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Controlled synthesis of hollow porous carbon spheres for enrichment and simultaneous determination of nine bisphenols from real samples

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ABSTRACT

An extended one-step Stőber method was utilized for the preparation of core@shell spheres, which was made up of a thin layer of resorcinol-formaldehyde (RF) and a silica core. After the carbonization and template-removal process, hollow porous carbon spheres (HPCSs) were synthesized. The structure of HPCSs was characterized by scanning/transmission electron microscopy and N_2 adsorption/desorption isotherms, Fourier transform infrared spectroscopy, energy dispersive X-ray spectrometer and Raman spectroscopy. The results showed that the silica cores were removed successfully and the HPCSs were in good sphere shape with uniform size, high surface areas as well as pores hollow framework structure. Compared with MWCNTs and 3D-graphene, HPCSs exhibited superior extraction ability for nine bisphenols (BPs). HPCSs showed extremely outstanding extraction efficiency for BPs as well as high adsorption capacity due to its hollow porous

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