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Identification of organotin compounds in Tunisian surface water by liquid chromatography-electrospray-tandem mass spectrometry

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ABSTRACT

Liquid chromatography coupled to electrospray ionization mass spectrometry (LC-ESI-MS) with positive ion detection was applied for the identification of organotin compounds in water samples. The separation was performed in the gradient mode on reversed phase column with a mobile phase containing 0.05% TFA in acetonitrile–water. Sensitive detection of the selected organotin compounds by ESI-MS was performed on the basis of selected ion monitoring (SIM) mode. Limits of detection (LODs) were ranged between 0.02 and 0.08 μg L^{-1}. Solid phase extraction (SPE) was carried out on C18 cartridges to preconcentrate the analytes from water samples. Under the experimental conditions used, recoveries of organotin compounds obtained for spiked water samples are in the range of 62–98% and the R.S.D.s are 2–11%. Conditions for tandem mass spectrometry (MS–MS) detection of characteristic product ions formed by collision-induced dissociation (CID) of the parent ion are described. A principle of analysis is proposed based on triple quadrupole MS as a method for quantitative determination followed by verification of positive findings by CID-MS–MS. Application of the method for detecting organotin compounds in tap and surface water (river, dam and lagoon) samples is demonstrated.

Keywords: Organotins; Water analysis; Solid phase extraction; LC-ESI-MS; MS/MS

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