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ARSENIC SPECIATION BY USING NEW SYNTHESSES POLYMERIC MATERIAL AND SOLID PHASE MICROEXTRACTION AND ITS GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRIC DETERMINATION

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Total concentration does not give enough information about toxicity and bioavailability of arsenic in water and environmental samples. Arsenic present in different oxidation states in aqueous solution but it mostly exists in As(III) and As(V). The toxicity of As(III) is higher than As(V). So, As(III) and As(V) speciation in water samples is very important for environmental studies (1,2). New syntheses polystyrene polydimethyl siloxane polymer was loaded into the micropipette tip of the syringe system for solid phase microextraction of arsenic(III) and arsenic(V) speciation. Various analytical parameters such as pH, eluent type and its volume, polymer amount, sample volume, etc. were optimized. Effect of some cations, anions and transition metal ions were also investigated. While the recovery of As(V) was found quantitative in the pH range of 6-8, As(III) recovery was found below 5% in all pH values. The total concentration of arsenic was obtained by the addition of oxidizing agent potassium permanganate. The accuracy of the developed method was confirmed by using certified reference materials. The relative standard deviation was found lower than 5%. Low detection limit and high preconcentration factor were obtained according to literature values. Optimized method was successfully applied to natural water samples for the speciation of As(III) and As(V). Graphite furnace atomic absorption spectrometry was used for the determination of arsenic concentration

Biography

Dr. Mustafa Tuzen is Professor in Chemistry Department, Gaziosmanpasa University in Turkey. He administrated seven masters and five doctoral theses under his supervision. He completed several national and international projects. He is member of Turkish Academy and Sciences. He is well known specialist in analytical environmental chemistry. He is working on analytical chemistry, trace element analysis, enrichment and separation, speciation analysis, adsorption, biosorption, green extraction techniques, sample preparation methods, microextraction of trace organic and inorganic species. He has got 243 papers in SCI journals, cited papers in SCI journals: 10316, H factor: 62 according to Web of Science. Acknowledgements.

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