# ABSTRACT

This study aims to synthesize graphite using a 2B pencil with the electrochemical method into exfoliated graphite using $(NH_4)_2SO_4$ salt solution. The concentration of the salt solution $(NH_4)_2SO_4$ used for the exfoliation process using the electrochemical method was 0.1 M ; 0.2 M ; 0.25 M ; 0.3 M ; and 0.35 M. To determine the characteristics of the electrical properties and electrochemical properties of the electrodes, four-point probe characterization, Cyclic Voltametry (CV), galvanostatic charge discharge (GCD) were carried out. The conductivity of the electrode with the electrochemical process is relatively larger (1.16 ± 0.03 S/cm) than the electrode without going through the electrochemical process (0.71 ± 0.03 S/cm). Based on the results of the CV characterization, it was found that the capacitance was greater (9.57 ± 0.48 F/g) than the electrode without electrochemical process (1.22 ± 0.061 F/g). In addition, the exfoliated graphite electrode has a longer discharging ability (8,27 µs) than the graphite electrode (6,46 µs) which was observed from the GCD characterization results.



**Keywords**: Electrode, NH4)2SO4, electrolyte, exfoliated graphite, electrochemistry, supercapasitor