Title: Effects of antibiotic resistance genes on the performance and stability of different microbial aggregates in a granular sequencing batch reactor

Author: Wenci Zou Bin Xue Weijia Zhi Tianyu Zhao Dong Yang Zhigang Qiu Zhiqiang Shen Junwen Li Bin Zhang Jingfeng Wang

PII: S0304-3894(15)30183-7
DOI: http://dx.doi.org/doi:10.1016/j.jhazmat.2015.10.057
Reference: HAZMAT 17202

To appear in: *Journal of Hazardous Materials*

Received date: 29-4-2015
Revised date: 19-10-2015
Accepted date: 25-10-2015

Please cite this article as: Wenci Zou, Bin Xue, Weijia Zhi, Tianyu Zhao, Dong Yang, Zhigang Qiu, Zhiqiang Shen, Junwen Li, Bin Zhang, Jingfeng Wang, Effects of antibiotic resistance genes on the performance and stability of different microbial aggregates in a granular sequencing batch reactor, Journal of Hazardous Materials http://dx.doi.org/10.1016/j.jhazmat.2015.10.057

Effects of antibiotic resistance genes on the performance and stability of different microbial aggregates in a granular sequencing batch reactor

Wenci Zou[a], Bin Xue[a], Weijia Zhi[a], Tianyu Zhao, Dong Yang, Zhigang Qiu, Zhiqiang Shen, Junwen Li, Bin Zhang*, Jingfeng Wang*

Tianjin Institute of Health and Environmental Medicine, Tianjin 300050, PR China

Highlights

- The inoculation of donor strain undermined treatment efficiencies of bioreactor.
- The presence of RP4 plasmid affected the activity of ammonia-oxidizing bacteria.
- Granular sludge shortened the residence time of RP4 in sludge.
- Granular sludge system could reduce the ecological risk from ARGs.

Abstract

Antibiotic resistance genes (ARGs) have emerged as key factors in wastewater environmental contaminants and continue to pose a challenge for wastewater treatment processes. With the aim of investigating the performance of granular sludge system when treating wastewater containing a considerable amount of ARGs, a lab-scale granular sequencing batch reactor (GSBR) where flocculent and granular sludge

[a] These authors contributed equally to this work.
* Corresponding author. Tel.: +86 22 84655498; Fax: +86 22 23328809
E-mail addresses: jingfengwang@hotmail.com (J.Wang), tjzhangbin@sohu.com (B.Zhang)