

## Title:

# ***Prunus Hexokinase 3* genes alter primary C-metabolism and promote drought and salt stress tolerance in *Arabidopsis transgenic* plants**

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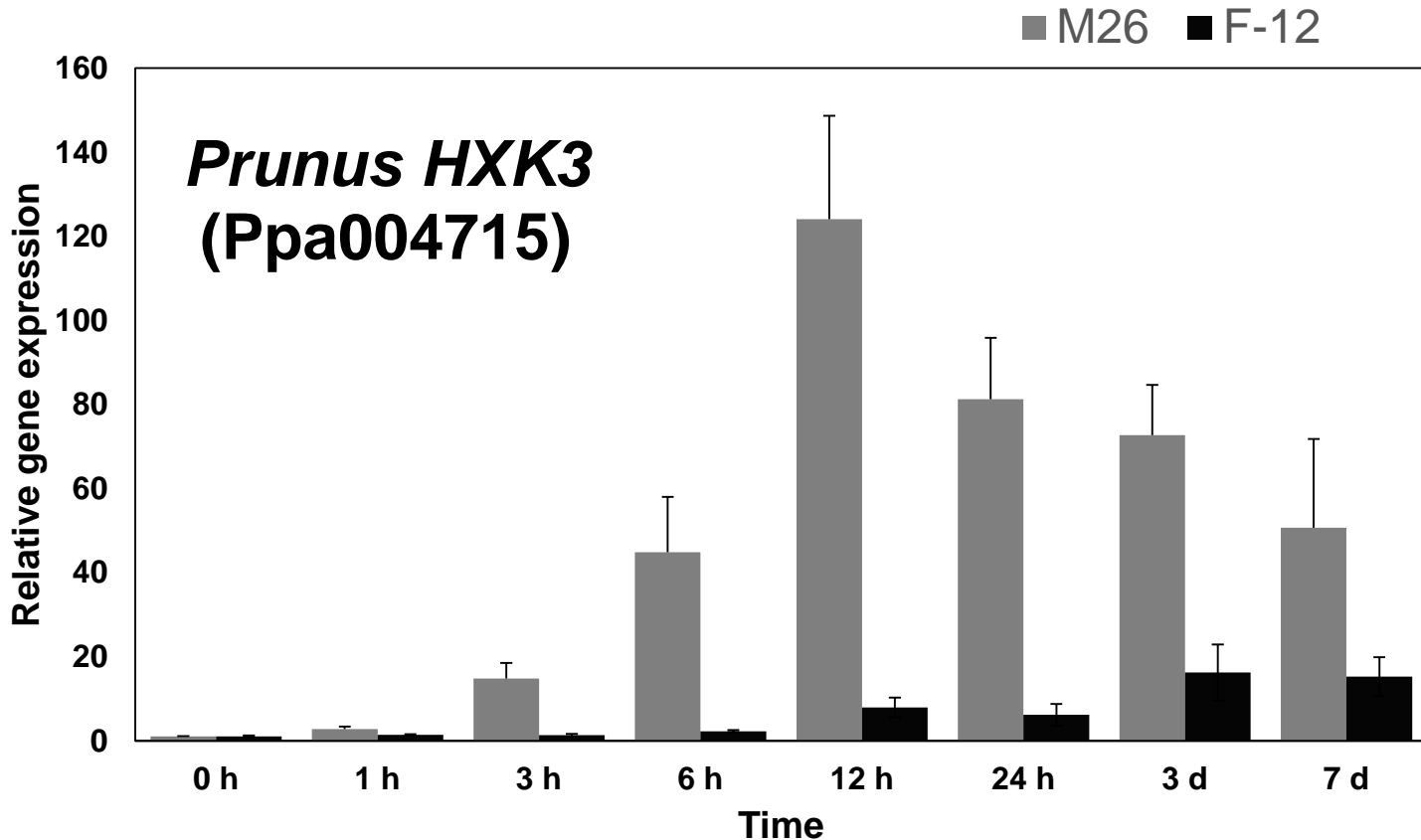
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**Figure S1. Expression patterns of the *HXK3* genes in *Prunus* plants subjected to hypoxia.** Gene expression was examined by qRT-PCR using total RNA from rootstock roots of Mariana 2624 and Mazzard F12/1 after treatment with hypoxia for 0, 1, 3, 6, 12, 24, 72 and 168 h. They are expressed as mean relative expression values  $\pm$  standard error ( $n=3$ ), normalized with *TEF2* as a constitutively expressed gene.

>Prunus\_persica|Prupe.1G36600 HXX3 promoter

AAAAAGTAAAAATAAAAATAAAAATCAAATAATAGGTCATACTTTTATTTAAACATAACTATCCATATTTATTTTTTCTTAAATTCAGAAAAAAAAAAATCAATTAGCACATA  
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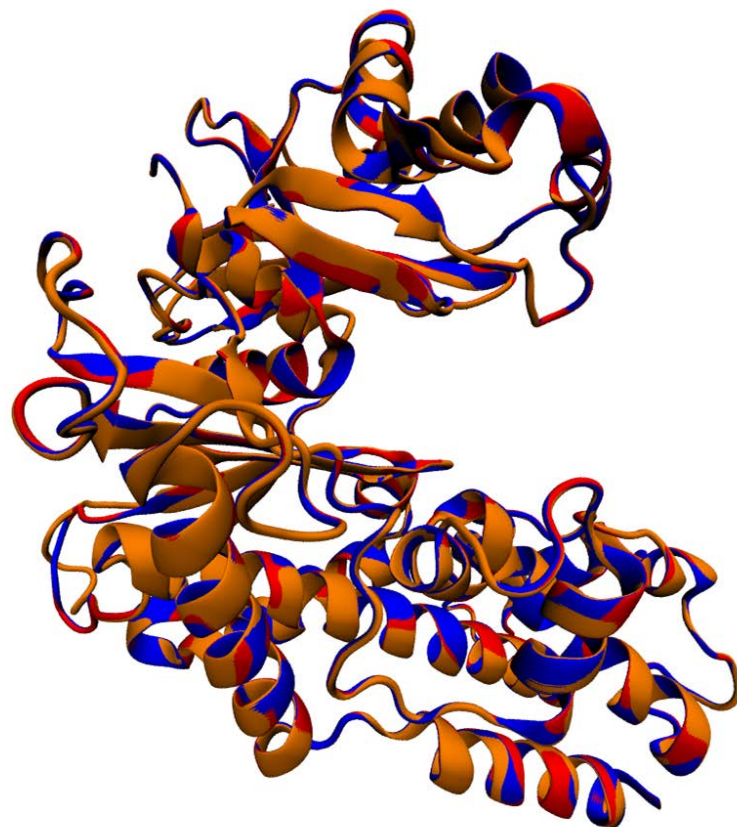
>M.F12/1|denovo HXX3 promoter

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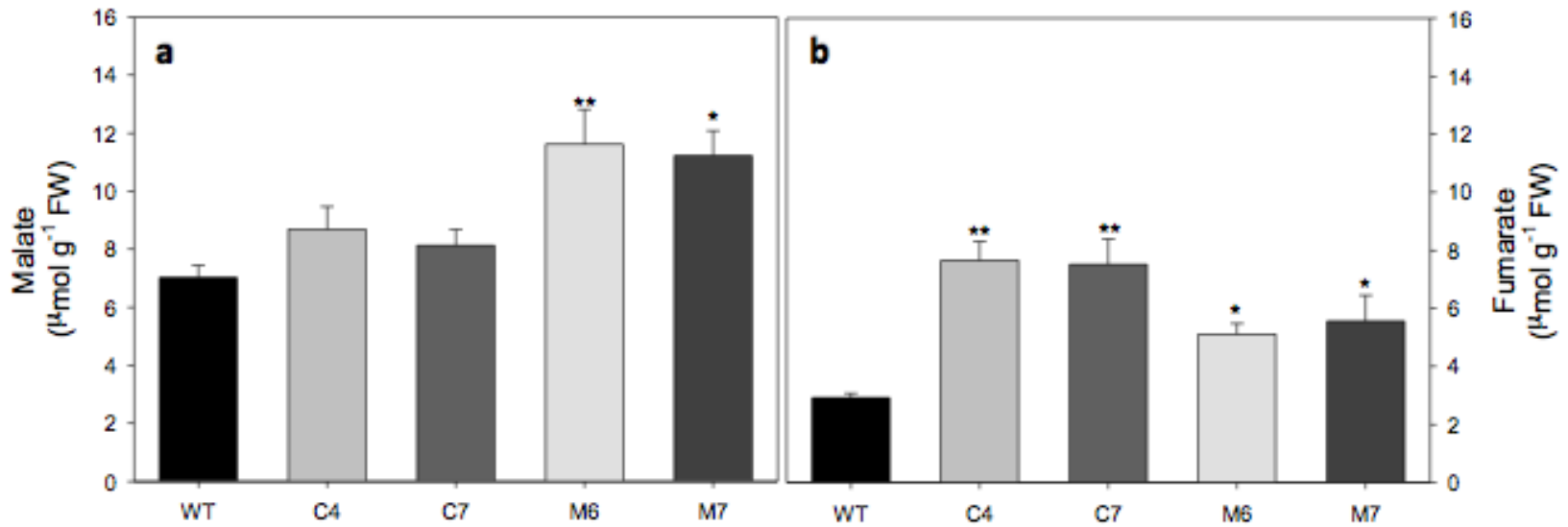
>M.2624|denovo HXX3 promoter

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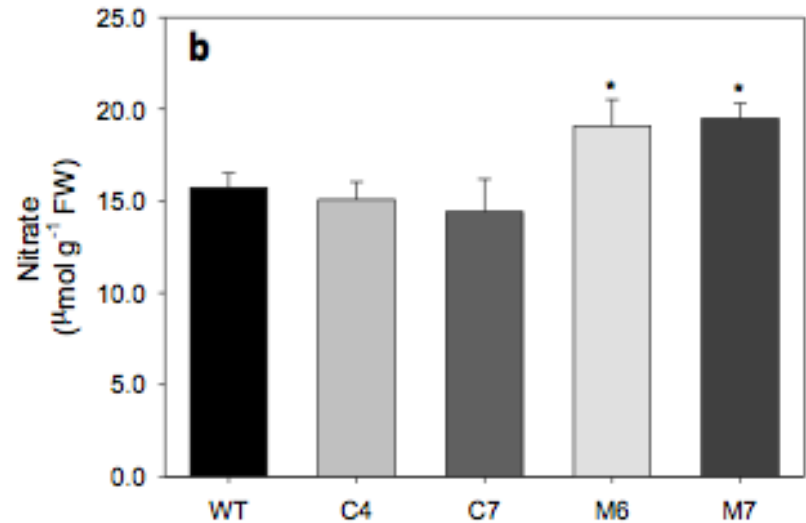
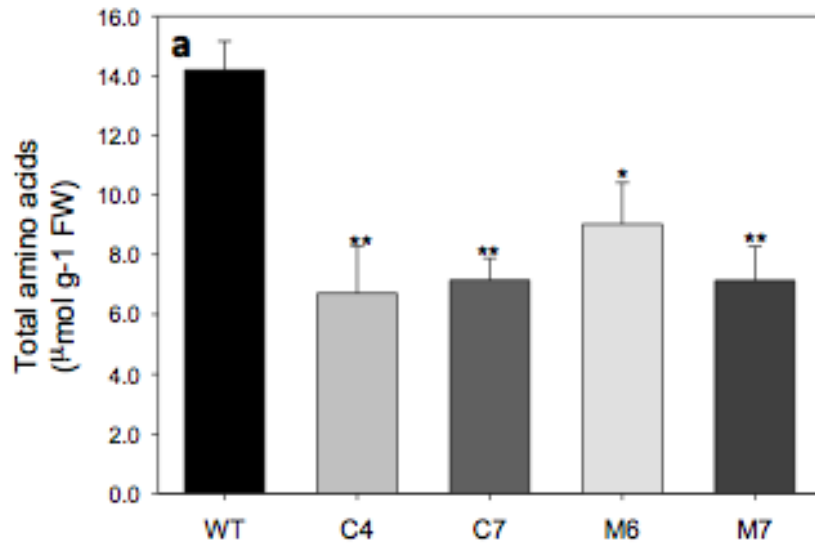
Figure S2. Nucleotide sequences of *Prunus HXX3* promoters. 992 bp upstream regions of the transcription starting sites of the *HXX3* genes.



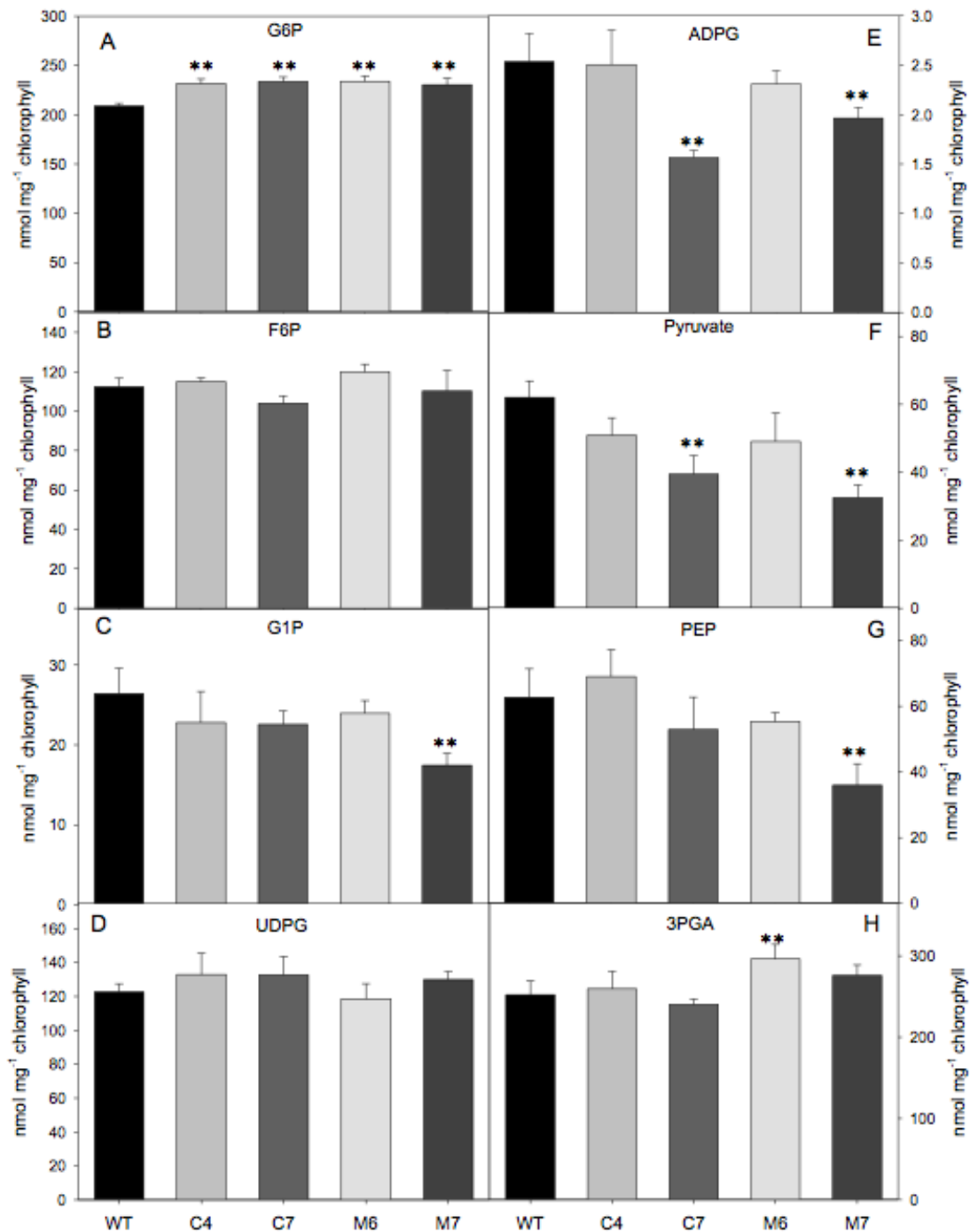
**Figure S3. Protein modeling of HXK3 proteins.** Comparison through a Richardson diagram of the structural models of the HXK3 proteins of the Mariana 2624 (red), Mazzard F12/1 (orange) and *Prunus persica* (blue).



**Figure S4. Organic acids content in *HXK3* transgenic lines of *Arabidopsis thaliana* plant growing under optimal condition. a Malate and b Fumarate content in *A. thaliana* leaves. Values are presented as means  $\pm$  SE (n = 5). Asterisks indicate that the values from lines were determined by Student's t test to be significantly different (\*\* (P<0.01) and \* (P<0.05)) from the wild-type .**



**Figure S5. Nitrogen compounds in *HXK3* transgenic lines of *Arabidopsis thaliana* plant growing under optimal condition. a** Total amino acids and **b** nitrate content in *A. thaliana* leaves. Values are presented as means  $\pm$  SE (n = 5). Asterisks indicate that the values from lines were determined by Student's t test to be significantly different (\*\* (P<0.01) and \* (P<0.05)) from the wild-type.



**Figure S6. Phosphorylated metabolites and glycolytic intermediates content in *HXK3* transgenic lines of *Arabidopsis thaliana* plant growing under optimal condition. a** Glucose-6-phosphate, **b** Fructose-6-phosphate, **c** Glucose-1-phosphate, **d** UDP-glucose, **e** ADP-glucose, **f** Pyruvate, **g** Phosphoenolpyruvate and **h** 3-phosphoglycerate content in *A. thaliana* leaves. Values are presented as means  $\pm$  SE ( $n = 5$ ). Asterisks indicate that the values from lines were determined by Student's t test to be significantly different (\*\* ( $P < 0.01$ ) and \* ( $P < 0.05$ )) from the wild-type