

Synthesis of hierarchical porous carbon based on biomass derived from lignin substances for high supercapacitive performance

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Researches about biomass derived carbon materials have steadily investigated due to their specific characteristics such as abundance, ease of processing and eco-friendly. This is an introduction for a kind of biomass, lignin which in a main composition of lignocellulosic structure of lignum and also the second abundant aromatic biopolymer in nature. In this research, lignin was used as a carbon precursor to produce hierarchically nano-sized porous carbonaceous material with high surface area. Hydrothermal carbonization and chemical activation were conducted to change carbon precursor to object porous carbon which possessed ultrahigh specific surface area over $2800 \text{ m}^2 \text{ g}^{-1}$. The hierarchical pore structure of as-obtained material could assist increasing electron percolation properties in the electrochemical performance test. Owing to their high specific surface area and hierarchical porous architecture, the as-obtained porous carbon showed excellent ion and electron transport properties.