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Phenolic acids, Flavonoids, Antioxidant Capacity and Minerals Content in Fruit of Five Grapevine Cultivars

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Identification of grape cultivars based on fruit qualitative and nutritive indices in order to targeted supply in domestic and foreign markets is very important. In this research, quantitative and qualitative traits of five commercial grape cultivars including Bidaneh Sefid, Bidaneh Qermez, Fakhri, Shahani and Mirzaei, was evaluated in a commercial vineyard located in Jozan village of Malayer city under a completely randomized blocks design with five treatments (cultivars) and three repeats (two vines at each repeat). Vines with same pruning and growing conditions were selected and checked at specified intervals until harvest time. Fruits harvested based on °Brix index in September and fruits quantitative traits including cluster weight, 20 berry weights, number of seed per berry, skin weight to berry percentage, dry weight, density and fruit qualitative traits such as pH, titratable acidity (TA), total soluble solid (TSS), anthocyanin, vitamin C, flavonoids, total phenol, phenolic acids and antioxidant capacity, and minerals including of potassium, magnesium, iron and zinc of fruit was measured. Based on results, a significant difference ($p \leq 0.01$) was found among all cultivars regarding to cluster weight, 20 berry weights, number of seed per berry, skin weight to berry percentage, dry weight and density. The highest cluster weight and density was related to Mirzaei cultivar and the lowest was found in Bidaneh Qermez cultivar. In terms of dry weight, the highest value was observed in Fakhri cultivar and the lowest of it was found in Bidaneh Sefid cultivar. Cultivars showed a significant difference ($p \leq 0.01$) in TSS, anthocyanin, flavonoids, total phenol and antioxidant capacity. The maximum TSS was related to Fakhri cultivar and the lowest was related to Shahani cultivar. The highest and lowest antioxidant contract was found in Shahani and Fakhri cultivars, respectively. Moreover, the highest and lowest flavonoids contract observed in Shahani and Mirzaei cultivars in respectively. Among of all cultivar Shahani showed the highest total phenol content. In terms of phenolic acids, the highest gallic acid, catechin, resveratrol, quercetin, ellagic acid and caffeic acid was found to be higher in Shahani cultivar in compared to other cultivars.

Key words: Antioxidant capacity, Anthocyanin, Grapevine, Nutritional value.

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