Supporting Information

C_3-Symmetrical Tripodal Acylhydrazone Organogelator for the Selective Recognition of Cyanide ions in Gel and Solution phase: Practical Applications in Food Samples

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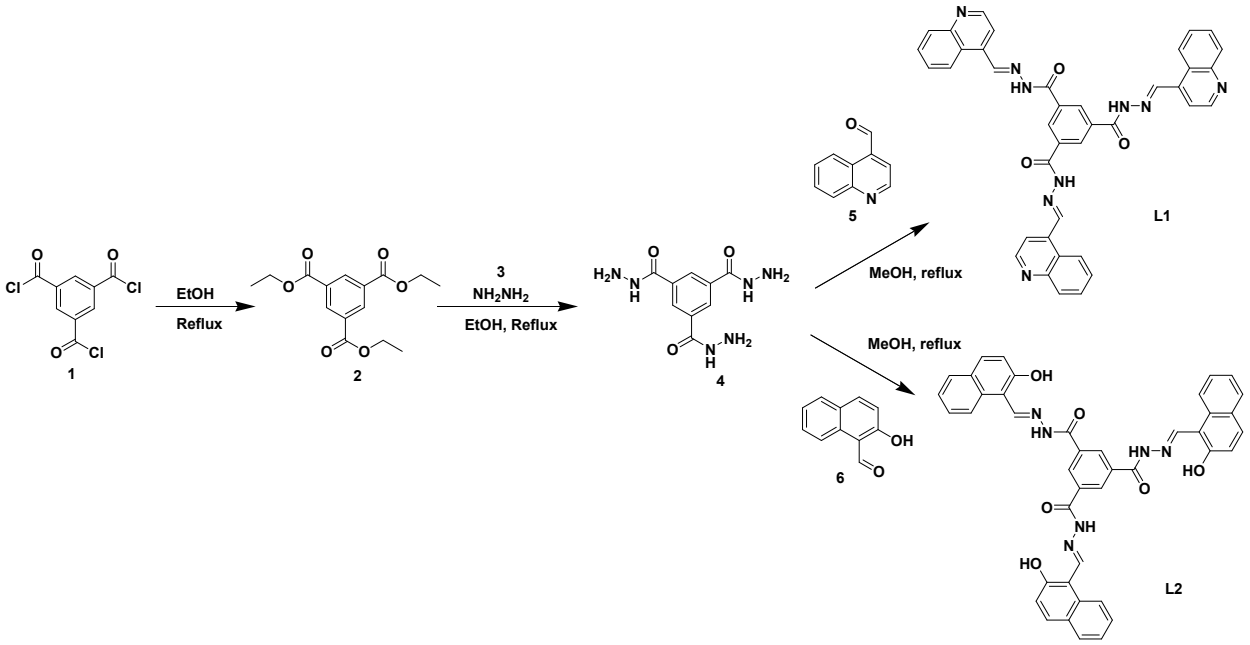


Scheme 1. Synthesis routes for the synthesis of ligand **L1** and ligand **L2**

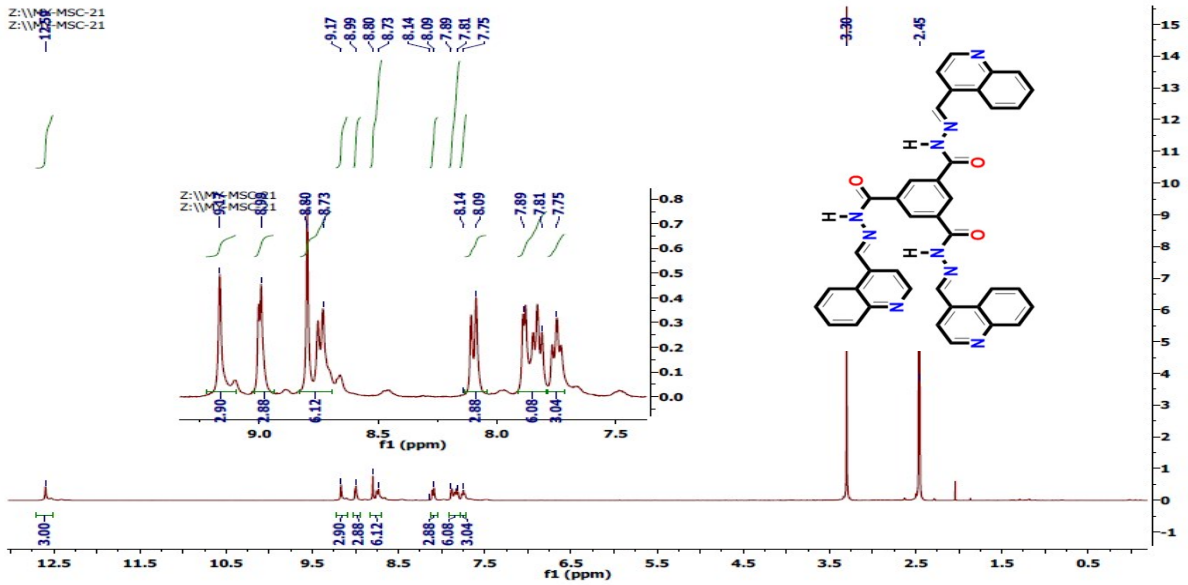


Fig. S1 ^{1}H NMR Spectrum of Ligand **L1**

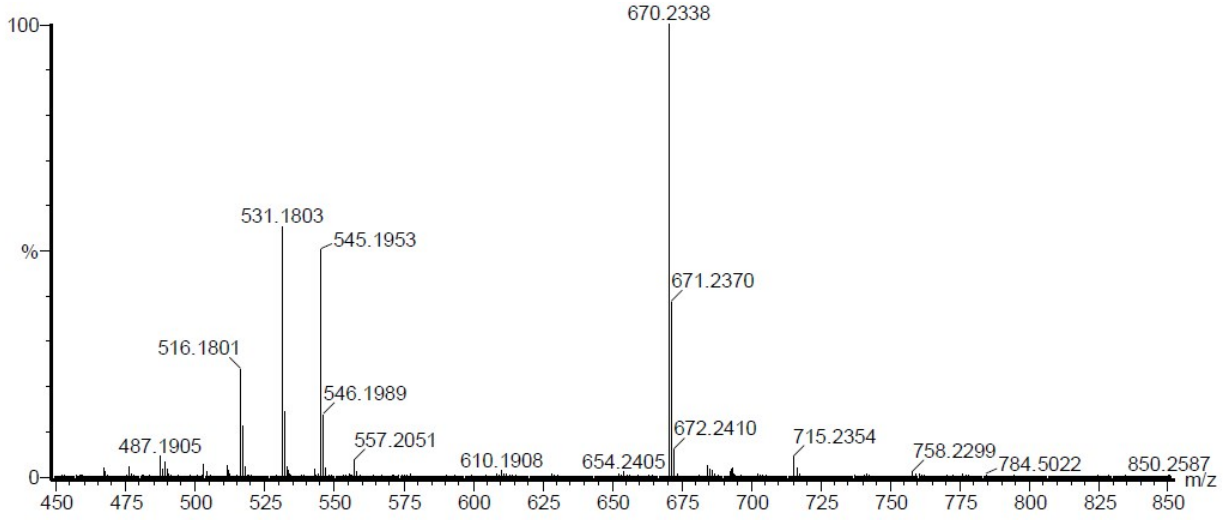


Fig. S2 HRMS spectrum of Ligand **L1**

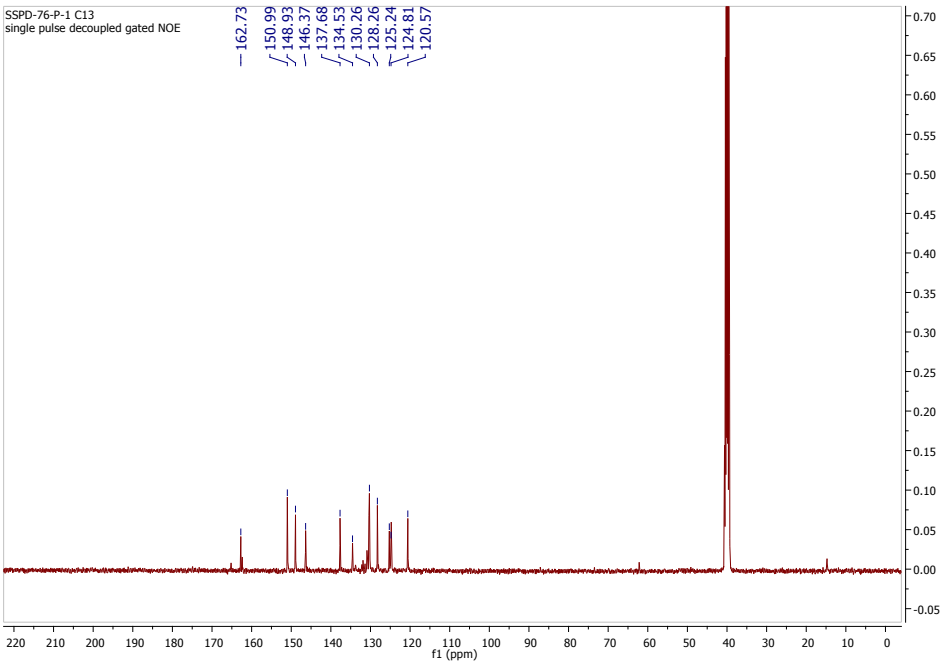


Fig. S3 ^{13}C NMR Spectrum of Ligand **L1**

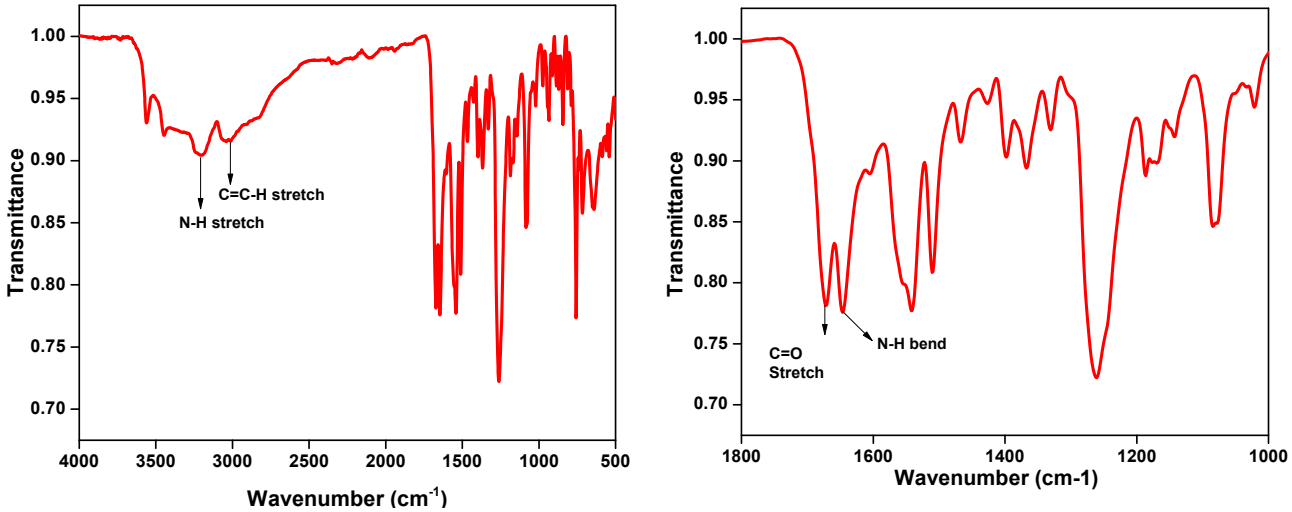


Fig. S4 FTIR spectra of Ligand **L1**

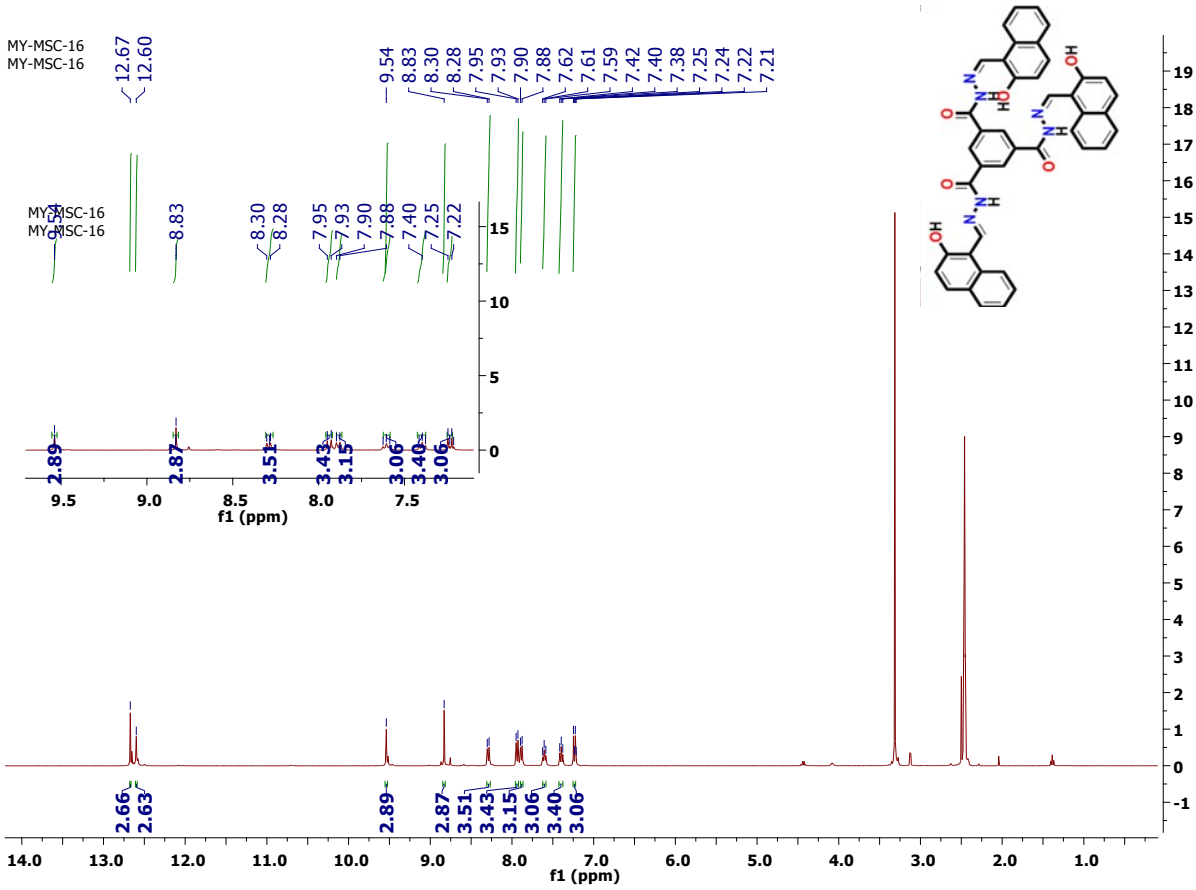


Fig. S5 ^{1}H NMR Spectrum of Ligand **L2**

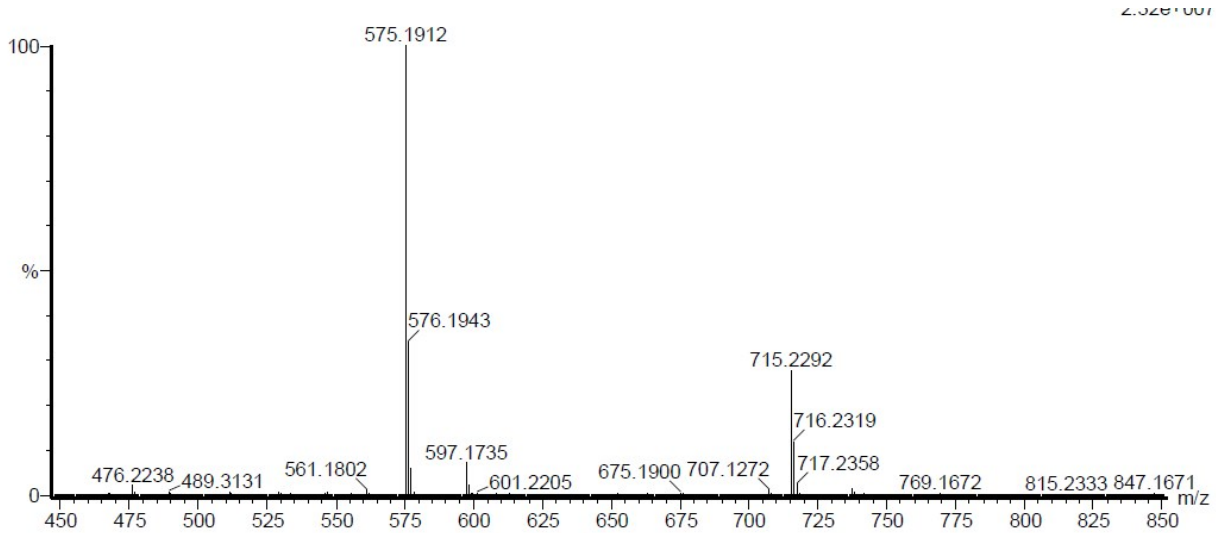


Fig. S6 HRMS spectrum of Ligand **L2**

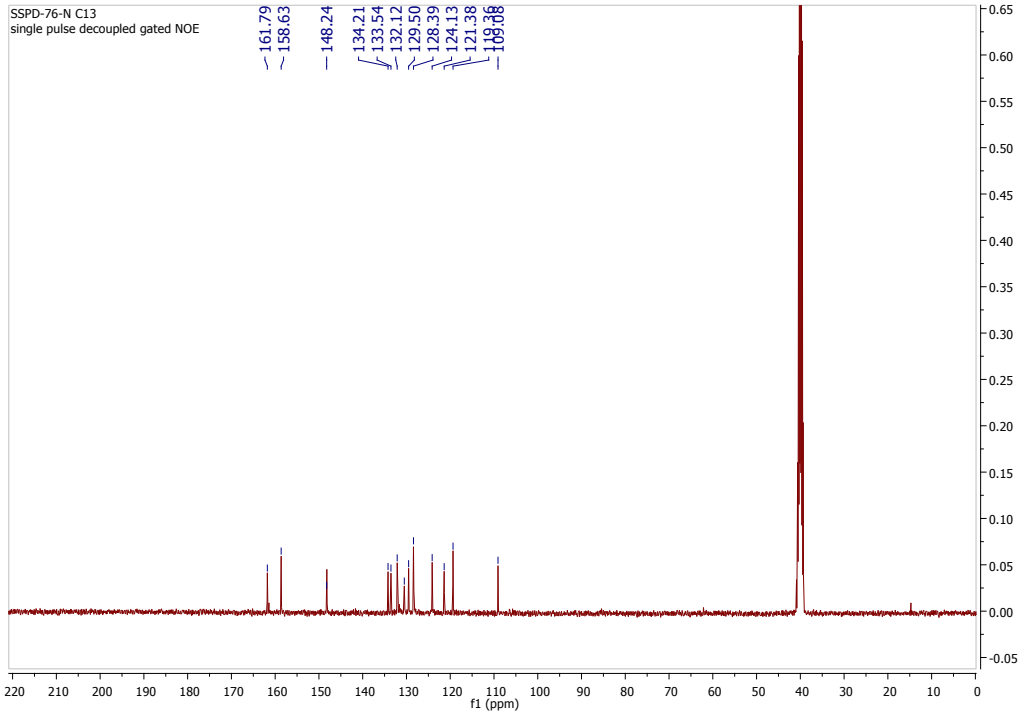


Fig. S7 ^{13}C NMR Spectrum of Ligand **L2**

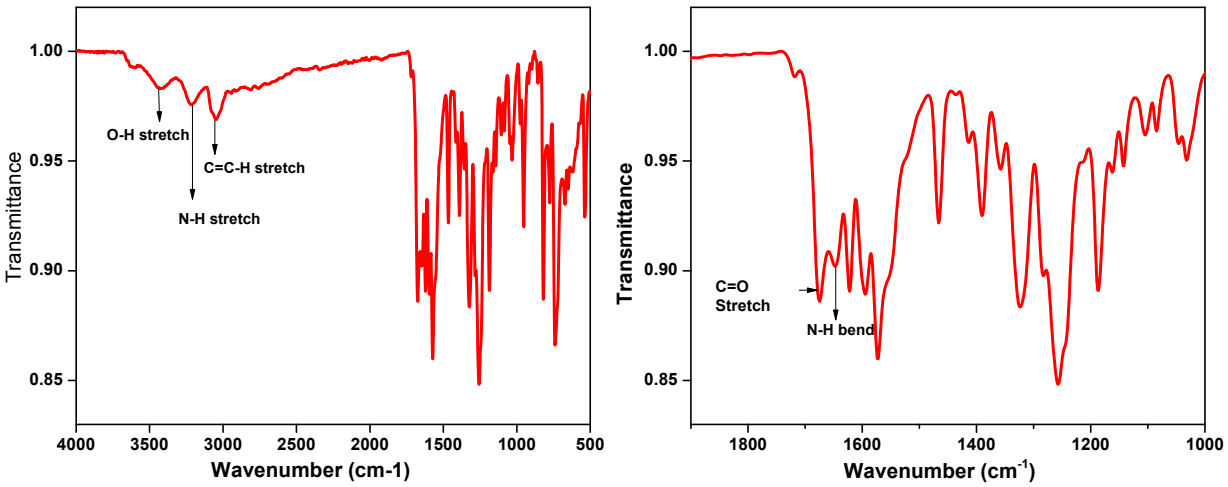


Fig. S8 FTIR spectra of Ligand **L2**

Table S1: Gelation behaviors at room temperature

S.No.	Solvent Ratio (DMSO: H_2O, *v/v*)		Ligand L1	Ligand L2
1.	1	9	I	I
2.	2	8	PS	I
3.	3	7	PS	I
4.	4	6	PS	PS
5.	5	5	**G**	PS
6.	6	4	S	PS
7.	7	3	S	PS
8.	8	2	S	S
9.	9	1	S	S
10.	10	0	S	S

S: solution; **PS**: partially soluble; **G**: gel; **I**: insoluble; for gels

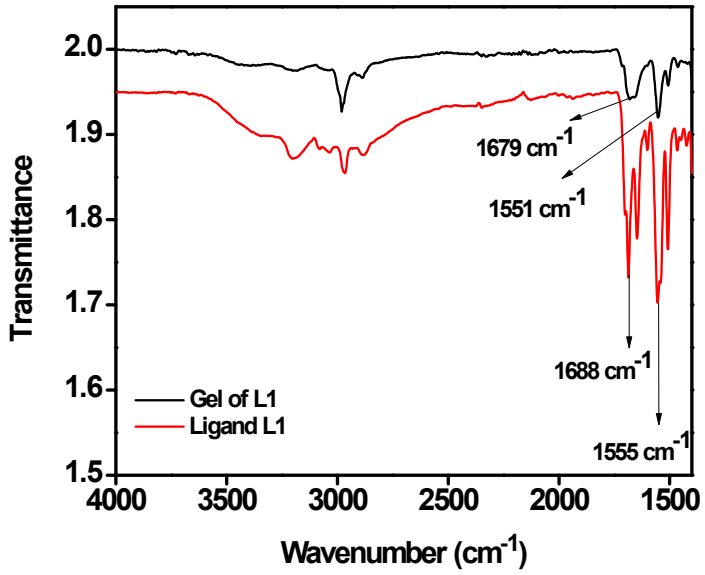


Fig. S9 FT-IR spectrum of the powder of ligand **L1** and organogelator **L1** in xerogel form.

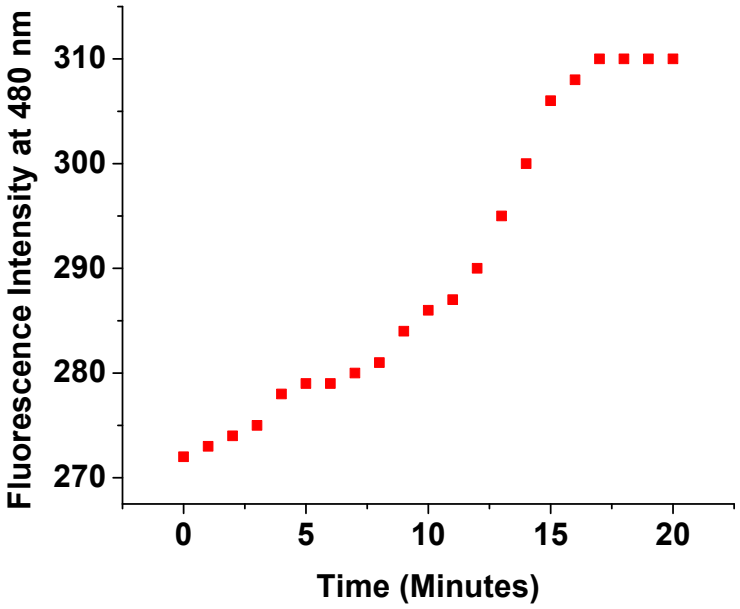


Fig. S10 Time dependence fluorescence emission spectra of ligand **L1** (90:10, H_2O:DMSO) at 480 nm. (error)

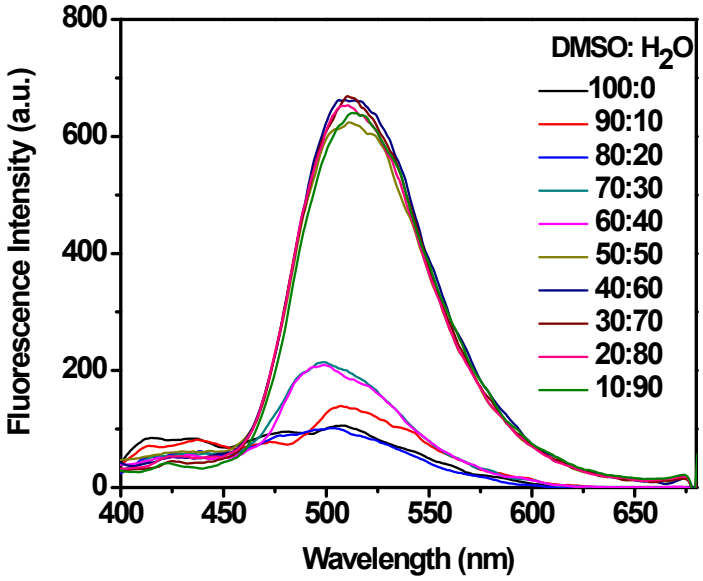


Fig. S11 Fluorescence emission spectra of ligand **L2** (10 μM) in different DMSO: H_2O ratios.

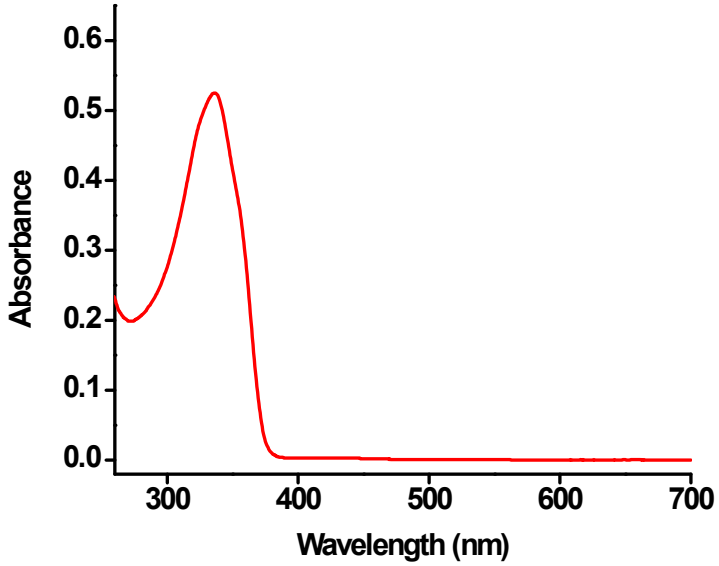


Fig. S12 UV-Vis absorption spectra of ligand **L1** (10 μM) in DMSO.

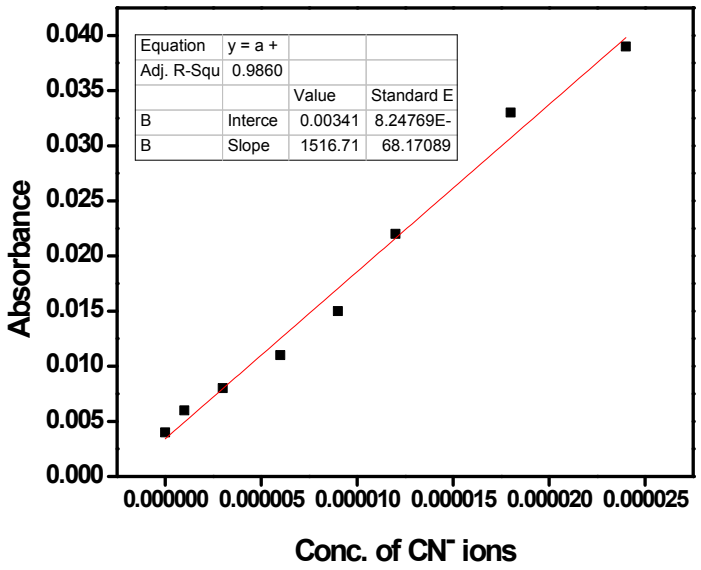


Fig. S13 Detection limit showing the absorbance of ligand **L1** at 416 nm as a function of CN^- ions concentration.

Table 2. Detection limit showing the absorbance of ligand **L1** at 416 nm as a function of CN^- ions concentration

S.no.		**σ**	**M**	**3σ/M**	**Detection limit**
1	ligand **L1**+15 equiv. of CN^- ions	0.00079	1516.17	1.5×10^{-6}	1.5μM

*σ = Standard deviation of the blank sample
*M = corresponds to slope of the regression line.

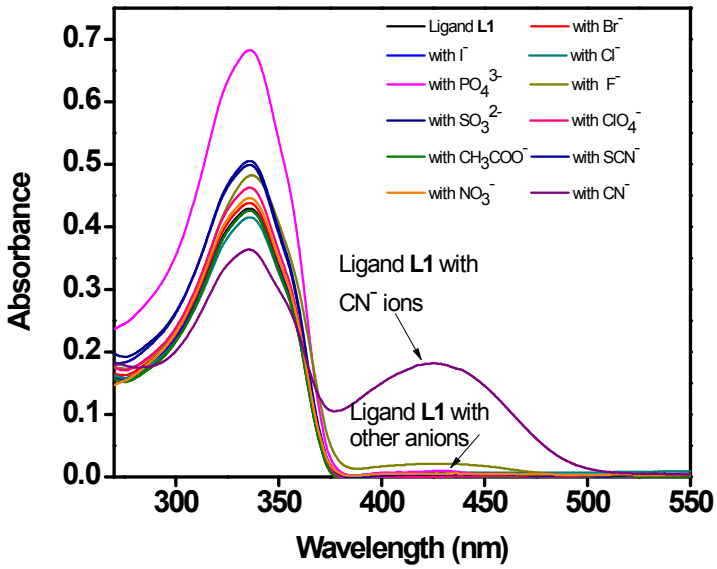


Fig. S14 UV-Vis response of Ligand **L1** to different anions

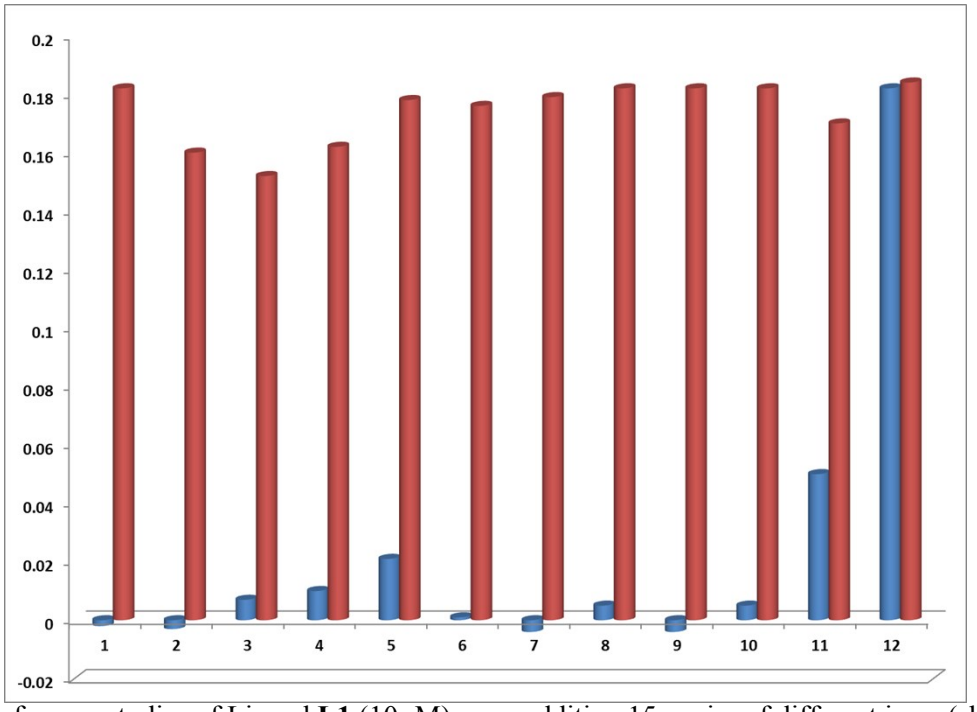


Fig. S15 Interference studies of Ligand **L1** (10μM) upon addition 15 equiv. of different ions (shown by blue bars) followed by 15 equivalent CN^- ions (shown by red bars). Where 1) Ligand **L1** with 2) SCN^- 3) Br^- 4) I^- 5) Cl^- 6) PO_4^{3-} 7) NO_3^- 8) SO_3^{2-} 9) ClO_4^- 10) CH_3COO^- 11) F^- 12) CN^- ions.

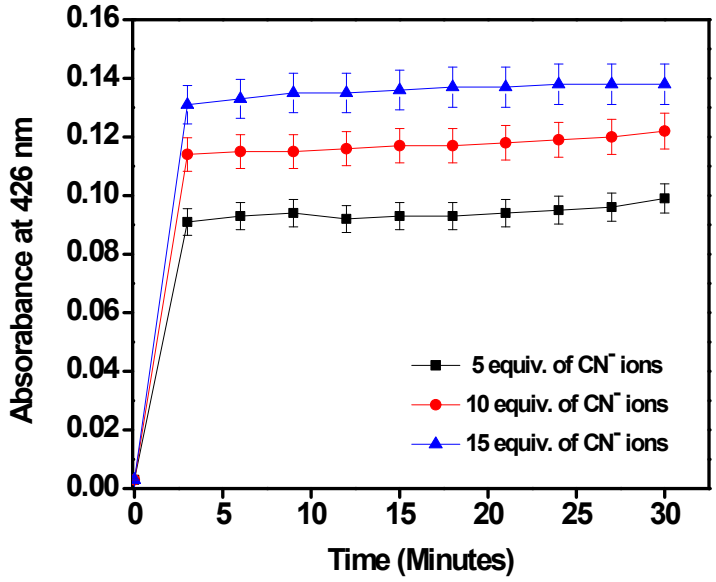


Fig. S16 Time Response of Ligand **L1** (10μM) upon addition of the different equivalent of CN^- ions

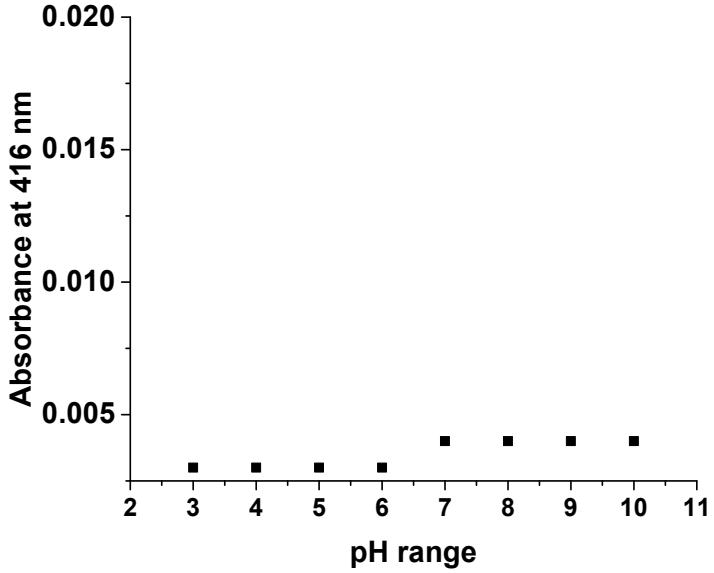


Fig. S17 pH response of ligand **L1** by varying pH from 3 to 10.

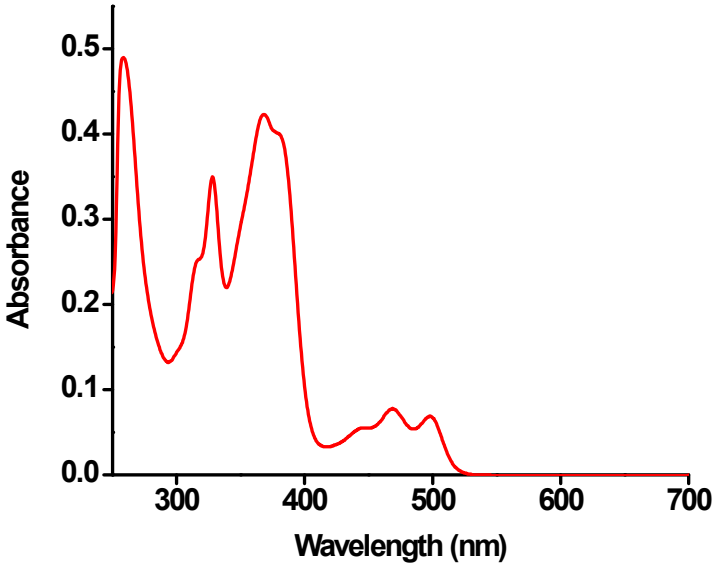


Fig. S18 UV-Vis absorption spectra of ligand **L2** (10μM**)** in DMSO.

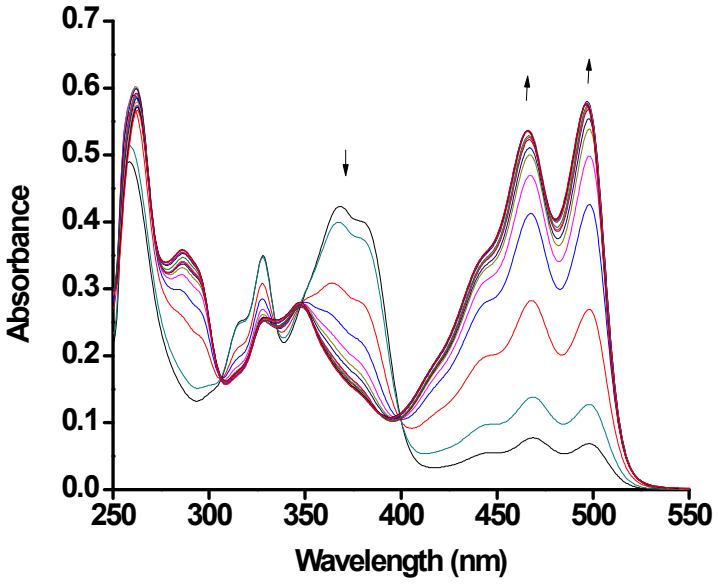


Fig. S19 UV-Vis absorption spectra of ligand **L2** (10μM**)** upon addition of 15 equiv. of CN^- ions.

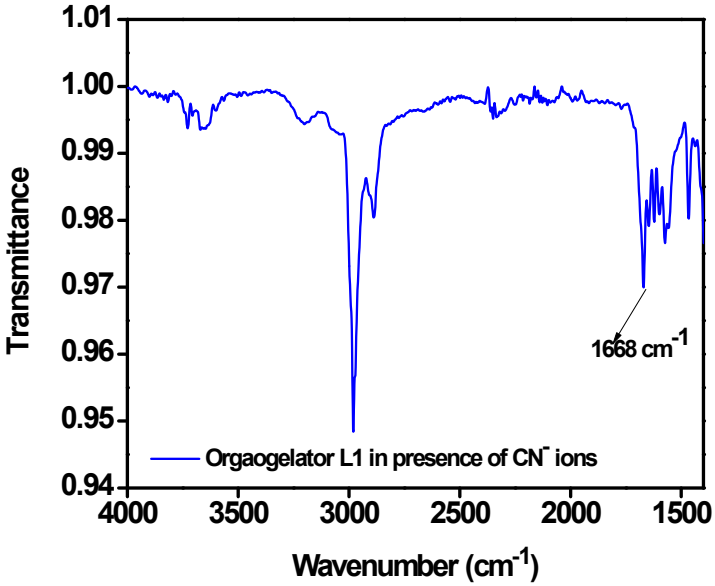
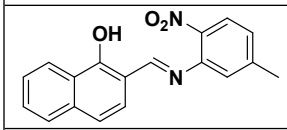
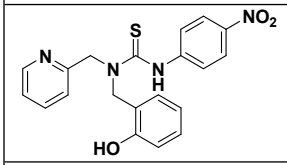
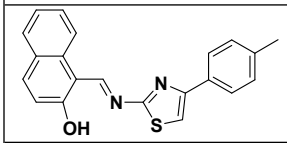
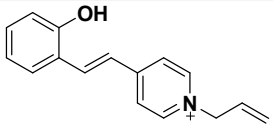
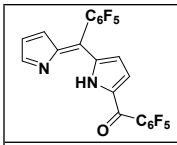
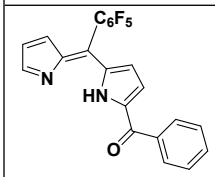
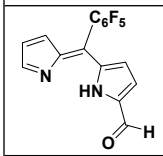
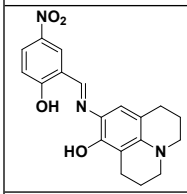
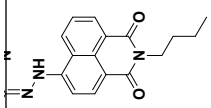
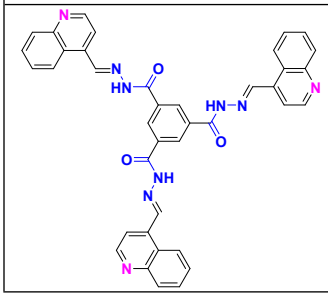


Fig. S20 FT-IR spectrum of the organogelator **L1** in the presence of CN^- ions.

Table 3: The comparison of the ligand **L1** for cyanide detection with other cyanide sensitive sensors.

Compounds	**Sensing Method**	**Food Sample Analysis**	**Sensing with Organogelator**	**LOD**	**Reference**
	Colorimetric changes	NO	NO	105μM	[1]
	Colorimetric changes	NO	NO	20 μM	[2]
	Colorimetric changes	NO	NO	19.4 μM	[3]
	Colorimetric changes	NO	NO	4.5 μM	[4]

	Colorimetric changes	NO	NO	3.6 μM	5
	Colorimetric changes	NO	NO	4.2 μM	5
	Colorimetric changes	NO	NO	7.1 μM	5
	Colorimetric changes	NO	NO	105 μM	6
	Colorimetric/ Fluorescence changes	NO	NO	20.86μM	7
	Colorimetric changes	**YES**	**YES**	**1.5μM**	**This Work**

References:

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