O-42 (38)
GEOGRAPHICAL REGIONS AND GENETIC VARIATION OF SAD2 GENE AFFECT OLIVE OIL QUALITY OF `MARI' AND `SHENGEH' CULTIVARS

Mehdi Sharifani, Department of Horticultural Science, Gorgan Univ. of Agricultural Sciences , and Natural Resources, P.O.BOX 49138-15739, Iran; mmsharif2@gmail.com (Presenting author)
Shima Mahmoudi, Department of Horticultural Science, Gorgan University of Agricultural Sciences, and Natural Resources, 49138-15739 Golestan Gorgan, Iran; shima.mahmoudi@msn.com
Ahad Yamchi, Plant breeding and Biotechnol Department, Gorgan University of Agricultural Sciences , and Natural Resources, 49138-15739 Golestan, Gorgan, Iran; yam12001@yahoo.com
Mahdi Alizadeh, Department of Horticultural Science, Gorgan University of Agricultural Sciences, and Natural Resources, 49138-15739 Golestan Gorgan, Iran; mehdi182000@yahoo.com

This study presents some qualitative properties of olive oil produced from "Mari" and "Shengeh" endemic olive cultivars produced in 4 locations in Iran (Gorgan, Sare-poul zohab, Roudbar and Taroum). The measured quality parameters included the peroxide value, chlorophyll, carotenoid and composition of fatty acids. The purity was also assessed using a UV spectrophotometric technique focusing the absorbance at 232 nm (K_{232}) and at 270 nm (K_{270}). Based on the measured parameters; "Mari" oil quality was higher than the "Shengeh" because of the higher ratio of monounsaturated to polyunsaturated fatty acids, chlorophyll and carotenoids. However the peroxidase value for Mari was significantly lower than "Shengeh" cultivar. The oil from Sare-pole Zohab located in Kermanshah region with an altitude of 545 m had the higher rank for unsaturated fatty acids specially oleic acid compared to that from Taroum 480m, Roudbar 280m and Gorgan 130m.The cultivar and producing regions had a significant influence on oleic acid content the K_{232} and absorbance parameter. DNA was extracted from the collected samples. Forward and reverse primers were designed for *SAD2* (stearoyl-ACP desaturase) gene using the conserved sequence of the gene in model plants. *SAD2* gene was amplified and then sequenced for four samples per cultivar. Nucleotide sequence analysis was indicated that the Shengeh cultivar from Gorgan and Sare-polzohab had the most similarity to each other. However "Mari" cultivar collected from Gorgan (Golestan) revealed differences in both the sequence and level of oleic acid in comparison to the other cultivars. The most homology within the *SAD2* sequence was found from 651bp to 737 bp. The samples which owned significant differences in oleic acid level also indicated less homology in 120 bp sequence of *SAD2* gene. Further results will be discussed.

Keywords: Olive, Shengeh, Marie, Stearoyl-ACP desaturase, SAD gene, oil quality