

Supporting information

A sensitive and selective “turn-on” fluorescence sensor engaging BINOL unit for rapid detection of cyanide Anion

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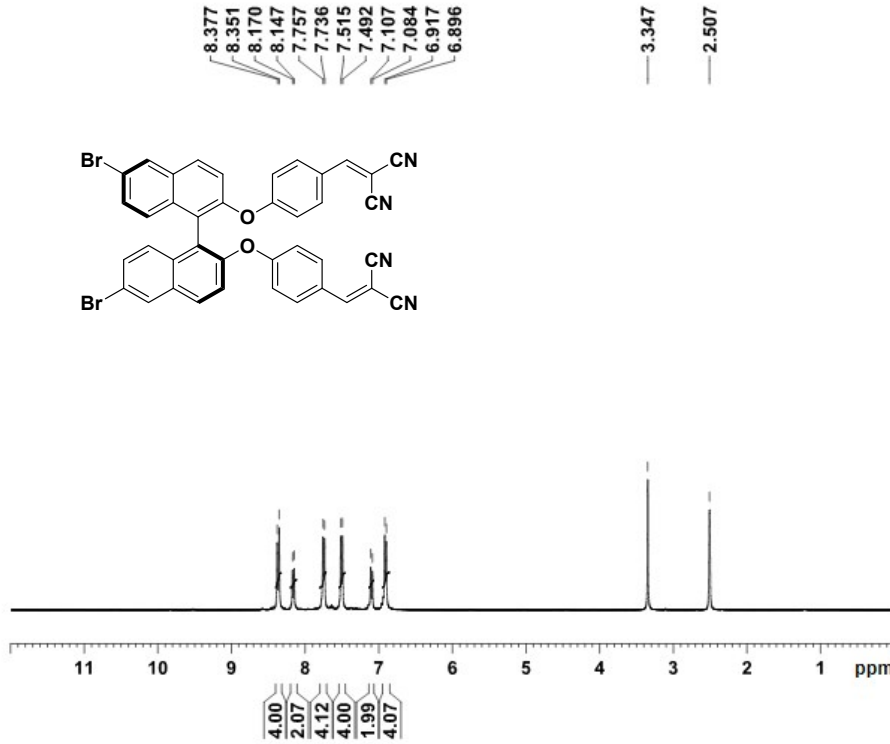
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OXOBINOL-BR-CN

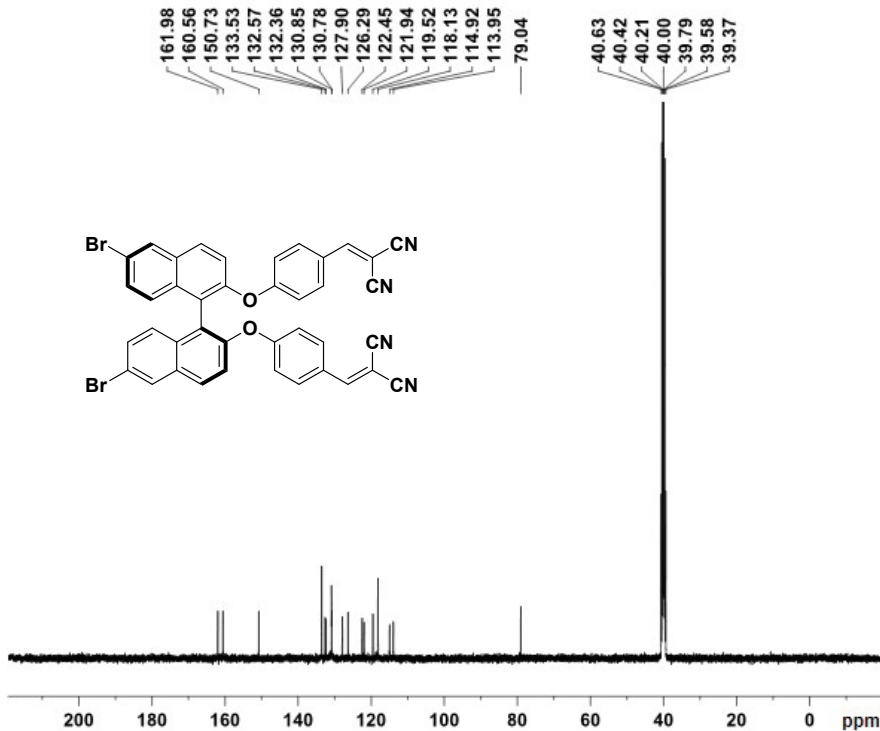


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PROCNO 1

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FIDRES 0.244532 Hz
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RG 143.73
DW 62.400 usec
DE 6.50 usec
TE 299.2 K
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TD0 1
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NUC1 1H
P1 14.23 usec
PLW1 14.00000000 W

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WDW EM
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LB 0.30 Hz
GB 0
PC 1.00

Signature SIF VIT VELLORE
OXOBINOL-BR-CN



Current Data Parameters
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PROCNO 1

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D11 0.03000000 sec
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NUC1 13C
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LB 1.00 Hz
GB 0
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Fig. S1 Copies of ^1H NMR and ^{13}C NMR of compound 2

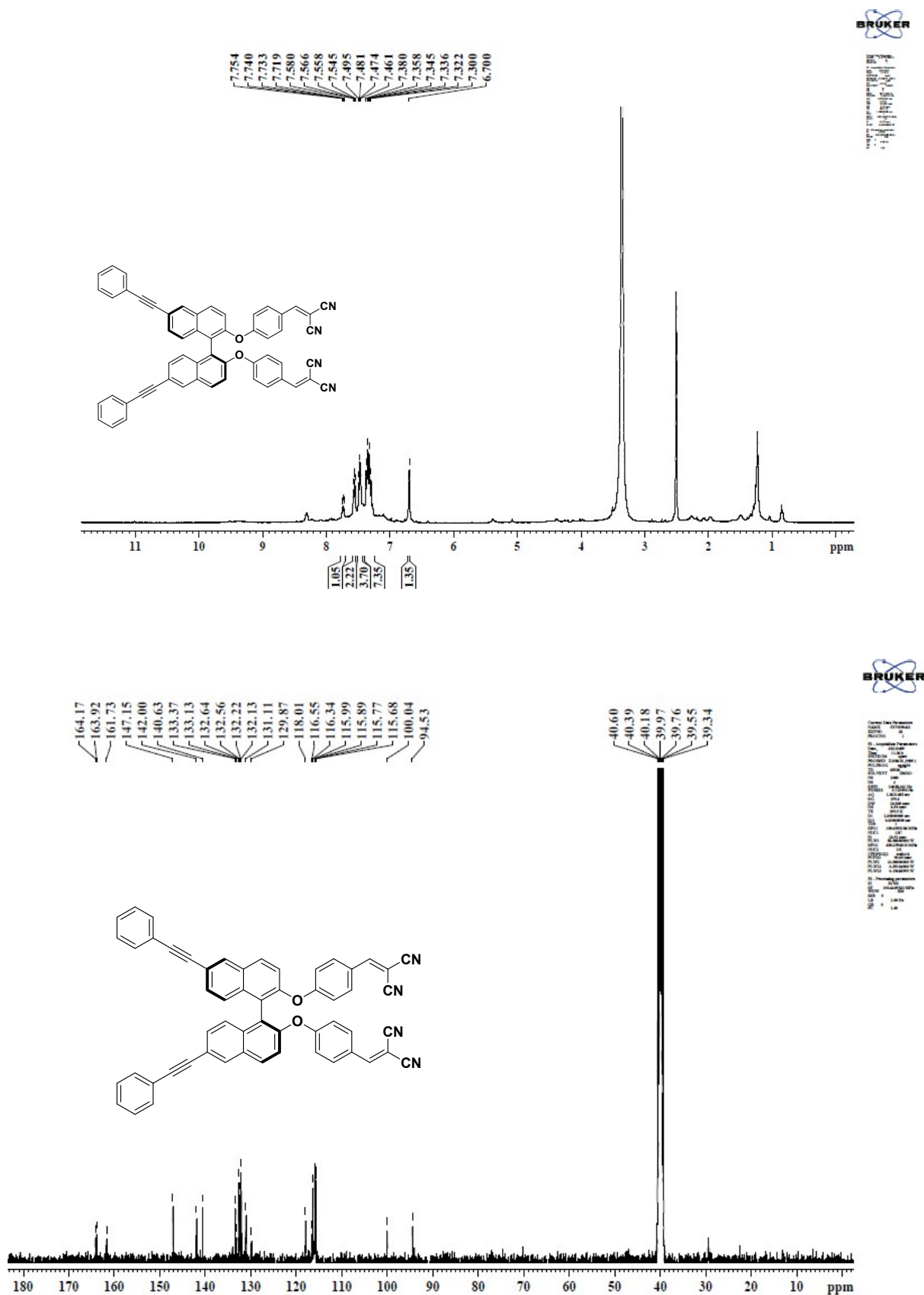


Fig. S2 Copies of ^1H NMR and ^{13}C NMR of compound **BBCN**

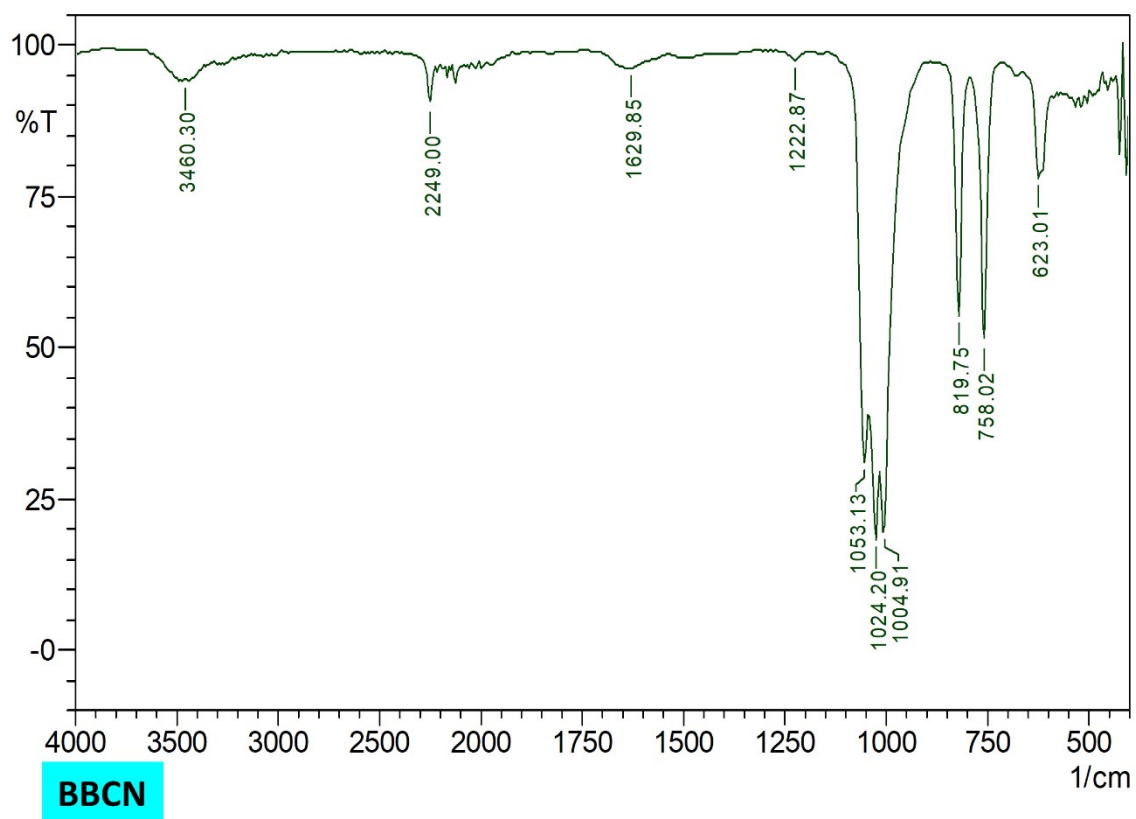


Fig. S3 Copy of FT-IR spectra of **BBCN**

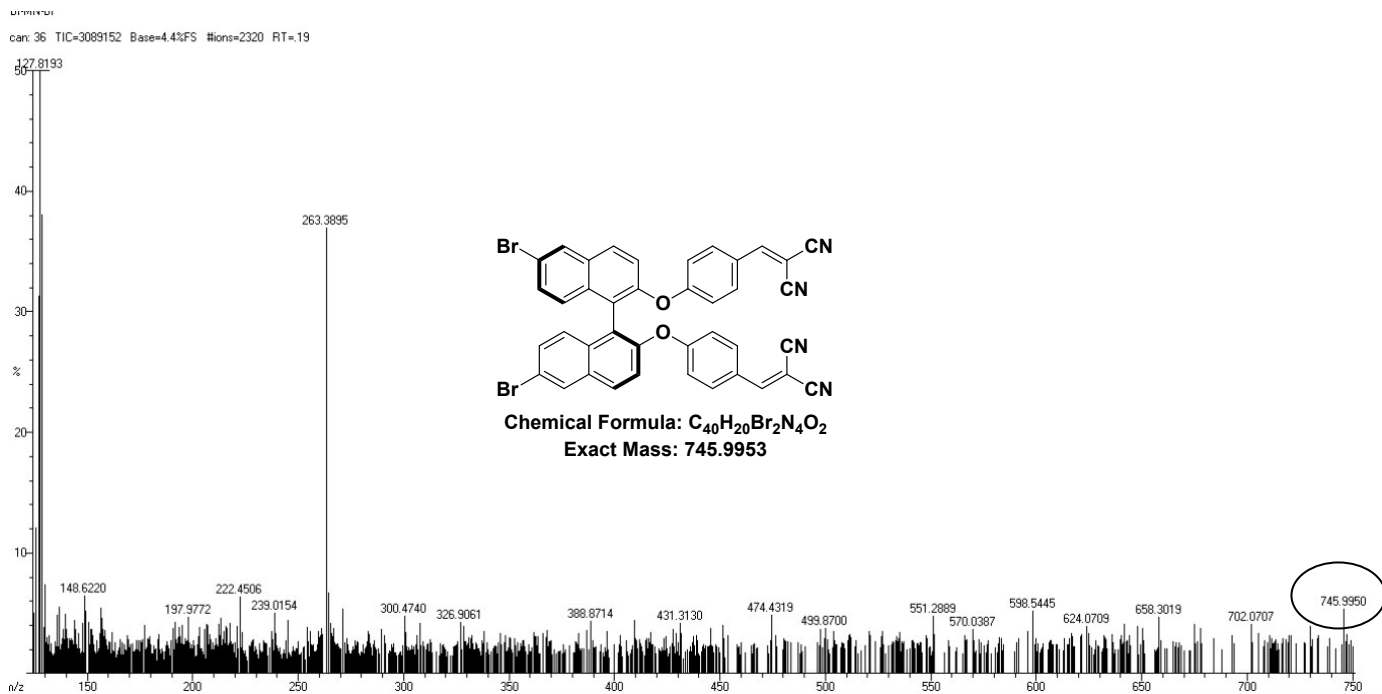


Fig. S4 HRMS of compound 2

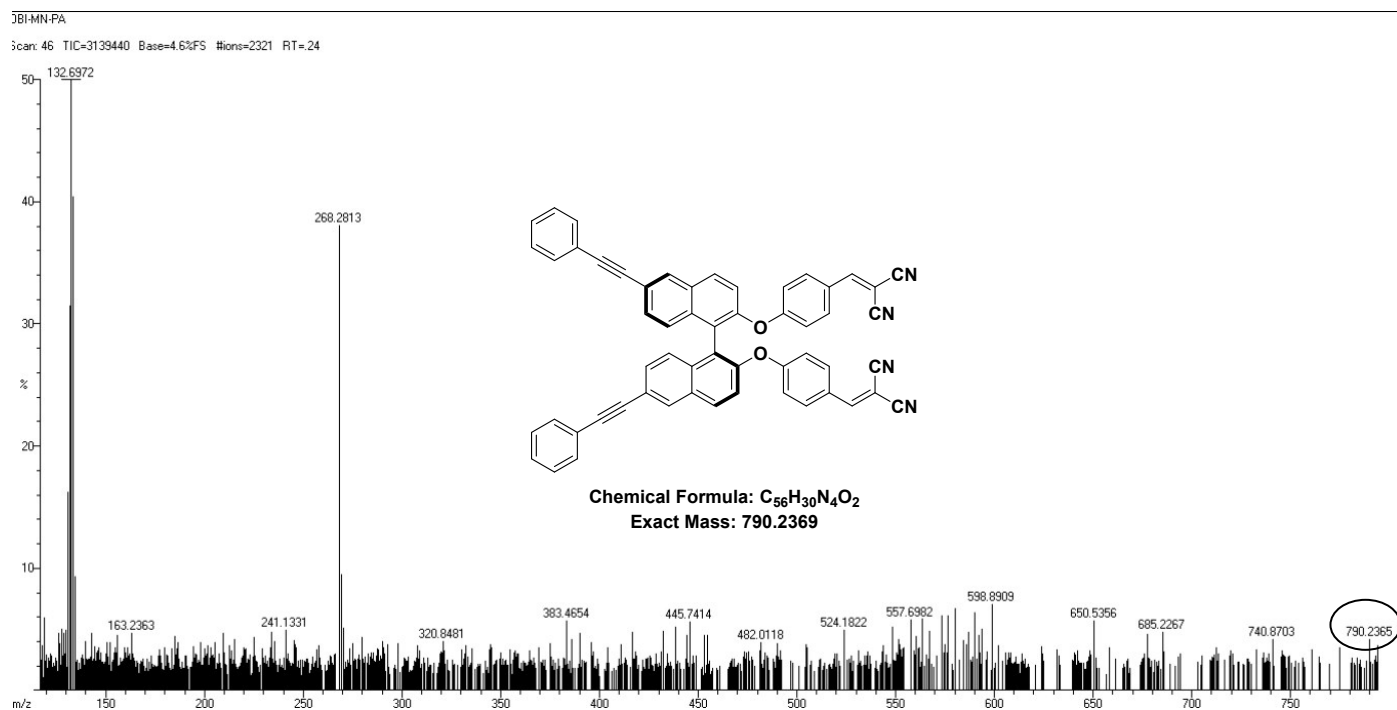


Fig. S5 HRMS of compound BBCN



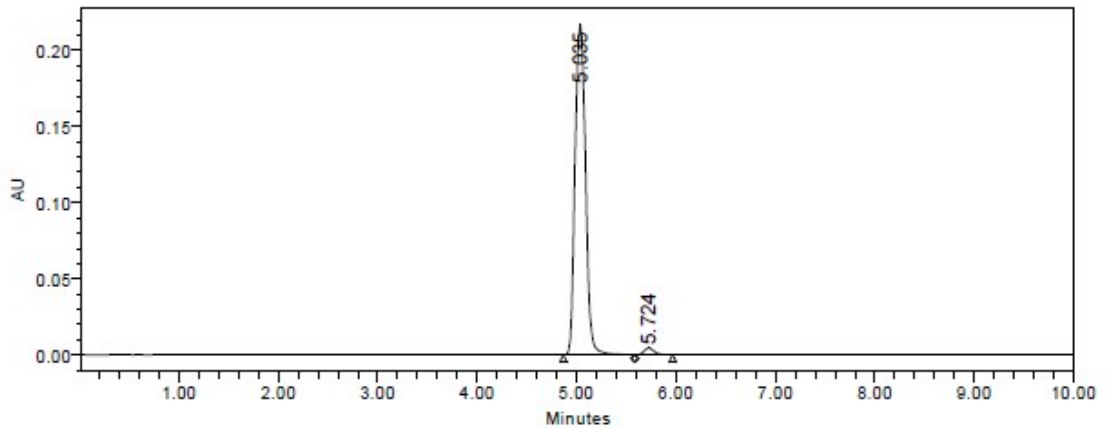
Multi Sample Summary

Reported by User: System

Project Name: VIT2021

SAMPLE INFORMATION

Sample Name:	BBCN	Acquired By:	System
Sample Type:	Unknown	Date Acquired:	4/6/2021 2:10:35 PM
Vial:	1	Acq. Method Set:	2021
Injection #:	16	Date Processed:	4/6/2021 3:19:17 PM
Injection Volume:	20.00 ul	Processing Method:	sathish 06042021
Run Time:	10.0 Minutes	Channel Name:	2487Channel 1
Sample Set Name:		Proc. Chnl. Descr.:	342



	RT	Area	% Area	Height
1	5.035	1571236	98.11	217347
2	5.724	30247	1.89	4503

Chromatography parameters:

Column : Hypersil C18 (250 x4.6mm) 5µm

Detector : UV at 342 nm

Injection Volume : 20µL

Run Time : 10 minutes

Temperature : Ambient

Elution program : Isocratic

Mobile Phase : Water:Acetonitrile (60:40)

Fig. S6 HPLC of compound **BBCN**

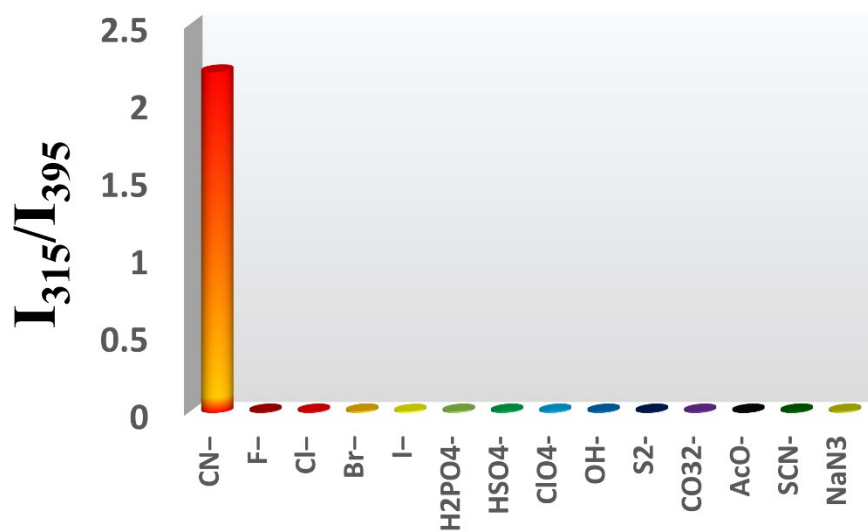


Fig. S7 Bar diagram representing fluorescent ratiometric value (I₃₁₅/I₃₉₅) against various anions tested with **BBCN**.

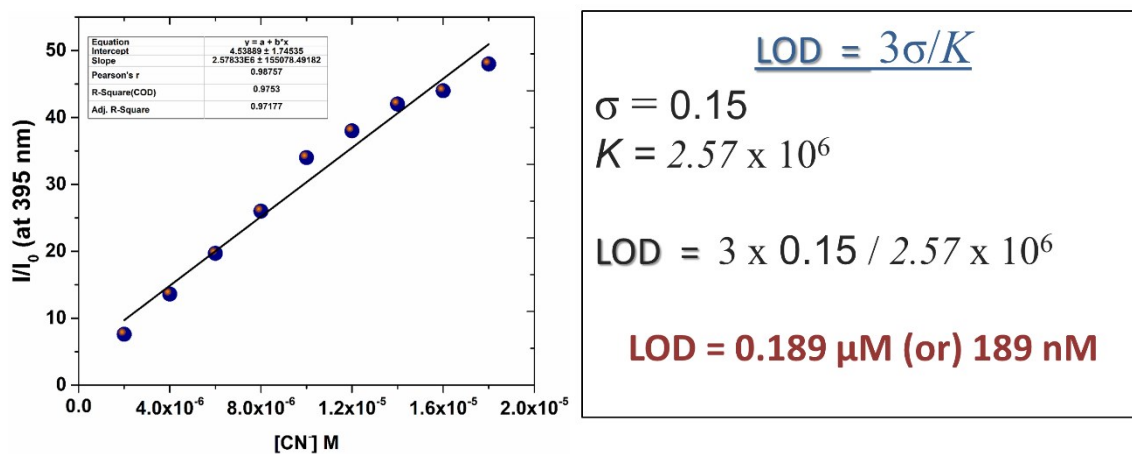


Fig. S8 Plot of fluorescence intensity change at 315 nm against the concentration CN⁻ ion and the calculation of LOD.

Spectrum Plot Report

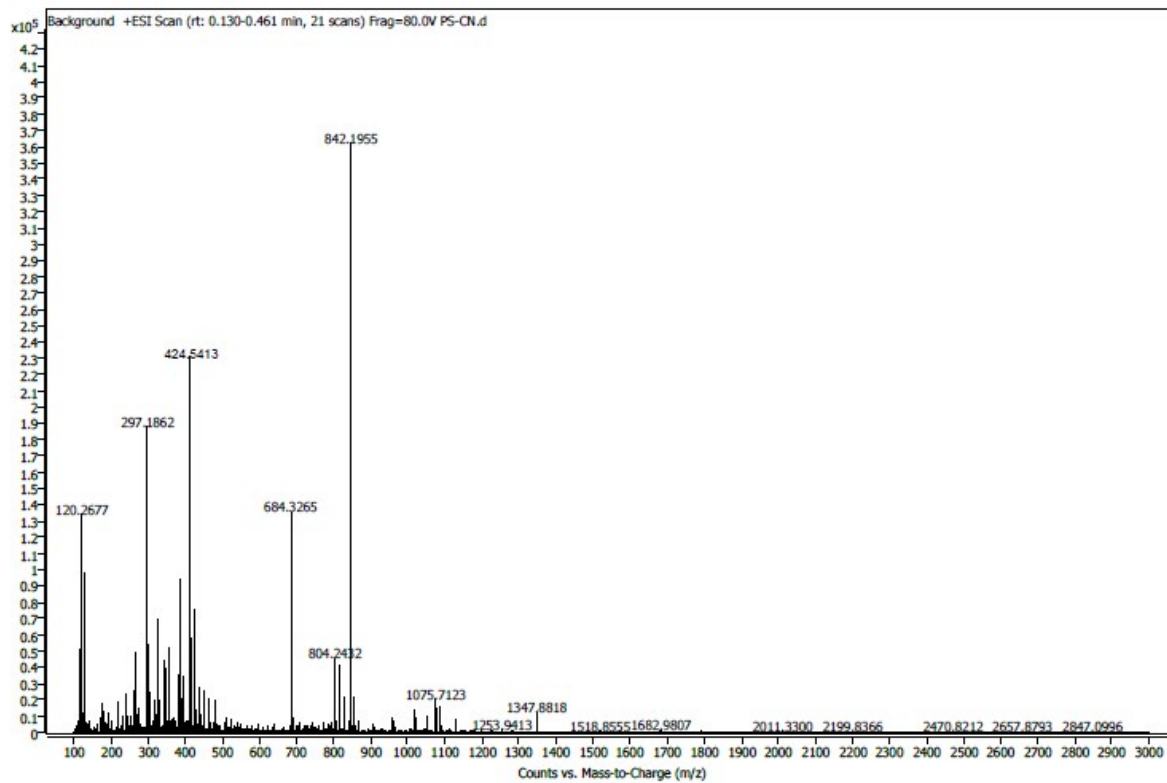


Fig. S9 ESI-MS spectra of **BBCN+CN⁻**.

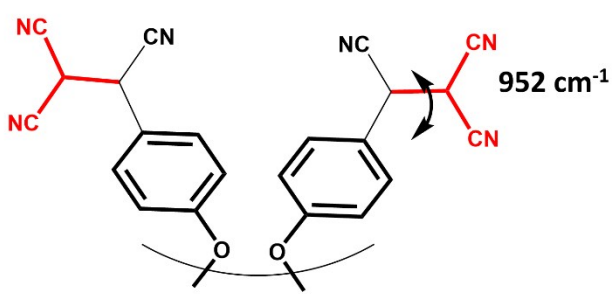
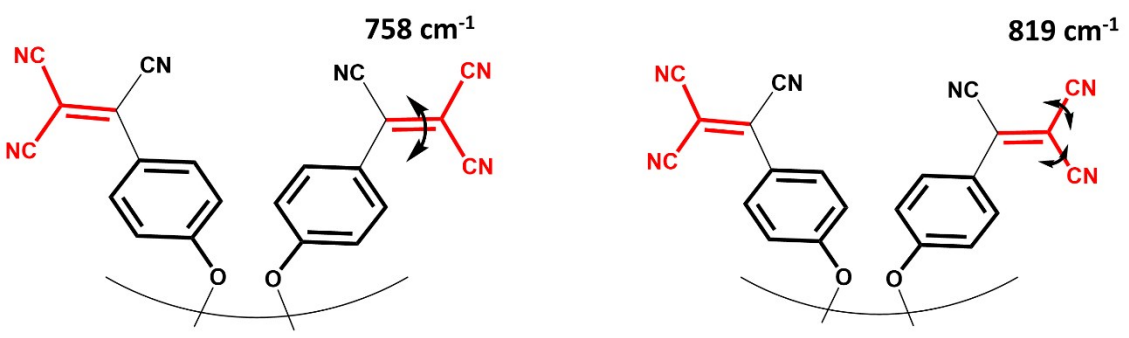
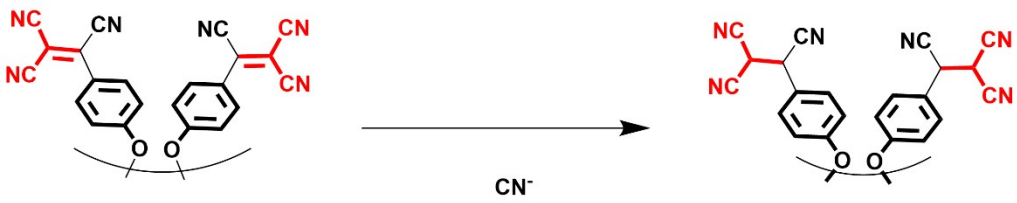
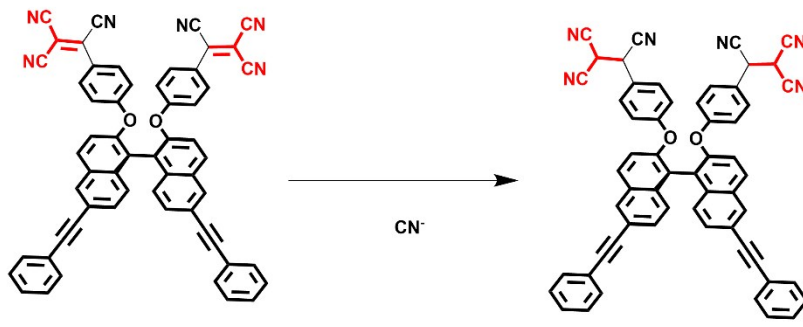
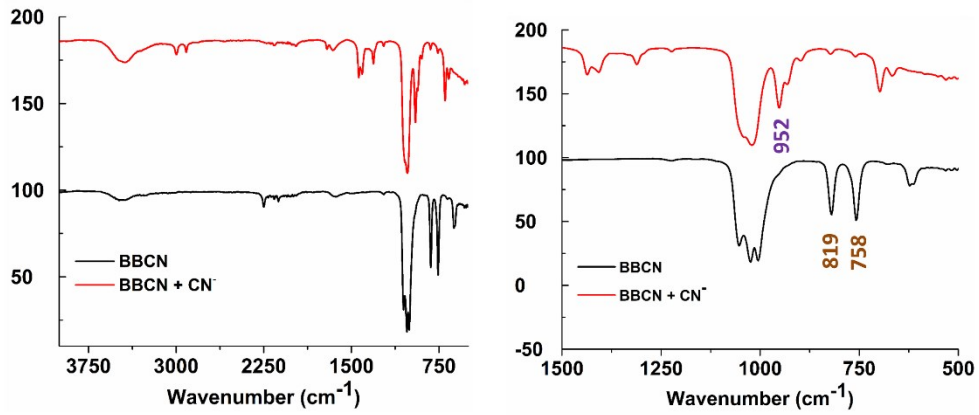


Fig. S10 FT-IR spectra of **BBCN** and **BBCN+CN⁻**.**Table S1**Comparison of LOD of CN⁻ detection reported in recent papers

S.No	Reported Probe	LOD (nM)	Reference
1	Naphthoquinone-benzothiazole	490	Sensors Actuators B Chem. 246 (2017) 319–326.
2	Pyrazolo[1,5a]pyrimidine-hemicyanine	86	Talanta. 196 (2019) 395–401
3	Thiadiazole	350	Sensors Actuators B Chem. 296 (2019) 126645.
4	Dicyanovinylpyrazolo[1,5-a]pyrimidines	170	Talanta. 215 (2020) 120905.
5	Bithiophene-Meldrum's acid	960	Dye. Pigment. 180 (2020) 108459
6	BODIPY based	4230	Dye. Pigment. 170 (2019) 107598
7	Thiophene conjugated with benzothiazole	42	Dye. Pigment. 183 (2020) 108713
8	Pillar[5]arene	25	Dye. Pigment. 164 (2019) 279–286
9	Oligothiophene-benzothiazole	460	Sensors Actuators B Chem. 276 (2018) 13–22
10	Carbazole-based sensor	67	Dye. Pigment. 164 (2019) 165–173
11	Diketodiphenylpyrrolopyrrole	171	Sensors Actuators B Chem. 245 (2017) 845–852
12	BODIPY based	480	J. Mater. Chem. C. (2021). https://doi.org/10.1039/D0TC05000H .
13	Phenylquinazolinone-based	40	RSC Adv. 10 (2020) 44860–44875
14	Nitrobenzoxadiazole (NBD)-antipyrine	167	Anal. Methods. 12 (2020) 4526–4533
15	Disulfide Schiff base	250	New J. Chem. 43 (2019) 13536–13544
16	Benzothiazolium bromide	339	J. Mater. Chem. B. 7 (2019) 4620–4629
17	Imidazole-based	800	Photochem. Photobiol. Sci. 17 (2018) 1450–1461
18	Pyrazole based	6800	J. Org. Chem. 82 (2017) 13376–13385
19	Squaraine Dye	1700	European J. Org. Chem. 2017 (2017) 3957–3964

20	Carbazole-Based AIEE	90	Eur. J. Inorg. Chem. 2017 (2017) 2457–2463
21	BINOL based	189	This work