

Comparative Optical Characterization of Edible Vegetable Oils by Using Photothermal Techniques

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The optical characterization of edible oils is important, among other reasons, because has been applied to monitor the deterioration due to the humidity and thermal stress of this kind of oils [1]. In the present study the optical absorption spectra of several vegetable oils such as avocado, sesame, olive and grape seed oils were obtained by using two different photothermal techniques, photopyroelectric spectroscopy (PPES) [2] and photoacoustic spectroscopy (PAS) [3]. PPES and PAS were used to obtain, separately, the optical transmission spectra of the oil samples. By using the obtained transmission spectra, and neglecting the sample reflectivity, it was obtained the sample optical absorption spectra from both techniques. Also the optical absorption spectra of the oil samples were obtained by photoacoustic spectroscopy. By comparing both absorption spectra, obtained by transmission configuration of PAS and PPES, and the absorption spectra obtained by PAS, it was observed than both spectra are lightly affected by the reflectivity of the samples but they have the same optical absorption bands.

References

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