

عنوان مقاله:

Determination of Synthetic Phenolic Antioxidants in Biological Fluids Based on Air-assisted Liquid-liquid Microextraction Followed by Gas Chromatography-flame Ionization Detection

محل انتشار:

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خلاصه مقاله:

An air-assisted liquid-liquid microextraction method for the extraction and preconcentration of trace amounts of some synthetic phenolic antioxidants in biological fluids followed by their determination by gas chromatography-flame ionization detection has been reported. In this method the target analytes are extracted into a few microliters of carbon tetrachloride (extraction solvent) from an aqueous solution by aspirating and dispersing the extraction solvent and sample solution mixture by a syringe. After extraction, phase separation is performed by centrifugation and the enriched analytes in the sedimented phase are determined. The parameters affecting the extraction efficiency including the type and volume of extraction solvent, salt addition, extraction times, and pH are investigated in details. Under the optimum extraction conditions, the method shows low limits of detection and quantification between ۰.۸-۱.۸ and ۲.۷-۵.۶ ng mL^{-۱}, respectively. The method is applied to determine some phenolic antioxidants in biological samples and extraction recoveries are ranged from ۶۳ to ۸۱%. Enrichment factors are obtained between ۳۱۵ and ۴۰۵. The method shows good linearities in the range of ۳-۶۰۰۰ ng mL^{-۱} with the correlation coefficients higher than ۰.۹۹۶. Relative standard deviations are lower than ۸% for intra-day (n=۶) and inter-day (n=۴) precisions. Finally the proposed method is successfully used for determination of the analytes in urine and plasma samples.

کلمات کلیدی:

Air-assisted liquid-liquid microextraction, Synthetic phenolic antioxidants, Biological fluids, Gas Chromatography

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