

## Accepted Manuscript

Title: Expression and purification of plant fructan exohydrolases and their potential applications in fructose production

Authors: Wenyue Zhan, Lijin Jin, Jiao Jiao, Xi Zhang, Yan Zhang, Haiyan Zhao, Mingxiang Liang



PII: S0141-8130(17)34133-8  
DOI: <https://doi.org/10.1016/j.ijbiomac.2017.11.110>  
Reference: BIOMAC 8590

To appear in: *International Journal of Biological Macromolecules*

Received date: 24-10-2017  
Revised date: 15-11-2017  
Accepted date: 16-11-2017

Please cite this article as: Wenyue Zhan, Lijin Jin, Jiao Jiao, Xi Zhang, Yan Zhang, Haiyan Zhao, Mingxiang Liang, Expression and purification of plant fructan exohydrolases and their potential applications in fructose production, International Journal of Biological Macromolecules <https://doi.org/10.1016/j.ijbiomac.2017.11.110>

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.

**Expression and purification of plant fructan exohydrolases and their potential applications in fructose production**

Wenyue Zhan<sup>1,2</sup>, Lijin Jin<sup>1,2</sup>, Jiao Jiao<sup>1,2</sup>, Xi Zhang<sup>1,2</sup>, Yan Zhang<sup>1</sup>, Haiyan Zhao<sup>1</sup>,  
Mingxiang Liang\*<sup>1,2</sup>

1 College of Resources and Environmental Sciences, Nanjing Agricultural University,  
Jiangsu Province, People's Republic of China

2 Jiangsu Key Lab of Marine Biology, Nanjing, People's Republic of China

\*Corresponding author: Mingxiang Liang

**Abstract**

Inulinases from microorganisms have been extensively studied for their role in the production of fructose from fructan. Fructan can also be hydrolyzed by plant fructan exohydrolases (FEHs), but these enzymes have not been used to produce fructose commercially. Two Ht1-FEHs (Ht1-FEH I and Ht1-FEH II) were recently characterized in Jerusalem artichoke. In this study, we cloned the third member of the Ht1-FEH family in Jerusalem artichoke (i.e., *Ht1-FEH III*). When heterologously expressed in *Pichia pastoris* X-33, Ht1-FEH III not only demonstrated hydrolysis activity towards  $\beta$  (2, 1)-linked fructans and  $\beta$  (2, 6)-linked levan, but also towards sucrose. To explore the potential industrial applications, we heterologously expressed and purified six plant 1-FEHs from two typical fructan plants (i.e., chicory and Jerusalem artichoke) and showed that chicory Ci1-FEH IIa had the highest hydrolysis

Download English Version:

<https://daneshyari.com/en/article/8328204>

Download Persian Version:

<https://daneshyari.com/article/8328204>

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