Academy of Agricultural Sciences, Beijing 100081, P. R. China, Tel/Fax: 86-10-82109979

* Co-responding author Email: donghongmin@caas.cn

Abstract

Anaerobic digestion (AD) has been applied to animal manure stabilization, and antibiotics is frequently found in animal manure. However, antibiotic degradation and microbial community structures during two-stage AD (acidification and methanogenesis) remain poorly understood. This experiments on two-stage anaerobic swine manure digesters were performed to investigate the degradation mechanisms and effects of chlortetracycline (CTC) and oxytetracycline (OTC) on microbial community structures. Results showed that acidification and methanogenesis showed good degradation performance for manure containing CTC and OTC at 60 and 40 mg/kg·TS, respectively. CTC and OTC were degraded by 59.8% and 41.3% in the acidogenic stage and by 76.3% and 78.3% in the methanogenic stage, respectively. CTC and OTC negatively affected bacterial community in methanogenic and acidogenic stages, respectively. They also adversely influenced the archaeal species in