

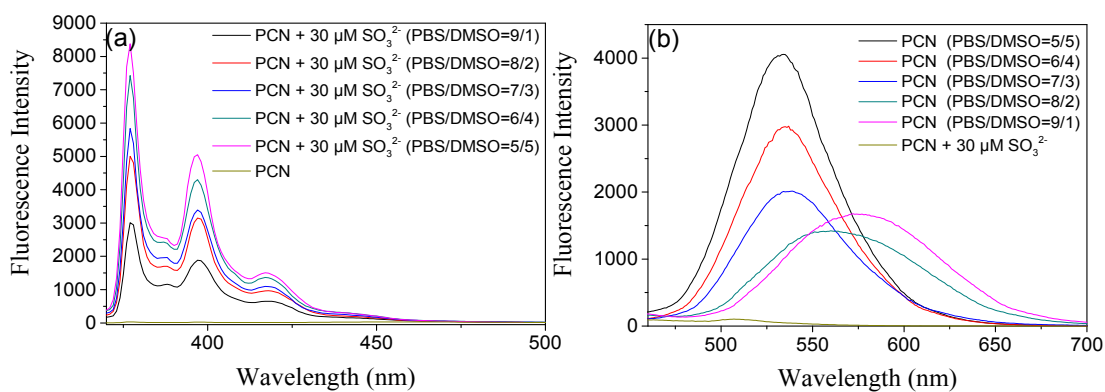
# **A colorimetric and ratiometric fluorescent probe for rapid and sensitive detection of sulfite in sugar**

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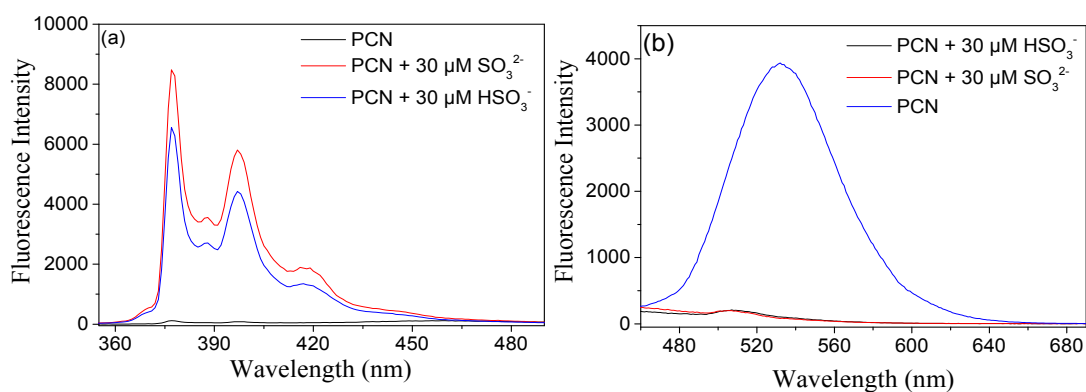
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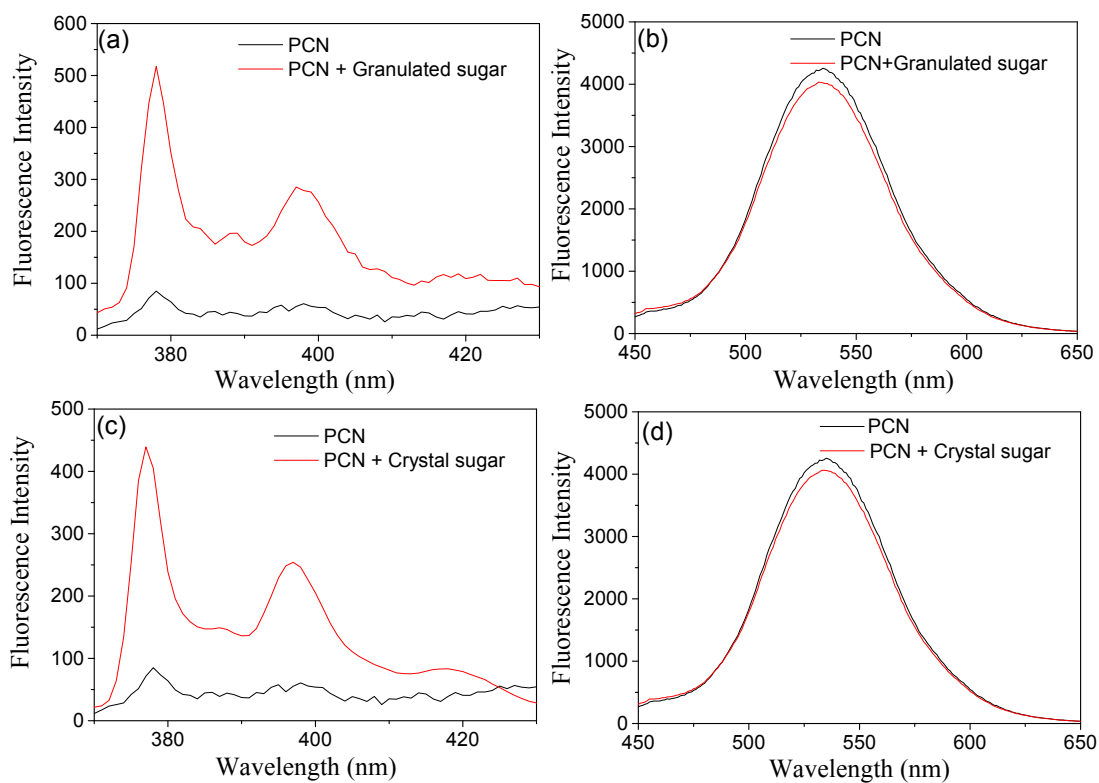
1. Fluorescence responses of **PCN** (10  $\mu\text{M}$ ) towards  $\text{SO}_3^{2-}$  in PBS/DMSO solution.
2. Fluorescence spectra of **PCN** (10  $\mu\text{M}$ ) in the presence of  $\text{SO}_3^{2-}$  or  $\text{HSO}_3^-$
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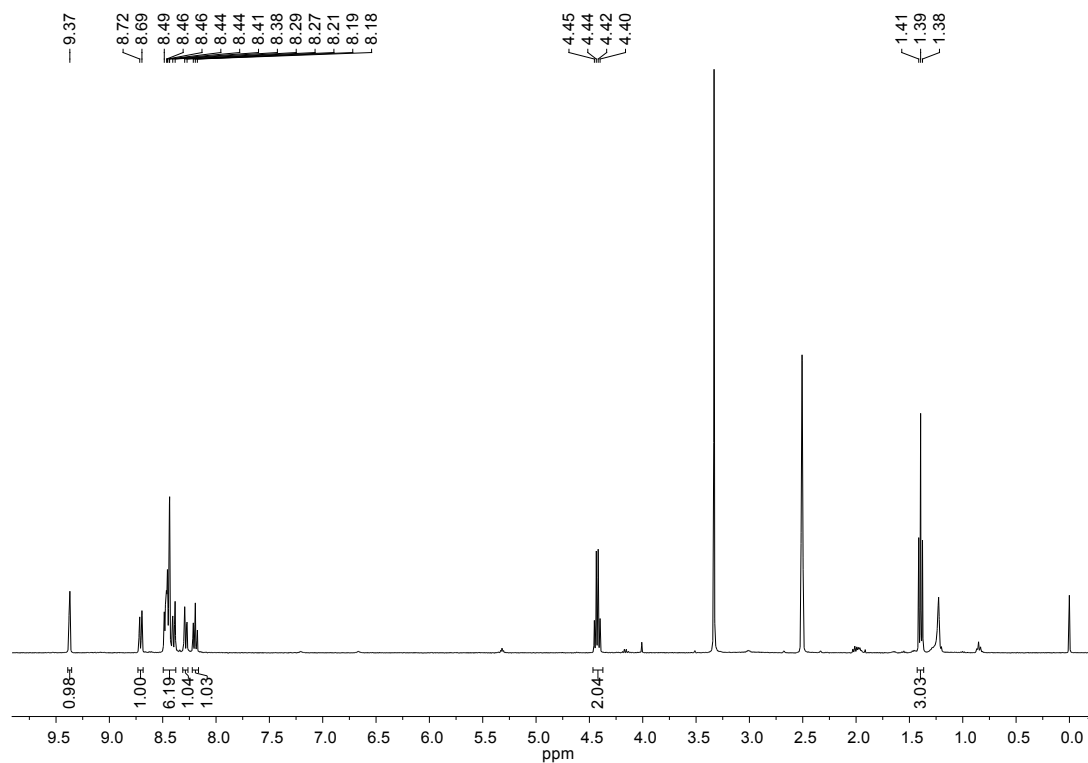
**Fig. S1.** Fluorescence responses of PCN (10  $\mu\text{M}$ ) towards  $\text{SO}_3^{2-}$  in PBS/DMSO solution. For (a)  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 340/398$  nm, slits: 1.0/1.0 nm; For (b)  $\lambda'_{\text{ex}}/\lambda'_{\text{em}} = 440/535$  nm, slits': 2.5/5.0 nm. Each spectrum was recorded after 3 min.



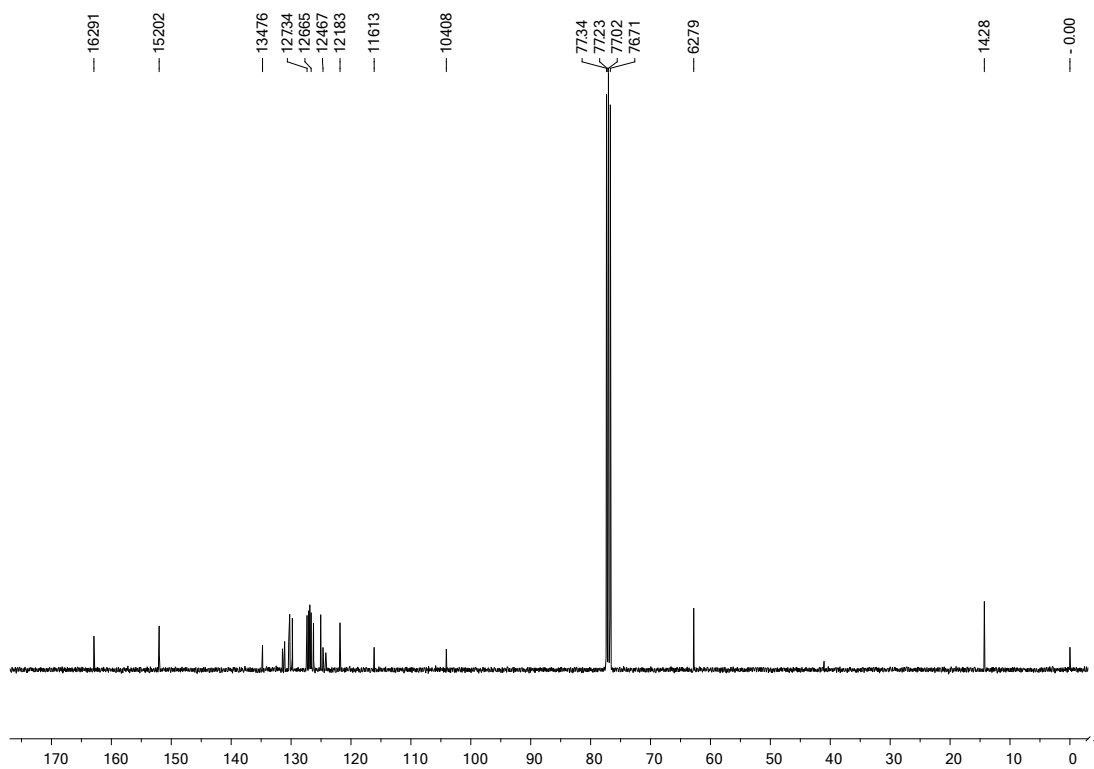
**Fig. S2.** Fluorescence spectra of PCN (10  $\mu\text{M}$ ) in the presence of  $\text{SO}_3^{2-}$  or  $\text{HSO}_3^-$  in PBS/DMSO = 5/5. For (a)  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 340/398$  nm, slits: 1.0/1.0 nm; For (b)  $\lambda'_{\text{ex}}/\lambda'_{\text{em}} = 440/535$  nm, slits': 2.5/5.0 nm. Each spectrum was recorded after 3 min.



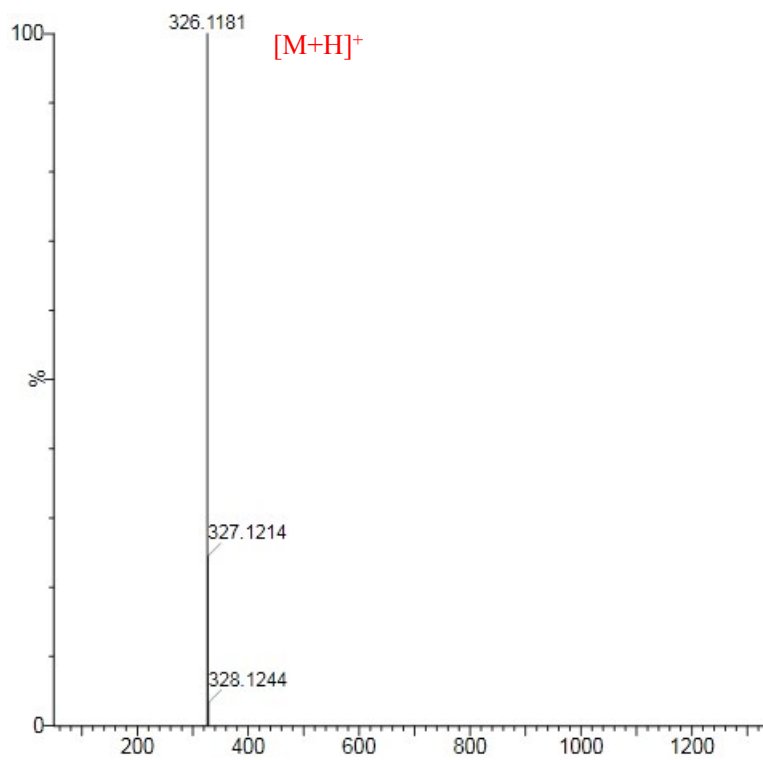
**Fig.S3.** The fluorescence spectra of PCN (10  $\mu\text{M}$ ) in the presence of sugar (15  $\text{mg mL}^{-1}$ ). For (a)  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 340/398 \text{ nm}$ , slits: 1.0/1.0 nm; For (b)  $\lambda'_{\text{ex}}/\lambda'_{\text{em}} = 440/535 \text{ nm}$ , slits': 2.5/5.0 nm. Each spectrum was recorded after 3 min.



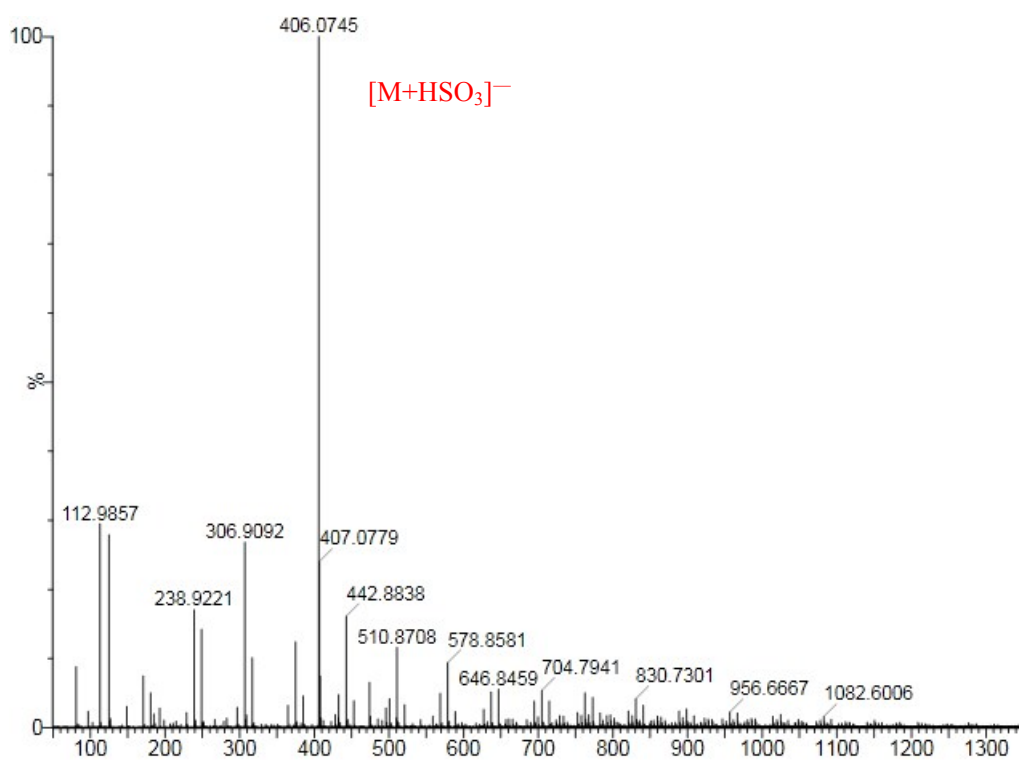
**Fig. S4.**  $^1\text{H}$  NMR spectrum of PCN in  $\text{d}^6\text{-DMSO}$  (400 MHz)



**Fig. S5.**  $^{13}\text{C}$  NMR spectrum of PCN in  $\text{CDCl}_3$  (100 MHz)



**Fig. S6.** HR-MS spectra of the probe PCN.



**Fig. S7.** HR-MS spectra of PCN-Na<sub>2</sub>SO<sub>3</sub> adduct.