Electrochemical, Spectroscopic and Computational Studies on Complexation of Oxacillin with Cu(II) and Co(II) ions. Synthesis and Ligand Hydrolysis

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In this study, the synthesis and characterization of the complexes of oxacillin with Cu(II) and Co(II) ions are presented. These complexes were characterized by FT-IR spectroscopy and elemental analysis. The complexation process of Cu(II) and Co(II) ions with oxacillin in aqueous medium (Britton-Robinson buffer pH 7.4) was followed by means of square-wave voltammetry. Spectroscopic and elemental analysis results showed that Co(II) and Cu(II) complexes were formed with hydrolysed oxacillin anions. In addition, their stability constants and stoichiometric ratios were determined from voltammetric data. Computational results are in agreement with the experimental findings.

Keywords: Hydrolysis, oxacillin - metal ion complexes, square-wave voltammetry, infrared spectroscopy, density functional theory.

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