

Electrochemical Studies of the Interaction of Metal Chelates with Amoxicillin

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Abstract

Amoxicillin (AMX) is among the most successful antibiotics used for human therapy. It has a particular importance due to their effective against a wide spectrum of bacterial infections. In the recent years, the interactions between amoxicillin and metal ions have special interest due to their potential applications. It has been demonstrated that amoxicillin interact effectively with several metal ions due to the presence of a number of donor sites as several O- and N-containing functional groups in its chemical structure. Many studies have reported metal-AMX complex formation using spectroscopic and thermal methods. However, no electrochemical studies of the effect of metal ions on the redox chemistry of AMX have been reported.

In this work, the reaction of AMX with transition metals such as Cu(II), Zn(II) and Fe(III) has been investigated electrochemically at graphite electrode (CPE) in phosphate buffer solution (PBS ; pH = 7). This interaction was investigated using square wave voltammetry (SWV). The electrochemical results proved that the oxidation processes of amoxicillin could be affected by transition metals complexation. The formation of Metal-AMX complexes was examined by SWV and the observed results were confirmed using UV-visible spectroscopy.



Biography:

Asmaa Hrioua, studied Analytical Chemistry and Environment at Mohamed V University , Rabat, Morocco, holds a master's

degree in collaboration with University Paul Sabatier in Toulouse, France. Currently I am a PhD student in the laboratory of Chemistry and Environnement at the Sultan Moulay Slimane University, Morocco, with research group of Prof. Moulay Abderrahim El Mhammedi (they has published more than 90 research articles in SCI(E) journals.)

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