NEW POLYMERIC RESIN FOR SOLID PHASE EXTRACTION OF TRACE METALS

Irfan TIMUR¹, Olcay KAPLAN², Esra BUYUKASLAN³, Mehmet YAMAN¹

¹Department of Chemistry, Faculty of Science and Art, Firat University, 23270 Elazığ, Turkey
²Department of Food Engineering, Faculty of Engineering, Tunceli, Turkey
³Kahya MYO, Adiyaman University, Adıyaman, Turkey

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Due to the allowable low levels of Co in beverages and foods as well as low concentrations of this metal in those samples, reliable and sensitive analytical methods are required for the determinations. Direct determinations of ultratrace levels of heavy metals in environmental samples are difficult because their amounts are always lower than the detection limits of instruments and the problem of nonsuitable matrix occurs. These limitations can be overcome by applying a clean up and/or preconcentration step prior to the determination step [1].

In this work, a new polymeric resin was synthesized, characterized and applied as a new sorption material for solid phase extraction of cobalt in water samples. The synthesized resin exhibits the superiority in compared to the other adsorption reagents because of the fact that there is no necessity of any complexing reagent and optimum pH was found in acidic media. The optimization of experimental conditions was performed using factorial design including pH, contact time, and first and final volume of analyte. Accuracy of the method was checked by examining the Standard Reference Material (reference material for measurement of elements in surface waters, SPS-SW2 Batch 113). After preconcentration, flame AAS was used for Co determination. The results showed that the contact time of 30 min (up to 90 %), pH 2.8±0.2 (up to 93 %), final volume 3 ml (up to 92 %) was sufficient for maximum recovery.

References