Accepted Manuscript


Review

# Bio-based volatile fatty acid production and recovery from waste streams: current status and future challenges

Merve Atasoy, Isaac Owusu-Agyeman, Elzbieta Plaza, Zeynep Cetecioglu

PII: S0960-8524(18)30939-8
DOI: https://doi.org/10.1016/j.biortech.2018.07.042
Reference: BITE 20172

To appear in: *Bioresource Technology*

Received Date: 21 May 2018
Revised Date: 6 July 2018
Accepted Date: 8 July 2018

Please cite this article as: Atasoy, M., Owusu-Agyeman, I., Plaza, E., Cetecioglu, Z., Bio-based volatile fatty acid production and recovery from waste streams: current status and future challenges, *Bioresource Technology* (2018), doi: https://doi.org/10.1016/j.biortech.2018.07.042

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

# Bio-based volatile fatty acid production and recovery from waste streams: current status and future challenges

Merve Atasoy[1a], Isaac Owusu-Agyeman[1a], Elzbieta Plaza[2] and Zeynep Cetecioglu[1*]

[1]Department of Chemical Engineering, KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden

[2]Department of Sustainable Development, Environmental Science and Engineering, KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden

**Abstract**

Bio-based volatile fatty acid (VFA) production from waste-stream is getting attention due to increasing market demand and wide range usage area as well as its cost-effective and environmentally friendly approach. The aim of this paper is to give a comprehensive review of bio-based VFA production and recovery methods and to give an opinion on future research outlook. Effects of operation conditions including pH, temperature, retention time, type of substrate and mixed microbial cultures on VFA production and composition were reviewed. The recovery methods in terms of gas stripping with absorption, adsorption, solvent extraction, electrodialysis, reverse osmosis, nanofiltration, and membrane contractor of VFA were evaluated. Furthermore, strategies to enhance bio-based VFA production and recovery from waste streams, specifically, in-line VFA recovery and bioaugmentation which are currently not used in common practice, are seen as some of the approaches to enhance bio-based VFA production.

**Keywords***:* bio-based production, recovery, volatile fatty acid, waste streams

[*] Corresponding author: zeynepcg@kth.se

[a] Co-first authors

Download English Version:

https://daneshyari.com/en/article/11003475

Download Persian Version:

https://daneshyari.com/article/11003475

Daneshyari.com