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STUDY OF SEED-SOFTNESS IN POMEGRANATE

Dr. Zabihollah Zamani, Department of Horticultural Science, Faculty of Agriculture, University of Tehran, 31587 Karaj, Iran; zzamani@ut.ac.ir (Presenting author)
Dr. Abdolkarim Zarei, Department of Horticultural Science, Faculty of Agriculture, Jahrom University, 74131 Jahrom, Iran; zarei@jahrom.ac.ir
Dr. Reza Fatahi, Department of Horticultural Science, Faculty of Agriculture, University of Tehran, 31587 Karaj, Iran; fattahi@ut.ac.ir

Pomegranate is one of the most important fresh fruits in Iran, as well as gaining significance in the world due to its health benefit potentials. The edible portion of this fruit is the seeds which their outer cell layers of testa become succulent and fleshy. Usually the whole seed including the fleshy outer layer of testa, the inner commonly hard layer of testa, as well as the embryo inside the seed is consumed, and when the inner testa layer is fully hard (woody), it will be unpleasant to the consumers. Fortunately there are some genotypes of pomegranate which have soft seeds, but in commercial point of view their other characteristics are not usually much acceptable. We have been studying the seed-softness in pomegranate by morphological, molecular, biochemical and breeding methods during the years. According to the findings there are very few real soft-seed pomegranate genotypes, however, there are some with semi-soft and semi-hard seeds. Seed-softness in pomegranate is a recessive trait with no soft-seed phenotype found in a population from the cross between a soft and a hard seed genotype. Also, no significant difference between lignin content of the two soft and hard seed types of pomegranate was detected, although the pattern of gene expression was different for some of lignin pathway genes between these two pomegranate seed types.

Keywords: Seed testa, Molecular, Biochemical, Breeding, Lignin, Punica granatum