



Journal

**J. Biol. Chem.
Environ. Sci., 2018,
Vol. 13(2): 17-30**
<http://biochemv.blogspot.com.eg/>

POTENTIALITY OF TRANSFORMATION WITH ATNHX1 IN ENHANCING SALT STRESS TOLERANCE IN EGYPTIAN VICIA FABA L.

**Raifa A. Hassanein¹, Ahmed A. EL-
Kazza², Hanan A. Hashem¹, Ahmed M.
M. Gabr², Usama I. Ali², Moemen S.
Hanafy² and Hanan S. Ali²**

¹ Department of Botany, Faculty of Science, Ain
Shams University, Cairo, Egypt

² Plant Biotechnology Department, National
Research Centre, Dokki, Giza, Egypt

ABSTRACT

Agrobacterium tumefaciens- mediated gene transfer system was subjected in this study. Aiming to enhance salt stress tolerance. This study was carried out on three Egyptian faba bean cultivars i.e. Egypt 1, Giza 40 and Giza 843. This system is based on direct shoot organogenesis from meristematic cells of the shoot apices. Explants were co-cultivated with *A. tumefaciens* strain containing *AtNHX1* linked to the *bar* gene as a selectable marker. Resistant clones from the three Egyptian faba bean cultivars were recovered. Molecular analysis confirmed the integration and expression of the target *AtNHX1* and *bar* gene into plant genome. Inheritance and expression of the transgenes was demonstrated by PCR. The expression of *AtNHX1* in transgenic plants was confirmed by western blot which indicated that the gene was highly expressed in transgenic plants.

Key words: *Agrobacterium* mediated-transformation; *AtNHX1*; *Vicia faba* L.