

## عنوان مقاله:

Biochemical Properties of Superior Persian Walnut Genotypes Originated from Southwest of Iran

## محل انتشار:

مجله بین المللی علوم و فنون باغبانی، دوره 8، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 12

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## خلاصه مقاله:

Evaluation of genetic diversity and identification of superior genotypes is a fundamental step in walnut breeding programs. In addition, information on biochemical properties of superior genotypes can help walnut breeders to release commercial varieties with high kernel quality. To gain more information on superior genotypes, a walnut population located in southwest of Iran was morphologically evaluated from 2010 to 2016. Based on important walnut breeding traits, nine superior walnut genotypes were selected from a total of 612 tested genotypes. These genotypes were characterized by high yield, moderate to late-leaving, lateral bearing, thin shell and large nuts with light and extra-light kernel color. Biochemical traits of these selected superior genotypes were evaluated for two consecutive years (2017 and 2018) and a high variation was observed among genotypes in respect of oil, protein and total phenol contents. Oil, protein and phenol contents of walnut kernels ranged between 57.9 to 69.6%, 13.0 to 18.1% and 46.6 to 61.5 mg GAE g<sup>-1</sup>, respectively. Polyunsaturated fatty acids (PUFA), monounsaturated fatty acids (MUFA) and saturated fatty acids (SFA) constituted on average 63.8%, 26.7% and 9.7% of fatty acid content, respectively. There was a negative correlation between some phenological traits and oil and protein contents. Lateral bearing genotypes had darker kernels with higher amounts of saturated fatty acids. In general, the selected walnut genotypes not only are superior in various aspects of phenotypic characteristics, but also have high kernel quality and nutritional value which can be used as a source of desirable genes for future walnut breeding programs.

## کلمات کلیدی:

Fatty acid, kernel color, Protein, phenol, Juglans, germplasm

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