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CHARACTERIZATION OF SOME NEW OLIVE OIL GENOTYPES

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ABSTRACT

This research was conducted throughout seasons (on) 2013-2014 and 2015-2016 to evaluate the physicochemical characteristics of olive fruits and their olive oils for new genotypes (G66 and E138), coming from crosses between cultivars Toffahi X Arbequina and Arbequina X Hamed, respectively, which cultivated in two different areas (Agricultural Research Center, Giza and private farm at K64 Cairo-Alexandria dessert road) and irrigated by different salinity groundwater (420ppm=0.65 dS/m and 4500ppm=7.03 dS/m), respectively. Fruits characteristics as described, fruit weight, fruit length, stone length, pulp weight, and pulp/stone ratio were higher in G66 than those in E138. On the other hand, E138 had higher oil content than G66. Olive oils characteristics as described, Free acidity, peroxide value, specific ultraviolet absorbance (K_{232}, K_{270}, Δk), fatty acid composition, oxidative stability, total phenols and chlorophyll contents were determined. Results revealed that, all the analyzed virgin olive oils (VOOs) were classified into ‘‘Extra virgin’’ category according to the regulated physicochemical quality parameters. In addition, fatty acids composition of G66 olive oil was complied with IOC trade standard for olive oil especially in oleic acid content. On the other hand, fatty acids composition of E138 olive oil genotype was not complied with IOC trade standard for olive oil. G66 olive oil had higher total phenols, total tocopherols contents and oxidative stability than E138 olive oil. Phenolic secoiridoids (Oleuropien) was the major phenolic fractions in the two studied genotypes and the concentrations of hydroxytyrosol were higher in the oils from G66 genotype than those of E138 genotype. Results of sensory analysis showed no negative attributes were observed in the studied oils. G66 olive oil had higher scores in the fruity, bitter and pungent attributes as compared to E138 olive oil and they were all classified as extra virgin grade. High water salinity (4500 ppm) had not harmful effects on olive oil quality and led to accelerate olive fruits ripening.

Key words: E138, G66, new olive genotypes, salinity and virgin olive oil quality.