

## Separation and Preconcentration of Au(III) Ions in Natural Waters and Environmental Samples by Carrier Element Free Coprecipitation Method

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Coprecipitation is one of the efficient methods for separation and preconcentration of trace amount of heavy metal ions in various environmental samples [1]. In the present study a simple, rapid, sensitive and environmentally friendly separation and preconcentration procedure, based on the carrier element free coprecipitation (CEFC) of Au(III) ions by using an organic coprecipitant, N-Benzyl-2-[[3-methyl-4-(2-morpholine-4-ylethyl)-5-oxo-4,5-dihydro-1H-1,2,4-triazole-1-yl] acetyl]hydrazinecarboxamide[2].

The Au(III) ions level was determined by flame atomic absorption spectrometric (FAAS) method. The optimum conditions for the coprecipitation process were investigated on several commonly tested experimental parameters such as pH of the solution, amount of coprecipitant, sample volume, standing time, centrifugation rate and time, etc. From the results, the optimum conditions were determined as follows: pH; 3.5, coprecipitant amount; 6.0 mg (2 mL, 0.3%(w/v)), standing time; 30 min, centrifugation rate; 2500 rpm, and centrifugation time; 5 min. The preconcentration factor was found to be 375. The influences of some anions, cations and transition metals on the recoveries of Au(III) ions were also investigated, and no considerable interference was observed. The method was validated by analyzing certified reference materials and spike tests. The procedure was successfully applied to sea water and stream water as liquid samples and soil and anodic slime as solid samples.

**KEYWORDS:** Gold(III), Carrier element-free coprecipitation (CEFC), 1,2,4-Triazole derivative, Preconcentration, Flame atomic absorption spectrometry

### REFERENCES:

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