Mesostructure-tunable and size-controllable hierarchical porous silica nanospheres synthesized by aldehyde-modified Stöber method

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Figure S1. Particle size distributions of MMSNs synthesized with different A/M : S-1-A R=0.11 (a), S-2-A R=0.13 (b), S-3-A R=0.17 (c) and S-4-A R=0.22 (d).

Figure S2. Pore size distributions of MMSNs synthesized with different A/M : S-1-A R=0.11 (a), S-2-A R=0.13 (b), S-3-A R=0.17 (c) and S-4-A R=0.22 (d)

Figure S3. Particle size distributions of MMSNs synthesized at different initial pH values using the same A/W R=0.17: S-5-A pH 7.6 (a), S-6-A pH 8.5 (b), S-7-A pH 9.4 (c) and S-8-A pH 10.4 (d)

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Figure S4. Particle size distributions of MMSNs synthesized with different A/M at the pH=8.5: 5-9-A R=0.22 (a), 5-6-A R=0.17 (b) and 5-10-A R=0.11 (c).

Figure S5. Powder XRD patterns for HMSNs synthesized with different aldehydes: S-4-A (a), S-11-P (b) and S-12-B (c).

Figure S6. The pore size distributions of S-11-P and S-12-B.

Figure S7. SEM images of MMSNs synthesized at different temperatures: S-13- A 85°C and S-14- Acetaldehyde 100°C.

Figure S8. GC-MS spectra of the product of different aldehyde reacted at 27°C: (a) Acetaldehyde system, (b) Propionaldehyde system and (c) Oil phase of butyraldehyde system.

Figure S9. SEM and TEM image of MMSNs synthesized with amyl aldehyde as co-solvent at 27°C.