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**DETERMINATION OF ULTRA-TRACE AMOUNTS OF SILVER IN WATER BY
DIFFERENTIAL PULSE ANODIC STRIPPING VOLTAMMETRY USING A NEW
MODIFIED CARBON PASTE ELECTRODE**

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Abstract

A highly sensitive and selective new procedure for the determination of silver in aqueous media was developed using a modified carbon paste electrode (MCPE) by differential pulse anodic stripping voltammetry (DPASV). The modified electrode was based on the incorporation of 2-hydroxybenzaldehyde benzoylhydrazone (2-HBBH) in the carbon paste electrode. Silver ions were preconcentrated on the modified electrode at open-circuit by complexation with the ligand and reduced to zero valent at a potential of 0 V, and followed by the reoxidation of adsorbed ions onto the electrode by scanning the potential in a positive direction. The oxidation peak of Ag(I) was observed at 0.2 V (versus Ag/AgCl). The analysis of Ag(I) was carried out in a cell containing the sample solution (20 mL) buffered by 0.1 mol L⁻¹ K₂HPO₄/NaOH at pH 5.5 in aqueous solution and nitric acid (pH 1) in real water samples. The optimum conditions for the analysis of silver include a reduction potential of 0 V and a pulse amplitude of 100 mV, among others. The optimum carbon paste composition was found to be 14.1% (w/w) 2-HBBH, 56.2% (w/w) graphite powder and 29.7% (w/w) paraffin oil. Differential pulse anodic stripping voltammetric response was

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