THE SOLID PHASE EXTRACTION FOR DETERMINATION OF TRACE NICKEL

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Key Words: Solid phase extraction, Nickel, Metal, Preconcentration, FAAS

In recent years, determination methods of trace elements and development and application of these methods on the samples in different matrices have been a vital subject for several researchers. Flame atomic absorption spectrometry (FAAS), which is frequently used for the determination of metal ions because of relatively simple equipment, suffers from insufficient sensitivity for direct determination of elements at trace levels [1]. To solve these problems, solid phase extraction that is one of the important preconcentration method has been generally used [2]. In the present study, solid-phase extraction method was developed for the preconcentration of nickel on Dualite XAD-761 sorbent by using 4-(2-pyridylazo) resorcinol (PAR) in different samples. The effects of pH, flow rate, concentration and types of eluent and diverse ions on the preconcentration of analytes were investigated. The optimum pH values for quantitative sorption of Ni-PAR were range of 3.0-5.5. Eluted process was performed by 4 mL, 2 mol L⁻¹ HCl solutions. The accuracy of the proposed procedure was evaluated by standard additions method. The proposed method was applied for the determination of nickel in different samples such as food, geothermal water, plant and urine.

References