Supplementary materials

Bifunctional magnetic nanoparticles with ion imprinting for improving the flow through determination of ultratraces of Cd(II) using magnetic preconcentration

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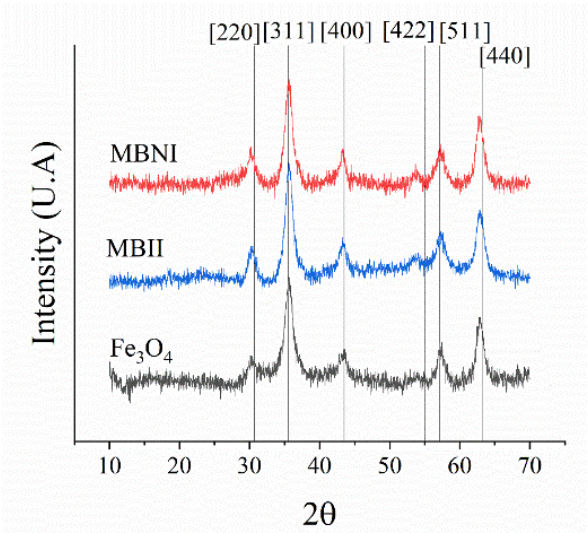

Fig.S1 DRX patterns for Fe_3O_4, MINI and MII solids.

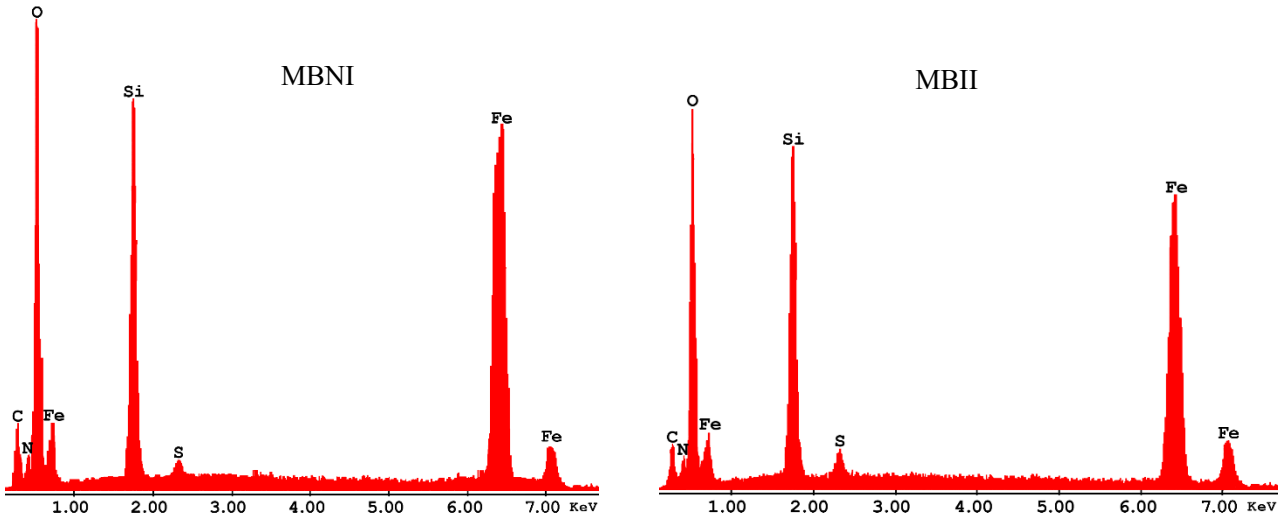

Fig. S2 EDS spectra of MBNI and MBII, after Cd(II) removal.

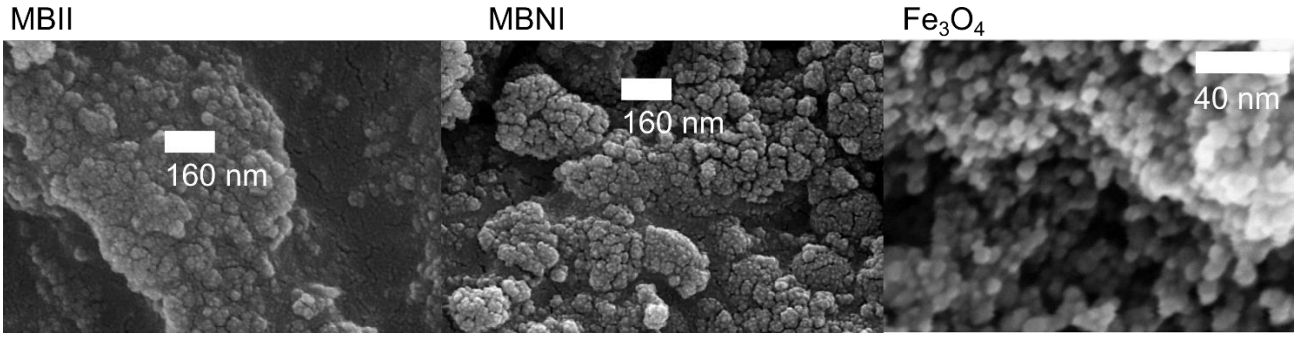

Fig.S3 SEM images: MBII, MBNI and Fe_3O_4.

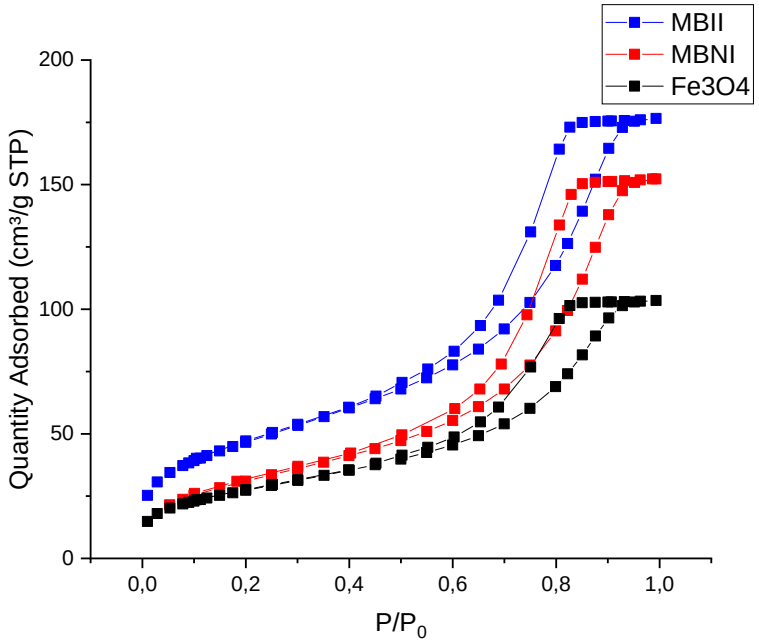

Fig. S4 N_2 adsorption–desorption isotherm of Fe_3O_4, MBII and MBNI.

Table S1. Information from N_2 adsorption–desorption isotherm.

Sample	Área BET (m^2/g)	Average pore width BET 4V/A (nm)
Fe_3O_4	97	0.8
MBNI	115	0.5
MBII	167	0.7

Fig. S5 (A) and (B), clearly show how the proximity of one or two magnets with these configurations leads to an uneven adhesion of the particles.

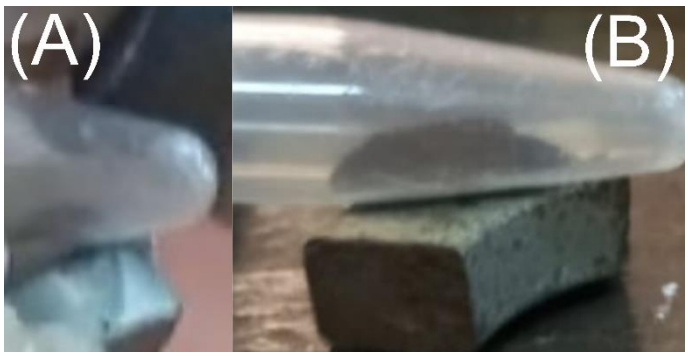

Fig. S5. (A) Magnetic solid with two magnets and (B) with only one.

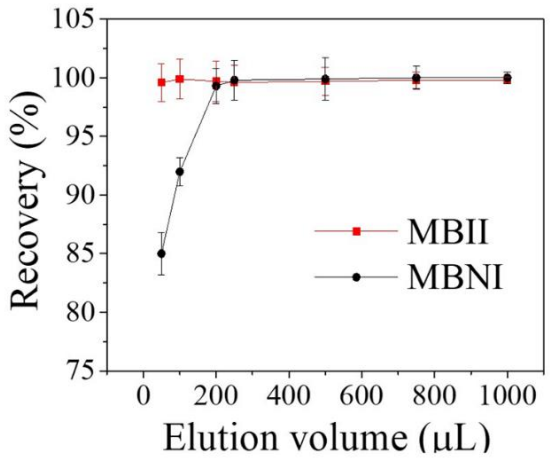

Fig. S6 Optimization of elution volume. [HCl]: 1 mol L^{-1}, [Cd(II)]:0.02 ng mL^{-1}, sample volume: 10 mL, adsorption flow rate: MBNI: 1.5 mL min^{-1},MBII: 2.5 mL min^{-1}, and desorption flow rate: 1.0 mL min^{-1} for both.

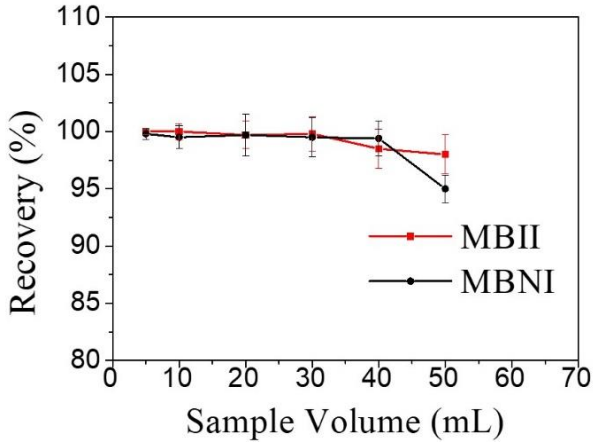

Fig. S7 Percentage recovery with sample volume under optimised conditions for MBII and MBNI.