

## Accepted Manuscript

Title: Nitrate removal in an innovative up-flow stirred packed-bed bioreactor

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PII: S0255-2701(16)30627-4  
DOI: <http://dx.doi.org/doi:10.1016/j.cep.2017.08.001>  
Reference: CEP 7047

To appear in: *Chemical Engineering and Processing*

Received date: 25-11-2016  
Revised date: 31-7-2017  
Accepted date: 1-8-2017

Please cite this article as: Yonhara García-Martínez, Judith Chirinos, Christophe Bengoa, Frank Stüber, Josep Font, Agustí Fortuny, Azael Fabregat, Nitrate removal in an innovative up-flow stirred packed-bed bioreactor, *Chemical Engineering and Processing* <http://dx.doi.org/10.1016/j.cep.2017.08.001>

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## Nitrate removal in an innovative up-flow stirred packed-bed bioreactor

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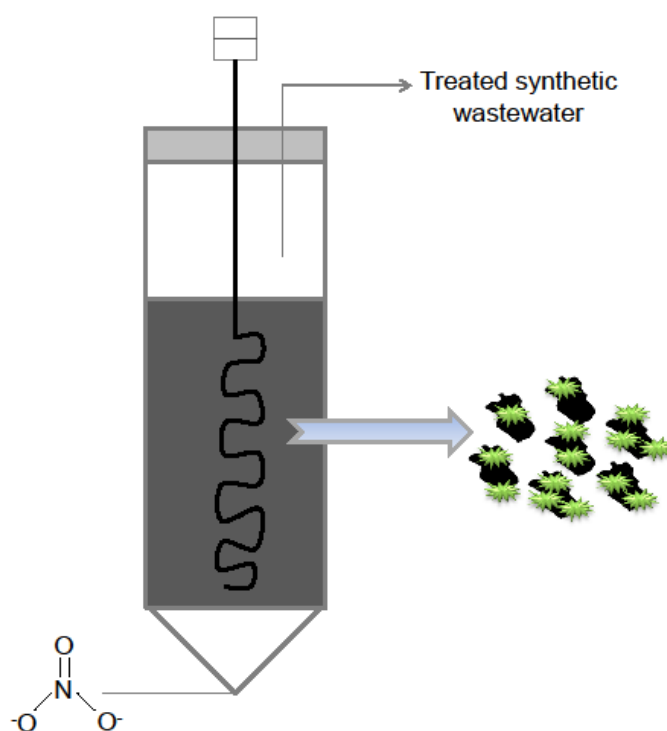
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Graphical abstract



### Highlights

- An anaerobic up-flow stirred packed-bed reactor for nitrate removal is proposed.
- Sludge carbonaceous material was used as support material.
- High nitrate removal efficiency was achieved at very short space time.

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