

Hydrothermal Carbonization of Glucose using Microwave Irradiation

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Carbonaceous materials were synthesized by a hydrothermal carbonization process. The hydrothermal carbonization of glucose was carried out at 210 °C for 15 min using microwave-assisted heating, resulting in spherical structures with a uniform size. The average diameters of the spheres were controllable from 200 nm to 700 nm by varying the quantity of glucose in the starting solutions. Elemental analyses revealed that these spheres contain 40 % -50 % of carbon by atomic ratio. When the water was completely removed, and the spheres were further irradiated by microwave (1500 W) for 5 min, the atomic ratio of the spheres increased to 90 % - 95%.