

Electrochemical coating of [trans-L14CoIIICNFe II(CN)5]Na on ITO/Au electrode and its electrocatalytic properties towards nitrite reduction

Cáceres, César

Martínez, Manuel

Rodríguez, Carlos

Dreyse, Paulina

Ortega, Victoria

Isaacs, Mauricio

The preparation of an ITO (Indium Tin Oxide) modified electrode with a mixed valence CoIII/FeII complex is described. The ITO electrode was initially modified with Au nanoparticles by dip coating in order to obtain an ITO/Au surface over which a film of the [trans-L 14CoIIINCFeII(CN)5]Na (L 14CoIII-FeII; L14 = 6-methyl-1,4,8,11-tetraazacyclotetradecan-6-amine) complex was deposited electrochemically, thus obtaining an ITO/Au/L14CoIII- FeII modified electrode. The modified electrode has been characterized by cyclic voltammetry, Raman spectroscopy, AFM and SEM, thus confirming the presence of the mixed valence complex as a modifier species. The electrode prepared shows good stability in aqueous solution and its activity as electrocatalyst in the reduction of nitrites has been evaluated. Cyclic voltammetry experiments run in presence of nitrites show a current enhancement on the ITO/Au/L14CoIII-FeII modified electrodes with respect to the ITO/Au initial electrode. After controlled potent