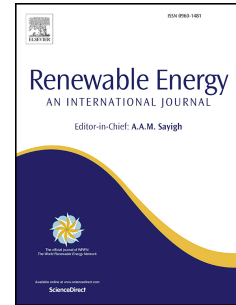


# Accepted Manuscript

Sustainable biogas production from agrowaste and effluents – A promising step for small-scale industry income

Nur Izzah Hamna Abdul Aziz, Marlia M. Hanafiah, Mohamed Yasreen Mohamed Ali



PII: S0960-1481(18)30946-7

DOI: [10.1016/j.renene.2018.07.149](https://doi.org/10.1016/j.renene.2018.07.149)

Reference: RENE 10423

To appear in: *Renewable Energy*

Received Date: 25 October 2017

Revised Date: 5 February 2018

Accepted Date: 31 July 2018

Please cite this article as: Abdul Aziz NIH, Hanafiah MM, Mohamed Ali MY, Sustainable biogas production from agrowaste and effluents – A promising step for small-scale industry income, *Renewable Energy* (2018), doi: [10.1016/j.renene.2018.07.149](https://doi.org/10.1016/j.renene.2018.07.149).

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.

# SUSTAINABLE BIOGAS PRODUCTION FROM AGROWASTE AND EFFLUENTS – A PROMISING STEP FOR SMALL-SCALE INDUSTRY INCOME

Nur Izzah Hamna Abdul Aziz<sup>1</sup>, Marlia M. Hanafiah<sup>1,\*</sup>, Mohamed Yasreen  
Mohamed Ali<sup>1</sup>

<sup>1</sup>School of Environmental and Natural Resource Sciences, Faculty of  
Science and Technology, Universiti Kebangsaan Malaysia, 43600  
Bangi, Selangor, Malaysia

*\*Corresponding Author: mhmarlia@ukm.edu.my*

## ABSTRACT

Waste-derived biogas is a promising technology that yields a renewable, sustainable, and green source of energy. This study was conducted to determine the potential of biogas production from six types of substrates (i.e., goat dung, chicken dung, fish waste, rice waste, palm oil mill effluent, and sewage sludge). The production of biogas from these substrates was compared using industrial inoculum and traditional bokashi as catalysts. The physicochemical characteristics were assessed using laboratory based analyses, whereas the Bio-Methane Potential (BMP) assay was used to measure the biogas production under mesophilic conditions for 20 consecutive days. The results revealed that all substrates using industrial inoculum have the potential to produce biogas based on the organic compound content. No methane gas was produced from the substrates using traditional bokashi. In conclusion, using industrial inoculum as a catalyst, all substrates could produce energy for a small-scale industry.

Keywords: Bio-Methane Potential, biogas production, inoculum, bokashi, agrowaste, effluents, Malaysia

## 1. Introduction

Download English Version:

<https://daneshyari.com/en/article/6763577>

Download Persian Version:

<https://daneshyari.com/article/6763577>

[Daneshyari.com](https://daneshyari.com)