Fabrication of polyaniline nanorods on electro-etched carbon cloth and its electrochemical activities as electrode materials

Abstract

In this work, polyaniline (PANI) nanorods were deposited on electro-etched carbon cloth (EC) by facile electrodeposition method with the existence of purified aniline and sulfuric acid. Various deposition potentials were applied to achieve a good electrochemical performance of EC-PANI electrodes. Different applied potentials resulted in different morphologies of PANI deposits and studied by field emission scanning electron microscope (FESEM) and transmission electron microscope (TEM). X-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR) characterizations were used to confirm the deposition of PANI on the EC substrates. The optimized PANI nanorods electrode exhibited excellent specific capacitance.