Electronic Supporting Information

Self-Assembled Triphenylamine Derivative for Trace Detection of Picric Acid

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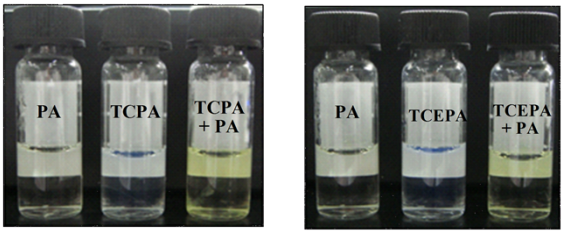

Fig. S1 visual color change due to the formation [TCPA & PA] and [TCEPA & PA] complex.

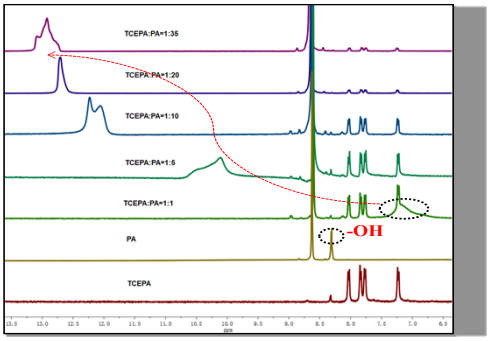

Fig. S2 ^{1}H NMR spectra of TCEPA and PA with different mol ratio in DMSO-d_6.

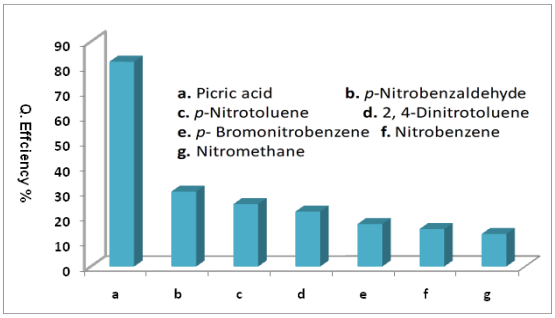

Fig. S3 Selectivity graph of aggregates of TCEPA toward various nitroderivatives.

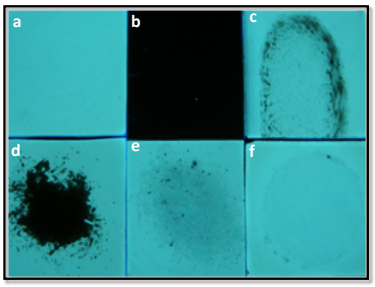

Fig. S4 Photographs of TCEPA-coated test strips under different experimental conditions. (a)blank. (b) After dipping into solutions of PA in THF (1×10^{-3} M). (c) Thumb impression after rubbing with PA crystals. (d) PA

crystals on top. (e) Corresponding photographs upon removal of the crystals after 5 min. (f) Quenching in fluorescence of area exposed to the vapors of PA. All photographs were taken under 365 nm UV illumination.

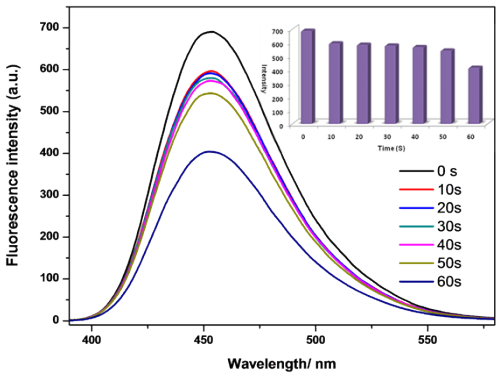

Fig. S5 Time-dependent fluorescence quenching of TCEPA upon PA vapor exposure. Inset shows change in emission intensity of TCEPA on exposure to PA with time.

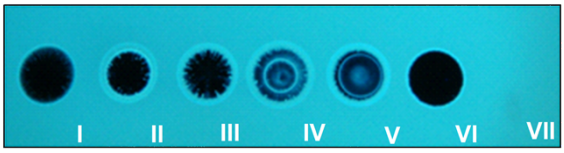

Fig. S6 Photograph of the fluorescence quenching of TCEPA-coated test strips by PA on contact mode (10 µL of PA with a spot area of ~ 0.2 cm^2) when viewed under 365 nm UV illumination., (I) 1×10^{-3} M, (II) 1×10^{-5} M, (III) 2×10^{-7} M, (IV) 1×10^{-9} M, (V) 1×10^{-11} M, (VI) 1×10^{-13} M, (VII) blank.

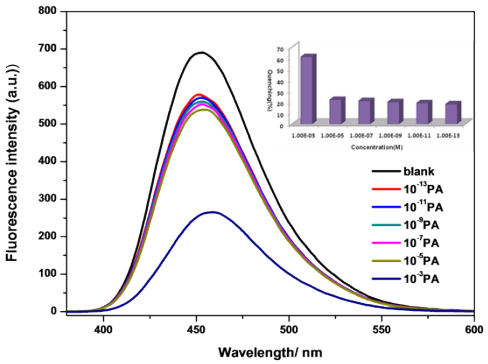

Fig. S7 Emission spectral change (λ_{ex} = 368 nm) of the TCEPA coated test strips against concentration of added PA in THF (10 µL, 10^{-13} - 10^{-3} M). Inset shows plot of the emission at 455 nm (%) of the test strips against concentration of added PA in THF.

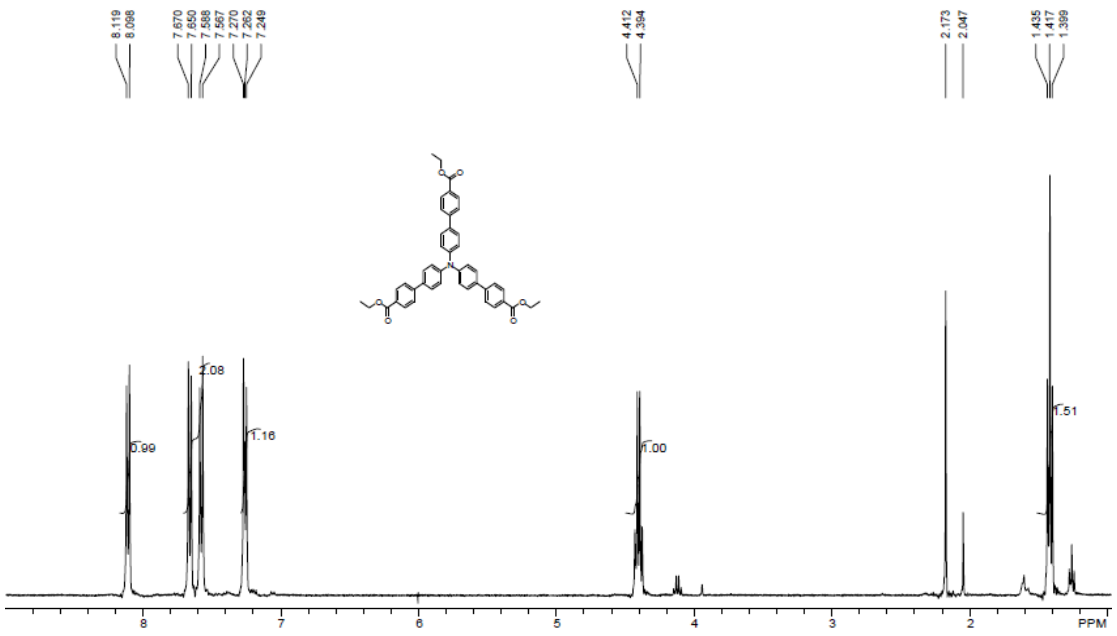

Fig. S8 [1]HNMR spectrum of TCEPA in DMSO-d_6.

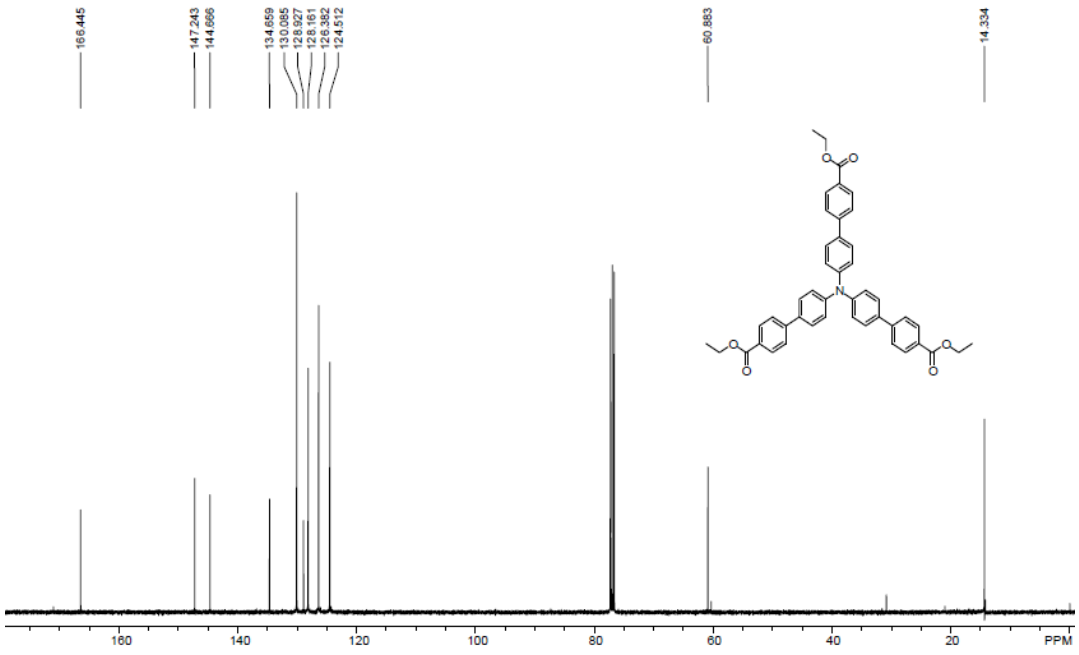

Fig. S9 [13]CNMR spectrum of TCEPA in DMSO-d_6.

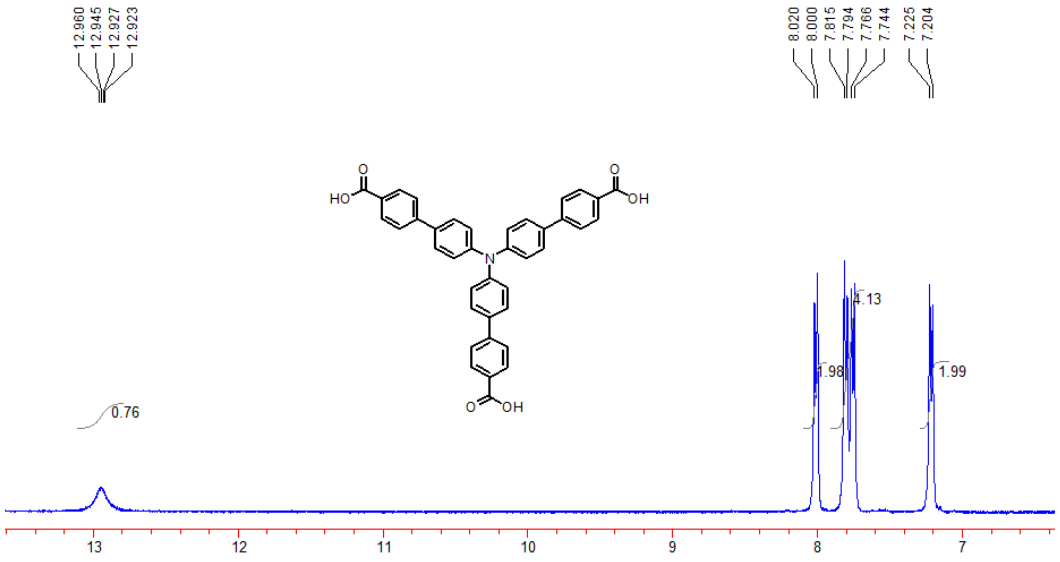

Fig. S10 [1]HNMR spectrum of TCPA in DMSO-d_6.

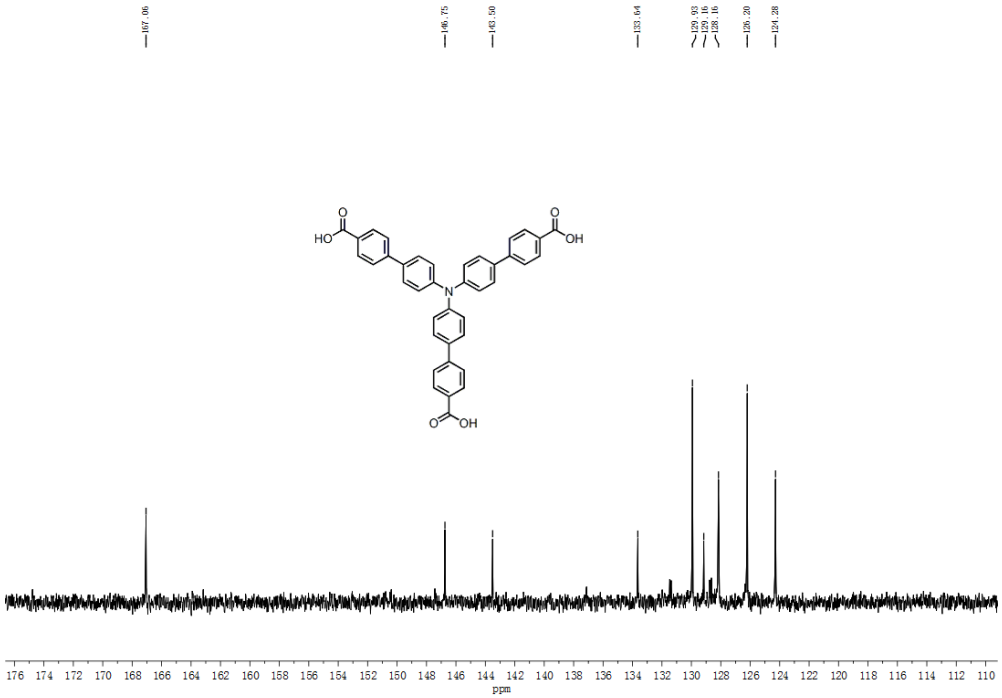

Fig. S11 [13]CNMR spectrum of TCPA in DMSO-d_6.

Table S1 A comparison of the selectivity, K_{SV}, detection limit and Vapour phase detection of the TCPA/TEPA with previous reports

Publication	**Selectivity Towards PA**	**K_{SV} (M^{-1})**	**Detection limit**	**Vapour phase detection**
Present Manuscript	***Very high***	***2.9810^6 and 14.3×10^6***	***5ppb / 40ppb***	***Yes***
Chem. Commun., **2012**, *48*, 5007.	Low	9.9×10^4	20 ppb	Yes
J. Mater. Chem., **2012**, *22*, 11574.	moderate	3.04×10^4	23 ppb	No
Macromol. Rapid Commun. **2010**, *31*, 834.	Not given	6.36×10^4	1 ppm	No
Chem. Commun., **2011**, *47*, 10046.	Low	2.1×10^3	Not given	No
Inorg. Chem., **2011**, *50*, 1506.	Low	1×10^5	Not given	No
Org. Lett., **2012**, *14*, 6084.	high	9×10^4	96 ppb	No
J. Org. Chem., **2013**, *78*, 1306.	Low	3.3×10^4	467 ppb , 354 ppb	No
J. Am. Chem. Soc., **2003**, *125*, 3821.	Low	1.1×10^4	−	No
Inorg. Chem., **2012**, *51*, 13072	low	−	−	No
Org. Lett., **2012**, *14*, 3112	low	6.9×10^4	500 ppb	No
Chem. Commun., **2012**, *48*, 7167.	high	2.5×10^5	400 ppb	No
ACS Appl. Mater. Interfaces, **2011**, *3*, 1245.	high	5.7×10^3	70 ppb	No
Langmuir, **2012**, *28*, 12417.	high	13.3×10^5, 10.0×10^5	−	Yes
J. Phys. Chem. B, **2013**, *117*, 14358.	high	1.0×10^5	−	No