

Accepted Manuscript

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PII: S0022-328X(17)30542-9

DOI: [10.1016/j.jorganchem.2017.09.022](https://doi.org/10.1016/j.jorganchem.2017.09.022)

Reference: JOM 20097

To appear in: *Journal of Organometallic Chemistry*

Received Date: 17 July 2017

Revised Date: 7 September 2017

Accepted Date: 12 September 2017

Please cite this article as: M.A. Said, T. Soganci, M. Karakus, M. Ak, Simple and rapid synthesis of conducting metallopolymer, their electrochemical characterizations and application in electrochromics, *Journal of Organometallic Chemistry* (2017), doi: 10.1016/j.jorganchem.2017.09.022.

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Simple and rapid synthesis of conducting metallopolymer, their electrochemical characterizations and application in electrochromics

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Abstract

Conducting metallopolymer have attracted a great deal of attention due to their multifunctional properties based on presence of metal centers as well as the interactions metal and p-conjugated polymer backbone. Due to their multifunctional properties, conducting metallopolymer have a great potential to use in various technological applications. In this work, starting with Lawesson's reagent and hydroxyl functionalized thiophene, a simple and rapid synthesis method for design conductive metallopolymer is proposed. Structural and electrochemical characterization of trans-bis[O-(thiopheneth-3-yl)(4-methoxyphenyl) dithiophosphonato]nickel(II) (TBTNi) were achieved. Spectroelectrochemical and electrochromic properties of the copolymer of TBTNi with thiophene were investigated.

Keywords: metallopolymer, conducting polymer, electrochromic, spectroelectrochemistry, dithioorganophosphonates

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