

## عنوان مقاله:

Rapid Palladium Preconcentration and Spectrophotometric Determination in Water and Soil Samples

## محل انتشار:

مجله تحقیقات شیمی تجزیه و تجزیه زیستی، دوره 9، شماره 3 (سال: 1401)

تعداد صفحات اصل مقاله: 8

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## خلاصه مقاله:

Cloud Point Extraction (CPE) is an economic, rapid, and environmentally friendly method. It was performed by preconcentration samples (water and soil) that contained palladium. An ion-pair association complex was formed when the chromogenic reagent ۲-(۴-hydroxy phenyl azo)-۴-benzene naphthol (HPBN) reacted with palladium in HCl media. It was then extracted into a surfactant (Triton X-۱۱۴) rich phase. After diluting the cloud point layer with acidic methanol, the concentration of enriched samples was determined by UV-Vis spectroscopy. The effects of Triton X-۱۱۴ and HCl concentrations, heating time, temperature, centrifuge rate, incubation duration, and interferences on cloud point extraction were analyzed and improved. The short extraction time (۸ minutes) is an advantage of this method. The limit of detection (LOD) and the limit of quantification (LOQ) are low ( $0.10$  and  $0.30 \mu\text{g L}^{-1}$ , respectively). The enrichment factor (EF) and preconcentration factor (PF) are calculated to be ۴۰ and ۱۰۰, respectively. The precision for the approach was determined to be (RSD ۱.۱۰%,  $n = ۶$ ). For collected samples, the FAAS was used to assess the accuracy of the modified preconcentration technique. The method can be used to detect palladium in natural samples, with relative recovery values ranging from ۹۳ to ۱۰۹% for various concentrations, demonstrating its accuracy.

## کلمات کلیدی:

Cloud point extraction, Palladium, Preconcentration method, Liquid ion exchange

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