ABSTRACT

Master's degree work Kozlova T.B. on «The influence of the ionic composition of the electrolyte on the properties of electrochemically synthesized poly(3-methylthiophene)» - K.: NTUU «KPI», 2016. 84 p., 35 fig., 10 tab., literature - 90.

This work envisages the optimal conditions for poly(3-methylthiophene) synthesis and influence of ionic composition of electrolyte on spectral, electrochemical and spectroelectrochemical properties of the resulting polymer.

In this work the P3MT was synthesized electrochemically on transparent conductive substrates of indium-tin oxide (ITO) using the 0,5 M electrolyte $MClO_4$ ($M = Li^+, Na^+, Bu_4N^+$) in acetonitrile. Electrochemical characterization of these films using the same electrolyte as that used for synthesis shows that their electrochemical properties are controlled mainly by the nature of cation. The discussion of the results leads us to propose that the nature of the cation affects essentially the behaviour of the polymer films during the charge-discharge processes.

Keywords: 3-methylthiophene, polythiophene, electrochemical polymerization, cyclic voltammogram, radical-cation, oligomer, cation, anion.