

Synthesis conducting copolymer based on indole-6-carboxylic acid and 3,4-ethylenedioxythiophene as platinum catalyst support for methanol oxidation

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Indole-6-carboxylic acid and 3,4-ethylenedioxythiophene (EDOT) were copolymerized electrochemically on a stainless steel (SS) electrode to obtain P(In-co-Edot) copolymer. Functional group analysis and morphology of P(In-co-Edot) were checked by FT-IR spectroscopy and scanning electron microscopy (SEM), respectively. Platinum can be deposited into the films of P(In-co-Edot) and P(In) using potentiostatic mode to obtain P(In-co-Edot)-Pt and P(In)-Pt composite electrodes, respectively. The structure of P(In-co-Edot)-Pt and P(In)-Pt composite electrodes were further ascertained through characterization by X-ray photoelectron spectroscopy (XPS). Cyclic voltammetry results and chronoamperometric response measurements show that P(In-co-Edot)-Pt electrode has better activity and stability toward methanol oxidation than P(In)-Pt.

Keywords: Indole-6-carboxylic acid; 3,4-ethylenedioxythiophene; copolymer; methanol

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