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IDENTIFICATION OF THE TOLERANT POMEGRANATE GENOTYPES FOR THE ARIL BROWNING OR ARIL PALENESS DISORDER

Author(s): **Dr. Mohammad Kavand,** Department of Horticultural Science, Tarbiat Modares University, Tehran, Iran; kavand59@gmail.com (Presenting author)
Prof. Kazem Arzani, Department of Horticultural Science, Tarbiat Modares University, Tehran, Iran; arzani_k@modares.ac.ir
Prof. Mohsen Barzegar , Department of Food Science, Tarbiat Modares University, Tehran, Iran; mbb@modares.ac.ir
Prof. Majed Mirlatifi , Department of Water Science, Tarbiat Modares University, Tehran, Iran; mirlat_m@modares.ac.ir

Aril browning disorder (AB) is a physiological injury in pomegranate (*Punica granatum* L) fruit that critically decreased fruit quality and market acceptability in recent years. This experiment was carried out in order to explore and select the tolerant cultivar and genotypes among the major Iranian pomegranate germplasm at Saveh Pomegranate Collection Orchard (SPCO). Pomegranate physicochemical fruit traits including fruit weight, dimension, volume, and fruit skin color, aril color, electrical conductivity (Ec), pH, total soluble solids (TSS), juice color absorbance and titratable acidity (TA) of the 257 genotypes were recorded. The obtained results showed a considerable variation in the AB disorder among the studies genotypes, in which the intensity of the AB disorder strongly was related with the fruit attributes for each pomegranate genotypes. Also, about the 16.34% of the studied pomegranate genotypes didn't have any AB disorder symptoms, whereas about 66.93% of them showed the moderate to severely susceptible to the AB disorder symptoms. The aril attributes for fruits of the non-affected genotypes (NAG) are the bright and shiny surface, solid texture, and frequently red color; whereas the arils attribute for fruits of the severely affected genotypes (SAG) are the very dark surface, injured texture, deformed structure and often creamy color. Generally, the average fruit weight, fruit dimension and pH of the fruit juice for the (NAG) are significantly smaller than the (SAG); although, the amount of TA content, taste, and juice color absorbance value of the fruit juice in (NAG) is significantly more than the (SAG).In our study, the nine pomegranate genotypes such as `Alak e Shirin e Saveh', `Danea e Ghermez e Marivan', `Torsh e Minab', `Torsh e Sory e Pavea', `Mikhosh Shabestar', Genotype 607, Genotype 642, Genotype 30 and Genotype 481 were produced relatively good fruit quality without any AB disorder symptoms. To resolve the AB issue, improve the sensitive varieties and sustainable pomegranate production, especially under the phenomenon of the climate change the bearing pomegranate genotype are key sources.

Keywords: Physicochemical Fruit Attributes (Punica granatum L.), Germplasm, Aril Browning, Physiological Disorder, Fruit Quality