

Determination and Preconcentration of Chromium Ion in Environmental Samples by Clinoptilolite Zeolite

Authors : Elham Moniri, Homayon Ahmad Panahi, Mitra Hoseini

Abstract : In this research, clinoptilolite zeolite was prepared. The zeolite was characterized by fourier transform infra-red spectroscopy. Then the effects of various parameters on Cr(III) sorption such as pH, contact time were studied. The optimum pH value for sorption of Cr(III) was 6 respectively. The sorption capacity of zeolite for Cr(III) were 7.9 mg g⁻¹. A recovery of 89% was obtained for the metal ions with 0.5 M nitric acid as the eluting agent. The effects of interfering ions on Cr(III) sorption was also investigated. The profile of Cr(III) uptake on this sorbent reflects a good accessibility of the chelating sites in the clinoptilolite zeolite. The developed method was utilized for the determination of Cr(III) in environmental water samples by flame atomic absorption spectrometry with satisfactory results.

Keywords : clinoptilolite zeolite, chromium, environmental sample, determination

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