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Metabolic characterization of *Hyoscyamus niger* root-specific putrescine *N*-methyltransferase

Chen Geng¹, Tengfei Zhao¹, Chunxian Yang¹, Qiaozhuo Zhang¹, Feng Bai¹, Junlan Zeng¹, Fangyuan Zhang¹, Xiaoqiang Liu¹, Xiaozhong Lan², Min Chen³, Zhihua Liao^{1*}

1 Key Laboratory of Eco-environments in Three Gorges Reservoir Region (Ministry of Education), Chongqing Key Laboratory of Plant Ecology and Resources Research in Three Gorges Reservoir Region, SWU-TAAHC Medicinal Plant Joint R&D Centre, School of Life Sciences, Southwest University, Chongqing 400715, China

2 TAAHC-SWU Medicinal Plant Joint R&D Centre, Xizang Agricultural and Husbandry College, Nyingchi of Tibet 86000, China

3 College of Pharmaceutical Sciences, Key Laboratory of Luminescent and Real-Time Analytical Chemistry (Ministry of Education), Southwest University, Chongqing 400715, China

* The corresponding authors:

Zhihua Liao, Ph. D., Professor of Plant Science, School of Life Sciences, Southwest University, Chongqing 400715, China. Tel and Fax: 86-23-68367146; Email: zhliao@swu.edu.cn

Abstract

N-methylputrescine is the precursor of nicotine and pharmaceutical tropane alkaloids such as hyoscyamine. Putrescine *N*-methyltransferase (PMT) catalyzes the *N*-methylation of putrescine to form *N*-methylputrescine. While the role of PMT in nicotine biosynthesis is clear, knowledge of PMT in the biosynthesis of tropane alkaloids (TAs) and the regulation of polyamines remains limited. We characterized a *PMT* gene from *Hyoscyamus niger*, designated *HnPMT* that was specifically expressed in roots, especially in the secondary roots and dramatically induced by methyl jasmonate (MeJA). The GUS gene was specifically expressed in *Arabidopsis*

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