Adsorptive Cathodic Stripping Voltammetric Determination of Hexavalent Chromium

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Abstract:

A sensitive and selective voltammetric method of analysis is developed for determination of trace amounts of Cr(VI) ions in neutral nitrate phosphate media. This method is based on controlled adsorptive preconcentration of chromium species at Hanging Mercury Drop Electrode (HMDE). The adsorptive stripping response was evaluated with respect to preconcentration time and potential and dependence on composition of supporting electrolyte. As low as $5 \times 10^{-11}$ mol L$^{-1}$ (0.25 pg/L) and $1 \times 10^{-9}$ mol L$^{-1}$ (0.52 ng/L) Cr(VI) can be detected using Cathodic Linear Sweep Stripping Voltammetry (CLSSV) and Differential Pulse Cathodic Stripping Voltammetry (DPCSV), respectively.

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