

能源和环境工程

同步脱氮除硫污泥及其微生物生态学特性

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摘要

研究了同步脱氮除硫反应器稳态运行时的污泥特性与微生物生态学特性。测得污泥粒径为0.54~3.99 mm, 沉降速度为56.13~171.43 m·h⁻¹, 污泥湿密度为1.08 kg·m⁻³。采用光学显微镜观察发现, 污泥形状不规则, 由污泥亚单位(菌胶团和絮体污泥)复合而成。采用扫描电镜观察揭示, 污泥表面微生物以杆菌为主, 内部微生物形态多样。运用PCR-DGGE分析表明, 同步脱氮除硫污泥的微生物种类多样性较高, 其中以变形菌门的微生物为主。

关键词

[同步脱氮除硫](#) [污泥](#) [微生物生态学](#) [特性](#)

分类号

Physical and ecological characteristics of cultivated sludge for simultaneous anaerobic sulfide and nitrate removal

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Abstract

The physical and ecological characteristics of cultivated sludge for simultaneous anaerobic sulfide and nitrate removal were studied. The cultivated sludge showed good settling ability, whose diameter, settling velocity and density were 0.54—3.99 mm, 56.13—171.43 m·h⁻¹ and 1.08 kg·m⁻³, respectively. It was irregular-shaped and was composed of subunits (such as zoogloea and floc) under optical microscope. It was observed that the dominant microorganisms on the surface were bacilli, but those in the interior were diversiform under scanning electron microscope. The results from PCR-DGGE analysis exhibited rich diversity of microbial populations and dominant kinds of microorganisms Proteobacteria.

Key words

[anaerobic sulfide and nitrate removal](#) [cultivated sludge](#) [microbial ecology](#) [characteristics](#)

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