

Accepted Manuscript

Modification of platinum nanoparticles loaded on activated carbon and activated carbon with a new chelating agent for solid phase extraction of some metal ions

M. Ghaedi, H. Noormohamadi, A. Asfaram, M. Montazerzohori, J. Tashkhourian, M. Soylak

PII: S0167-7322(15)31092-8
DOI: doi: [10.1016/j.molliq.2016.06.057](https://doi.org/10.1016/j.molliq.2016.06.057)
Reference: MOLLIQ 5964

To appear in: *Journal of Molecular Liquids*

Received date: 21 November 2015
Revised date: 16 May 2016
Accepted date: 3 June 2016



Please cite this article as: M. Ghaedi, H. Noormohamadi, A. Asfaram, M. Montazerzohori, J. Tashkhourian, M. Soylak, Modification of platinum nanoparticles loaded on activated carbon and activated carbon with a new chelating agent for solid phase extraction of some metal ions, *Journal of Molecular Liquids* (2016), doi: [10.1016/j.molliq.2016.06.057](https://doi.org/10.1016/j.molliq.2016.06.057)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Modification of platinum nanoparticles loaded on activated carbon and activated carbon with a new chelating agent for solid phase extraction of some metal ions

M. Ghaedi^{*a}, H. Noormohamadi^b, A. Asfaram^b, M. Montazerzohori^a, J. Tashkhourian^c, M. Soylak^d

^a Chemistry Department, Yasouj University, Yasouj 75918-74831, Iran

^b Chemistry Department, Firozabad Azad University, Firozabad 117-74715, Iran

^c Chemistry Department, College of Science, Shiraz University, Shiraz 71454, Iran

^d Chemistry Department, University of Erciyes, Kayseri 38039, Turkey

Abstract

The present study as simple and efficient is based on application of platinum nanoparticle loaded on activated carbon (Pt-NP-AC) which characterized by SEM, TEM and XRD. Pt-NP-AC and activated carbon (AC) that efficiently modified by impregnation of new chelating agent (bis (4-chlorobenzylidene)-1, 2-ethanediamine (BCBEN) for enrichment of Pb²⁺, Cu²⁺, Cd²⁺, Co²⁺ and Zn²⁺ ions. The retained metal ions were efficiently eluted and subsequently was quantified and the laterally the results correspond to Pt-NP-AC and AC was compared. The dependency and relation among recovery of understudy metal ions to variables like pH, amount of ligand and/or solid phase and eluent condition was optimized and it was reveal that Pt-NP-AC and AC, preconcentration factor was 90 for understudy metal ions and detection limit was between 1.5-2.2 ng mL⁻¹. The recovery of studied elements by proposed method was > 97% with low relative standard deviation (RSD < 2.4 %).

* Corresponding author at: Tel.: +98 741 2223048; fax: +98 741 2223048.
E-mail address: m_ghaedi@mail.yu.ac.ir; m_ghaedi@yahoo.com (M. Ghaedi)

Download English Version:

<https://daneshyari.com/en/article/5409837>

Download Persian Version:

<https://daneshyari.com/article/5409837>

[Daneshyari.com](https://daneshyari.com)