Accepted Manuscript

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Author: Ángel Ríos, Mohammed Zougagh

PII: S0165-9936(16)30045-0
DOI: http://dx.doi.org/doi: 10.1016/j.trac.2016.03.001
Reference: TRAC 14683

To appear in: *Trends in Analytical Chemistry*

Please cite this article as: Ángel Ríos, Mohammed Zougagh, Recent advances in magnetic nanomaterials for improving analytical processes, *Trends in Analytical Chemistry* (2016), http://dx.doi.org/doi: 10.1016/j.trac.2016.03.001.

RECENT ADVANCES IN MAGNETIC NANOMATERIALS FOR IMPROVING ANALYTICAL PROCESSES

Ángel Ríos [a] and Mohammed Zougagh[b,c(*)]

[a]Department of Analytical Chemistry and Food Technology, University of Castilla-La Mancha, E- 13004, Ciudad Real, Spain.
[b]Regional Institute for Applied Chemistry Research, IRICA, E-13004, Ciudad Real, Spain.
[c]Castilla-La Mancha Science and Technology Park, E-02006 Albacete, Spain.

(*) *Corresponding author:*
Mohammed Zougagh. Department of Analytical Chemistry and Food Technology. Faculty of Chemistry. University of Castilla – La Mancha. Av. Camilo José Cela, 10. E-13004 Ciudad Real. Spain.
Phone: +34 926 295300; fax: +34 926 295318; e-mail: mohammed.zougagh@uclm.es

Highlights:

- The use of magnetic nanomaterials (MNMs) in analytical processes is reviewed.
- Sample preparation methods using MNMs are summarized.
- The separation techniques using MNMs as stationary and pseudostationary phases are reviewed.
- The approaches using MNMs to improve analytical detections are expounded.
- The problems in the use of MNMs in analytical processes and future trends are explored.

ABSTRACT

The recent advances involving the use of magnetic nanomaterials for improving different steps of analytical processes were revised. Magnetic nanomaterials are unique tools for the simplification of the sample preparation working under a solid phase (micro)extraction format, in order to provide the appropriated selectivity (clean-up) and sensitivity (preconcentration) of many new analytical methods, or improving this step in already existing ones. In addition, magnetic nanomaterials can play a key role for the separation processes (chromatographic or electrophoretic), in which some analytical methods are based. The third interesting incidence of magnetic