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Electrochemical and spectroscopic characterization of poly (bithiophene + 2-methylfuran) copolymer.

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Abstract: In this work, Poly(bithiophene + 2-methylfuran) copolymer is successfully achieved by an electrochemical polymerization of two monomers, bithiophene and 2-methylfuran in acetonitrile containing lithium perchlorate. The resultant copolymer was characterized via cyclic voltammetry, impedance spectroscopy, UV-visible, scanning electron microscope, conductivity and photocurrent measurements. The cyclic voltammetry study showed two redox couples characteristic of Poly (bithiophene + 2-methylfuran) copolymer. The impedance spectroscopy study revealed that the resistance of the copolymer ?lm increases with the addition of 2-methylfuran. The photocurrent measurement showed good photoelectrochemical properties, making this copolymer an ideal candidate for photovoltaic cell applications.

Keywords : Electrochemical polymerization, copolymer, polybithiophene, poly2-methylfuran, morphology, photo-electrochemical properties.