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Preconcentration and solid phase extraction of Cd(II), Cu(II), Ni(II), Pb(II) and Zn(II) from food, water and environmental samples using modified multiwalled carbon nanotubes with quinalizarin

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In present study, separation and preconcentration followed by solid phase extraction of trace amounts of some heavy metal ions, Cd(II), Cu(II), Ni(II), Pb(II) and Zn(II) using a multiwalled carbon nanotubes (MWNTs) modified with complexing reagent quinalizarin [1,2,5,8-tetrahydroxyanthracene-9,10-dione] were investigated. The analytes were quantitatively recovered at pH 6.0. The effects of the experimental parameters, including pH of the solutions, amounts of MWNTs, amounts of complexing reagent, eluent type and volume, sample volume, flow rates of solution and matrix ions, were examined for the optimum recoveries of the analyte ions. Tests of addition/recovery for analyte ions in real samples were performed with satisfactorily results. The preconcentration factor was 100. Detection limit (3s) obtained for the investigated metals in the optimal conditions were observed in the range of 0.30–0.65 μg L^{-1}. The new enrichment procedure was successfully applied to the determination of these ions in food, water and environmental samples with satisfactory results.

Biography

Ayman A. Gouda has completed his Ph.D. at the age of 30 years from Zagazig University, Egypt and work now as Assistant Professor of Analytical Chemistry in Makkah Community College, Umm AL-Qura University, Makkah, Saudi Arabia. He has published more than 35 papers in reputed journals.

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