Journal

Intern. J. Environ. Anal. Chem., 2013

Tltle:

Retention profile of Fe, Mn and Cu onto chemically treated polyurethane with carbon disulfide

NagwaBurham[a]*, Sayed R. Abdel-Hafeez[a], Sami M. Abdel-Azeem[a] andMohamed F. El-Shahat[b]

[a]Chemistry Department, Faculty of Science, Fayoum University, Fayoum, Egypt;
[b]Chemistry Department,Faculty of Science, Ain-Shams University, Cairo, Egypt

Abstract

Dithiocarbamate modified polyurethane foam (DTC-PUF) was synthesized as a new solid phase extraction sorbent for the preconcentration and determination of Fe(II), Mn(II) and Cu(II) in environmental samples using flame atomic absorption spectrometry. Maximum extraction of the elements was achieved at pH 5–7 and flow rate 3 mL min^{-1}. Quantitative desorption was achieved by 10 mL from 1.0 mol L^{-1}HCl solution. The capacity of the sorbent was 149.2 ± 0.5, 237.5 ± 0.2, 200.2 ± 0.1 μg g^{-1} and the limit of detection was of 0.015, 0.015 and 0.012 μg $mL^{-1}$for Fe(II), Mn(II) and Cu(II), respectively. A Preconcentration factor of 100 was obtained for all elements. The developed method was successfully applied to the determination of the tested elements in water (tap and lake) and plant (spinach and parsley leaves) samples and showed good recovery values from 98 to 111% with corresponding RSD values ranged from 0.6 to 8.6%.