

Hierarchically Porous Carbon derived from biomass 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, a kind of wooden biomass which is called as empty fruit bunch (EFB) from oil palm tree was investigated as a carbon precursor. Our strategy is to convert carbon substances concluding lignin, which is a main component of wooden biomass also the secondly plentiful aromatic biopolymer, to hierarchically nano-sized porous carbonaceous material with high surface area. Hydrothermal carbonization and chemical activation were conducted to change precursor to object porous carbonaceous material having ultrahigh specific surface area over 3000 m² g⁻¹. Based on their ultrahigh specific surface area and hierarchical pore structure, the product offers outstanding electron percolation properties. The excellent ion and electron transport abilities of as-obtained porous carbon are observed to be an advantage for high supercapacitive performances.