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عنوان مقاله:

Electrochemical Assessment of EC and ECE Mechanisms for Caffeic Acid in the Presence of Aromatic Amines

محل انتشار:

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خلاصه مقاله:

In this work, electrochemical behavior of Caffeic Acid (CA) in absence and presence of aromatic amines such as ۴-amino-۱,۳-Dimethyluracil (۴A-DMU), p-toluidine (p-TI), and Sulfacetamide (SA) have been performed by cyclic voltammetry technique in water (sodium acetate, c = ۰.۱۵ M)/ethanol (۸۰:۲۰, v/v) mixture. In this way, the effect of different parameters such as concentration and scan rate indicated that the oxidation mechanism of caffeic acid (CA) in the presence of aromatic amines can be EC and ECE. At the working electrode surface, Caffeic Acid (CA) oxidized to correponding o-benzoquinone (CAOX) with two electrons and two protons process. In the following, the Michael-type addition reaction has occurred between o-benzoquinone and aromatic amines. In the second cycle, a new oxidation peak appears in negative potentials than Caffeic Acid (CA) oxidation peak because of the electron-donating properties of amines. Cyclic voltammetry technique can recognize chemical and electrochemical processes in solution .and electrode surface, respectively

کلمات کلیدی:

Electrochemical behavior, Cyclic Voltammetry, Green chemistry, caffeic acid, Aromatic amines, ECE mechanism

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