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Application of microwave assisted high performance liquid chromatography for the determination of tocopherol homologues

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In this work a comparison of conventional HPLC with microwave assisted HPLC for the separation of some fat soluble vitamins was done. Results obtained show that microwave assisted high performance liquid chromatography led to shorten analysis time from 31.5 min to 13.3 min when the lowest microwave power was used. Moreover, narrower peaks were obtained; hence the separation was more efficient maintaining or even increasing the resolution between the peaks. This result confirms that microwave radiation could be used as alternative way to conventional HPLC heating to improve analysis time. The method was optimized for simultaneous determination of some tocopherol homologues and also vitamin K. Fluorescence detector demonstrated better signal to noise relation compared to photodiode arrayed detector mainly due to independent effect of microwave pulses on the baseline noise, but photodiode arrayed detector was finally chosen as it allowed a simultaneous detection of non-fluorescent compounds. The microwave assisted HPLC method was successfully applied to the tocopherol composition of some conventional cooking oils such as olive oil, sunflower oil among others.

Biography

Soledad Prats at present is working as a full time Professor in the Analytical Chemistry, Nutrition and Food Science Department at the University of Alicante. She graduated in Chemistry at the University of Alicante and had the PhD in 2000. Her research interest lies in food control and developing new simple analytical methods for the determination of food components. She has participated in numerous congresses and has published near 30 papers in reputed journals and serving as an Editorial Board Member of repute.

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