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Poster Communication Abstract – 2.13

INVOLVEMENT OF ABSCISIC ACID-STRESS-RIPENING (ASR) GENE IN RESPONSE TO HIGH SALINITY AND WATER DEFICIT IN WHEAT

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In hot and dry Mediterranean regions wheat is extremely susceptible to abiotic stresses such as extreme temperatures, drought and salinity, which trigger acute yield and quality losses. Isolation of genes involved in plant response to such stresses is pivotal to develop stress-tolerant varieties. Abscisic acid, stress, ripening-induced (*ASR*) genes are known to act in the protection mechanism against high salinity and water deficit in several plant species. In a previous study, the *TtASR1* gene from 4A chromosome of durum wheat was isolated in a salt-tolerant Tunisian landrace and assessed for its involvement in plant response to some environmental stimuli. In this work, a Real-Time approach was used for the first time to evaluate the role of *ASR* genes mapping on group 4 chromosomes in the regulation of wheat response to salt and water stress. Gene expression variation was studied under the influence of different variables – salt/drought, ploidy level, susceptibility, plant tissue, time post-stress application, gene chromosome location. *ASR* response was found only slightly affected by ploidy level or chromosomal location, in fact tetraploid and hexaploid wheat showed a similar gene expression following salt increase and water deficiency. Besides, gene profile was more influenced by tissue type (higher expression levels in roots than in leaves), kind of stress (NaCl more affecting than PEG), and genotype (differential transcripts accumulation in susceptible or tolerant genotypes). Based on such experimental evidence, we confidently confirmed *ASR* genes contribution in wheat response to high salinity and drought, and suggested the quantification of gene expression variation after long salt exposure (72 h)

as a reliable parameter to discriminate between salt-tolerant/susceptible genotypes in both *T. aestivum* and T*. durum*.