



Correction to: Characterization of the glutathione S-transferase (GST) gene family in *Pyrus bretschneideri* and their expression pattern upon superficial scald development

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The original version of this article unfortunately contained some errors. The authors would like to make the following corrections to the article.

In the Abstract, ‘25 members were enhanced upon the development of superficial scald, while three in dehydroascorbate reductase (DHAR) class were downregulated in association with lower DHAR activity. In combination with the results of the impact of 1-MCP and MHO fumigation on the expression profile of *PbrGSTs*, *PbrDHAR1*, *PbrDHAR2* and *PbrDHAR4* were selected as the candidate gene involved in superficial scald development.’ should read:

“26 members were enhanced upon the development of superficial scald, while two in dehydroascorbate reductase (DHAR) class were downregulated in association with lower DHAR activity. In combination with the results of the impact of 1-MCP and MHO fumigation on the expression profile of *PbrGSTs*, *PbrDHAR1* and *PbrDHAR2* were selected as the candidate gene involved in superficial scald development.”

In the Results, ‘Of these, the expression of *PbrGSTU1-8*, *PbrGSTU11-12*, *PbrGSTU16*, *PbrGSTU25-27*,

PbrGSTU29-32, *PbrGSTF2*, *PbrGSTL1-5*, and *PbrGSTT1* were upregulated upon the development of superficial scald, while *PbrDHAR1*, *PbrDHAR2*, and *PbrDHAR4* mRNAs showed an opposite behavior (Fig. 6 and Table S12).’, Paragraph 15, Sentences 2 should read:

“Of these, the expression of *PbrGSTU1-8*, *PbrGSTU11-12*, *PbrGSTU16*, *PbrGSTU25-27*, *PbrGSTU29-32*, *PbrGSTF2*, *PbrGSTL1-5*, *PbrGSTT1*, and *PbrDHAR4* were upregulated upon the development of superficial scald, while *PbrDHAR1* and *PbrDHAR2* showed an opposite behavior (Fig. 6 and Table S12).”

In the Discussion, ‘Of these, the transcription levels of *PbrGSTU1-8*, *PbrGSTU11-12*, *PbrGSTU16*, *PbrGSTU25-27*, *PbrGSTU29-32*, *PbrGSTF2*, *PbrGSTL1-5*, and *PbrGSTT1* were higher in fruit with superficial scald, while the expression of *PbrDHAR1* and *PbrDHAR2*, and *PbrDHAR4* were downregulated (Fig. 6 and Table S12). These results imply that individual *PbrGST* gene might be highly specific in their induction patterns (Qin et al. 2015).’ Paragraph 4, Sentences 2 should read:

“Of these, the transcription levels of *PbrGSTU1-8*, *PbrGSTU11-12*, *PbrGSTU16*, *PbrGSTU25-27*, *PbrGSTU29-32*, *PbrGSTF2*, *PbrGSTL1-5*, *PbrGSTT1* and *PbrDHAR4* were higher in fruit with superficial scald, while the expression of *PbrDHAR1* and *PbrDHAR2* were downregulated (Fig. 6 and Table S12). These results imply that individual *PbrGST* gene might be highly specific in their induction patterns (Qin et al. 2015).”

In the Discussion, ‘Thus, in combination with the results of Figs. 5 and 6, *PbrDHAR1*, *PbrDHAR2* and *PbrDHAR4* might participate in the development of superficial scald.’ Paragraph 5, Sentences 5 should read:

“Thus, in combination with the results of Figs. 5 and 6, *PbrDHAR1* and *PbrDHAR2* might participate in the development of superficial scald.”

In the Conclusion, ‘The expression of 25 *PbrGST* genes were enhanced upon superficial scald development, while

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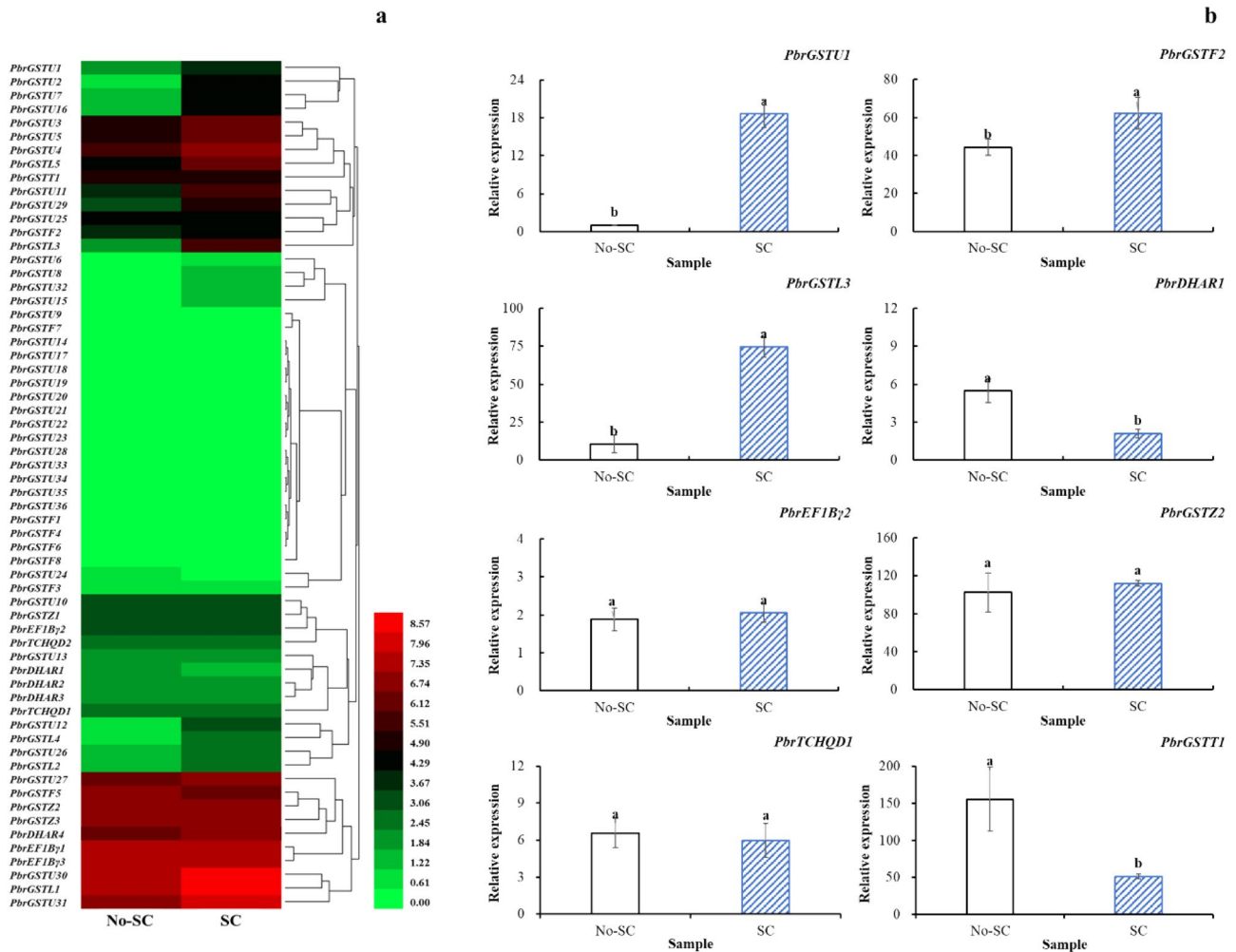


Fig. 6 Alteration in the expression profiles of *PbrGSTs* in the pericarp of ‘Yali’ pear upon superficial scald development. **a** Transcriptome analysis of the *PbrGSTs* expression profile in different samples. Samples were taken after 180 days storage at $-0.5\text{ }^{\circ}\text{C}+7$ days shelf life at $20\text{ }^{\circ}\text{C}$. The genes are located on the right and the samples are indicated at the bottom of each column. The color scale represents normalized log 2-transformed (mean FPKM of the two biological replicates + 1), where red indicates a high level, green indicates a low

level and black indicates a medium level. **b** qRT-PCR analysis of the mRNA contents of some genes (*PbrGSTU1*, *PbrGSTL3*, *PbrGSTT1*, *PbrGSTZ2*, *PbrDHAR1*, *PbrGSTF2*, *PbrTCHQD1*, and *PbrEF1Bγ2*). The expression level of *PbrGSTU1* in No-SC sample was set as 1, and vertical bars labeled with the different letter are significantly different at $p < 0.05$ level using Duncan’s multiple range test. Abbreviations are as follow: No-SC, fruit without superficial scald; SC, fruit with superficial scald

three members in *DHAR* class was downregulated. In combination with the results of 1-MCP and MHO fumigation, *PbrDHAR1*, *PbrDHAR2* and *PbrDHAR4* might participate in the development of superficial scald through regulating redox balance.’ should read:

“The expression of 26 *PbrGST* genes were enhanced upon superficial scald development, while two members in *DHAR* class was downregulated. In combination with the results of 1-MCP and MHO fumigation, *PbrDHAR1* and *PbrDHAR2* might participate in the development of superficial scald through regulating redox balance.”

The expression data of Fig. 6 and Supplementary Material Table S12 have been corrected. The corrected Fig. 6 and Table S12 are presented here.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10725-022-00832-x>.

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