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Fluorescence "turn-on" probe for the detection of HSO_3^- based on pyrene-functionalized mesoporous silica material

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Table S1 Surface area, pore volume and pore diameter of SBA-15 and PYA-SBA-15

Sample	SBET[a]($m^2 \cdot g^{-1}$)	V_p[b]($cm^3 \cdot g^{-1}$)	D_p[c](nm)
SBA-15[1]	486	1.24	10.20
PYA-SBA-15	287	0.64	9.72

[a] the BET surface area, [b] the average pore diameter, [c] the total pore volume

Table S2 The performance comparison of PYA−SBA−15 with recently reported nanomaterial- based methods for the detection of HSO_3^-

Material	LOD (μmol/L)	Detection media	Detection mode	Ref.
PYA-SBA-15	7.60	Aqueous solution	Turn on	This work
NI	2.05	DMF:H_2O=3:7	Turn on	[2]
Probe 1	3.21	DMSO:H_2O=1:1	Ratiometric	[3]
MITO-TPE	27.22	DMSO	Turn on	[4]
Cou-F	0.65	DMSO	Turn on	[5]
Au NCs	12.0	Aqueous solution	Turn on	[6]
Ir1@MSNs-NH_2	0.80	DMSO:H_2O=1:5	Turn on	[7]
QNP	2.10	2% DMSO	Turn off	[8]
Dual-site fluorescent probe	5.53	DMSO	Turn off	[9]

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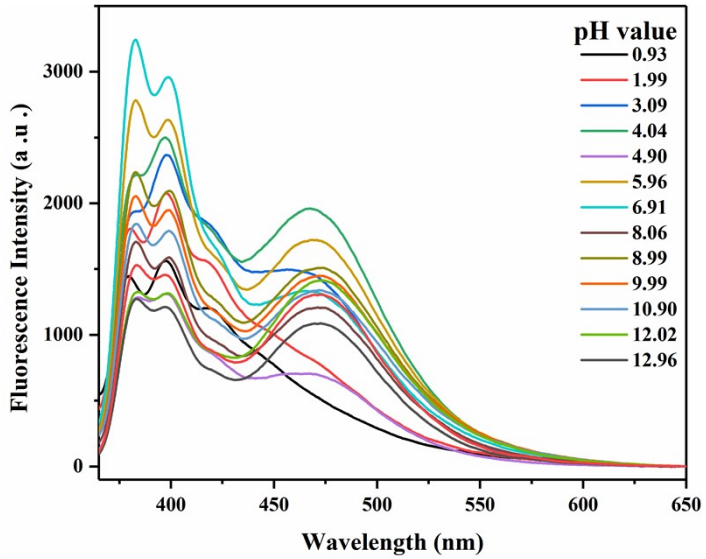

Fig. S1 Fluorescence spectra of PYA-SBA-15 (0.05 g/L) at different pH values.

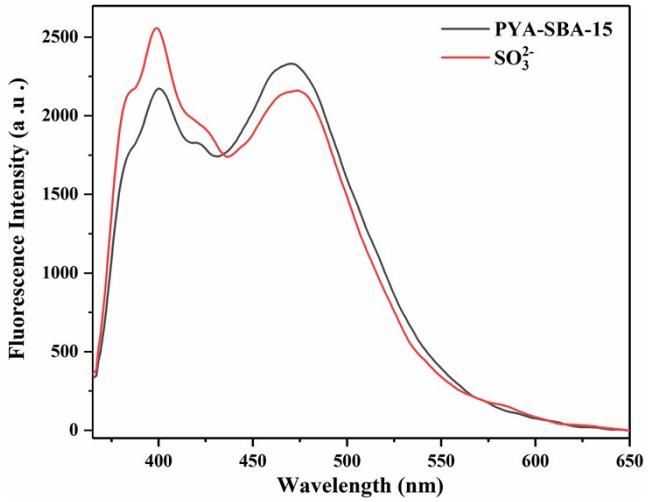

Fig. S2 Fluorescence spectra of PYA-SBA-15 (0.05 g/L) in the absence and presence of SO_3^{2-} at pH=9.0.

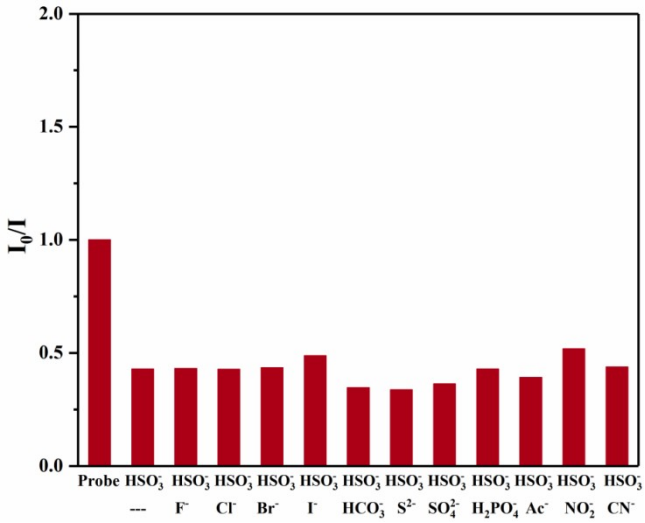

Fig. S3 Fluorescence intensity changes (I_0/I) of PYA-SBA-15 in the presence of HSO_3^- (1.0×10^{-4} mol/L) and each of the other anions (3.0×10^{-4} mol/L) in aqueous solution (20 mmol/L HEPES buffer, pH = 6.0, I_0 and I represent the fluorescence intensity of PYA-SBA-15 at 398 nm in the absence and presence of anions, respectively).

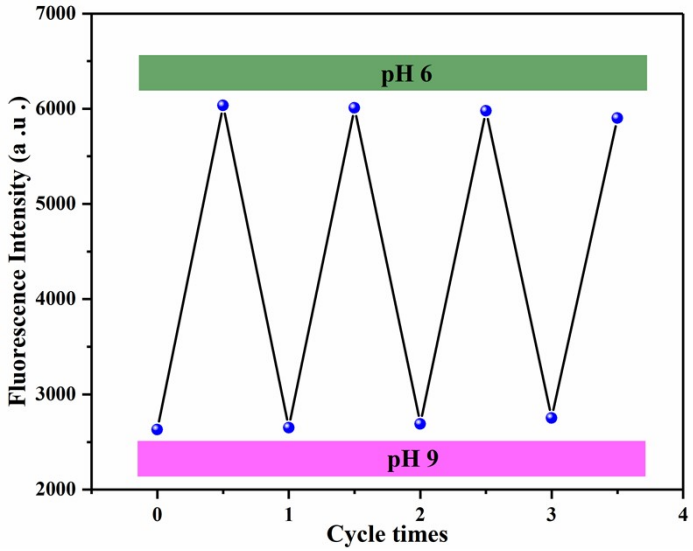

Fig. S4 Fluorescence repeated cycles at pH 6.0 and 9.0.