



# Ascorbate peroxidase from *Jatropha curcas* enhances salt tolerance in transgenic *Arabidopsis*

Y. Chen<sup>1</sup>, J. Cai<sup>2</sup>, F.X. Yang<sup>3</sup>, B. Zhou<sup>1</sup> and L.R. Zhou<sup>1</sup>

<sup>1</sup>College of Architecture and Environment, Sichuan University, Chengdu, Sichuan, China

<sup>2</sup>West China School of Pharmacy, Sichuan University, Chengdu, Sichuan, China

<sup>3</sup>Guangdong Key Laboratory of Ornamental Plant Germplasm Innovation and Utilization, Environmental Horticulture Research Institute, Guangdong Academy of Agricultural Sciences, Guangzhou, Guangdong, China

Corresponding author: L.R. Zhou

E-mail: zhoulr@mail.ubc.ca

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**ABSTRACT.** Ascorbate peroxidase (APX) plays a central role in the ascorbate-glutathione cycle and is a key enzyme in cellular H<sub>2</sub>O<sub>2</sub> metabolism. It includes a family of isoenzymes with different characteristics, which are identified in many higher plants. In the present study, we isolated the *APX* gene from *Jatropha curcas* L, which is similar with other previously characterized APXs as revealed by alignment and phylogenetic analysis of its deduced amino acid sequence. Real-time qPCR analysis showed that the expression level of *JcAPX* transcript significantly increased under NaCl stress. Subsequently, to elucidate the contribution of *JcAPX* to the protection against salt-induced oxidative stress, the expression construct *p35S: JcAPX* was created and transformed into *Arabidopsis* and transcribed. Under 150-mM NaCl stress, compared with wild type (WT), the overexpression of *JcAPX* in *Arabidopsis* increased the germination rate, the number of leaves,

and the rosette area. In addition, the transgenic plants had longer roots, higher total chlorophyll content, higher total APX activity, and lower H<sub>2</sub>O<sub>2</sub> content than the WT under NaCl stress conditions. These results suggested that higher APX activity in transgenic lines increases the salt tolerance by enhancing scavenging capacity for reactive oxygen species under NaCl stress conditions.

**Key words:** Oxidative stress; Ascorbate peroxidase; Salt stress; H<sub>2</sub>O<sub>2</sub>; *Jatropha curcas*