Biosynthesis of Carbon Spheres for Supercapacitor Electrode Application

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In this work, corn starch was used for the synthesis of carbon spheres with a regular and perfect shape based on oxidation and carbonization. Carbon spheres typically exhibit large pore volume, high specific surface area, and a synergistic effect derived from mesopores and micropores. After preparation at 2600 °C, the as-prepared carbon spheres showed a low internal resistance (0.24 Ω) in KOH aqueous solution (6 M) and a specific capacitance of 311 F/g at a current density of 0.5 A/g. Even when the current density was as high as 10 A/g, the electrochemical capacitance was maintained at 196 F/g.

Keywords: Carbon spheres; Supercapacitor; Corn starch; Electrochemical performance; High temperature oxidation

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