Spectro-Electrochemistry of Diethyldithiocarbamate Complexes of Ni(II), Pd(II) and Pt(II)

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The electrochemical behaviour of $Na(Et_2NCS_2)$ and $M(Et_2NCS_2)_2$ (M= Ni(II), Pd(II) and Pt(II); $Et_2NCS_2^-$= diethyldithiocarbamate) as studied by cyclic voltammetry in the acetonitrile-$(n\text{-Bu})_4NBF_4$ solvent-electrolyte couple at room temperature *vs.* Ag/Ag^+ reference electrode. Constant potential electrolyses of the complexes were carried out at their first oxidation peak potentials and monitored *in situ* by UV-VIS spectrophotometry. The electrolysis of $Ni(Et_2NCS_2)_2$ in solution yielded the dimer of the ligand, $(Et_2NCS_2)_2$, and Ni^{2+}(sol) as final products. During this electrochemical process the formation of a Ni(III) complex species as an intermediate has been observed. The electrochemical oxidation of bis(diethyldithiocarbamato) complexes of Pd(II) and Pt(II) yielded $[Pd(Et_2NCS_2)_3]^+$ and $[Pt(Et_2NCS_2)_3]^+$, respectively.