Electronic Supplementary Information

A versatile strategy to fabricate magnetic dummy molecularly imprinted mesoporous silica particles for specific magnetic separation of bisphenol A

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1. Equations

The pseudo-first-order equation is generally expressed as:

$$\ln(Q_e - Q_t) = \ln Q_e - k_1 t \qquad (1)$$

The pseudo-second-order equation is generally expressed as:

$$\frac{t}{Q_t} = \frac{1}{k_2 Q_e^2} + \frac{t}{Q_e} \qquad (2)$$

where t (min) is adsorption time; Q_t (mg/g) and Q_e (mg/g) are the amounts of the adsorbed BPA at time t (min) and at equilibrium, respectively; k_1 is the rate constant of the pseudo-first-order adsorption model, k_2 (g/(mg min)) represents the pseudo-second-order adsorption rate constant.

The Langmuir equation is as follows:

$$\frac{C_e}{Q_e} = \frac{1}{(Q_m K_L)} + \frac{C_e}{Q_m} \qquad (3)$$

where K_L (L/mg) is the Langmuir constant, and Q_m (mg/g) is the maximum adsorption capacity for monolayer formation on the sorbents, C_e (mmol/L) is the free analytical concentration at equilibrium.

The linear mathematical expression of the Freundlich model is presented as:

$$\log q_e = \log k_F + (n) \log C_e \qquad (4)$$

k_F (g^{1-n} L^n/g) is Freundlich constant related to the adsorption capacity of the adsorbent, and n signifies adsorption intensity.

2. Supporting data

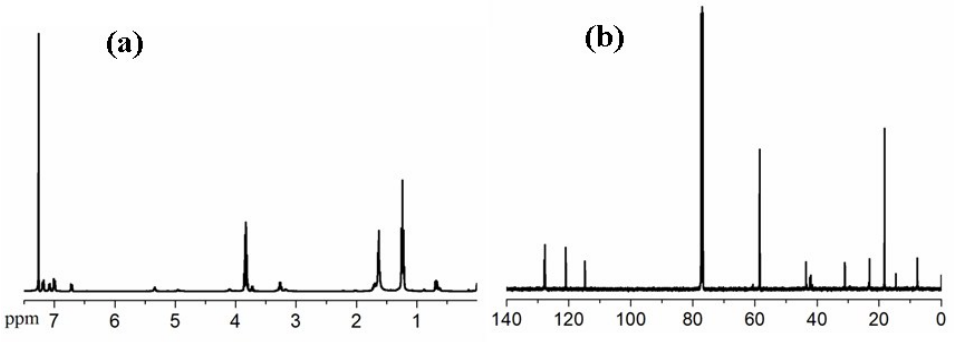

Fig.S1 ^{1}H (a) and ^{13}C (b) NMR spectra of TBBPA-ICPTES in CD_3CN

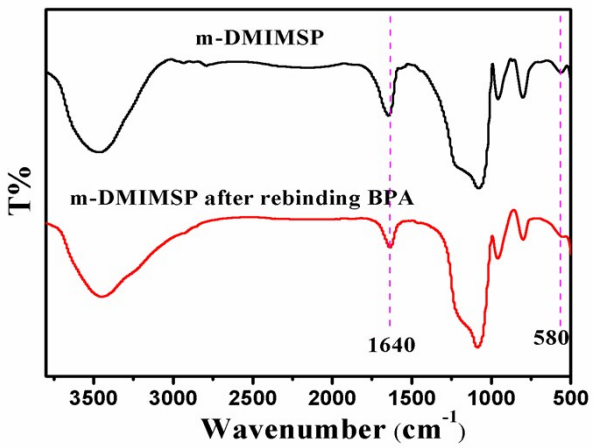

Fig.S2 FT-IR spectra of m-DMIMSP and m-DMIMSP after rebinding BPA

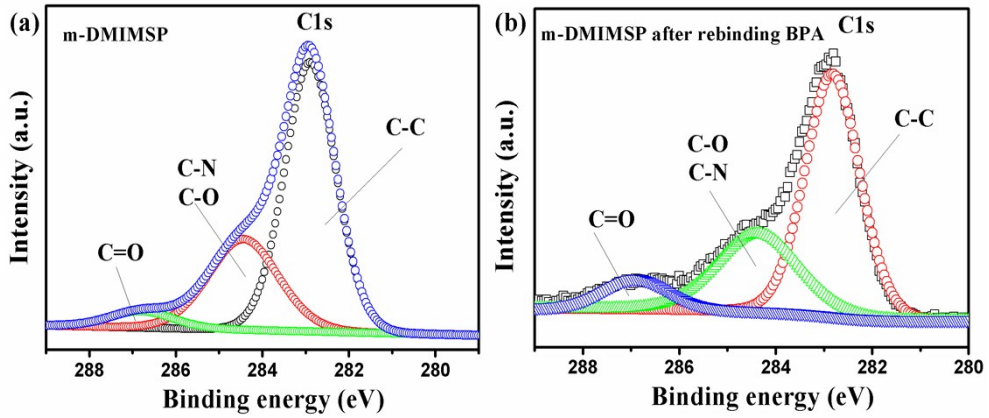

Fig.S3 XPS high-resolution scan of C1s of m-DMIMSP and m-DMIMSP after rebinding BPA

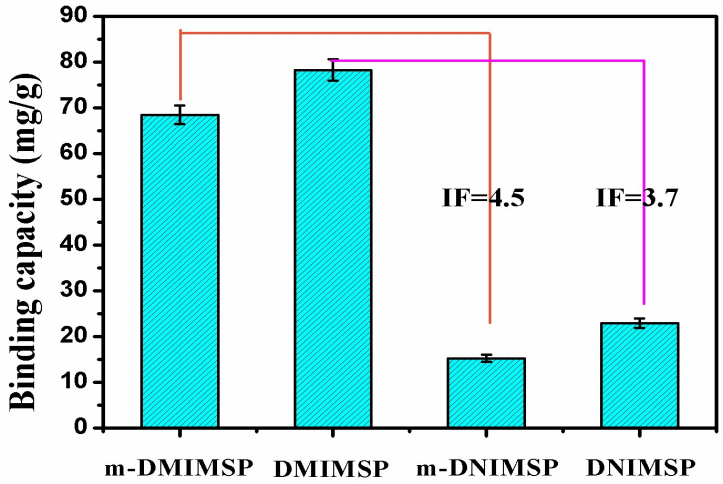

Fig.S4 Comparison the binding capacity of m-DMIMSP and DMIMSP

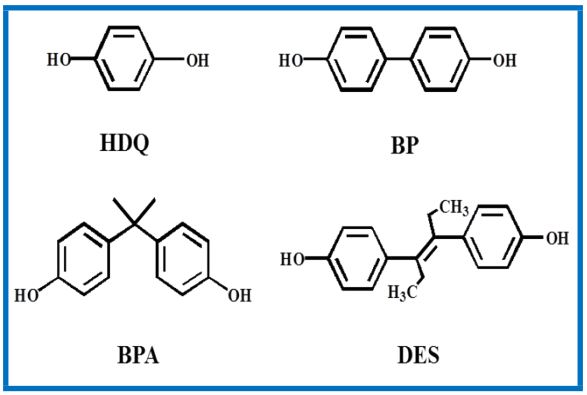

Fig.S5 Molecular structure of analogs used in this work

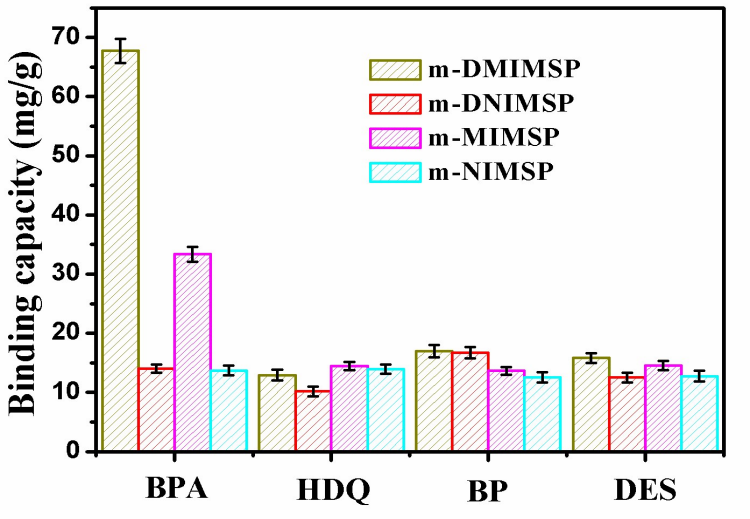

Fig.S6 Comparison the selectivity of m-DMIMSP and m-MIMSP