Hydrothermally processed $CuCrO_2$ nanoparticles with superior stability for electrochemical supercapacitors

이은희, 아민사디아, 김은비, 신형식†
전북대학교
(hsshin@jbnu.ac.kr†)

This work depicts the synthesis of well-defined nanosheets of cuprous delafossite ($CuCrO_2$) nanoparticles (NPs) on Ni foam by a low temperature hydrothermal method and its possible application as an electroactive material for the fabrication of supercapacitors. Our synthetic strategy describes a simple and facile method to obtain $CuCrO_2$ delafossite material with zero dimensionality. Herein, X-rays diffraction, UV-Vis absorption, FTIR and Raman spectroscopic analysis are used to study the crystal nature, structure, composition and quality of $CuCrO_2$ delafossite NPs. X-rays photoelectron spectroscopy (XPS) investigates the chemical composition and oxidation state of elements present in the synthesized $CuCrO_2$ delafossite NPs. As an electrode material for electrochemical supercapacitor application, it is expected that the synthesized $CuCrO_2$ delafossite NPs will show unique features such as large interior spaces, high specific surface area and low density, which might help to improve the electrochemical property by enhancing the surface and/or interface reaction.