

Supplementary material

Antimicrobial triterpenoids and ingol diterpenes from propolis of semi-arid region of Morocco

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Figure S1. HRESIMS spectrum of **1**.

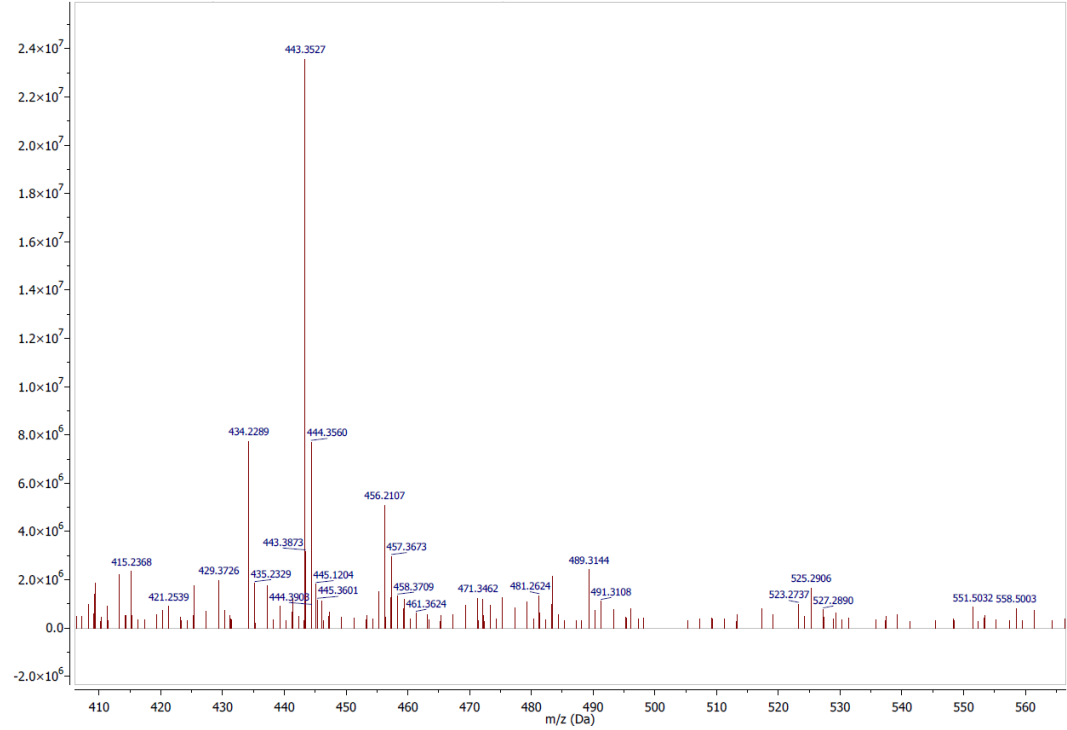
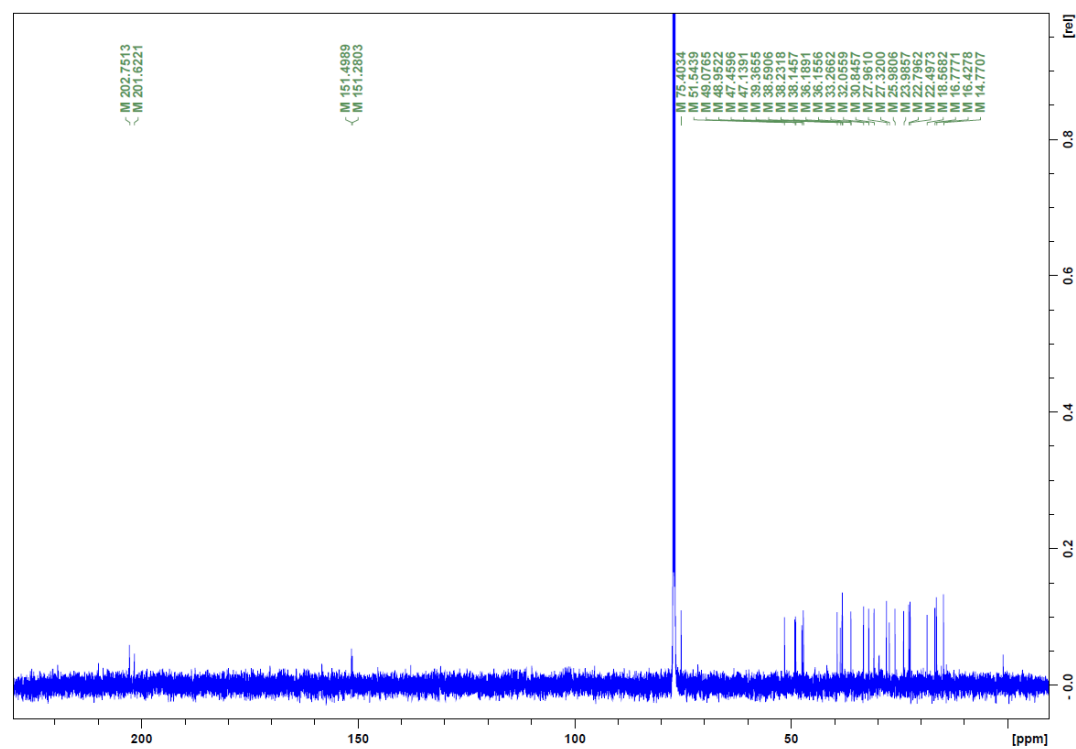
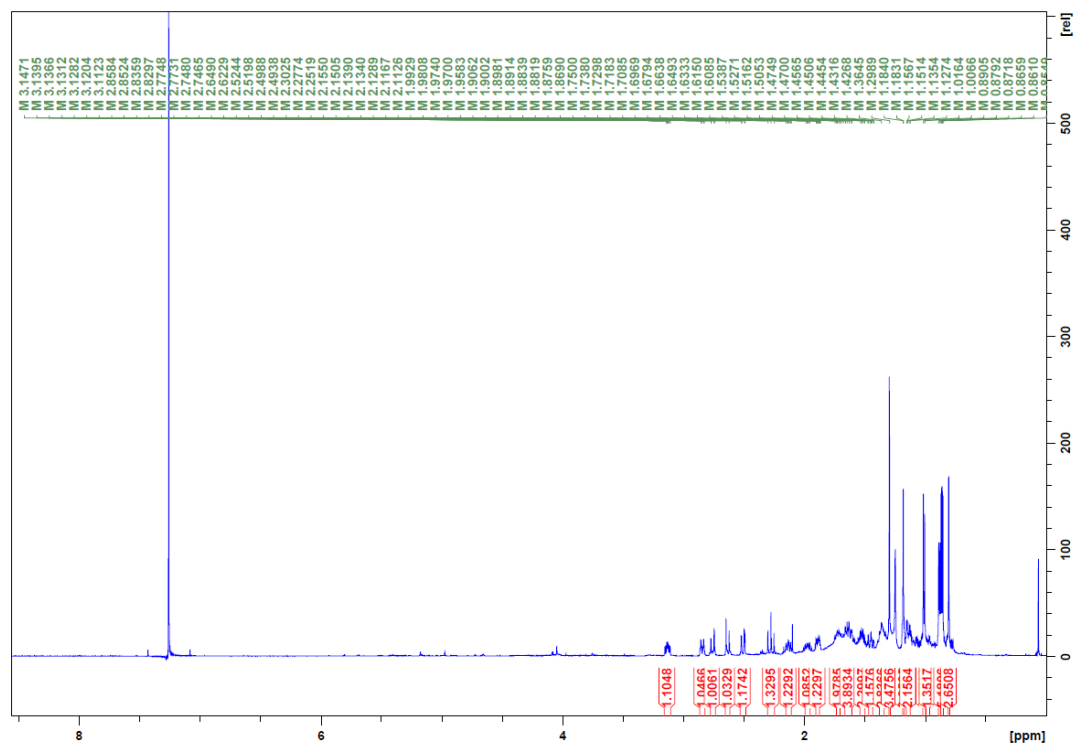
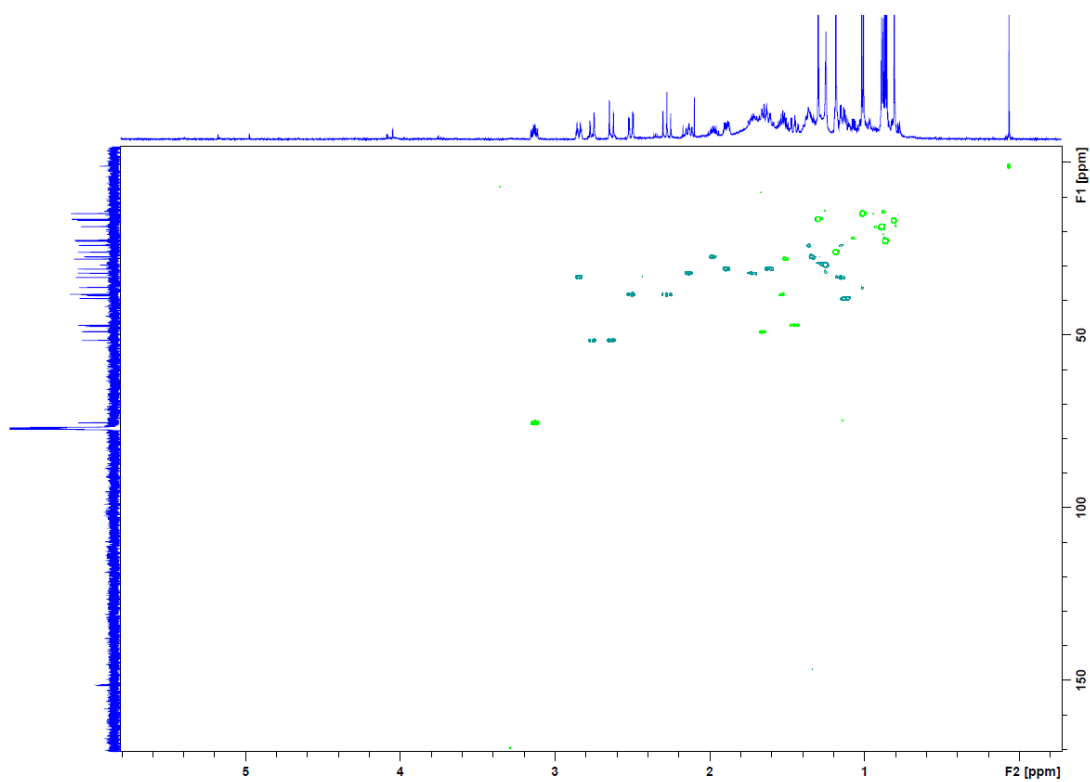
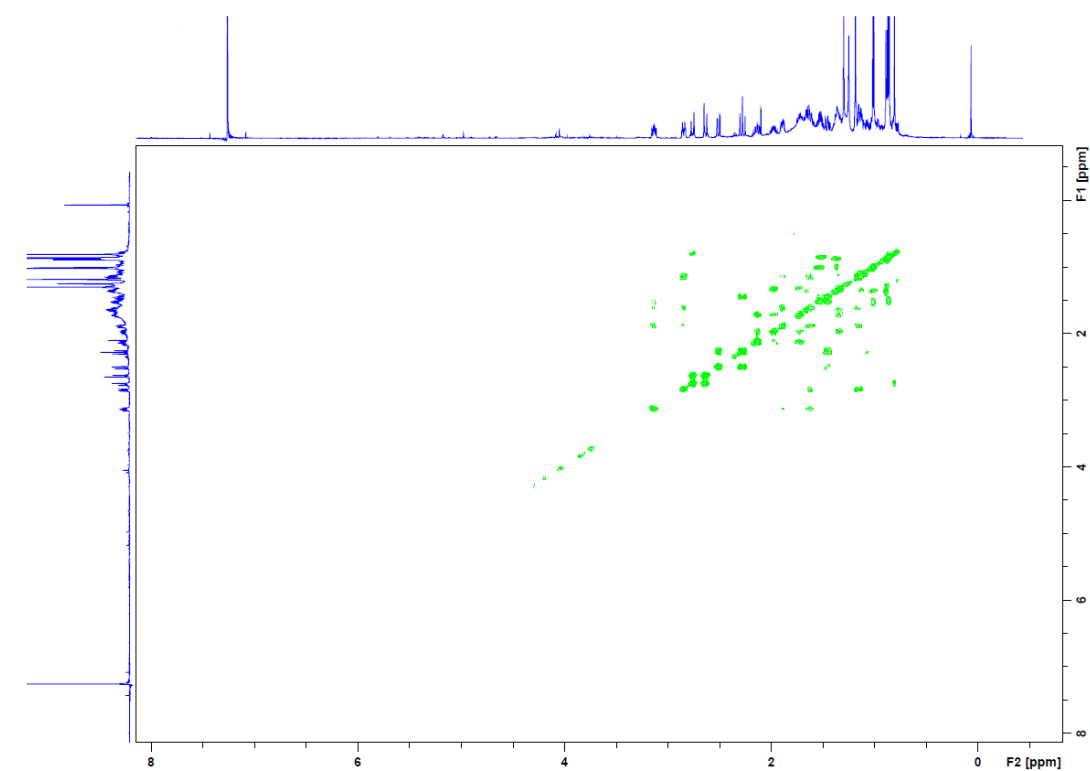


Figure S2. ^1H NMR, ^{13}C NMR, ^1H - ^1H COSY, HSQC, HMBC and NOESY spectra of **1** in CDCl_3 .





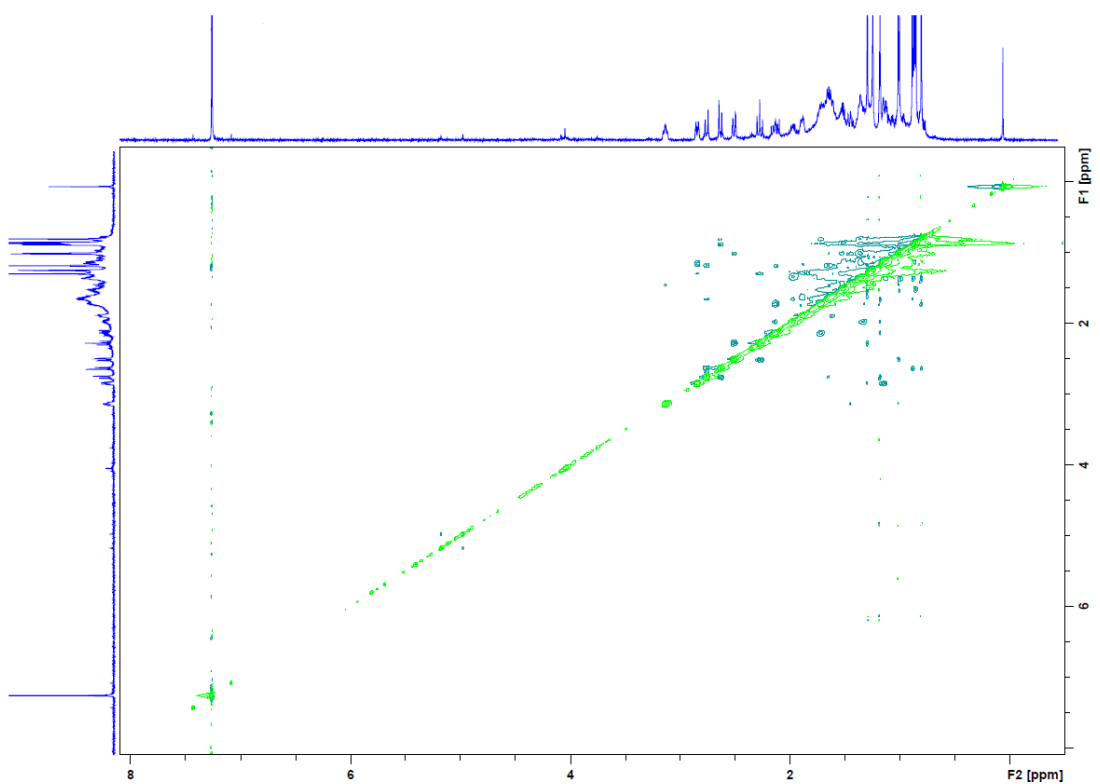
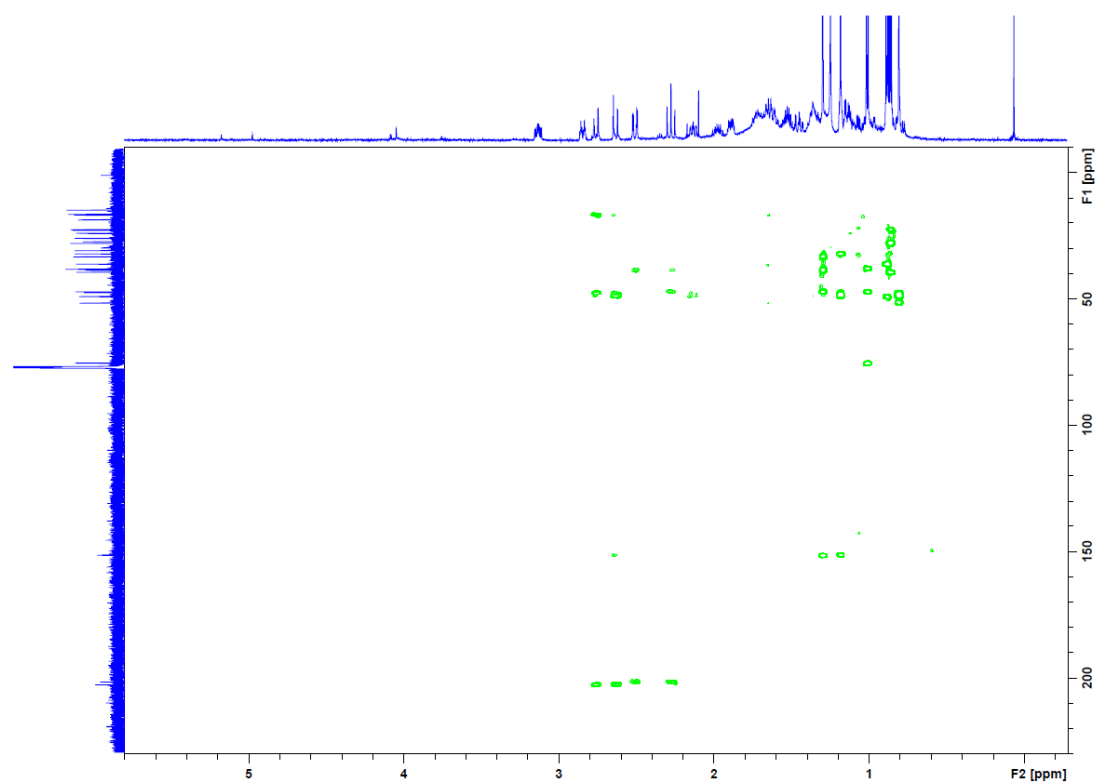
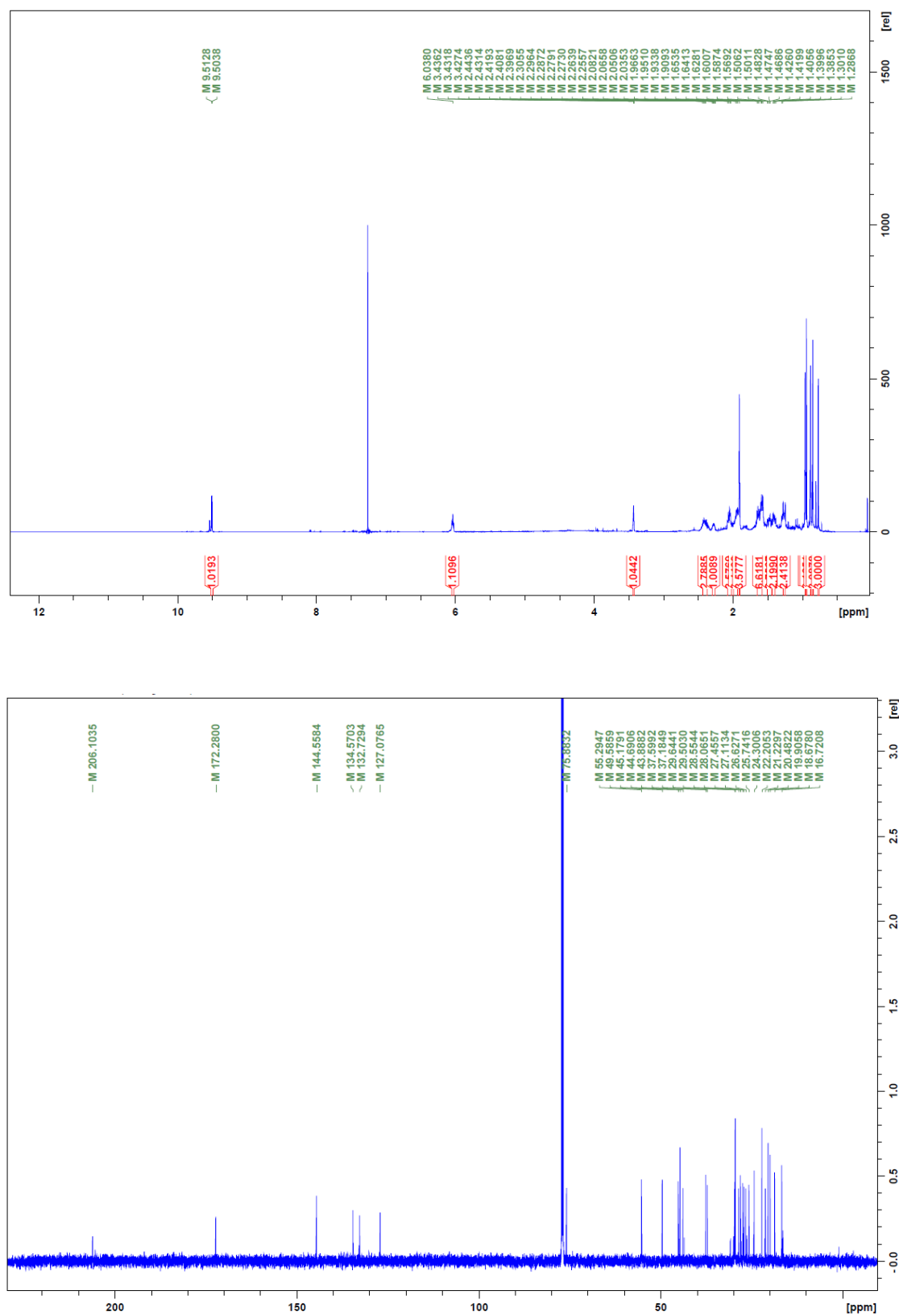
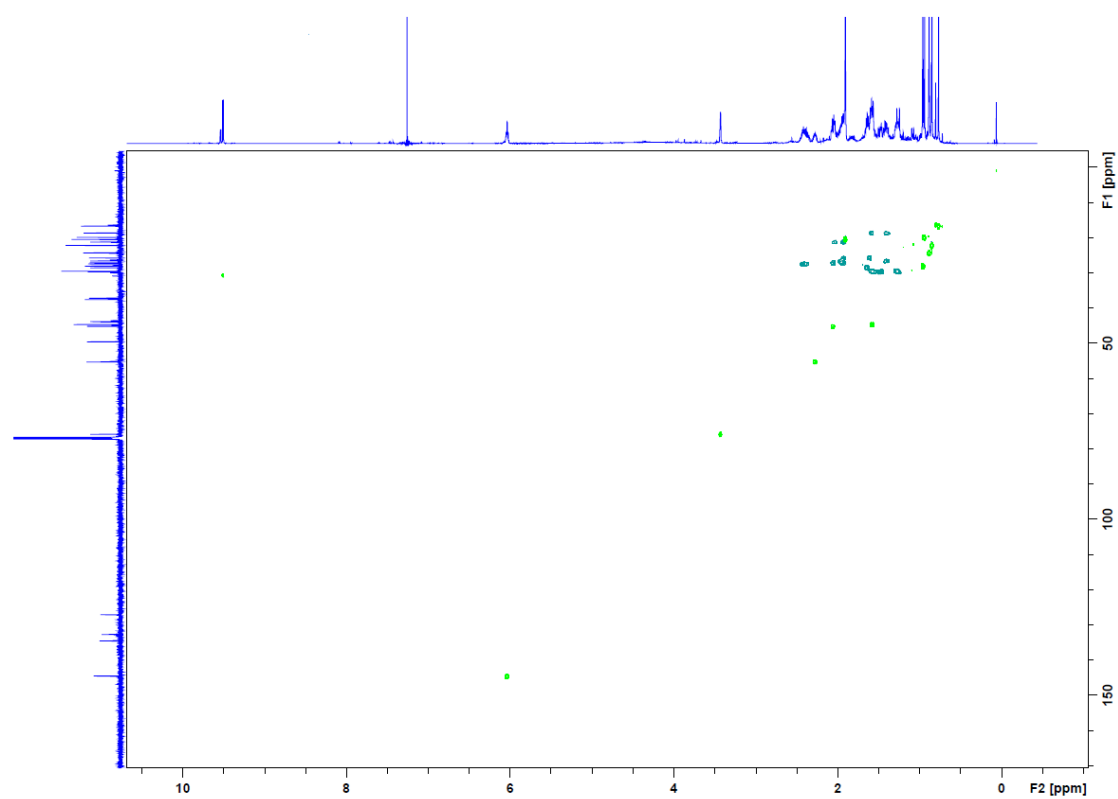
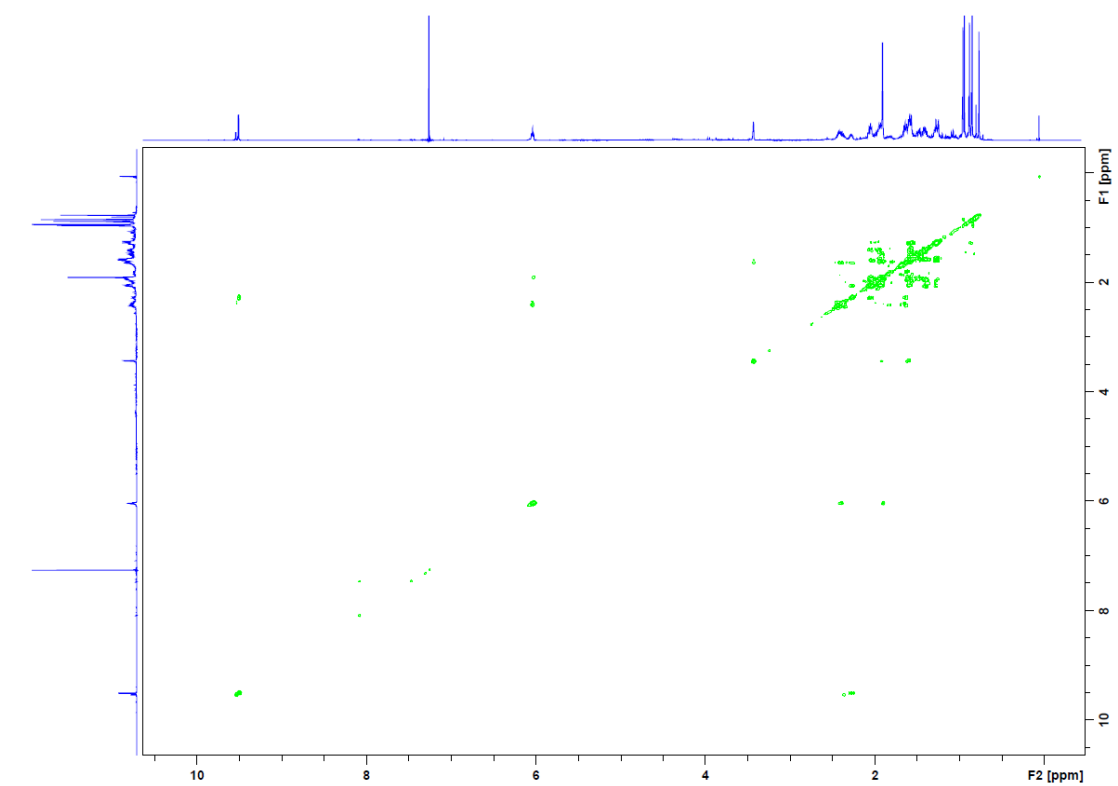


Figure S3. ^1H NMR, ^{13}C NMR, ^1H - ^1H COSY, HSQC, HMBC and NOESY spectra of **2** in CDCl_3 .





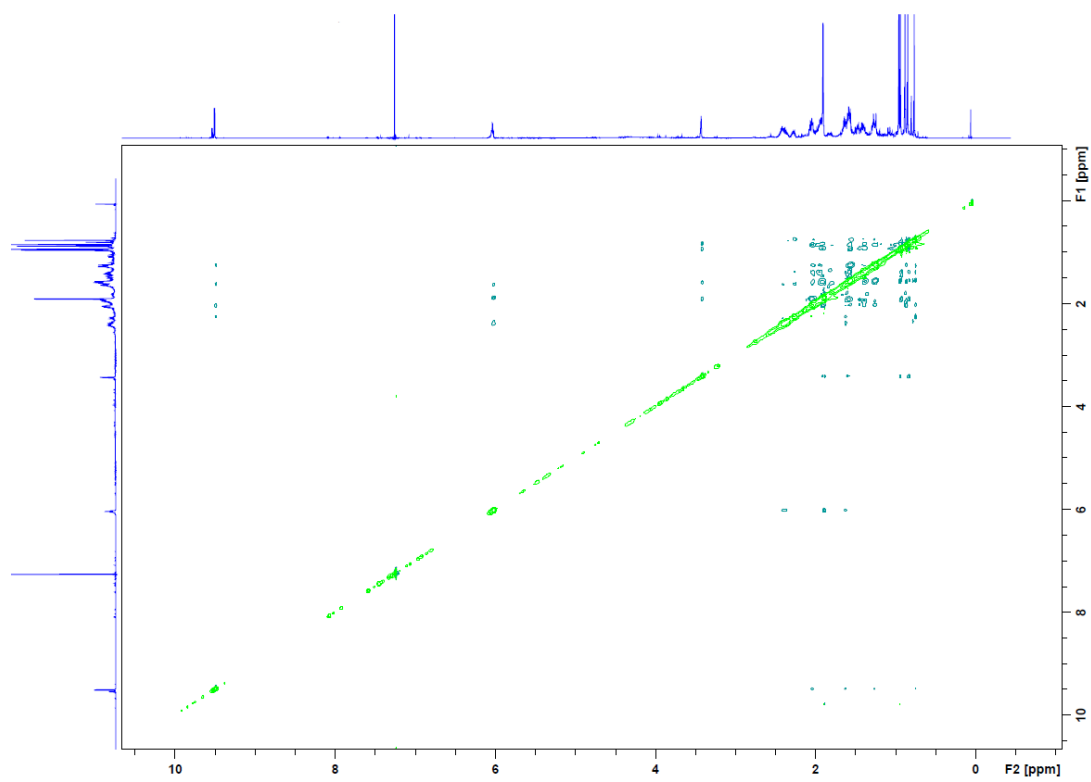
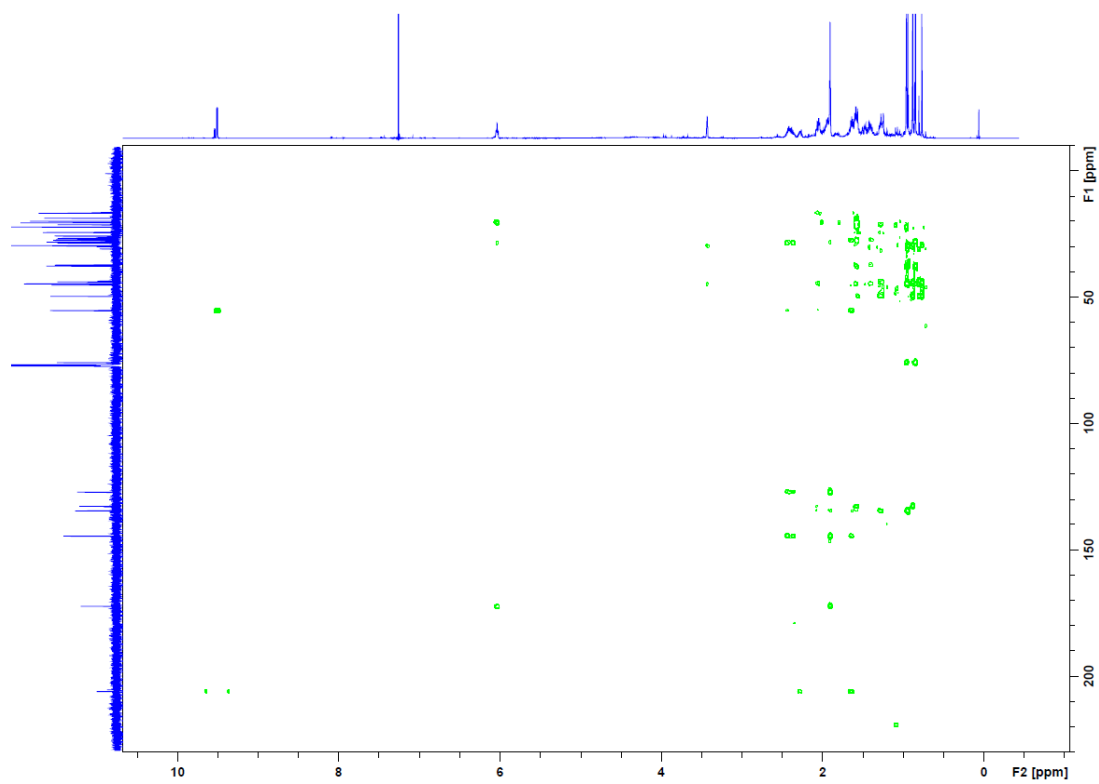


Figure S4. HRESIMS spectrum of **3**.

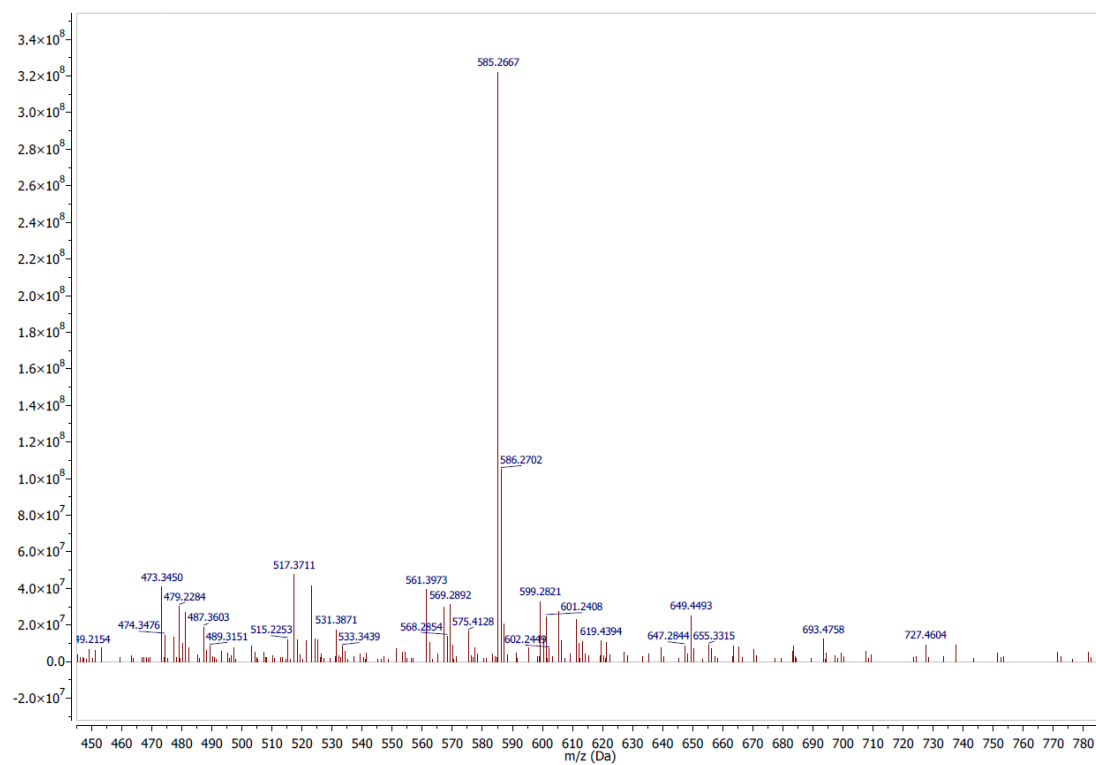
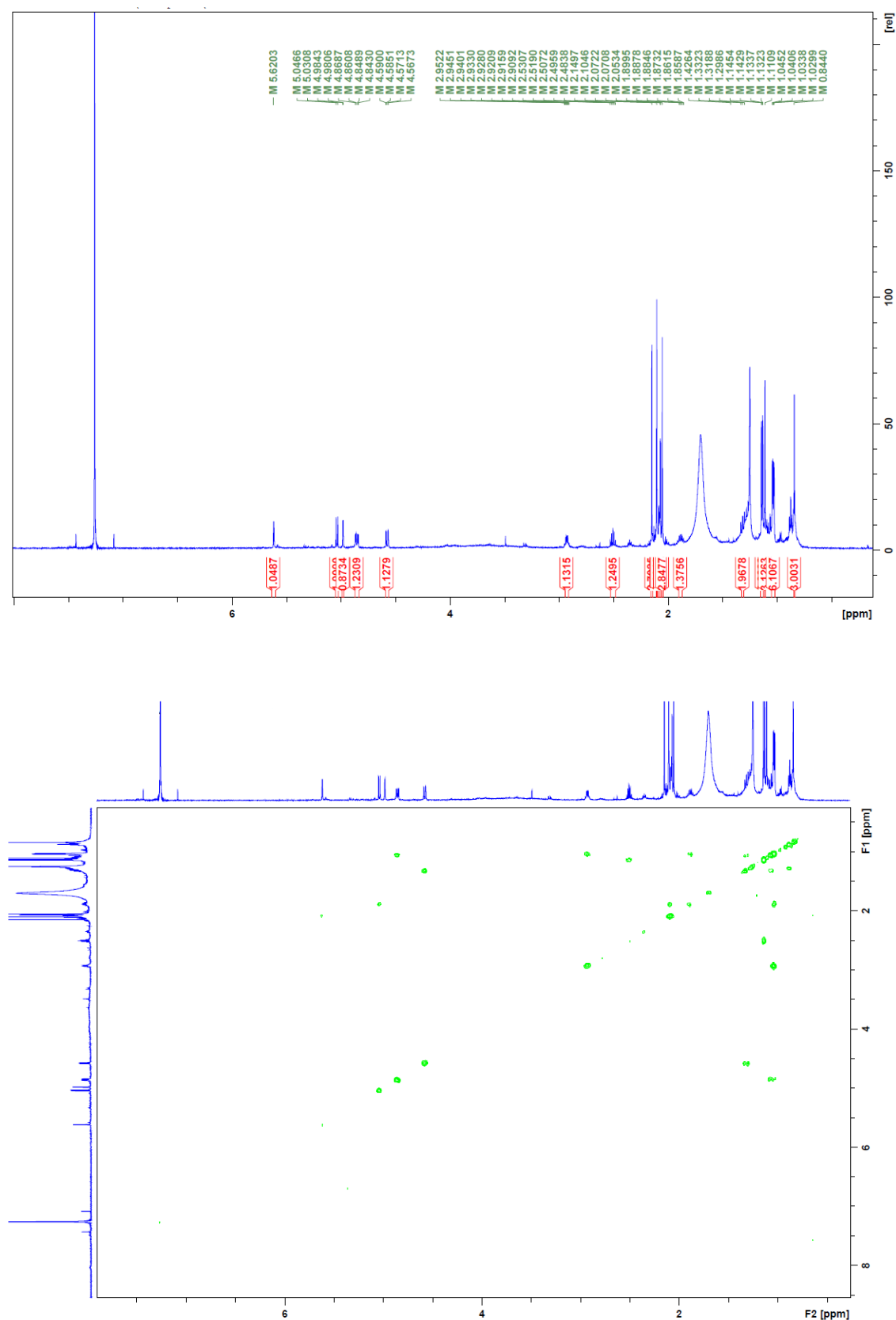
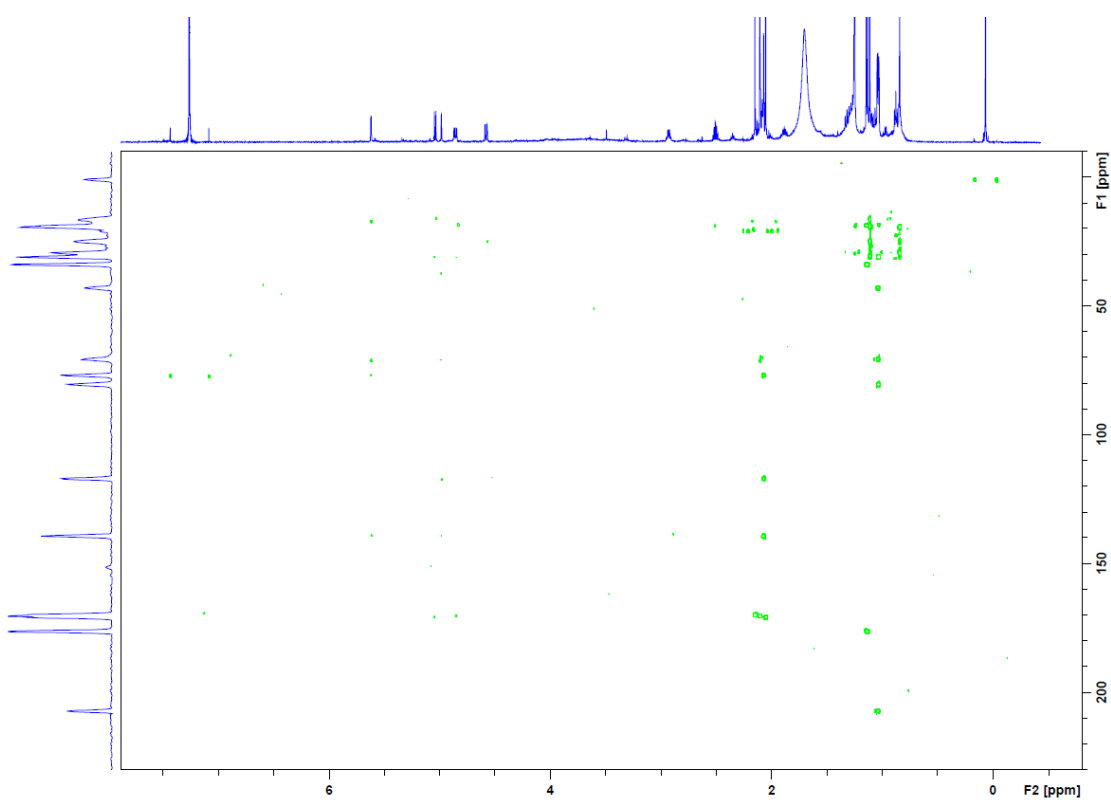
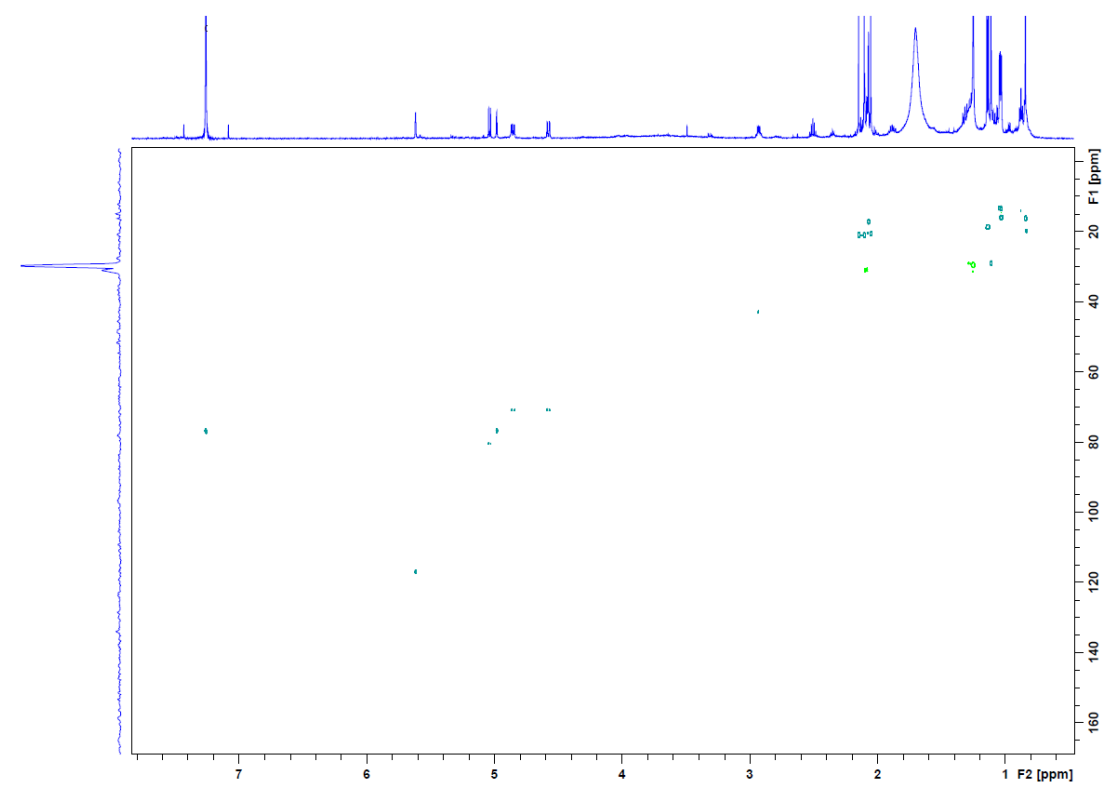


Figure S5. ^1H NMR, ^1H - ^1H COSY, HSQC, HMBC and ROESY spectra of **3** in CDCl_3 .





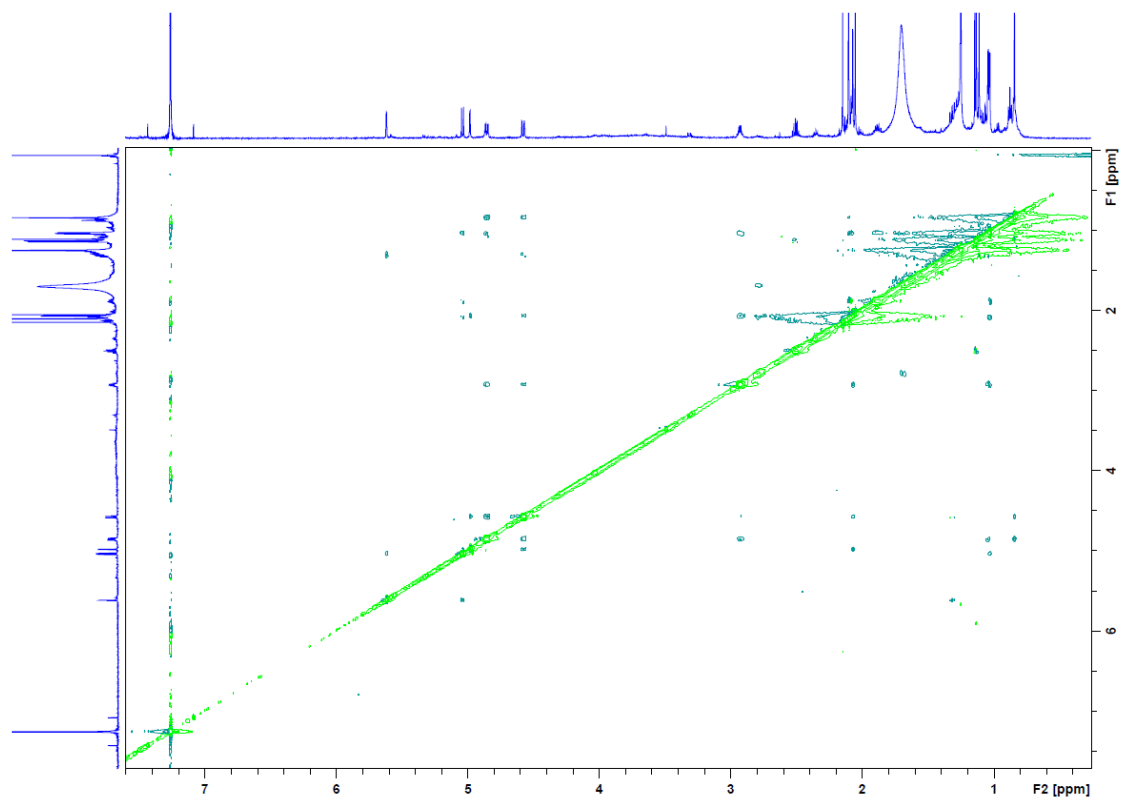
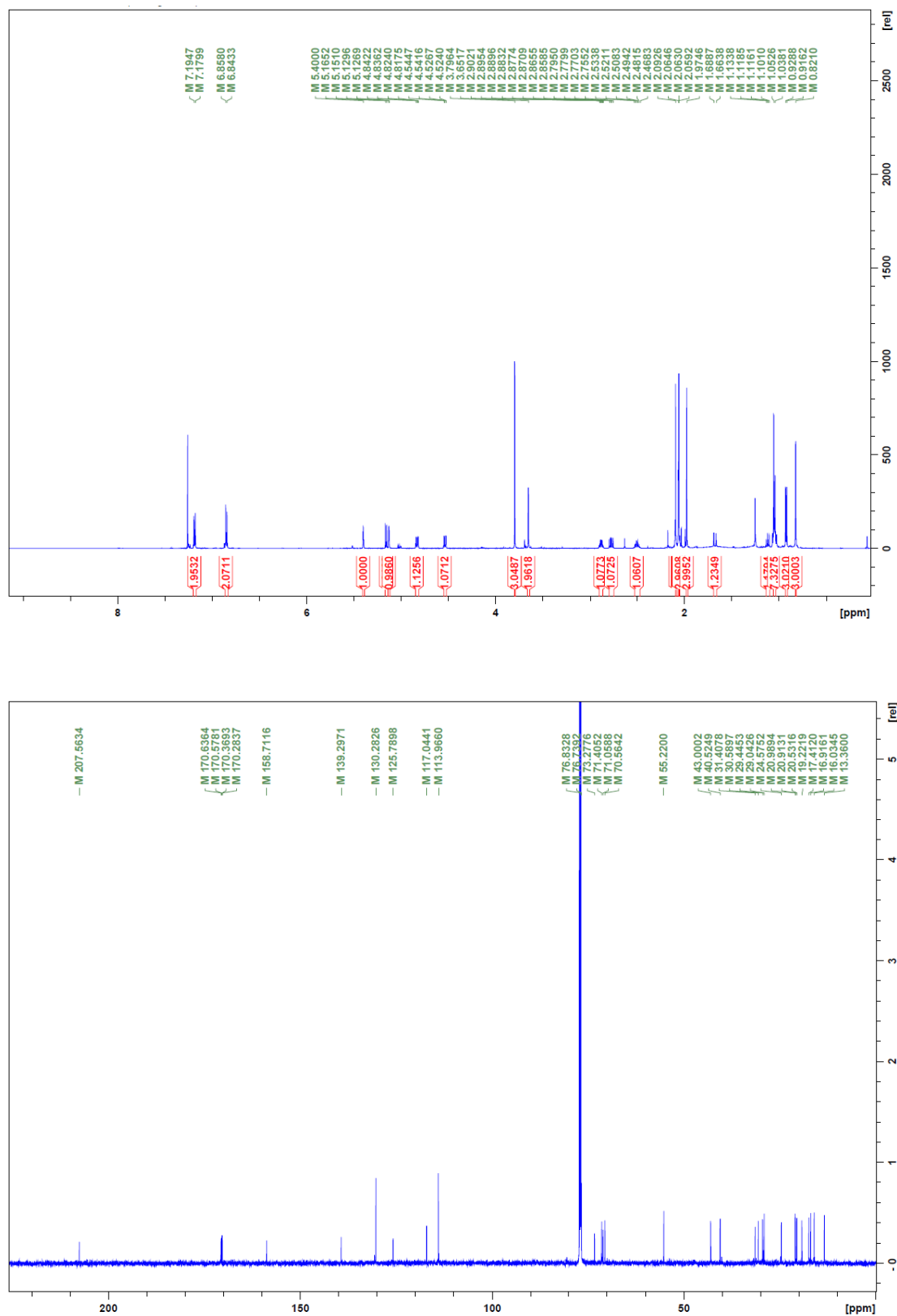
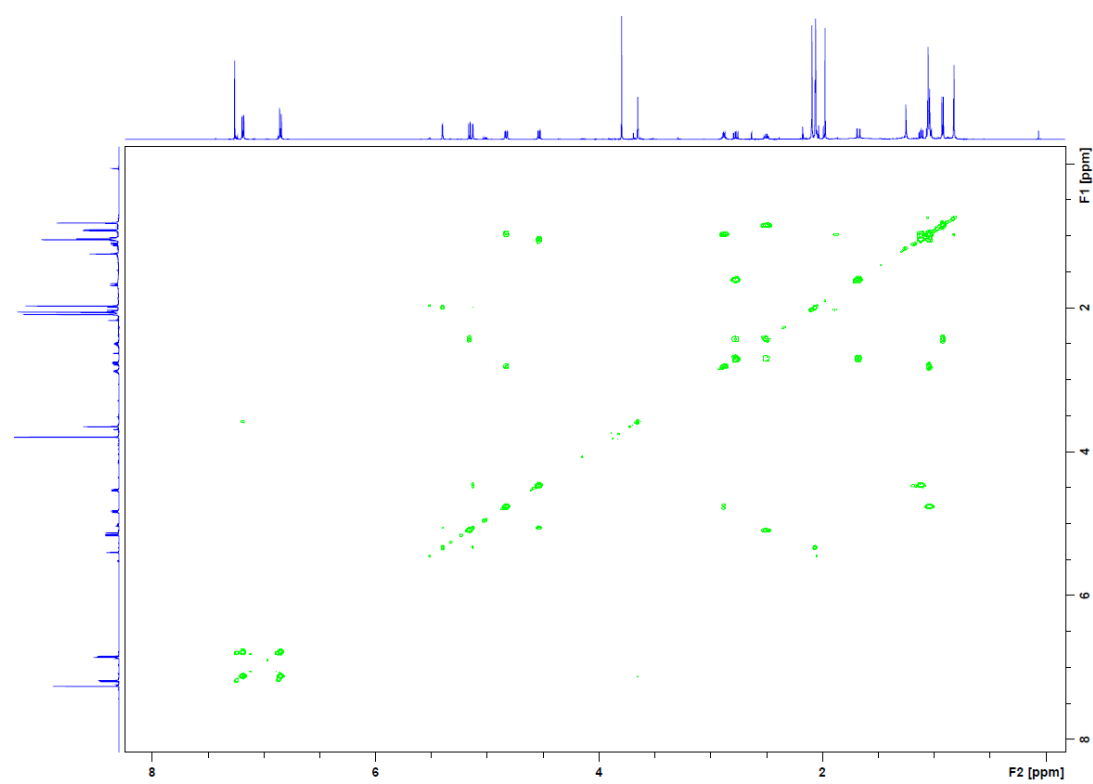
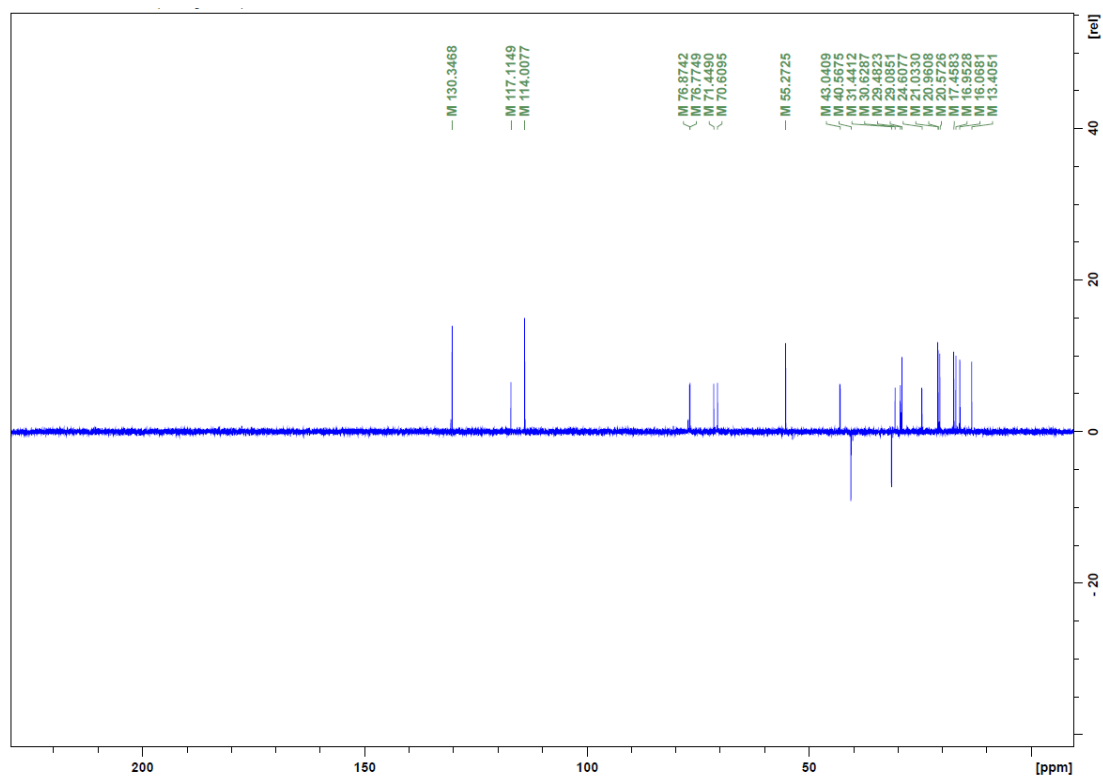
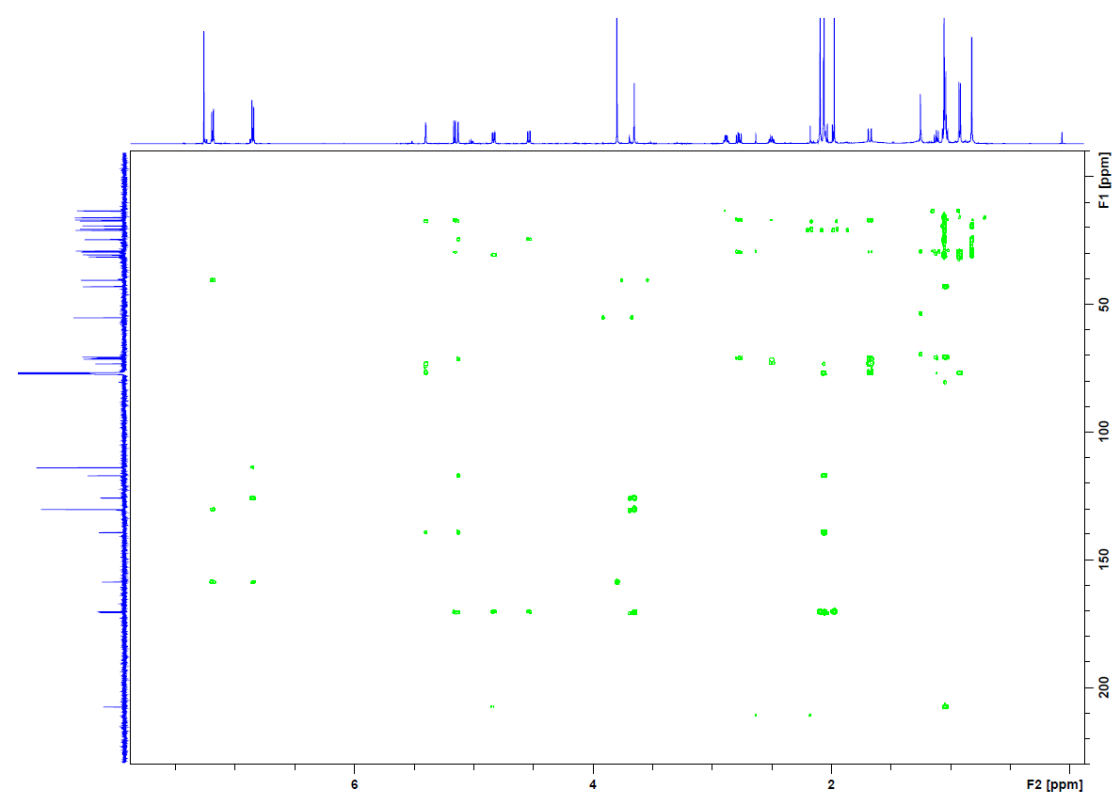
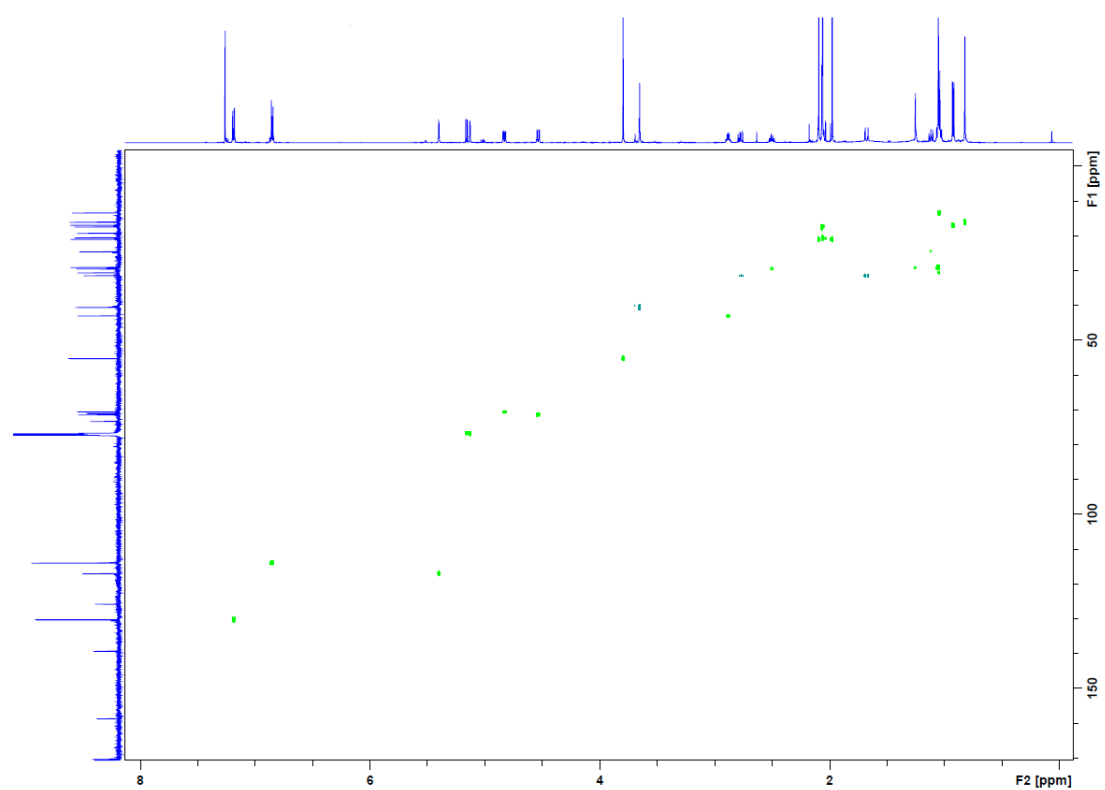


Figure S6. ^1H NMR, ^{13}C NMR, DEPT, ^1H - ^1H COSY, HSQC, HMBC and ROESY spectra of **4** in CDCl_3 .







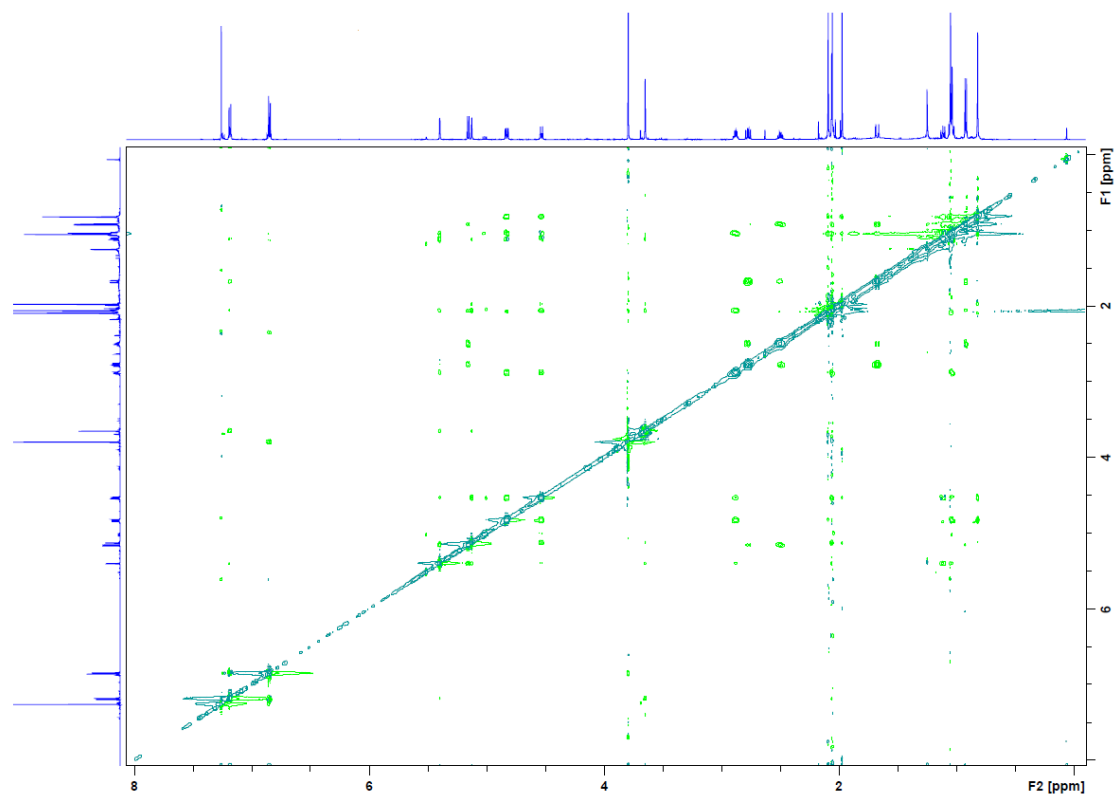
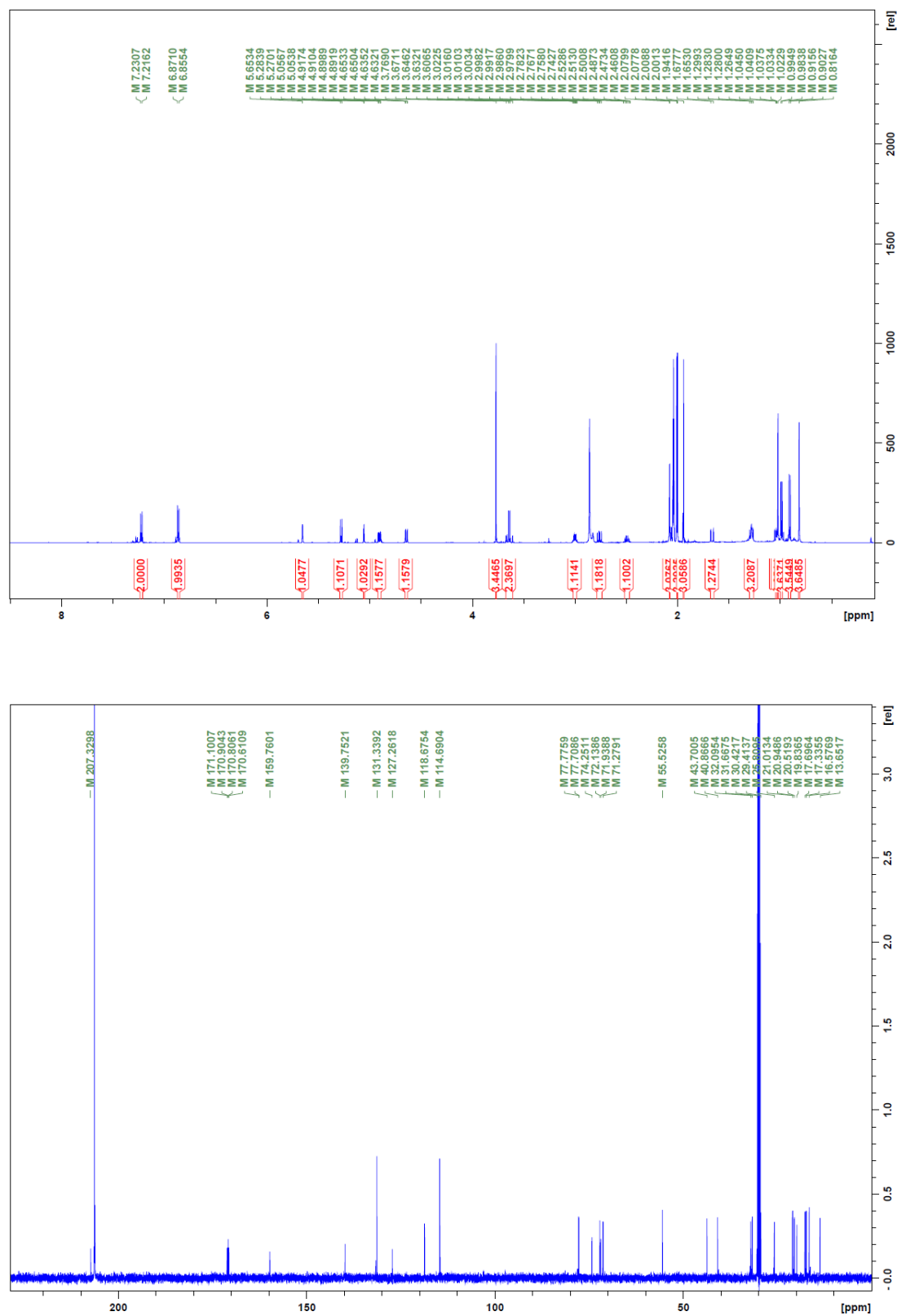


Figure S7. ^1H NMR, ^{13}C NMR, HSQC and HMBC spectra of **4** in acetone- d_6 .



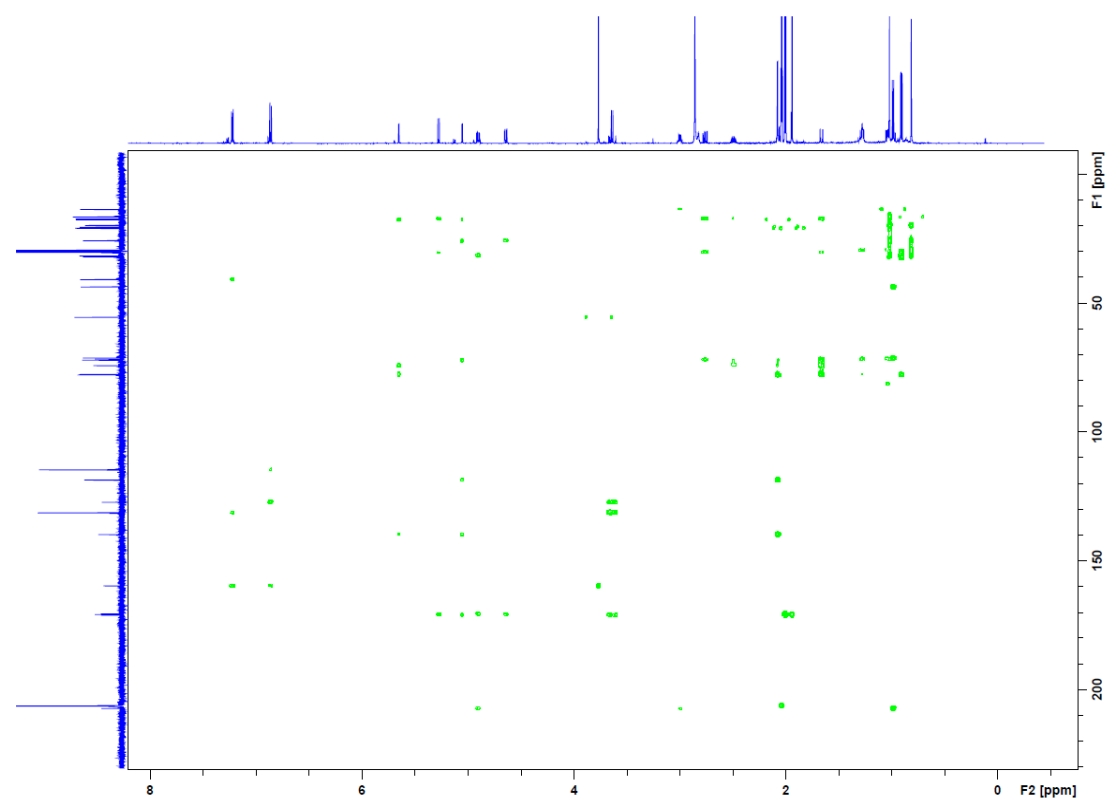
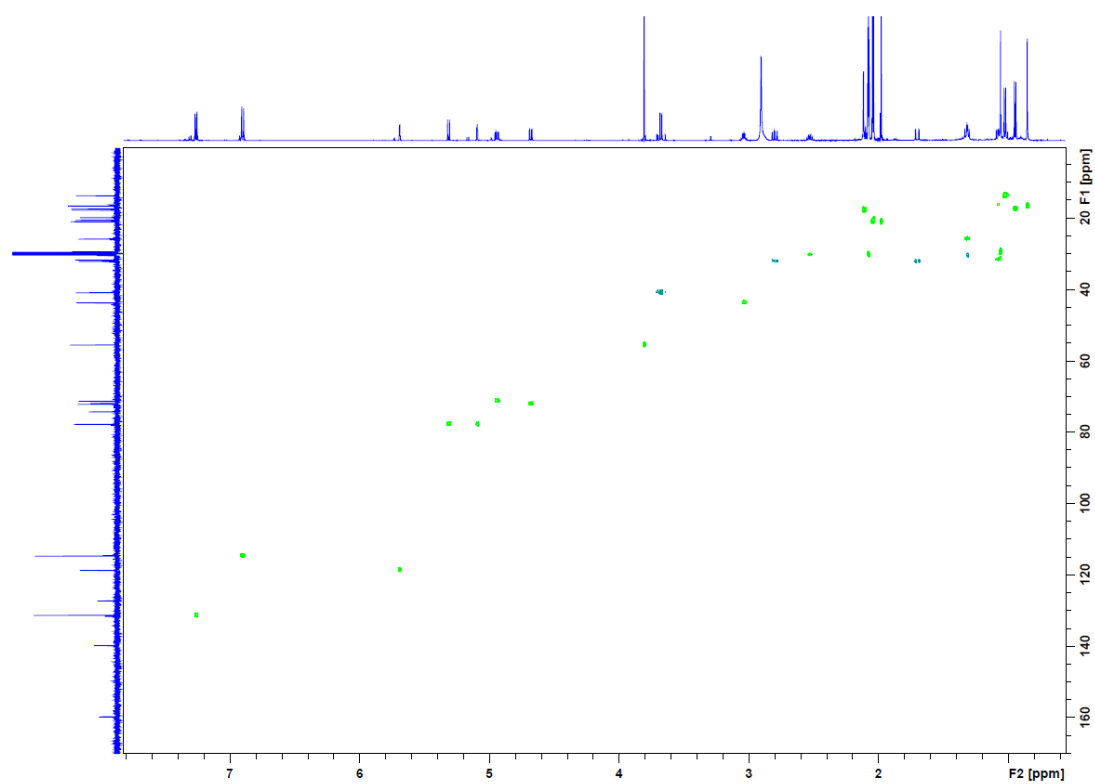
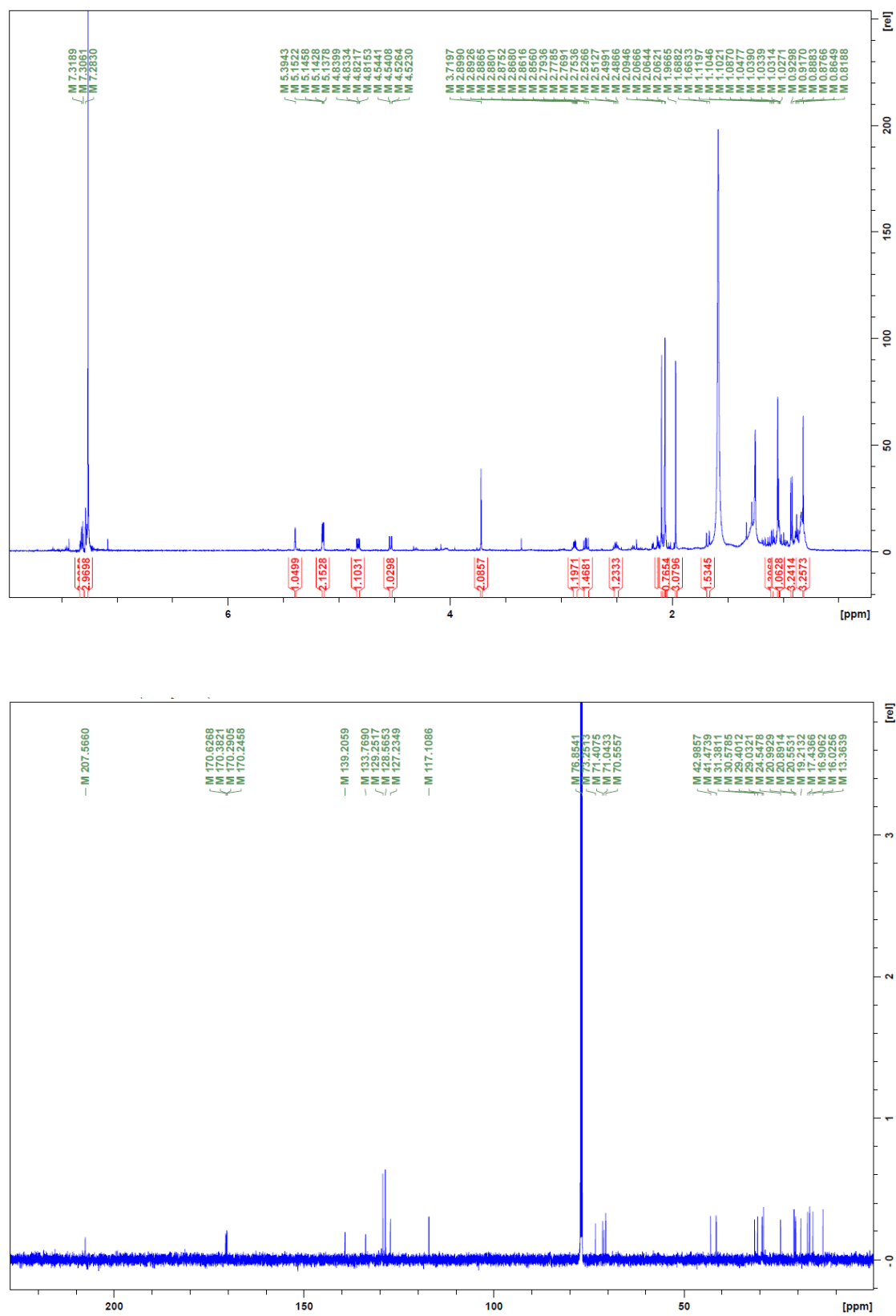
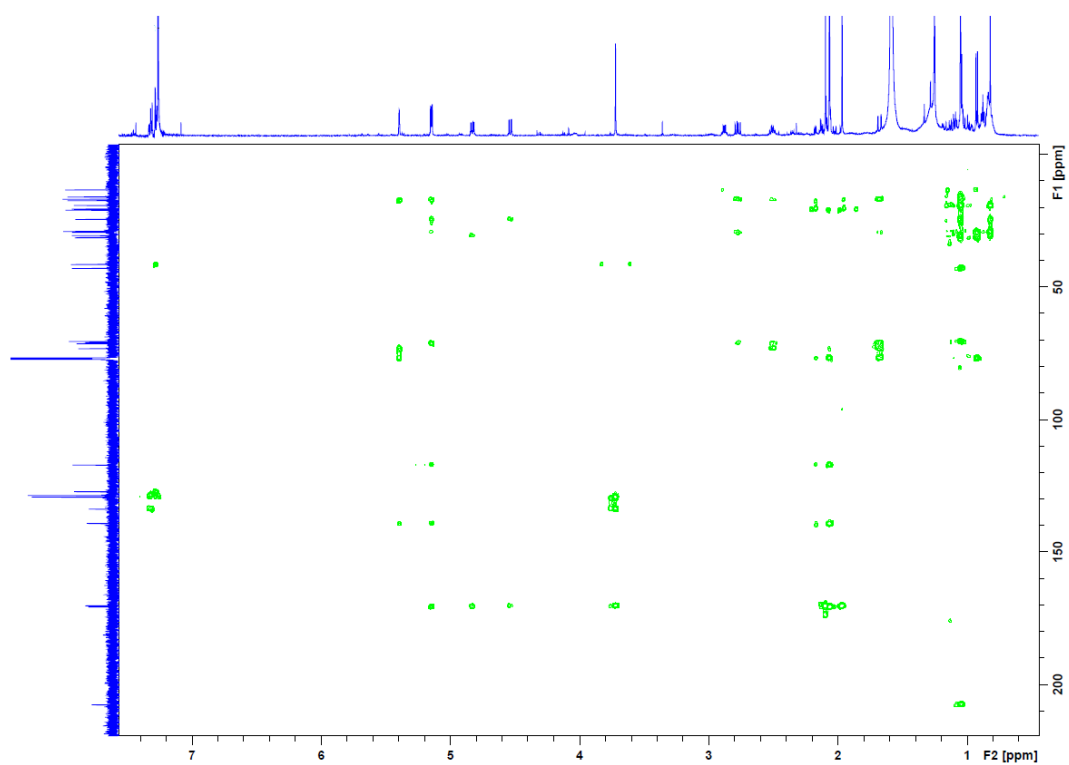
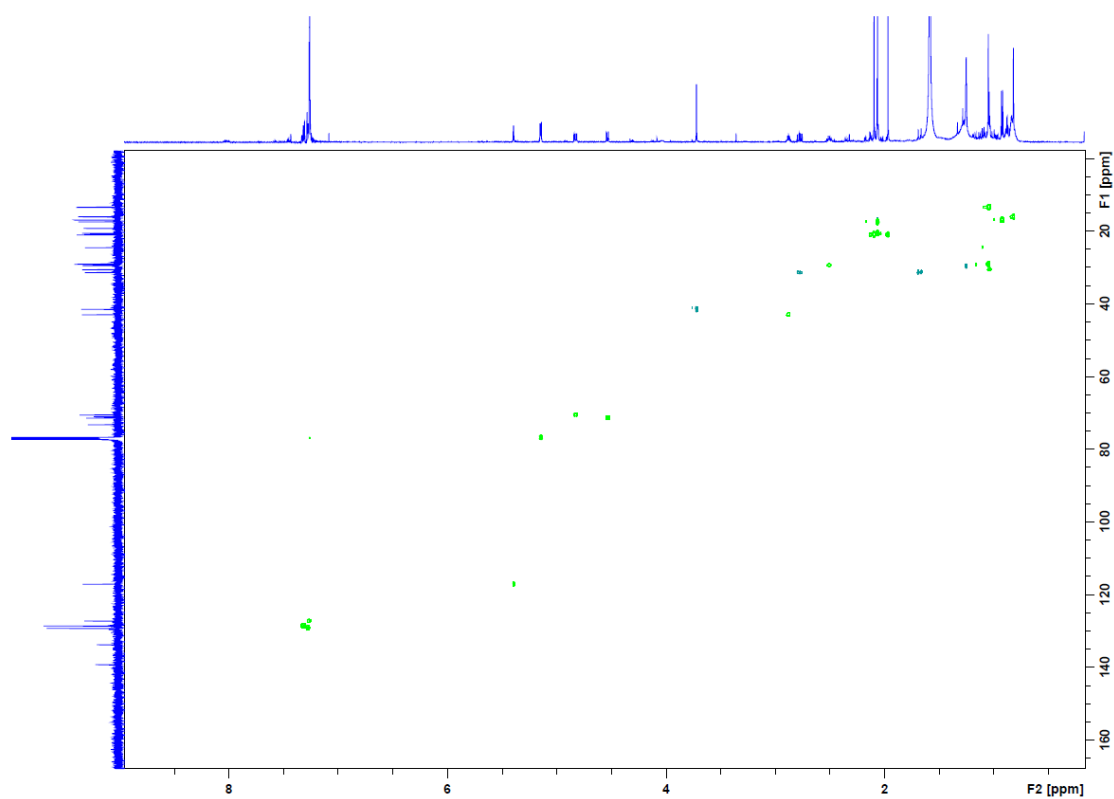


Figure S8. ^1H NMR, ^{13}C NMR, HSQC, HMBC and ROESY spectra of **5** in CDCl_3 .





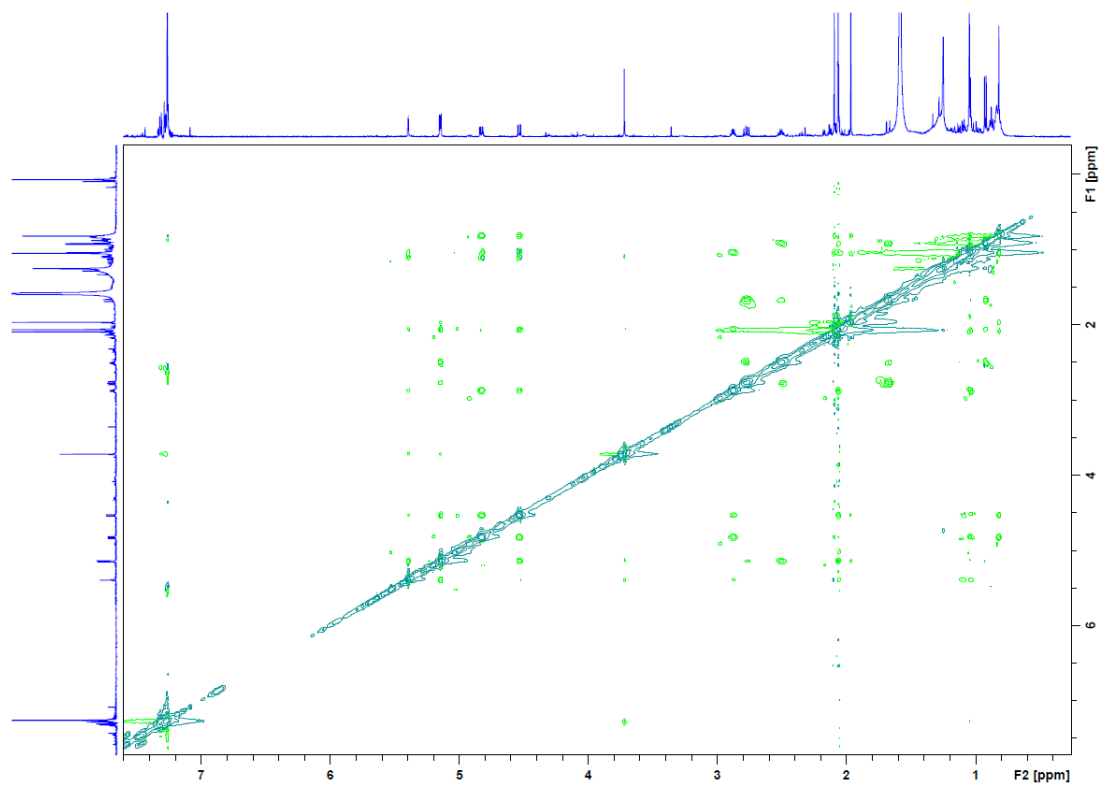
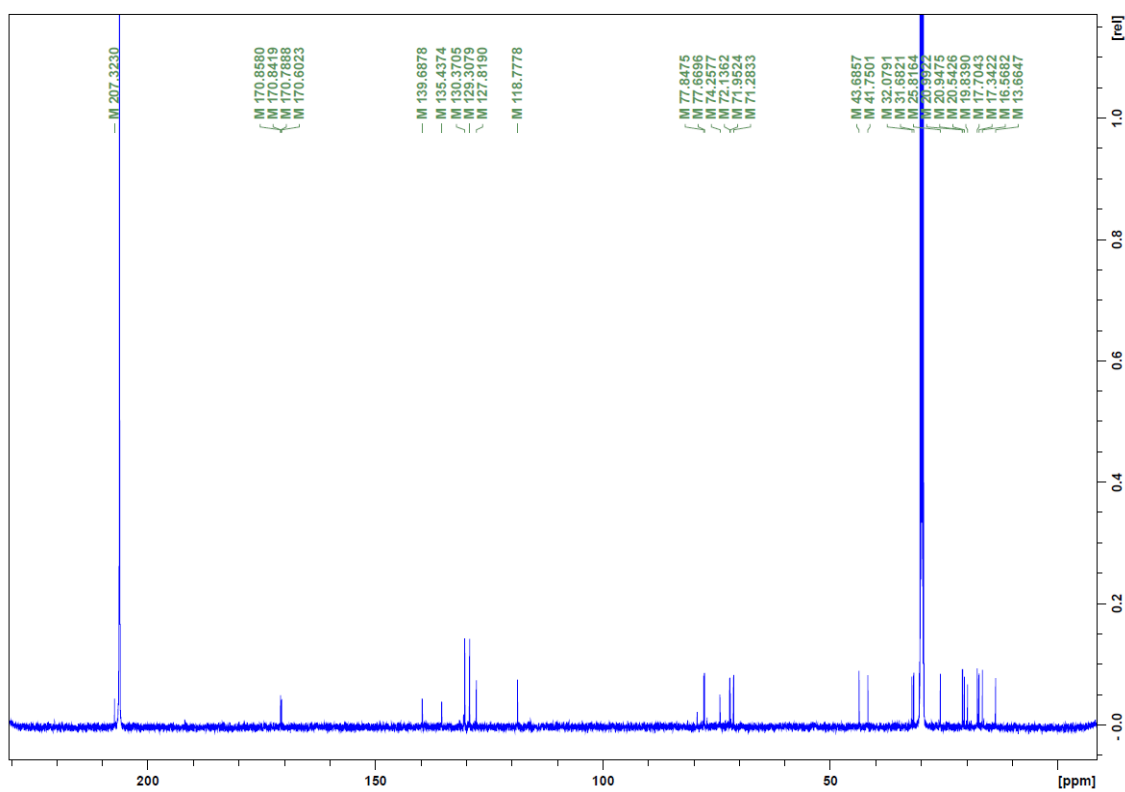
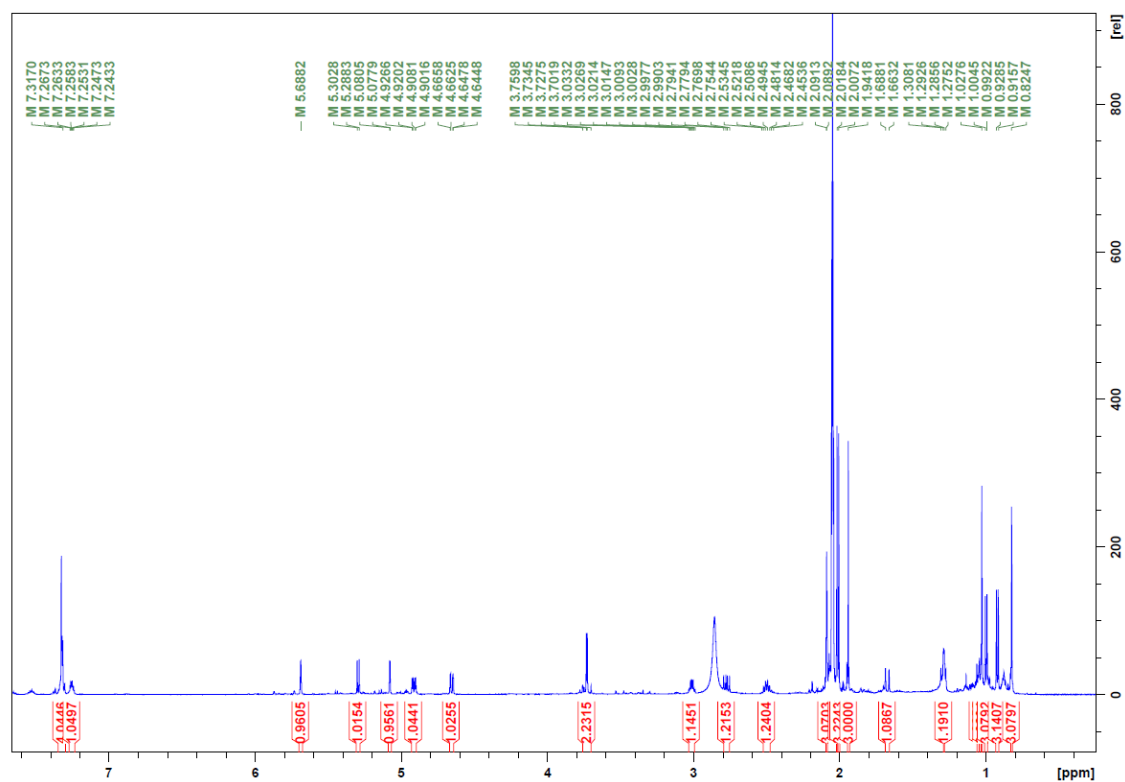
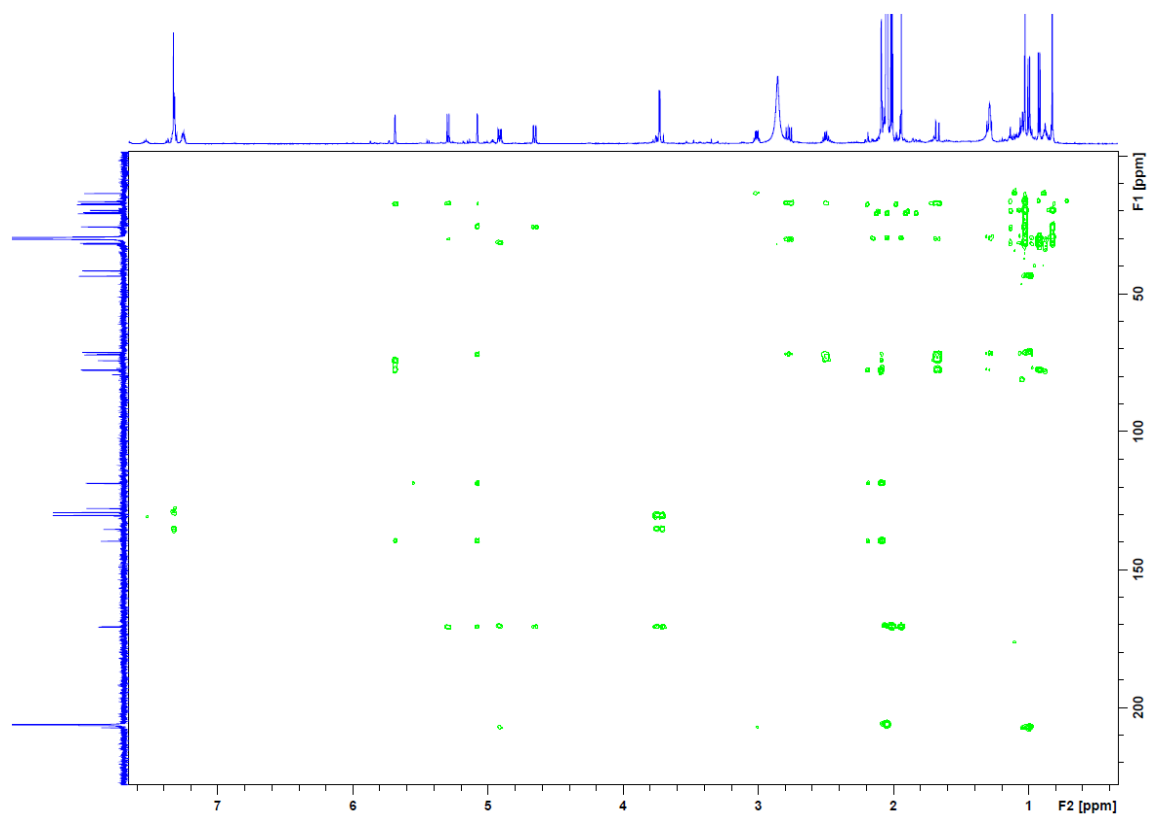
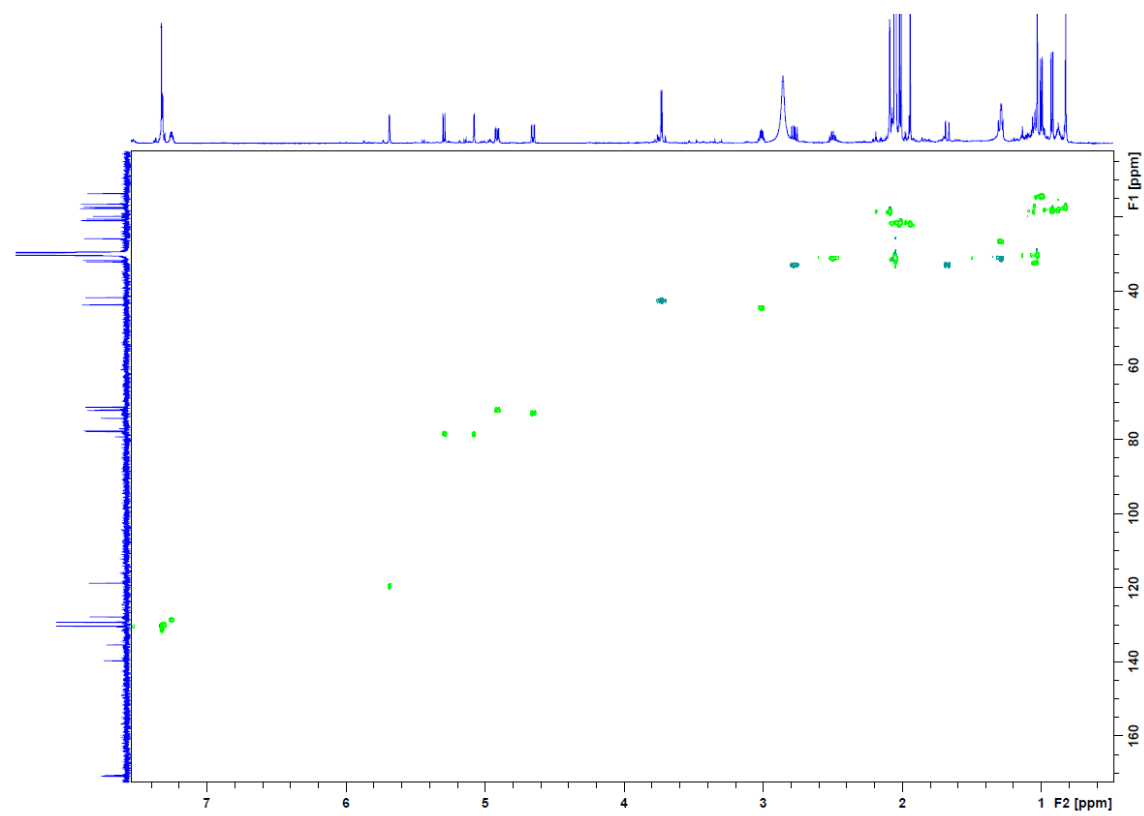


Figure S9. ^1H NMR, ^{13}C NMR, HSQC, HMBC and ROESY spectra of **5** in acetone- d_6 .





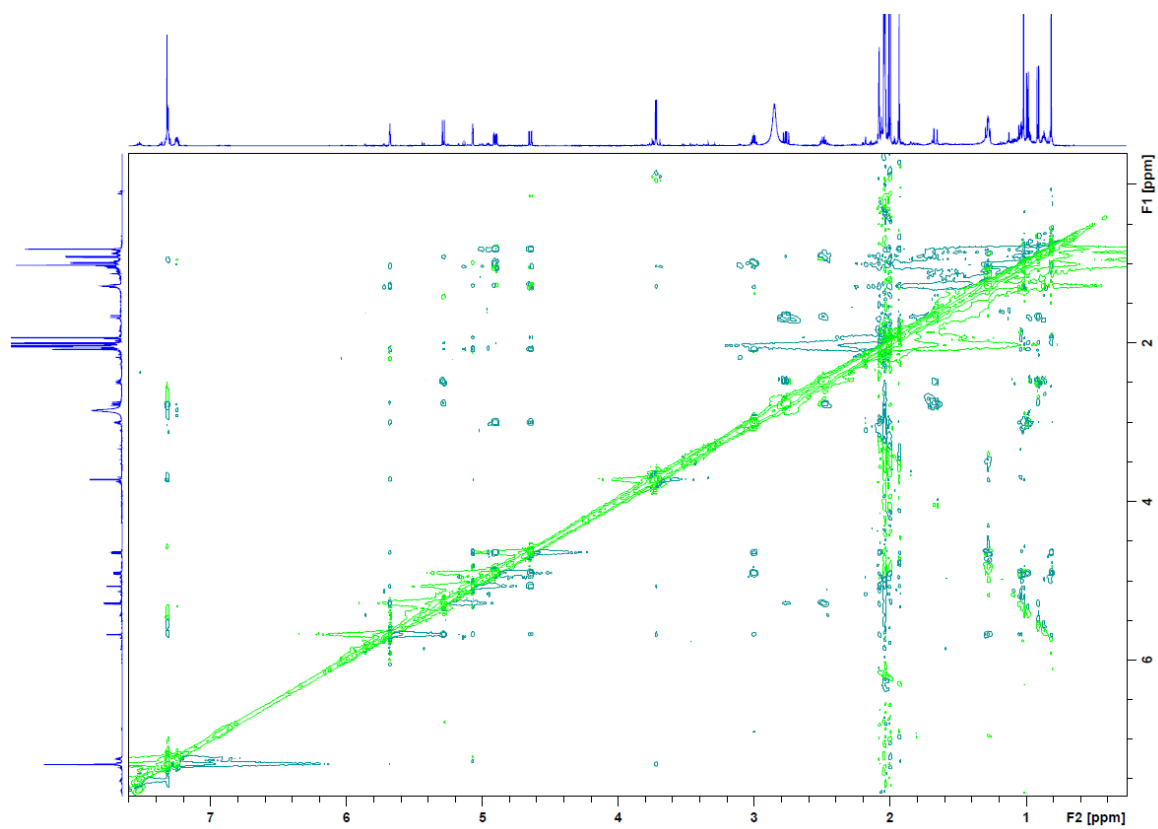


Figure S10. ^1H NMR spectrum of **6** in CDCl_3 .

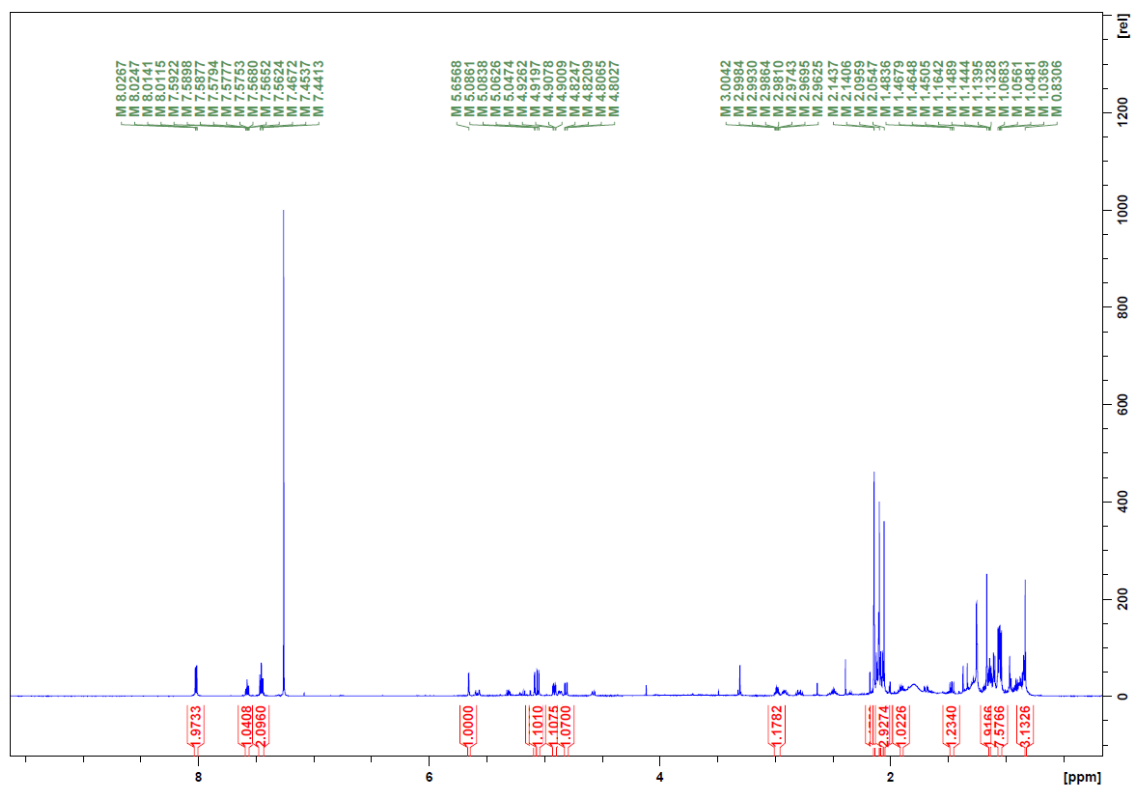


Figure S11. ^1H NMR spectrum of **7** in CDCl_3 .

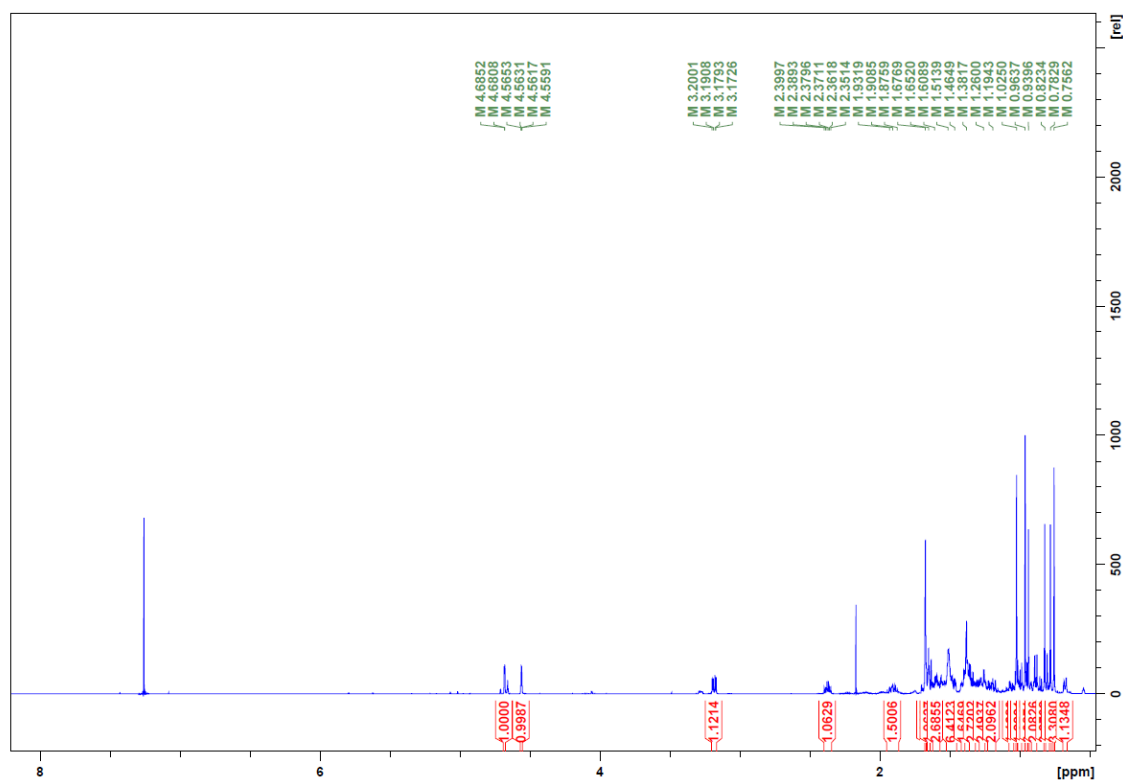


Figure S12. ^1H NMR spectrum of **8** in CDCl_3 .

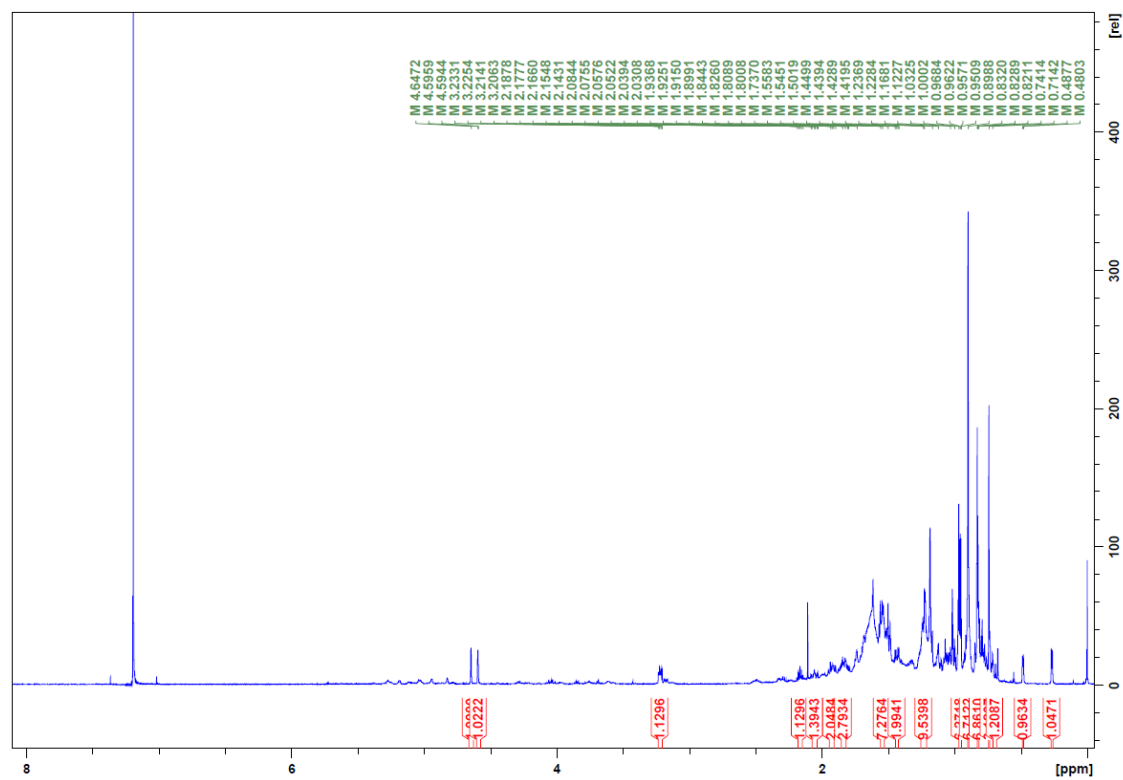


Figure S13. ^1H NMR spectrum of **9** in CDCl_3 .

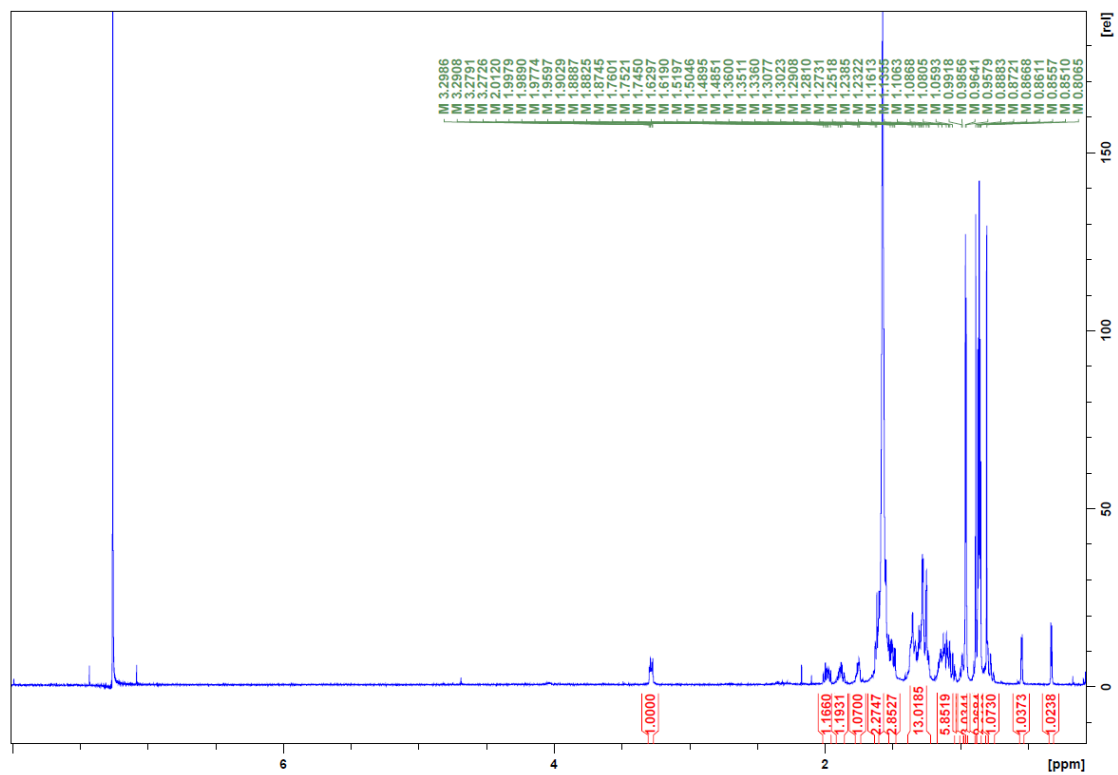


Figure S14. ^1H NMR spectrum of **10** in CDCl_3 .

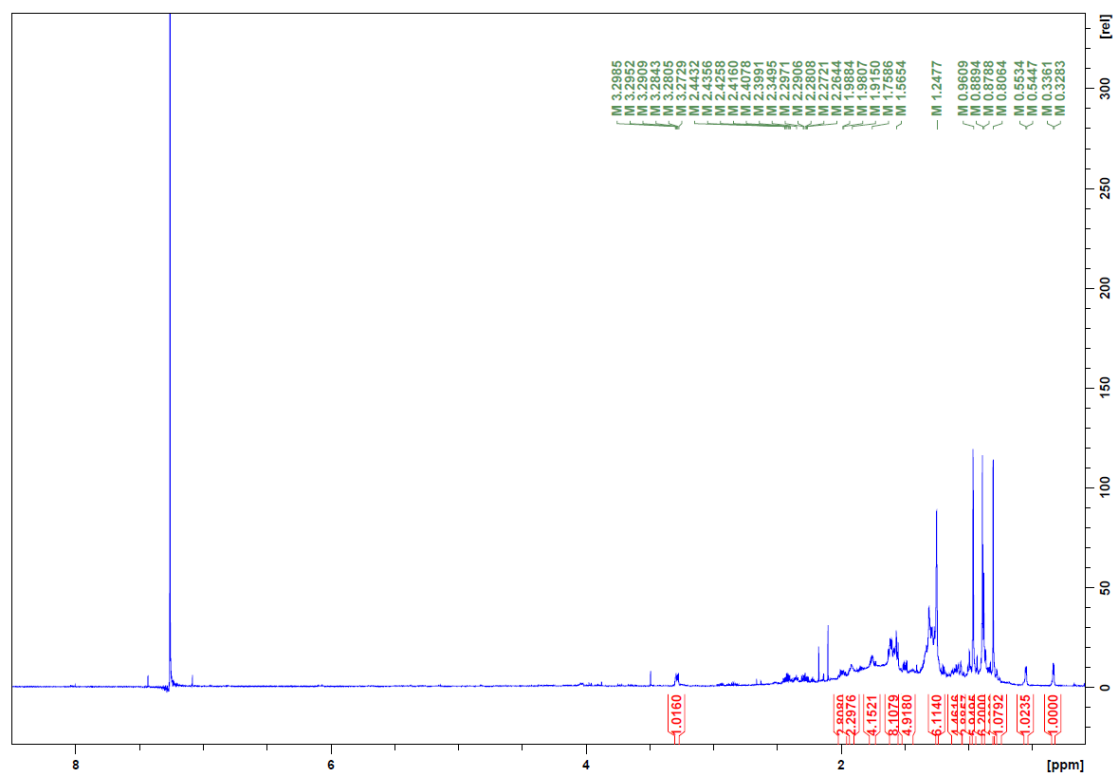


Figure S15. ^1H NMR spectrum of a mixture of **11** and **12** in CDCl_3 .

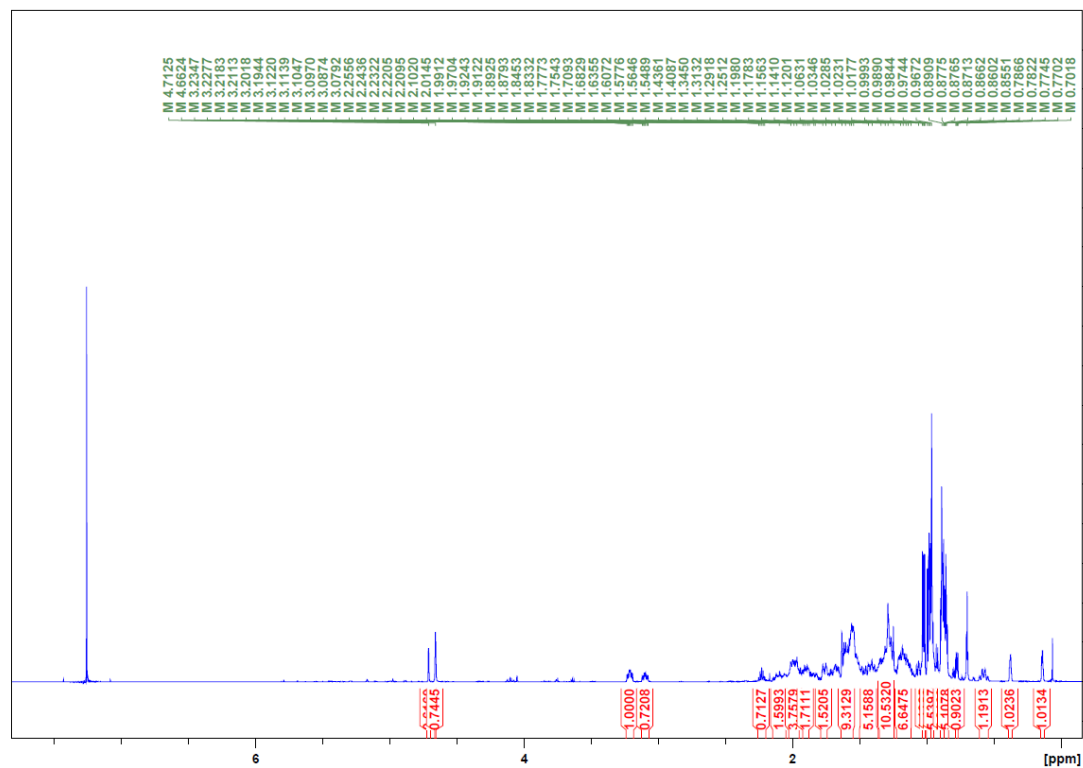


Figure S16. ^1H NMR spectrum of a mixture of **13** and **14** (1:0.8) in CDCl_3 .

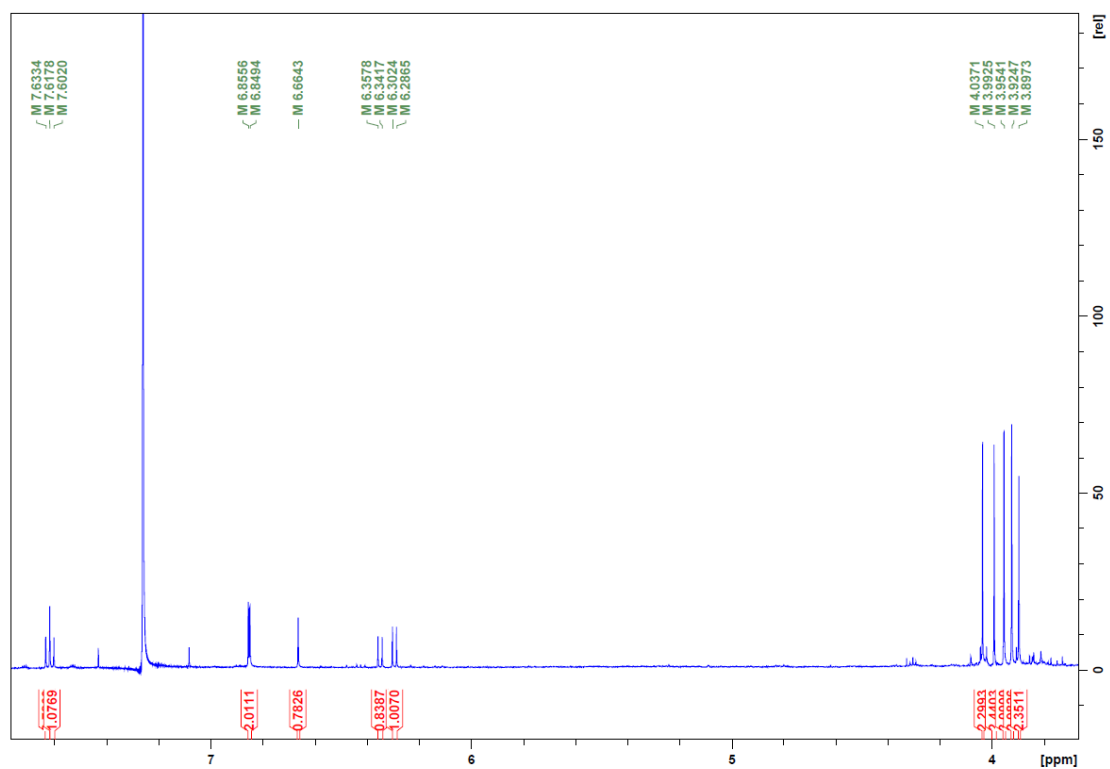


Figure S17. ^1H NMR spectrum of **15** in $\text{CDCl}_3:\text{CD}_3\text{OD}$ (1:1).

