

Porous carbon material derived from coffee waste as a supercapacitor electrode.

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In this study, we fabricated a series of porous carbon materials derived from coffee waste as a supercapacitor electrode. XPS identified 82.69 at% carbon, 13.97 at% oxygen and 8.5 at% nitrogen on the surface of Coffee grounds. Carbonization with nitrogen atmosphere was conducted at various temperatures (700, 800, and 900 oC) in a tubular furnace. Also, further chemical activation enhanced the surface properties of porous carbon such as surface area and pore volume. Electrochemical properties of prepared porous carbon electrode were investigated using three-electrode system in 6 M KOH electrolyte solution. The prepared porous carbon electrodes derived coffee waste represented unique surface properties and nitrogen functionalized structure, which lead to high performance supercapacitive behavior.

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