

Accepted Manuscript

GABA mediates phenolic compounds accumulation and the antioxidant system enhancement in germinated hulless barley under NaCl stress

Yan Ma, Pei Wang, Mian Wang, Maomao Sun, Zhenxin Gu, Runqiang Yang

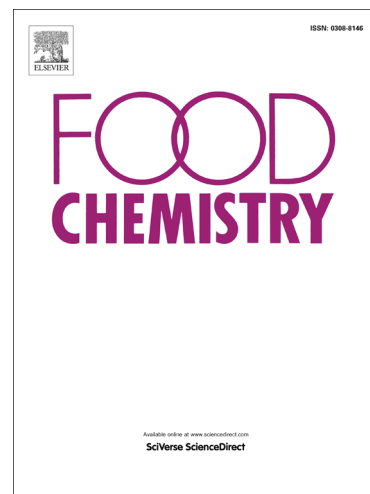
PII: S0308-8146(18)31237-8
DOI: <https://doi.org/10.1016/j.foodchem.2018.07.092>
Reference: FOCH 23207

To appear in: *Food Chemistry*

Received Date: 20 December 2017
Revised Date: 16 July 2018
Accepted Date: 16 July 2018

Please cite this article as: Ma, Y., Wang, P., Wang, M., Sun, M., Gu, Z., Yang, R., GABA mediates phenolic compounds accumulation and the antioxidant system enhancement in germinated hulless barley under NaCl stress, *Food Chemistry* (2018), doi: <https://doi.org/10.1016/j.foodchem.2018.07.092>

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.



**GABA mediates phenolic compounds accumulation and the antioxidant system enhancement
in germinated hulless barley under NaCl stress**

Yan Ma, Pei Wang, Mian Wang, Maomao Sun, Zhenxin Gu*, Runqiang Yang*

College of Food Science and Technology, Nanjing Agricultural University, Nanjing
210095, China

Corresponding Author

*Tel/Fax: 86-25-84396293.

E-mail: guzx@njau.edu.cn (Zhenxin Gu); yangrq@njau.edu.cn (Runqiang Yang).

Abstract: In this study, the function of γ -aminobutyric acid (GABA) on the phenolic compounds accumulation and antioxidant system enhancement in germinated hulless barley under NaCl stress was investigated. Results showed that exogenous GABA induced the accumulation of phenolic compounds. It was observed that the activities and gene expression of phenylalanine ammonia lyase (*PAL*), cinnamic acid 4-hydroxylase (*C4H*), 4-coumarate coenzyme A ligase (*4CL*), *p*-coumaric acid 3-hydroxylase (*C3H*), caffeic acid O-methyltransferase (*COMT*) and ferulic acid 5-hydroxylase (*F5H*) which are involved in phenolics biosynthesis was up-regulated by NaCl stress plus GABA treatment. In addition, antioxidant enzymes activities were induced. However, these effects were suppressed by 3-mercaptopropionic acid (3-MP), an inhibitor of GABA synthesis. This inhibition could be alleviated partly by exogenous GABA. These results suggested that GABA was essential for mediating NaCl stress-induced phenolic compounds accumulation and the antioxidant system enhancement in germinated hulless barley.

Keywords: NaCl stress; germinated hulless barley; GABA; phenolic compounds; antioxidant system

Download English Version:

<https://daneshyari.com/en/article/7584064>

Download Persian Version:

<https://daneshyari.com/article/7584064>

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