ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY AND MORPHOLOGICAL ANALYSES OF NOVEL THIOPHENE BASED CO-POLYMERS ON GRAPHITE ELECTRODE

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Electrochemical supercapacitors have been among the most studied systems for many years in the research fields of energy storage [1]. Conductive polymers, carbon based materials and their composites are widely used in electrode materials for supercapacitors because of their accessibility, easy processability, relatively low cost, non-toxicity, high chemical stability, and wide temperature range [2].

In this study, novel thiophene based monomers was synthesized and electrochemically deposited onto graphite electrode as an active electrode material for supercapacitors. The effect of different dopants, scan number and scan rate on electropolymerization and capacitive behaviour of the electrodes have also been investigated. The surface morphology of the coating was determined by scanning electron microscopy (SEM). Cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS) were used to investigate the electrochemical properties of modified graphite electrodes.

References