La₂O₃ Doped Graphitic Porous Carbon Derived from La(III) Ion Chelated Chitosan for High Performance Supercapacitor

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Biopolymers are excellent precursors to prepare porous carbon owing to their abundant resources, low cost, and unique properties. In this study, a La₂O₃ doped graphitic porous carbon (La₂O₃/Chit-C) was prepared using La(III) ions chelated chitosan as starting materials. The prepared nanocomposite exhibited excellent electrochemical performance, which is suitable for the design of supercapacitor. It demonstrated a capacitance of 464.8 F g⁻¹ at a current density of 1 A g⁻¹, which is higher than most of chitosan derived carbon materials. Furthermore, the nanocomposite showed good high-rate discharge capability and stability, demonstrating a potential application for electrochemical energy storage.

Keywords: Supercapacitor; Chitosan; La₂O₃; graphitic; Nanocomposite

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