

Supporting Information

Prussian blue analog as a decorporation agent for the efficient removal of cesium and scavenging of reactive oxygen species

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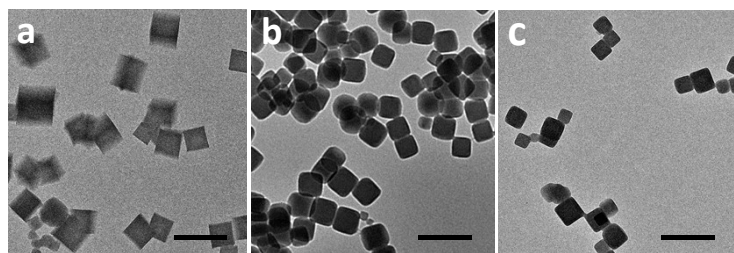


Figure S1. TEM image of MnFe(a), NiFe(b), CoFe(c). Scale bars: 200 nm

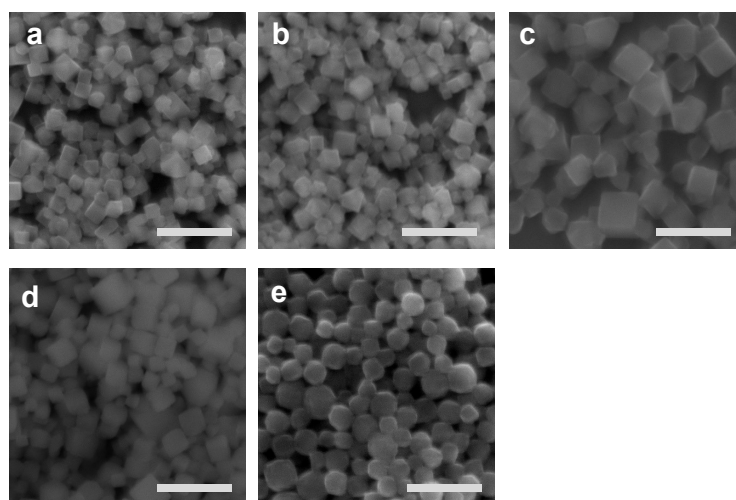


Figure S2. SEM image of FeFe (a), CuFe (b), MnFe (c), NiFe (d), CoFe (e). Scale bars: 200 nm

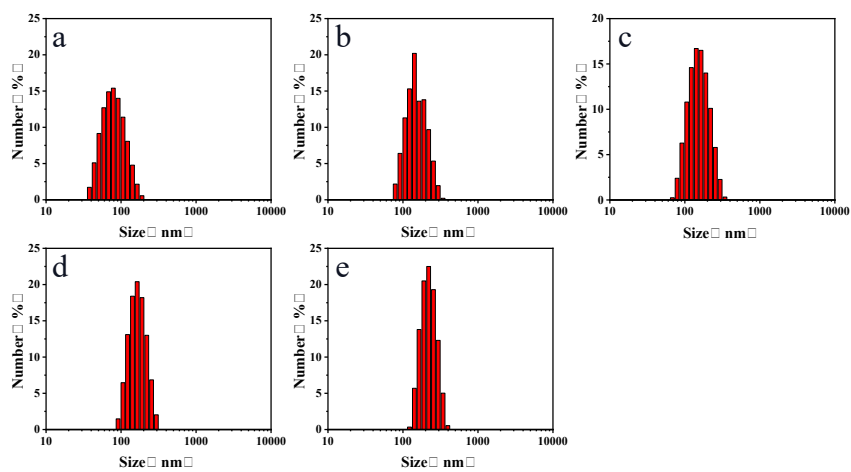


Figure S3. Size distribution of FeFe (a), CuFe (b), MnFe (c), NiFe (d), CoFe (e).

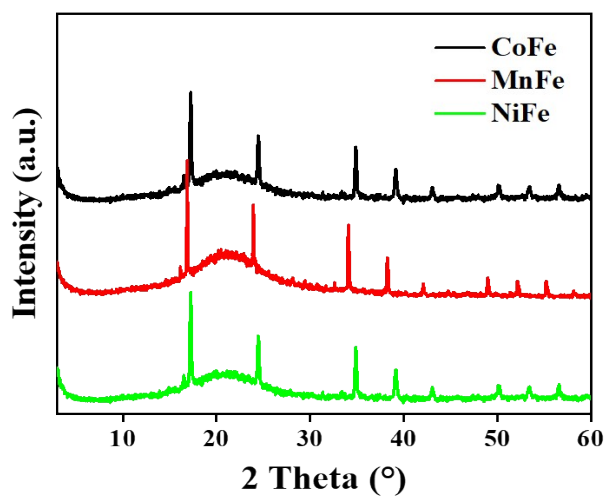


Figure S4. XRD spectra of MnFe , NiFe , CoFe.

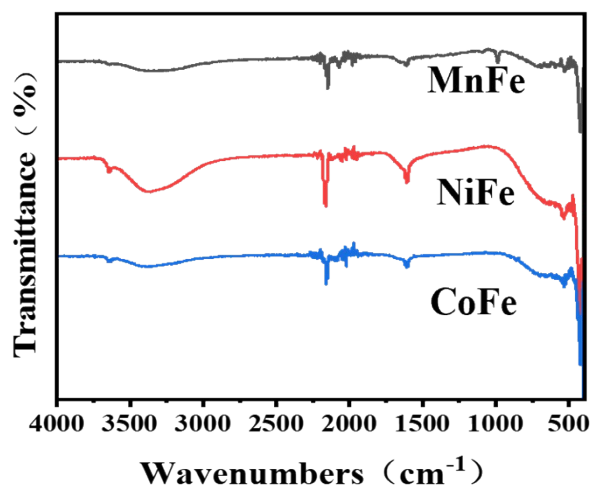


Figure S5. IR spectra of MnFe , NiFe , CoFe.

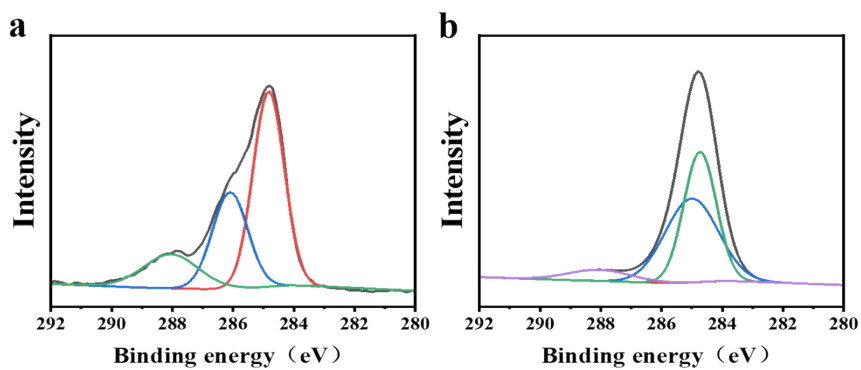


Figure S6. a, C 1s XPS spectra of FeFe. b, C 1s XPS spectra of CuFe.

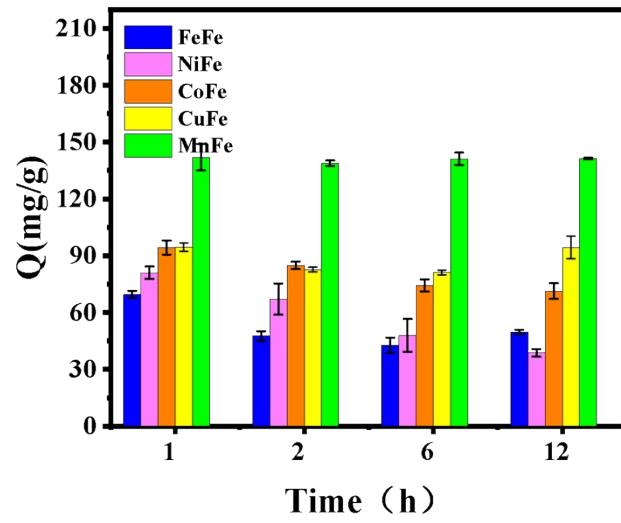


Figure S7. Cesium adsorption test of FeFe, CuFe, NiFe, CoFe, MnFe (Cs^+ solution: 100ppm, pH = 7.4, T= 310.15 K, m/V=500 $\mu\text{g}/\text{ml}$).

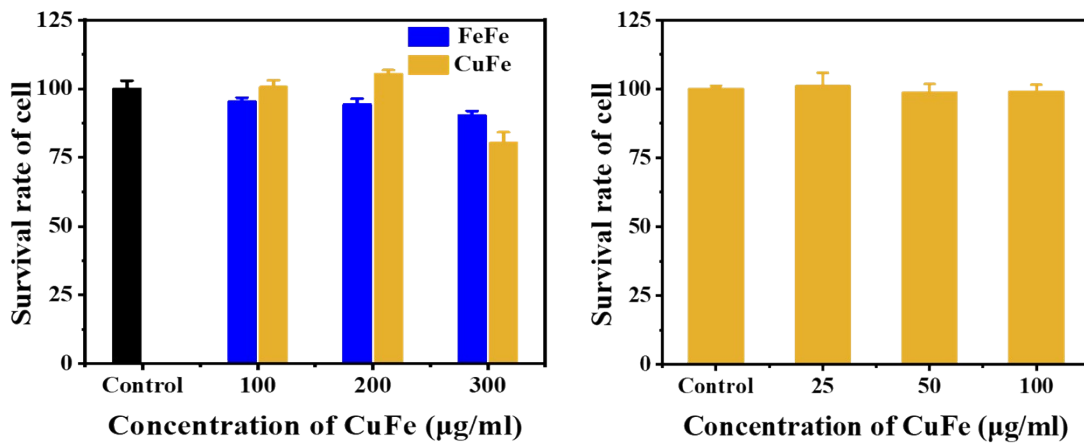


Figure S8. Cytotoxicity (HUVEC (a), L02 (b)) of CuFe.

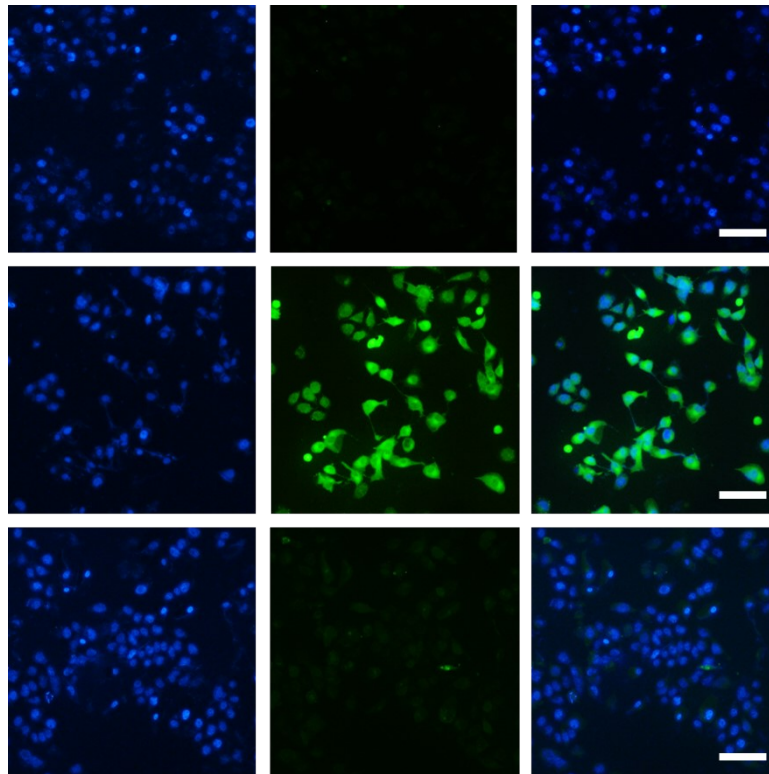


Figure S9. Detection of ROS-scavenging ability of 50 µg/mL CuFe in L02 cells under stimulations with H₂O₂ by fluorescence microscopy. Scale bars, 500 µm.

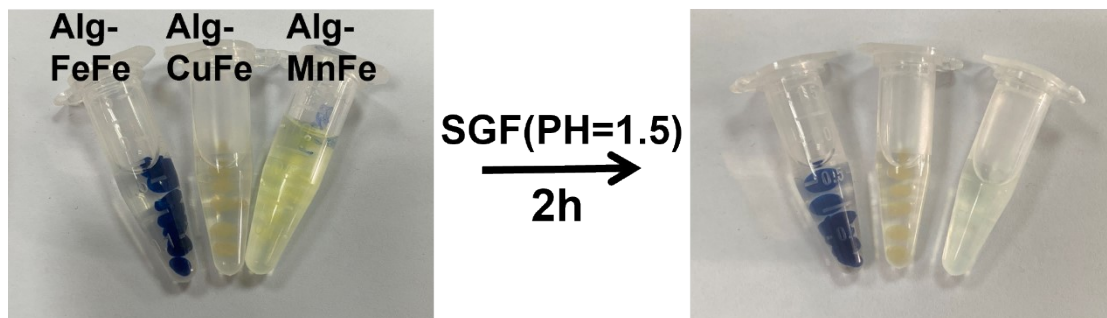


Figure S10. Stability test of FeFe and CuFe coated with sodium alginate in simulated gastric juices (SGF). FeFe and CuFe in Alg-FeFe and Alg-CuFe can be stably present in SGF. On the contrary, MnFe in Alg-MnFe disappeared into the SGF.

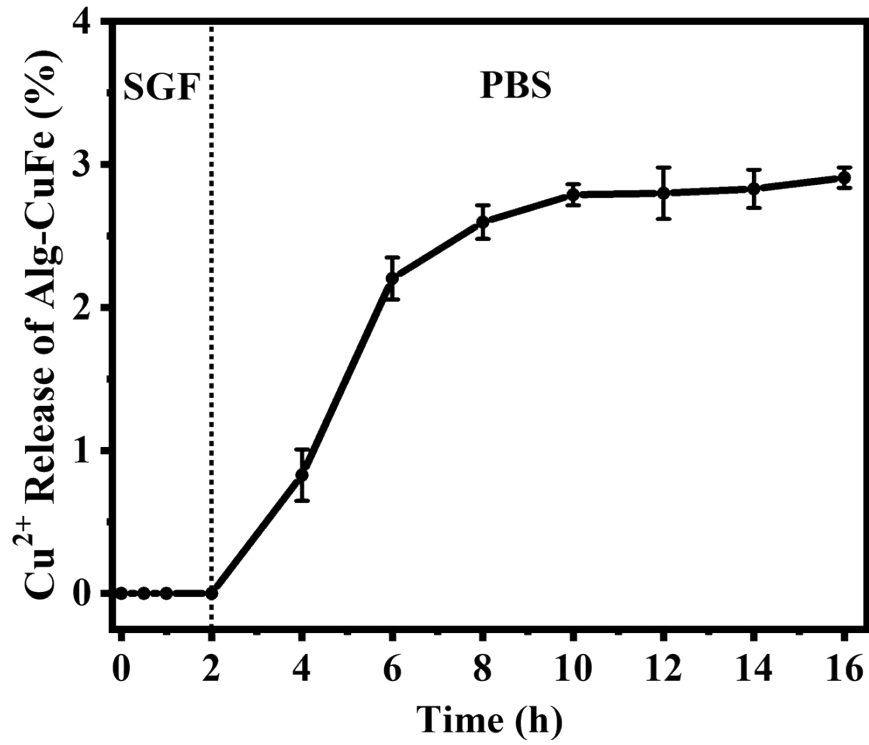


Figure S11. Copper ion release experiment of Alg-CuFe in simulated SFG and PBS.

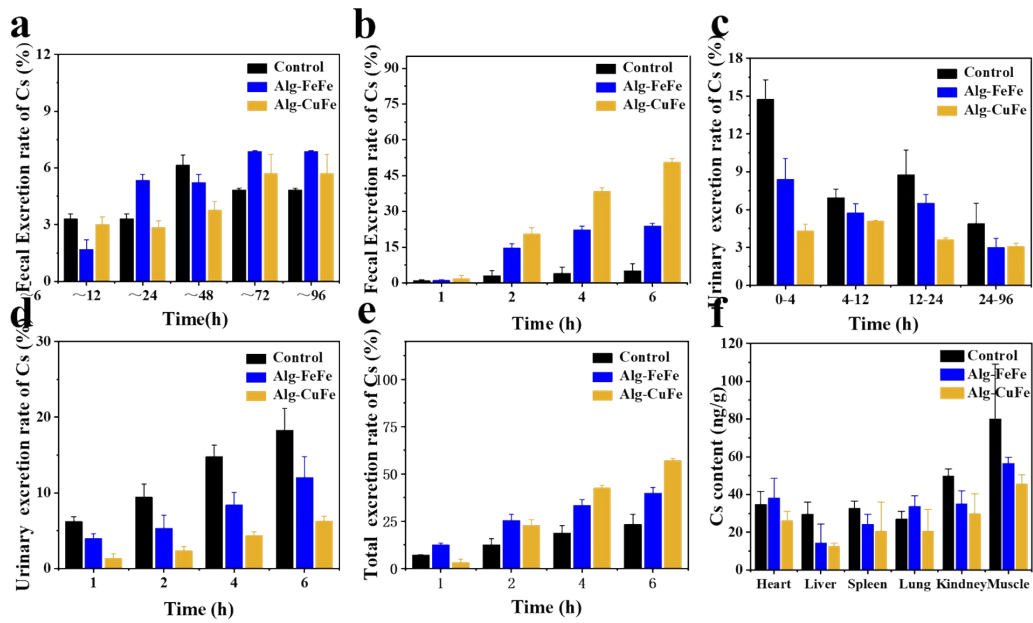


Figure S12. a, Excretion rate of Cs ions in faeces (a,b) and urine (c,d) compared to the initial Cs dose; e, Total excretion rate of Cs ions compared to the initial Cs dose; Residual quantity of Cs ions in the heart, liver, spleen, lung, kidney, and muscle

Table S1. Synthesis conditions of PB and PBAs.

	Precursor 1	Concentration (mM)	Precursor 2	Concentration (mM)	citric acid (mM)	churning time (m in)	churning time (°C)
FeFe	Fe(NO ₃) ₃ ·9H ₂ O	2.5	K ₄ [Fe(CN) ₆]	0.5	250	15	60
CuFe	Cu(CH ₃ COO) ₂ ·H ₂ O	3	K ₃ [Fe(CN) ₆]	2	250	15	60
NiFe	Ni(CH ₃ COO) ₂ ·4H ₂ O	7.5	K ₃ [Fe(CN) ₆]	5	250	15	60
CoFe	Co(NO ₃) ₂ ·6H ₂ O	10	K ₃ [Fe(CN) ₆]	7.5	0	60	25
MnFe	Mn(SO ₄) ₂ ·H ₂ O	10	K ₃ [Fe(CN) ₆]	10	0	15	25

Table S2. Quantitative analysis of element according to ICP-OES.

	Fe	Cu	Mn	Ni	Co
FeFe	33.19%				
FeCu	9.30%	18.20%			
MnFe	9.63%		14.65%		
NiFe	10.21%			16.28%	
CoFe	9.78%				18.76%

Table S3. Element peak area according to the XPS spectra.

	Fe (II)	Fe (III)	Cu	N	C
FeFe	16212.286	11856.395		16929.508	17469.759

CuFe	34276.594	53172.326	17597.63	18472.662
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Table S4. The surface atomic ratio for FeFe and CuFe according to the XPS spectra.

	Fe(II)/Fe(III)	Fe(III)/Cu	Cu/N	Fe(II)/N	C/N
FeFe	0.74			0.7	1
CuFe		0.6	3.02		1
