

Accepted Manuscript

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PII: S0021-9673(15)01450-8
DOI: <http://dx.doi.org/doi:10.1016/j.chroma.2015.10.007>
Reference: CHROMA 356921

To appear in: *Journal of Chromatography A*

Received date: 6-8-2015
Revised date: 2-10-2015
Accepted date: 3-10-2015

Please cite this article as: The developed MSPE-LC-MS/MS method was simple, fast, sensitive, S.-D. Pan, X.-H. Chen, X.-P. Li, M.-Q. Cai, H.-Y. Shen, Y.-G. Zhao, M.-C. Jin, Double-sided magnetic molecularly imprinted polymer modified graphene oxide for highly efficient enrichment and fast detection of trace-level microcystins from large-volume water samples combined with liquid chromatography-tandem mass spectrometry, *Journal of Chromatography A* (2015), <http://dx.doi.org/10.1016/j.chroma.2015.10.007>

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Double-sided magnetic molecularly imprinted polymer modified graphene oxide for highly efficient enrichment and fast detection of trace-level microcystins from large-volume water samples combined with liquid chromatography-tandem mass spectrometry

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Highlights:

- 1) A novel double-sided magnetic molecularly imprinted polymer modified graphene oxide was controlledly synthesized.
- 2) The as-prepared material showed ultrahigh extraction efficiencies towards eight trace-level microcystins.
- 3) An effective MSPE-LC-MS/MS method for determination of microcystins has been developed.
- 4) The developed MSPE-LC-MS/MS method was simple, fast, sensitive, and accurate.

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Abstract

Microcystins (MCs), a group of cyclic heptapeptide hepatotoxins and tumor promoters, are generated by cyanobacteria occurring in surface waters, such as eutrophic lakes, rivers, and reservoirs. In this present study, a novel double-sided magnetic molecularly imprinted polymer modified graphene oxide (DS-MMIP@GO) based magnetic solid-phase extraction (MSPE) method was developed for fast, effective and selective enrichment, and recognition of trace MCs in environmental water samples combined with high performance liquid chromatography-tandem mass spectrometry (LC-MS/MS). The synthesized novel DS-MMIP@GO was used as the adsorbents in this work and was carefully

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