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COMPARISON OF THE PHYSICO-CHEMICAL PROPERTIES OF SOME EDIBLE OILS FROM THE ALBANIAN MARKETS

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Abstract

Edible oils had made an important contribution to the diet of people in many countries serving as a good source of proteins, lipids, and fatty acids. The purpose of this study is to evaluate the quality of the oils, based on the physicochemical parameters of some vegetable oils.

Five edible oils were obtained, of which 2 were imported (avocado oil, palm oil), and 3 of them were domestically produced (olive oil, corn oil, sunflower oil). The samples were taken randomly in local markets in Tirana, Albania. Selection of the representative samples for each type of oil was carried out starting from the products that are widely used by consumers. The quality of these oils was analyzed by determining physicochemical properties such as density, index of refraction, acid value, saponification value, and peroxide value. Classical methods of analysis were used.

The palm oil sample has high values of density (0.9152 g/mL) compared to the FAO/WHO standards. This shows that we have the presence of other added oils. Acid value is often used as a general indication of the condition and edibility of the oil. The acid value for all edible oils were below 0.6 mgKOH/g obtained from FAO/WHO recommendation. Olive oil has refractive index values of 1.4685 which is within the standards obtained from FAO/WHO, while the values of other oils are different from the required standards, or: avocado oil - 1.4734, maize oil - 1.4764, sunflower oil - 1.4764, and palm oil -1.4757, respectively. The different value of the refractive index indicates that foreign fats are present. It is noted that maize oil, sunflower oil, and palm oil have a lower number of saponification compared to the FAO/WHO recommendations: maize oil - 177.68 mg KOH/g, sunflower oil - 182.39mg KOH/g, and palm oil - 184.80 mg KOH/g, respectively. The lower saponification value indicates a low triacylglycerol content, consistent with the low ester value, and also indicates that the oil has no potential to be used for the cosmetic industry.

We observed that palm oil had the lowest quality according to standards recommendation.

***Key words**: Acidity, Peroxide, Refraction, Saponification.*