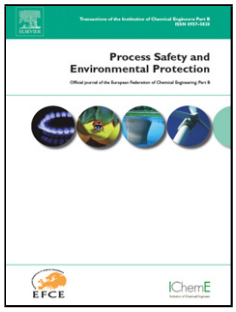
Accepted Manuscript



Title: Multi-hydrolytic biocatalyst from organic solid waste and its application in municipal waste activated sludge pre-treatment towards energy recovery

Authors: P. Selvakumar, P. Sivashanmugam

PII: S0957-5820(18)30091-0
DOI: https://doi.org/10.1016/j.psep.2018.03.036
Reference: PSEP 1343

To appear in: *Process Safety and Environment Protection*

Received date: 6-11-2017
Revised date: 11-3-2018
Accepted date: 29-3-2018

Please cite this article as: Selvakumar, P., Sivashanmugam, P., Multi-hydrolytic biocatalyst from organic solid waste and its application in municipal waste activated sludge pre-treatment towards energy recovery.Process Safety and Environment Protection https://doi.org/10.1016/j.psep.2018.03.036

Multi-hydrolytic biocatalyst from organic solid waste and its application in municipal waste activated sludge pre-treatment towards energy recovery

Authors Name and Affiliations:

Selvakumar. P[a], Sivashanmugam. P[a]

[a] Department of Chemical Engineering,

National Institute of Technology, Tiruchirappalli, Tamil Nadu, India – 620015.

Authors E-mail Address: selvaa26kumar@gmail.com, psiva@nitt.edu

Corresponding Author: Dr. P. Sivashanmugam, , Department of Chemical Engineering, , National Institute of Technology, Tiruchirappalli, Tamil Nadu, India – 620015 , Tel: +91 431 2503106 Fax: +91 431 2500133 , Email: psiva@nitt.edu.

Highlights:

- Multi-hydrolytic enzyme was taken from ultrasonic pre-treated waste biomass.
- It showed higher protease, amylase, lipase activity and good stability.
- Statistical tools were used to optimize parameters for enhancing enzyme activities.
- Enzymatic digestion of MWAS resulted in 29% SS reduction and 32% SCOD release.
- Obtained enzyme could be used for various sustainable eco-friendly applications.