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PII: S0960-8524(16)31617-0
DOI: http://dx.doi.org/10.1016/j.biortech.2016.11.096
Reference: BITE 17342

To appear in: *Bioresource Technology*

Received Date: 25 September 2016
Revised Date: 19 November 2016
Accepted Date: 23 November 2016

Please cite this article as: Zhang, S., Liu, M., Chen, Y., Pan, Y-T., Achieving ethanol-type fermentation for hydrogen production in a granular sludge system by aeration, *Bioresource Technology* (2016), doi: http://dx.doi.org/10.1016/j.biortech.2016.11.096

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Song Zhang[§], Min Liu[§], Ying Chen*, Yu-Ting Pan

College of Architecture and Environment, Sichuan University, Chengdu, 610065, China

Abbreviations: ETF, Ethanol-type fermentation; AICHP, anaerobic internal circulation hydrogen production; HPR, hydrogen production rate; COD, chemical oxygen demand; MLVSS, mixed liquor volatile suspended solid; MLSS, mixed liquid suspended solid; DO, dissolve oxygen; SAT, shunt aeration test; DAT, direct aeration test; HRT, hydraulic retention time; MPR, methane production rate; SMPs, soluble metabolic products; ORP, oxidation–reduction potential; S1, sludge sample 1; S2, sludge sample 2; VFA, volatile fatty acids.

[§] These authors contributed equally to this work.

[*] Corresponding author.

Tel.: +86 18628041280 (China)

E-mail address: cylm@163.com (Ying Chen)

Address: College of Architecture and Environment, Sichuan University, Chengdu, 610065, China