



Electrochemical properties of N'-ferrocenylmethyl-N'-phenylbenzohydrazide at glassy carbon electrode in aqueous and organic mediums

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ABSTRACT

We carried out a detailed study of the kinetics of oxidation of N'-ferrocenylmethyl-N'-phenylbenzohydrazide (FcX) to ferrocenium ion (FcX⁺) in aqueous and organic mediums. This study using cyclic voltammetry (CV) and rotating disk electrode (RDE) voltammetry showed that the FcX/FcX⁺ redox couple is reversible. The N'-ferrocenylmethyl-N'-phenylbenzohydrazide and ferrocenium ion diffusion coefficients (D) were calculated from these results. In addition, the electron transfer rate constant and the exchange current density for the oxidation of ferrocene were determined. A comparison of the kinetic data obtained from the two electrochemical techniques appears to show that the data from the RDE experiments are more reliable because they are collected under strict mass transport control.

Keywords: Cyclic voltammetry, diffusion coefficient, ferrocene derivative, half-wave potential, Randles-Sevcik equation.
