ELECTRONIC SUPPLEMENTARY MATERIAL

Zinc(II) and Cadmium(II) Amorphous Metal-Organic Frameworks (aMOFs): Study of Activation Process and High-pressure Adsorption of Greenhouse Gases

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Tables:

Table S1 A list of syntheses performed using different variations of synthetic conditions (molar ratio, solvents, reaction temperature and reaction time).

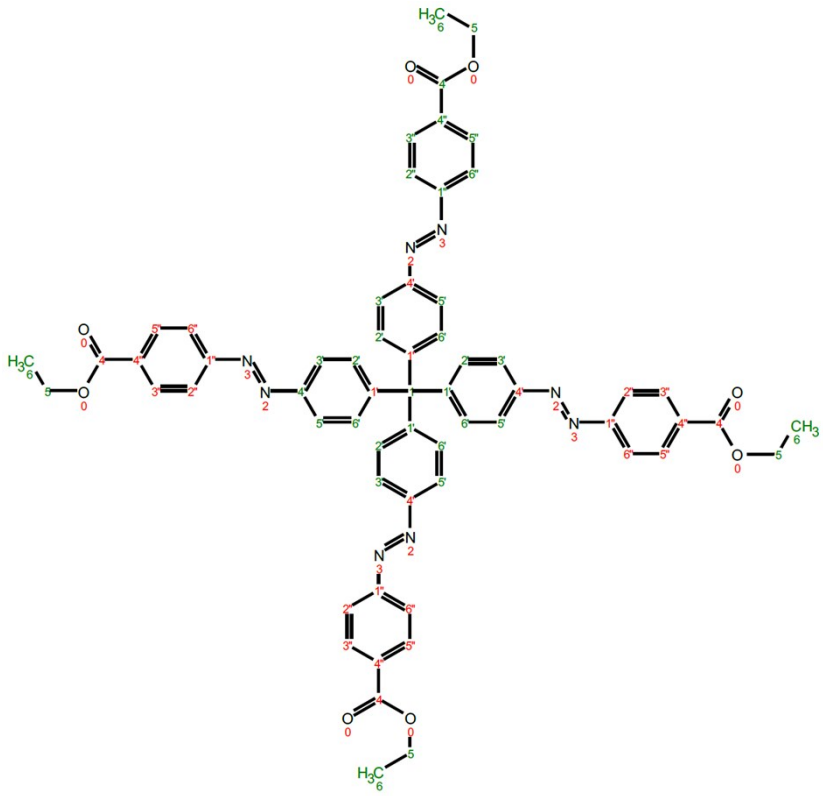
	Reactants	Molar ratio	Solvent (volume ratio)	Volume	Temp. / Time	Product
1.	Zn + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C
2.	Zn + H_4MTA	4:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
3.	Zn + H_4MTA	6:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
4.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
5.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	150°C/48hod	P
6.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	180°C/48hod	D
7.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	200°C/48hod	D
8.	Zn + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	50°C/120hod	N
9.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	50°C/120hod	N
10.	Zn + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	60°C/120hod	N
11.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	60°C/120hod	N
12.	Zn + H_4MTA	2:1	DMF/H_2O (6:1)	7cm^3	80°C/120hod	P
13.	Zn + H_4MTA	8:1	DMF/H_2O (6:1.5)	7.5cm^3	80°C/120hod	P
14.	Zn + H_4MTA	2:1	DMA/H_2O (6:1)	7cm^3	80°C/120hod	P
15.	Zn + H_4MTA	8:1	DMA/H_2O (6:2)	8cm^3	80°C/120hod	P
16.	Zn + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	120°C/120hod	P
17.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	120°C/120hod	P
18.	Zn + H_4MTA	2:1	DMF	6.5cm^3	120°C/120hod	P
19.	Zn + H_4MTA	8:1	DMF	6.5cm^3	120°C/120hod	P
20.	Zn + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	70°C/120hod	C
21.	Zn + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	70°C/120hod	C
22.	Zn + H_4MTA	0.5:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	N
23.	Zn + H_4MTA	1:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
24.	Zn + H_4MTA	1.5:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C
25.	Zn + H_4MTA	0.5:1	DMF/EtOH/H_2O	8.5cm^3	80°C/120hod	P

			(6:2:0.5)			
26.	Zn + H_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	80°C/120hod	P
27.	Zn + H_4MTA	8:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	80°C/120hod	P
28.	Zn + H_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	120°C/120hod	P
29.	Zn + H_4MTA	8:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	120°C/120hod	P
	Zn + Na_4MTA	2:1	DMF	6cm^3	80°C/120hod	P
30.	Zn + Na_4MTA	2:1	DMA	6cm^3	80°C/120hod	P
31.	Zn + Na_4MTA	2:1	H_2O	6cm^3	-	X
32.	Zn + Na_4MTA	2:1	EtOH/H_2O (1:1)	6cm^3	-	X
33.	Zn + Na_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	-	X
34.	Cd + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	P
35.	Cd + H_4MTA	4:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
36.	Cd + H_4MTA	6:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C+P
37.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	C
38.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	150°C/48hod	P
39.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	180°C/48hod	D
40.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	200°C/48hod	D
41.	Cd + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	50°C/120hod	N
42.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	50°C/120hod	N
43.	Cd + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	60°C/120hod	N
44.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	60°C/120hod	N
45.	Cd + H_4MTA	2:1	DMF/H_2O (6:1)	7cm^3	80°C/120hod	P
46.	Cd + H_4MTA	8:1	DMF/H_2O (6:1.5)	7.5cm^3	80°C/120hod	P
47.	Cd + H_4MTA	2:1	DMA/H_2O (6:1)	7cm^3	80°C/120hod	P
48.	Cd + H_4MTA	8:1	DMA/H_2O (6:2)	8cm^3	80°C/120hod	P
49.	Cd + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	120°C/120hod	P
50.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	120°C/120hod	P

51.	Cd + H_4MTA	2:1	DMF	6.5cm^3	120°C/120hod	P
52.	Cd + H_4MTA	8:1	DMF	6.5cm^3	120°C/120hod	P
53.	Cd + H_4MTA	2:1	DMF/H_2O (6:0.5)	6.5cm^3	70°C/120hod	P
54.	Cd + H_4MTA	8:1	DMF/H_2O (6:0.5)	6.5cm^3	70°C/120hod	C
55.	Cd + H_4MTA	0.5:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	N
56.	Cd + H_4MTA	1:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	N
57.	Cd + H_4MTA	1.5:1	DMF/H_2O (6:0.5)	6.5cm^3	80°C/120hod	P
58.	Cd + H_4MTA	0.5:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	80°C/120hod	P
59.	Cd + H_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	80°C/120hod	P
60.	Cd + H_4MTA	8:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	80°C/120hod	P
61.	Cd + H_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	120°C/120hod	P
62.	Cd + H_4MTA	8:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	120°C/120hod	P
63.	Cd + Na_4MTA	2:1	DMF	6cm^3	80°C/120hod	P
65.	Cd + Na_4MTA	2:1	DMA	6cm^3	80°C/120hod	P
66.	Cd + Na_4MTA	2:1	H_2O	6cm^3	-	X
67.	Cd + Na_4MTA	2:1	EtOH/H_2O (1:1)	6cm^3	-	X
	Cd + Na_4MTA	2:1	DMF/EtOH/H_2O (6:2:0.5)	8.5cm^3	-	X

Zn = $Zn(NO_3)_2 \cdot 6H_2O$, Cd = $Cd(NO_3)_2 \cdot 4H_2O$, H_4MTA = methanetetrayltetrakis(benzene-4,1-diyl)tetrakis(aza))tetrakis(methan-1-yl-1-yliden)tetrabenzoic acid, Na_4MTA = tetrasodium methanetetrayltetrakis(benzene-4,1-diyl)tetrakis(aza))tetrakis(methan-1-yl-1-yliden) tetrabenzoate, DMF = N, N´- dimethylformamide, DMA = N, N´- dimethylacetamide, EtOH = ethanol, H_2O = water, C = quasi-crystal, P = powder, N = no product, D = decomposition, X = precipitate (product precipitate after mixing of the reactant solutions)

Figures:



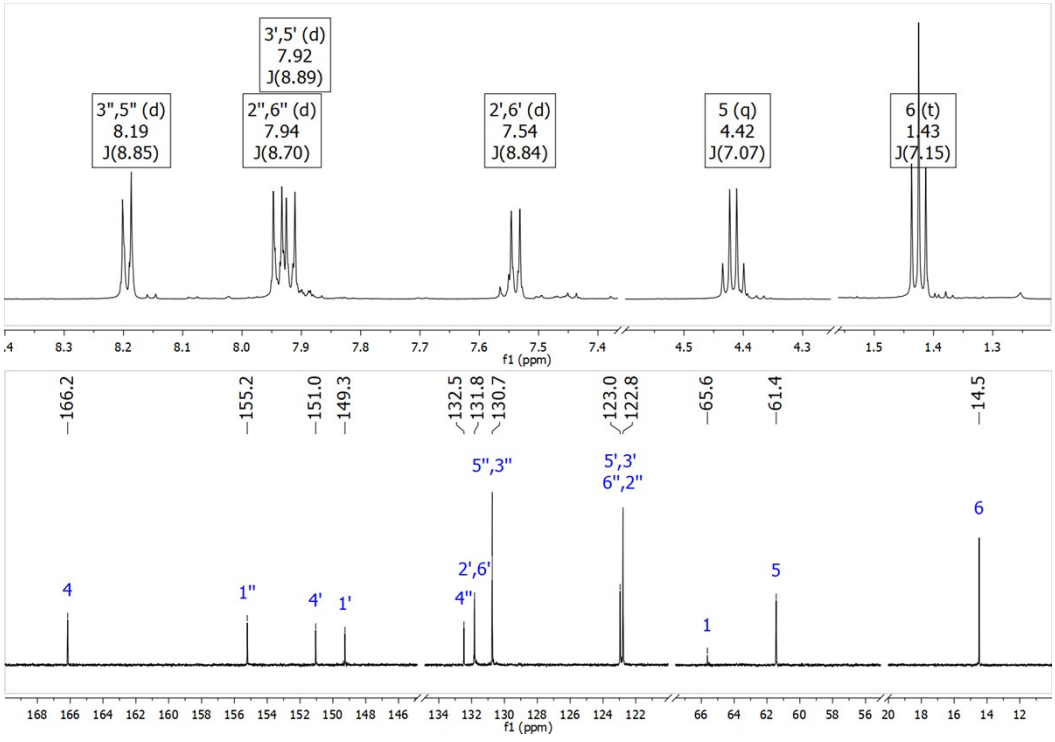


Fig. S1 ^{1}H (600 MHz, DMSO-d_6) and ^{13}C (151 MHz, DMSO-d_6) NMR spectra of the derivative **6**.

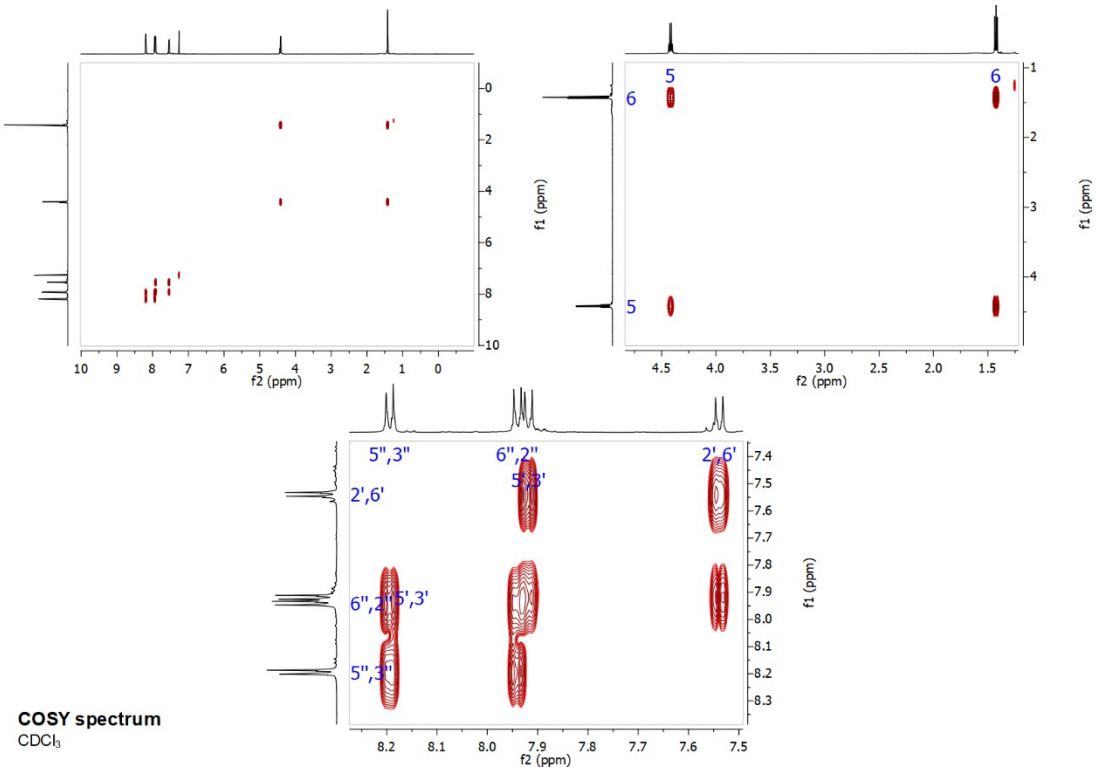


Fig. S2 ^{1}H,^{1}H-COSY spectrum (600/600 MHz, DMSO-d_6) of the derivative **6**.

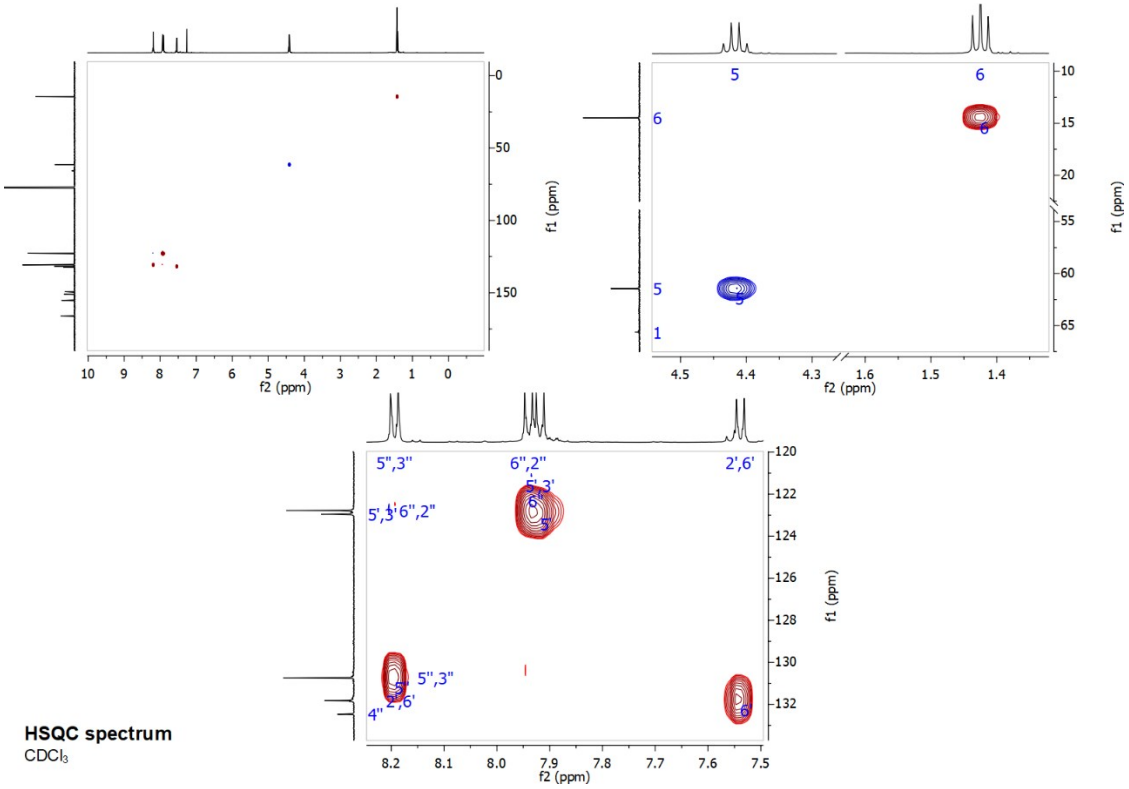


Fig. S3 ^{1}H,^{13}C-HSQC spectrum (600/151 MHz, DMSO-d_6) of the derivative **6**.

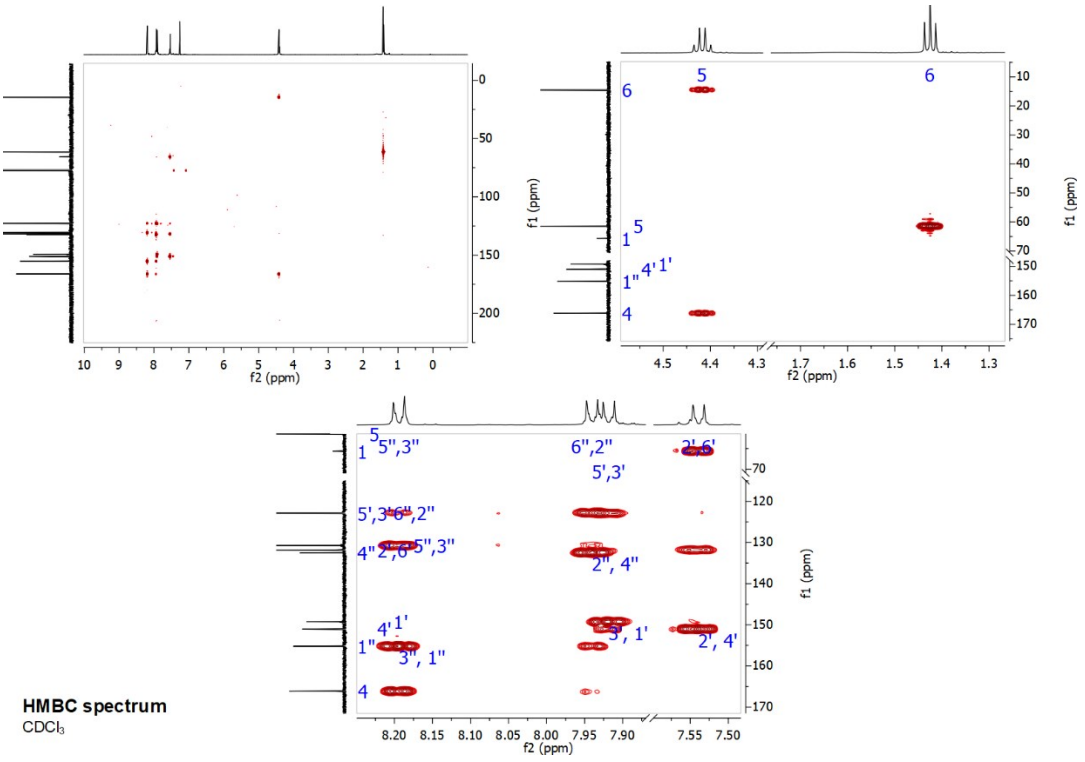
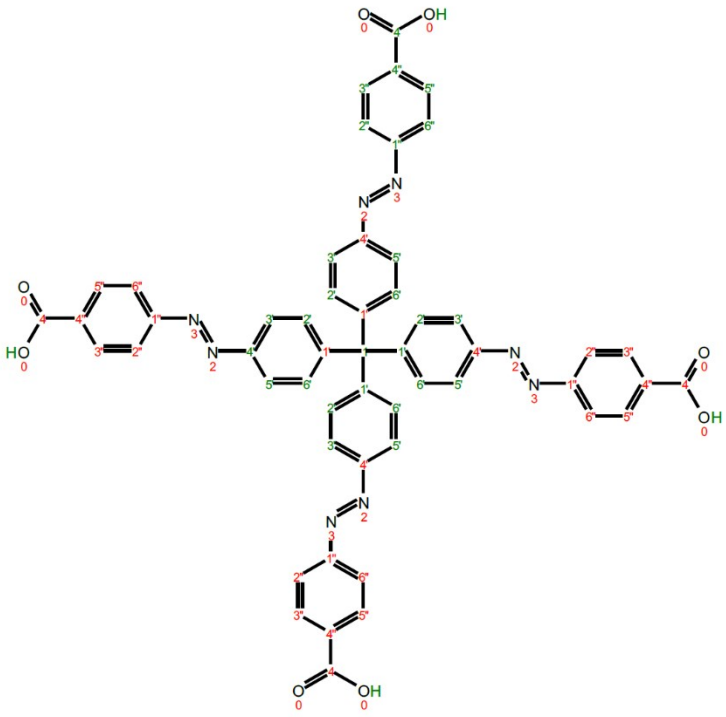


Fig. S4 $^{1}H,^{13}C$-HMBC spectrum (600/151 MHz, DMSO-d_6) of the derivative **6**.



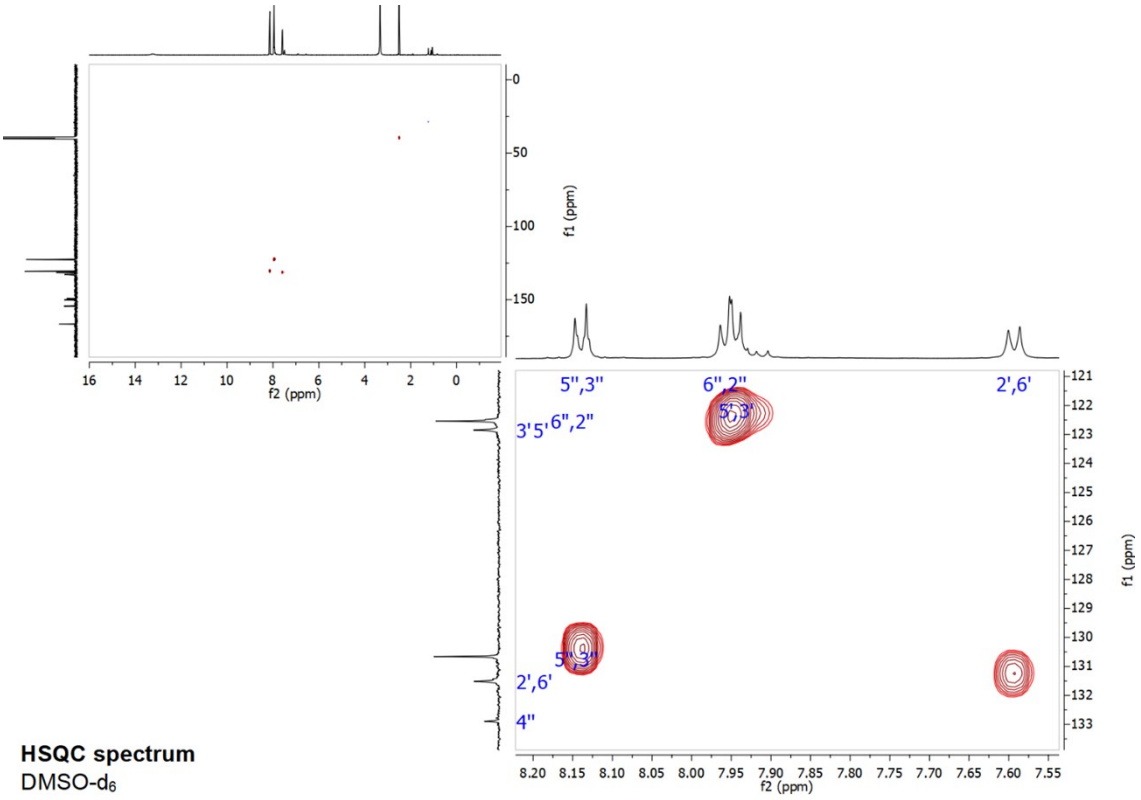


Fig. S5 $^{1}H,^{13}C$-HSQC spectrum (600/151 MHz, DMSO-d_6) of the derivative **7**.

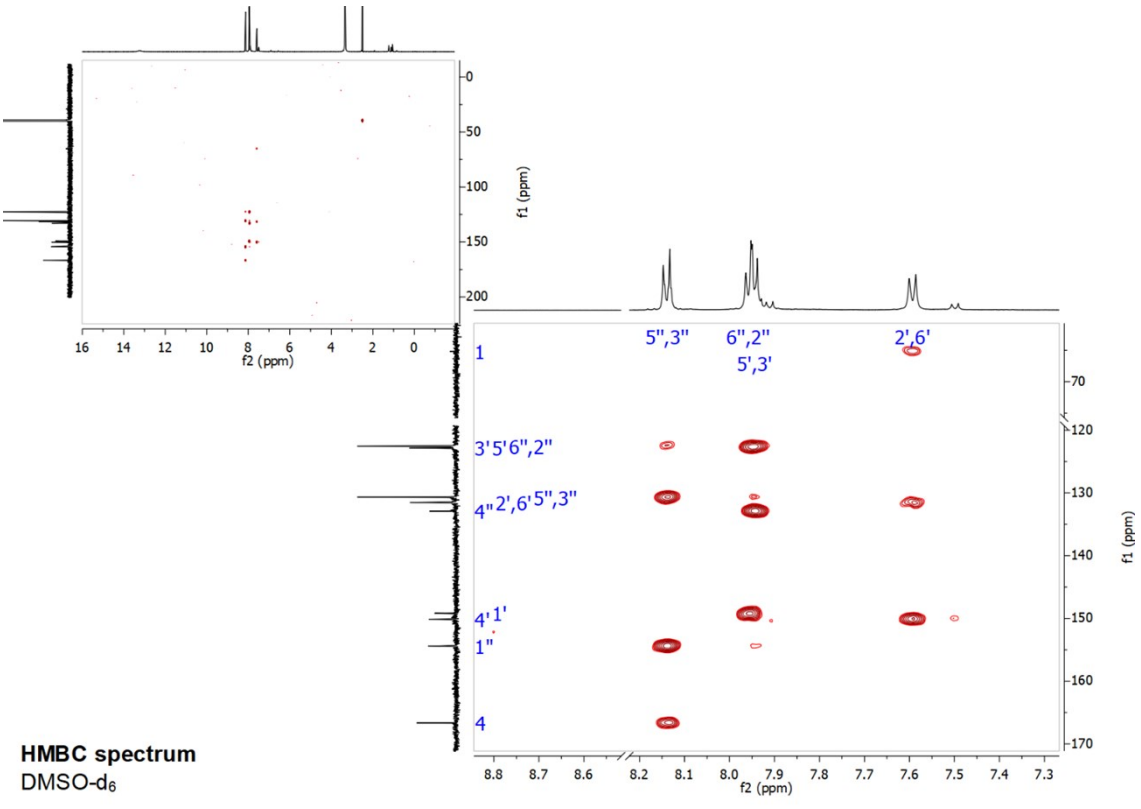


Fig. S6 $^{1}H,^{13}C$-HMBC spectrum (600/151 MHz, DMSO-d_6) of the derivative **7**.