

Accepted Manuscript

Effect of precursors combined with bacteria communities on the formation of humic substances during different materials composting

Junqiu Wu, Yue Zhao, Wei Zhao, Tianxue Yang, Xu Zhang, Xinyu Xie, Hongyang Cui, Zimin Wei

PII: S0960-8524(16)31690-X
DOI: <http://dx.doi.org/10.1016/j.biortech.2016.12.031>
Reference: BITE 17407

To appear in: *Bioresource Technology*

Received Date: 29 October 2016
Revised Date: 5 December 2016
Accepted Date: 8 December 2016

Please cite this article as: Wu, J., Zhao, Y., Zhao, W., Yang, T., Zhang, X., Xie, X., Cui, H., Wei, Z., Effect of precursors combined with bacteria communities on the formation of humic substances during different materials composting, *Bioresource Technology* (2016), doi: <http://dx.doi.org/10.1016/j.biortech.2016.12.031>

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.



Effect of precursors combined with bacteria communities on the formation of humic substances during different materials composting

Junqiu Wu^a, Yue Zhao^a, Wei Zhao^a, Tianxue Yang^b, Xu Zhang^a, Xinyu Xie^a, Hongyang Cui^a, Zimin Wei^{a*}

^a College of Life Science, Northeast Agricultural University, Harbin 150030, China

^b State key laboratory of environment criteria and risk assessment, Chinese Research Academy of Environmental Sciences, Beijing 100012, China

Abstract:

The aim of this work was to put forward a method to improve HS amount by studying the formation regularity of HS. Five precursors have been detected and few researches combined them with bacteria to study HS formation. During composting, the polyphenols, carboxyl and amino acids concentration decreased by 75.8%, 63.2% and 68.3% on average, respectively. However, the polysaccharides, reducing sugars and HS concentration increased by 61.2%, 47.1% and 37.33% on average. Relationships between precursors and HS concentration showed that the HS formation were significantly affected ($p < 0.05$). The key bacteria community and physical-chemical parameters which affected HS formation have also been identified by redundancy analysis. Twelve key bacteria communities have been selected, which were significantly affected by physical-chemical parameters ($p < 0.05$). Accordingly, we proposed an adjusting method to promote HS amount during composting based on the relationship

Corresponding author Address: College of Life Science, Northeast Agricultural University, Harbin 150030, China.

Tel/Fax: +86 45155190413

E-mail address: weizimin@neau.edu.cn or weizm691120@163.com

Download English Version:

<https://daneshyari.com/en/article/4997648>

Download Persian Version:

<https://daneshyari.com/article/4997648>

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