Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

Supporting Information

A General Chiral Selector Immobilized on Silica Magnetic Microspheres for Direct Separation of Racemates

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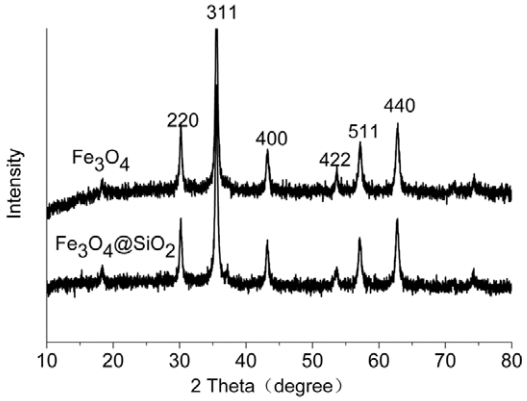

Figure S1. XRD patterns of Fe_3O_4 and Fe_3O_4@SiO_2 microspheres.

Peaks at 18.290 °, 30.157 °, 35.587 °, 43.242 °, 53.679 °, 57.183 ° and 62.850 ° were assigned to (111), (220), (311), (400), (422), (511) and (440) reflections spectrum of Fe_3O_4, respectively.

The average crystallite size D of the particles is calculated from the Scherrer equation: $D = K\lambda/(\beta\cos\theta)$, where K is the Debye-Scherrer constant (0.89), λ is the X-ray wavelength, β is the peak width of half-maximum, and θ is the Bragg diffraction angle. Here, the (311) peak of the highest intensity was picked out to evaluate the particle diameter of Fe_3O_4. And D was calculated to be about 18 nm. No apparent change was observed in XRD spectra after silica coating, indicating that the silica shell formed on the surface of magnetite was amorphous.

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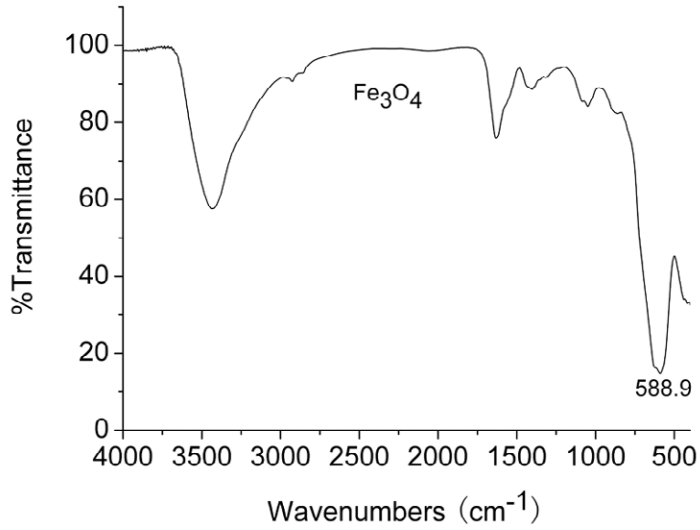

Figure S2 FT-IR spectrum of Fe_3O_4.
Characteristic absorption of Fe-O bond was observed at 588.9 cm^{-1}.

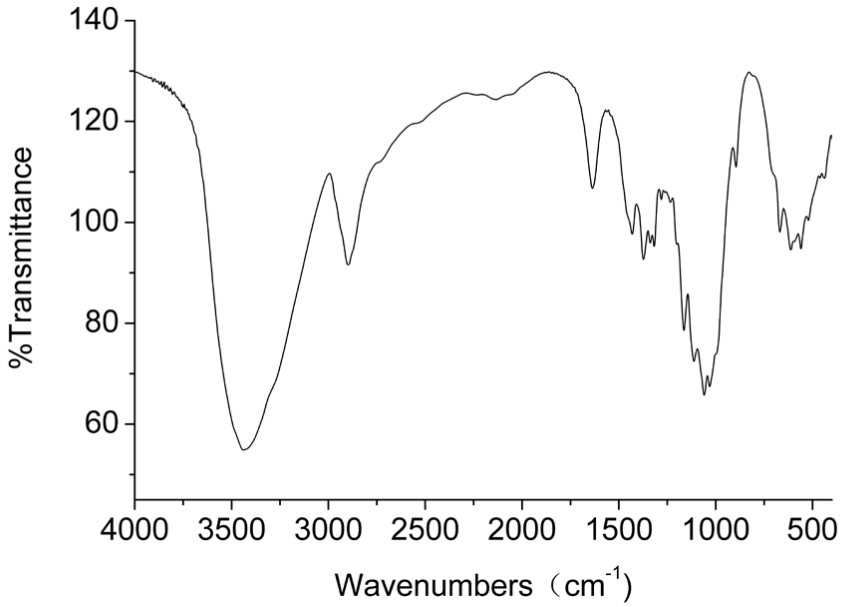

Figure S3 FT-IR spectra of mirocrystalline cellulose (MC)

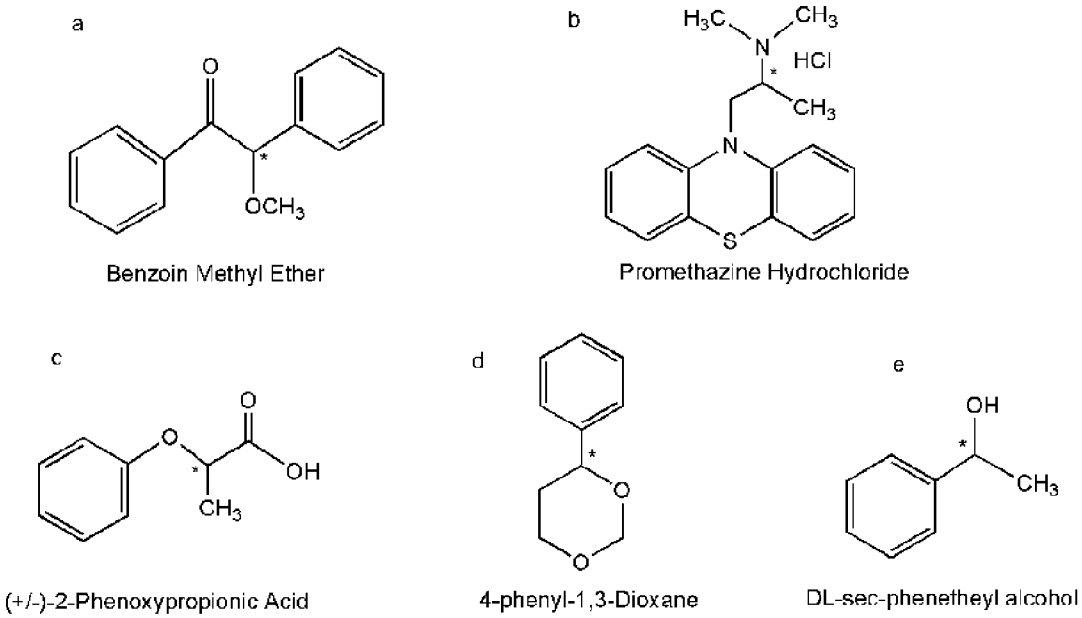

Figure S4 Chemical structures of five racemates

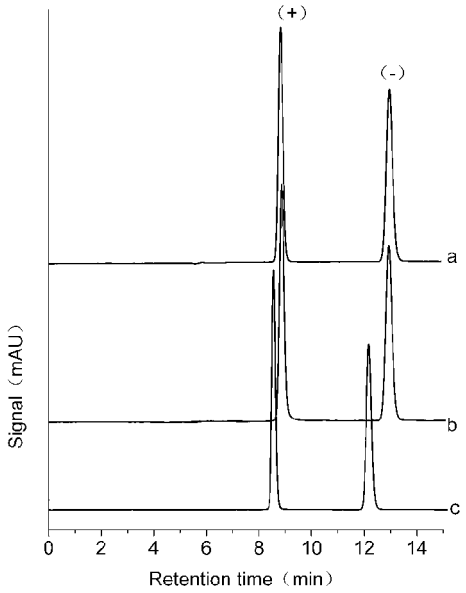

Figure S5 HPLC analysis of racemate
benzoin methyl ether (a), supernantant after interaction with CMM collected immediately (b) and supernantant after remaining with CMM for 15min (c)

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Table S1 HPLC analysis of racemate benzoin methyl ether

Sample	Peak Area	
	(+) benzoin methyl ether	(-) benzoin methyl ether
a	1.31×10^6	1.31×10^6
b	1.19×10^6	1.11×10^6
c	1.18×10^6	1.18×10^6

Racemate sample of benzoin methyl ether (a), supernatant after interaction with CMM collected immediately (b) and supernatant after remaining with CMM for 15min (c), determined by HPLC on a chiral stationary phase. Retention times of (+) benzoin methyl ether and (-) benzoin methyl ether are 8.886 min and 13.022 min respectively.