Polypyrrole coated paper substrate decorated with silver nanoparticles

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Abstract : The main objective of the present study is to elaborate a new electrode material based on polypyrrole deposited on an inert paper substrate and decorated with silver nanoparticles. So we report the chemical polymerization of polypyrrole on paper substrate by the use of iron (III) chloride (FeCl₃) as oxidant. The silver polypyrrole (Ag/PPy) composite is prepared by simple chemical reduction process from an AgNO₃ solution on previously chemically synthesized PPy thin films onto the cellulosic sheet. The electrochemical reactivity of the obtained electrodes was studied by voltamperometry technique and electrochemical impedance spectroscopy (EIS). Additionally, the electrode materials were characterized via FTR, XPS, XRD, SEM and EDX.

Keywords : Paper substrate, Polypyrrole, chemical synthesis, Silver