

Electronic Supplementary Information (ESI)

Encapsulating Nano Rods of Copper– Biphenylamines Framework on g-C₃N₄ Photocatalysts for Visible-Light-Driven Organic Dyes Degradation: Promoting Charge Separation Efficiency

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NMR Data of the Synthesized Cu Complexes.

Cu(BN)

Microanalytical data (%). Found: C, 36.47; H, 3.71; N, 6.96. Calc: C, 36.81; H, 3.65; N, 7.08

¹H-NMR: (500 MHz, DMSO): 9.41 (s, ⁺NH₃), 7.72 (s, 4H, ArH), 7.25 (s, 4H, ArH),

The appearance of signal at 9.49 and the disappearance of NH₂ at 6.5- 6.00 region indicate the presence of ⁺NH₃

Cu(BA)

Microanalytical data (%). Found: C, 52.63; H, 4.18; N, 4.84. Calc: C, 52.73; H, 4.39; N, 5.09.

¹H-NMR: (500 MHz, DMSO): 8.50 (s, ⁺NH₃), 7.92 (d, 2H, *j* = 7.93, ArH), 7.23-7.08 (m, 6H, ArH), 6.97 (m, 1H, ArH)

In this case signal of ⁺NH₃ appeared at 8.50.

Cu(PD)

Microanalytical data (%). Found: C, 22.66; H, 3.11; N, 8.71. Calc: C, 22.74; H, 3.22; N, 8.76.

¹H-NMR: (500 MHz, DMSO): 9.59 (s, ⁺NH₃), 7.42 (s, 4H, ArH).

In this case signal of ⁺NH₃ appeared at 9.01.

While the all others signals of aromatic protons appeared in their respected reigons.

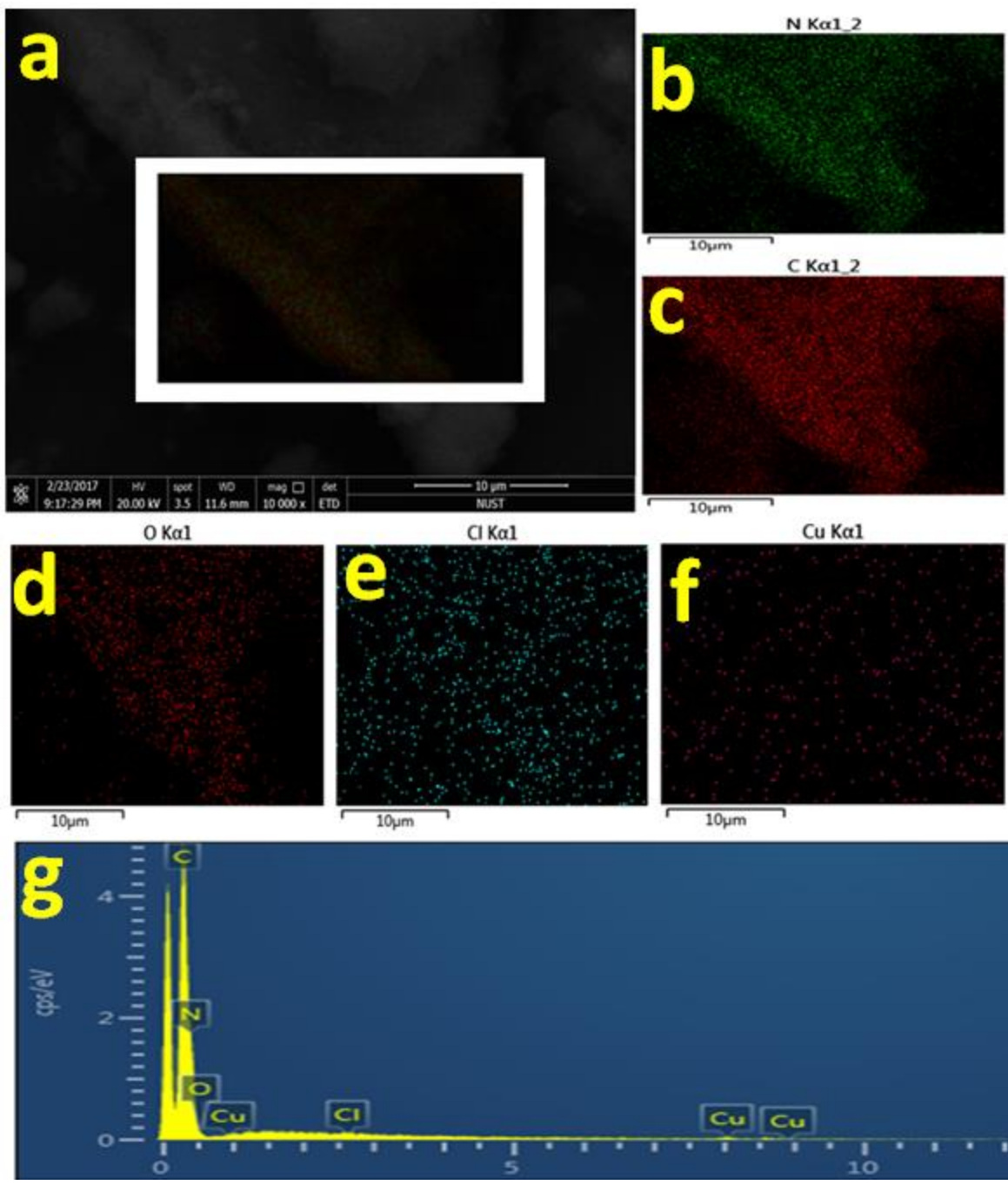


Fig. S1: SEM image of CN-Cu(BN) (a), and Copper, Chlorine, Carbon, Oxygen and Nitrogen (b, c, d, e, f & g) distribution by SEM-EDS mapping of CN-Cu(BN).

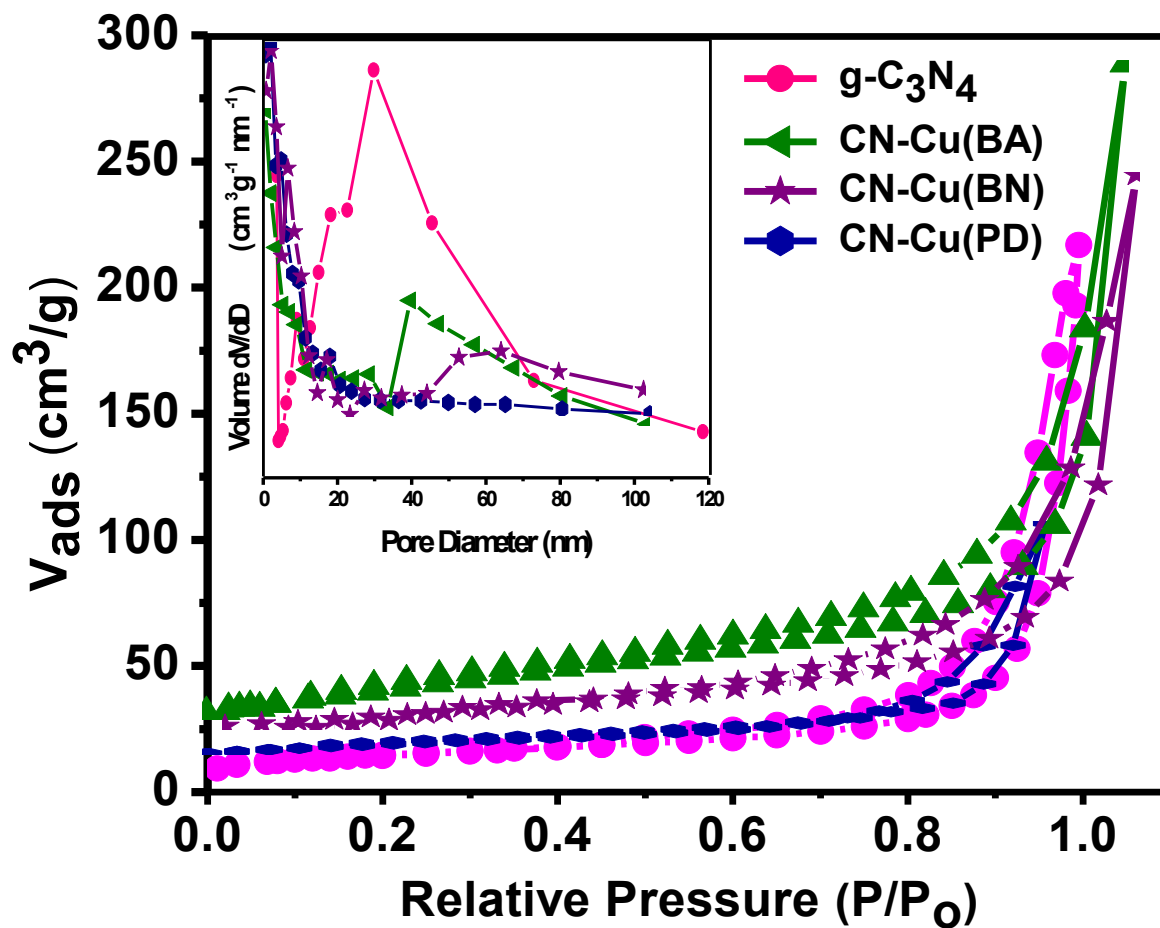


Fig. S2. Nitrogen adsorption-desorption isotherms and the corresponding Barrett-Joyner-Halenda (BJH) pore-size distribution curve of pure $g\text{-C}_3\text{N}_4$ and reformed samples. The pore-size distribution was determined from the desorption branch of the isotherms.



Fig. S3. Degradation of RhB with CN-Cu(BA) under normal room light (109 Lux) and open atmosphere of the lab.

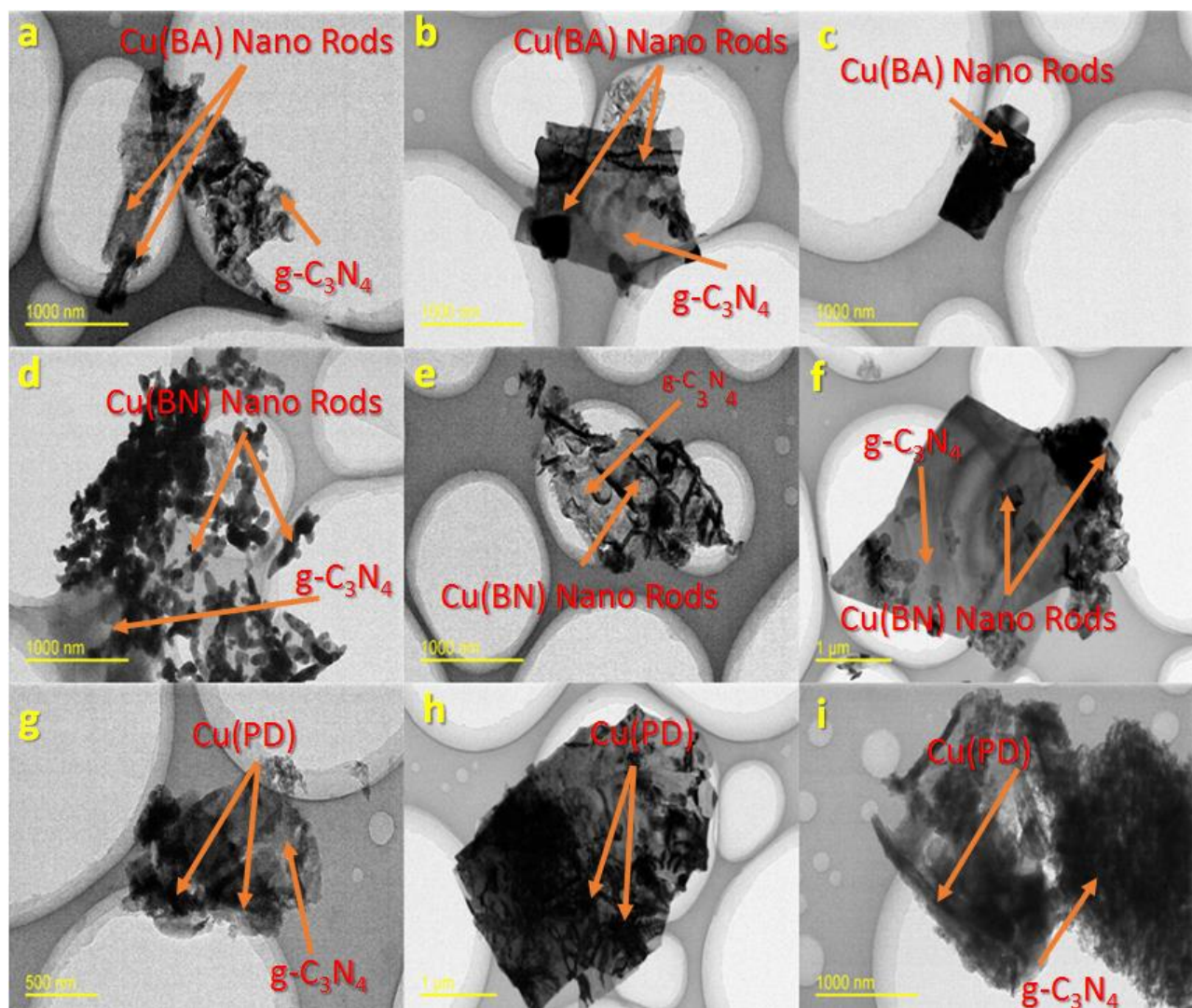


Fig. S4. TEM images of the photocatalysts after recycling four times. (a-c) CN-Cu(BA), (d-f) CN-Cu(BN) and (g-i) CN-Cu(PD).

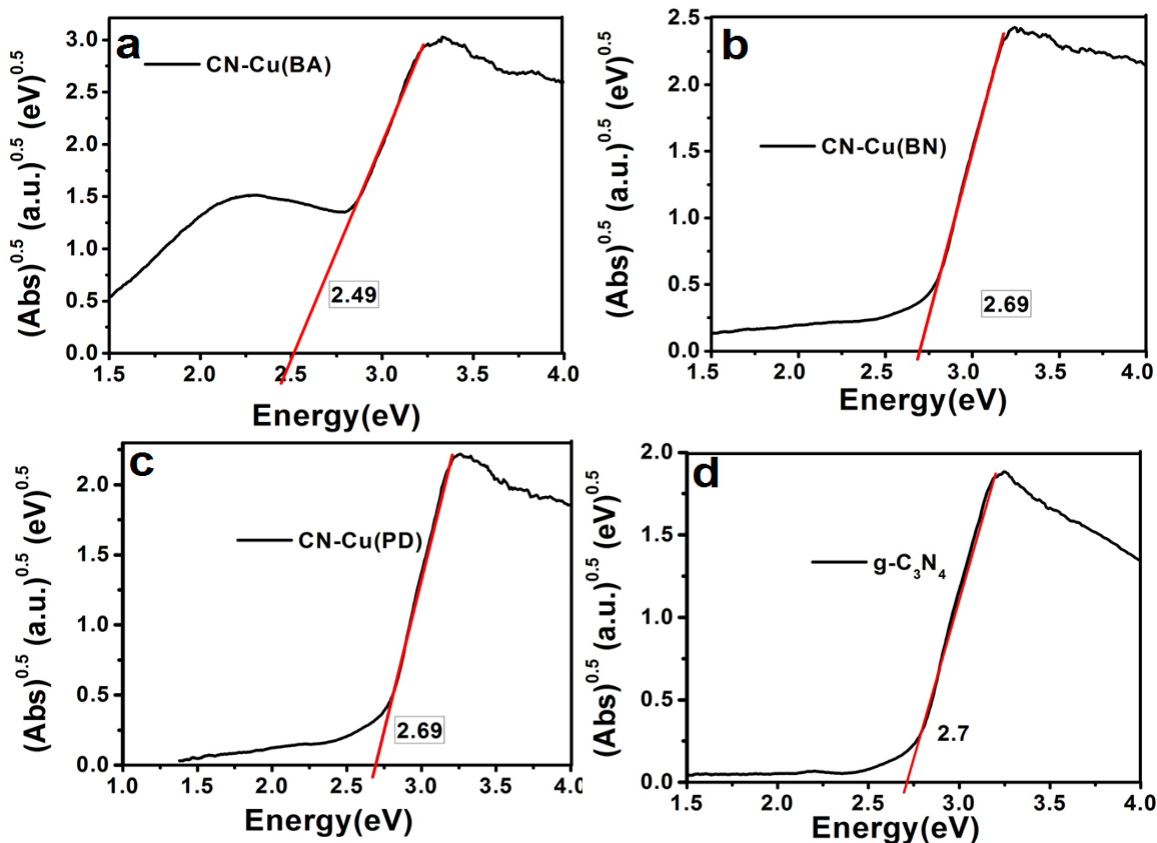


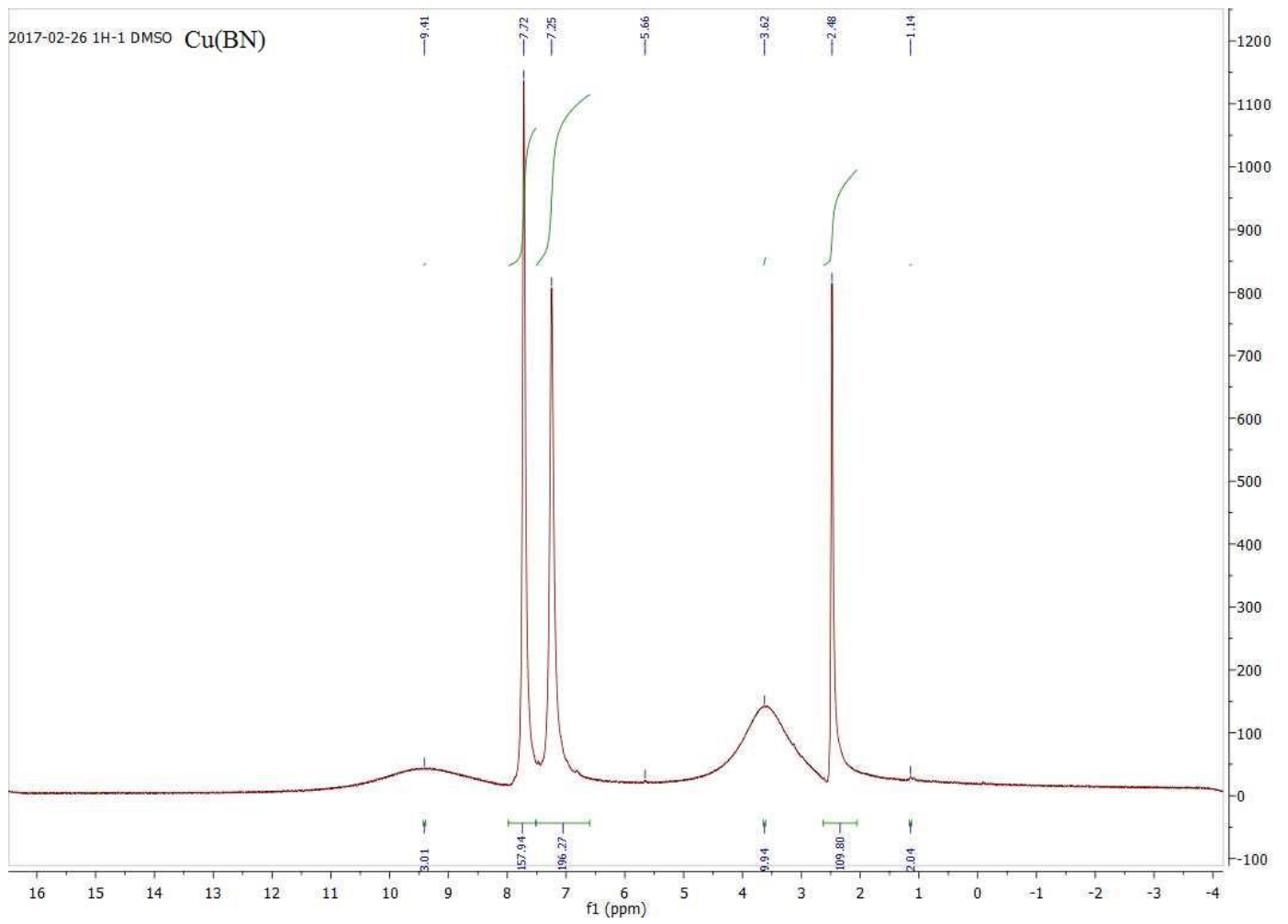
Fig. S5. Band energy level of (a) CN-Cu(BA), (b) CN-Cu(BN) and (c) CN-Cu(PD) and (d) $g\text{-C}_3\text{N}_4$.

Supplementary Table

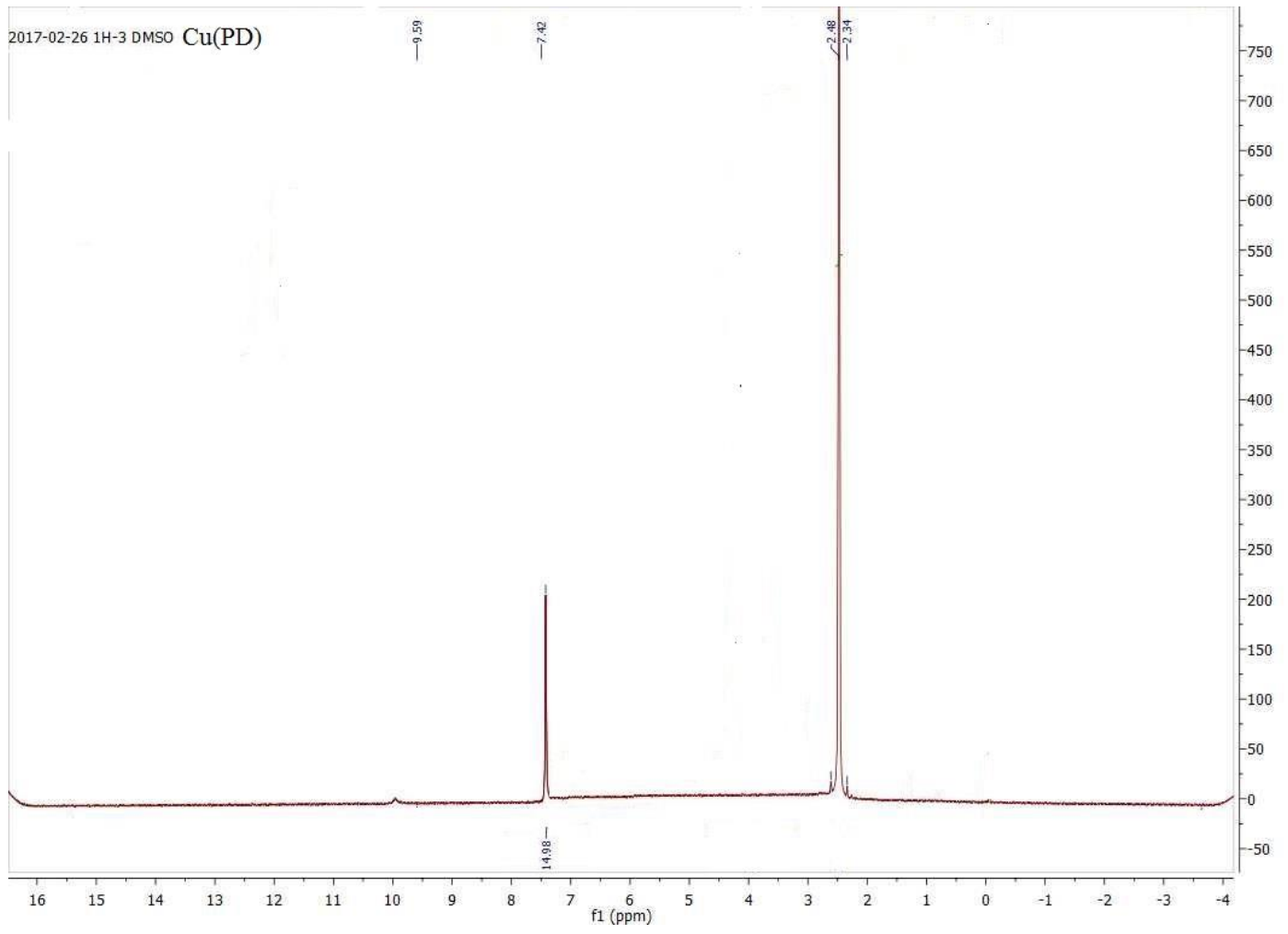
Supplementary Table 1. Cu^{2+} ion concentrations in pure Cu complexes and modified samples obtained by ICP-MS.

Sr. No.	Sample Code	Conc. in (ppb)	Volume (l)	weight (g)	Wt. % of Cu^{2+}
1	CN-Cu(BN)	21.44840536	0.1	0.0108	0.020
2	CN-Cu(PD)	25.67618629	0.1	0.0124	0.021
3	CN-Cu(BA)	24.92075327	0.1	0.013	0.019
4	Cu(BN)	24216.99258	0.1	0.0151	16.038
5	Cu(PD)	22902.61296	0.1	0.0117	19.575
6	Cu(BA)	11437.55443	0.1	0.0113	10.122

^1H NMR Spectra of Cu Complexes



2017-02-26 1H-3 DMSO Cu(PD)



2017-02-26 1H-3 DMSO Cu(BA)

