

**Fluorescence staining of salicylaldehyde azine and applications in the
determination of potassium *tert*-butoxide**

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Supplementary data

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Table S1 Crystal data, diffraction data, and refinement data of compound **1**.

empirical formula	C ₁₄ H ₁₂ N ₂ O ₂
formula weight	240.26
crystal system	monoclinic
space group	P 21/n
a [Å]	8.5168 (8)
b [Å]	6.3070 (6)
c [Å]	12.2581(10)
α [deg]	90
β [deg]	113.498 (5)
γ [deg]	90
volume [Å ³]	603.85 (9)
Z	2
Dc [g/cm ³]	1.321
F (000)	252
T [K]	293 (2)
wavelength [Å]	0.71073
absorption coefficient [mm ⁻¹]	0.090
completeness to theta	27.48 (99.3%)

Table S2 Determination potassium *tert*-butoxide concentration

Sample	1	2
Content (%)	>97%	>97%
Weight (mg)	12.79	25.88
Volume of solution (ml)	100	100
Dosage (ml)	1	1
Dilution factor	10	10
Peak fluorescence intensity (a.u.)	204.39	322.61
Weight calculation (mg)	12.51	25.86
Content calculation (%)	97.81	99.91
RSD (%)		1.5

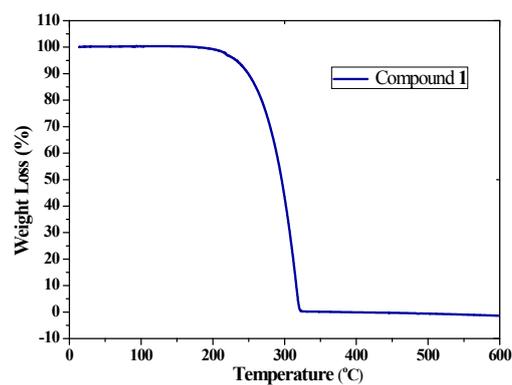


Fig. S1 TGA traces of compound **1** under a N₂ atmosphere heated at 10 °C /min.

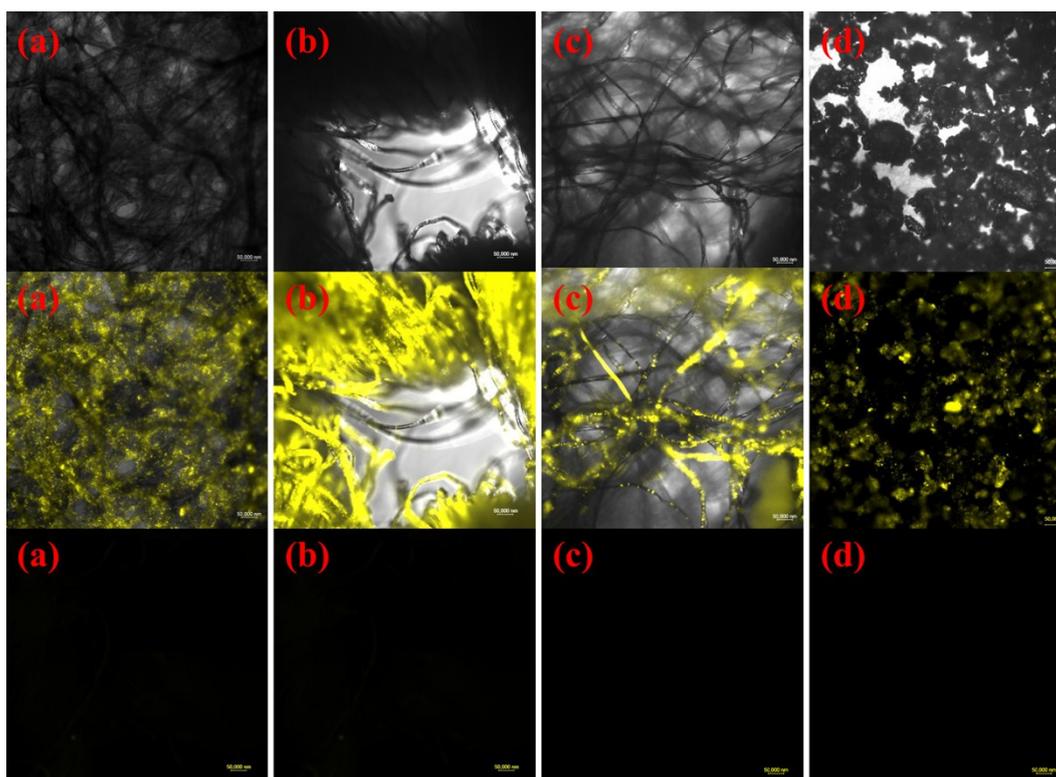


Fig. S2 Bright-field transmission images (the first layer images), confocal fluorescence microscopic images (the second layer images) of paper (**a**), pledget (**b**), cotton (**c**) dyed by compound **1** (1.0×10^{-3} M) and a mixture of compound **1** and KBr powder (1.0×10^{-6} mol/g, **d**). Third layer images are confocal fluorescence microscopic images of **a**, **b**, **c** and **d** without compound **1**.

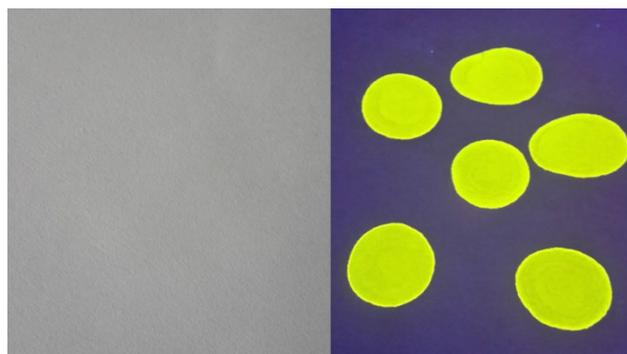


Fig. S3 Application of anti-counterfeiting paper with compound **1** under sunlight (left) and 365 nm UV light (right).

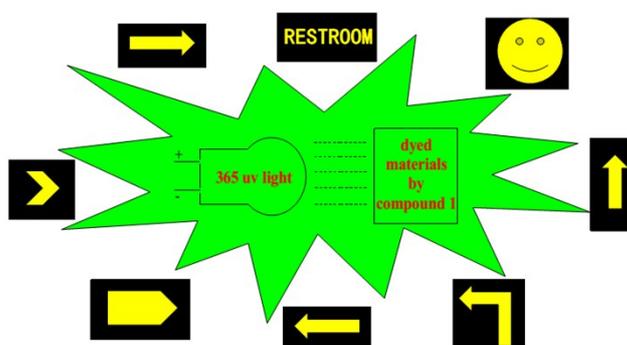


Fig. S4 Application of indicator icon with compound **1**.

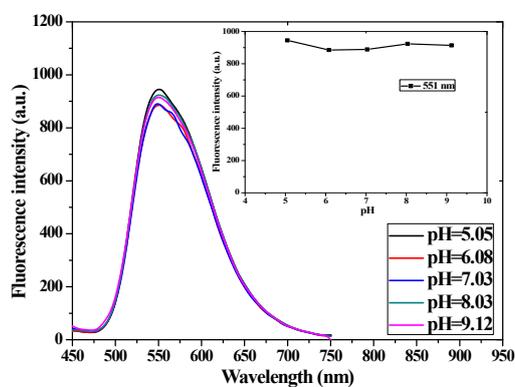


Fig. S5 Fluorescence intensity of compound **1** (1×10^{-4} M) in different pH HEPES buffers ($\lambda_{\text{ex}385}$ nm).

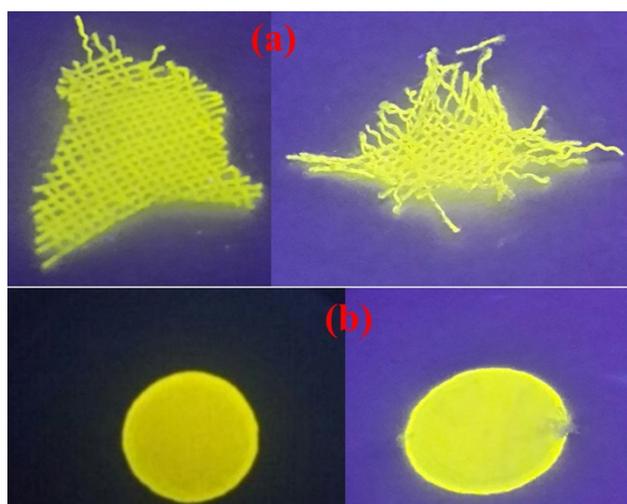


Fig. S6 Photographs of pledget (a) and filter paper (b) dyed by compound **1** without (right) and with (left) water washing for 5 min under 365 nm light.

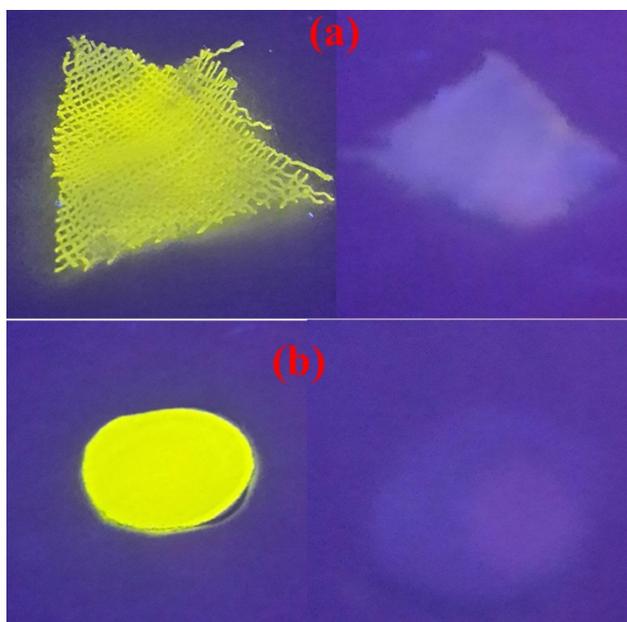


Fig. S7 Photographs of pledget (a) and filter paper (b) dyed by compound **1** without (right) and with (left) ethanol washing for 5 min under 365 nm light.

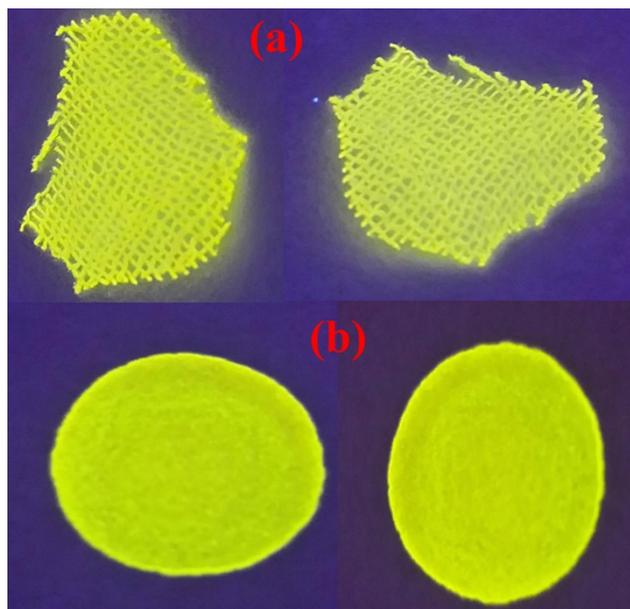


Fig. S8 Photographs of pledget (a) and filter paper (b) dyed by compound **1** without (right) and with (left) sunlight treatment for 120 h.

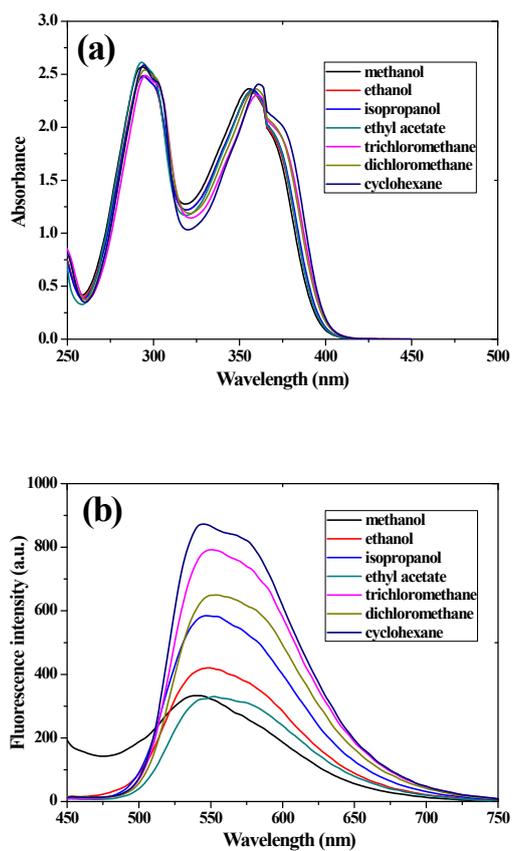


Fig. S9 UV-vis absorption spectra (a) and fluorescence spectra (b) of compound **1** (1 × 10⁻⁴ M) in different solvents (λ_{ex} 385 nm).

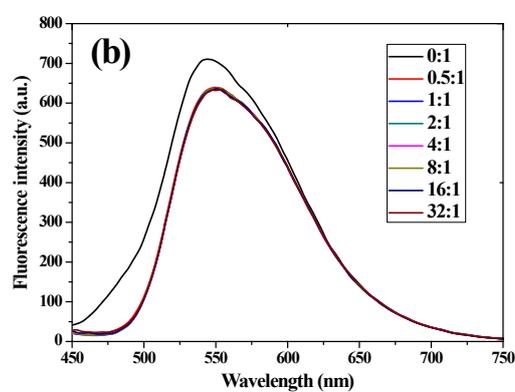
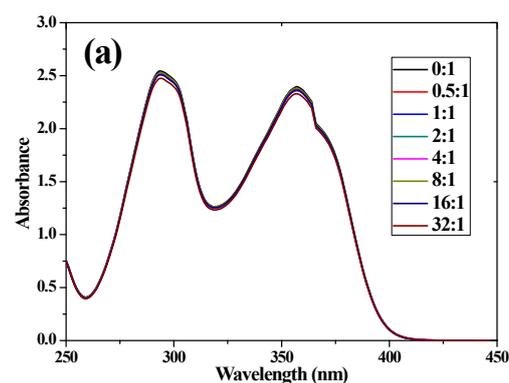


Fig. S10 UV-vis absorption spectral change (a) and fluorescence spectral change (b) of compound 1 in ethanol (1.0 × 10⁻⁴ M) with different molar ratios of TFA and compound 1 ($\lambda_{\text{ex}385 \text{ nm}}$).

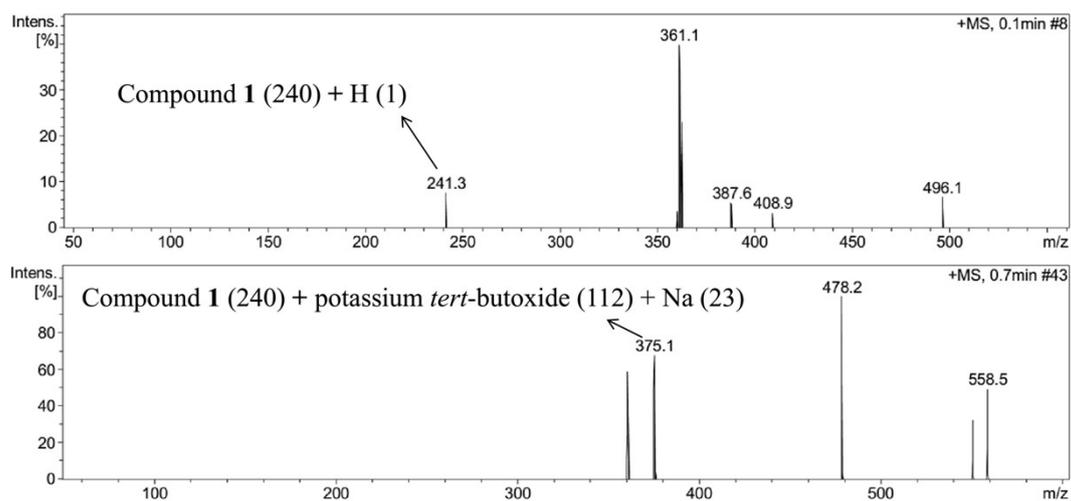


Fig. S11 Mass spectrometry of compound 1 without (upper) and with (lower) equivalent of potassium *tert*-butoxide measured by LC-MS.