Electronic Supplementary Material (ESI) for Analytical Methods.
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Supplementary Material

A novel imine linked covalent organic framework for rapid detection of methyl paraoxon

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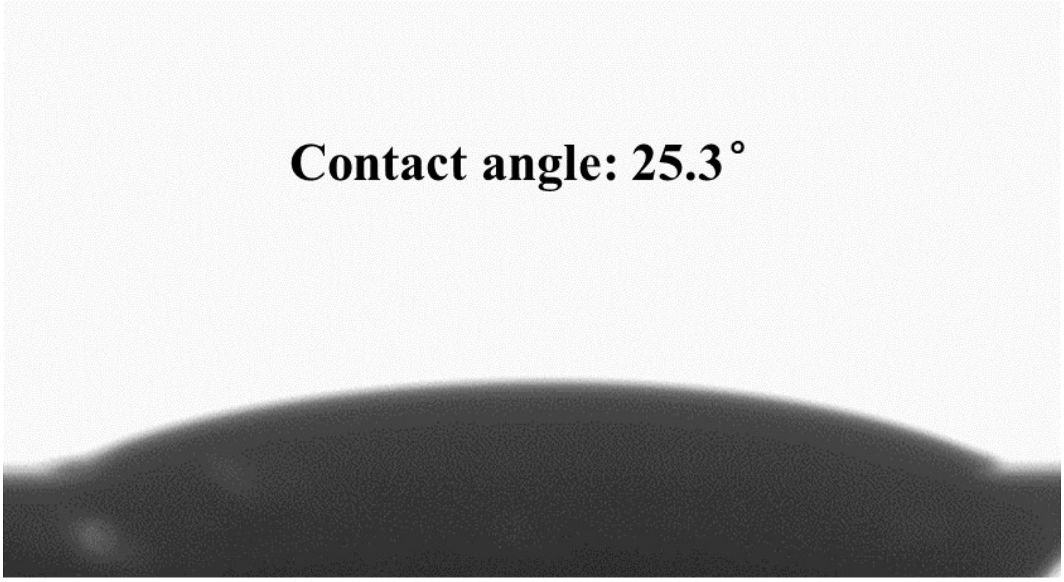

Figure S1. Water contact angle measurement of $COF_{ML\text{-}DHTA}$

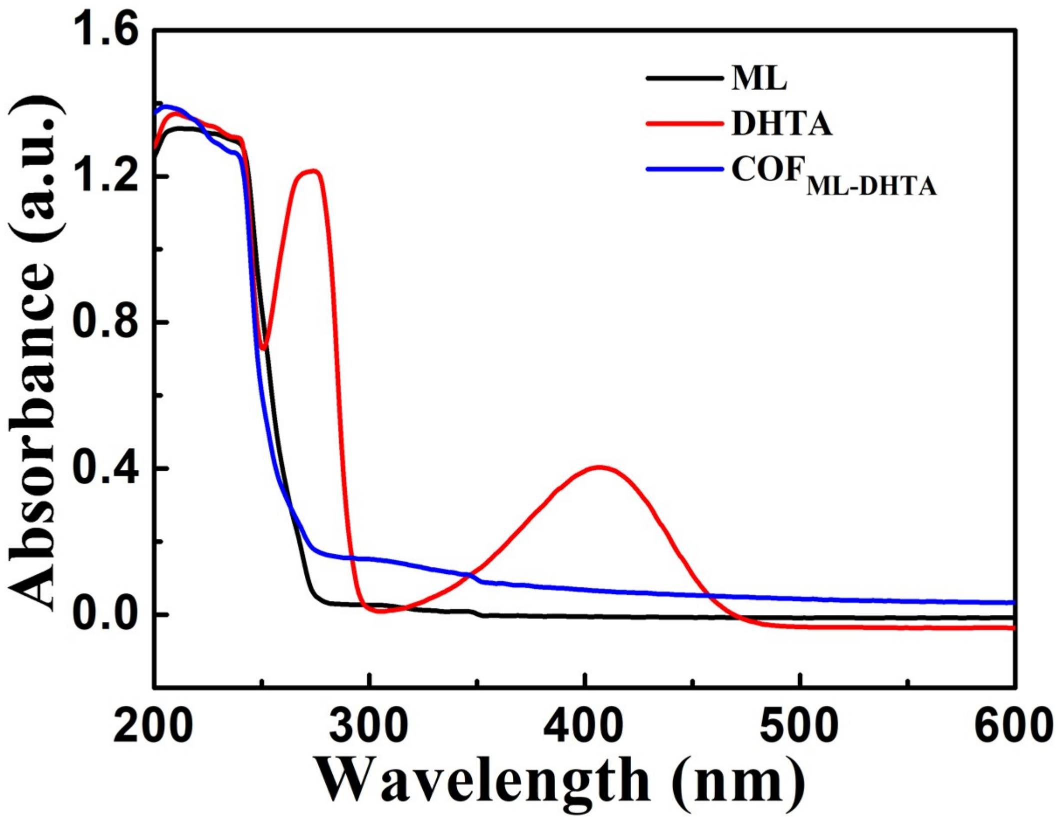

Figure S2. UV-vis absorption spectrum of ML, DHTA and $COF_{ML\text{-}DHTA}$.

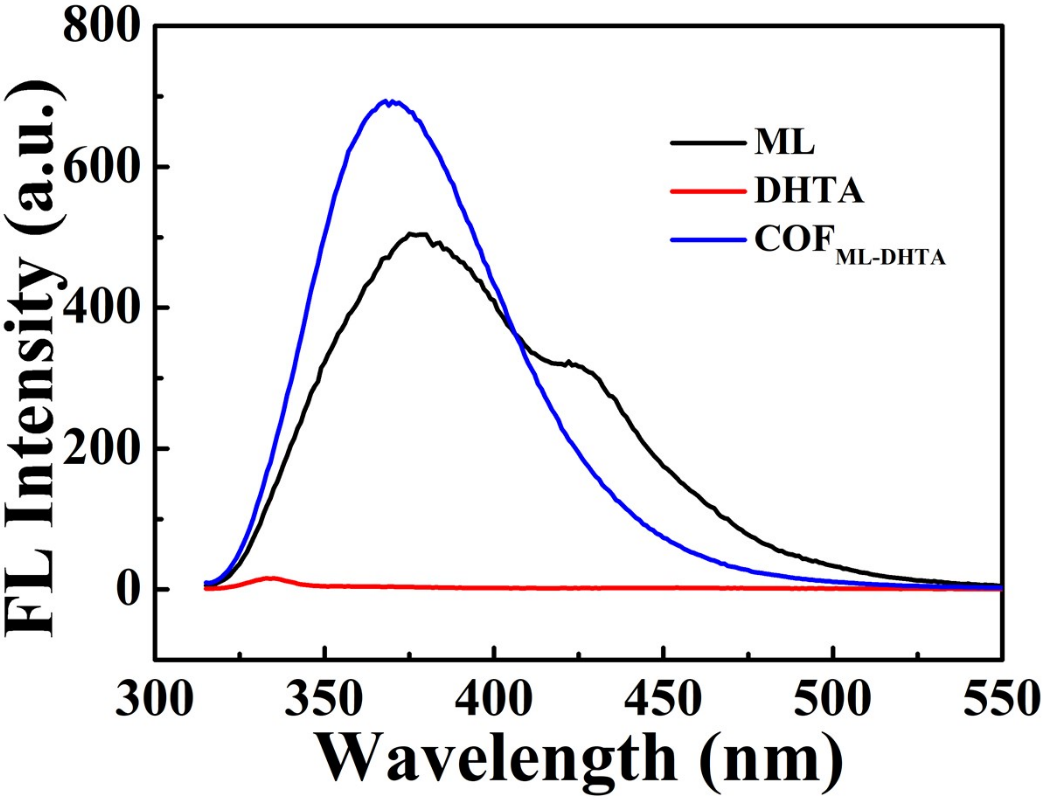

Figure S3. Fluorescence emission spectrum of ML, DHTA and COF$_{ML-DHTA}$.

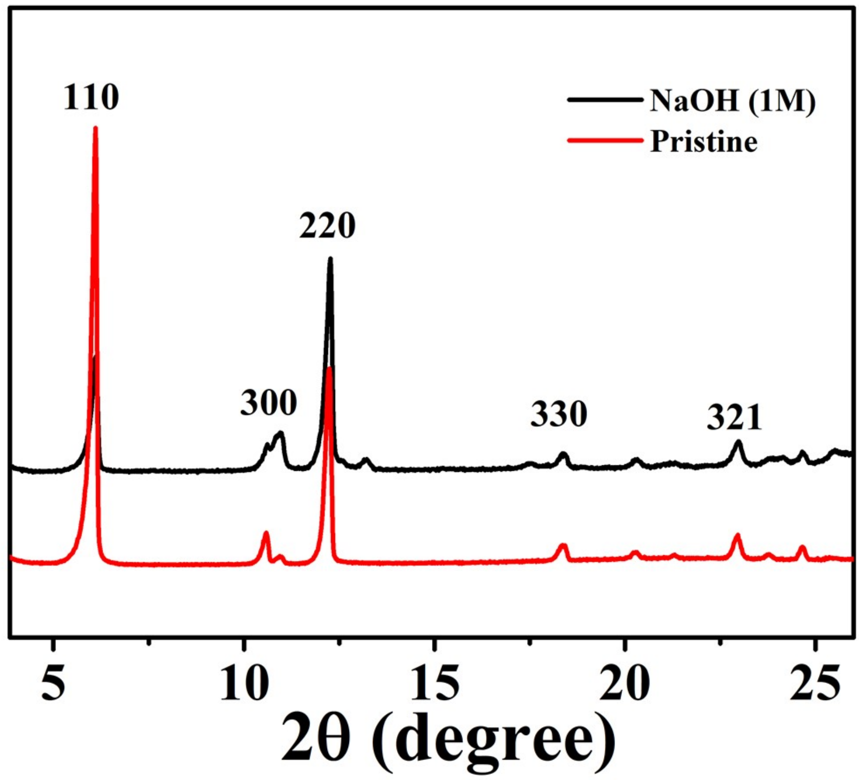

Figure S4. PXRD patterns of $COF_{ML\text{-}DHTA}$ and after treatment in 1M NaOH.

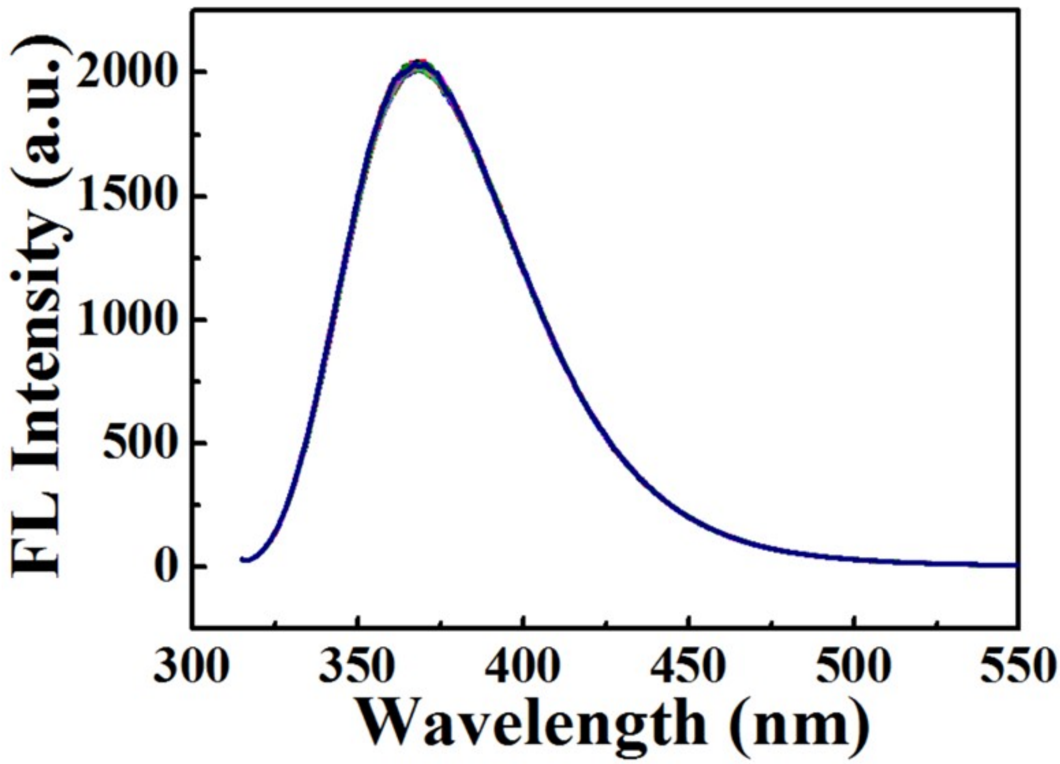

Figure S5. The fluorescence intensity of $COF_{ML-DHTA}$ material was measured continuously for 17min.

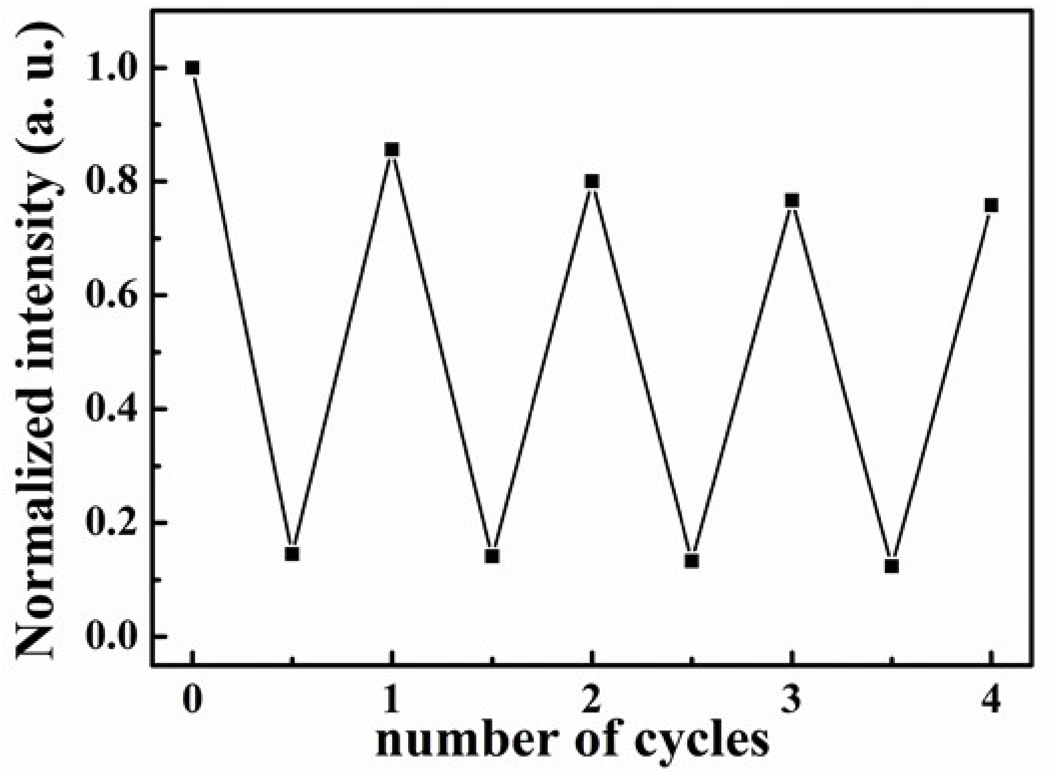

Figure S6. The reusability of $COF_{ML\text{-}DHTA}$ for four cycles

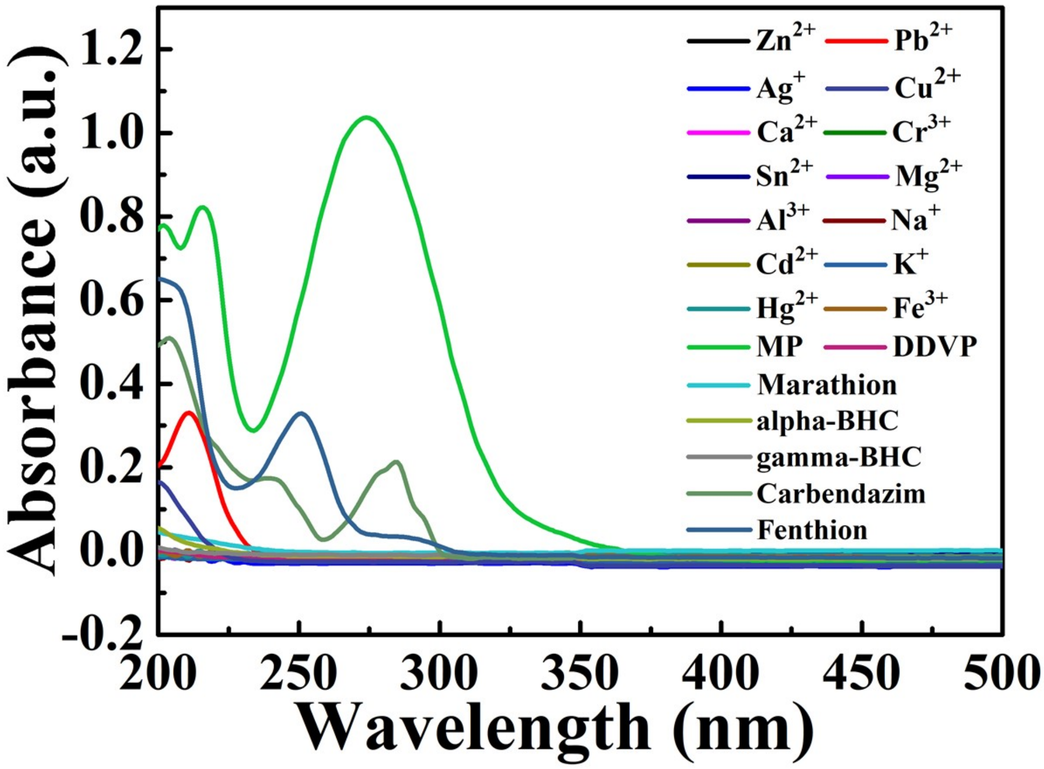

Figure S7. UV-vis spectra of Zn^{2+}, Pb^{2+}, Ag^{+}, Cu^{2+}, Ca^{2+}, Cr^{3+}, Sn^{2+}, Mg^{2+}, Al^{3+}, Na^{+}, K^{+}, Cd^{2+}, Hg^{2+}, Fe^{3+}, DDVP, malathion, fenthion, gamma-BHC, alpha-BHC and carbendazim.

Table S1. Crystallographic information of the modeled $COF_{ML\text{-}DHTA}$

Sample name	$COF_{ML\text{-}DHTA}$
Stacking model	ABC
a [Å]	28.83444
b [Å]	28.83444
c [Å]	6.93499
α [deg]	90
β [deg]	90
γ [deg]	120
Interlayer distance (Å)	2.3 Å

Table S2. Atom sites for the modeled $COF_{ML\text{-}DHTA}$

Atom site label	Atom site fraction x	Atom site fraction y	Atom site fraction z
N1	0.3028	0.6128	0.9306
N2	0.2494	0.5900	0.9361
C3	0.2240	0.6190	0.9394
N4	0.2567	0.6734	0.9339
N5	0.1640	0.5950	0.9533
C6	0.1228	0.5453	0.9689
C7	0.0600	0.5240	0.9844
C8	0.0225	0.4687	1.0006
C9	0.0344	0.5542	0.9846
H10	0.2392	0.6966	0.9368
H11	0.1325	0.5145	0.9729
H12	0.0375	0.4419	1.0020
H13	0.0583	0.5963	0.9733
C14	0.3333	0.6667	0.9282

Table S3. Comparison of analytical parameters of various probe.

Probe/Material	Linear range	Detection limit	Reference
AChE–SF/Pt	0.06–50 nM	0.02 nM	1
4-NP	1.0–1000.0 ppb	1.77 ppb	2
Su-TPE/PrS	0–16 nM (0–384 ng mL^{-1})	0.22 nM (5.28 ng mL^{-1})	3
AChE/CoPc/PVA–AWP/SPE	2.0–4000 nM	2.6nM	4
Fe_3O_4 MNPs	-	10 nM	5
This work	0.57 ng mL^{-1} to 30 μg mL^{-1}	0.19 ng mL^{-1}	

Table S4. Recovery tests of methyl paraoxon (MP) added in actual water samples by $COF_{ML\text{-}DHTA}$ material.

Samples	Spiked MP (ng mL^{-1})	Measured value (ng mL^{-1})	Recovery (%)
Lake water 1	0	Not detected	-------
Lake water 2	4	4.25±1.89	106.3
Lake water 3	8	8.11± 4.05	101.4
Lake water 4	12	12.23± 3.51	101.9