Accepted Manuscript

Title: Effect of thermal hydrolysis sludge supernatant as carbon source for biological denitrification with pilot-scale two-stage anoxic/oxic process and nitrogen balance model establishment

Authors: Yuqi Wu, Kang Song, Yinghe Jiang, Xiaoyan Sun,

Lu Li

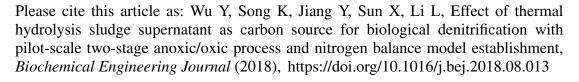
PII: S1369-703X(18)30306-1

DOI: https://doi.org/10.1016/j.bej.2018.08.013

Reference: BEJ 7024

To appear in: Biochemical Engineering Journal

Received date: 12-5-2018 Revised date: 21-8-2018 Accepted date: 23-8-2018



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.



ACCEPTED MANUSCRIPT

Effect of thermal hydrolysis sludge supernatant as carbon source for biological denitrification with pilot-scale two-stage anoxic/oxic process and nitrogen balance model establishment

Yuqi Wu ^{1, 2}, Kang Song ^{1*}, Yinghe Jiang ², Xiaoyan Sun ¹, Lu Li ¹

*Corresponding author: sk@ihb.ac.cn (K. Song). woshiyaya7@126.com (Y. Wu).jyhe123@163.com (Y. Jiang), sunxy@ihb.ac.cn (X. Sun), lilu@ihb.ac.cn (L. Li).

Highlights

- The optimal C-source recovery conditions for pilot-scale THP were determined.
- Thermal hydrolysis sludge supernatant was used as C-source for N removal.
- A pilot-scale THP combining an A/O/A/O process for denitrification was operated.
- Satisfied denitrification effects were achieved with hydrolysed sludge addition.
- N balance model was established for A/O/A/O process and showed satisfied accuracy.

ABSTRACT

To recover carbon source (C-source) from waste activated sludge (WAS) and enhance the nitrogen removal performance, a pilot-scale system consisting of two-stage anoxic/oxic (A/O) process and low-temperature thermal hydrolysis process (THP) was proposed. The C-source recovery parameters for pilot THP were determined by systematically considering the results of orthogonal jar experiment, hydrolyzed sludge biodegradability and actual pilot situation. The

1

¹ Institute of Hydrobiology, Chinese Academy of Sciences, Wuhan 430072, China

² School of Civil Engineering and Architecture, Wuhan University of Technology, Wuhan 430070, China

Download English Version:

https://daneshyari.com/en/article/10130587

Download Persian Version:

https://daneshyari.com/article/10130587

<u>Daneshyari.com</u>