Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

Core-Shell Structured MgO@Mesoporous Silica Spheres for Enhanced Adsorption of Methylene Blue and Lead Ions

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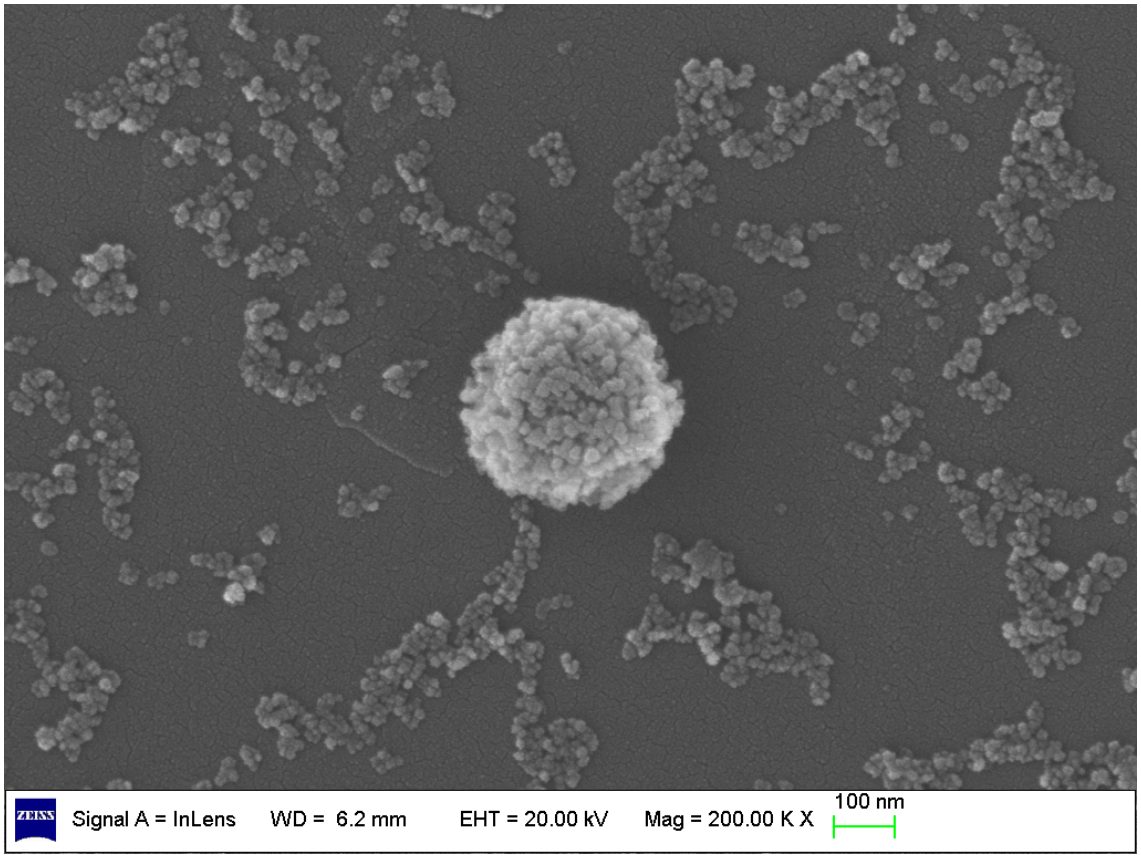

Figure S1 SEM image of MgO after adsorption.

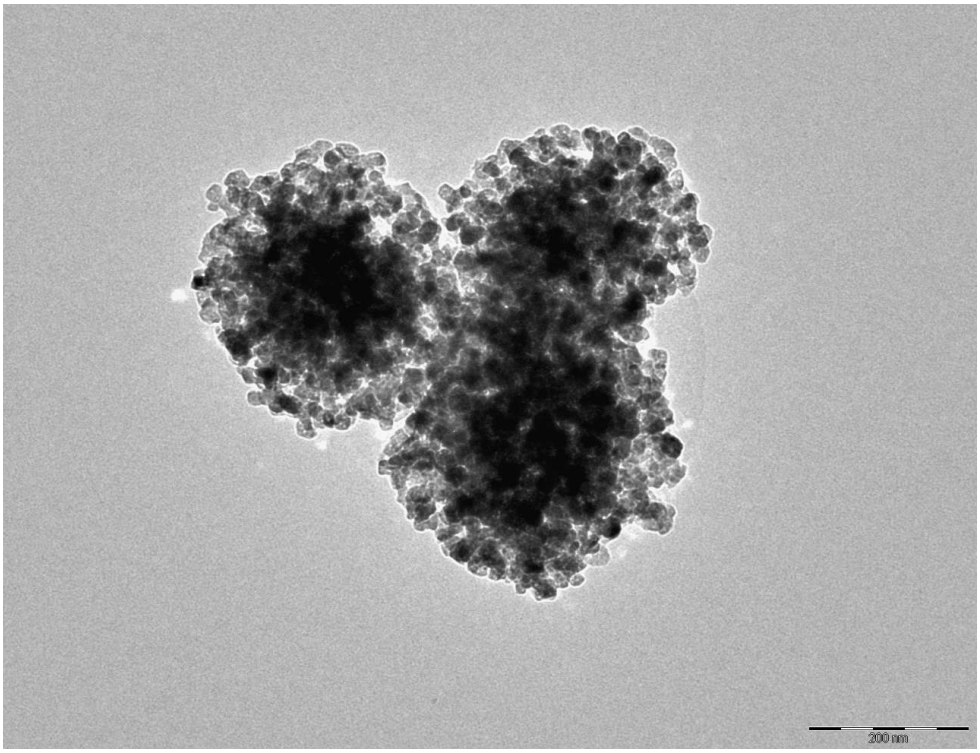

Figure S2 TEM image of MgO.

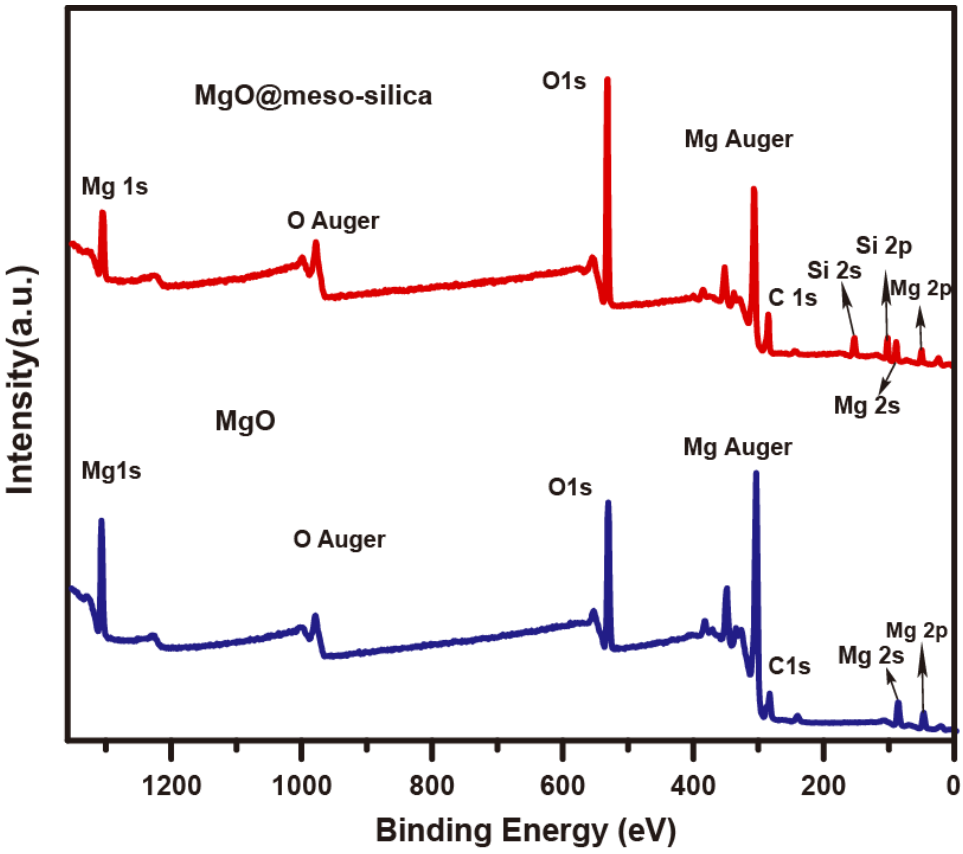

Figure S3 XPS spectra of MgO and MgO@meso-silica.

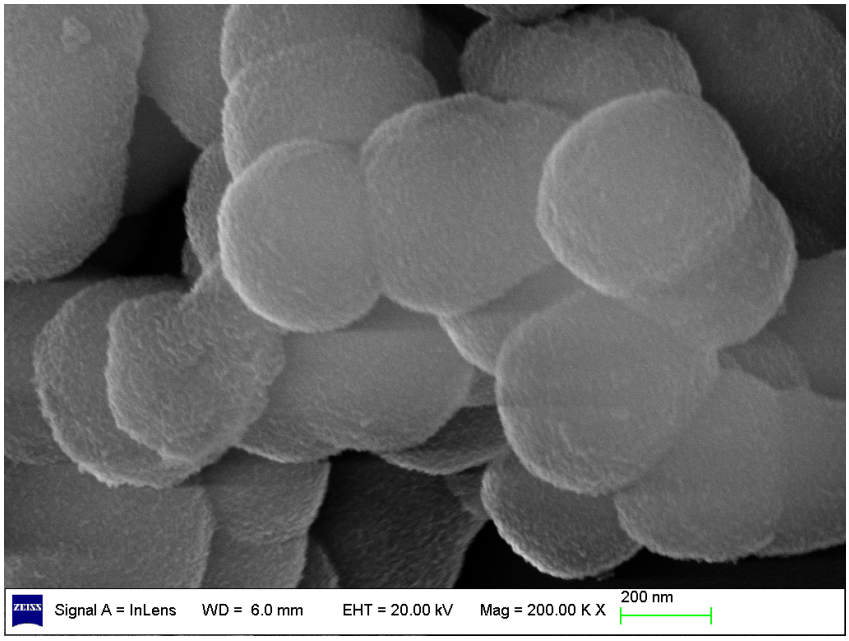

Figure S4 SEM image of MgO@meso-silica after adsorption.

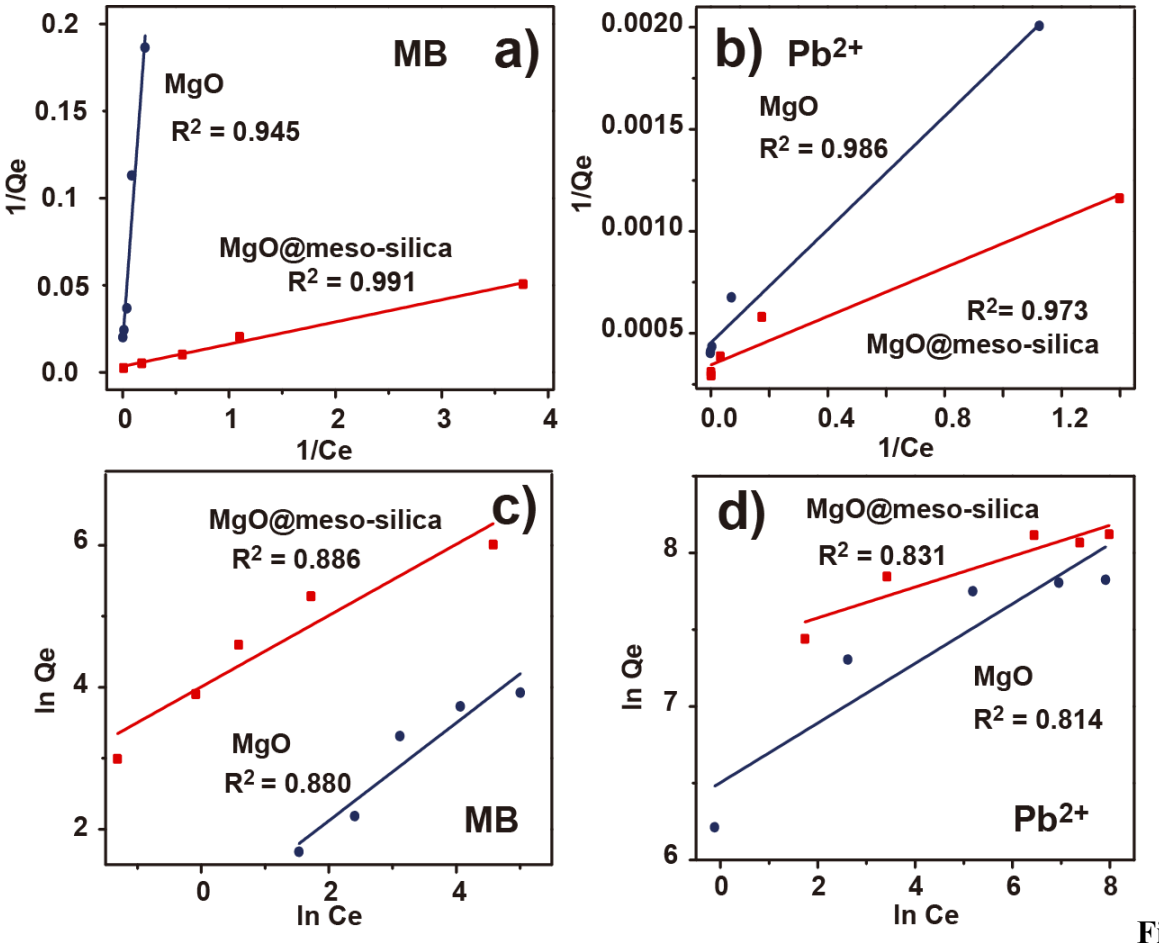

Figure S5 (a, b) The linear dependence of $1/Q_e$ on $1/C_e$ based on the Langmuir isotherm model; (c, d) The linear dependence of $\ln Q_e$ on $\ln C_e$ based on the Freundlich isotherm model.

Table S1. Maximum adsorption capacities of different adsorbents for Pb^{2+} and MB.

Adsorbents	Adsorbates	Qm (mg/g)	Ref.
MgO nanoparticles	Acid Red 112	93.0	1
MgO nanoparticles	Vat Blue 6	86.5	2
Spindle magnesium silicate	MB	141	3
Flowerlike MgO	Pb^{2+}	1980	4
Mesoporous MgO	Pb^{2+}	99.9	5
MgSi hollow sphere	Pb^{2+}	300	6
Carboxylic-functionalized mesoporous silica	MB	110	7
Mesoporous silica	MB	189	8
MCM-41	MB	131.8	9
MCM-41	MB	54	10
Mesoporous silica	Pb^{2+}	85.4	11
Amino-functionalized mesoporous silica	Pb^{2+}	89.1	12
Mercapto-functionalized mesoporous silica	Pb^{2+}	20.7	12

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