University of Zabol
Graduate School
Faculty of Agriculture
Department of Plant Breeding and Biotechnology

The Thesis Submitted for the Degree of M.Sc
(in the field of Agricultural Biotechnology)

Ascorbat peroxidase (APX) gene expression in sistan melon landrace (*Cucumis melo L.*) using Real Time PCR under salt stress

Supervisors:
Dr. M. Sulouki

Advisors:
Dr. B. A. Fakheri
Dr. M. Forootan

By:
S. Montazerinezhad

October 2013

Abstract

In order to determine APX gene expression levels in 3 selected sistan melon landrace (*Cucumis melo L.*), a comparison between landraces were performed under control and stress condition in Zabol University Biotechnology Institute. Three replicates for each landrace was considered and then specimens under stress were subjected NaCl 250 Mm and 350 Mm. RNA was extracted from leaf samples. cDNA was designed using reverse transcription. 18S rRNA gene expression was used as internal control gene in Real Time PCR to normalize APX gene expression levels. Data was analyzed using Rest 2009 software. APX gene was expressed in Landrace Sistan melon Sefidak 350 mM, Sefidak 250 mM, Ghandak 350 mM, Ghandak 250 mM, Khatdar 350 mM and Khatdar 350 mM as much as 3.15, 3.057, 8.801, 6.219, 0.734 and 3.189 times the witness sample (Sefidak, Ghandak and Khatdar without application of salt stress), respectively. APX gene expression in Landrace Sistan melon showed quantitative difference at two level of salinity. Ghandak showed significant difference within expression level of APX gene under salt stress and control conditions and Khatdar was sensitive against salinity stress at level of 350 mM. therefore among studied samples, resistance against salinity stress was greater in Ghandak and less in Khatdar.

Keyword: APX gene, gene expression, salt stress. Real Time-PCR