Supplementary Information: Controllable Preparation of Superparamagnetic Fe_3O_4@$La(OH)_3$ Inorganic Polymer for Rapid Adsorption and Separation of Phosphate

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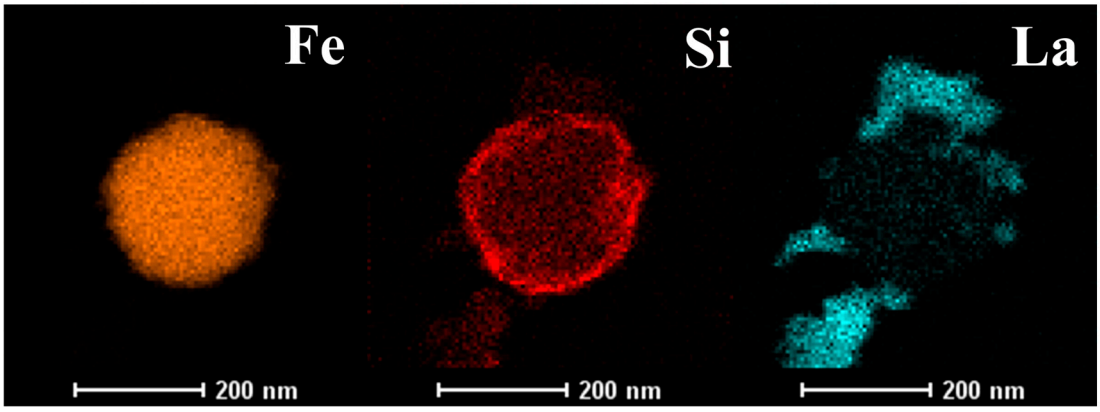

Figure S1 EDX elemental mapping of Fe_3O_4@$La(OH)_3$.

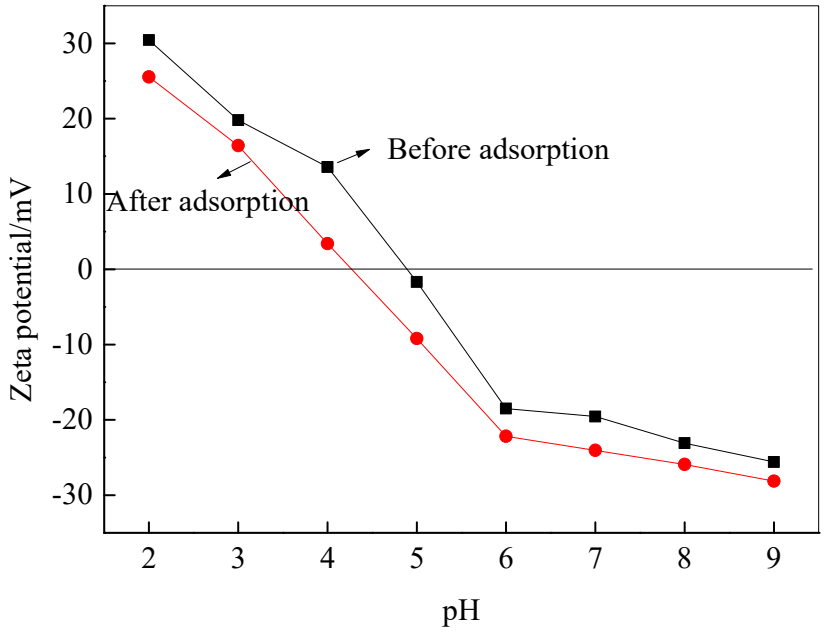

Figure S2 Zeta potential curves of Fe_3O_4@$La(OH)_3$ nanoparticles before (1) and after (2) the phosphate adsorption with the initial phosphate concentration of 30 mg/l.

Table S1 Comparison of phosphate adsorption capacities with other reported adsorbents.

Adsorbent	equilibration time	Adsorption capacity	Removal rate	reference
Calcium silicate hydrate	120 min	65.42 mgPO_4^{3-}/gC-S-H)	>98%	Journal of Environmental Management 301 (2022) 113923.
alginate-like exopolymers	240 min	1.22±0.07 mg PO_4^{3-}P/gTS_{ALE}	90.8%	Bioresource Technology 333 (2021) 125167.
Fe_3O_4/Mg_2Al-NO_3-LDH	2 h	33.4 mgP/g	58%(1.0 g/L)	Journal of Environmental Chemical Engineering 4 (2016) 984-991.
Fe_3O_4@ZrO_2	25 min	35.0 mgP/g	___	Chemical Engineering Research and Design 145 (2019) 194–202.
CS-Li@Fe_3O_4	50 min	95.5 mgP/g (200 mg/L)	98%, at low phosphate concentrat-ion	Biochemical Engineering Journal 187 (2022) 108662.
Fe_3O_4@$La(OH)_3$	20 min	63.72 mg P/g (30 mg/L)	＞95.7%	This work