

## Supporting Information

### **Application of novel silica stabilized on covalent triazine framework as a highly efficient heterogeneous and recyclable catalyst in the effective green synthesis of porphyrins**

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S1. Copies of NMR spectra of aldehyde, amine, TPT-TAT/silica (entries 1-3)

S1-1. 2,4,6-tris(4-formylphenoxy)-1,3,5-triazine (1a)

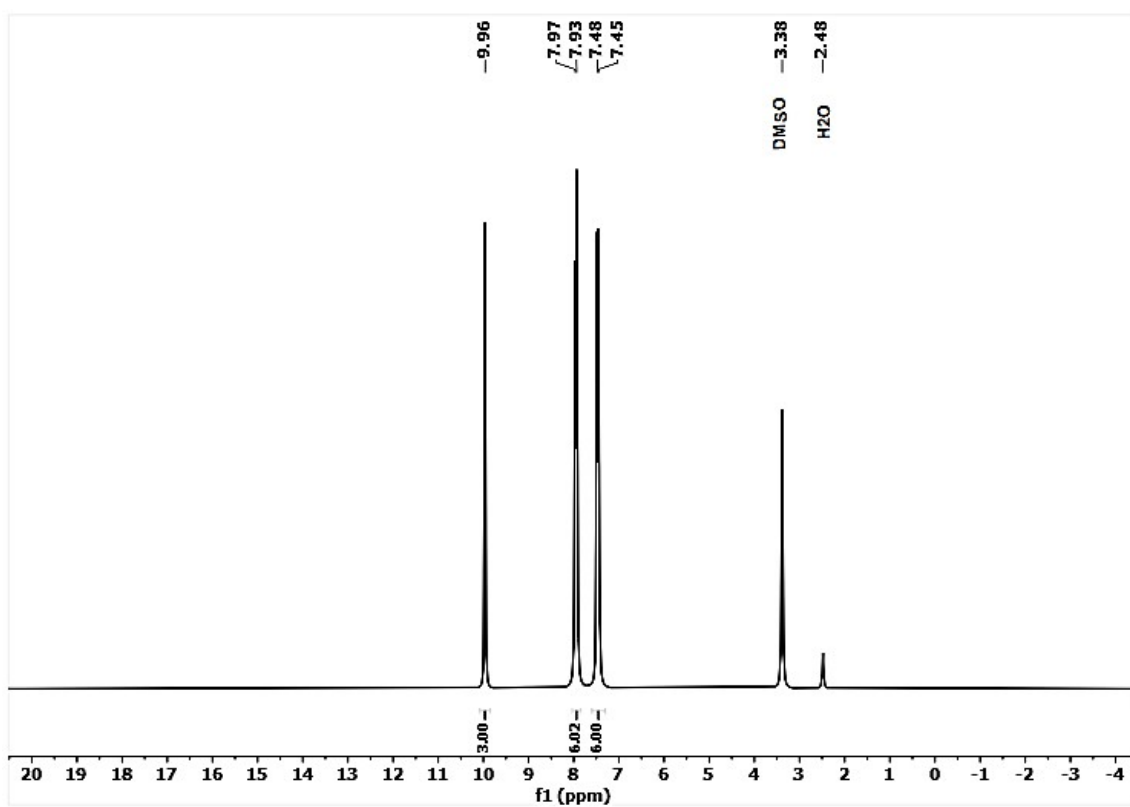
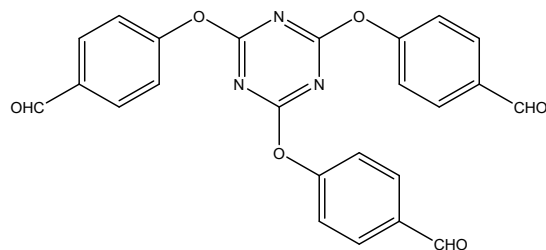


Figure S1. <sup>1</sup>H NMR spectra of 2,4,6-tris(4-formylphenoxy)-1,3,5-triazine (1a).

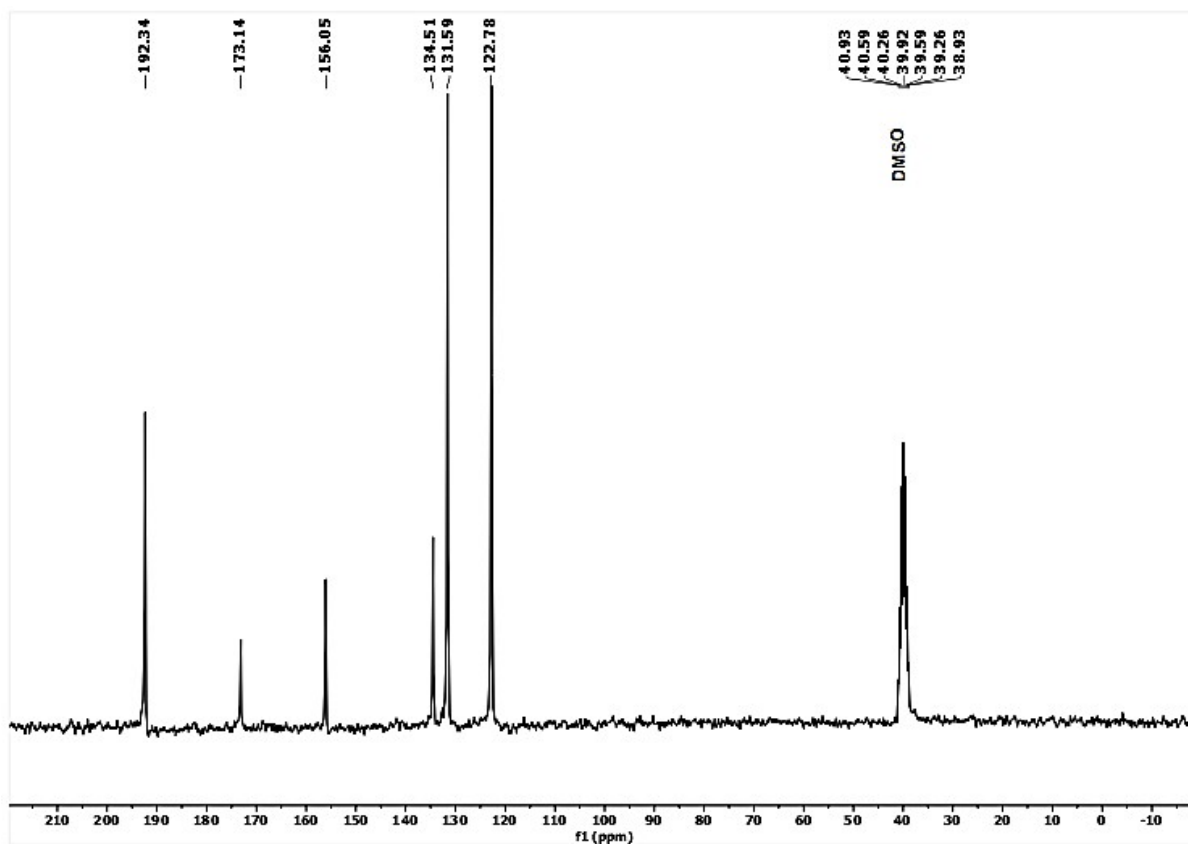


Figure S2.  $^{13}\text{C}$  NMR spectra of 2,4,6-tris(4-formylphenoxy)-1,3,5-triazine (1a).

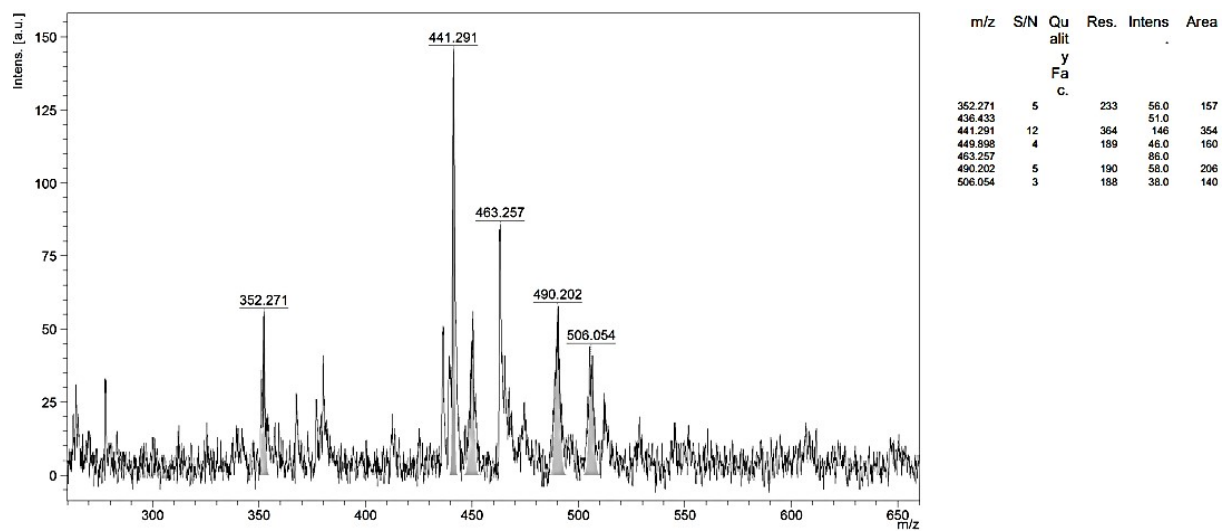


Figure S3. HR-Mass spectra of 2,4,6-tris(4-formylphenoxy)-1,3,5-triazine (1a).

S1-2.  $N^2, N^4, N^6$ -tris(4-(aminomethyl) benzyl)-1,3,5-triazine-2,4,6-triamine (2a)

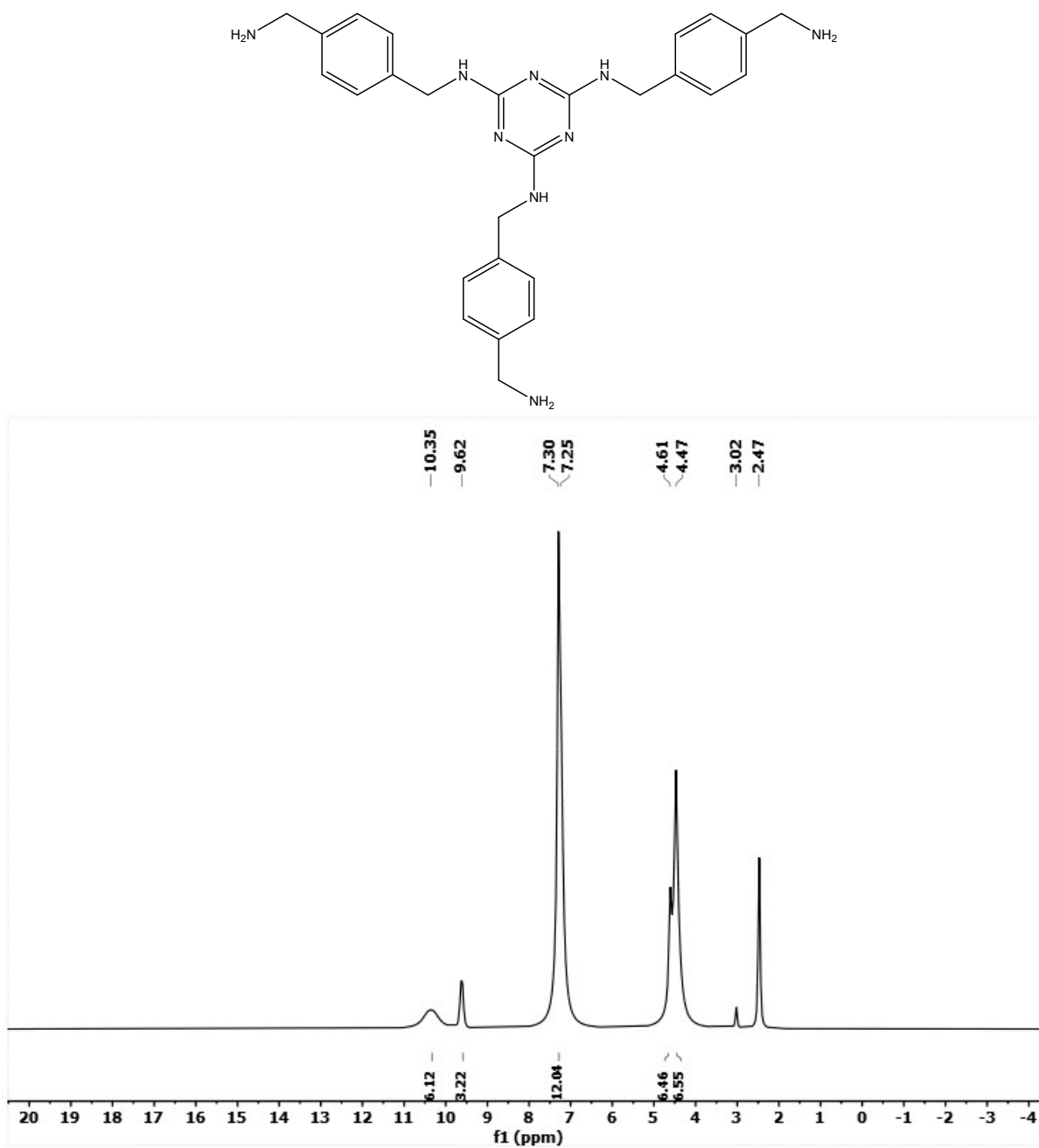


Figure S4.  $^1\text{H NMR}$  spectra of  $N^2, N^4, N^6$ -tris(4-(aminomethyl) benzyl)-1,3,5-triazine-2,4,6-triamine (2a).

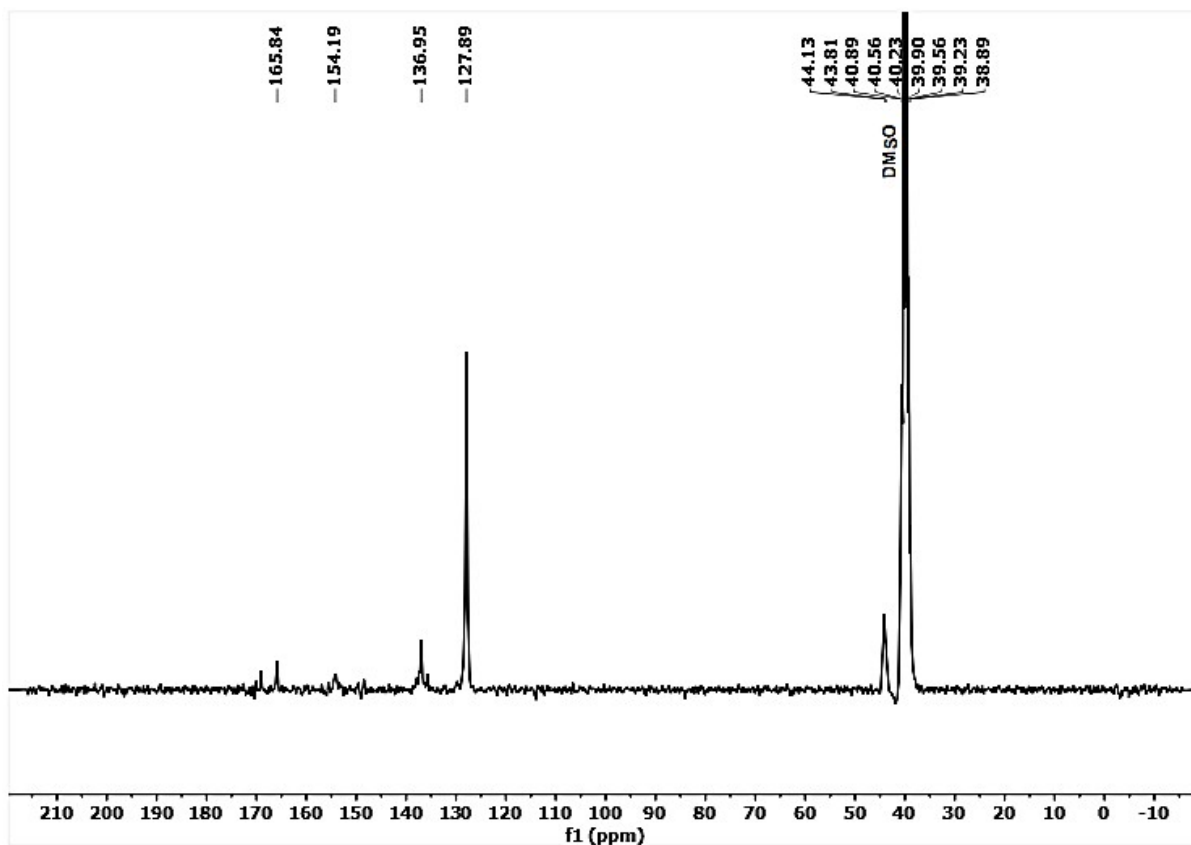


Figure S5.  $^{13}\text{C}$  NMR spectra of  $N^2, N^4, N^6$ -tris(4-(aminomethyl) benzyl)-1,3,5-triazine-2,4,6-triamine (2a).

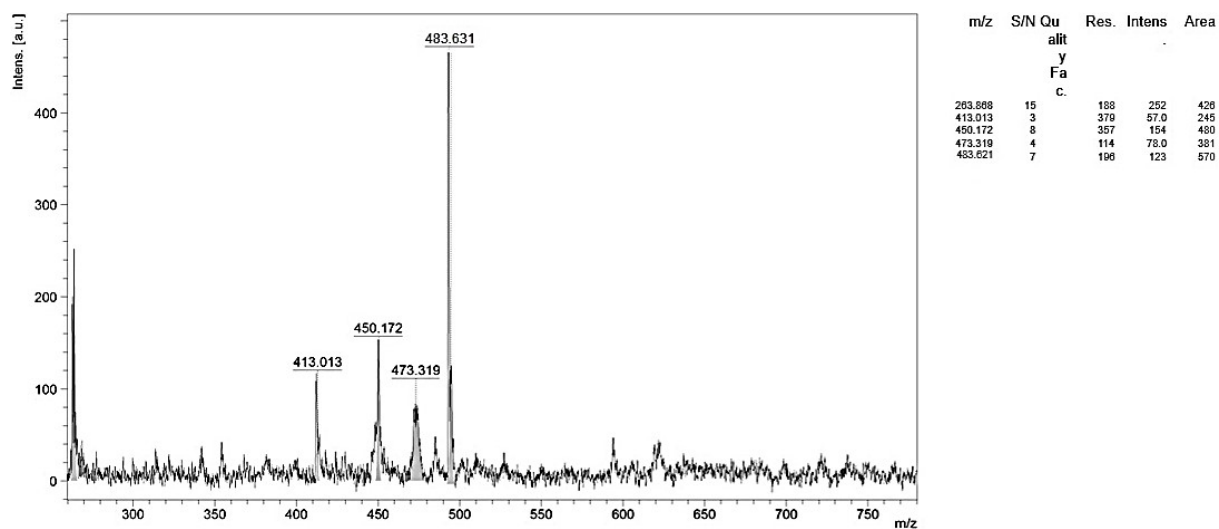
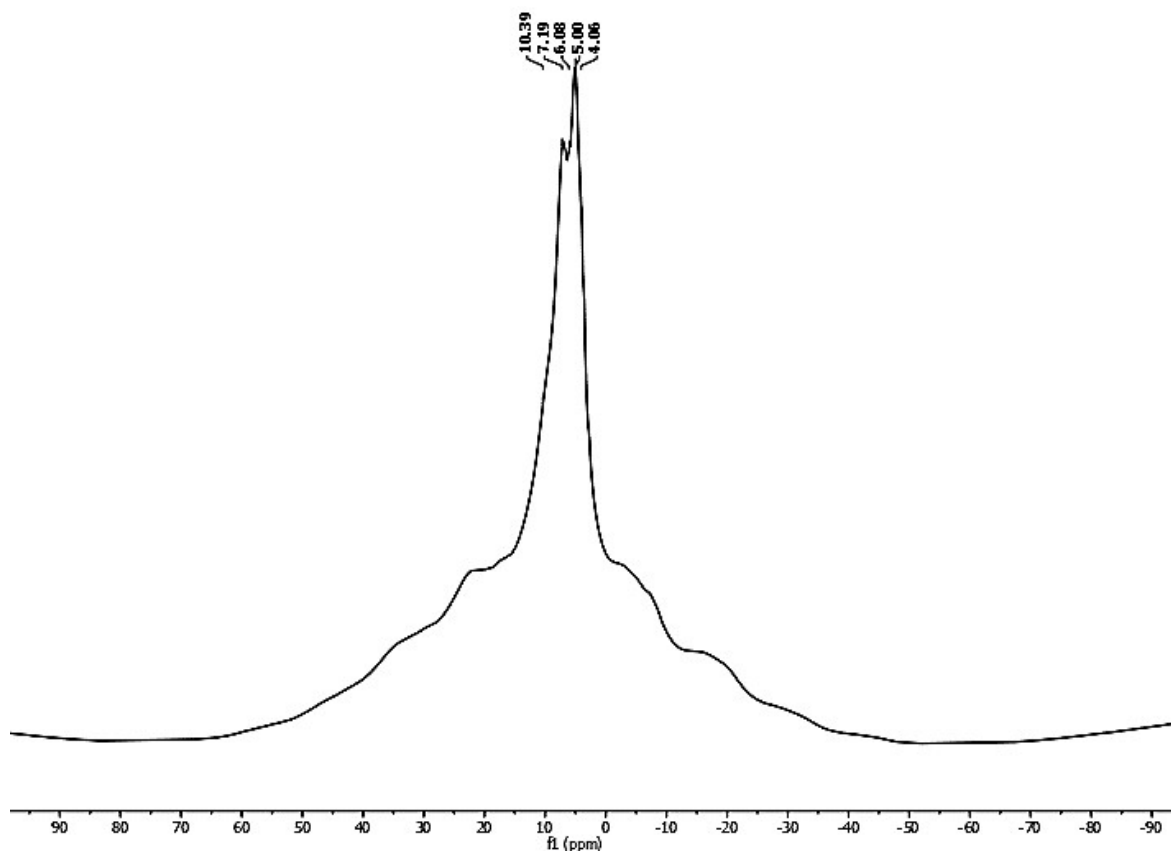


Figure S6. HR-Mass spectra of  $N^2, N^4, N^6$ -tris(4-(aminomethyl) benzyl)-1,3,5-triazine-2,4,6-triamine (2a).

### S1-3. TPT/TAT (3a)



**Figure S7.** <sup>1</sup>H-SSNMR spectra of covalent triazine framework (TPT-TAT) (3a).

**S2. Copies of FT-IR, NMR and HR-Mass spectra of products (entries 1-8)**

S2-1. 5,10,15,20-Tetraphenylporphyrin (4a)

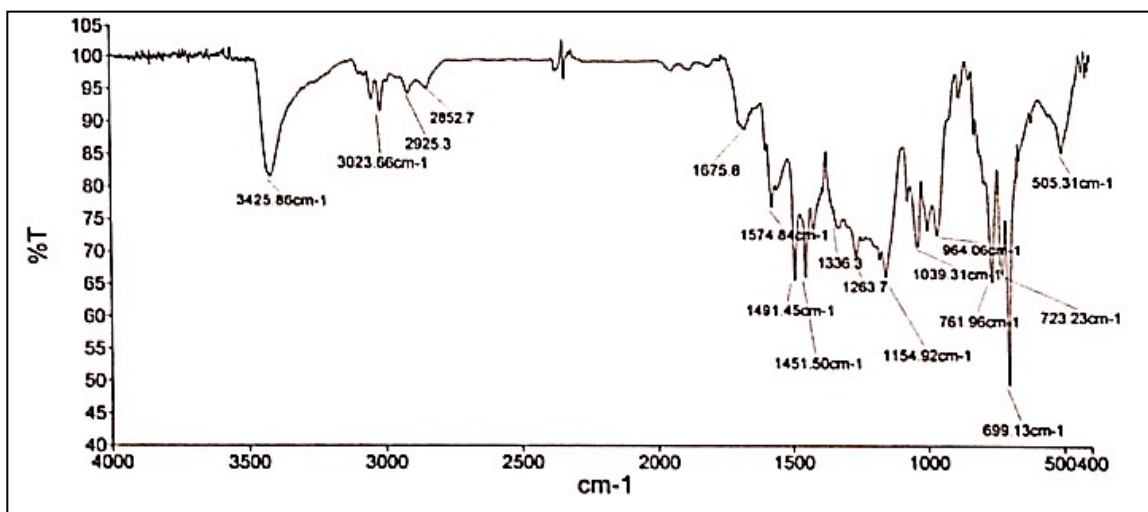
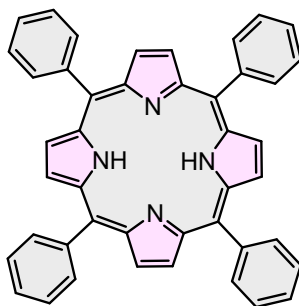


Figure S8. FT-IR spectra of 5,10,15,20-Tetraphenylporphyrin (4a).



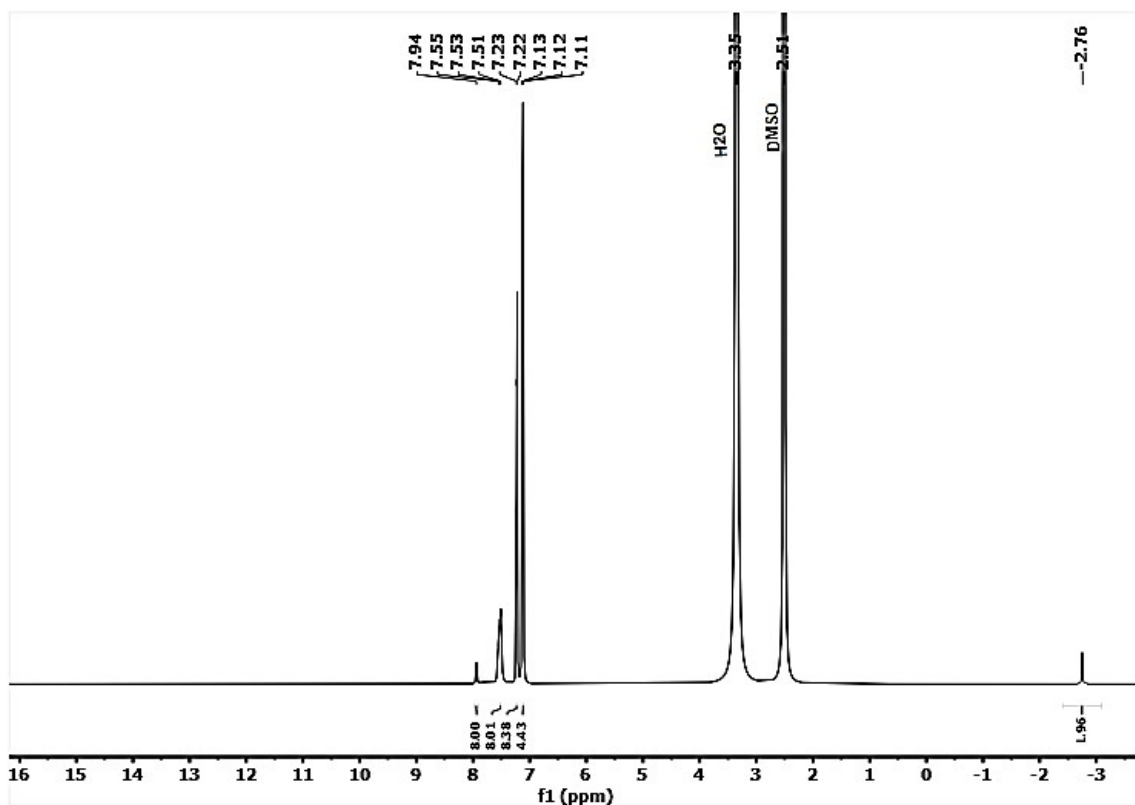


Figure S9. <sup>1</sup>H NMR spectra of 5,10,15,20-Tetraphenylporphyrin (4a).

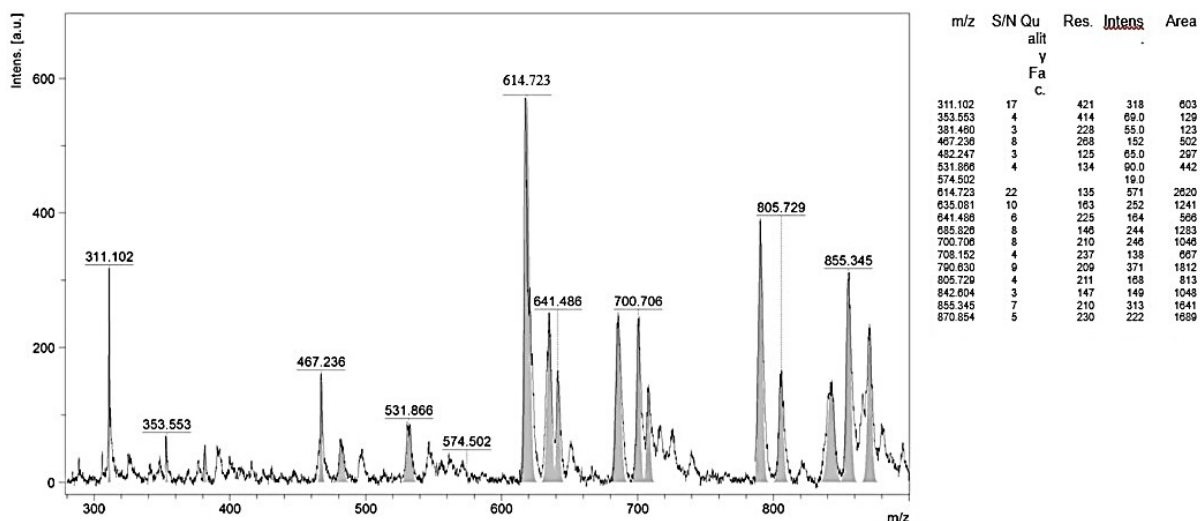


Figure S10. HR-Mass spectra of 5,10,15,20-Tetraphenylporphyrin (4a).

S2-2. 5,10,15,20-Tetrakis(4-methylphenyl)porphyrin (4b)

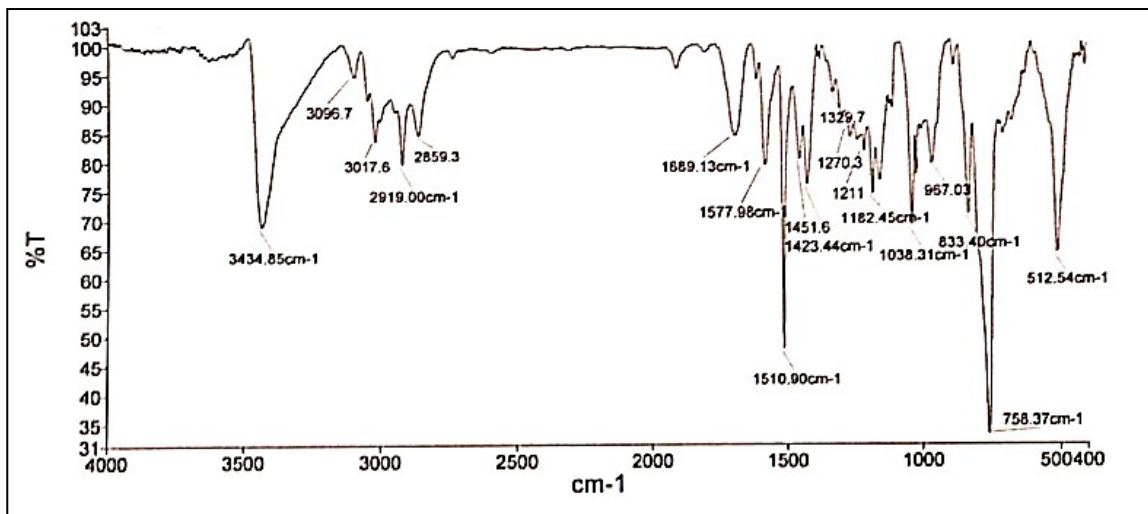
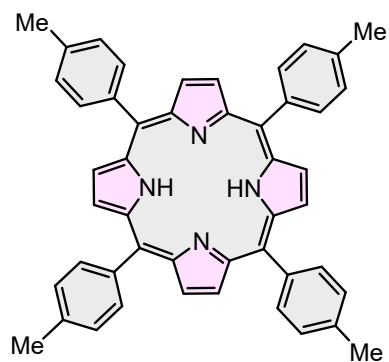


Figure S11. FT-IR spectra of 5,10,15,20-Tetrakis(4-methylphenyl)porphyrin (4b).

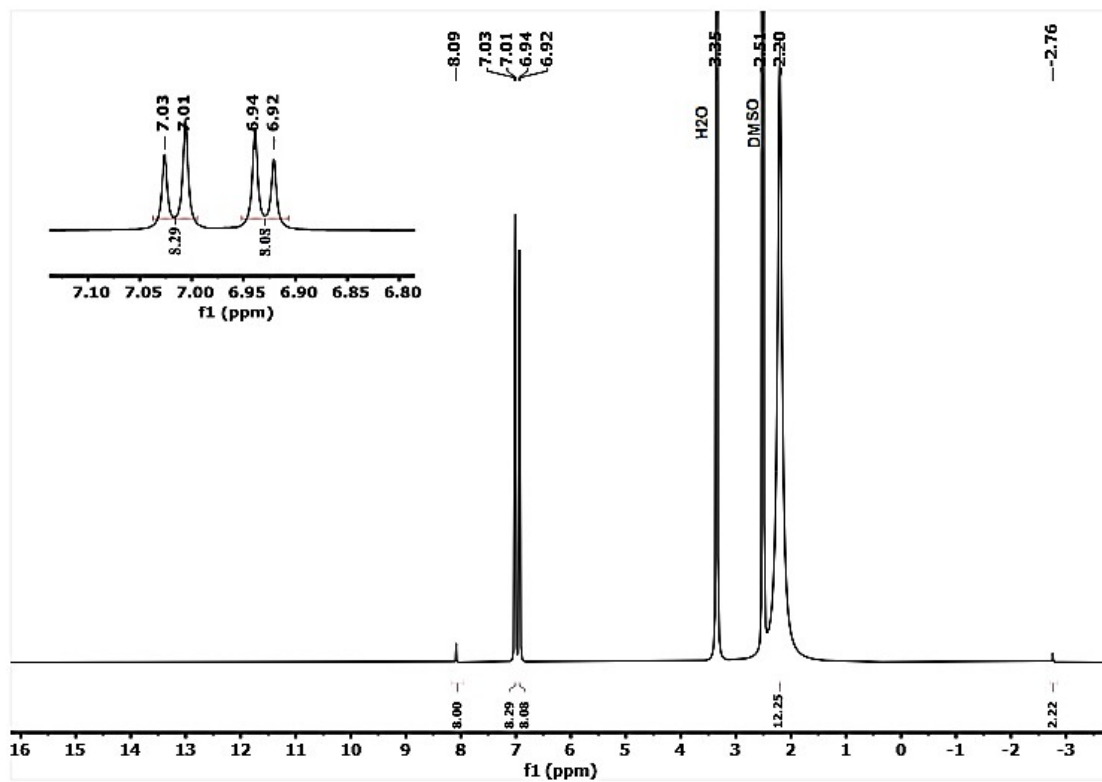


Figure S12.  $^1\text{H}$  NMR spectra of 5,10,15,20-Tetrakis(4-methylphenyl)porphyrin (4b).

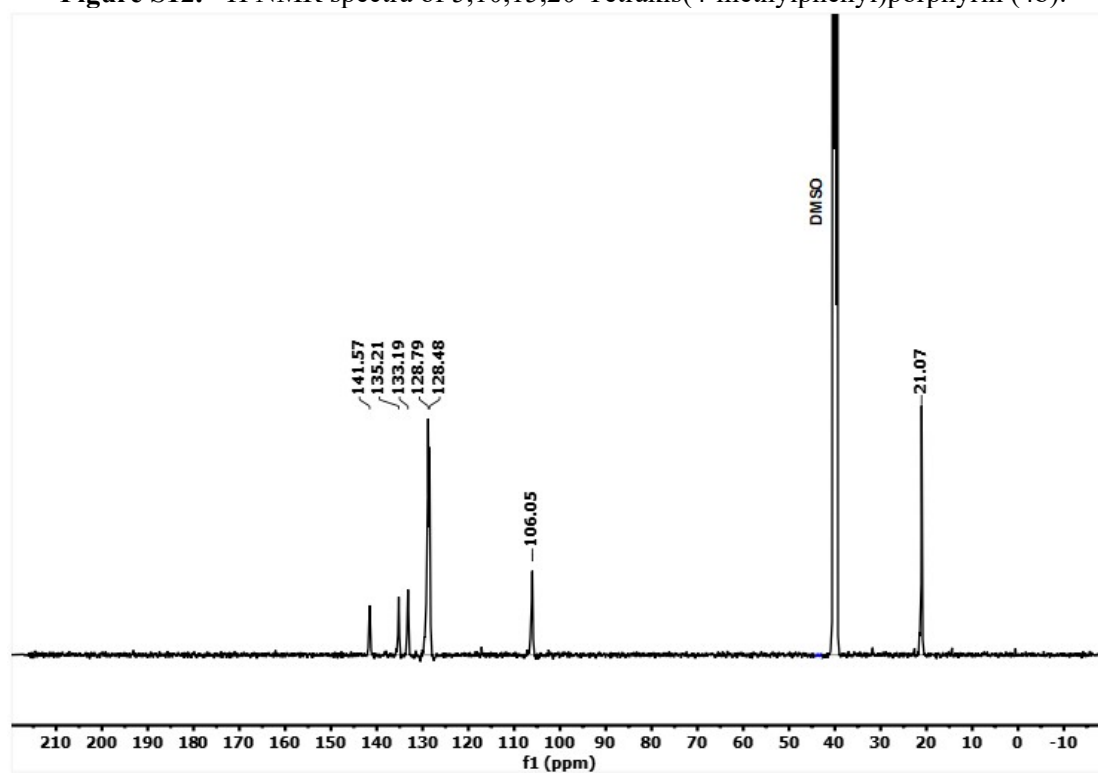
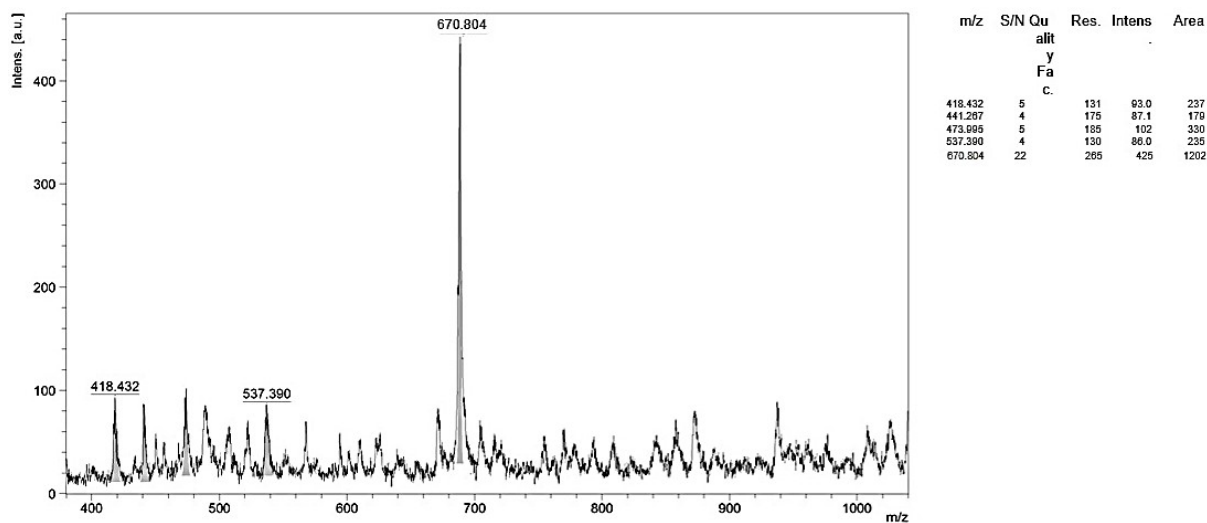
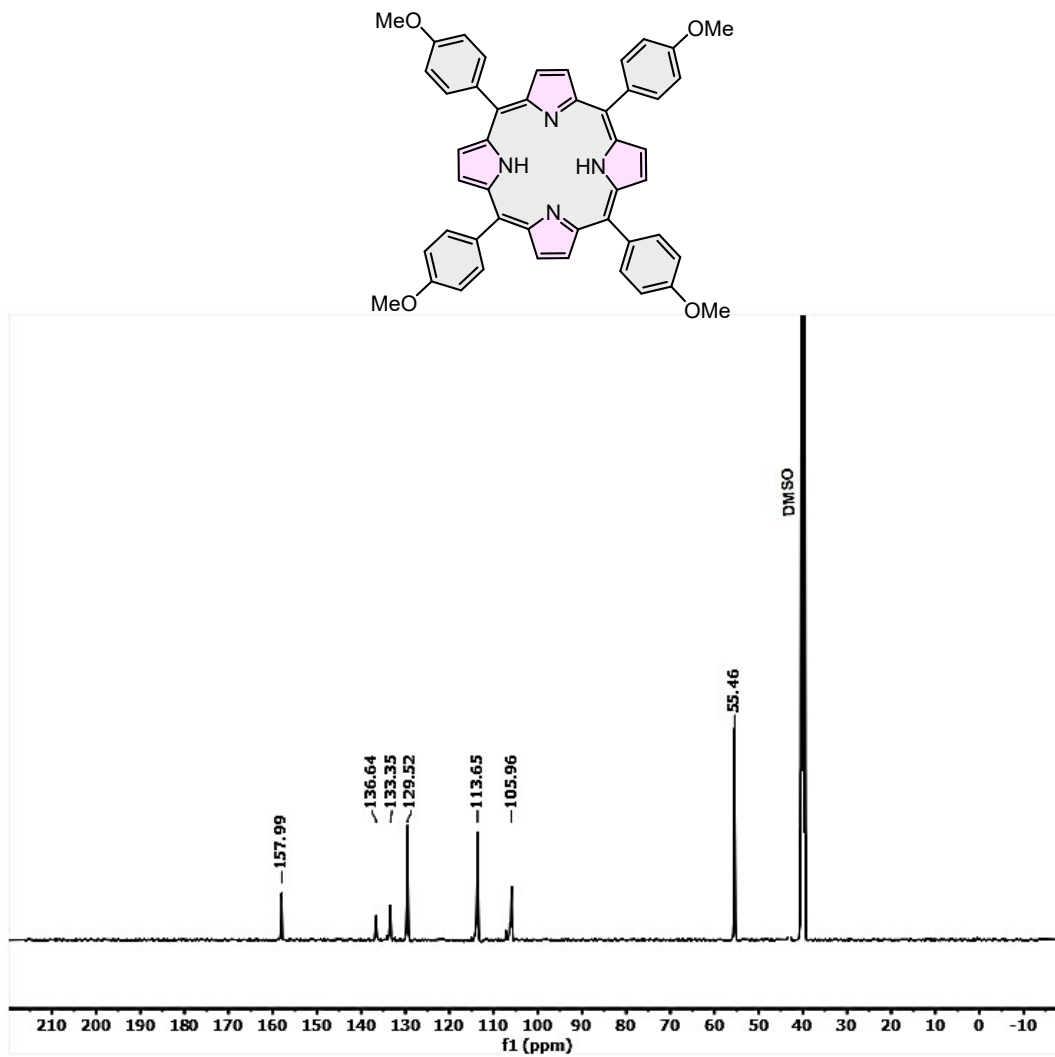


Figure S13.  $^{13}\text{C}$  NMR spectra of 5,10,15,20-Tetrakis(4-methylphenyl)porphyrin (4b).



**Figure S14.** HR-Mass spectra of 5,10,15,20-Tetrakis(4-methylphenyl)porphyrin (4b).  
**S2-3.** 5,10,15,20-Tetrakis(4-methoxyphenyl)porphyrin (4c)



**Figure S15.** <sup>13</sup>C NMR spectra of 5,10,15,20-Tetrakis(4-methoxyphenyl)porphyrin (4c).

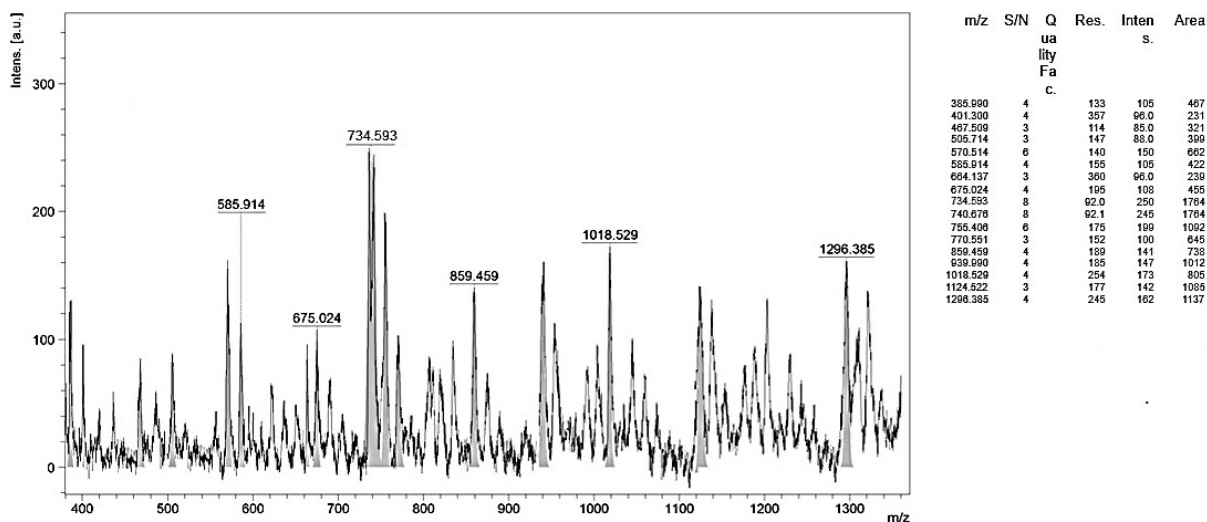


Figure S16. HR-Mass spectra of 5,10,15,20-Tetrakis(4-methoxyphenyl)porphyrin (4c).

S2-4. 5,10,15,20-Tetrakis(4-chlorophenyl)porphyrin (4d)

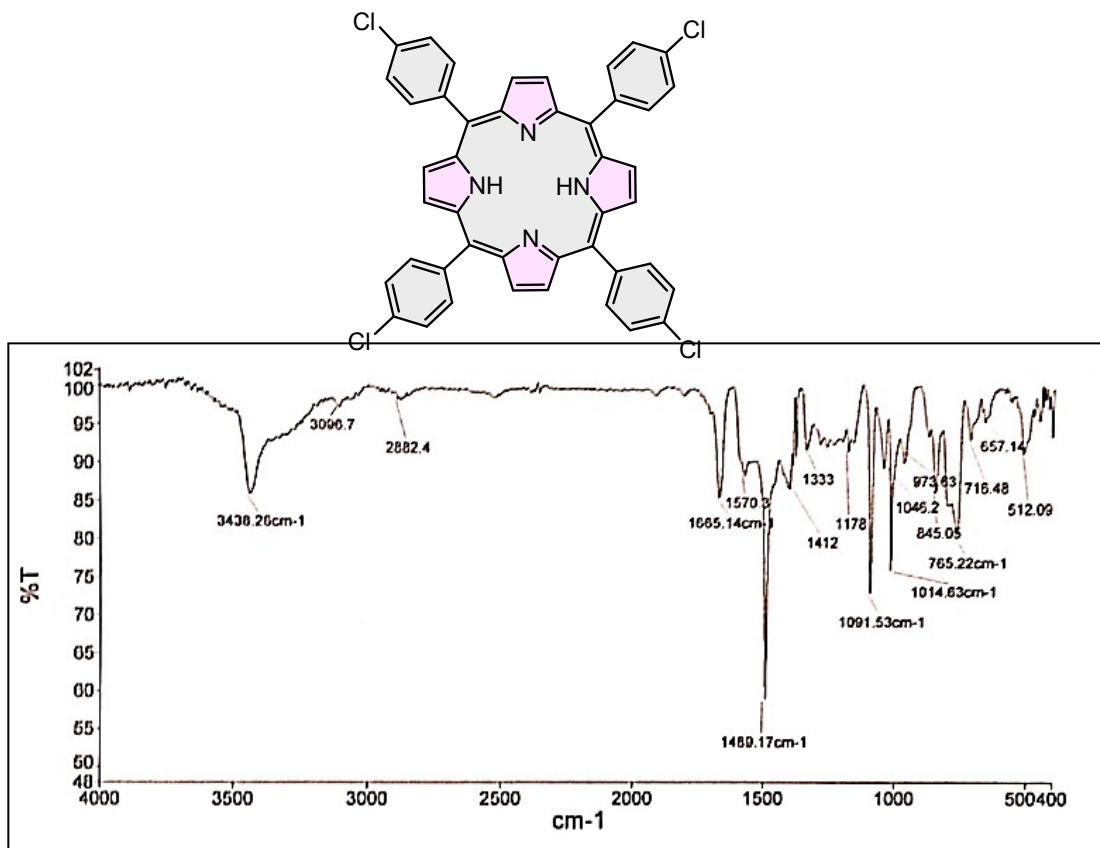


Figure S17. FT-IR spectra of 5,10,15,20-Tetrakis(4-chlorophenyl)porphyrin (4d).

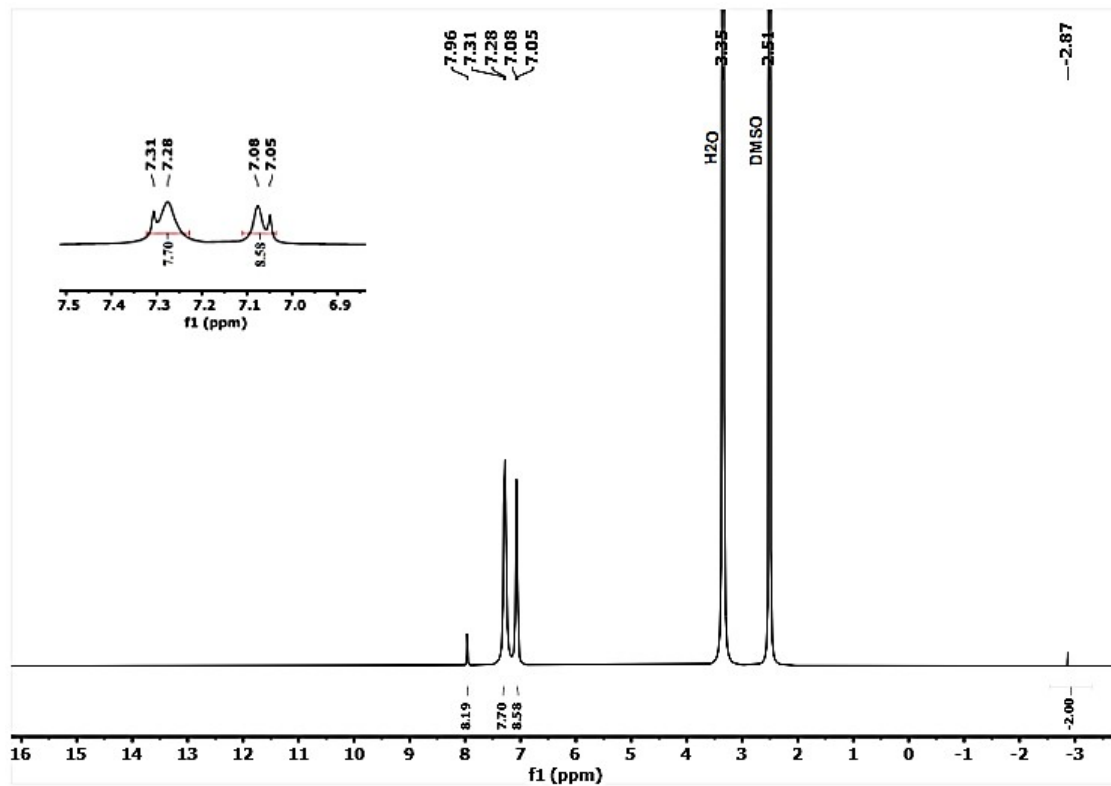


Figure S18.  $^1\text{H}$  NMR spectra of 5,10,15,20-Tetrakis(4-chlorophenyl)porphyrin (4d).

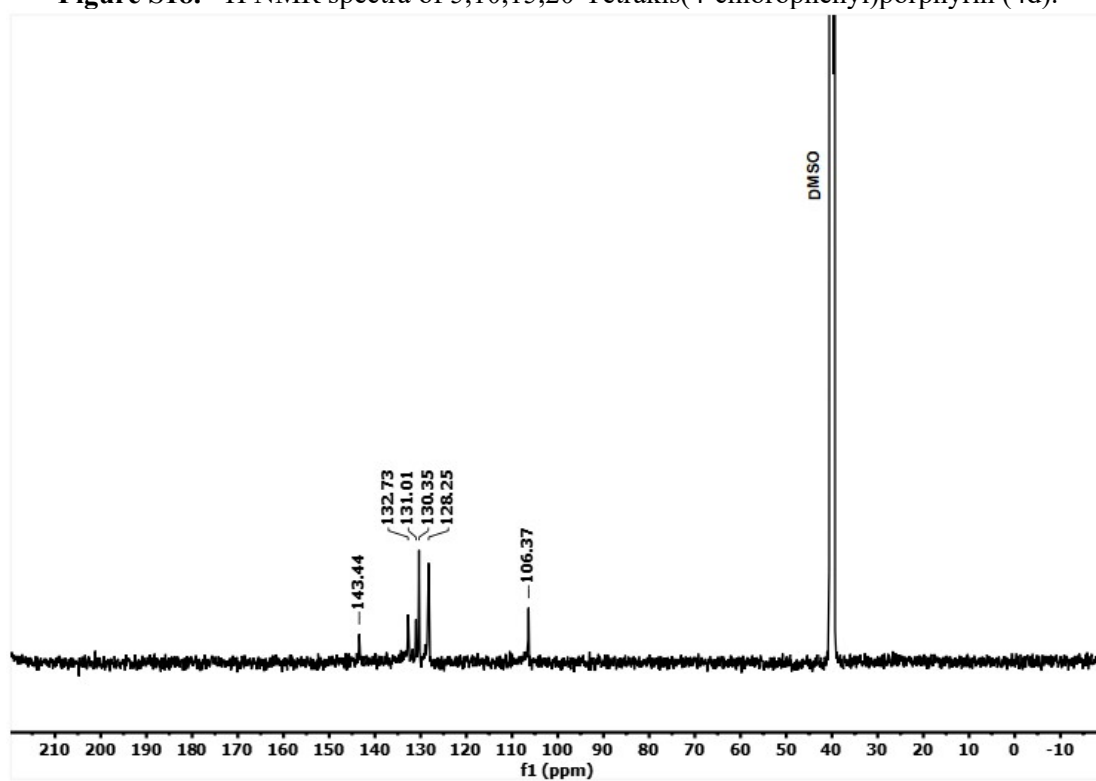


Figure S19.  $^{13}\text{C}$  NMR spectra of 5,10,15,20-Tetrakis(4-chlorophenyl)porphyrin (4d).

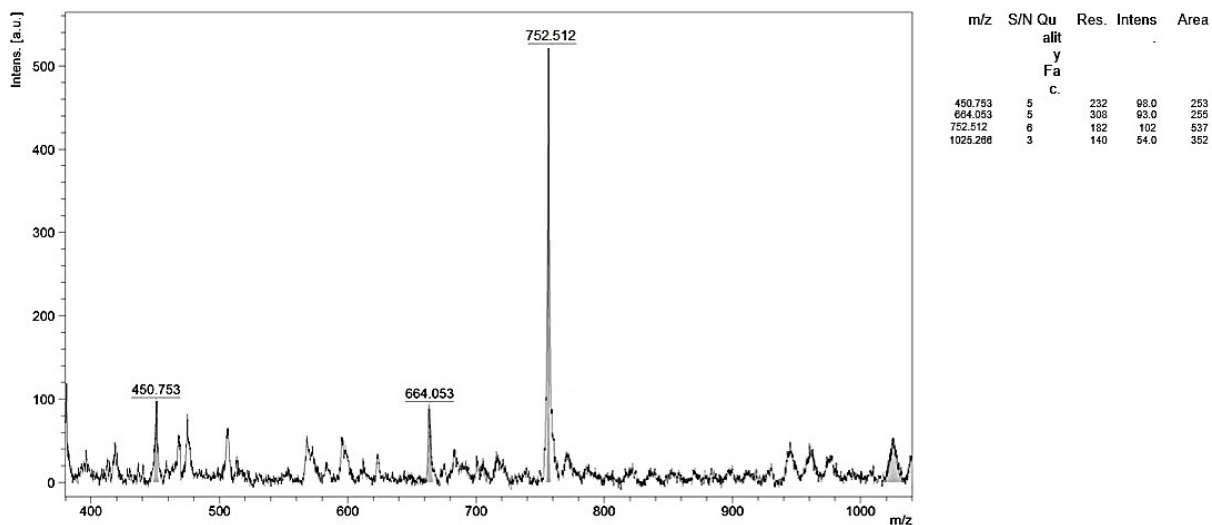


Figure S20. HR-Mass spectra of 5,10,15,20-Tetrakis(4-chlorophenyl)porphyrin (4d).

### S2-5. 5,10,15,20-Tetrakis(2,4-dichlorophenyl)porphyrin (4e)

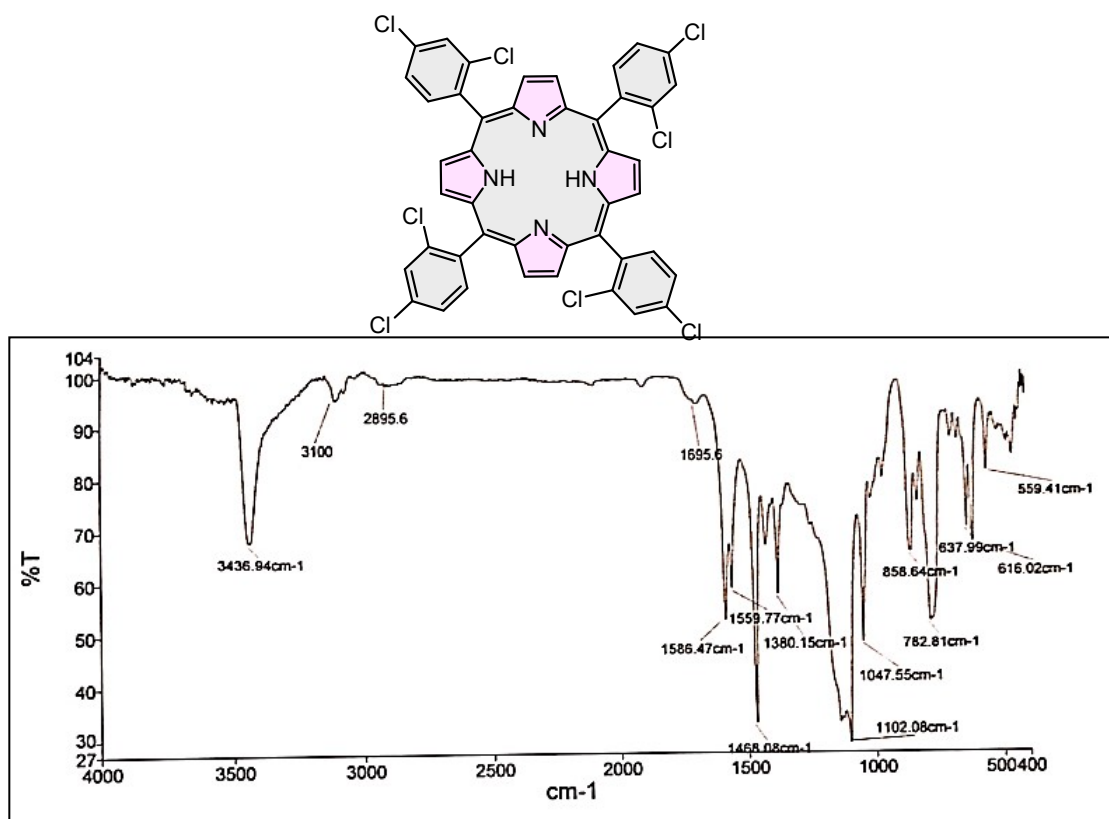


Figure S21. FT-IR spectra of 5,10,15,20-Tetrakis(2,4-dichlorophenyl)porphyrin (4e).

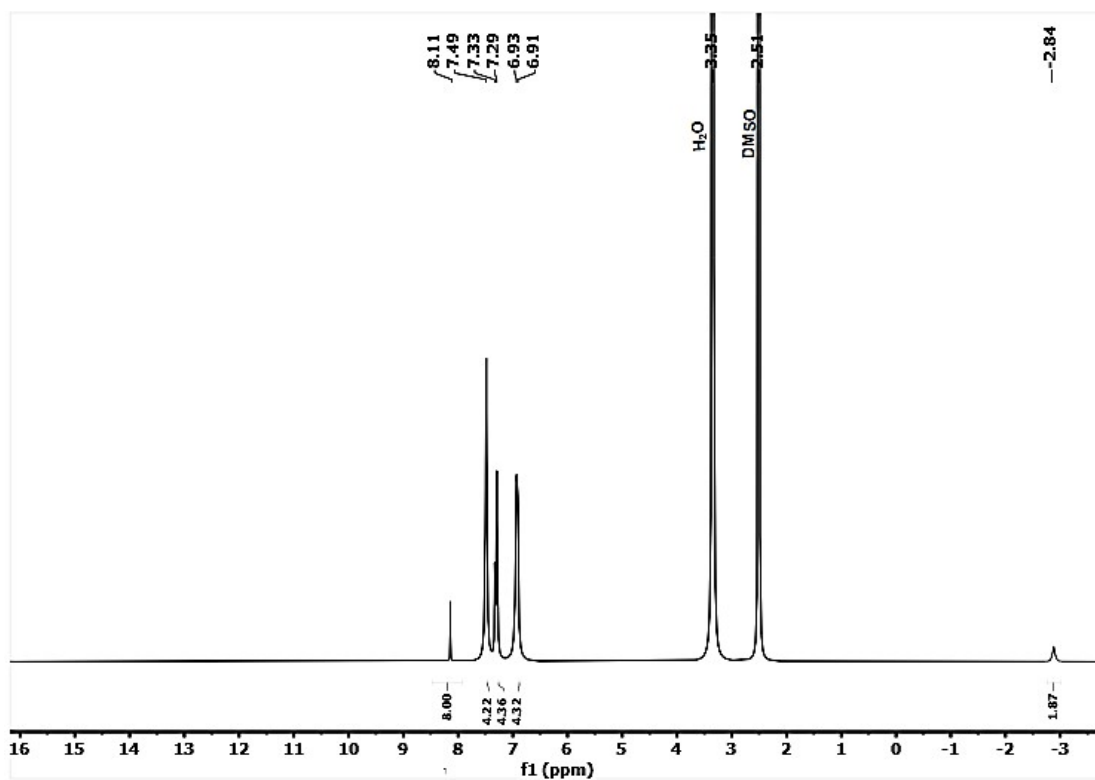


Figure S22. <sup>1</sup>H NMR spectra of 5,10,15,20-Tetrakis(2,4-dichlorophenyl)porphyrin (4e).

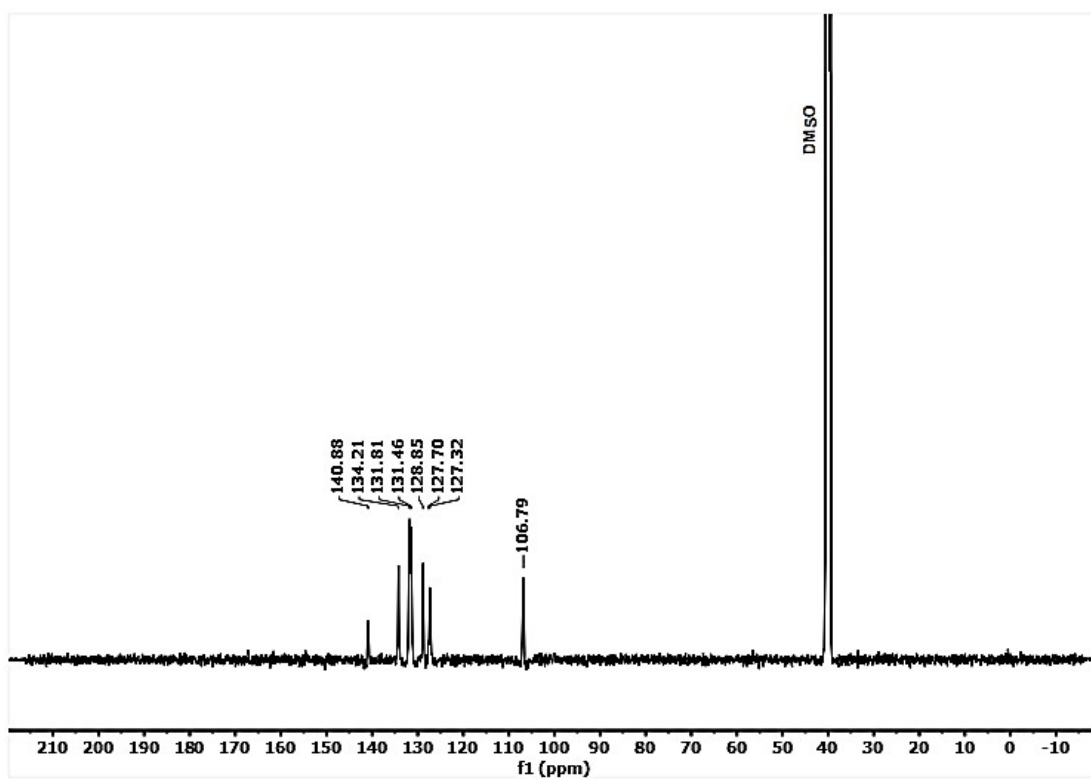


Figure S23. <sup>13</sup>C NMR spectra of 5,10,15,20-Tetrakis(2,4-dichlorophenyl)porphyrin (4e).



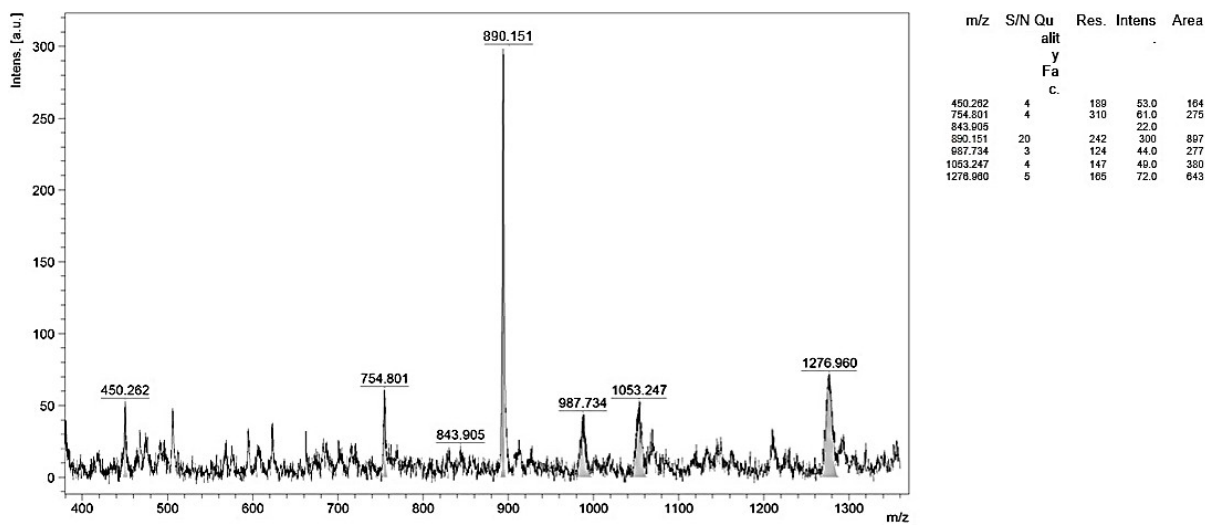


Figure S24. HR-Mass spectra of 5,10,15,20-Tetrakis(2,4-dichlorophenyl)porphyrin (4e).

S2-6. 5,10,15,20-tetra(thiophen-2-yl)porphyrin (4f)

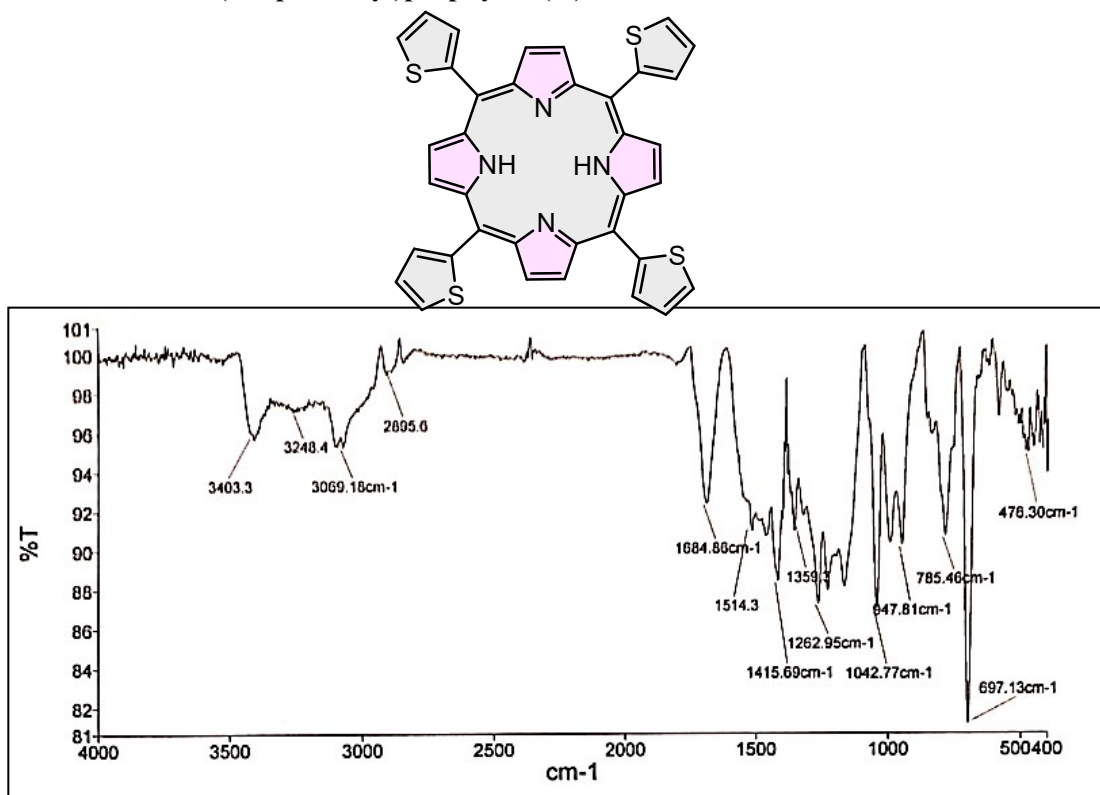


Figure S25. FT-IR spectra of 5,10,15,20-tetra(thiophen-2-yl)porphyrin (4f).

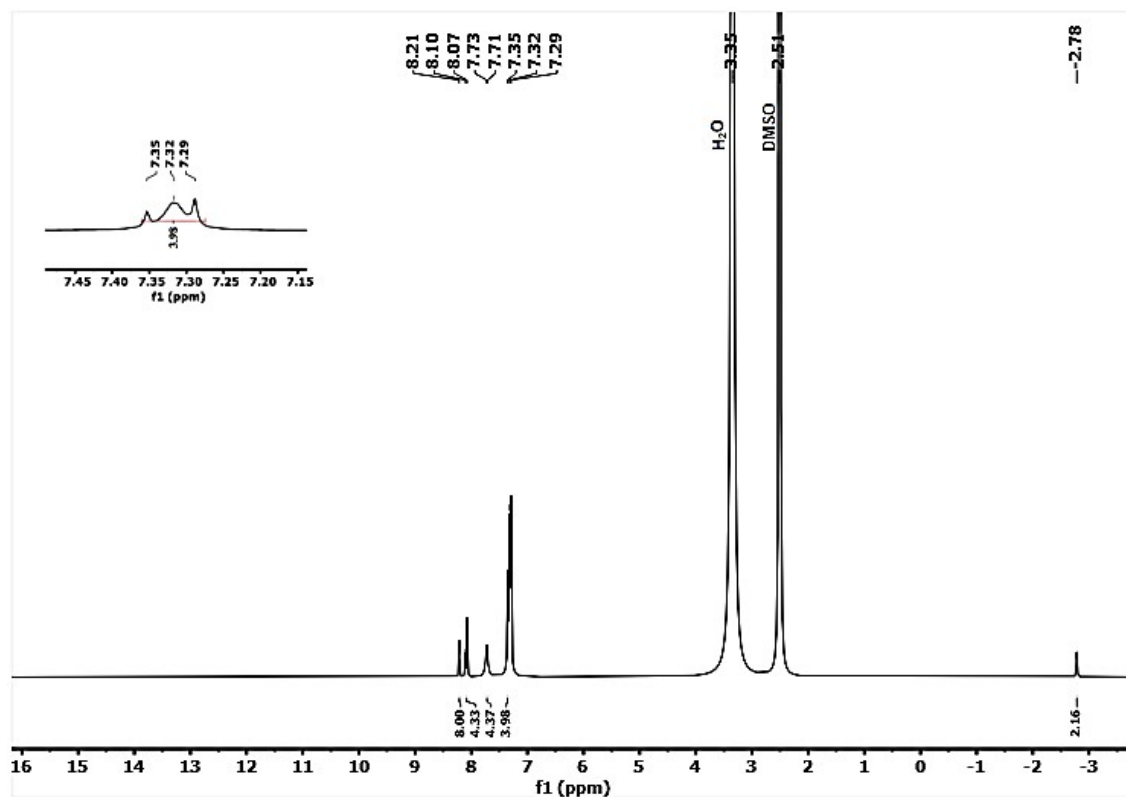


Figure S26. <sup>1</sup>H NMR spectra of 5,10,15,20-tetra(thiophen-2-yl)porphyrin (4f).

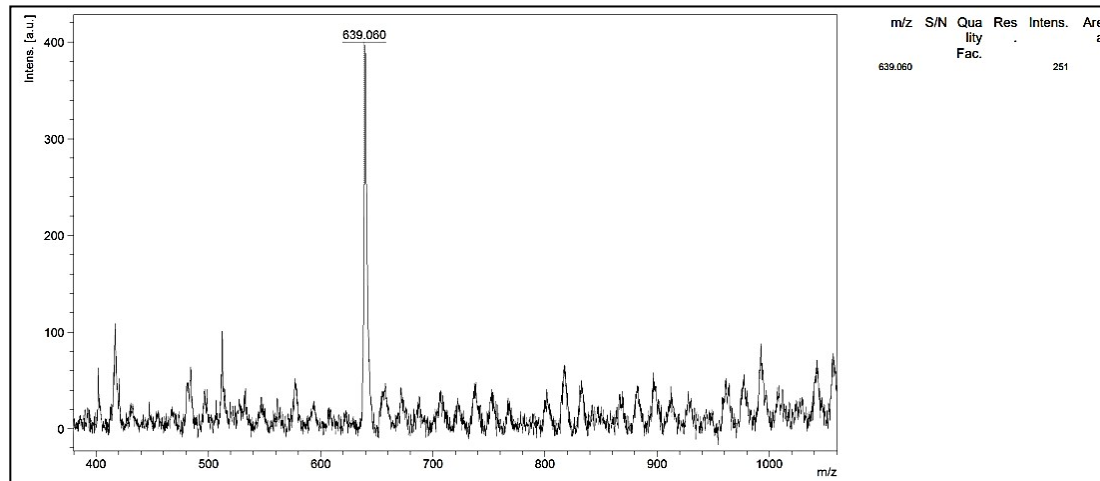


Figure S27. HR-Mass spectra of 5,10,15,20-tetra(thiophen-2-yl)porphyrin (4f).

S2-7. 5,10,15,20-tetra(pyridin-2-yl)porphyrin (3g)

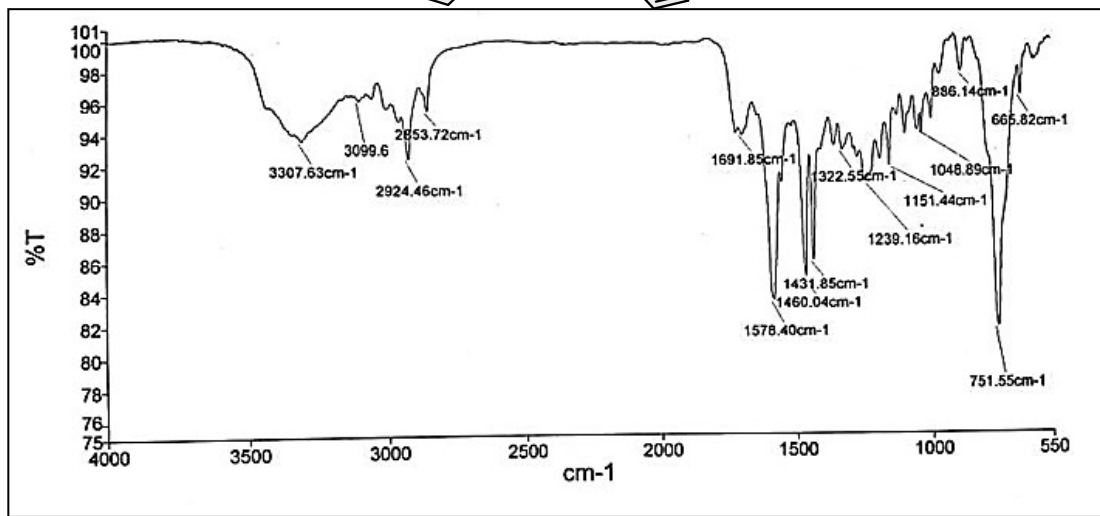
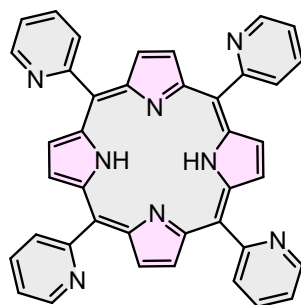


Figure S28. FT-IR spectra of 5,10,15,20-tetra(pyridin-2-yl)porphyrin (4g).

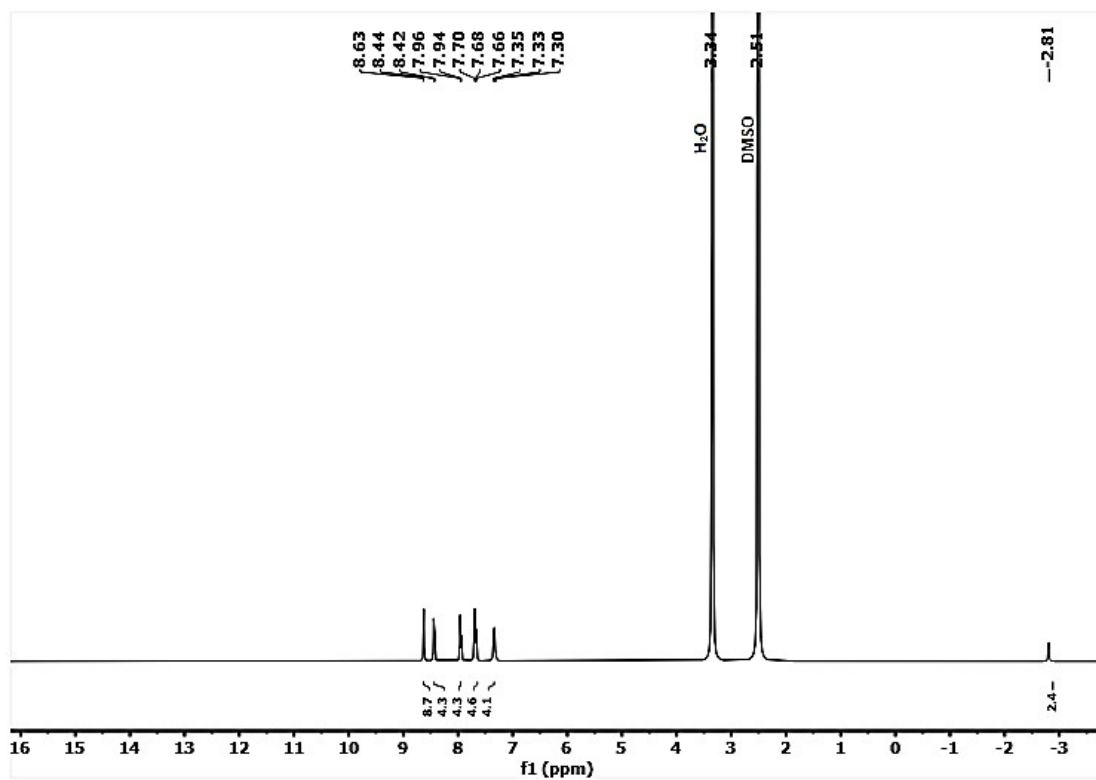
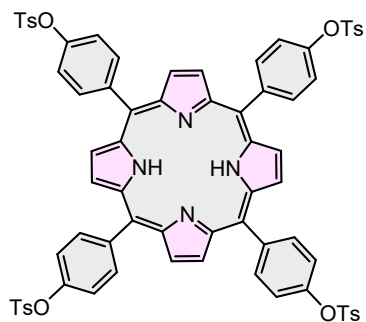
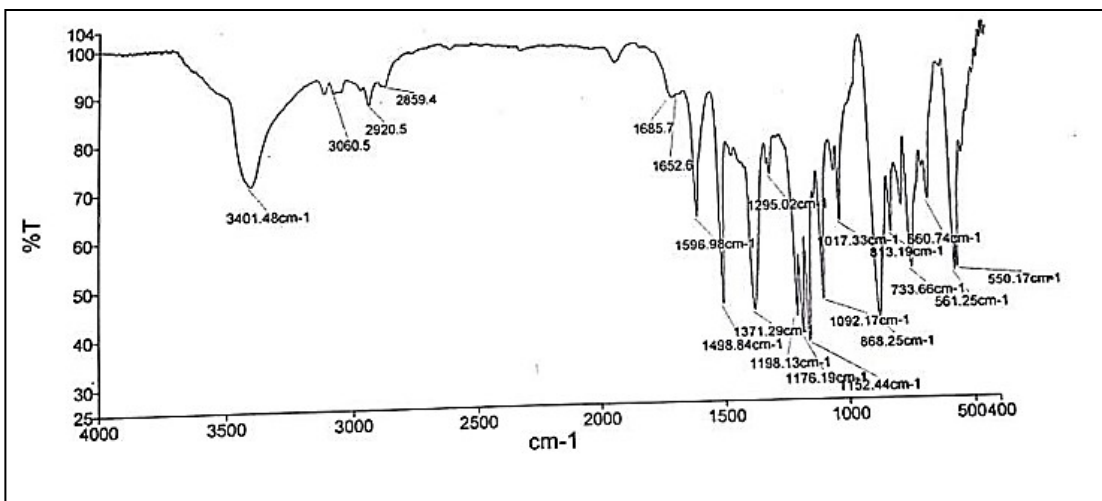


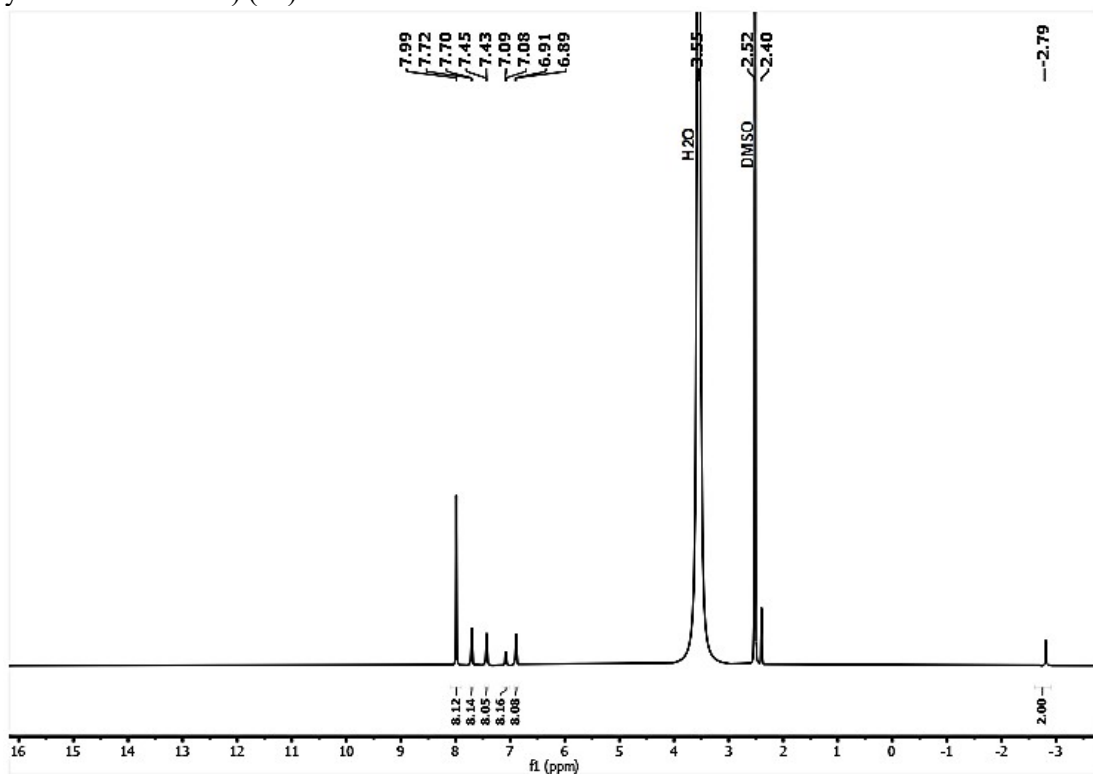
Figure S29. <sup>1</sup>H NMR spectra of 5,10,15,20-tetra(pyridin-2-yl)porphyrin (4g).

S2-8. porphyrin-5,10,15,20-tetra(tetrakis(benzene-4,1-diyl) tetrakis(4-methylbenzenesulfonate)) (4h)

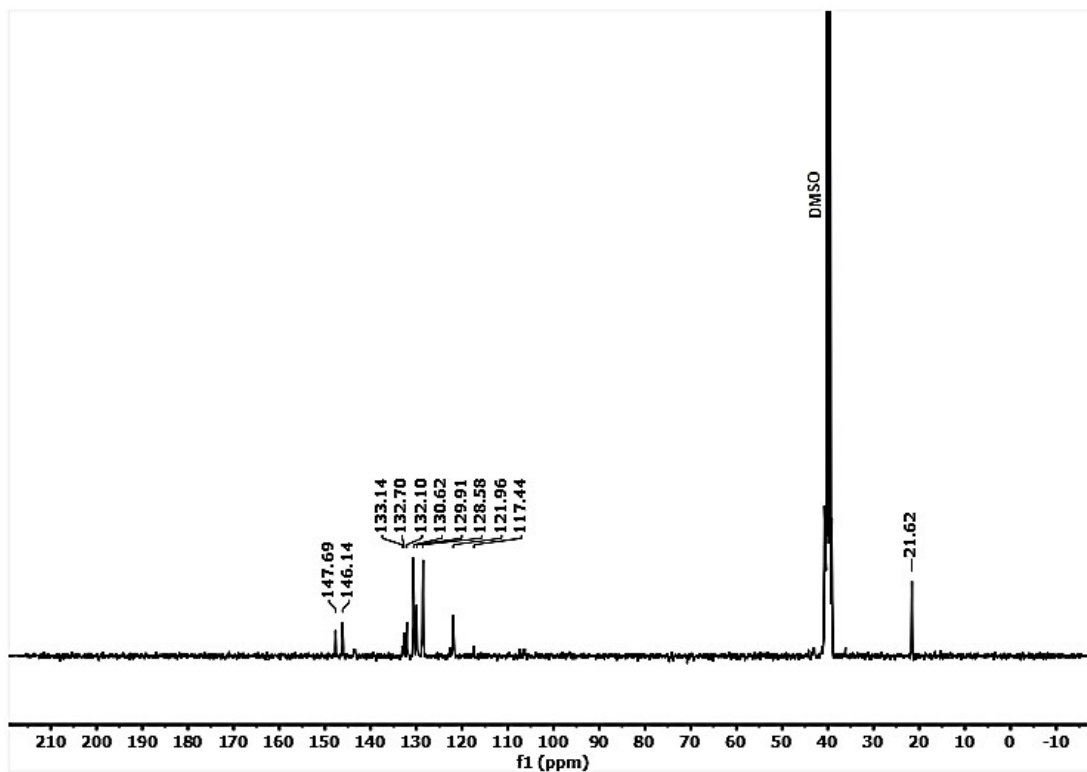




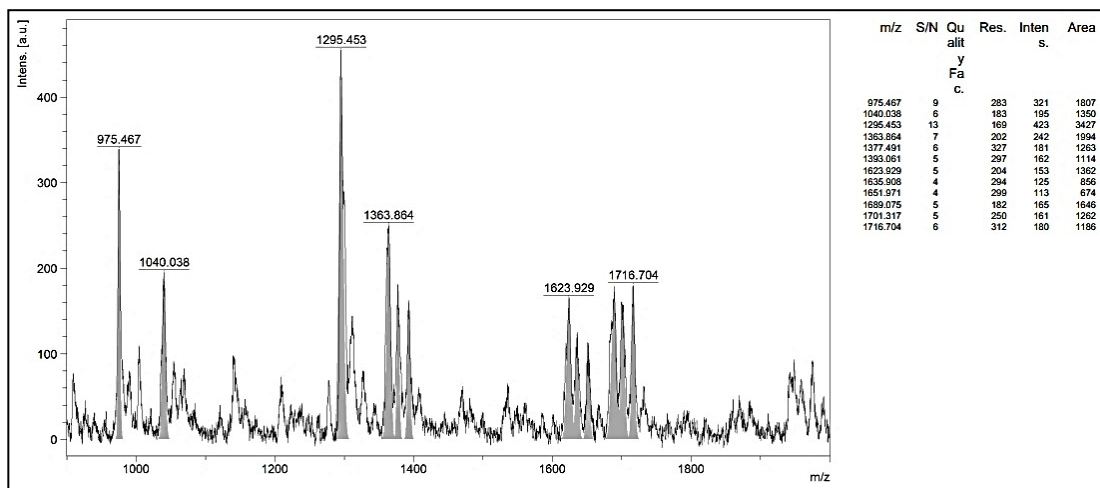
**Figure S30.** FT-IR spectra of porphyrin-5,10,15,20-tetrayltetrakis(benzene-4,1-diyl) tetrakis(4-methylbenzenesulfonate) (4h).



**Figure S31.**  $^1\text{H}$  NMR spectra of porphyrin-5,10,15,20-tetrayltetrakis(benzene-4,1-diyl) tetrakis(4-methylbenzenesulfonate) (4h).



**Figure S32.**  $^{13}\text{C}$ NMR spectra of porphyrin-5,10,15,20-tetraoltetrakis(benzene-4,1-diyl) tetrakis(4-methylbenzenesulfonate) (4h).



**Figure S33.** HR-Mass spectra of porphyrin-5,10,15,20-tetraoltetrakis(benzene-4,1-diyl) tetrakis(4-methylbenzenesulfonate) (4h).