Supplementary Material

Synthesis and Spectroscopic and Luminescent Properties of Er, Yb and Lu Complexes with Cyano-Substituted Phthalocyanine Ligands

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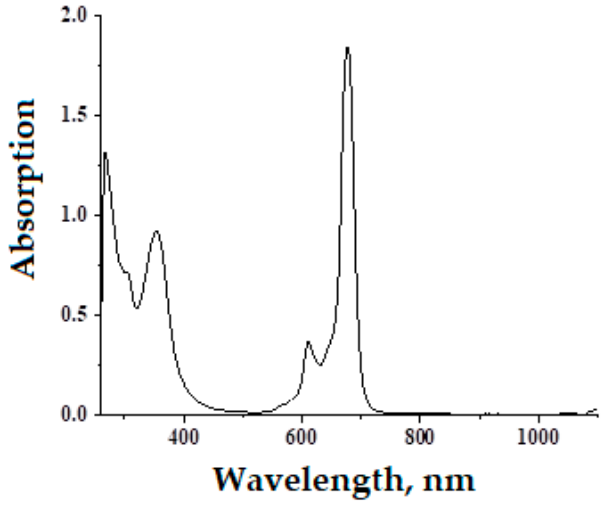


Figure S1. Electronic absorption spectrum of tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato erbium acetate (**4**) in chloroform;

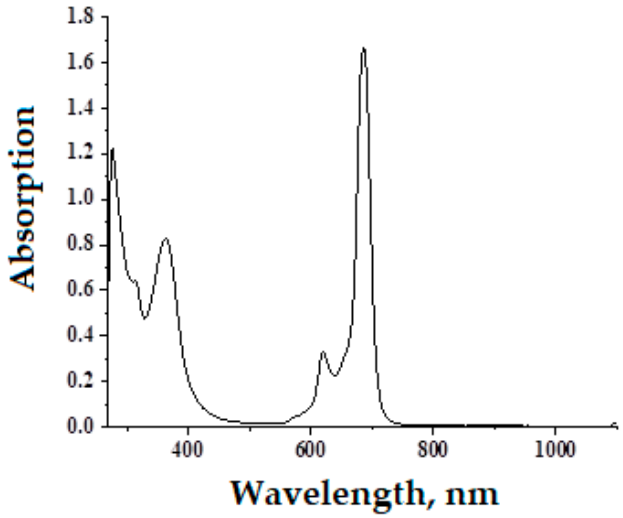


Figure S2. Electronic absorption spectrum of ytterbium tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**5**) in chloroform;

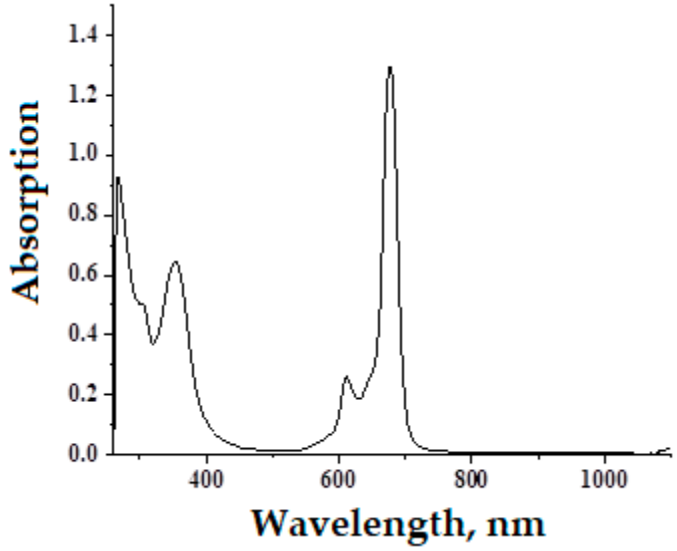


Figure S3. Electronic absorption spectrum of lutetium tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**6**) in chloroform;

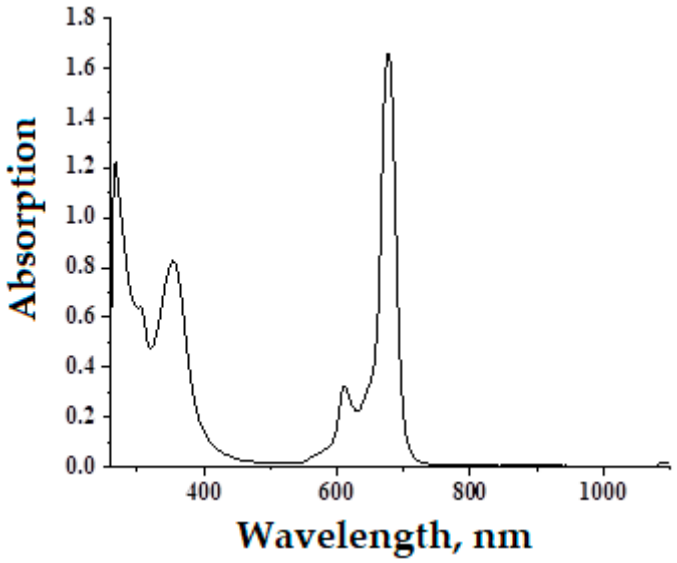


Figure S4. Electronic absorption spectrum of tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato erbium acetate (**4**) in acetone;

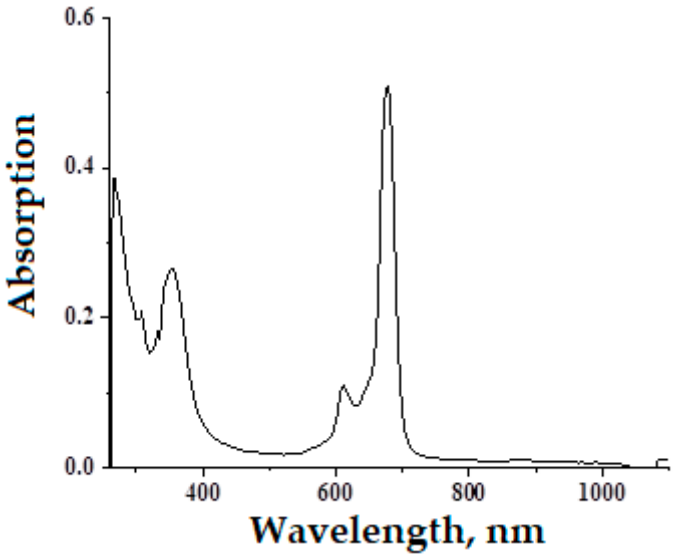


Figure S5. Electronic absorption spectrum of ytterbium tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**5**) in acetone;

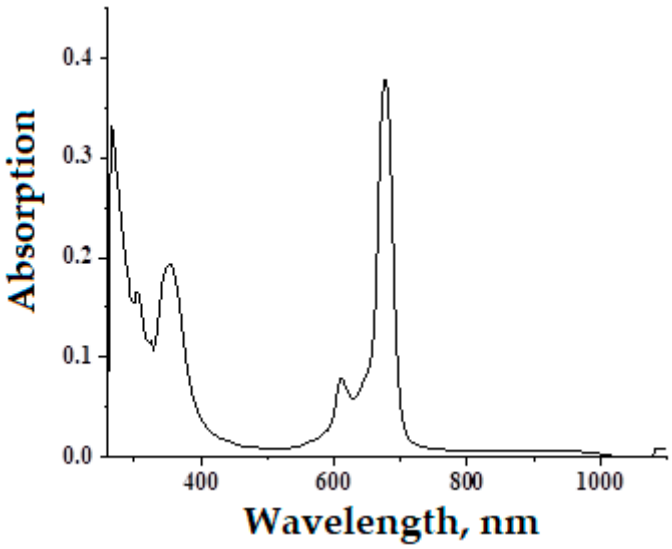


Figure S6. Electronic absorption spectrum of lutetium tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**6**) in acetone;

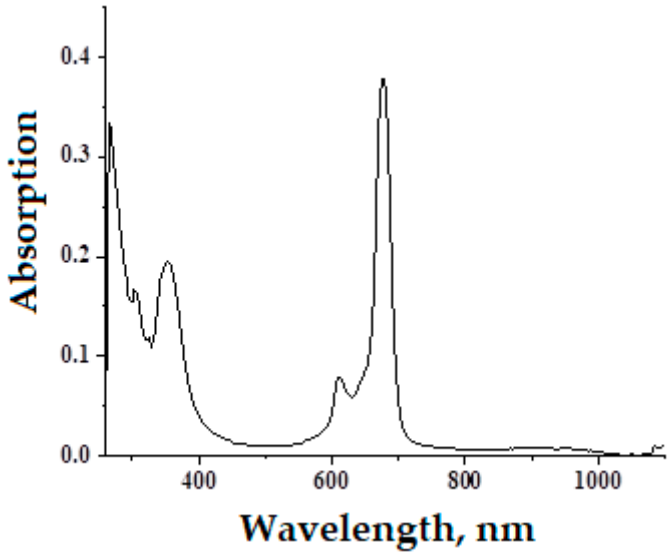


Figure S7. Electronic absorption spectrum of tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato erbium acetate (**4**) in tetrahydrofuran;

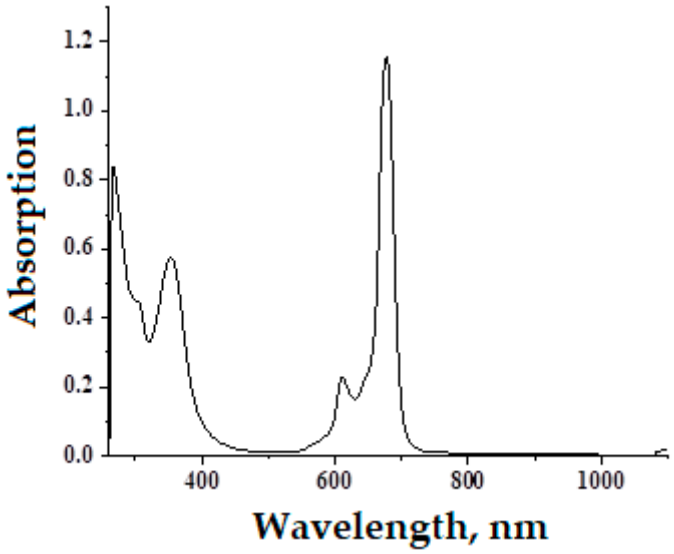


Figure S8. Electronic absorption spectrum of tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato ytterbium acetate (**5**) in tetrahydrofuran;

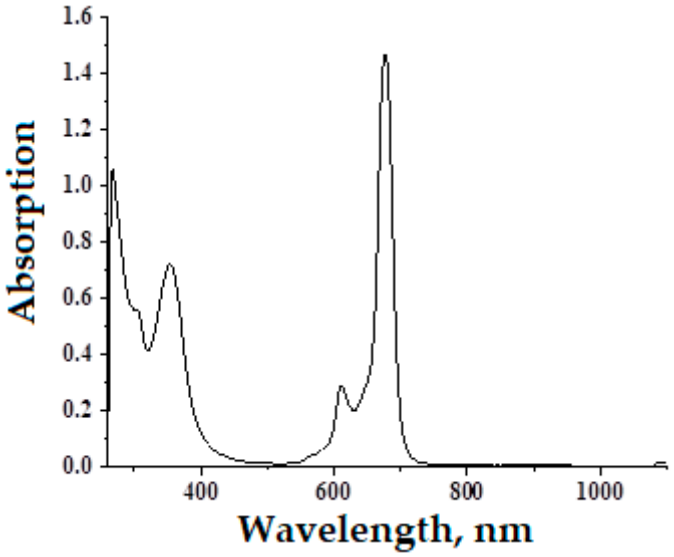


Figure S9. Electronic absorption spectrum of lutetium tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**6**) in tetrahydrofuran;

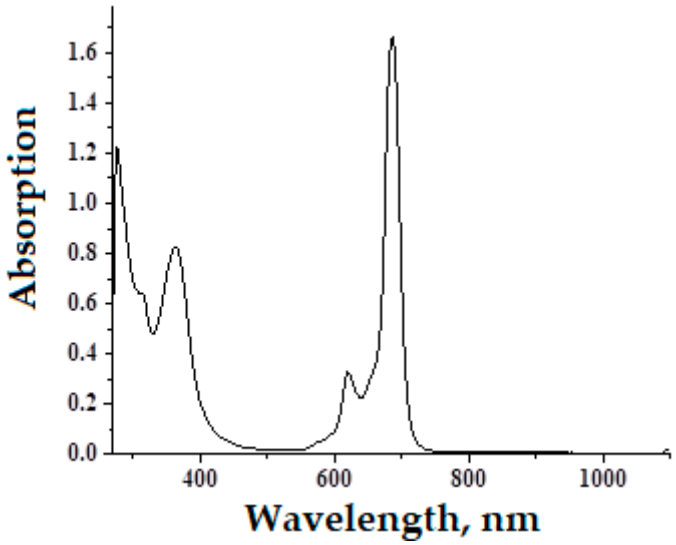


Figure S10. Electronic absorption spectrum of tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato erbium acetate (**7**) in chloroform;

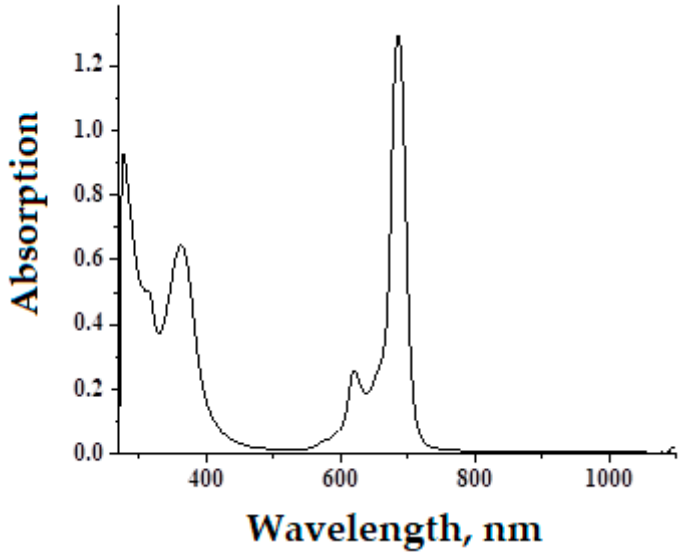


Figure S11. Electronic absorption spectrum of ytterbium tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**8**) in chloroform;

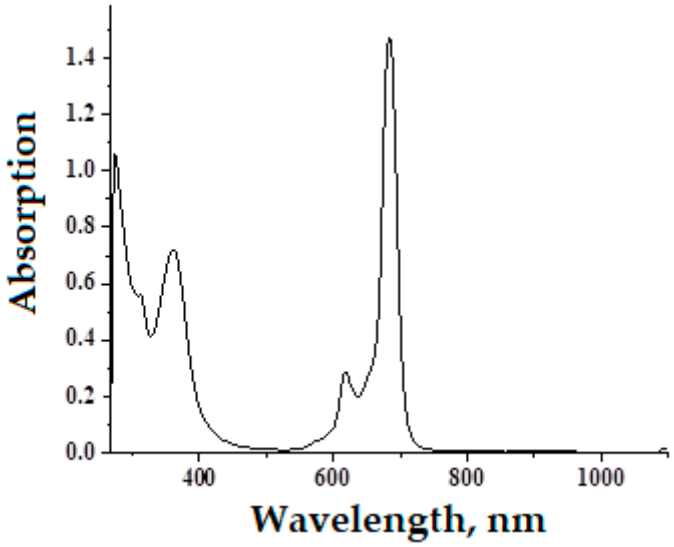


Figure S12. Electronic absorption spectrum of lutetium tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato acetate (**9**) in chloroform;

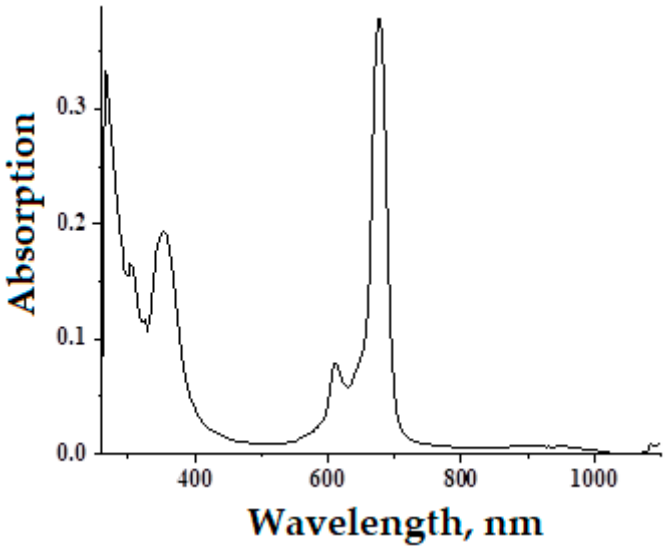


Figure S13. Electronic absorption spectrum of tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato erbium acetate (**7**) in acetone;

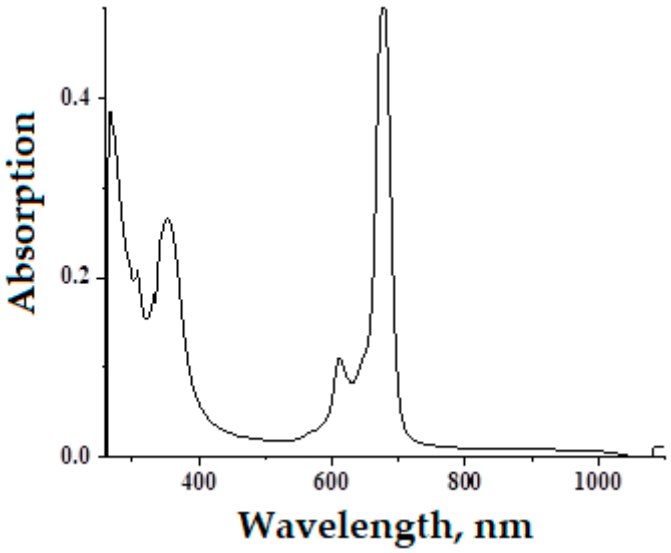


Figure S14. Electronic absorption spectrum of ytterbium tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato acetate (**8**) in acetone;

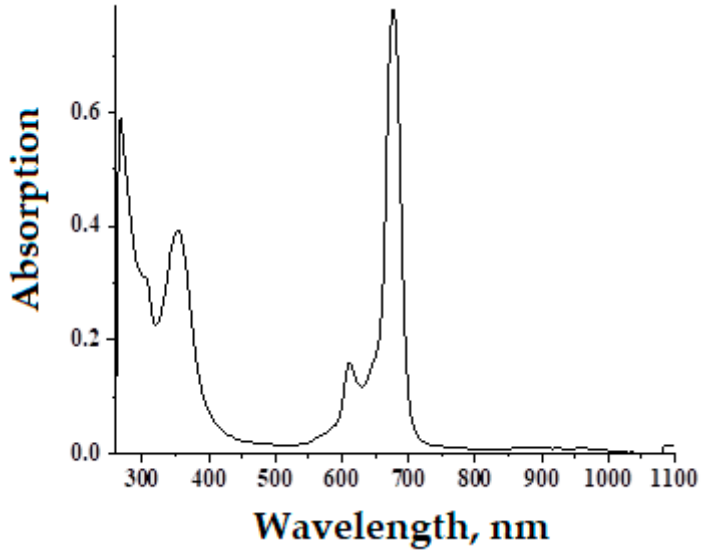


Figure S15. Electronic absorption spectrum of lutetium tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato acetate (**9**) in acetone;

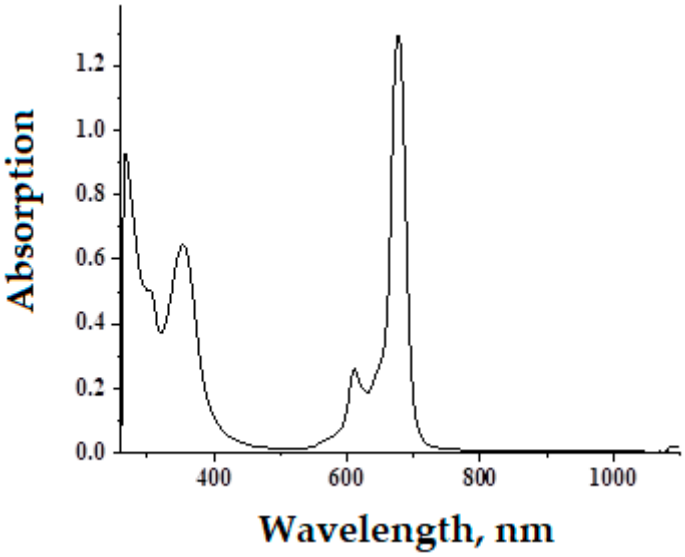


Figure S16. Electronic absorption spectrum of tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato erbium acetate (**7**) in tetrahydrofuran;

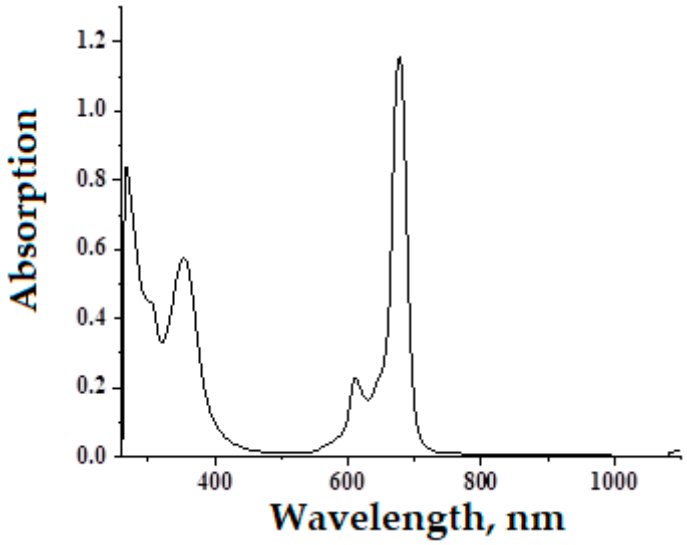


Figure S17. Electronic absorption spectrum of tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]-phthalocyaninato ytterbium acetate (**8**) in tetrahydrofuran;

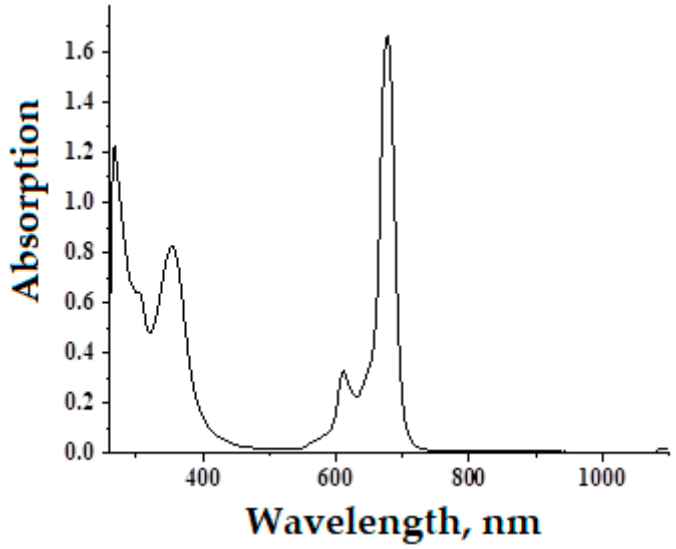


Figure S18. Electronic absorption spectrum of lutetium tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato acetate (**9**) in tetrahydrofuran.

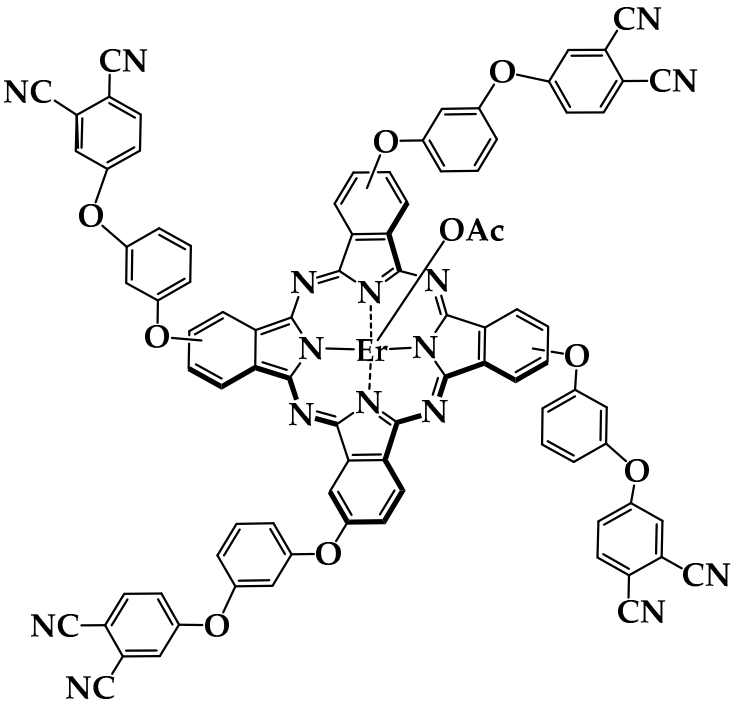


Figure S19. The structural formula of Acetate tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato erbium (**4**).

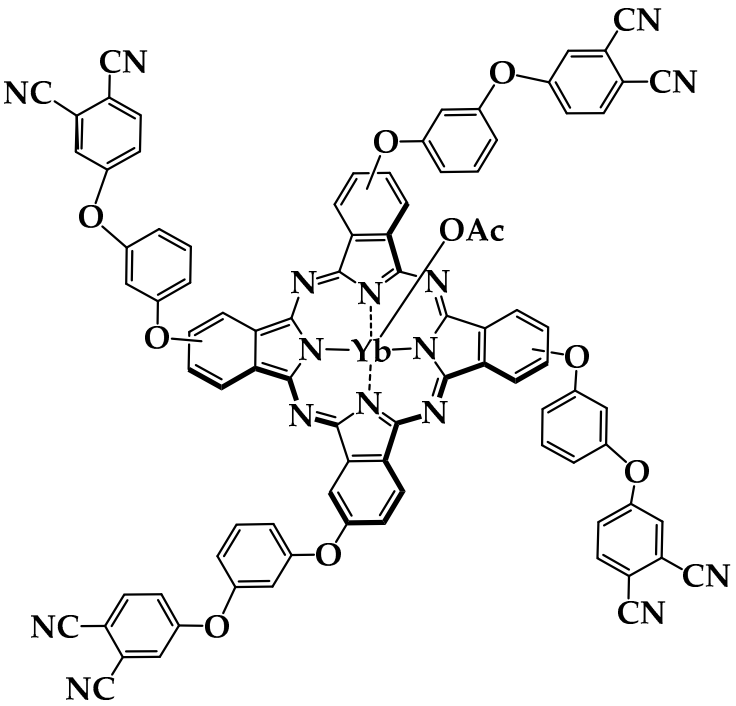


Figure S20. The structural formula of Acetate tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato ytterbium (**5**).

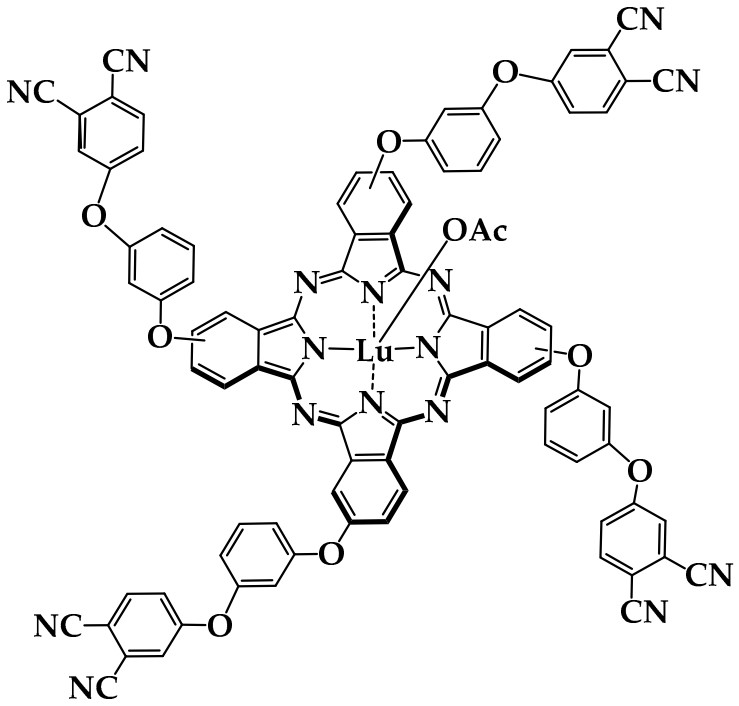


Figure S21. The structural formula of Acetate tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato lutetium (**6**).

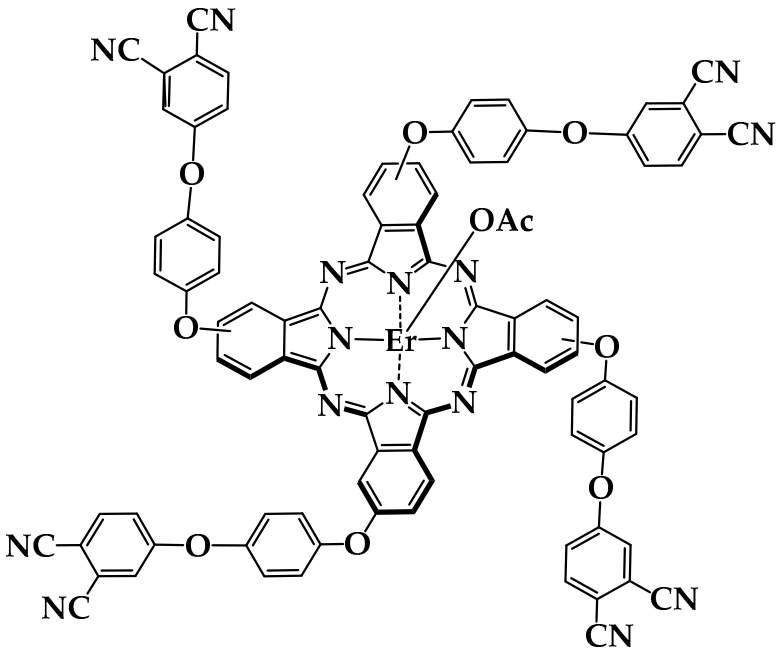


Figure S22. The structural formula of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato erbium (**7**).

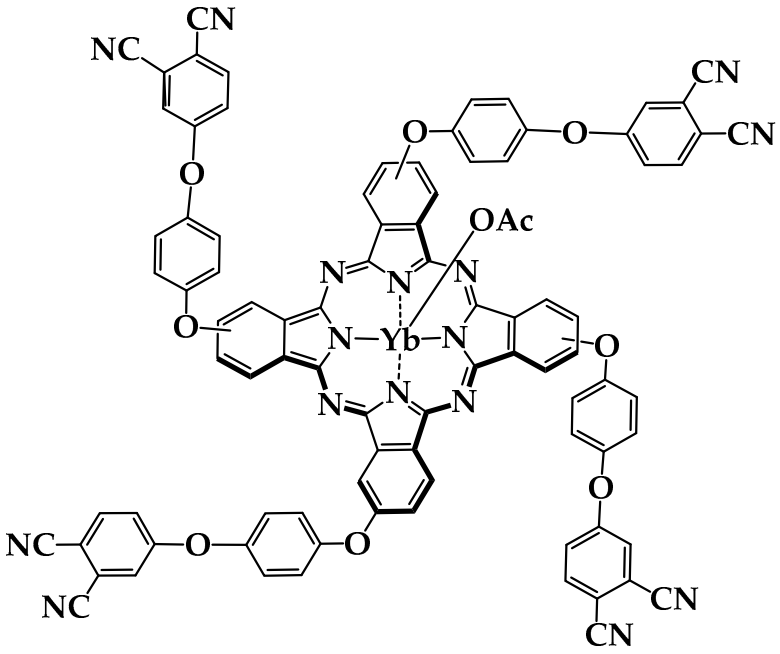


Figure S23. The structural formula of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato ytterbium (**8**).

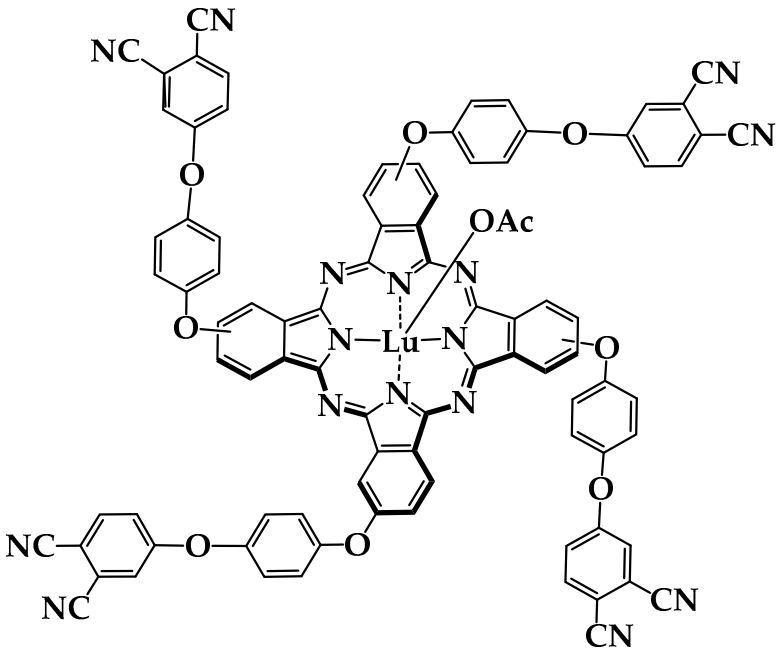


Figure S24. The structural formula of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato lutetium (**9**).

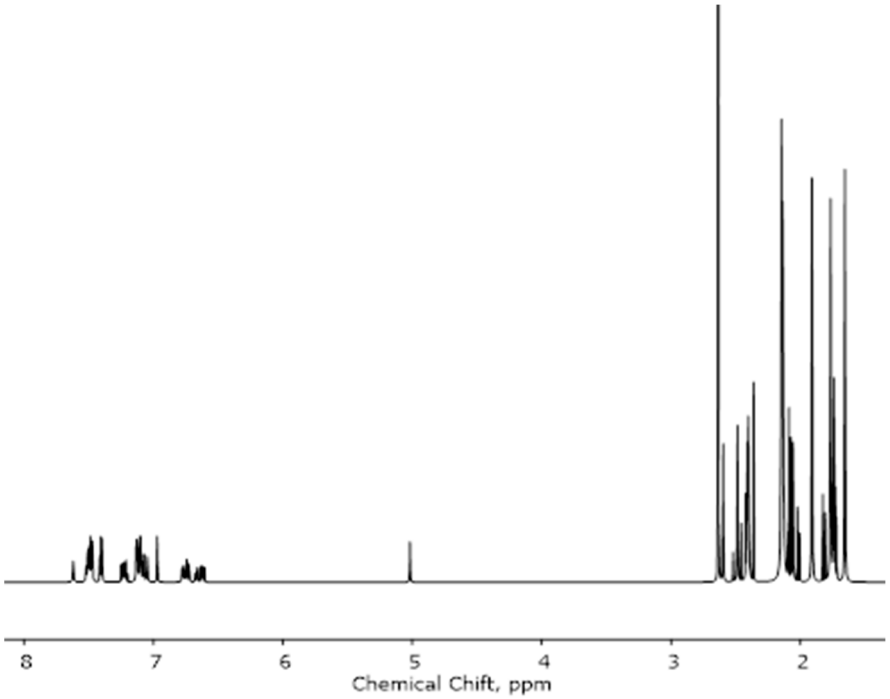


Figure S25. ^{1}H NMR spectrum of Acetate tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato erbium (**4**) in $CDCl_3$.

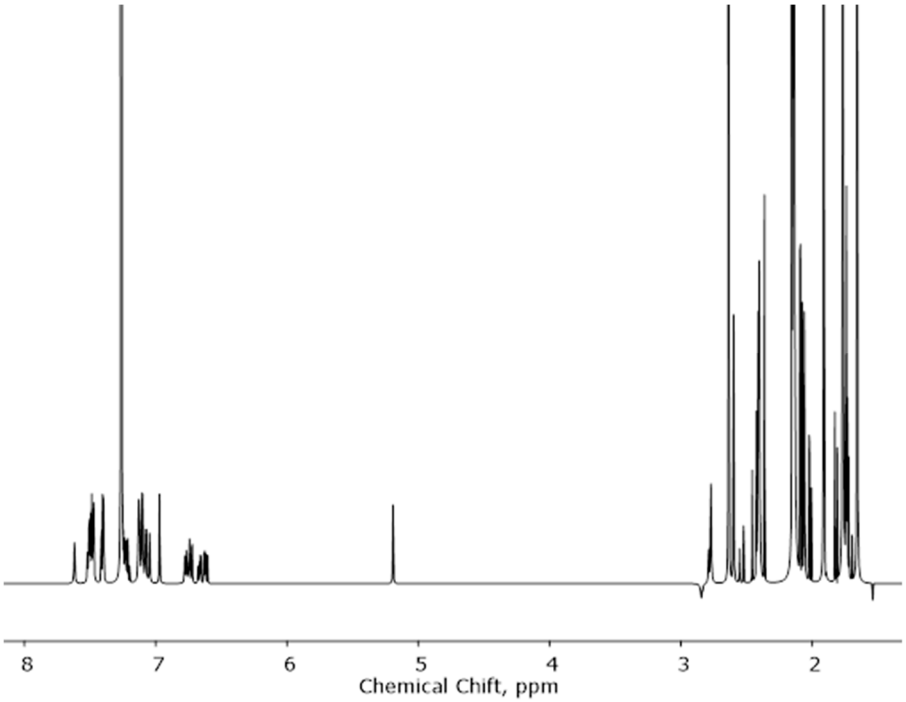


Figure S26. ^{1}H NMR spectrum of Acetate tetrakis-4-[3-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato ytterbium (**5**) in $CDCl_3$.

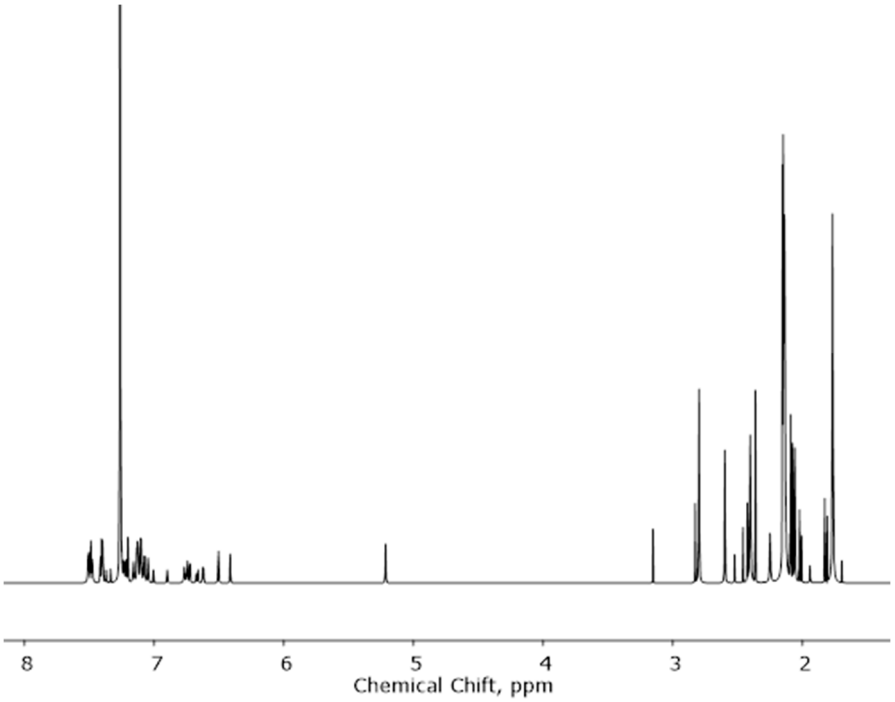


Figure S27. ^{1}H NMR spectrum of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato erbium (**7**) in $CDCl_3$.

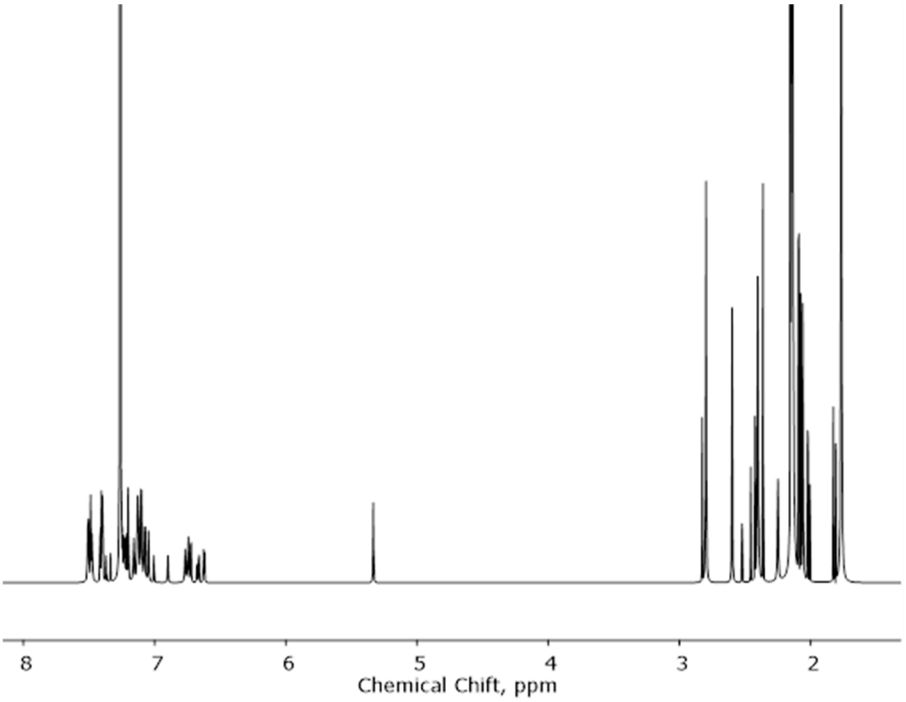


Figure S28. ^{1}H NMR spectrum of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato ytterbium (**8**) in $CDCl_3$.

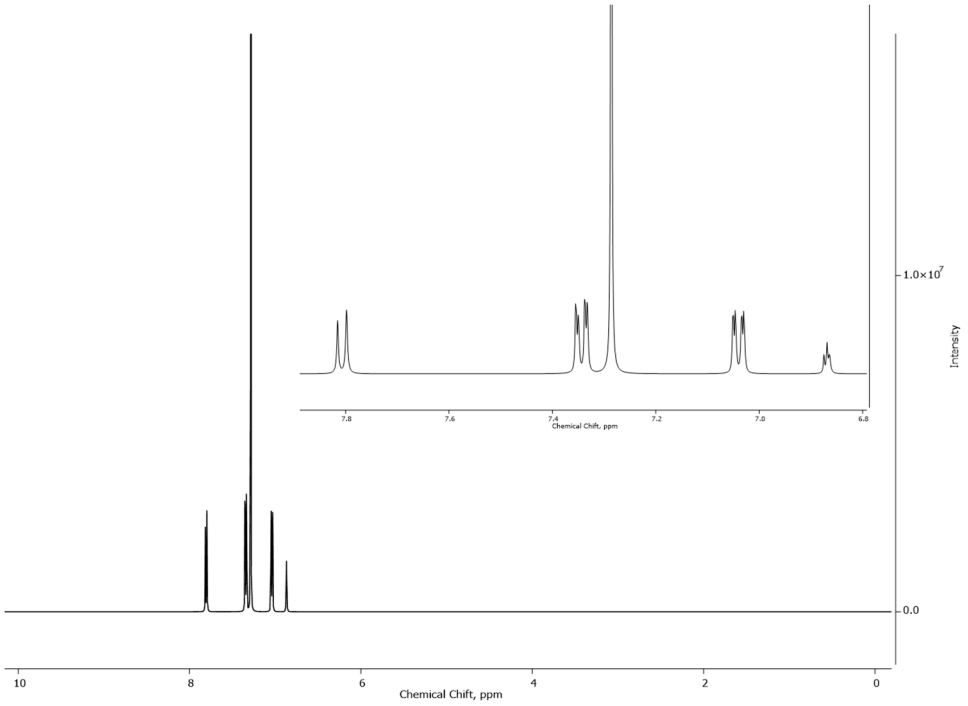


Figure S29. ^{1}H NMR spectrum of Acetate tetrakis-4-[4-(3,4-dicyanophenoxy)phenoxy]phthalocyaninato lutetium (**9**) in $CDCl_3$.

Table S1. FWHT determinations for compounds **4-9** in organic media.

Compound	**Δλ, nm** ($\Delta\lambda_{initial}$ -> $\Delta\lambda_{final}$)		
	$CHCl_3$	**Acetone**	**THF**
4	26 -> 26	36 -> 27	26 -> 26
5	27 -> 27	26 -> 26	26 -> 26
6	27 -> 27	26 -> 26	25 -> 25
7	26 -> 26	26 -> 26	26 -> 26
8	26 -> 26	26 -> 26	25 -> 25
9	27 -> 27	35 -> 25	25 -> 25