

ABSTRACT

This final project studies the synthesis and the characterization of MoS_2 submicrometer particles. In general, the size of submicrometer particles are below 1 micrometer. A good submicrometer particle size has a particle diameter between 200 nm and 400 nm. Submicrometer particles have optical properties that depend on their size. These submicrometer particles can be applied in optoelectronic and biomedical fields, for example they were used in drug delivery to increase the stability of the active substance and improve absorption. The manufacture of submicrometer particle can be carried out by several synthesis methods such as ultrasonic, microwave, and electrochemical sonication methods. In this study, the synthesis of MoS_2 submicrometer particles were carried out using an electrochemical method using two carbon electrodes and a DC power supply voltage to produce different particle sizes. The results of the MoS_2 submicrometer synthesis were characterized by PSA and Photoluminescence. The PSA characterization on 16 hours synthesis results in two group of particles with their size are 127,5 nm and 1616,1 nm, while the 30 synthesis obtains particles with average size of 92,6 nm and 485 nm. The photoluminescence characteristics of the sample with 16 hours synthesis using a voltage of 4V shows a maximum spectrum at a wavelength of 565 nm.

Keywords: MoS_2 submicrometer particles, electrochemistry, photoluminescence