

## Accepted Manuscript

Title: Relationship between microbial community, operational factors and ammonia inhibition resilience in anaerobic digesters at low and moderate ammonia background concentrations

Authors: Y. Lu, R. Liaquat, S. Astals, P.D. Jensen, D.J. Batstone, S. Tait

PII: S1871-6784(17)30695-7  
DOI: <https://doi.org/10.1016/j.nbt.2018.02.013>  
Reference: NBT 1066

To appear in:

Received date: 20-12-2017  
Revised date: 22-2-2018  
Accepted date: 23-2-2018

Please cite this article as: Lu, Y., Liaquat, R., Astals, S., Jensen, P.D., Batstone, D.J., Tait, S., Relationship between microbial community, operational factors and ammonia inhibition resilience in anaerobic digesters at low and moderate ammonia background concentrations. *New Biotechnology* <https://doi.org/10.1016/j.nbt.2018.02.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Relationship between microbial community, operational factors and ammonia inhibition resilience in anaerobic digesters at low and moderate ammonia background concentrations

Y. Lu <sup>a</sup>, R. Liaquat <sup>b,c</sup>, S. Astals <sup>a,\*</sup>, P.D. Jensen <sup>a</sup>, D.J. Batstone <sup>a</sup>, S. Tait <sup>a</sup>

<sup>a</sup> Advanced Water Management Centre, The University of Queensland, Brisbane, QLD 4072, Australia.

<sup>b</sup> Department of Microbiology, Quaid-i-Azam University, Islamabad, Pakistan.

<sup>c</sup> U.S. Pakistan Center for Advanced Studies in Energy, National University of Sciences and Technology, Islamabad, Pakistan.

\*Corresponding author: Sergi Astals, Advanced Water Management Centre, The University of Queensland, St. Lucia, QLD 4072, Australia. Phone: +61 (0)7 3346 9051. E-mail: [s.astals@awmc.uq.edu.au](mailto:s.astals@awmc.uq.edu.au)

## HIGHLIGHTS

- Ammonia inhibition resilience was studied for 13 inocula from distinct digesters
- Digesters substrate and temperature influenced microbial community composition
- Ammonia inhibition  $KI_{50}$  varied moderately among the inocula 32-175 mgNH<sub>3</sub>-N·L<sup>-1</sup>
- No microbial or operational factors correlated with ammonia inhibition resilience
- Methanogenic activity was significantly correlated with archaeal relative abundance

## ABSTRACT

The relationship between anaerobic digestion operational conditions and (i) microbial community, (ii) acetoclastic methanogenic activity and (iii) free ammonia (NH<sub>3</sub>) inhibition resilience was investigated. Thirteen inocula were obtained from full and pilot scale digesters

Download English Version:

<https://daneshyari.com/en/article/6494788>

Download Persian Version:

<https://daneshyari.com/article/6494788>

[Daneshyari.com](https://daneshyari.com)