

Accepted Manuscript

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PII: S0304-3894(18)30330-3
DOI: <https://doi.org/10.1016/j.jhazmat.2018.04.075>
Reference: HAZMAT 19358

To appear in: *Journal of Hazardous Materials*

Received date: 18-12-2017
Revised date: 26-4-2018
Accepted date: 28-4-2018

Please cite this article as: Lv L, Li W, Zheng Z, Li D, Zhang N, Exogenous acyl-homoserine lactones adjust community structures of bacteria and methanogens to ameliorate the performance of anaerobic granular sludge, *Journal of Hazardous Materials* (2018), <https://doi.org/10.1016/j.jhazmat.2018.04.075>

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Exogenous acyl-homoserine lactones adjust community structures of bacteria and methanogens to ameliorate the performance of anaerobic granular sludge

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Highlights

- Adding specific AHLs enhanced the performance of anaerobic granular sludge.
- Specific AHLs could adjust community structures of bacteria and methanogens.
- The effect of AHL in anaerobic granular sludge related to its chemical structure.
- Regulatory mechanism of exogenous AHLs on community structure was discussed.

Abstract

Quorum sensing (QS) signalling has been extensively studied in single species populations, activated sludge, biofilm and aerobic granular sludge. However, ecological roles of QS in anaerobic granular sludge, particularly in the content of the relationship between QS signalling and microbial community composition and function, have been rarely reported. Herein, five acyl-homoserine lactones (AHLs) molecules were added in the anaerobic granular sludge system for treating traditional Chinese medicine (TCM) wastewater respectively. The results indicated that the introduction of specific AHLs

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