

## Electronic Supplementary Material

### Enhanced chemical sensing for Cu<sup>2+</sup> based on the composite of ZIF-8 with small molecule

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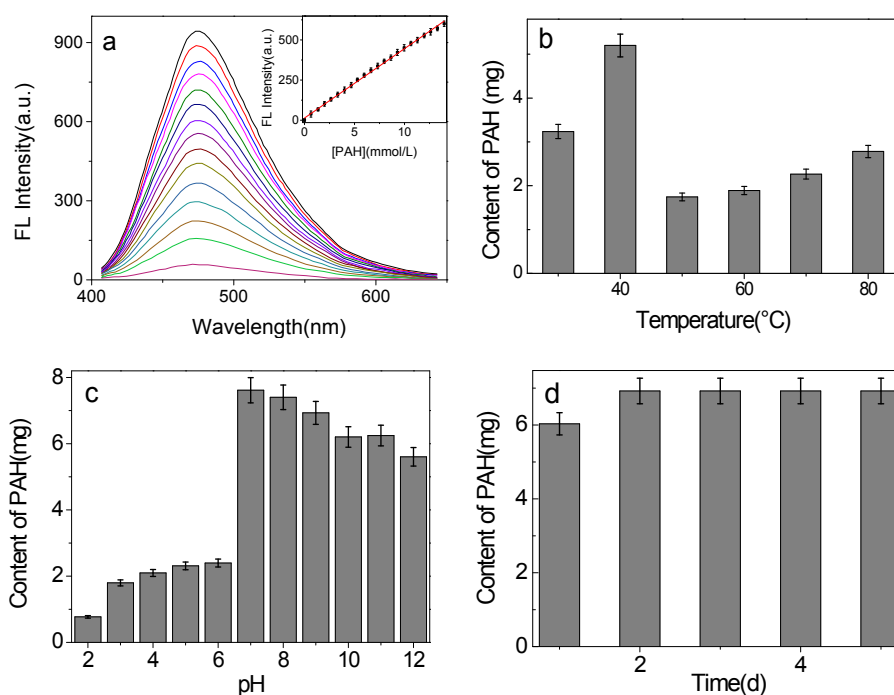


Fig. S1 (a) Fluorescence spectra of PAH at various concentrations, the impacts of reaction temperature (b), pH (c) and reaction time (d) on the content of PAH in ZIF-8.

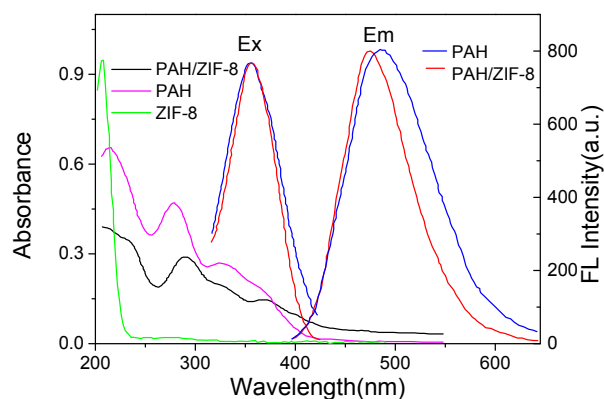


Fig. S2 UV-Vis spectra and fluorescence spectra of PAH/ZIF-8 and PAH.

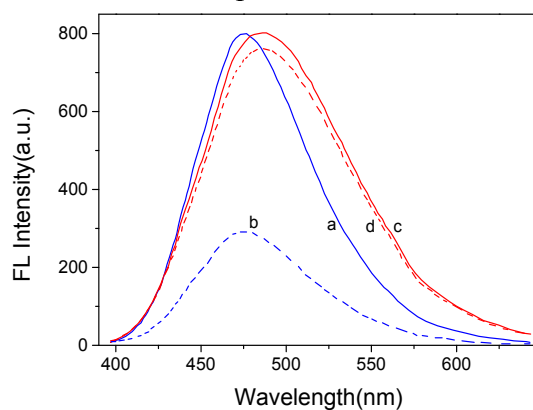


Fig. S3 the effects of the equal amount of  $\text{Cu}^{2+}$  on the fluorescence intensity of PAH/ZIF-8 and PAH (a. PAH/ZIF-8; b. PAH/ZIF-8 +  $\text{Cu}^{2+}$ ; c. PAH; d, PAH +  $\text{Cu}^{2+}$ )

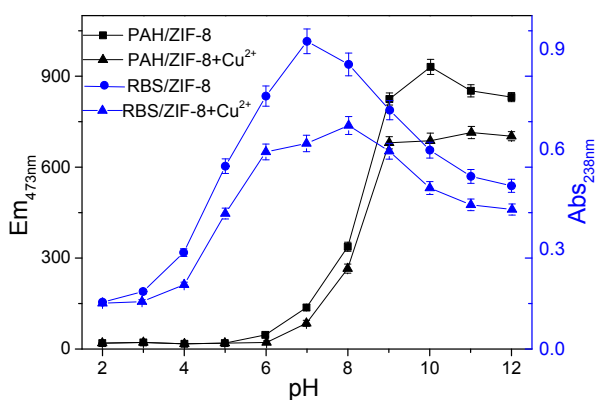


Fig. S4 Fluorescence responses of PAH/ZIF-8 and the UV-Vis absorption responses of RBS/ZIF-8 in the absence and presence of  $1.0 \mu\text{M}$   $\text{Cu}^{2+}$  at different pH values.

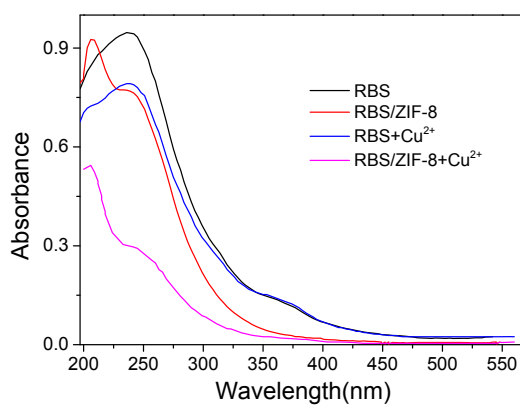


Fig. S5 UV-Vis spectra of RBS/ZIF-8 and RBS and their response to 1.0  $\mu\text{M}$   $\text{Cu}^{2+}$  in 40% ethanol aqueous solution.

Table S1 The surface area and pore structure of ZIF-8 and the two composites

Material	BET specific surface ( $\text{m}^2/\text{g}$ )	Pore volume( $\text{cm}^3/\text{g}$ )	Average pore diameter(nm)
ZIF-8	1264.95	0.66,	2.09
PAH@ZIF-8	865.27	0.48	3.57
RBS@ZIF-8	637.49	0.37	5.25