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***Analysis of Palestinian Olive Oil of Different Storage Ages by Fluorescence Spectroscopy Technique***

**J. M. Abu Snouber, I. R. Abdelraziq, M. Abu- Jafar, A. Zyoud and H. Hilal**

Abstract

This work focuses on the effect of storage age of Palestinian olive oil on the emission and absorption wavelengths using the fluorescence spectroscopy technique. In addition, the effect of storage age of olive oil on the physical properties: viscosity, refractive index, acidity, and mass density are investigated.

All vitamin E components α-, β-, δ- and γ-tocopherol, α-, β-, δ- and γ-tocotrienol decrease in olive oil samples as the storage age increases. Chlorophyll a and b, pheophytin a and b decrease as the storage age increases. Phenolic compounds (vanillic acid, syringic acid gallic acid, p-coumaric acid, o-coumaric, cinnamic acid, tyrosol and caffeic acid) decrease as the storage age increases.

The viscosity, refractive index, acidity (FFA%) and mass density for the sample of 5 years storage ages at 25oC are found to be 58.9 cP, 1.4672, 2.98% and 0.90922 gm/cm3, respectively.

The viscosity, refractive index and mass density of olive oil samples at different storage ages decrease as the storage age increases, whereas the acidity increases as the storage age increases. The measured viscosity, refractive index, acidity and mass density of olive oil samples at 5 years storage ages agree with the standard values. The olive oil of storage age less than 5 years is considered as edible olive oil.