Multiwalled Carbon Nanotubes as Solid Phase Extraction Adsorbent for the Preconcentration of Some Trace Elements

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Nowadays, investigation of the usage of new materials as solid phase extractor is an important ratio in the solid phase extraction studies of transition metals at trace level. At this point, carbon nanotubes (CNTs) have been proposed as a novel solid phase extractor for various inorganic and organic materials at trace levels [1-4]. CNTs are one of the most commonly used building blocks of nanotechnology. CNTs can be visualized as a sheet of graphite that has been rolled into a tube, and divided into multiwalled carbon nanotubes (MWNTs) and single-walled carbon nanotubes (SWNTs) according to the carbon atom layers in the wall of the nanotubes [5].

In this work, the potential of multiwalled carbon nanotubes (MWNTs) as a solid phase extractor for the preconcentration of Cu(II), Co(II), Ni(II), and Pb(II) ions as o-cresolphthalein chelates was investigated and atomic absorption spectrometric determinations of the elements was applied. The effects of some parameters including pH of the solutions, amounts of o-cresolphthalein, eluent type, sample volume, flow rates of solution and eluent, matrix ions, etc. on the recoveries of the analyte ions were examined. The presented method has been successfully applied to the determination of trace elements in environmental samples with satisfactory results.

References