

P-47 (114)**EVALUATION OF GENETIC DIVERSITY IN SOME PERSIAN WALNUT GENOTYPES (*JUGLANS REGIA L.*) USING MORPHOLOGICAL AND BIOCHEMICAL CHARACTERISTICS IN KHORASAN RAZAVI PROVINCE****Shadi Attar**, Department of Horticultural Science, Ferdowsi University of Mashhad, Mashhad, Iran; sh_at66@yahoo.com (Presenting author)**Prof. Dr. Gholam hossein Davarynejad**, Department of Horticultural Science, Ferdowsi university of Mashhad, Mashhad, Iran; Davarynej@um.ac.ir**Assist. Prof. Leila Samiee**, Department of Ornamental Plants, Research Center for Plant Sciences, Ferdowsi University of Mashhad, Mashhad, Iran; leilisamie@gmail.com**Assoc. Prof. Mohammad moghaddam**, Department of Horticultural Science, Ferdowsi university of Mashhad, Mashhad, Iran; Moghaddam75@yahoo.com

Persian walnut (*Juglans regia* L.) is one of the most important nutritional nut crops and Iran is considered as one of the centers for diversity and cultivation of walnut in the Middle East. This research was conducted to evaluate genetic potential in walnut germplasm grown in the Khorasan Razavi province during the growing seasons of 2014-2016. In this investigation, 36 morphological and biochemical traits of 56 walnut genotypes (all of them originated from seed) were used. Results indicated considerable phenotypic diversity in the studied walnut germplasm. Genotype Es41 was the most late leafing, Es38 had the highest oil percentage, G52 had the highest fruit weight (87.22 g. fresh fruit with green skin) and Es16 had the highest fruit total phenol content (21.03 mg/l). High correlations were found among evaluated variables, e.g., positive and significant correlations between fruit diameter and fruit weight (0.90 ± 0.04), negative and significant correlations between fruit weight and fruit phenol (-0.90 ± 0.04). Finally, from the 56 studied genotypes, 21 genotypes were identified as superior genotypes that are suitable for grafting and cultivation in the area or breeding projects. However, presentation of superior genotypes should not be as removal of other genotypes that in terms of morphological traits aren't desirable, but these genotypes may resistant to biotic and abiotic stresses or have other valuable traits. Elimination of these genotypes and cultivation extension of some limited genotypes cause reduction in genetic diversity within each region and in the long run lead to the extinction of this strategic product. Propagation of superior genotypes, or implementing breeding projects should be done with thought and foresight so that both short-term goals and long-term goals, considered.

Keywords: oil percentage, kernel weight, superior genotype, correlation and fruit diameter