COPRECIPITATION OF SOME TRACE METALS WITH GOLD-AMMONIUM PYRROLIDINE DITHIOCARBAMATE

Ümit DIVRİKLI1, Şefika GÜLMEZ1, Mustafa SOYLAK2, Latif ELÇİ1

1Department of Chemistry, Faculty of Science and Art, Pamukkale University, 20017 Denizli, Turkey
2Department of Chemistry, Faculty of Science and Art, Erciyes University, 38039 Kayseri, Turkey
(udivrikli@pau.edu.tr, Tel:02582963596)

Key Words: Au-APDC, Coprecipitation, Atomic Absorption Spectrometry

Atomic absorption spectrometry (AAS) can be used determine trace metal ions. Concentration of trace metal ions are very low and the sample matrix may cause serious interference problems during measurement. Therefore, preconcentration and separation methods have been used to solve these problems. Coprecipitation is one of the efficient methods for separation and preconcentration of trace metal ions. Organic and inorganic collectors are used in coprecipitation. So far, in the literature, it is reported that APDC, NaDDTC, PAN, TAR, Oxine etc. as chelating agent have been extensively used for coprecipitation of some trace metals.

The aim of the present study is to establish a coprecipitation method by using gold-ammonium pyrrolidine dithiocarbamate(Au-APDC) for the separation/preconcentration of some trace heavy metals in various samples prior to flame atomic absorption spectrometric determinations. The influences of some analytical parameters including amount of carrier element and coprecipitant reagent, pH of the solution, standing time, sample volume and diverse ions were investigated to obtain the quantitative recoveries of analytes.

The recoveries of Cu, Ni, Pb and Cd were found to be ≥ 95 %. R.S.D. values for ten replicates were lower than 5.0 %. Au-APDC coprecipitation procedure was applied for determination of Cu, Ni, Pb and Cd in various water and non-alcoholic beverage samples.