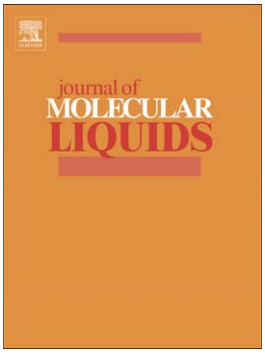

Modification of platinum nanoparticles loaded on activated carbon and activated carbon with a new chelating agent for solid phase extraction of some metal ions

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

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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 Pb^{2+}, Cu^{2+}, Cd^{2+}, Co^{2+} and Zn^{2+} 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 %).

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