THE INFLUENCE OF ELECTROLYTE ON THE ELECTROCHEMICAL PROPERTIES OF REDUCED GRAPHENE OXIDE/NICKEL – BASED TERNARY NANOCOMPOSITE

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ABSTRACT

THE EFFECT OF ELECTROLYTE ON THE ELECTROCHEMICAL PROPERTIES OF REDUCED GRAPHENE OXIDE/NICKEL – BASED TERNARY NANOCOMPOSITE

In this work, the effect of electrolyte on the electrochemical performance of reduced Graphene oxide/Nickel (rGO/Ni) was studied. Its electrochemical performance in three different electrolytes, H_2SO_4, KOH and NaOH was investigated. The dopant concentration used in this study are 10 %, 20 % and 30 % of Nickel loading. The composite exhibits different capacitive behaviour in different aqueous electrolytes, demonstrating the highest specific capacitance (1751.93 Fg^{-1}) at 30 % of Nickel loading in the H_2SO_4 electrolyte due to it having highest molar ionic conductivity compared to the other electrolytes used. The scan rate somehow affected the specific capacitance values, where at lower scan rate shows higher value of specific capacitance due to the faradaic reaction occur between the electrolyte and electrode is longer at higher scan rate.