

Synthesis of hierarchically porous carbon derived from lignin for high supercapacitive performance

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Up to now, researches about biomass conversion have intensively investigated on carbon material fields owing to their specific characteristics such as abundance, ease of processing and eco-friendly. In this study, lignin which in a main composition of lignocellulosic biomass also the second abundant aromatic biopolymer, was employed as a carbon precursor to manufacture hierarchically nano-sized porous carbon material with ultrahigh surface area. Hydrothermal carbonization and chemical activation were conducted to change precursor to object porous carbon which possessed ultrahigh specific surface area over $2800 \text{ m}^2 \text{ g}^{-1}$. Because of their high specific surface area and hierarchical porous architecture, the outcome shows outstanding electron infiltration properties. The exceptional ion and electron transport properties of as-obtained carbon material are observed to be a benefit for high performance supercapacitor.