



Electroclarification: A Means for Decolourization of Sugar Cane Juice using Aluminium Alloy Al1050/ Polyaniline Modified Electrode

Refat Abdel-Hamid, Emad F. Newair*, Mostafa K. Rabia

Department of Chemistry, Faculty of Science, University of Sohag, 82524 Sohag, Egypt

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Abstract: For electroclarification of sugar cane juice to produce high quality sugar thereby avoiding the use of hazardous chemicals, aluminum alloy Al1050 electrodes modified with a protective layer of polyaniline coating are used. Corrosion studies on these modified electrodes were investigated by using anodic potentiodynamic and Tafel polarization techniques. The results show a remarkable corrosion potential shift towards noble values, consistent with the formation of a compact polyaniline/phosphate film on the electrode surface. The polyaniline/phosphate coated aluminium Al1050 electrodes are then used for studying the electroclarification of sugar cane juice to decolorize its colorants. Successful electroclarification process is achieved by electrolysis of the aqueous cane juice solution at pH 7.0 (0.05 M phosphate) at a potential of -0.51 V for a period of 20 min. These simple procedures provide an energy efficient and environmentally friendly protocol that could be industrially utilized to replace the conventional clarification processes in sugar productions.

Key Words: *Corrosion Studies, Aluminium alloy Al1050, Polyaniline/phosphate, Sugar Cane, Electro-clarification.*

*Corresponding: E-Mail: enewair@yahoo.com; Phone: +2 0102608196 Fax: +2 093 4601159