

Cathodic stripping voltammetry of D-penicillamine and N-acetylcysteine in the presence of nickel ion.

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Streszczenie

D-Penicillamine (Pen) can be preconcentrated on a hanging mercury drop electrode in the presence of Ni^{II} (0.5 mM) at potentials between 0.0 and -0.4V vs. Ag/AgCl , (3 M KCl). Pen is adsorbed either as the mercury thiolate or as the Ni^{II} Pen complex. Accumulation as the nickel complex occurs at the more negative potentials in this range, i.e., near -0.4V , where mercury thiolate is not formed. When the mercury thiolate has been accumulated and mercury ion is reduced during the scan, Pen is released to form the nickel(II) complex. This overall accumulation behavior is typical of thiol compounds that form strong chelate complexes with Ni^{II} . Pen in the adsorbed state catalyzes the reduction of Ni^{II} giving a differential pulse cathodic stripping voltammetric peak at -0.6V (pH 7). Pen can be determined at concentrations down to 15 nM. *N*-Acetylcysteine (Ac-CysH) which has no catalytic properties for the reduction of Ni^{II} , can be determined at pH 7 in phosphate-acetate buffer, using the reduction peak of its accumulated mercury thiolate salt. The mutual interferences of Pen and Ac-CysH are negligible.

Adres publiczny

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