Electronic Supplementary Information

Multi-stimuli Responsive Organogels Based on Tetrapeptide-Dithienylcyclopentene Conjugate

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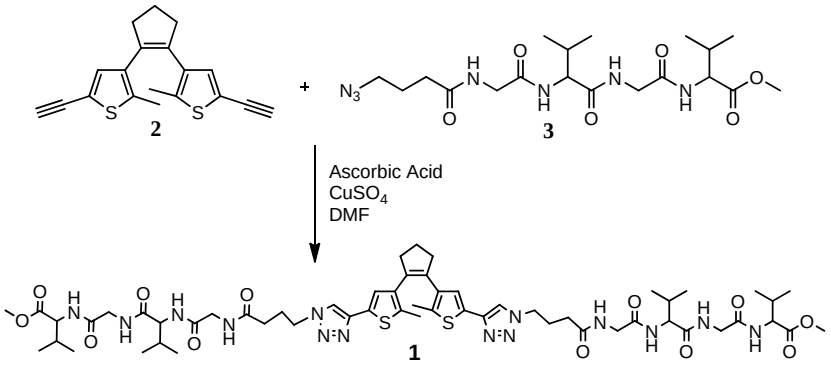
Contents

1. Synthesis Section

General. ^{1}H NMR and ^{13}C NMR spectra were recorded on a Bruker AMX 600 spectrometer (^{1}H NMR: 600 MHz; ^{13}C NMR: 150 MHz) at 298 K. HR-ESI mass spectra were obtained on a Bruker APEX IV instrument.



Synthesis of Gelator 1. The mixture of compound **2**[1] (61.6 mg, 0.1 mmol) and **3**[2] (91 mg, 0.2 mmol) in 5ml DMF was stired in the presence of a catalytic amount of $CuSO_4 \cdot 5H_2O$ (2.5 mg) and ascorbic acid (7mg)at room temperature overnight. Et_2O (30 ml) was added to the mixture, and the precipitate was filtered and washed with Et_2O to afford **1** as a pale yellow solid in 97% yiled. M. P. = 147-149 °C; ^{1}H NMR (600 MHz, DMSO-d_6): δ = 8.40 (s, 2H), 8.27 (t, J = 5.8 Hz, 2H), 8.12 (t, J = 5.8 Hz, 2H), 8.03 (d, J = 8.2 Hz, 2H), 7.86 (d, J = 8.2 Hz, 2H), 7.21 (s, 2H), 4.38 (t, J = 6.8 Hz, 4H), 4.19-4.16 (m, 4H), 3.80-3.73 (m, 6H), 3.63 (s, 6H), 2.81 (t, J = 7.4, 4H), 2.52-2.50 (m, 4H), 2.17 (t, J = 7.2, 4H), 2.08-1.97 (m, 10H), 1.89 (s, 6H), 0.88-0.84 (m, 24H); ^{13}C NMR (150 MHz, DMSO-d_6): δ = 172.4, 171.9, 171.7, 169.5, 169.4, 142.0, 136.4, 134.4, 133.4, 129.6, 120.8, 58.2, 57.8, 52.2, 49.5, 42.4, 42.0, 32.1, 30.9, 30.5, 26.2, 19.6, 19.4, 18.64, 18.55, 14.4. HR-MS (ESI) calcd: 1219.5750 for [M + H^+], 1241.5570 for [M + Na^+]; Found: 1219.5786 for [M + H^+], 1241.5606 for [M + Na^+].

References

(1) Lin, Y.; Yuan, J.; Hu, M.; Cheng, J.; Yin, J.; Jin, S.; Liu, S. H. *Organometallics* 2009, **28**, 6402.

(2) Gong, R.; Song, Y.; Guo, Z.; Li, M.; Jiang, Y.; Wan, X. *Supramolecular Chemistry* 2013, **25**, 269.

2. ^{1}H NMR and ^{13}C NMR spectra of gelator 1.

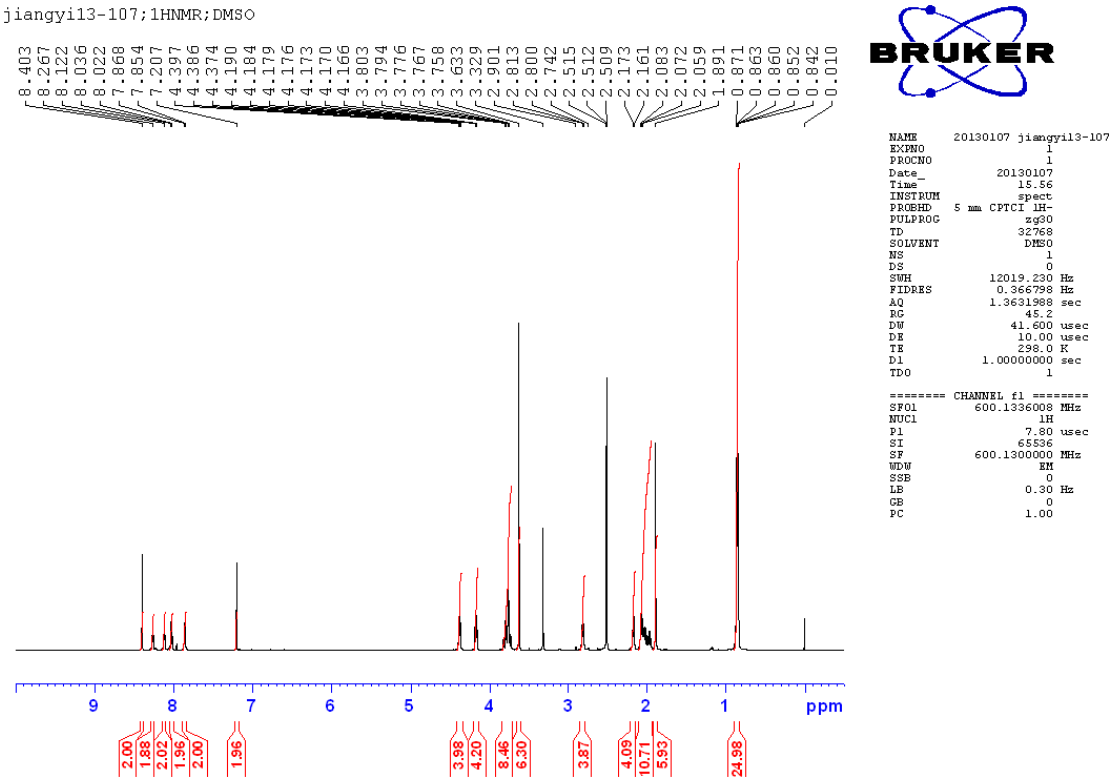


Fig. S1 ^{1}H NMR spectrum of gelator **1** (600 MHz, DMSO-d_6).

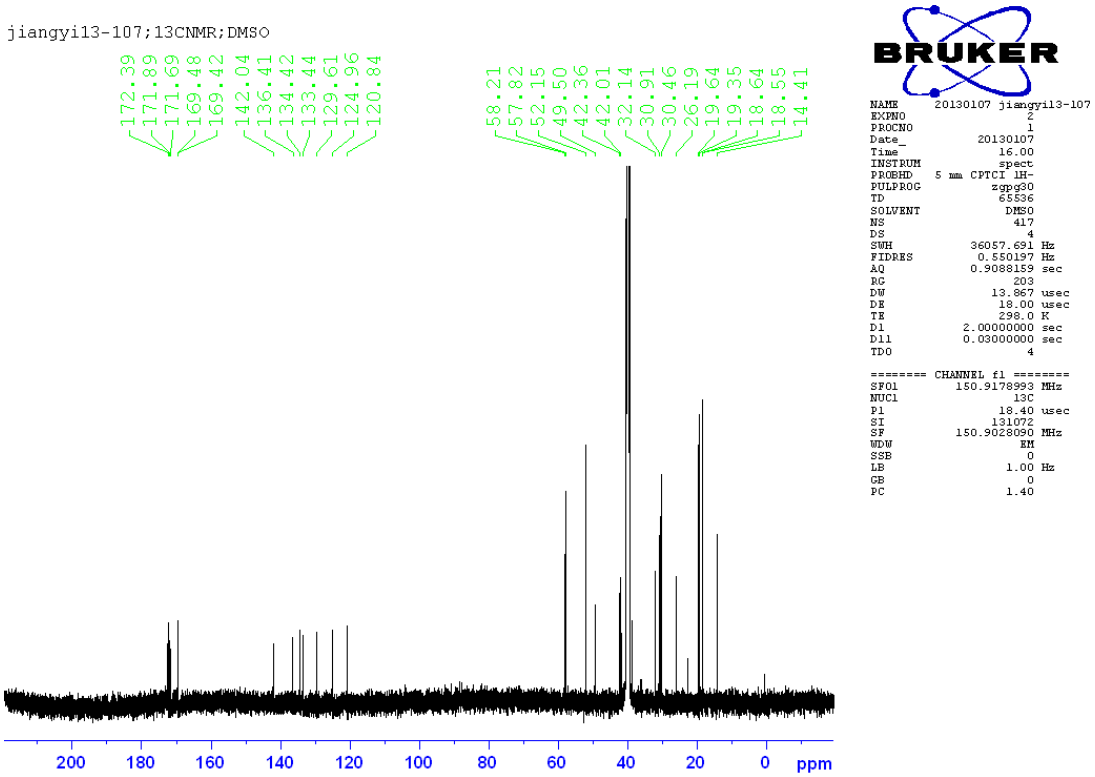


Fig. S2 ^{13}C NMR spectrum of gelator **1** (150 MHz, DMSO-d_6).

3. PXRD Data of the Organogel after addition of Catechol.

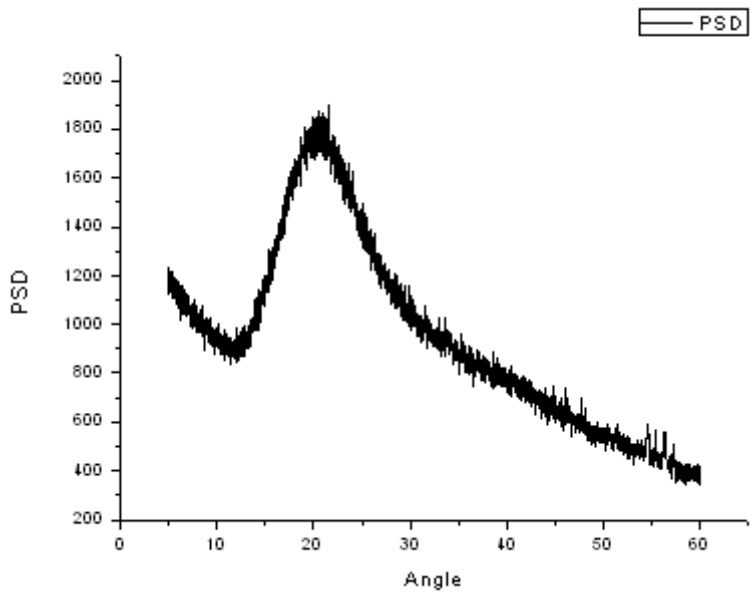


Fig. S3 PXRD Data of the organogel after addition of catechol.

4. Morphology of the Organogel after Addition of Catechol Determined by SEM

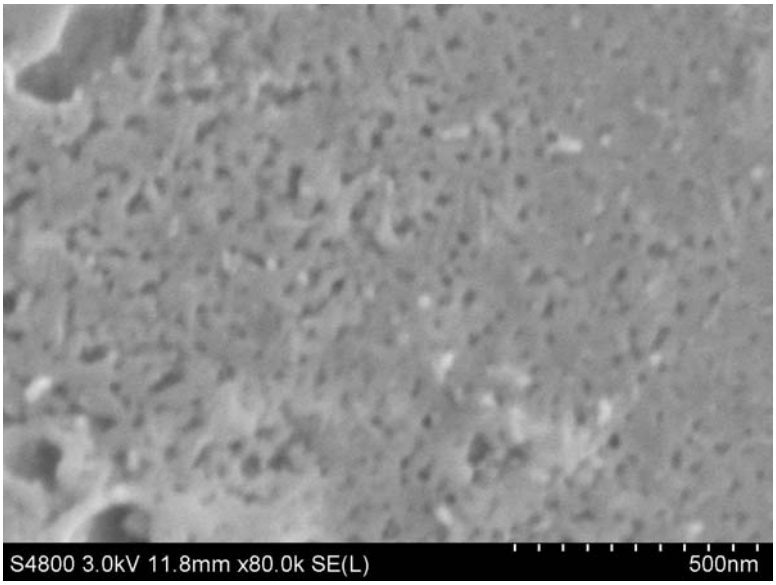


Fig. S4 Morphology of the organogel after addition of catechol determined by SEM.

5. Frequency Sweep Experiment of the Organogel after Addition of Catechol

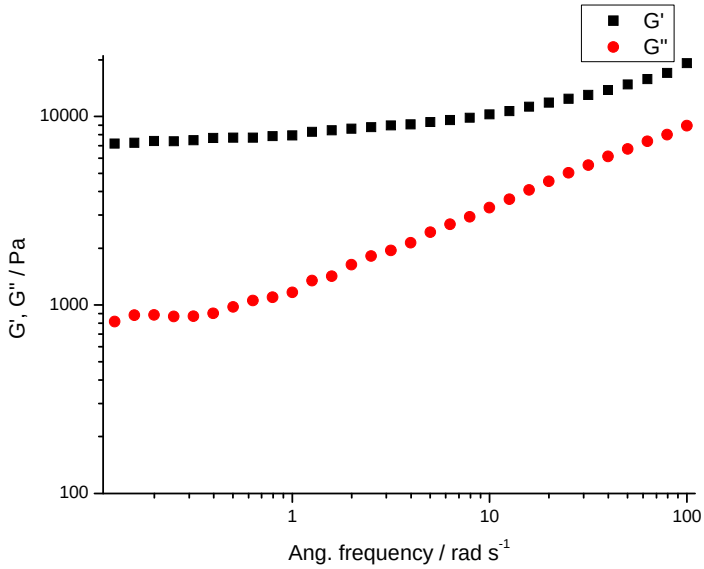


Fig. S5 Frequency sweep experiment of the organogel after addition of catechol.

6. ^{1}H NMR spectra of 1 before and after addition of catechol.

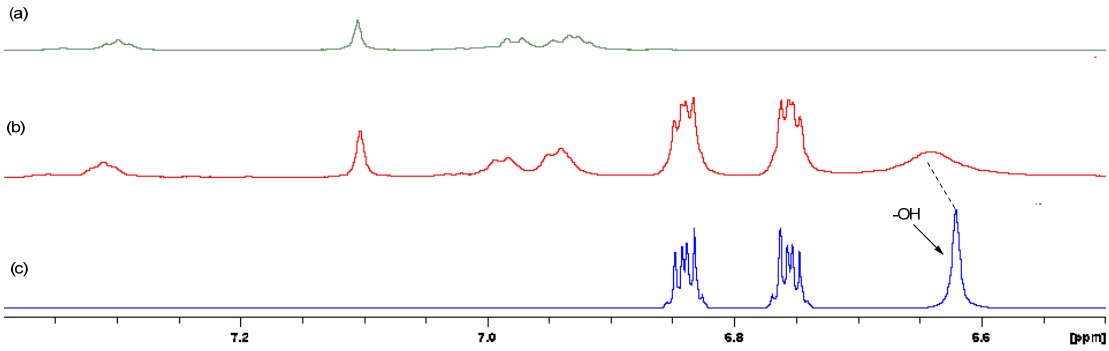


Fig. S6 (a) Partial ^{1}H NMR spectrum of **1** (5 mg/ml) in acetonitrile-d_3; (b) Partial ^{1}H NMR spectrum of **1** (5 mg/ml) in acetonitrile-d_3 after addition of catechol (5 mg/ml); (c) Partial ^{1}H NMR spectrum of catechol (5 mg/ml) in acetonitrile-d_3.

7. The photochromic behavior of organogel 1 after addition of catechol.

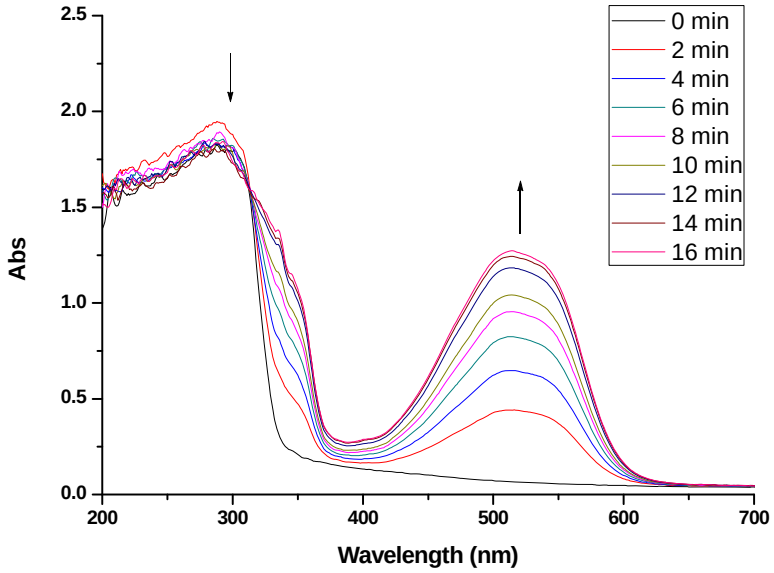


Fig. S7 UV-Vis spectra of organogel **1** in THF (9 mg/ml) after addition of catechol (9 mg/ml) under 365 nm irradiation with different times.

8. Plausible packing model of compound 1.

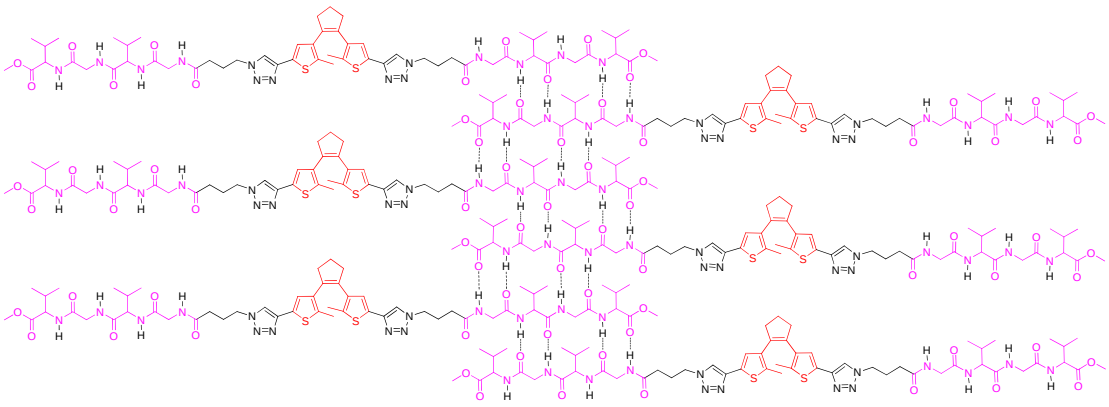


Fig. S8 Plausible packing model of compound **1**.