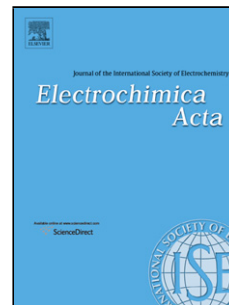


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Synthesis and characterization of chalcogenophene-based monomers with pyridine acceptor unit

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ABSTRACT

2,4,6-Trisubstituted pyridine derivatives with different electropolymerizable groups were investigated. It was shown that steric hindrance caused by bichalcogenophene substituents in the 2,6-positions of pyridine enables successful electropolymerization whereas previous studies on 3,5-substituted pyridines shown difficulties caused by the presence of the pyridine nitrogen lone electron pair. Cyclic voltammetry and differential pulse voltammetry techniques were used to determine the electronic properties of the studied compounds and obtained polymers. UV-Vis-NIR and EPR spectroelectrochemistry were used to determinate the behavior of the polymers in the doping-dedoping cycles. The polymers were found to have coloration efficiency up to $245 \text{ cm}^2 \cdot \text{C}^{-1}$ and exhibit sufficient stability for application and highlighting their possible use as electroactive layers in electrochromic devices.

KEYWORDS: thiophene, selenophene, pyridine, UV-Vis-NIR spectroelectrochemistry, EPR

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