

# Synthesis, Characterization and Electrochemical Study of Bioactive Ligand, 4-Hydroxy-3-Nitroacetophenone

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## Abstract

Cyclic voltammetry provides qualitative and quantitative information about the number of oxidation states and their stability, as well as the rate of heterogeneous electron transfer reactions. Variation of scan rate is an important tool of mechanistic investigations using cyclic voltammetry. The electrochemical behavior of the ligand is studied in an aprotic solvent, CH<sub>3</sub>CN. The ligand, 4-hydroxy-3-nitroacetophenone, compound 1, has the antioxidant potential and it is expected that the metal complex increases its activity. Cyclic voltammograms of compound 1 shows cathodic peak potential at +0.95 V and anodic peak potential at -0.3 V at 100mV/sec scan rate. As  $\Delta E_p$  is greater than  $0.059/n$  it is a quasi-reversible electron transfer with electron transfer rate constant  $k_o = 2.8 \times 10^{-8}$  cm/s. The results illustrate the response of ligand is quasi-reversible in an aprotic solvent. The heterogeneous rate constant of electron transfer is calculated for the first time in an aprotic solvent.

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## Biography

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