

Accepted Manuscript

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PII: S0960-8524(16)30187-0
DOI: <http://dx.doi.org/10.1016/j.biortech.2016.02.054>
Reference: BITE 16104

To appear in: *Bioresource Technology*

Received Date: 20 January 2016
Revised Date: 11 February 2016
Accepted Date: 16 February 2016

Please cite this article as: Liang, S., Gliniewicz, K., Gerritsen, A.T., McDonald, A.G., Analysis of microbial community variation during the mixed culture fermentation of agricultural peel wastes to produce lactic acid, *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.02.054>

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Analysis of microbial community variation during the mixed culture fermentation of agricultural peel wastes to produce lactic acid

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Abstract

Mixed cultures fermentation can be used to convert organic wastes into various chemicals and fuels. This study examined the fermentation performance of four batch reactors fed with different agricultural (orange, banana, and potato (mechanical and steam) peel wastes using mixed cultures, and monitored the interval variation of reactor microbial communities with 16S rRNA genes using Illumina sequencing. All four reactors produced similar chemical profile with lactic acid (LA) as dominant compound. Acetic acid and ethanol were also observed with small fractions. The Illumina sequencing results revealed the diversity of microbial community decreased during fermentation and a community of largely lactic acid producing bacteria dominated by species of *Lactobacillus* developed.

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