



Hasanudin Hasanudin <hasanudin@mipa.unsri.ac.id>

Reviewer Invitation for The Pre-acidification gas impact on upgrading the biogas produced in expanded granular sludge bed reactor - TBFU-2019-0327

1 pesan

Biofuels <em@editorialmanager.com>

13 Desember 2019 pukul 22.17

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Kepada: Hasanudin Hasanudin <hasanudin@mipa.unsri.ac.id>

Dec 13, 2019

Dear Dr. Hasanudin,

You have been invited to review a manuscript for Biofuels.

I would be grateful if you would review a paper entitled "The Pre-acidification gas impact on upgrading the biogas produced in expanded granular sludge bed reactor" for this journal.

This is the abstract:

Two-stage anaerobic reactors were used. Up to one-third of the chemical oxygen demand (COD)

content is naturally pre-acidified in the first stage pre-acidification (PA) and then fed to a second

stage for conversion to methane. Traditionally, all the generated gases from the PA tank will be

vented to the atmosphere. Hydrogen and carbon dioxide are the main gases generated in the PA

tank. A pilot scale of two-stage anaerobic expanded granular sludge bed reactor was fabricated

and used to investigate the impact of the PA gas injection into the second stage. The gas from the

PA reactor was captured and stored in storage tank. The tests were run under two temperature

ranges and five organic loading rates (~2, 3, 4, 5, and 6 g COD/L.day). For mesophilic range, the

biogas production and energy yield increased by 10-90% and 40-130%, respectively, without PA

gas injection case compared to with PA injection case. For thermophilic range, the biogas

production and energy yield increased by 12-40% and 90-140%, respectively, without PA gas

injection compared to with PA injection case. For each OLR, the gas production and energy yield

were 90 to 160% more in thermophilic range than the mesophilic range.

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The manuscript reference is TBFU-2019-0327.

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Hasanudin Hasanudin <hasanudin@mipa.unsri.ac.id>

Thank you for agreeing to review - TBFU-2019-0327

1 pesan

Biofuels <em@editorialmanager.com>

14 Desember 2019 pukul 08.30

Balas Ke: Biofuels <tbfu-peerreview@journals.tandf.co.uk>

Kepada: Hasanudin Hasanudin <hasanudin@mipa.unsri.ac.id>

Dec 13, 2019

Dear Dr. Hasanudin,

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TBFU-2019-0327

"The Pre-acidification gas impact on upgrading the biogas produced in expanded granular sludge bed reactor"

Original Submission

Hasanudin Hasanudin (Reviewer 1)

Reviewer Recommendation Term:	Major Revision
Custom Review Question(s):	Response
Would you be willing to review a revision of this manuscript?	Yes: This article is my field of research and by reviewing this article adds to my insight in the field of biofuel and becomes a space for me to communicate with other researchers in the same field.
Is there a financial or other conflict of interest between your work and that of the authors?	No
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Comments to Editor:	
I have finished reviewing the article entitled "The Pre-acidification gas impact on upgrading the biogas produced in expanded granular sludge bed reactor" and giving some comments to the article. Thank you for your trust in me to review the article and I am very honored to be given the opportunity to review articles from your journal again.	
Comments to Author:	
1. Thermocouple distribution should not be in the form of a table (as in table 1), enough to explain it in the description form because there are only 2 types of thermocouples. Type T thermocouples are placed on and type J placed on	
2. Table 2 should be made in the form of 3 columns Parameters Dimension Value	
3. In Table 3 has OLR 2.5 g COD/L.d data, but this data never appears in the discussion and next table.	

4. In your discussion, it is written: "The pH values during the investigation are shown in Figure 5." but the figure 5 does not match to your discussion, as well as the discussion that refers to figure 6.
5. Your experiment has been done with OLR 2-8, but data with OLR 7-8 does not appear in the graphs at Figure 5, 7, 9 and 10
6. Decimal writing must be consistent, as in table 3 and table 6 the decimal writing is inconsistent
7. the discussion of the amount of energy produced in the mesophilic and thermophilic processes that are converted from methane produced will create confusion, it is better before discussing the energy you must first display percentage of methane produced in each experiment.

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Hasanudin Hasanudin <hasanudin@mipa.unsri.ac.id>

Thank you for the review of TBFU-2019-0327

2 pesan

Biofuels <em@editorialmanager.com>

25 Desember 2019 pukul 10.08

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Dec 24, 2019

Ref.: Ms. No. TBFU-2019-0327

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Biofuels

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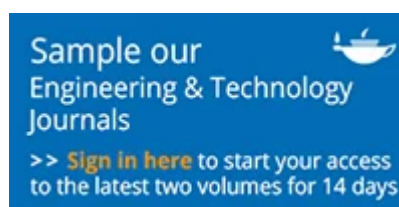
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Haider Al-Rubaye  , Joseph D. Smith, Manohar Shivashankaraiah , Jia Yu, Mahyar Ghorbanian, Anand Alembath  & ...show all

Pages 507-518 | Received 12 Dec 2019, Accepted 17 May 2020, Published online: 04 Jun 2020

 Download citation  <https://doi.org/10.1080/17597269.2020.1772608>

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Abstract

Two-stage anaerobic reactors are being widely used in the organic waste management industry. In these reactors, up to one-third of the chemical oxygen demand (COD) content is naturally pre-acidified in a first stage pre-

acidification (PA) and then fed to a second stage digester for conversion to methane. Traditionally, all the generated gases from the PA tank will be vented to the atmosphere. Hydrogen and carbon dioxide are the main gases generated in the PA tank. A pilot-scale of two-stage anaerobic expanded granular sludge bed reactor was fabricated and used to investigate the impact of the PA gas injection into the second stage. The gas from the PA reactor was captured and stored in the storage tank. The tests were run under two temperature ranges and five organic loading rates (~2, 3, 4, 5, and 6 g COD/L.day). For mesophilic range, the biogas production and energy yield increased by 10–90% and 40–130%, respectively, from without PA gas injection case compared to with PA injection case. For thermophilic range, the biogas production and energy yield increased by 12–40% and 90–140%, respectively, from without PA gas injection compared to with PA injection case. For each OLR, the gas production and energy yield were 90 to 160% more in thermophilic range than the mesophilic range for the cases with and without the PA gas injection. This implies that a higher temperature range has a significant impact on energy yield in a digester. One of the important findings was the amount of the PA gas injected into the EGSB reactor should be less than 50% of the theoretically calculated hydrogen gas based on ethanol substrate assumption.

Q Keywords: Upgraded biogas anaerobic digestion pre-acidification gas renewable energy

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Science and Technology, Missouri State, USA for their support. Special thanks to Dr. Darrell P. Ownby and Nina Ownby for their technical editing support.

Disclosure statement

No potential conflict of interest was reported by the authors.

Correction Statement

This article has been republished with minor changes. These changes do not impact the academic content of the article.



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26 Desember 2019 pukul 18.37



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