Short Communication

Preparation of Activated Carbon Electrode from Pineapple Crown Waste for Supercapacitor Application

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A pineapple crown activated carbon (PCAC) was prepared from pineapple crown waste using one step carbonisation and physical activation method for electrode super capacitor cells. The pineapple crown waste was also activated by using KOH activation in a ratio of 1 : 1 to the total mass. The pre-carbonised PCAC has a thermal resistance temperature of 300°C while the carbonised one has high Brunauer-Emmett-Teller (BET) with a surface area of 700 m²g⁻¹, a pore volume of 0.362 m³g⁻¹ and an average pore diameter of 22 nm. The surface morphology of pineapple crown electrode shows a good fibre structure with a diameter of 42-73 nm. The electrochemical properties of supercapacitor cells have an excellent specific capacitance which is as high as 150 F g⁻¹ while its energy and power densities are 5.2 Wh Kg⁻¹ and 42 W Kg⁻¹, respectively

Keywords: pineapple crown; activated carbon; biomass

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