

Fabrication of Electrode Supercapacitors with Carbon Powders Material Synthesized from Different Wood

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The fabrication of supercapacitors electrode with carbon powders material synthesized different wood such as of Broken Bone tree wood, Rain Tree wood, Kapok wood, Bitter bush wood, macrophyllus wood, Copper pod wood, Black Siris wood and Iron wood. Carbon powders from physical activation were prepared at 1000 °C for 2 hrs under flowing argon. The structural properties, morphological and quantitative analysis of Carbon powders were investigated by X-ray Diffraction (XRD), Energy Dispersive X-ray Spectroscopy (EDX) and Field Emission Scanning Electron Microscope (FESEM). The Electrical properties of supercapacitors were measured by the charging and discharging (C.D.). The carbon powder from physical activation at 1000 C for 2 hrs under flowing argon has a characteristic black powder with a different size and hardness. The carbon powder revealed amorphous structure with position peaks of graphite plane of (002) and (101) at 2θ of 26.0 and 44.0. The morphology of carbon powder will have a broken appearance, which has an uneven size, and each type has a different rough surface, resulting in a different porous. The quantitative analysis this shows the dispersion of carbon elements, which are well dispersed and have a high amount of carbon 99% by weight. The discharge and discharge process as the specific capacitance value of the supercapacitor was measured from carbon powder material synthesized from different wood. The specific capacitance value of the supercapacitor using carbon powder material synthesized from different corresponding to highest specific capacitance value has as high as of 4.03 F/g at the current of 50 mA.

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