

Determination of triorganotin compounds in Sea Foods by using CE-ICP-MS

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For environmental studies, speciation is of major interest in organotin analysis, since the organotin's toxicity is strongly dependent on the species. Therefore, it is very important to develop a sensitive and accurate analytical method for the quantification of organotin compounds (OTCs) in aquatic organisms.

So far, the main techniques employed to the speciation analysis of OTCs are based on the combination of separation techniques such as GC or LC and sensitive, selective detectors. To our knowledge, no information about the use of CE-ICP-MS for the analysis of triorganotin compounds has been reported in the literature.

In this study, a microwave-assisted extraction used to extract trace triorganotin compounds from aquatic organisms, and as well as a sensitive method for the analysis of ultratrace triorganotin compounds, namely trimethyltin (TMT), triethyltin (TET), tripropyltin (TPT) and tributyltin (TBT), with capillary electrophoresis - inductively coupled plasma mass spectrometry (CE- ICP-MS) were described in this study. The CE-ICP-MS analytical method has a much lower detection limit of 0.2-0.7 ng Sn/mL for TMT, TET, TPT and TBT, and can be used to determined trace TMT, TET, TPT and TBT in aquatic organisms directly without any derivatization and preconcentration. With the help of the above methods, we have successfully determined TMT, TET, TPT and TBT in dried *Mya arenaria Linnaeus* and *Corbicula fluminea* within 17 min with a RSD (relative standard deviation, n=6) <5% and a recovery of 93-104%.

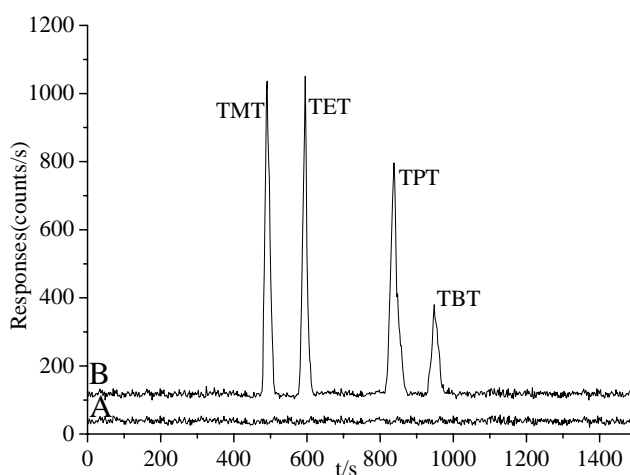


Figure 1 Electropherograms of TMT, TET, TPT, TBT and reagent blank.

(A) Blank; (B) Mixed standard solution.

Acknowledgements: We thank Fujian Provincial Department of Science and Technology for supplying our financial support (2005HZ1009, 2008Y0034).