

Supporting information

An internal filtration effect-based “off-on” probe for fluorescent and visual sensing of formaldehyde

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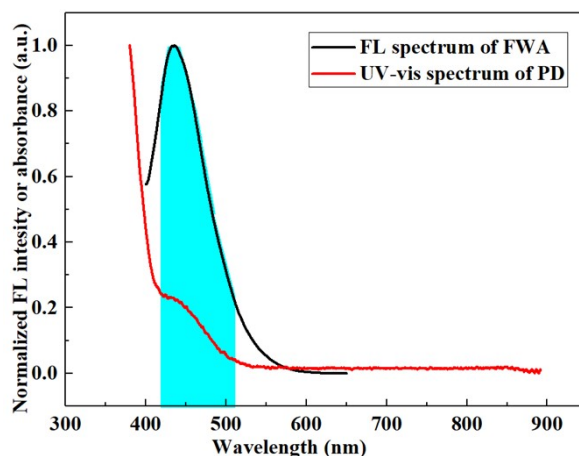


Fig. S1 The FL emission spectrum of FWA and the UV-Vis absorption spectrum of PD.

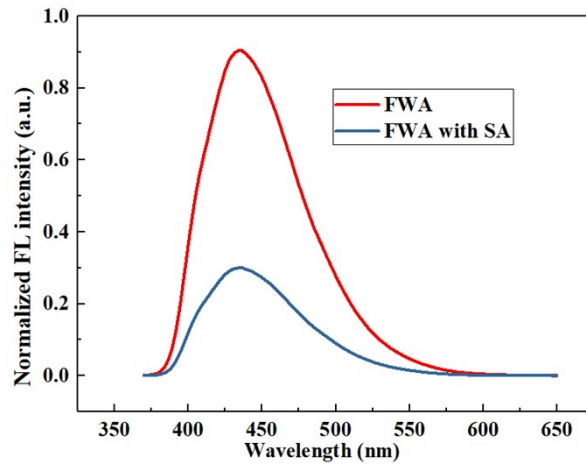


Fig. S2 The normalized FL spectra of FWA and FWA with 0.15 mL of 2% SA.

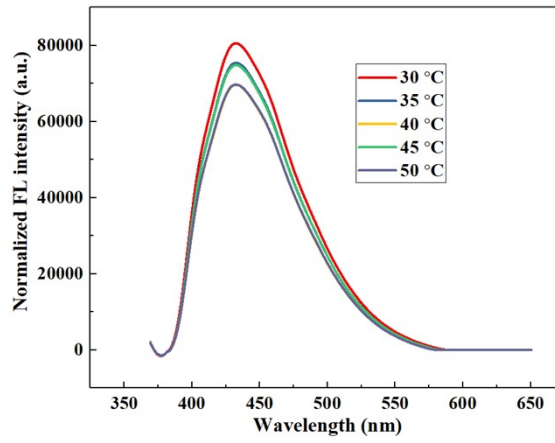


Fig. S3 The FL spectra of FWA after incubating at different temperature for 5 min.

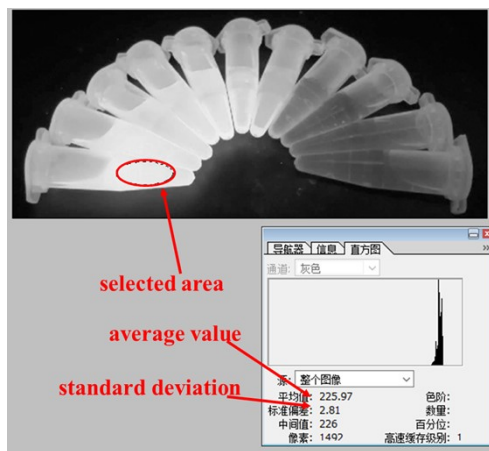


Fig. S4 The example of the acquirement of brightness value in a selected area by Photoshop 8.0.

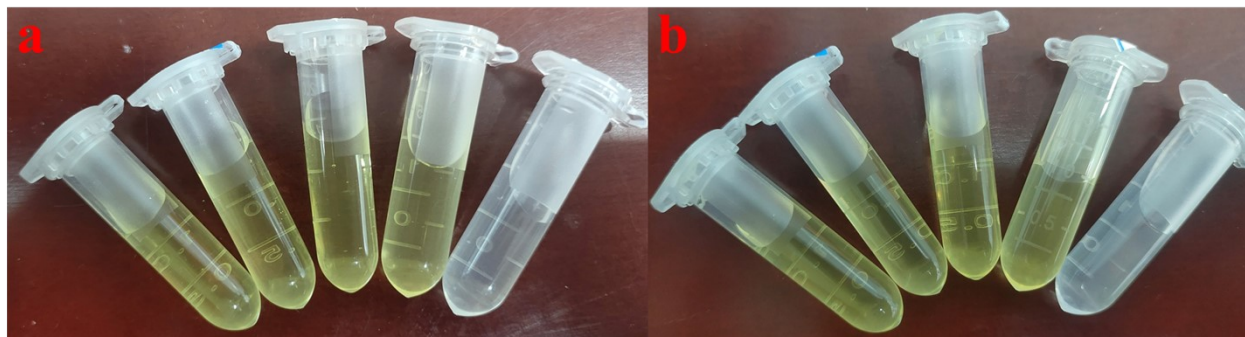


Fig. S5 The photos of FPD with different analytes after 14 min (a) and 18 h (b), where the samples from left to right were FPD with water, BzH, MDA, GO, and FA, respectively.

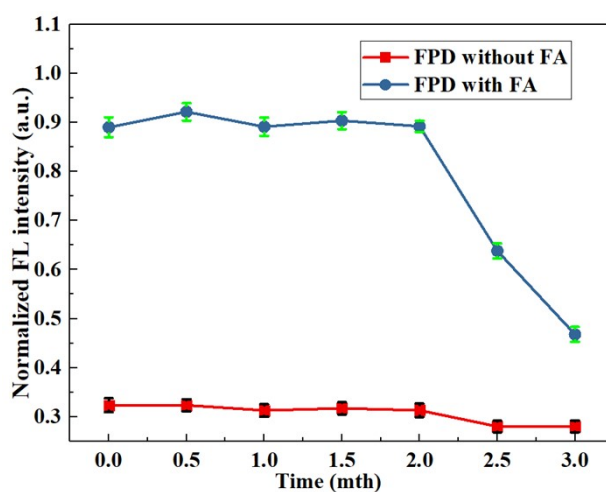


Fig. S6 The FL intensities of FPD without and with FA after FWA and PD were stored for 0-3 month.

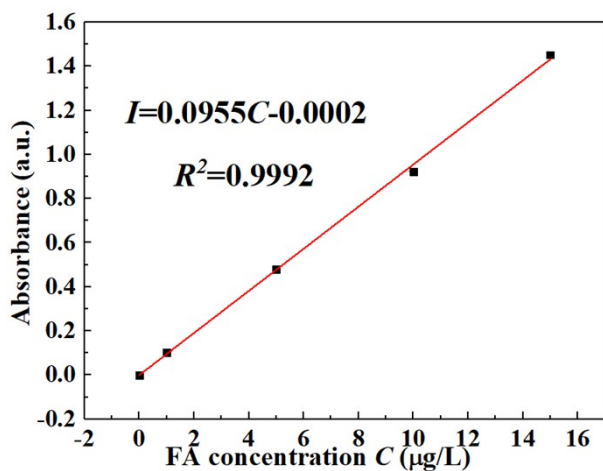


Fig. S7 The standard curve between the absorption intensity I and FA concentration C from 0 to 15 $\mu\text{g/L}$.

In this work, UV approach was used to verify the proposed method. Briefly, 20% ammonium acetate and 0.4% acetylacetone water solution were mixed in equal volume (solution A). 0.1 mL of 0, 20, 100, 200, and 300 $\mu\text{g/L}$ FA solution, 1 mL of solution A, and 0.9 mL of water were then mixed and incubated in a water bath at 70°C for 10 minutes, respectively. The absorption intensities were recorded at 414 nm, and FA concentrations (C) were 0, 1, 5, 10, and 15 $\mu\text{g/L}$. The standard curve between absorption intensity (I) and C was shown in Fig.S6. The RSD% was found to be less than 0.15%.