

Author's Accepted Manuscript

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PII: S0039-9140(17)31211-0
DOI: <https://doi.org/10.1016/j.talanta.2017.12.009>
Reference: TAL18145

To appear in: *Talanta*

Received date: 4 October 2017
Revised date: 1 December 2017
Accepted date: 2 December 2017

Cite this article as: Nafiseh Bagheri, Alireza Khataee, Biuck Habibi and Javad Hassanzadeh, Mimetic Ag nanoparticle/Zn-based MOF nanocomposite (AgNPs@ZnMOF) capped with molecularly imprinted polymer for the selective detection of patulin, *Talanta*, <https://doi.org/10.1016/j.talanta.2017.12.009>

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**Mimetic Ag nanoparticle/Zn-based MOF nanocomposite
(AgNPs@ZnMOF) capped with molecularly imprinted polymer for the
selective detection of patulin**

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ABSTRACT

Here, Ag nanoparticle/flake-like Zn-based MOF nanocomposite (AgNPs@ZnMOF) with great peroxidase-like activity was applied as an efficient support for molecularly imprinted polymer (MIP) and successfully used for selective determination of patulin. AgNPs@ZnMOF was simply synthesized by creating Ag nanoparticles (Ag NPs) inside the nano-pores of flake-like (Zn)MOF. The high surface area of MOF remarkably improved the catalytic activity of Ag NPs which was assessed by fluorometric, colorimetric and electrochemical techniques. Furthermore, it was observed that patulin could strangely reduce the catalytic activity of AgNPs@ZnMOF, probably due to its electron capturing features. This outcome was the motivation to design an assay for patulin detection. In order to make a selective interaction with patulin molecules, MIP layer was created on the surface of AgNPs@ZnMOF by co-polymerization reaction of 3-aminopropyl triethoxysilane (APTES)

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