

## عنوان مقاله:

Selective Removal of Lead by Magnetic Imprinted Polymers Synthesized from Chitosan-Stabilized Pickering Emulsion in environmental water and vegetable samples

## محل انتشار:

نهمین سمینار ملی شیمی و محیط زیست ایران (سال: 1398)

تعداد صفحات اصل مقاله: 1

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## خلاصه مقاله:

Lead (Pb) is known to be a toxic metal that accumulates in the human body throughout the lifetime [1]. The U.S. Environmental Protection Agency (EPA) has classified lead as a Group B2 human carcinogen [2]. The World Health Organization (WHO) has established the maximum allowable limit of 10 g L<sup>-1</sup> for lead in drinking water [3]. Therefore, highly sensitive determination methods of trace Pb in environmental samples need to be established. In order to determine trace levels of Pb, a separation and enrichment step prior to the determinations may be beneficial. Solid-phase extraction (SPE) as a popular technique for achieving separation and preconcentration of metal ions in environmental samples has been developed and widely used because of its simplicity, rapidity, minimal cost, low consumption of reagents and the ability to combine with different detection techniques [4]. Adsorption was the effective method to remove the environmental pollutants and among the many sorbents, ionic imprinted polymers (IIPs) were attracting more attention and had been widely applied in selective recognition and elimination of target pollutants. IIPs were usually synthesized in organic solutions because most of monomers, cross-linking agents and causing agents had good solubility in organic solvents. Thus, it was a good way to fabricate MIPs in an oil/water (O/W) emulsion on account of reducing the use of organic solvents. Pickering emulsion polymerization has been employed for the  $\mu$ -Solid phase extraction ( $\mu$ -SPE) of ultra trace lead species by a new magnetic ion imprinted polymer (MIIP) prior to hydride generation atomic absorption spectrometry. In second step, the nanoparticles and polymers were characterized and the analytical parameters such as pH, amount of polymer and contact time were selected and optimized by Plackett–Burman and Box–Behnken designs respectively. Linear dynamic range, detection limit and relative standard deviation were 0.01- 90.00  $\mu$ g L<sup>-1</sup>, 0.003  $\mu$ g.L<sup>-1</sup>, and 4.11%, respectively. The proposed preconcentration procedure was successfully applied to the determination of lead ion in a wide range of environmental water and vegetable samples.

## کلمات کلیدی:

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