

Effect of new asymmetrical Zn(II) phthalocyanines on the photovoltaic performance of dye-sensitized solar cell

Electronic Supplementary Information

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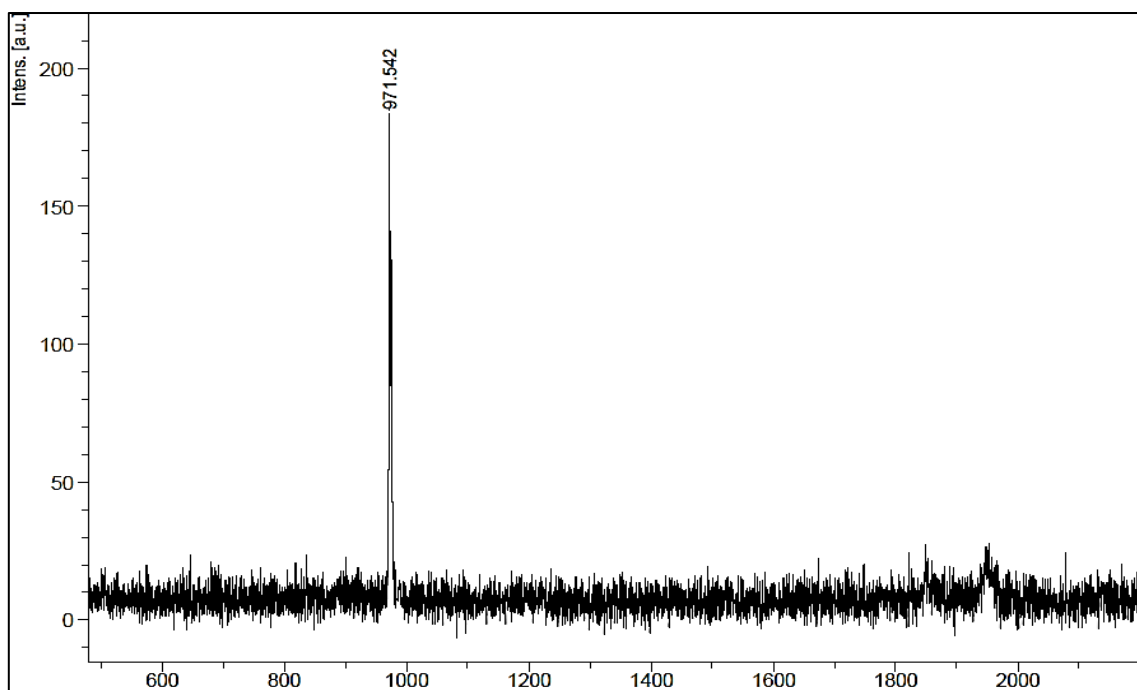


Figure S1. MALDI-TOF-MS spectrum of **GT4**.

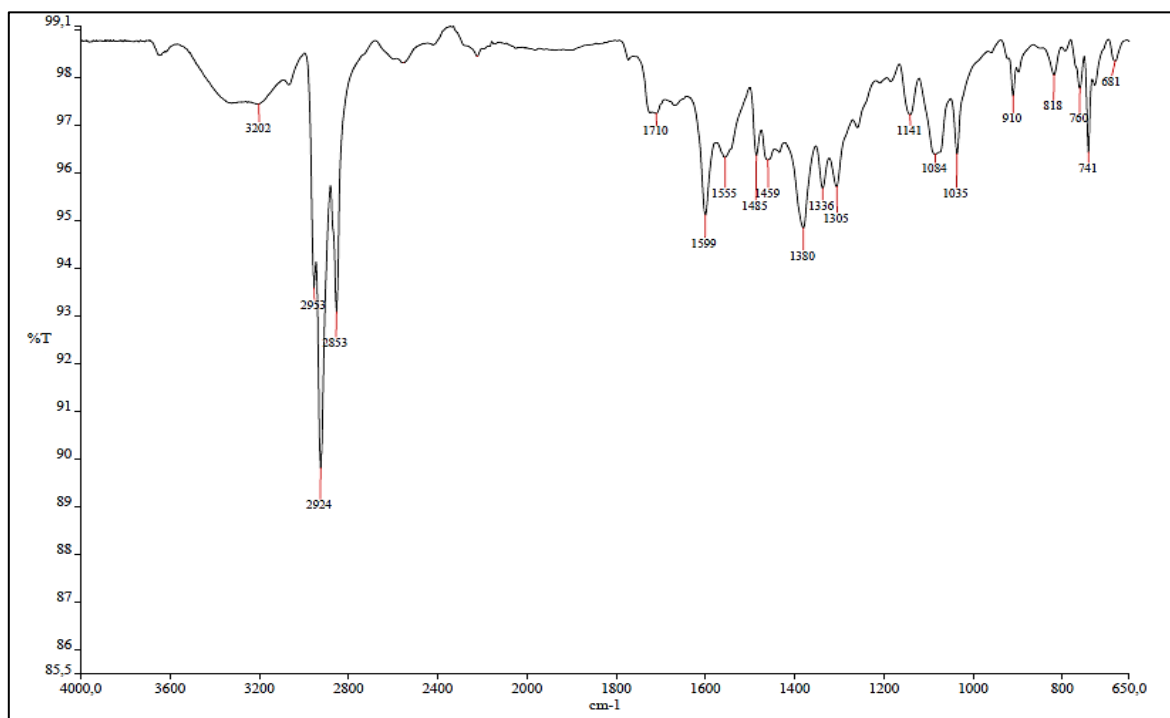


Figure S2. FT-IR spectrum of **GT4**.

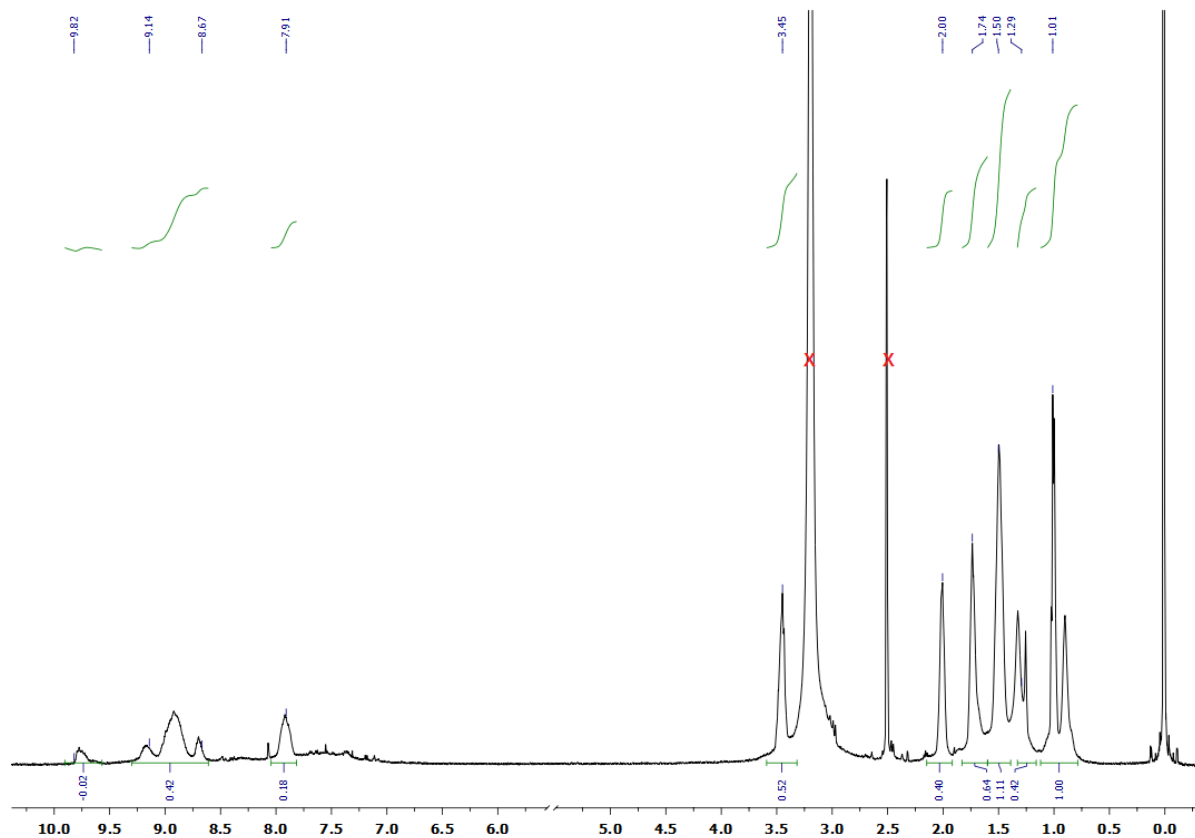


Figure S3. ^1H -NMR spectrum of GT4.

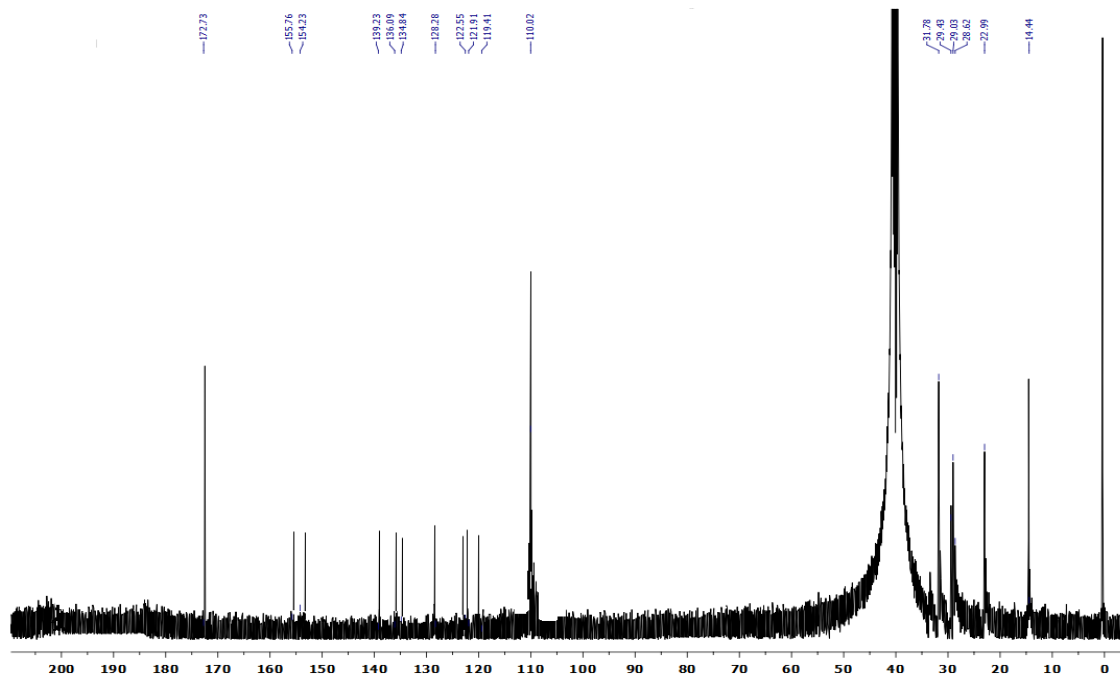


Figure S4. ^{13}C -NMR spectrum of GT4.

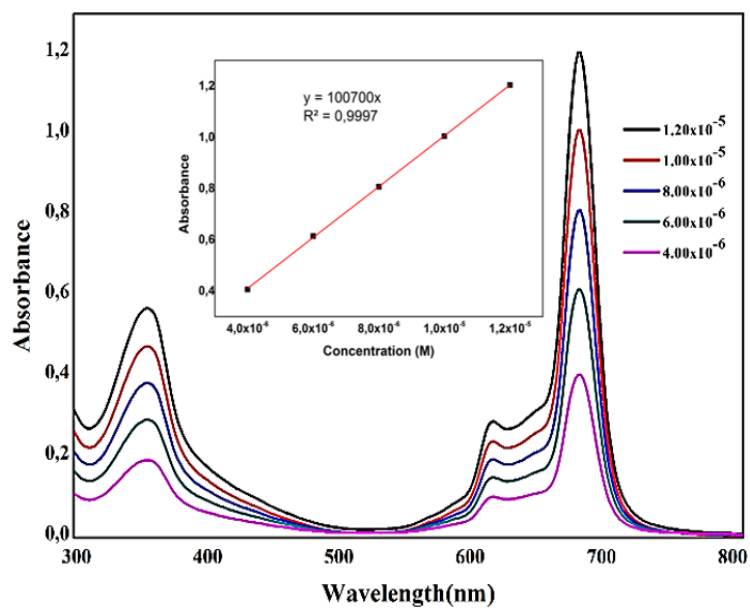


Figure S5. UV-Vis spectra of **GT4** at the different concentrations in THF.

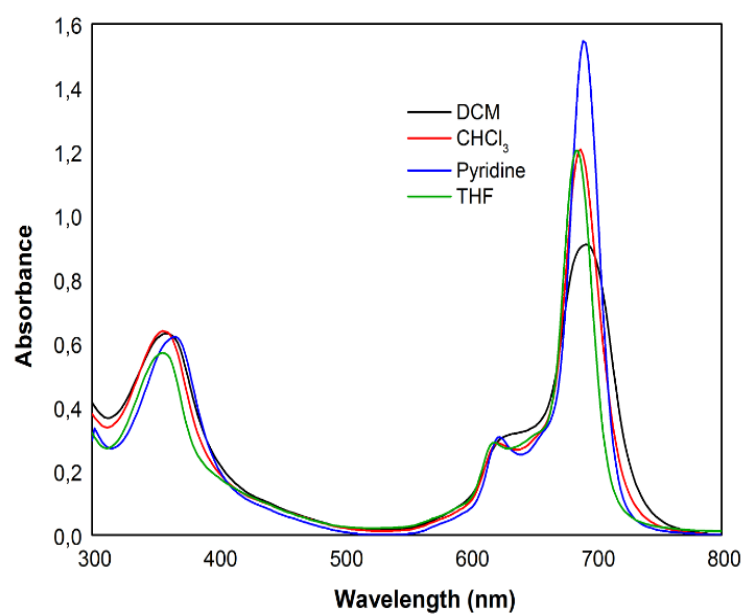


Figure S6. UV-Vis spectra of **GT4** in different solvents.

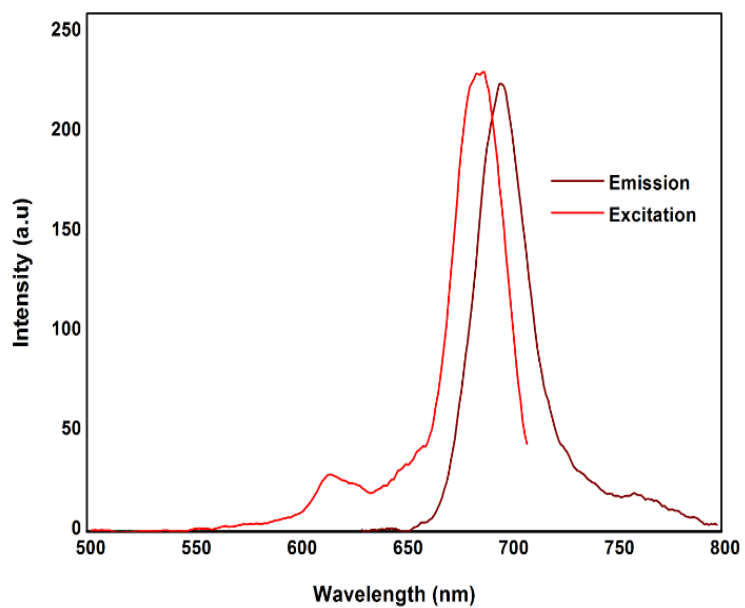


Figure S7. Fluorescence excitation and emission spectra of **GT4**.

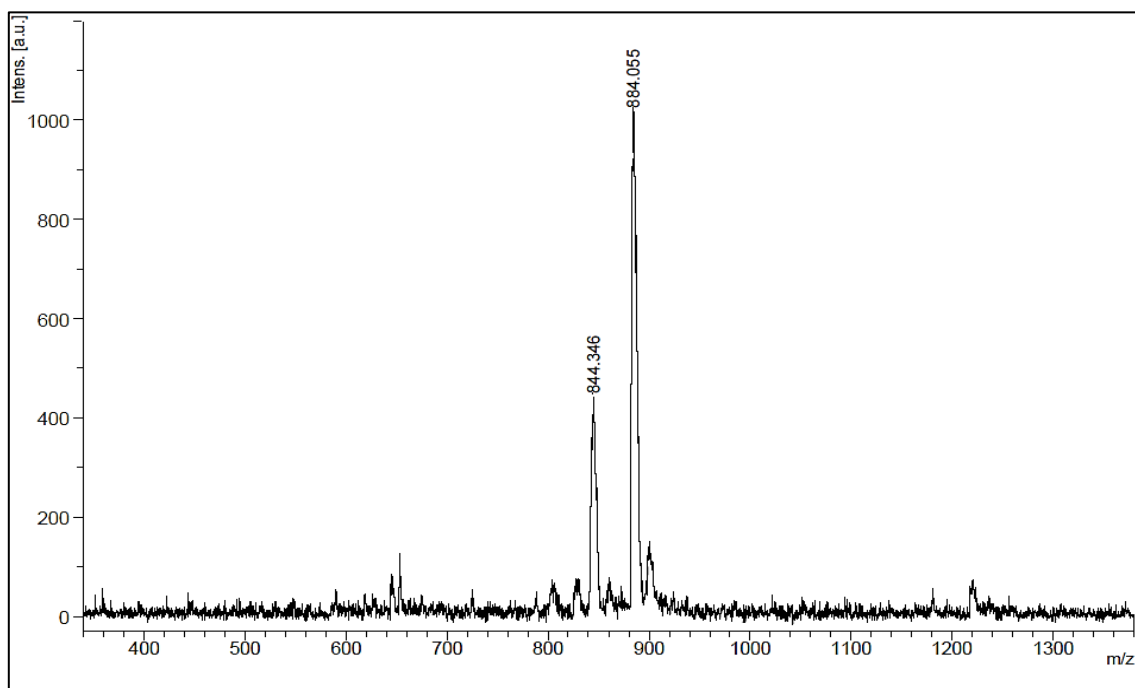


Figure S8. MALDI-TOF-MS spectrum of **GT6**.

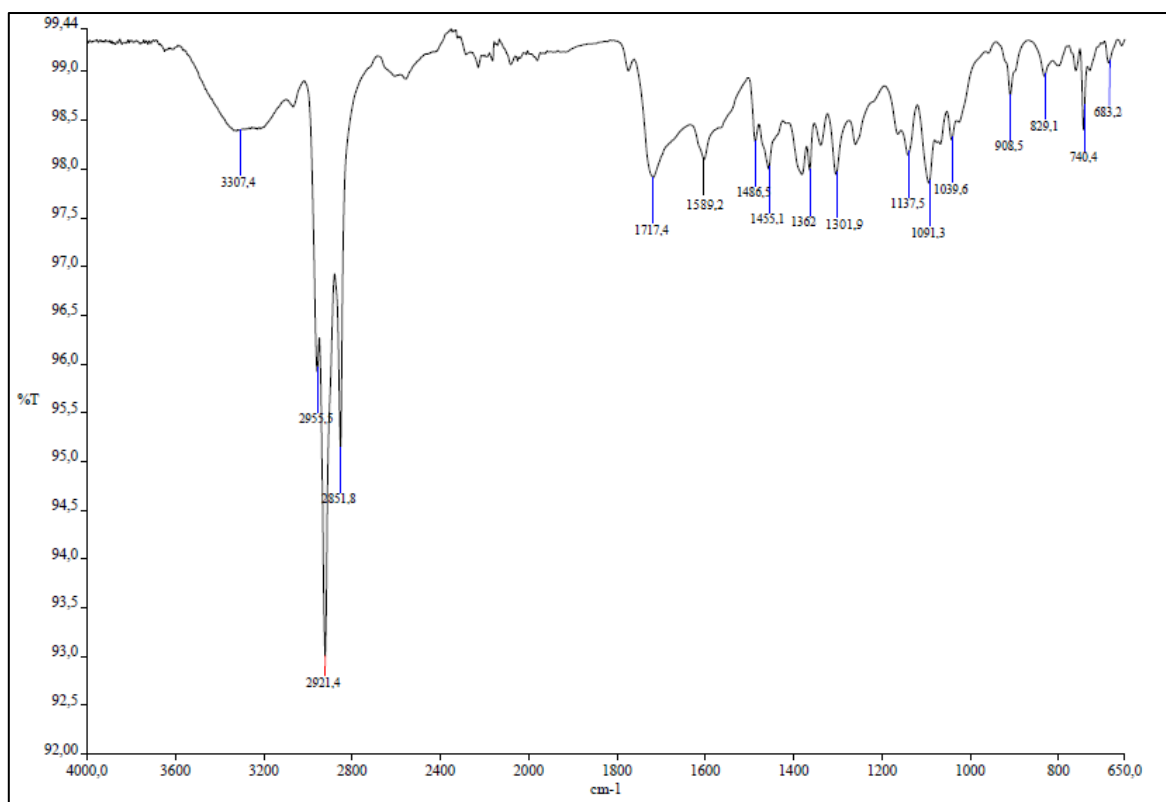


Figure S9. FT-IR spectrum of GT6.

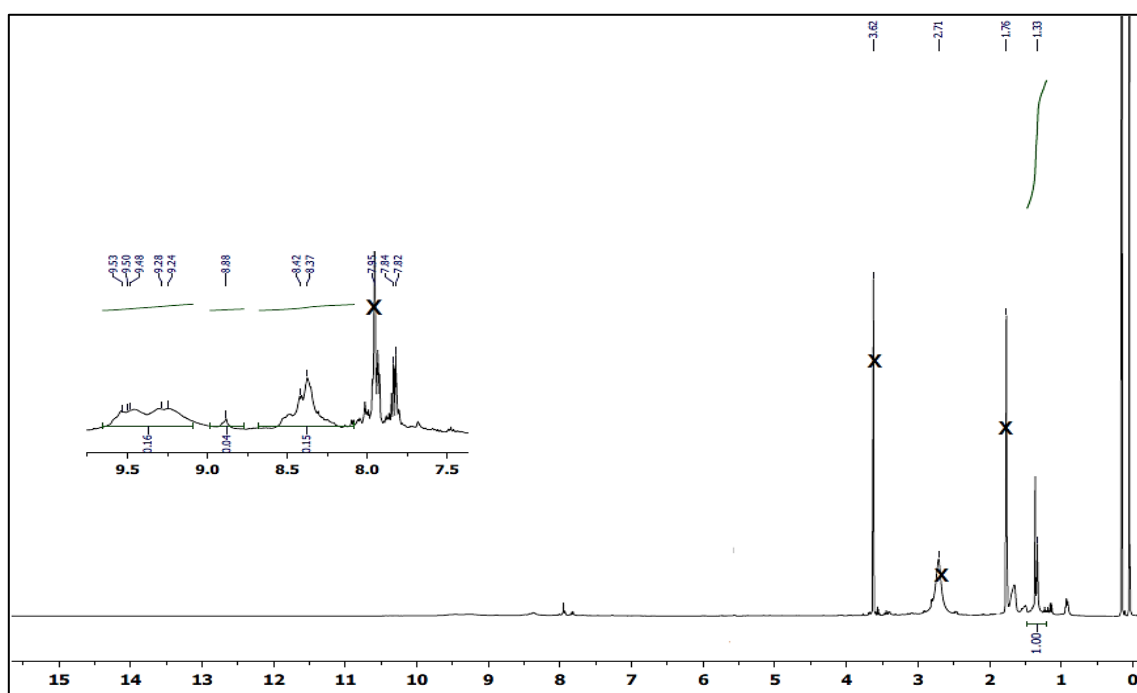


Figure S10. ¹H-NMR spectrum of GT6.

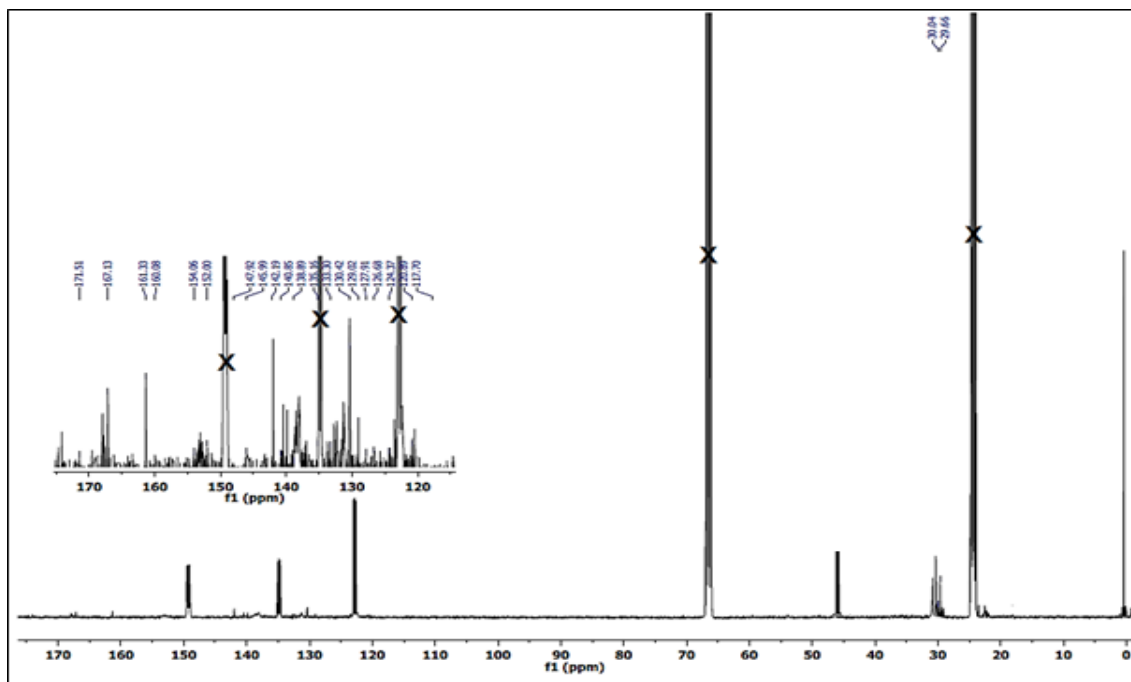


Figure S11. ^{13}C -NMR spectrum of GT6.

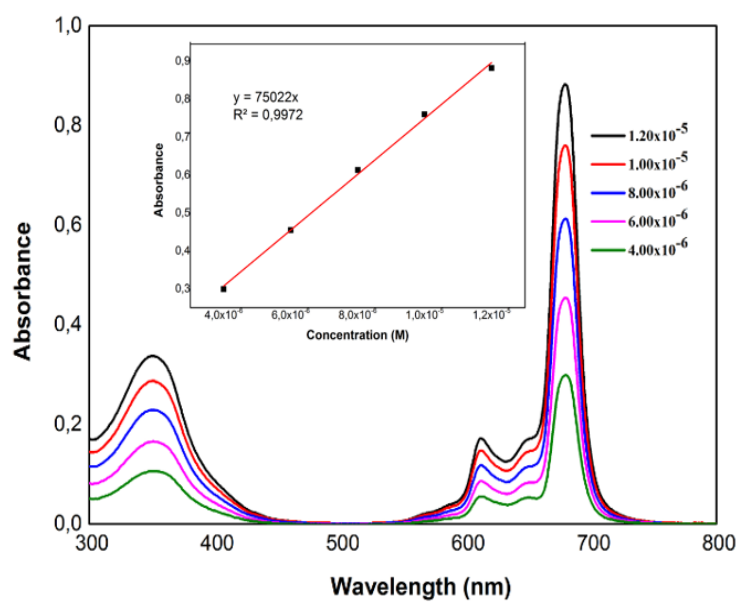


Figure S12. UV-vis spectra of GT6 at the different concentrations in THF.

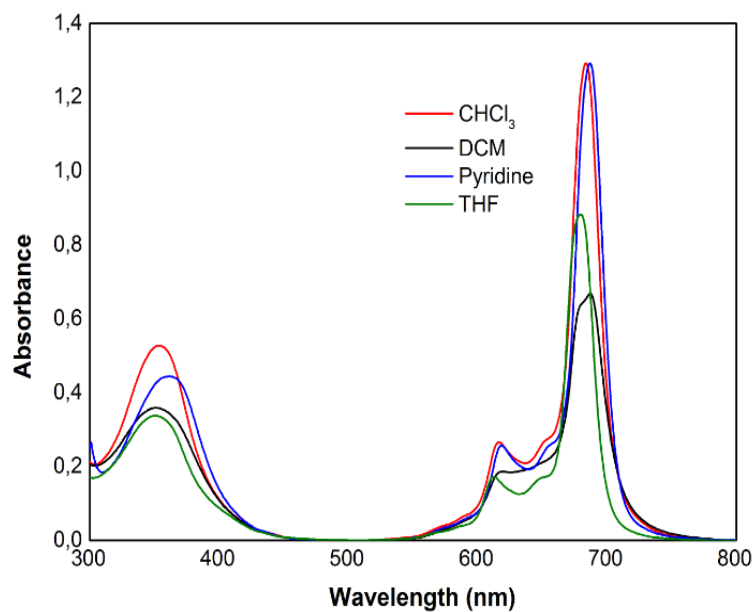


Figure S13. UV-Vis spectra of **GT6** in different solvents.

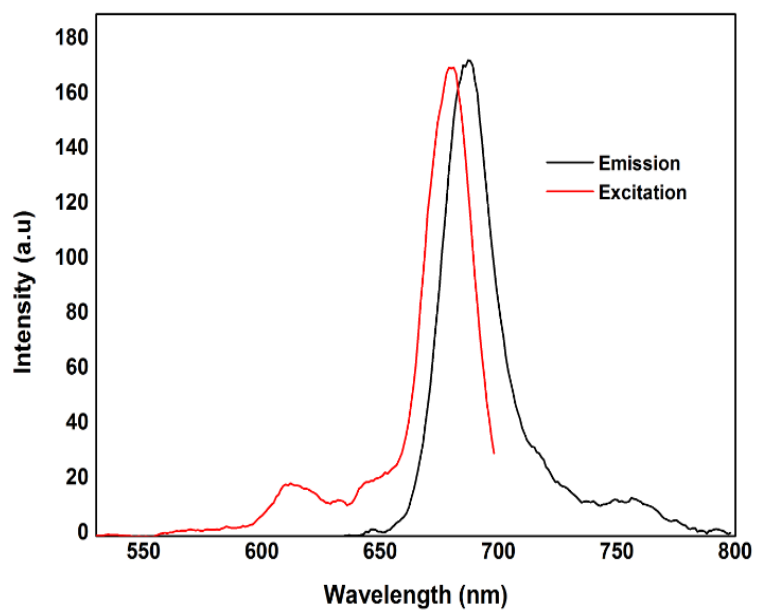


Figure S14. Fluorescence excitation and emission spectra of **GT6**.

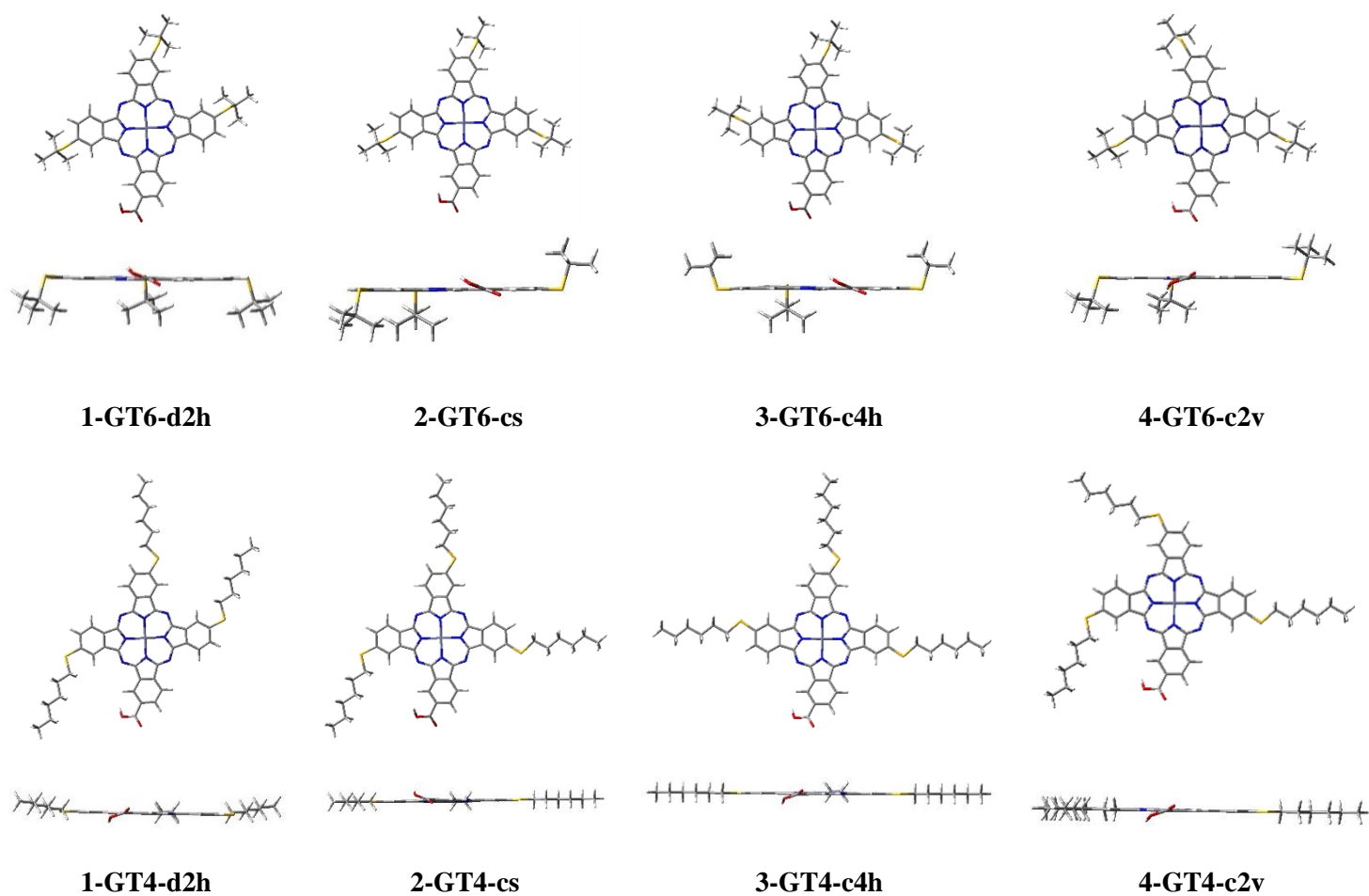


Figure S15. Front and side view of the optimized molecular structures of **GT6** and **GT4** isomers calculated at the B3LYP/6-31G(d,p) level of theory.

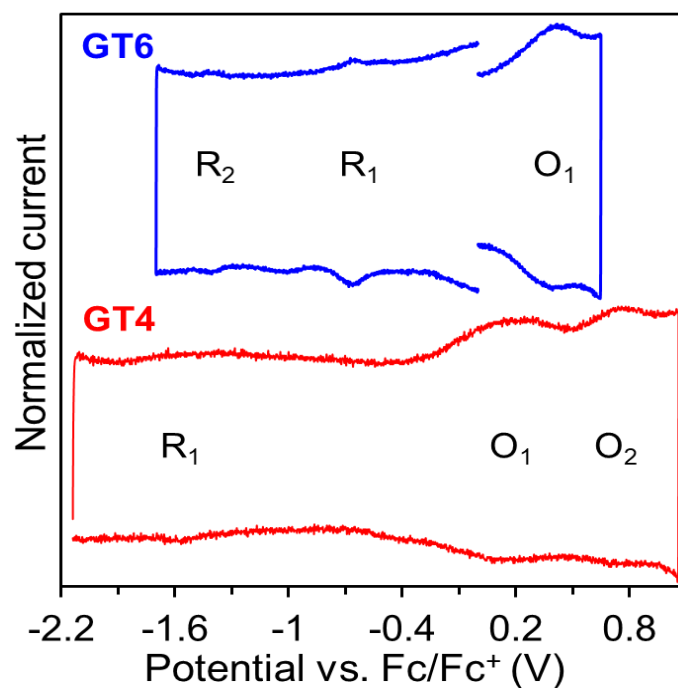


Figure S16. SWV curves of dyes **GT6** and **GT4** on a GCE in TBABF₄/DMSO.

Table S1. Absorption, excitation and emission spectral data for **GT4**, **GT6** in THF.

Compound	λ_{\max}^{abs} (nm)	$\log \epsilon$	λ_{\max}^{em} (nm)	λ_{\max}^{ex} (nm)	$\Delta\lambda_{ST}$ (nm)
GT4	684	5.00	696	688	8
GT6	679	4.87	687	680	7

Maximum absorption wavelengths (λ_{\max}), the logarithmic value of extinction coefficients(ϵ), λ_{\max}^{em} : maximum emission wavelength, λ_{\max}^{ex} : maximum excitation wavelength and $\Delta\lambda_{ST}$: Stoke's shift.