

Accepted Manuscript

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PII: S0960-8524(18)30681-3
DOI: <https://doi.org/10.1016/j.biortech.2018.05.021>
Reference: BITE 19927

To appear in: *Bioresource Technology*

Received Date: 4 March 2018
Revised Date: 2 May 2018
Accepted Date: 7 May 2018

Please cite this article as: Wazeri, A., Elsamadony, M., Roux, S.L., Peu, P., Tawfik, A., Potentials of using mixed culture bacteria incorporated with sodium bicarbonate for hydrogen production from water hyacinth, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.05.021>

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Potentials of using mixed culture bacteria incorporated with sodium bicarbonate for hydrogen production from water hyacinth

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Abstract

The aim of this study is to assess the potentials of using mixed culture bacteria incorporated with different concentrations of NaHCO₃ for hydrogen production from water hyacinth (WH). The lowest hydrogen yield (HY) of 30.4±1.9 mL/g_{TVS}, H₂ content (HC) of 19.5±1.5% and hydrogenase enzyme (HE) activity of 0.06±0.01 mgM.B_{reduced}/min were registered for the cultures without supplementation of NaHCO₃. The HY, HC, and HE activity were maximized at levels of 69.2±4.3 mL/g_{TVS}, 58.4±3.6% and 0.18±0.01 mgM.B_{reduced}/min. respectively for the anaerobes supplied with 3.0 g NaHCO₃/L. Furthermore, cellulose, hemicellulose, and

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