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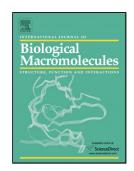
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Expression and purification of plant fructan exohydrolases and their potential applications in fructose production

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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 β (2, 1)-linked fructans and β (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

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