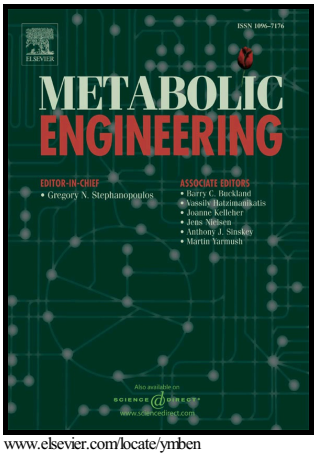
Author's Accepted Manuscript



www.elsevier.com/locate/ymben

Biosynthesis of D-Glucaric Acid from Sucrose with Routed Carbon Distribution in Metabolically Engineered *Escherichia coli*

Ya-Nan Qu, Hao-Jie Yan, Qiang Guo, Jia-Long Li, Yu-Cheng Ruan, Xiu-Zheng Yue, Wen-Xin Zheng, Tian-Wei Tan, Li-Hai Fan

PII: S1096-7176(17)30484-6
DOI: https://doi.org/10.1016/j.ymben.2018.04.020
Reference: YMBEN1395

To appear in: *Metabolic Engineering*

Received date: 30 December 2017
Revised date: 25 April 2018
Accepted date: 27 April 2018

Cite this article as: Ya-Nan Qu, Hao-Jie Yan, Qiang Guo, Jia-Long Li, Yu-Cheng Ruan, Xiu-Zheng Yue, Wen-Xin Zheng, Tian-Wei Tan and Li-Hai Fan, Biosynthesis of D-Glucaric Acid from Sucrose with Routed Carbon Distribution in Metabolically Engineered *Escherichia coli*, *Metabolic Engineering*, https://doi.org/10.1016/j.ymben.2018.04.020

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 galley proof before it is published in its final citable 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.

ACCEPTED MANUSCRIPT

Biosynthesis of D-Glucaric Acid from Sucrose with Routed Carbon Distribution in Metabolically Engineered *Escherichia coli*

Ya-Nan Qu[1,2], Hao-Jie Yan[2], Qiang Guo[1,2], Jia-Long Li[2], Yu-Cheng Ruan[2], Xiu-Zheng Yue[2], Wen-Xin Zheng[2], Tian-Wei Tan[1,2], Li-Hai Fan[1,2*]

[1]Beijing Key Laboratory of Bioprocess, Beijing, PR China, 100029

[2]College of Life Science and Technology, Beijing University of Chemical Technology, Beijing, PR China, 100029

***Corresponding author:** Li-Hai Fan **Address:** North Third Ring Road 15, Chaoyang District, Beijing, PR China, 100029 **Phone:** +86-10-64421335 fanlh@mail.buct.edu.cn

Accepted manuscript

Abstract:

D-glucaric acid is a promising platform compound used to synthesize many other value-added or commodity chemicals. The engineering of *Escherichia coli* for efficiently converting D-glucose to D-glucaric acid has been attempted for several years, with mixed sugar fermentation recently gaining growing interests due to the increased D-glucaric acid yield. Here, we co-expressed *cscB*, *cscA*, *cscK*, *ino1*, *miox*, *udh*, and *suhB* in *E. coli* BL21 (DE3), functionally constructing an unreported route from sucrose to D-glucaric acid. Further deletion of chromosomal *zwf*, *pgi*, *ptsG*, *uxaC*, *gudD*, over-expression of *glk*, and use of a D-fructose-dependent translation

Download English Version:

https://daneshyari.com/en/article/6494097

Download Persian Version:

https://daneshyari.com/article/6494097

Daneshyari.com