

Supporting Information

Novel Tetracyclic 1-Thia-4a,11,12-triazatetracenes: Synthesis, 2D-HMBC Structural Confirmation, and Antimicrobial Activity

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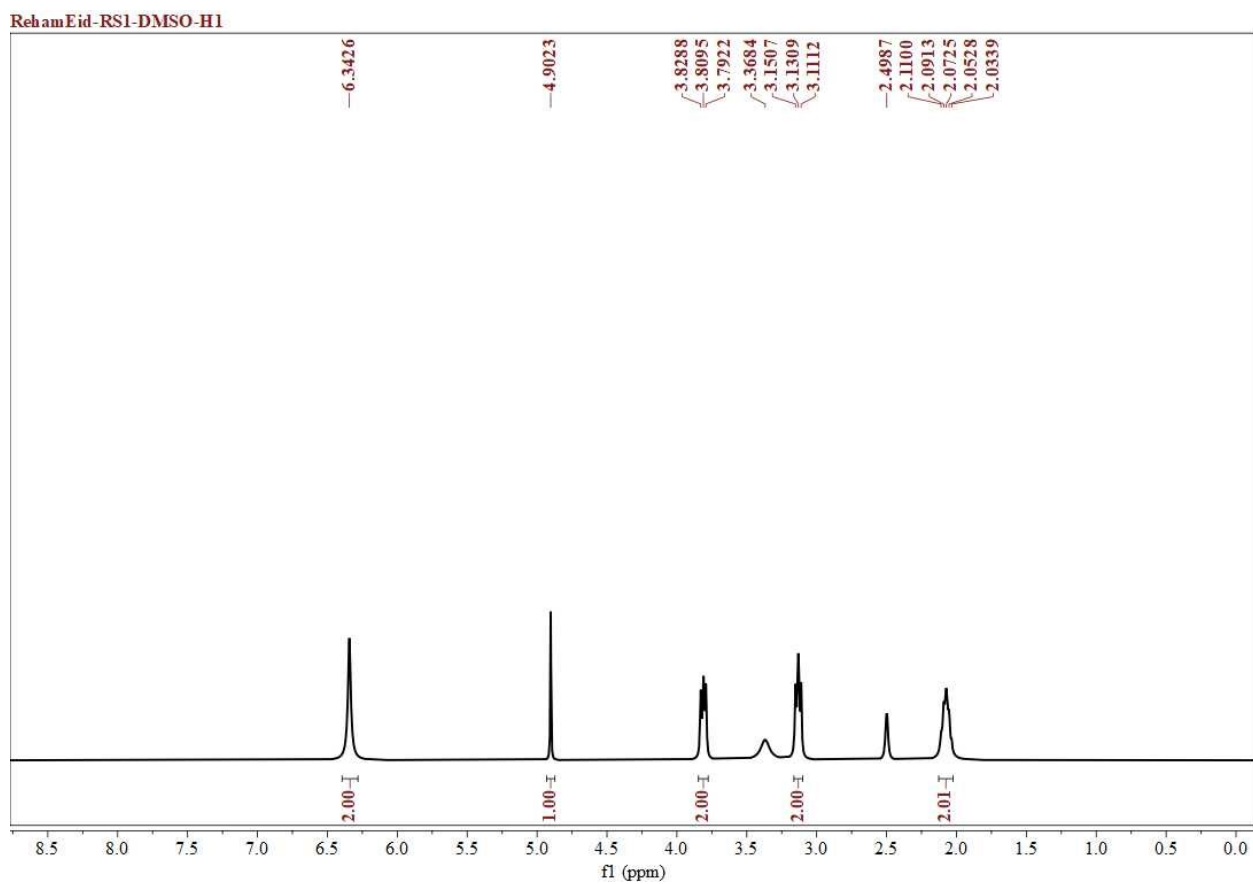
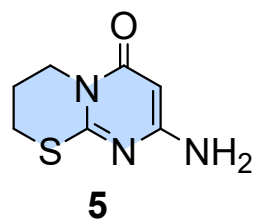


Figure S1. ^1H NMR spectrum of compound **5**

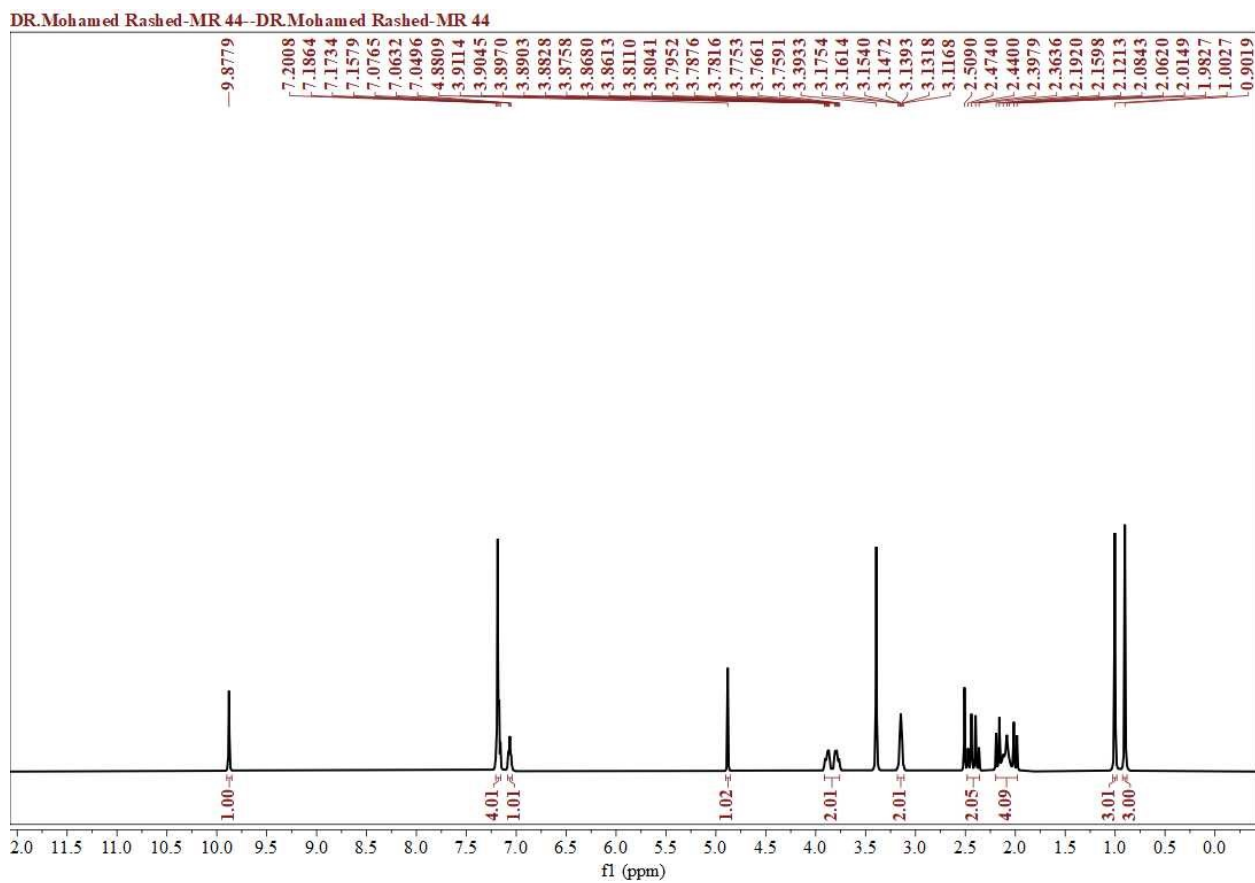
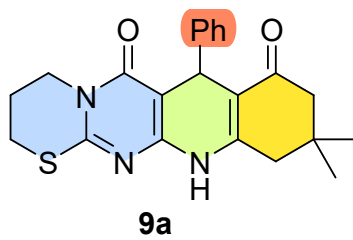
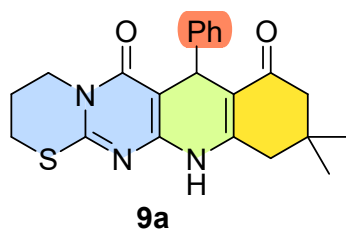


Figure S2. ^1H NMR spectrum of compound **9a**



Dr.Mohamed-MR-44 C13--Dr.Mohamed-MR-44 C13

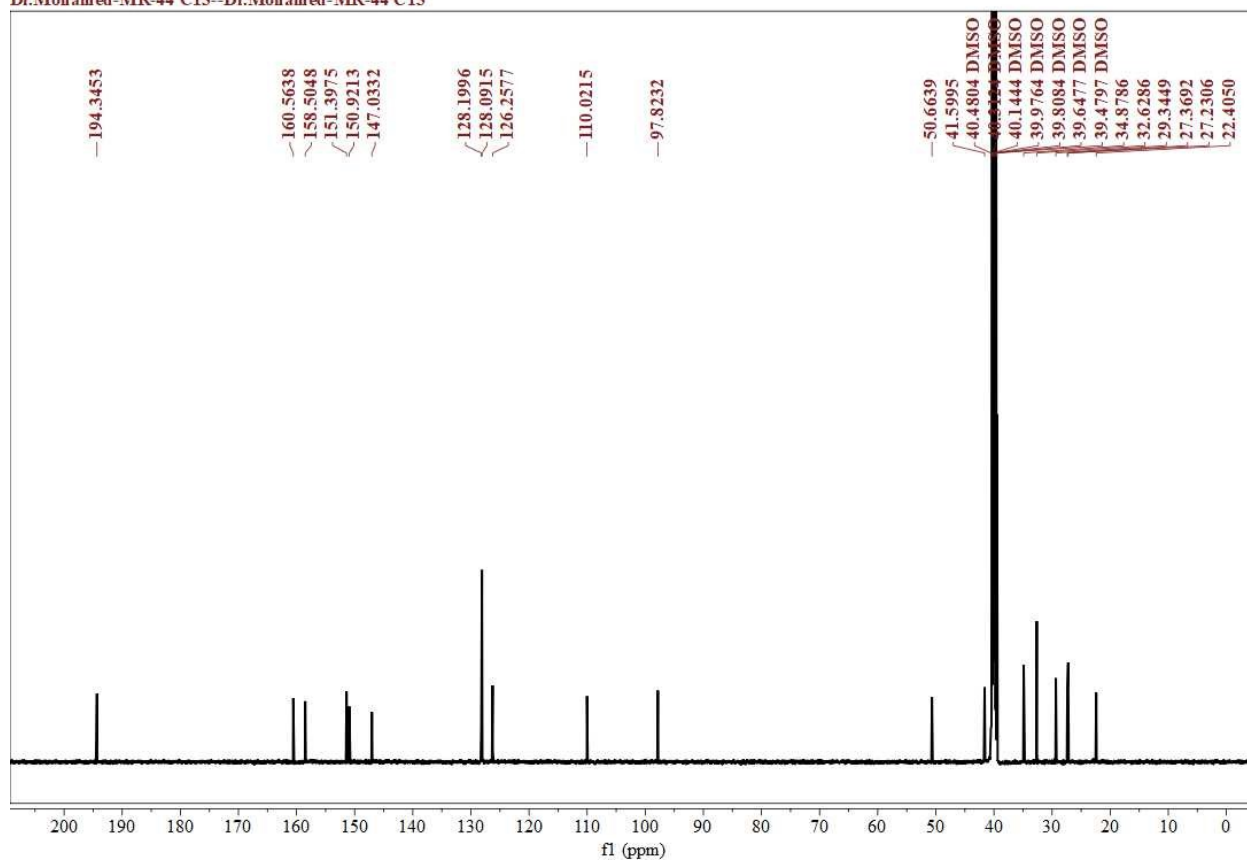
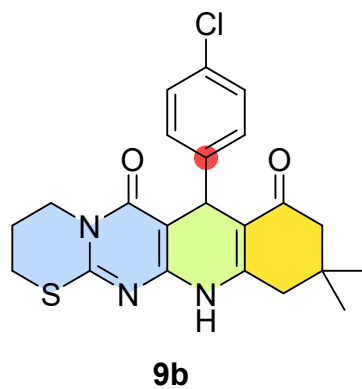


Figure S3. ^{13}C NMR spectrum of compound **9a**



Dr.MohamedRashed-MR42-Dr.MohamedRashed-MR42

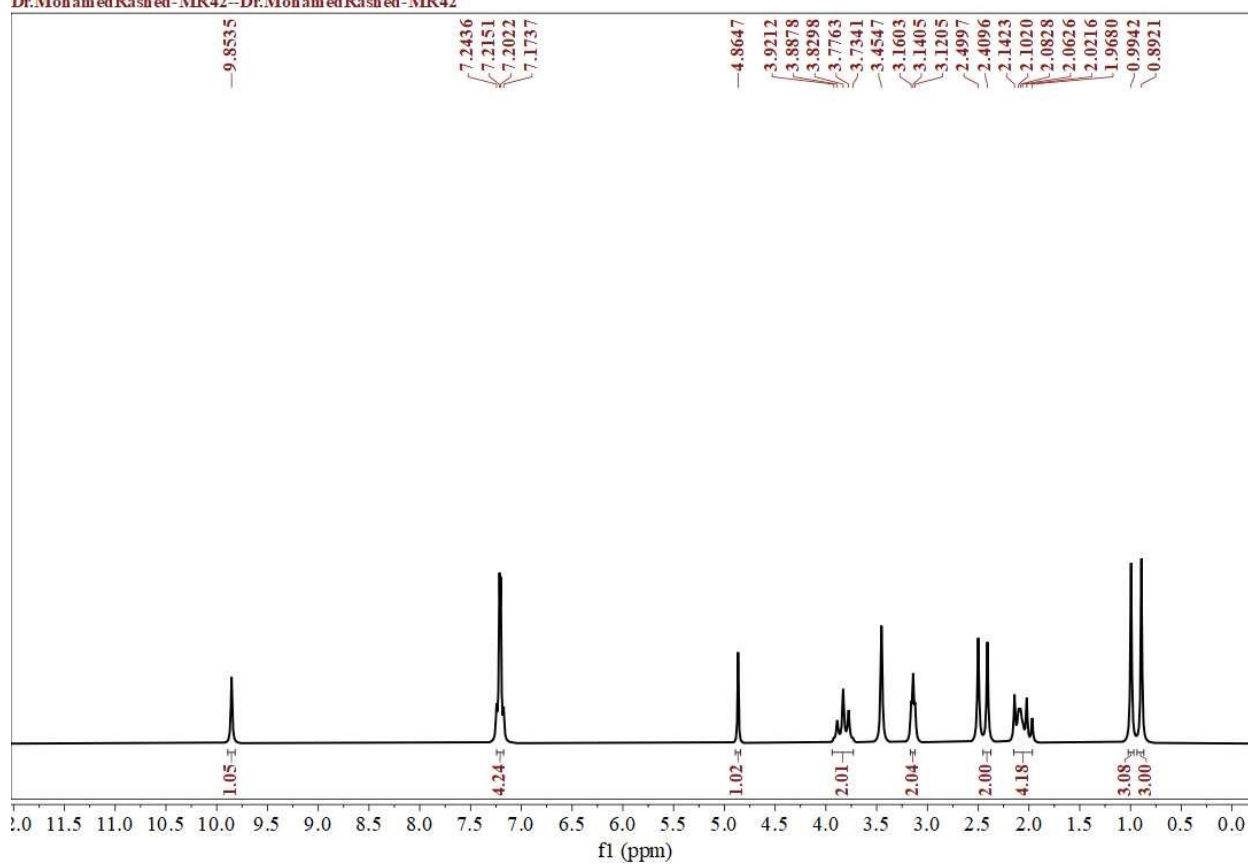
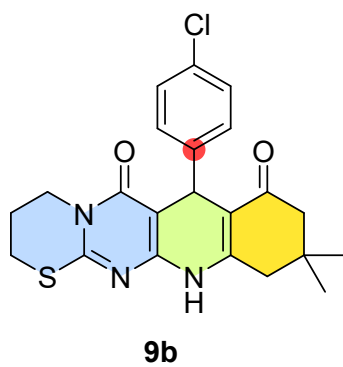


Figure S4. ¹H NMR spectrum of compound **9b**



Dr.MohamedRashed-MR-42.C13-Dr.MohamedRashed-MR-42.C13

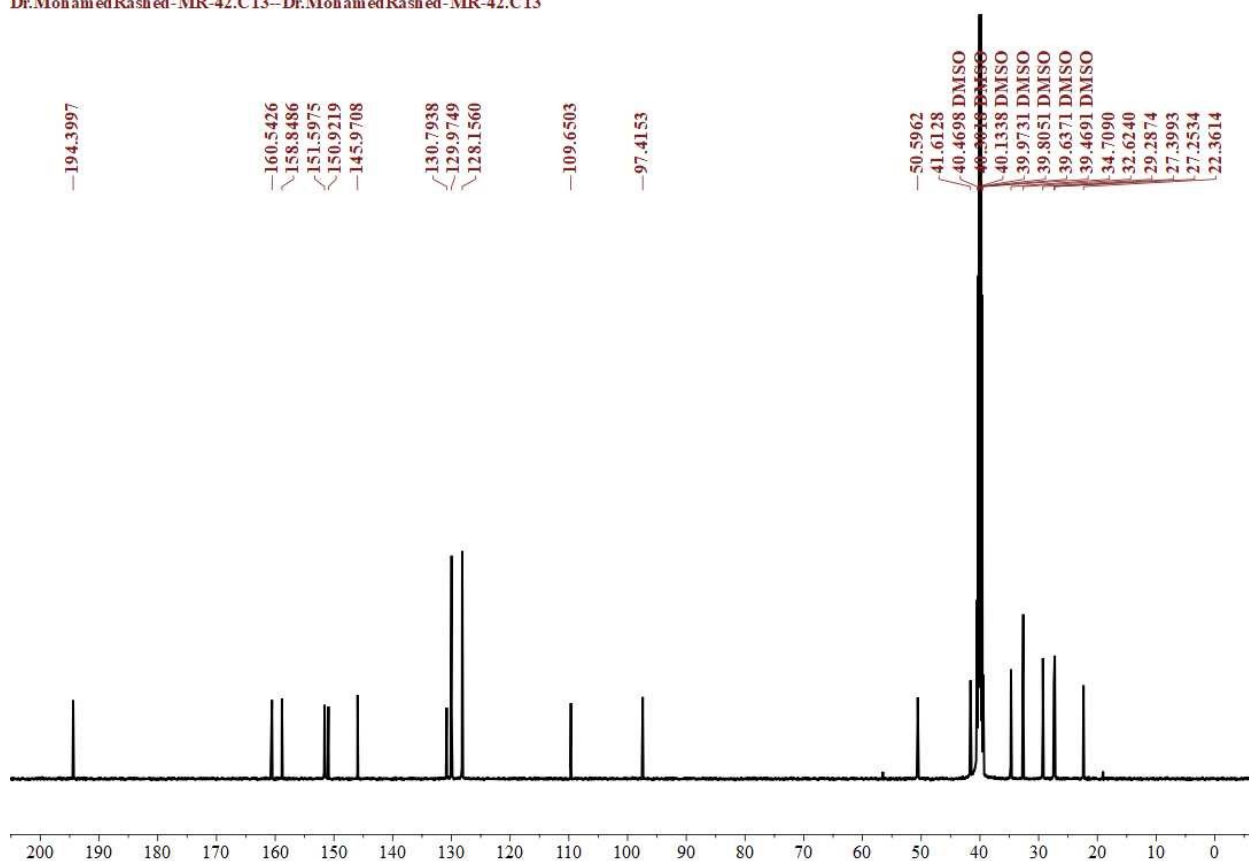
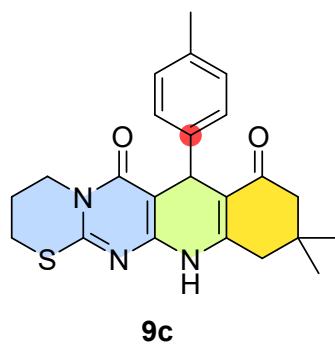


Figure S5. ^{13}C NMR spectrum of compound **9b**



DR.Mohamed Rashed-MR38-DR.Mohamed Rashed-MR38

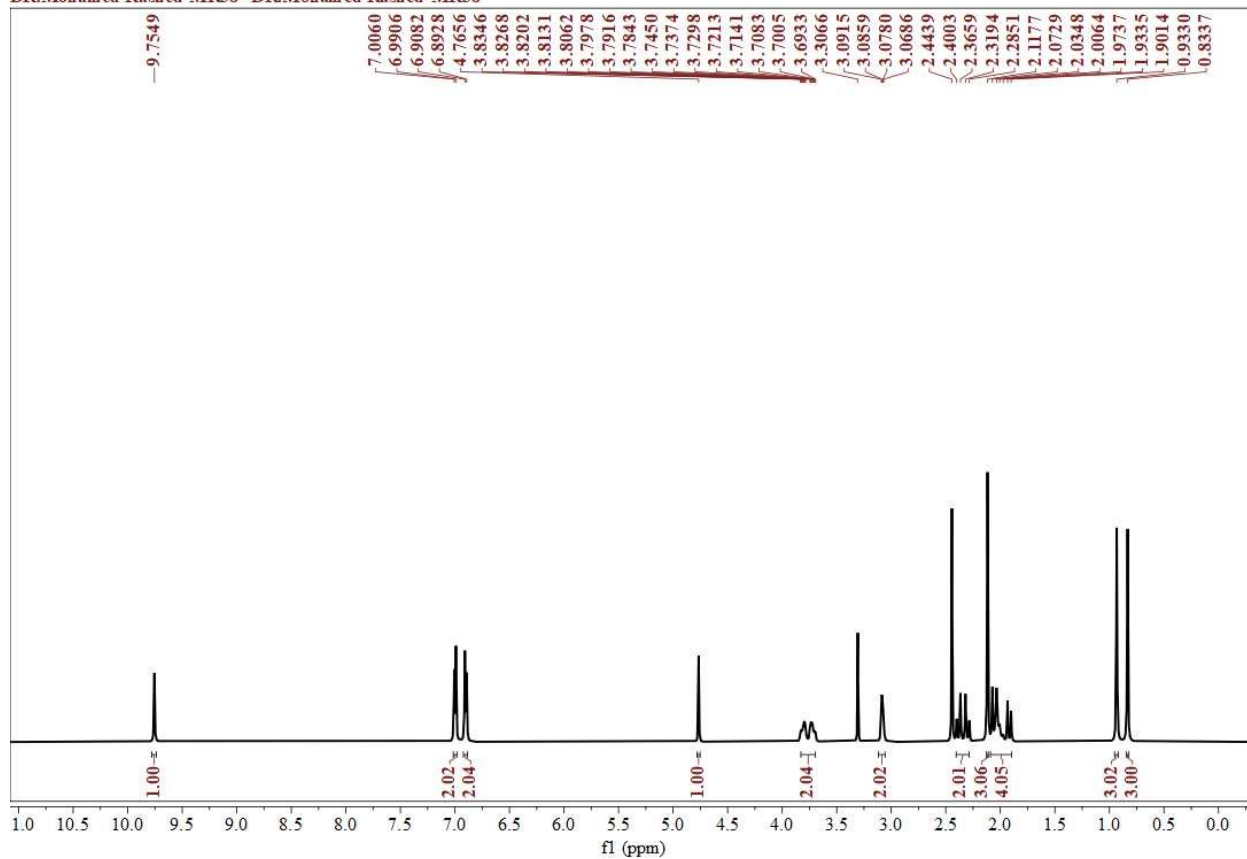
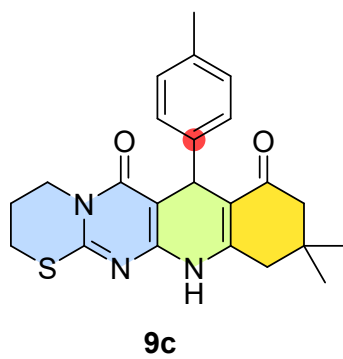


Figure S6. ¹H NMR spectrum of compound 9c



Dr.MohamedRashed-MR-42.C13--Dr.MohamedRashed-MR-42.C13

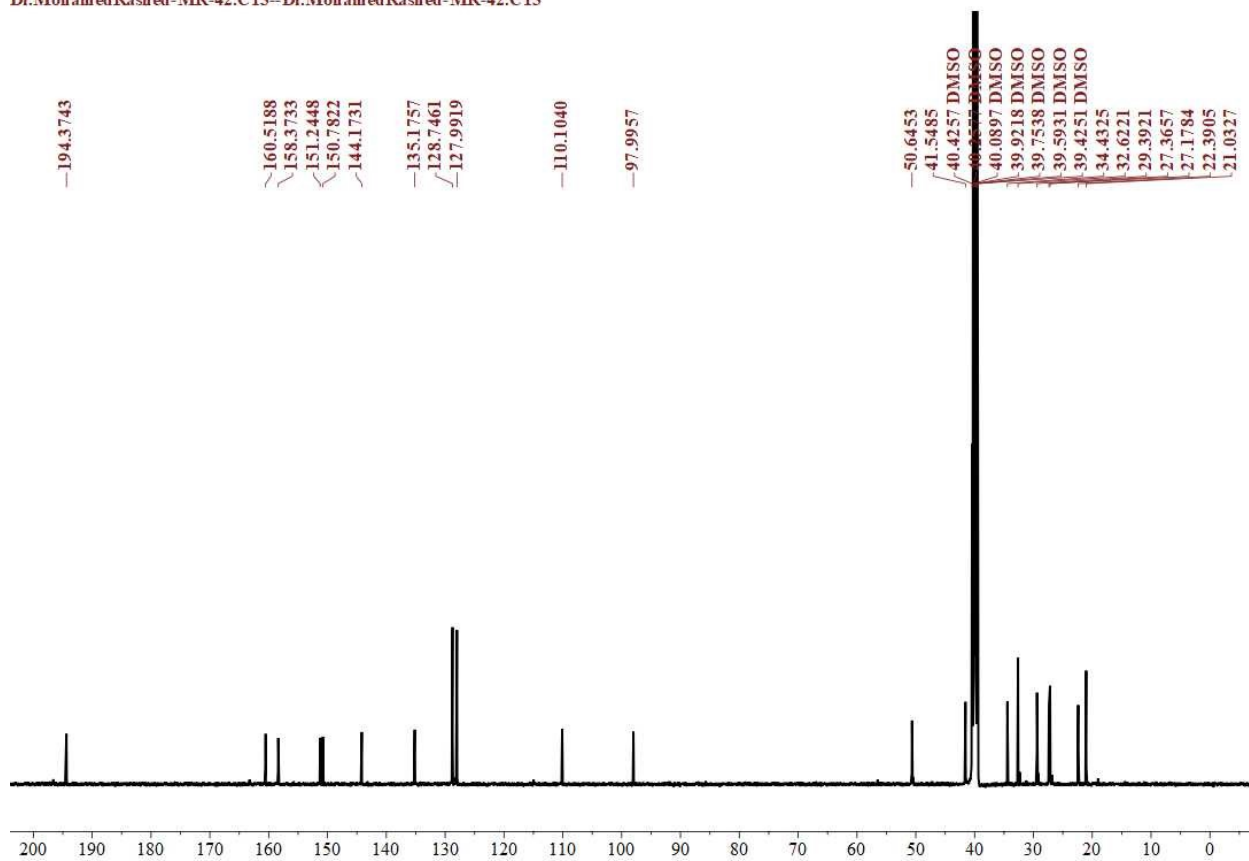


Figure S7. ^{13}C NMR spectrum of compound **9c**

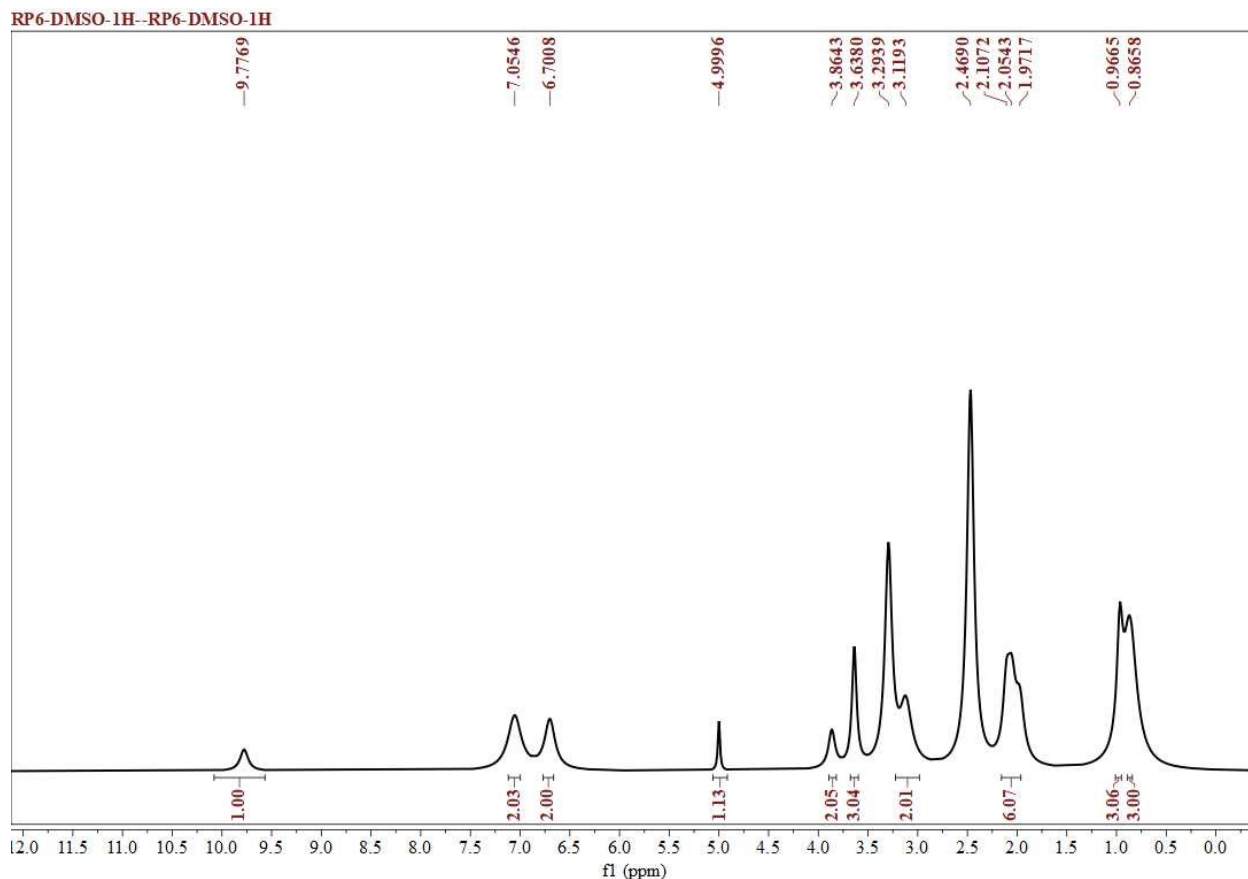
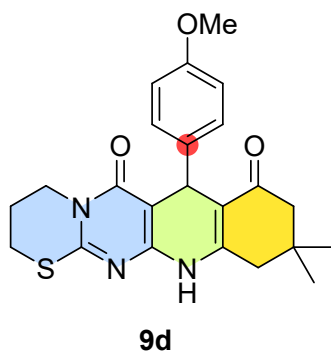


Figure S8. ^1H NMR spectrum of compound **9d**

The broad signals observed in the ^1H NMR spectrum of compound **9d** are attributed to its limited solubility in the NMR solvent, which can lead to incomplete dissolution and possible aggregation effects, resulting in signal broadening. The compound was re-examined after further purification, and similar spectral features were observed, supporting that the broadening is intrinsic rather than due to impurities.

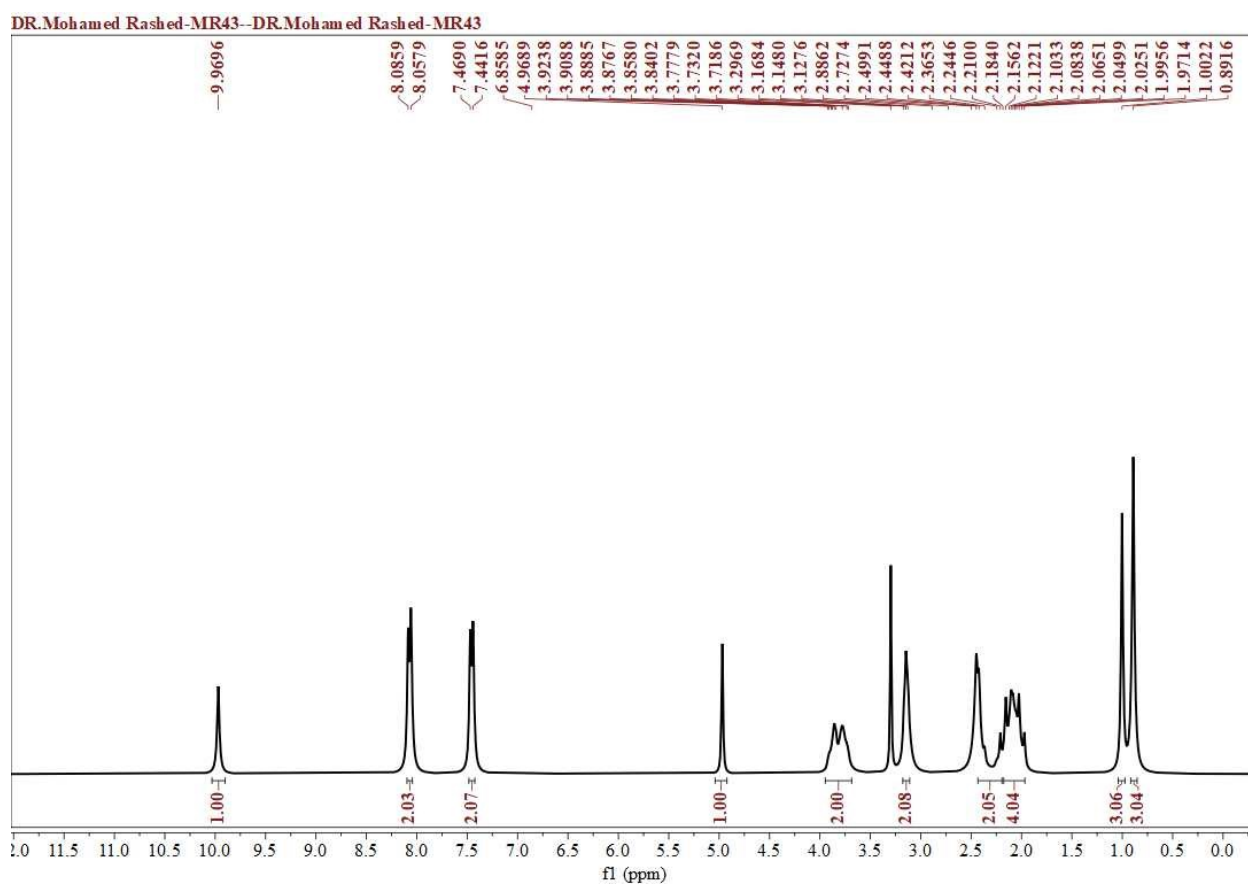
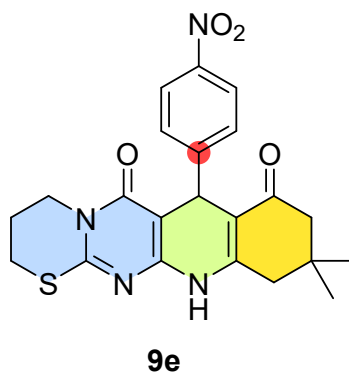
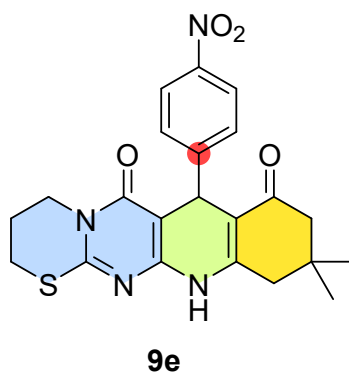


Figure S10. ^1H NMR spectrum of compound **9e**



Dr.MohamedRashed-MR-43.C13--Dr.MohamedRashed- MR-43.C13

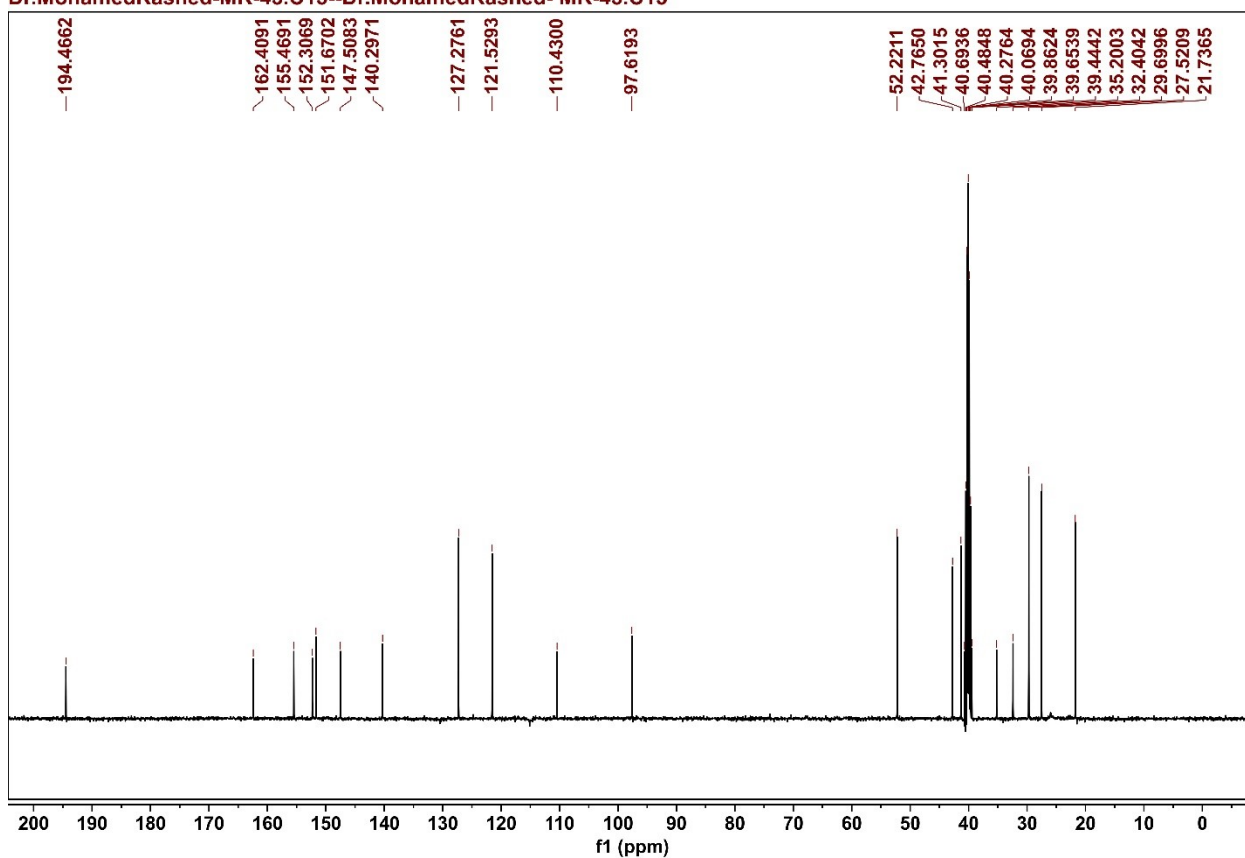
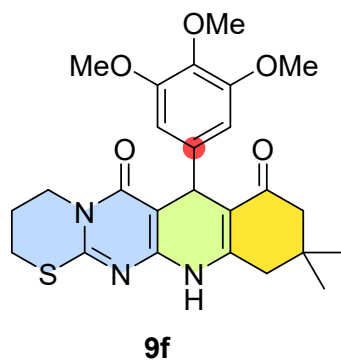


Figure S11. ¹³C NMR spectrum of compound 9e



Dr Moh. Rashed-MR-45--Dr Moh. Rashed-MR-45

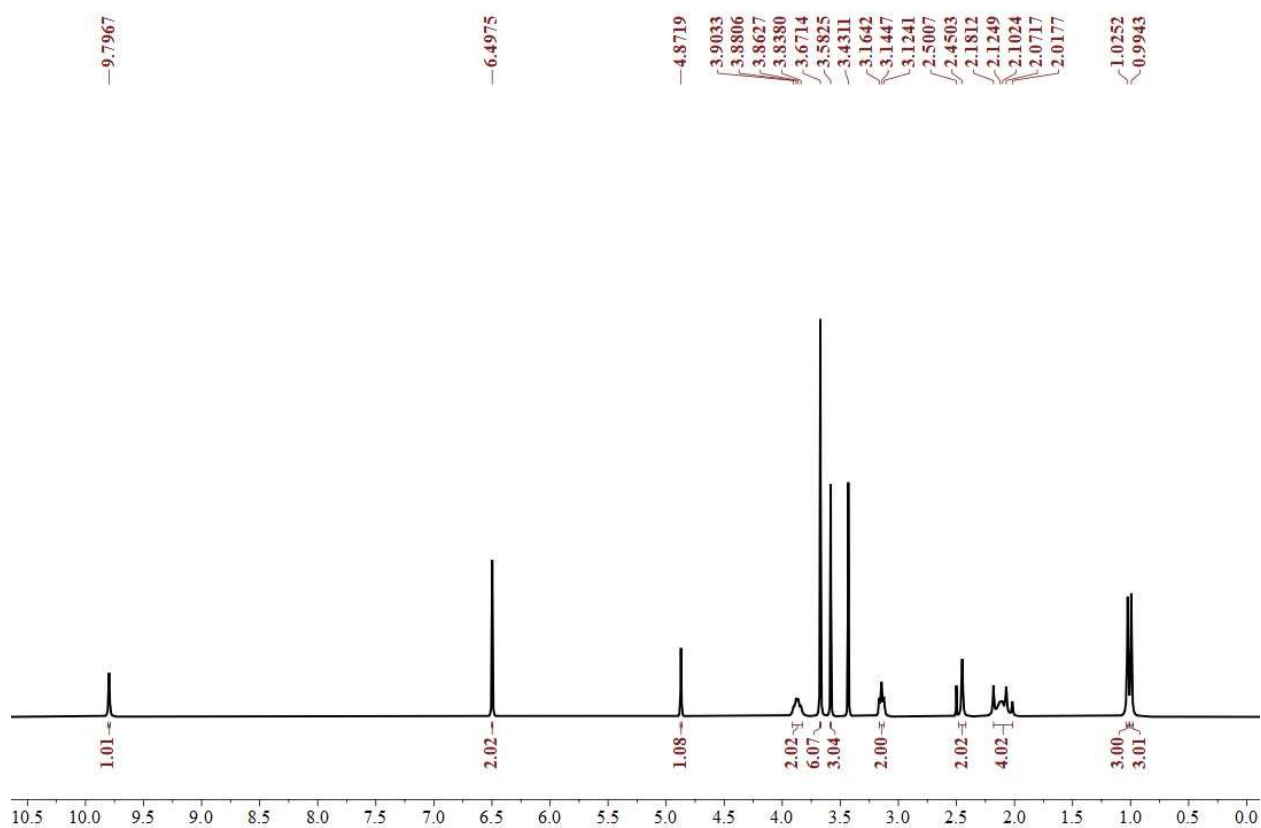
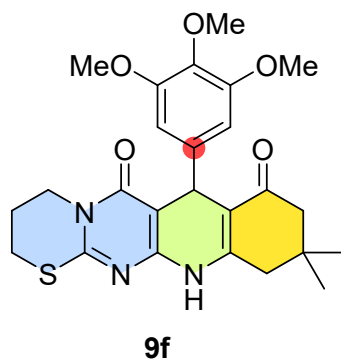


Figure S12. ^1H NMR spectrum of compound **9f**



Dr.MohamedRashed-MR-45.C13--Dr.MohamedRashed- MR-45.C13

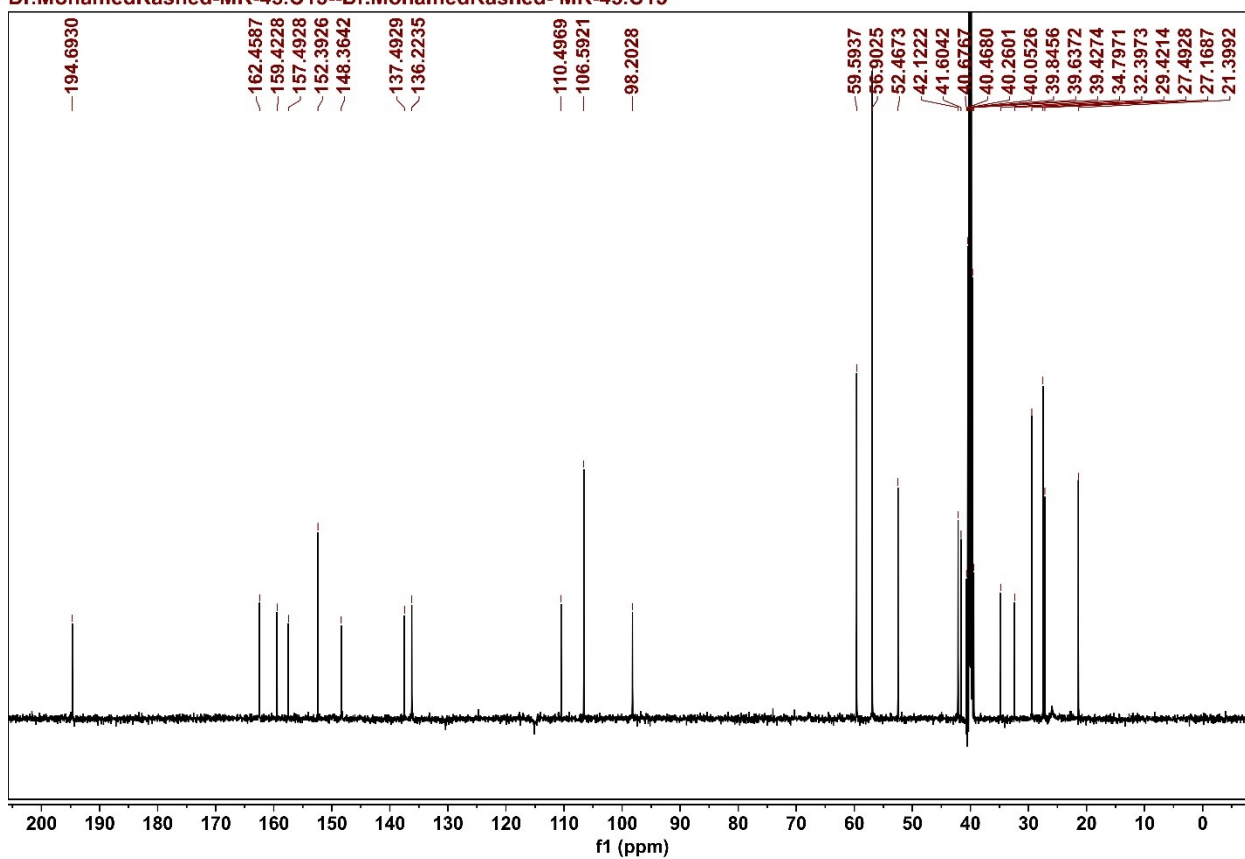
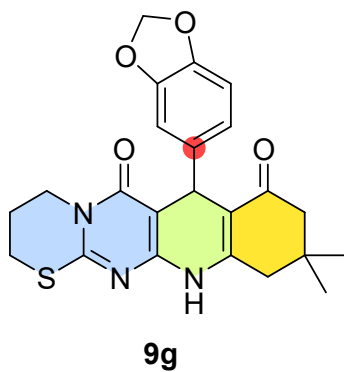


Figure S13. ¹³C NMR spectrum of compound **9f**



Dr.Mohmed Rashed-MR-47--Dr.Mohmed Rashed-MR-47

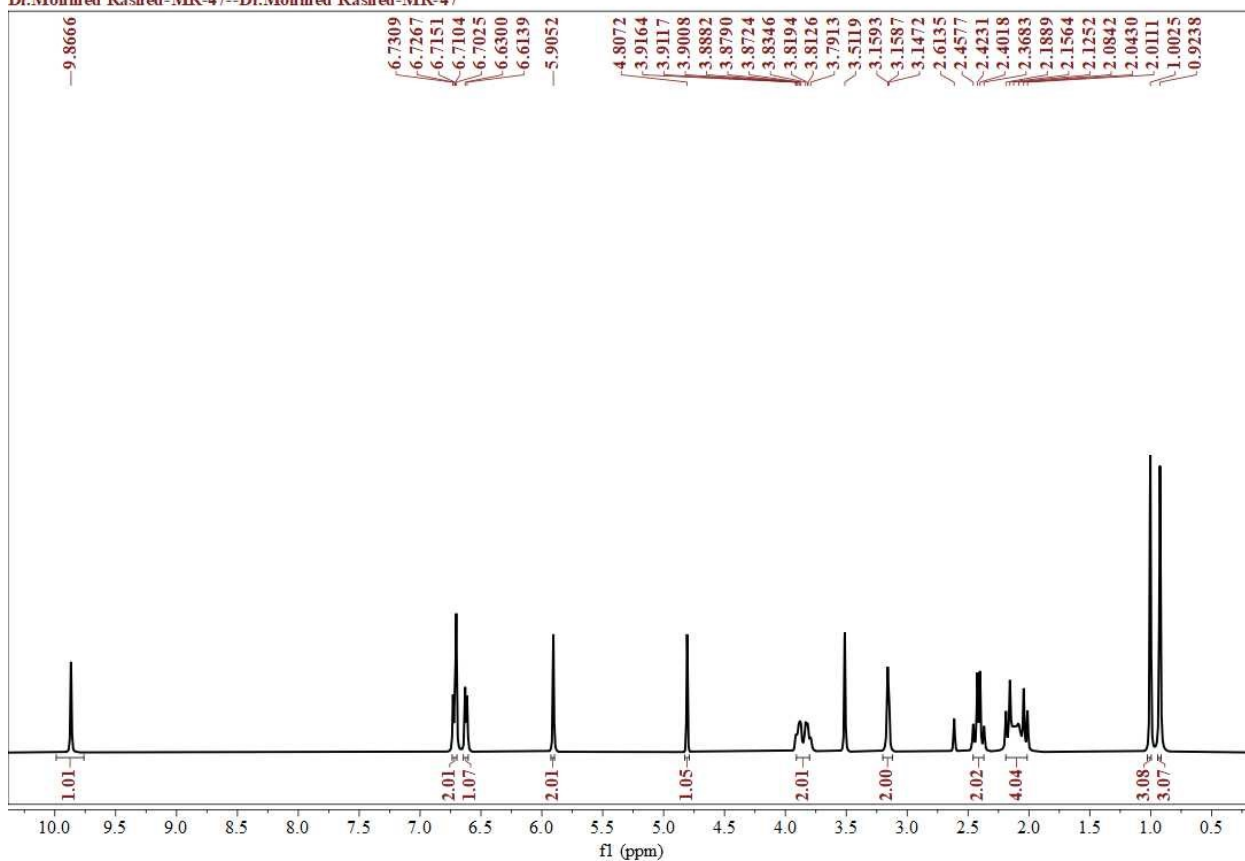
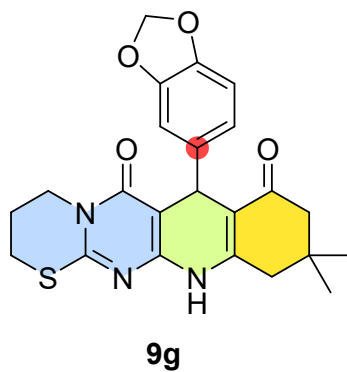


Figure S14. ^1H NMR spectrum of compound **9g**



Dr.MohamedRashed-MR-47.C13-Dr.MohamedRashed-MR-47.C13

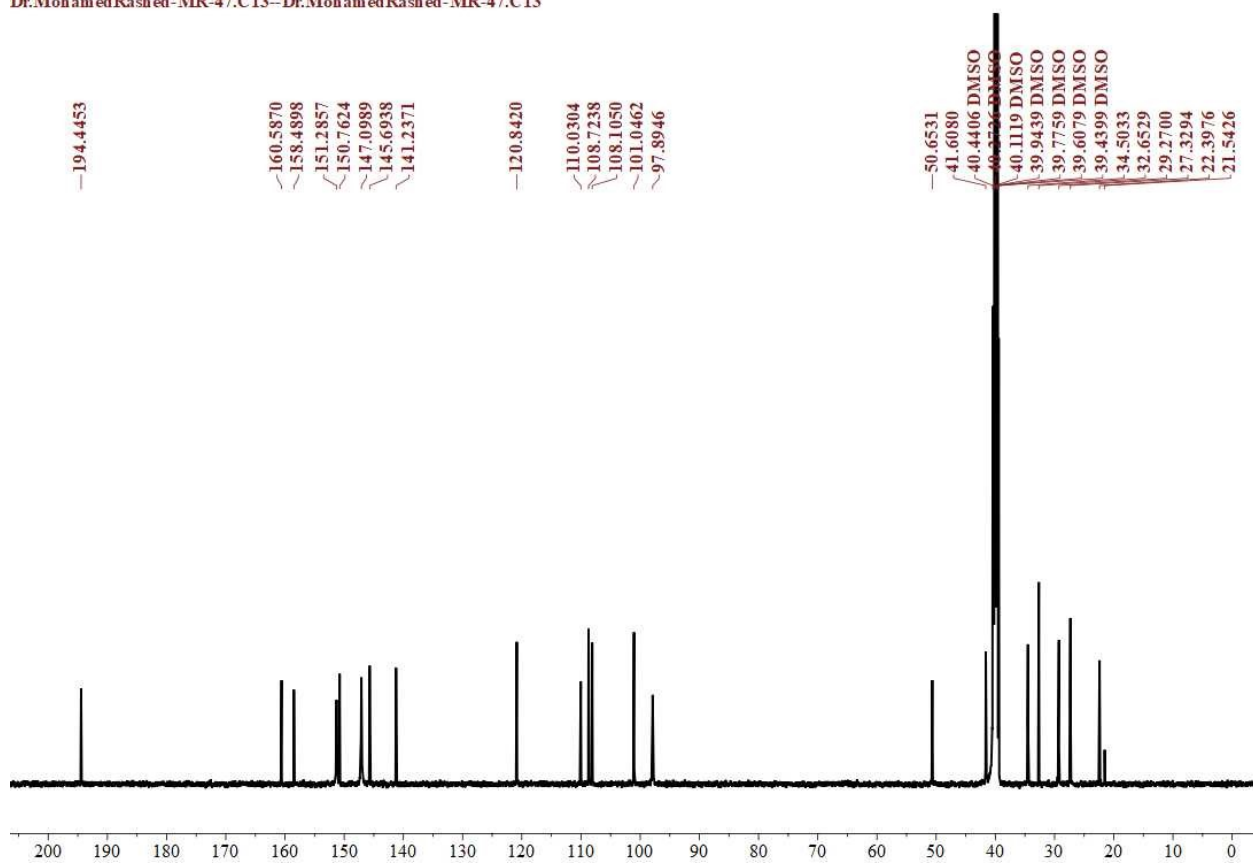


Figure S15. ^{13}C NMR spectrum of compound **9g**