

## **SOLID PHASE EXTRACTION OF CD (II) USING XAD-7 SORBENT PRIOR TO ATOMIC ABSORPTION SPECTROSCOPY**

**Seyed Jamaledin Shahtaheri, Khadem M, Golbabaie F and Rahimi-Froushan A**  
Tehran University of Medical Sciences, Iran

**C**admium is an important constituent widely used in different industrial processes for production of various synthetic materials. For evaluation of workers' exposure to trace toxic metal of Cd (II), environmental and biological monitoring are essential processes, in which, preparation of samples is one of the most time-consuming and error-prone aspects prior to analysis. To evaluate factors influencing quantitative analysis scheme of cadmium, solid phase extraction using mini columns filled with XAD-7 resin was optimized regarding sample pH, ligand concentration, loading flow rate, elution solvent, sample volume (up to 500 ml), elution volume, amount of resins, and sample matrix interferences. Cadmium ion was retained on solid sorbent and was eluted with 2M HNO<sub>3</sub> followed by simple determination of analytes by using flame atomic absorption spectrometry. Obtained recoveries of metal ion were more than 95%. The amount of the analyte detected after simultaneous pre-concentration was basically in agreement with the added amounts. The optimized procedure was also validated with three different pools of spiked urine samples

and showed a good reproducibility over six consecutive days as well as six within-day experiments. The developed method promised to be applicable for evaluation of other metal ions present in different environmental and occupational samples as suitable results were obtained for relative standard deviation (less than 10%), therefore, it is concluded that, this optimized method can be considered to be successful in simplifying sample preparation for trace residue analysis of Cd in different matrices for evaluation of occupational and environmental exposures.

### **Biography**

Seyed Jamaledin Shahtaheri completed his PhD from Surrey University, Guildford, England in 1996, with the specialties including sample preparation techniques for environmental and biological samples with subjects "trace residue analysis of pesticides" and then started working at Tehran University of Medical Sciences, Iran where he continued his research.

shahtaheri@tums.ac.ir