

# Analyse des propriétés électrochimiques et spectroscopiques des films de polymères conducteurs issus de l'électrocopolymérisation d'hétérocycles pentagonaux (thiophène, pyrrole, furanne)

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**Abstract :** This study focuses on electrochemical and spectroscopic characterization of organic conducting polymer films obtained from the combination of two electrocopolymerization pentagonal heterocyclic, dissolved in CH<sub>3</sub>CN/LiClO<sub>4</sub>. The electrocopolymerization monomer (methyl-2 furan + bithiophene), (pyrrol+ bithiophene) and (methyl-2 furan+ pyrrol) leads to the formation of a copolymer on the electrode surface of platinum. The analysis of the film obtained by cyclic voltamperometry shows anodic and cathodic peaks characteristic of the oxidation and reduction of the copolymer formed. The study by impedance spectroscopy shows to high and toward lower frequencies an arc and straight line features that are corresponding respectively to a charge transfer and diffusion phenomenon. The optical properties show that the copolymerization leads to a bathochromic shift of maximum absorption, with a significant decrease in the gap.

**Keywords :** Hétérocycles pentagonaux, électrocopolymérisation, voltampérométrie cyclique, méthode d'impédance, spectroscopie UV-visible.