Electronic Supplementary Material (ESI) for New Journal of Chemistry.

An efficient cyclization of Lapachol to new benzo[h]chromene hybrid compounds: Stepwise vs one-pot esterification-click (CuAAC) study

Alexander F. de la Torre,*[a] Akbar Ali,[b] Bernhard Westermann,[c] Guillermo Schmeda-Hirschmann [d] and Mariano Walter Pertino,*[d]

[a] Departamento de Química Orgánica, Facultad de Ciencias Químicas, Universidad de Concepción, Casilla 160-C, Concepción, Chile. afernandezd@udec.cl

[b] Department of Chemistry, University of Sargodha, 40100, Pakistan

[c] Department of Bioorganic Chemistry, Leibniz-Institute of Plant Biochemistry, Halle, Germany

[d] Instituto de Química de RecursosNaturales, Universidad de Talca, Casilla 747, Talca, Chile. mwalter@utalca.cl

Selected figures and spectra

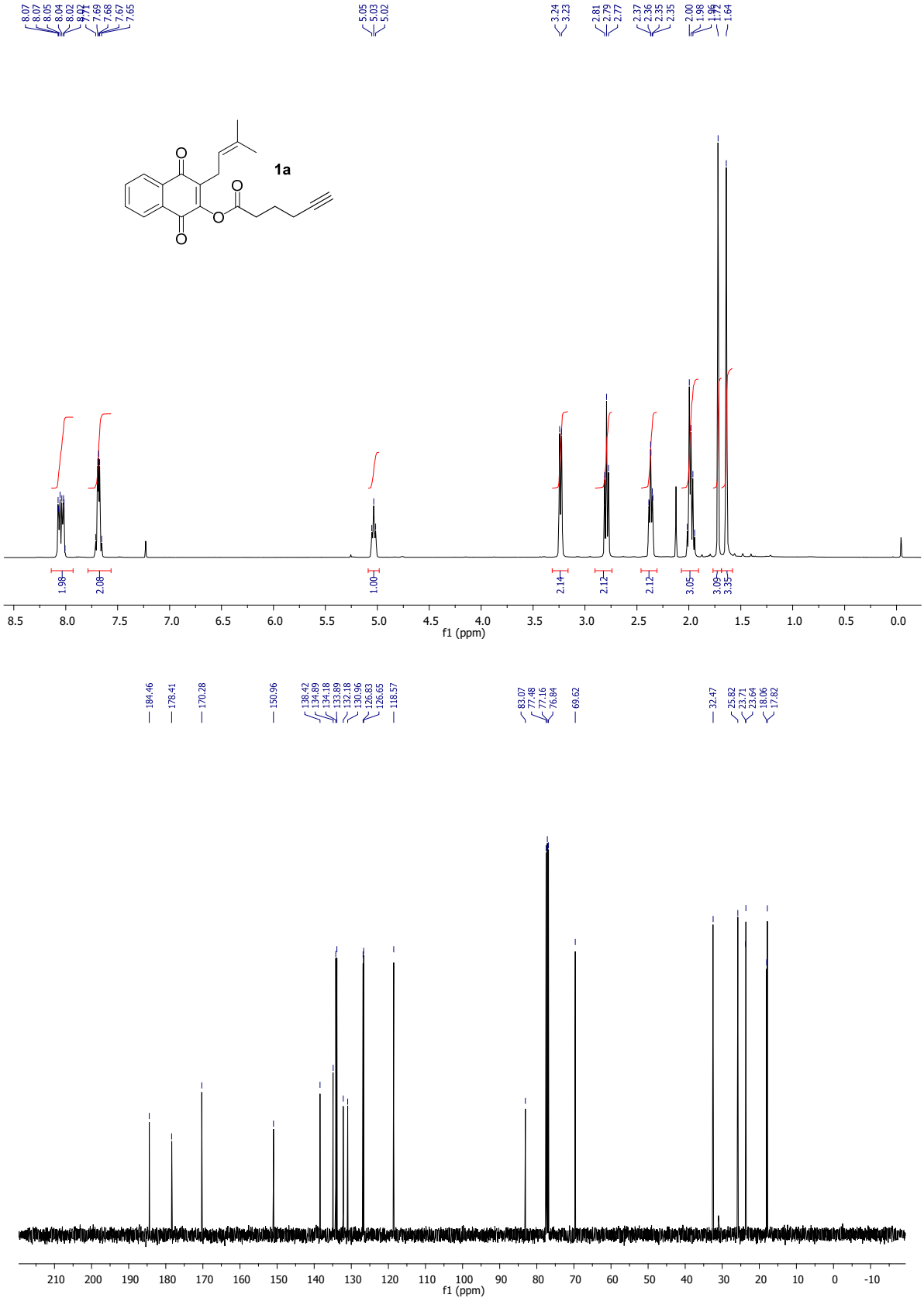

Figure 1. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1a**.

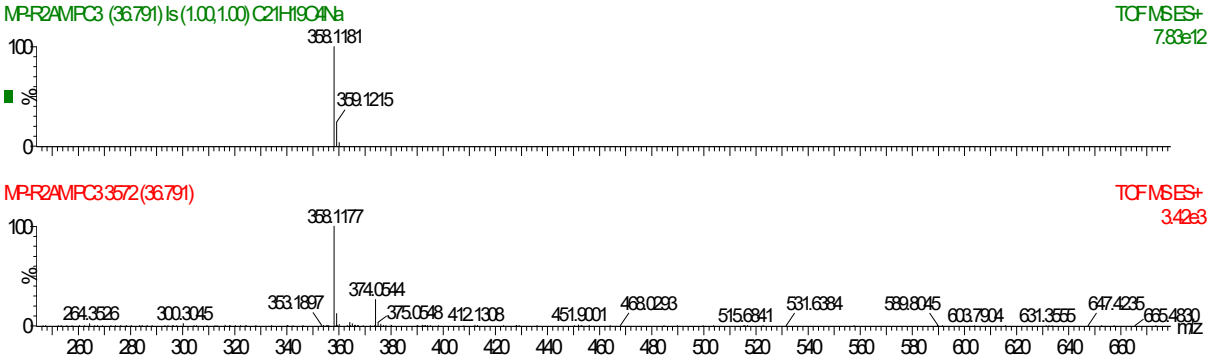

Figure 2. HREIMS spectrum of compound **1a**.

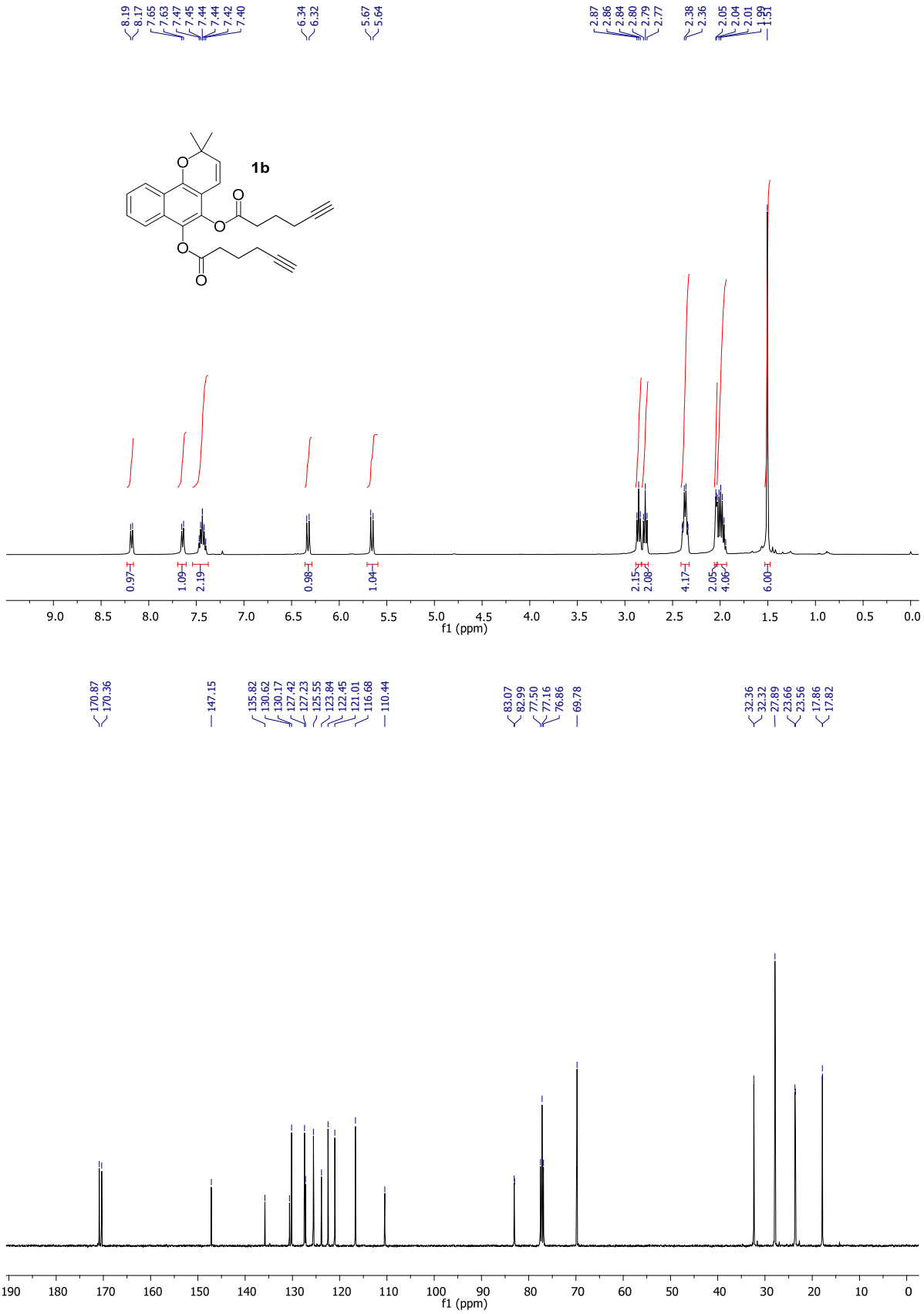

Figure 3. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1b**.

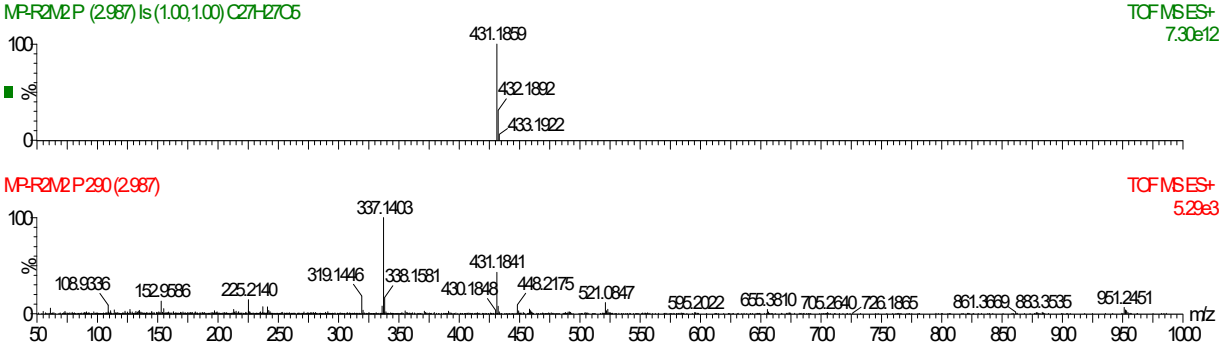

Figure 4. HREIMS spectrum of compound **1b**.

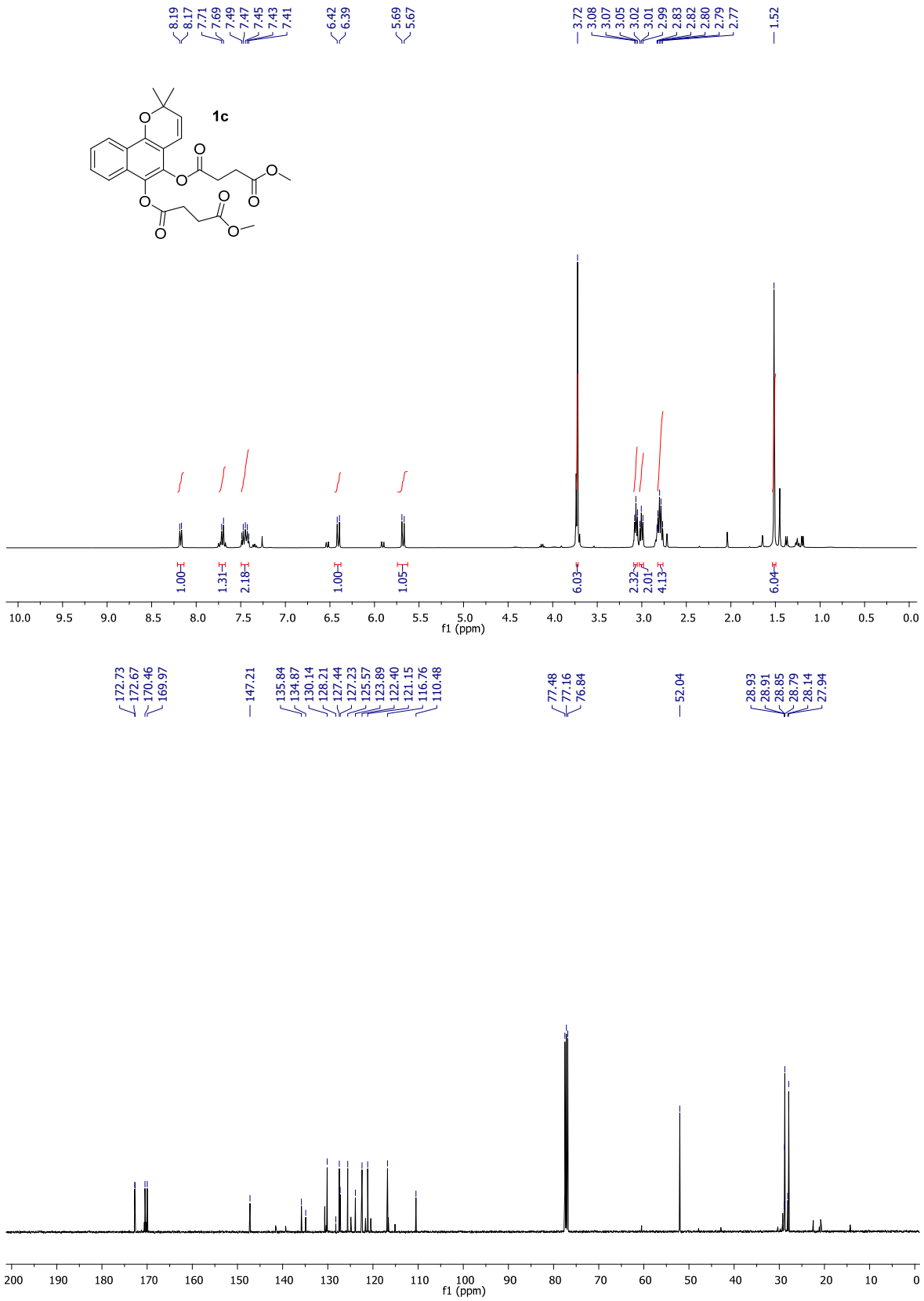

Figure 5. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1c**.

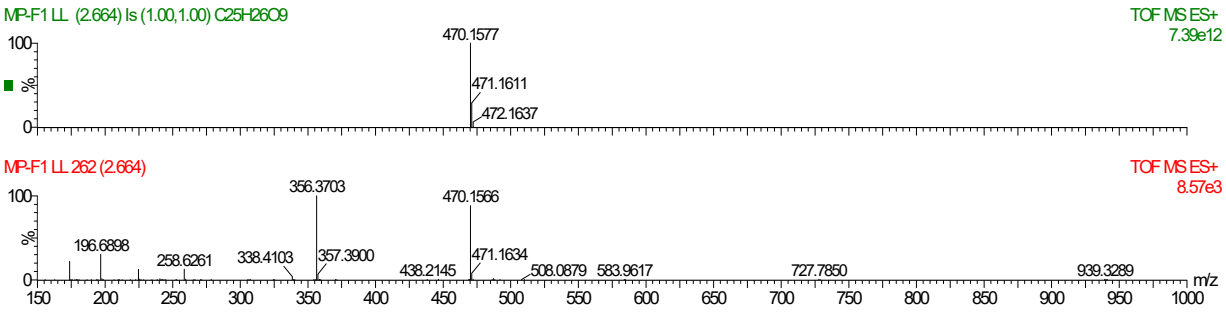

Figure 6. HREIMS spectrum of compound **1c**.

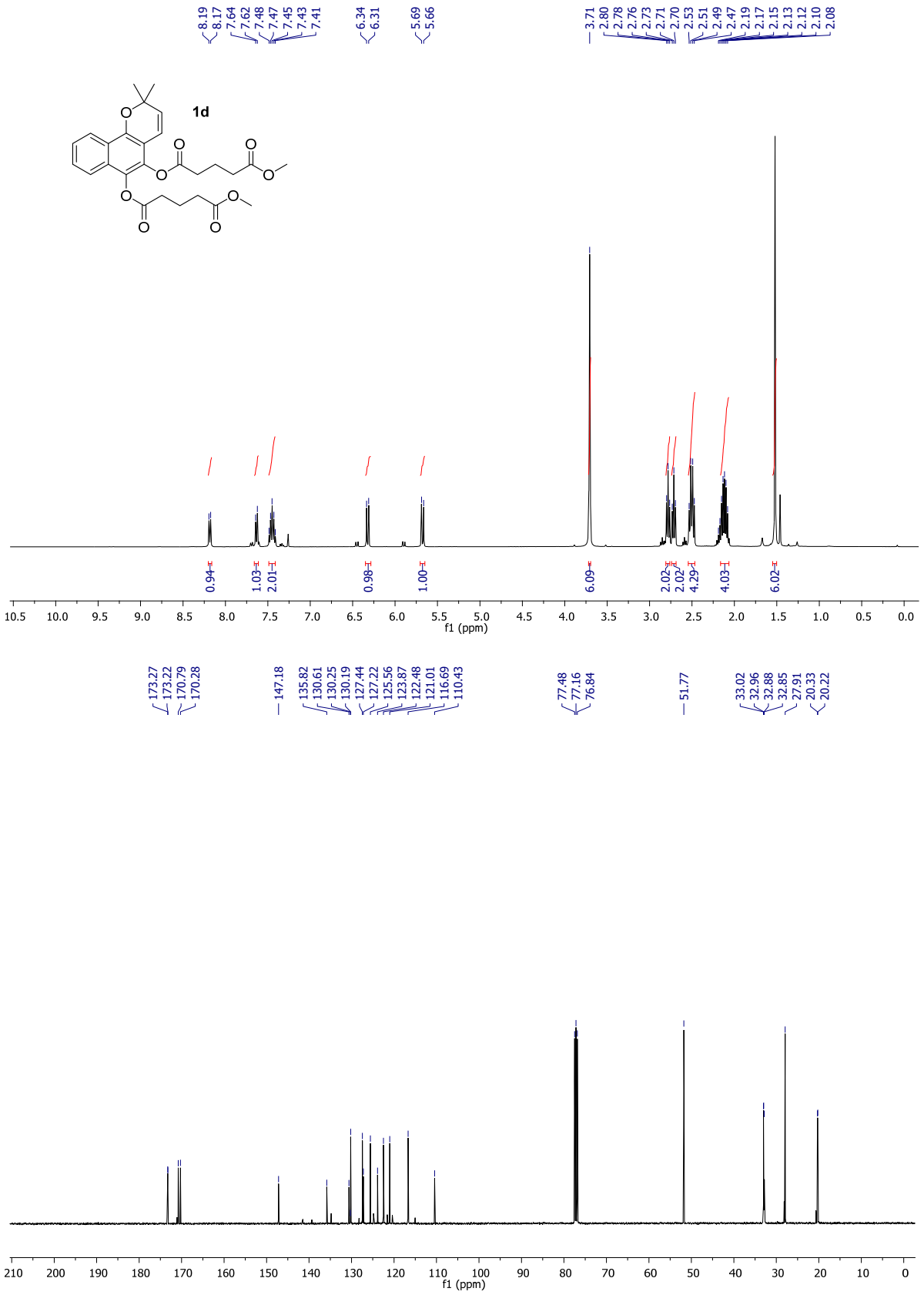

Figure 7. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1d**.

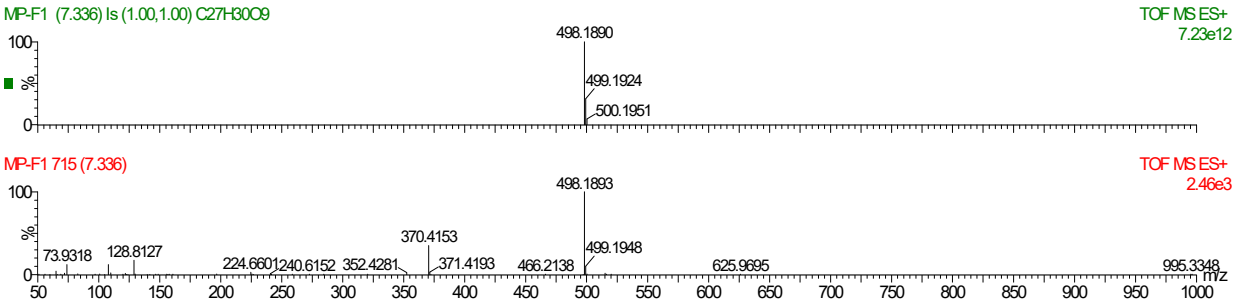

Figure 8. HREIMS spectrum of compound **1d**.

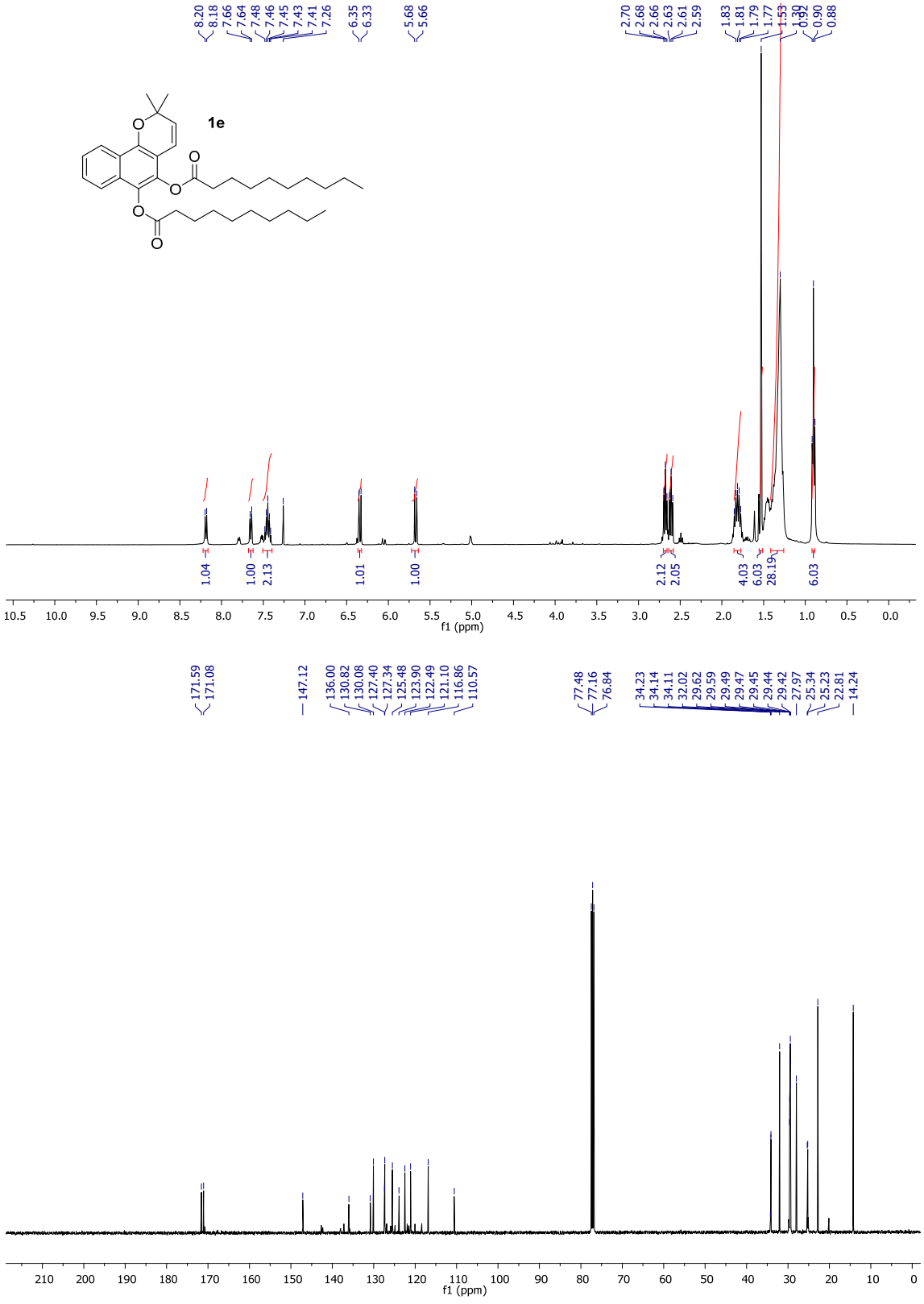

Figure 9. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1e**.

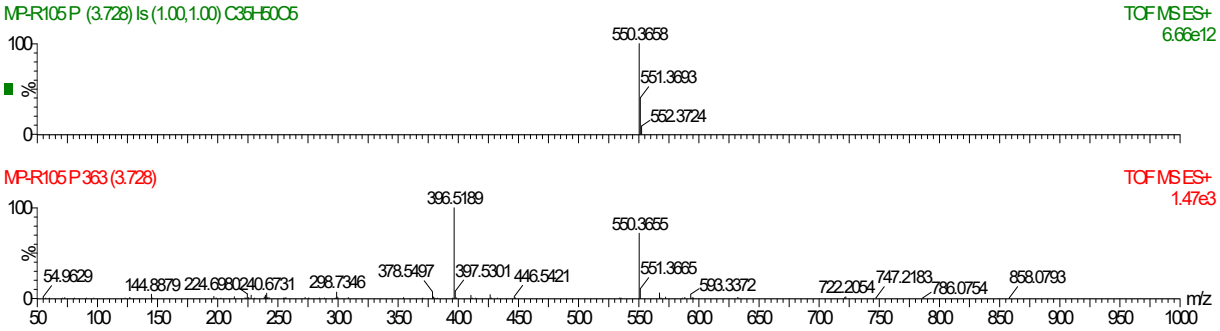

Figure 10. HREIMS spectrum of compound **1e**.

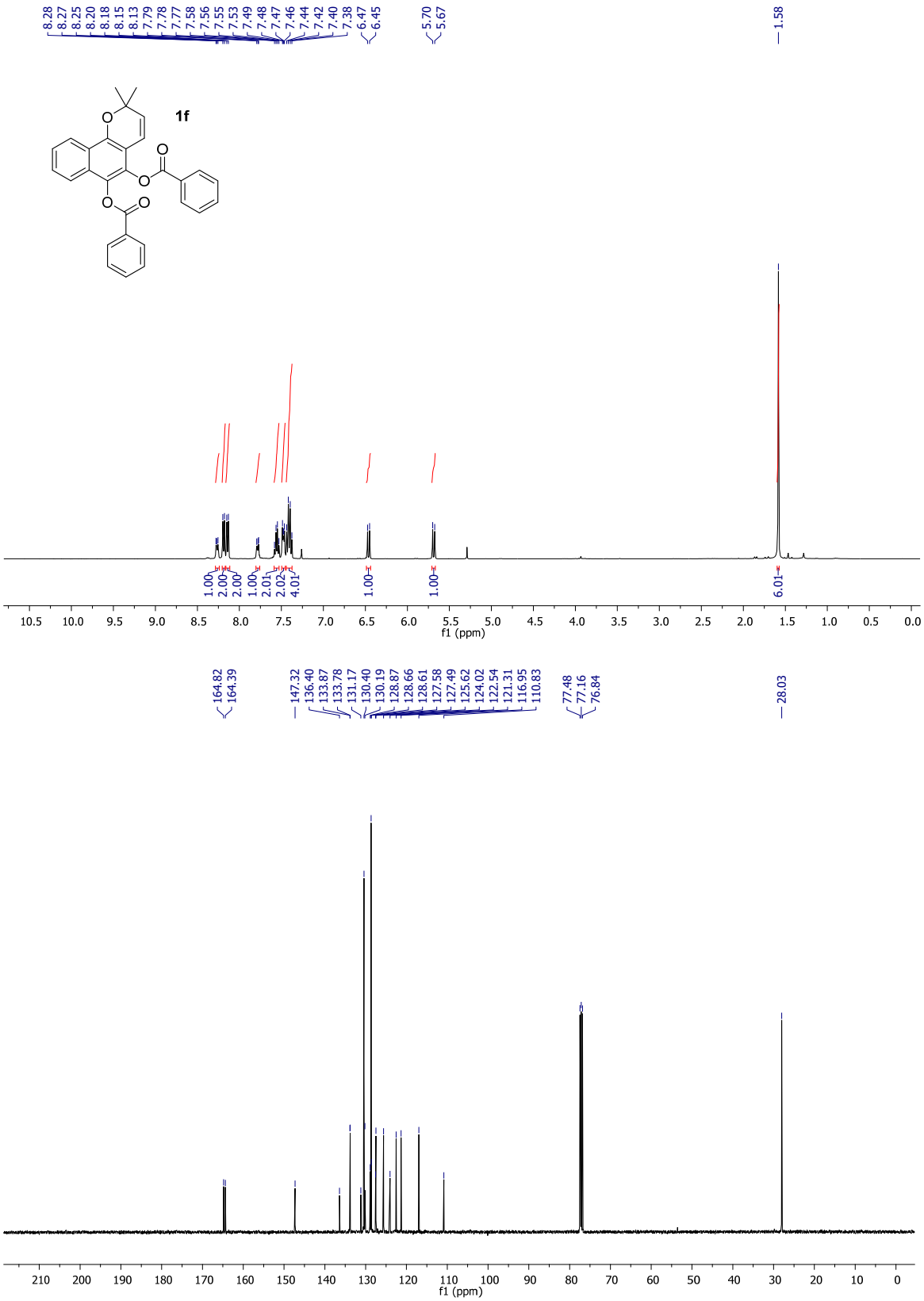

Figure 11. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1f**.

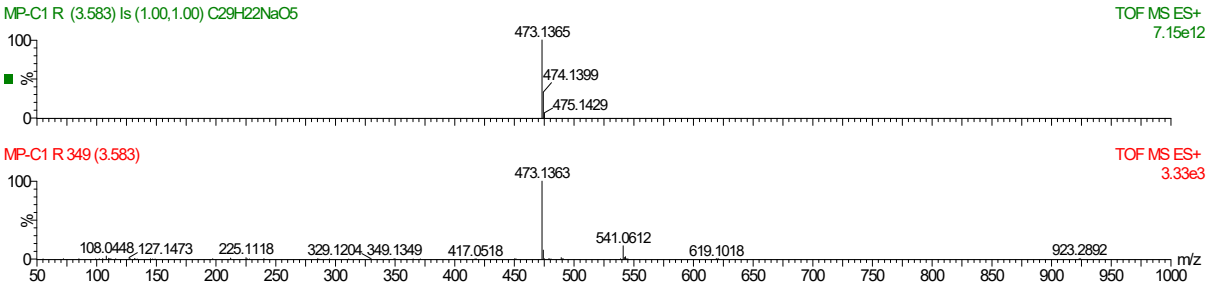

Figure 12. HREIMS spectrum of compound **1f**.

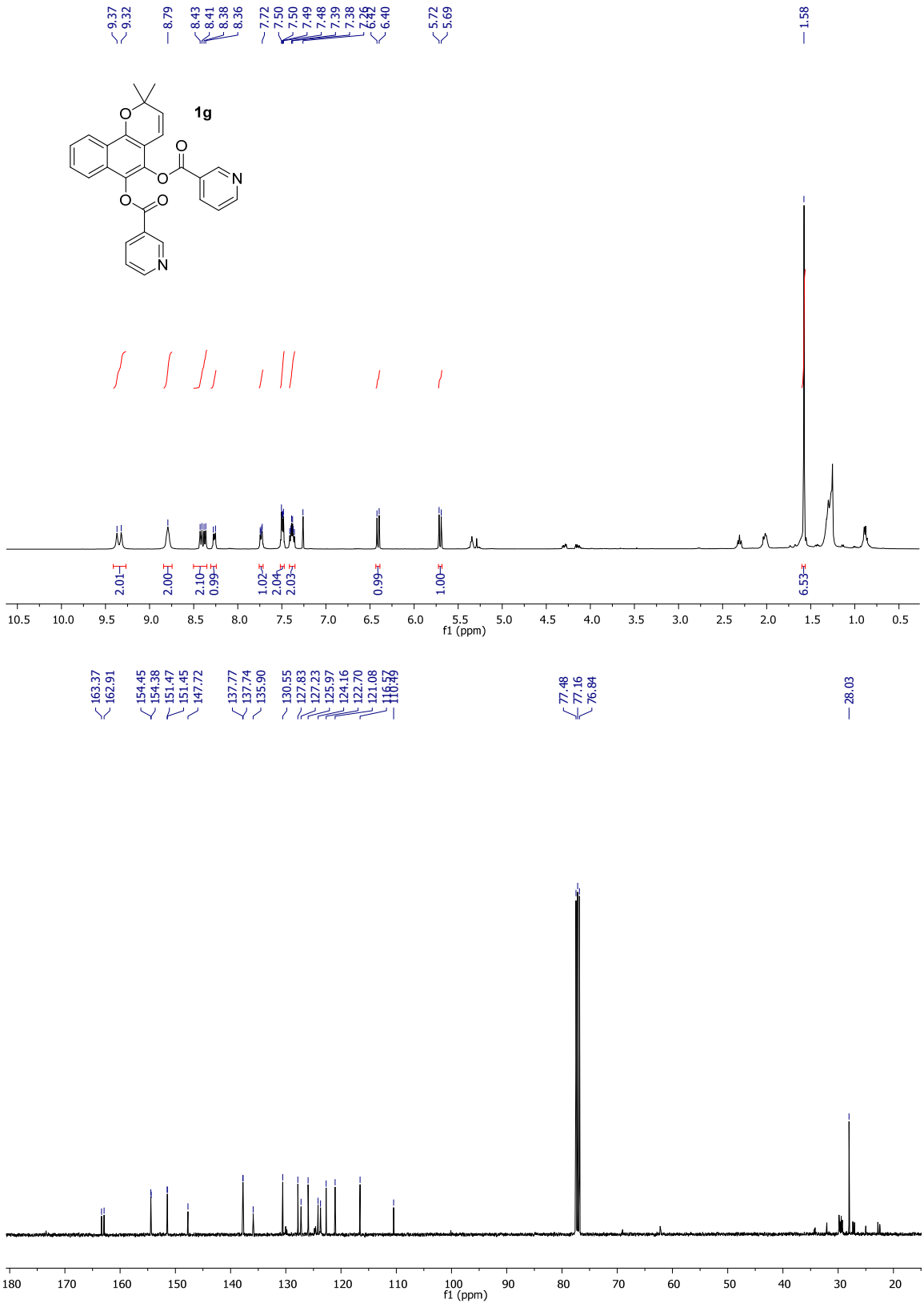

Figure 13. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **1g**.

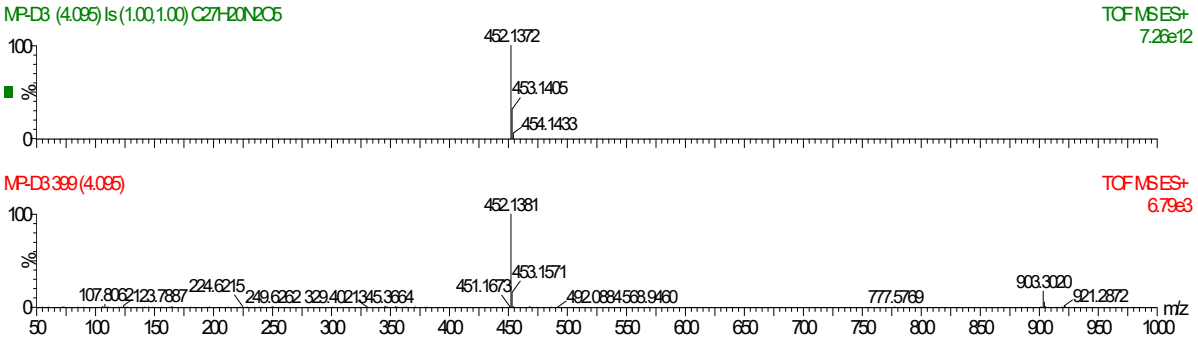

Figure 14. HREIMS spectrum of compound **1g**.

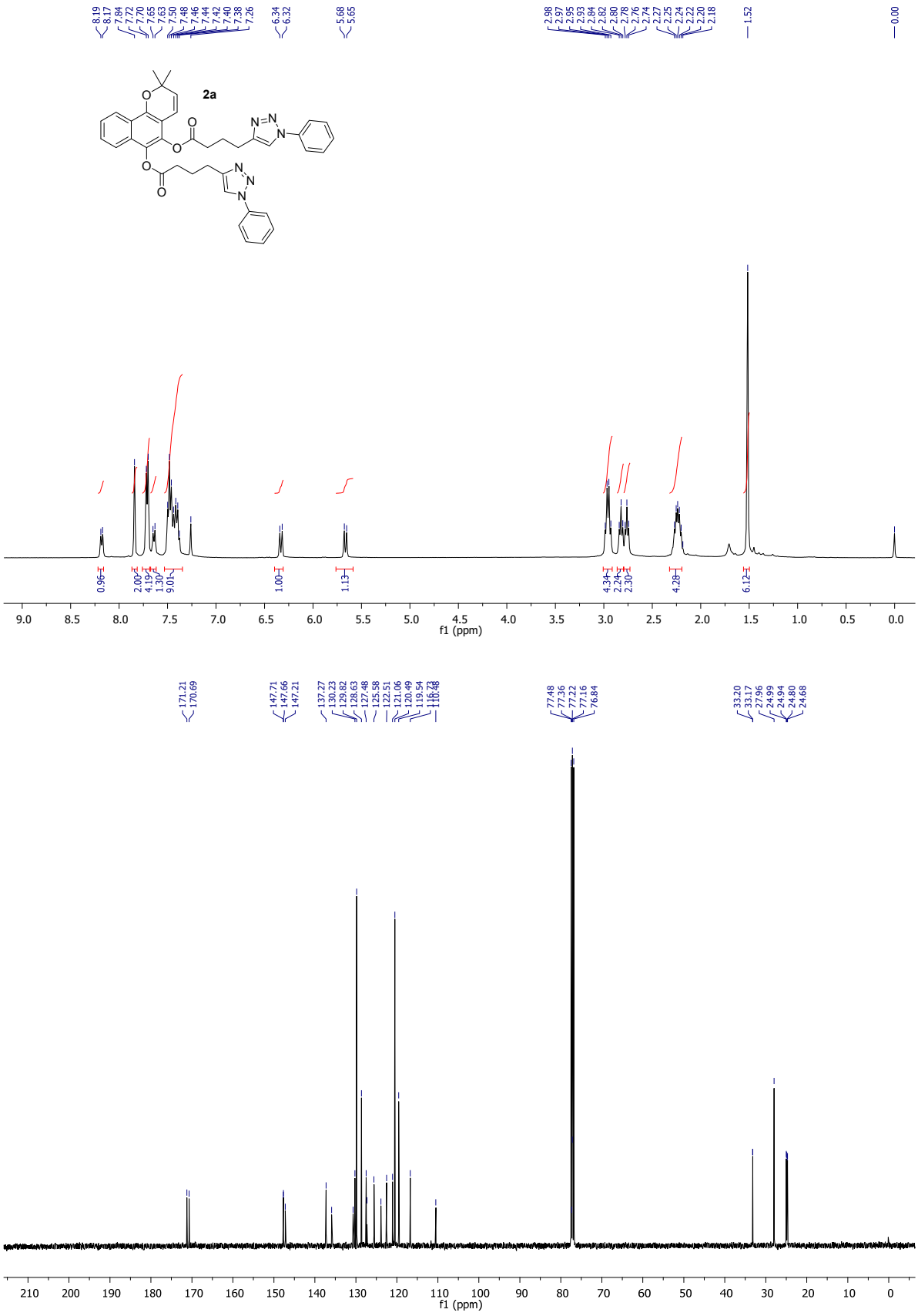

Figure 15. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2a**.

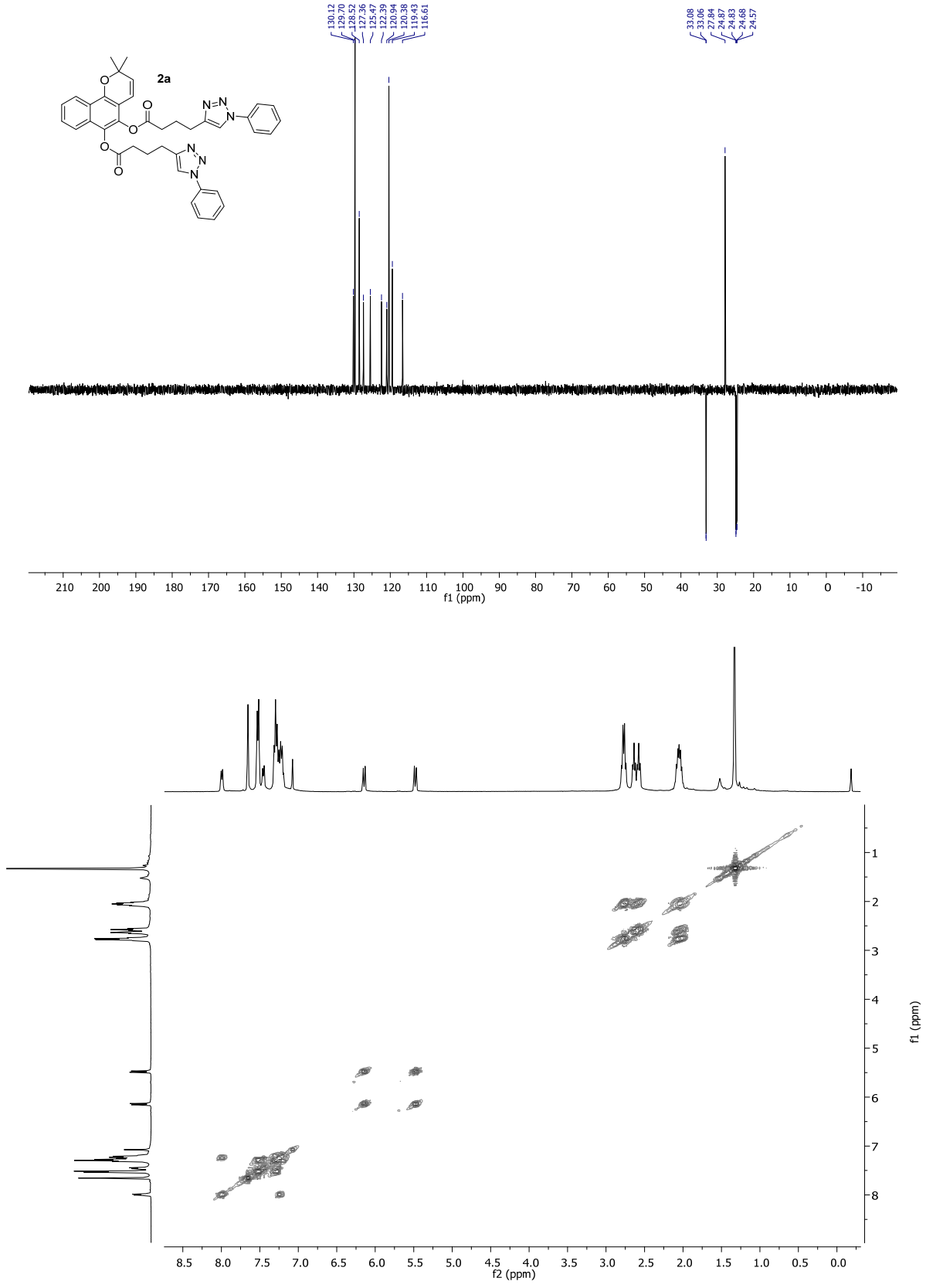

Figure 16. DEPT 135° and COSY spectra in $CDCl_3$ of compound **2a**.

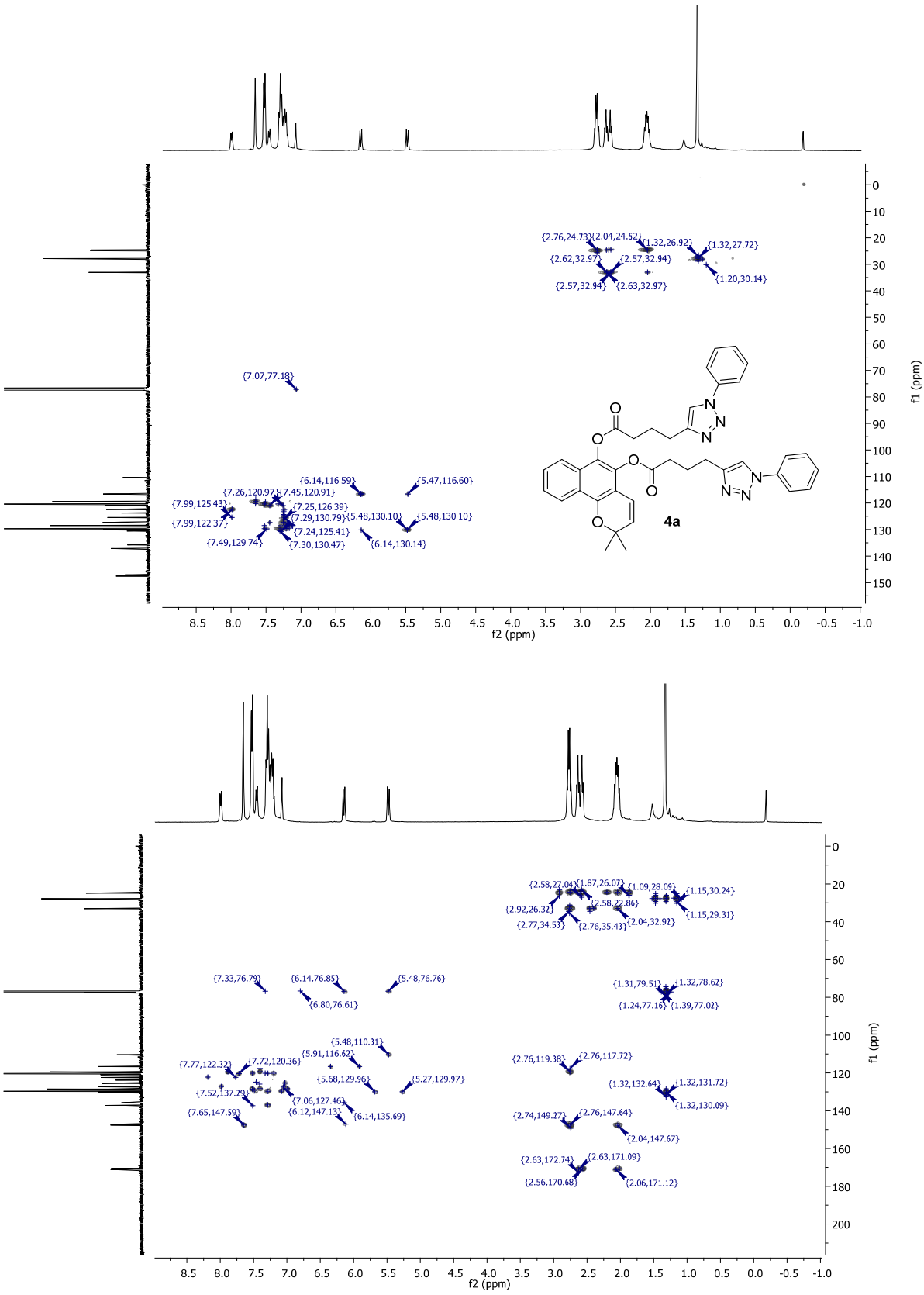

Figure 17. HSQC and HMBC spectra in $CDCl_3$ of compound **2a**.

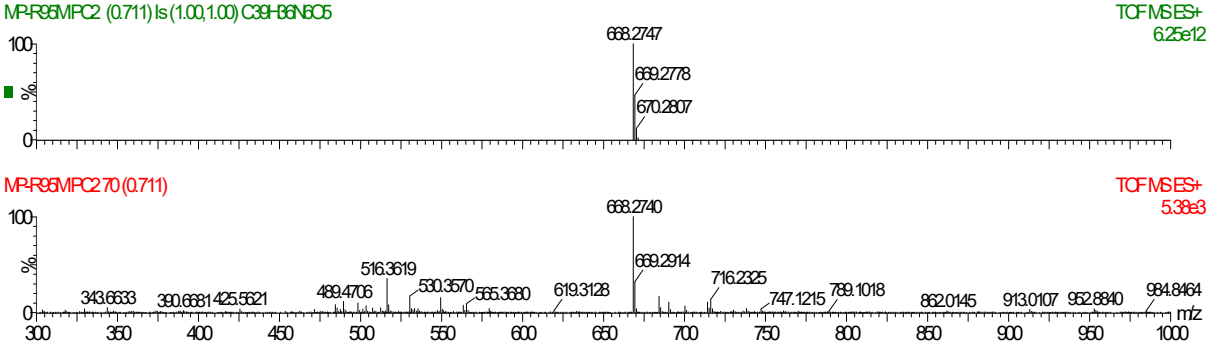

Figure 18. HREIMS spectrum of compound **2a**.

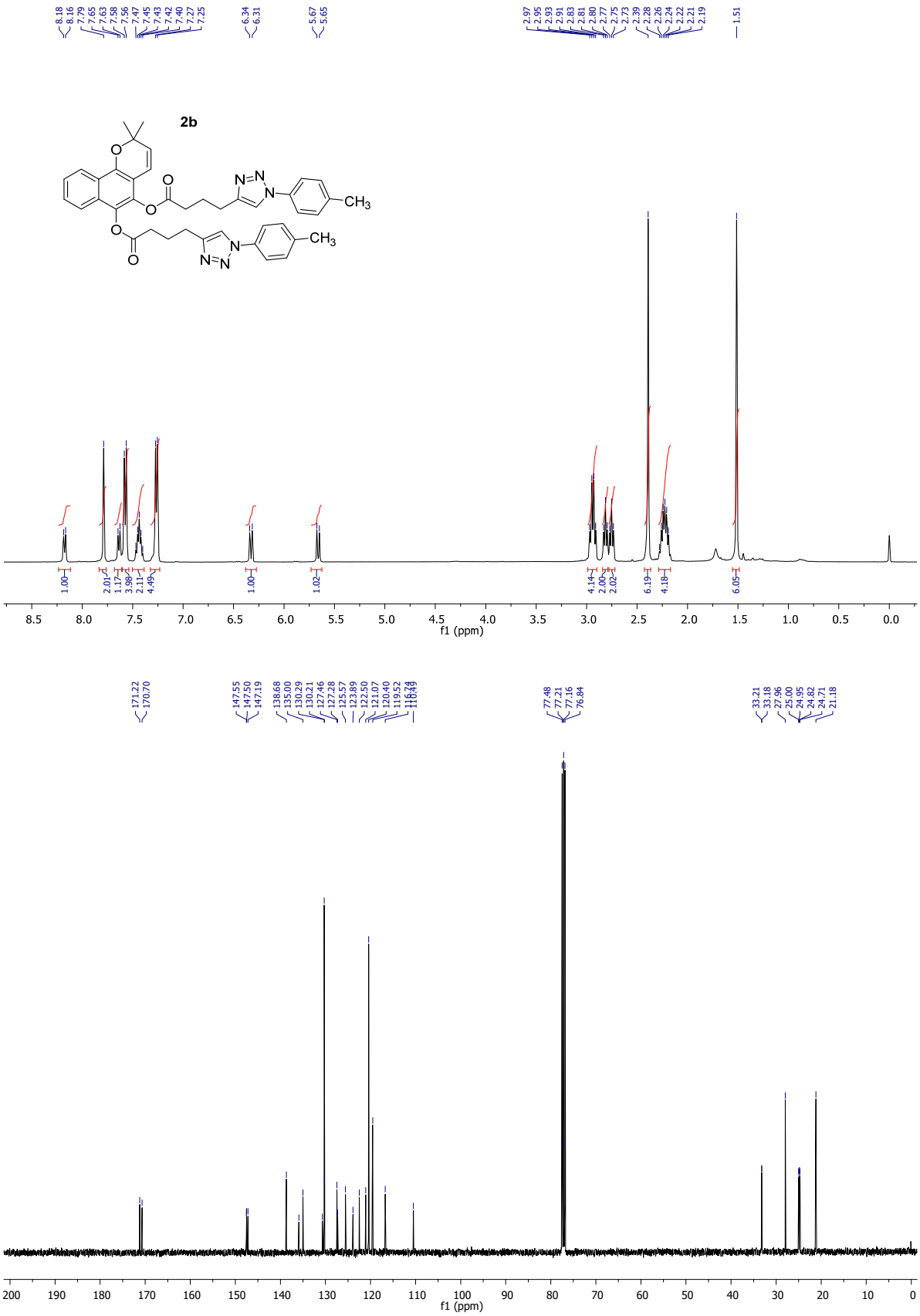

Figure 19. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2b**.

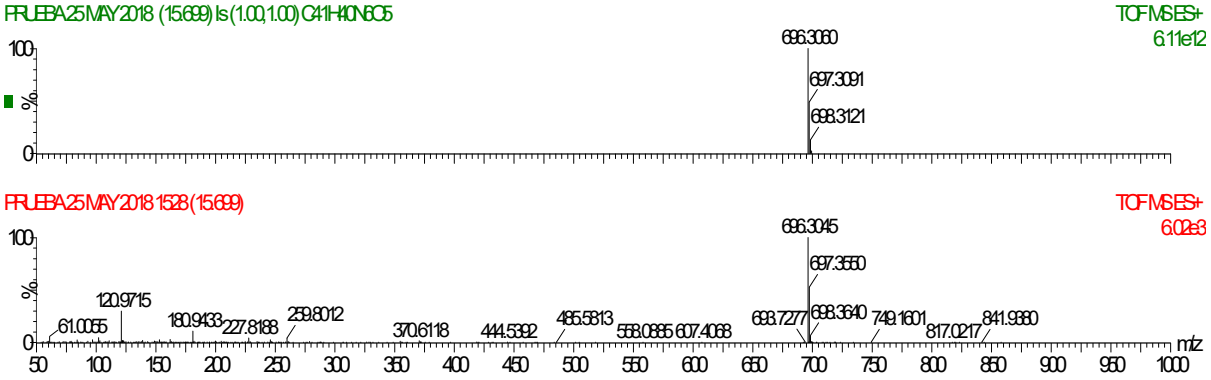

Figure 20. HREIMS spectrum of compound **2b**.

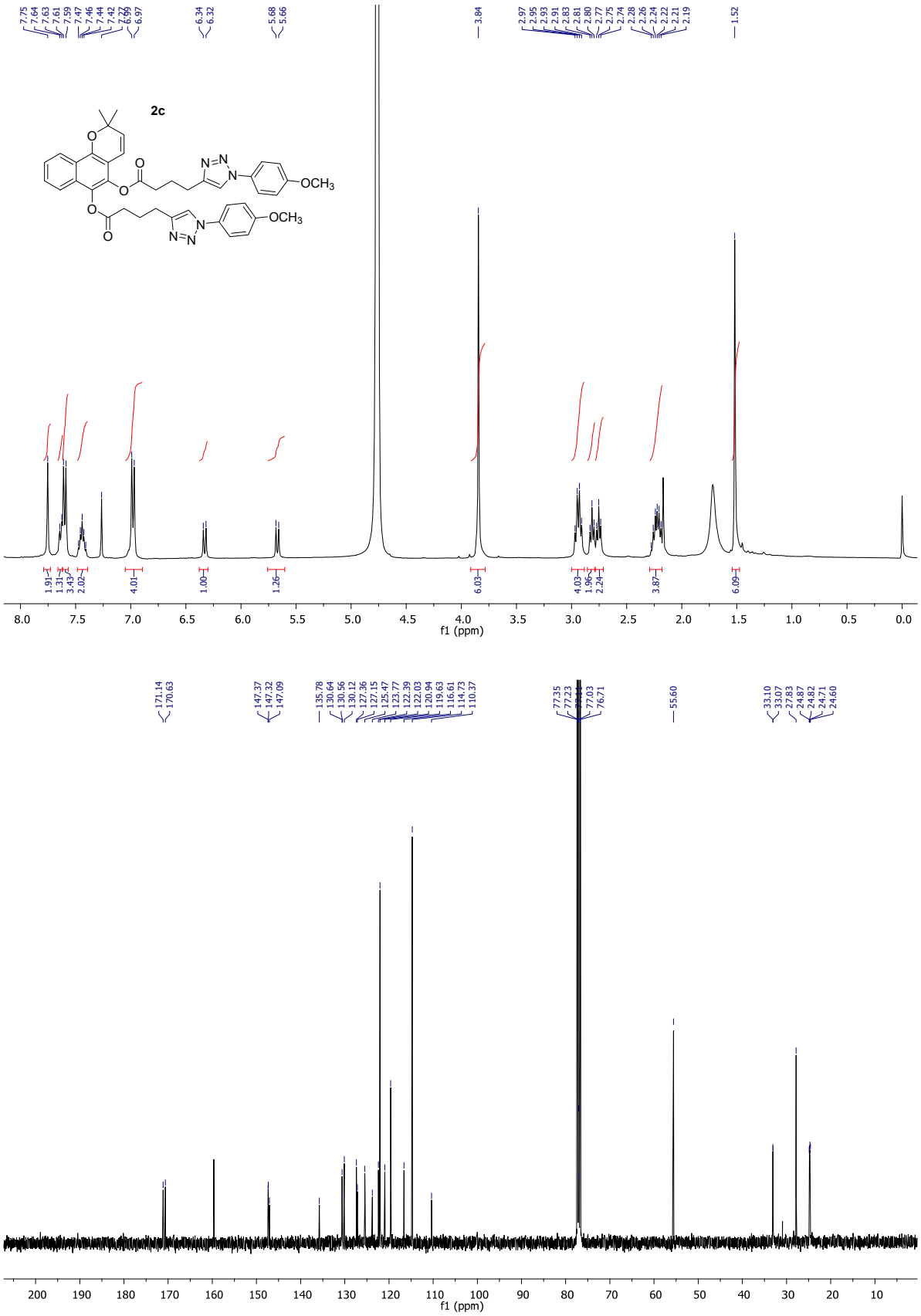

Figure 21. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2c**.

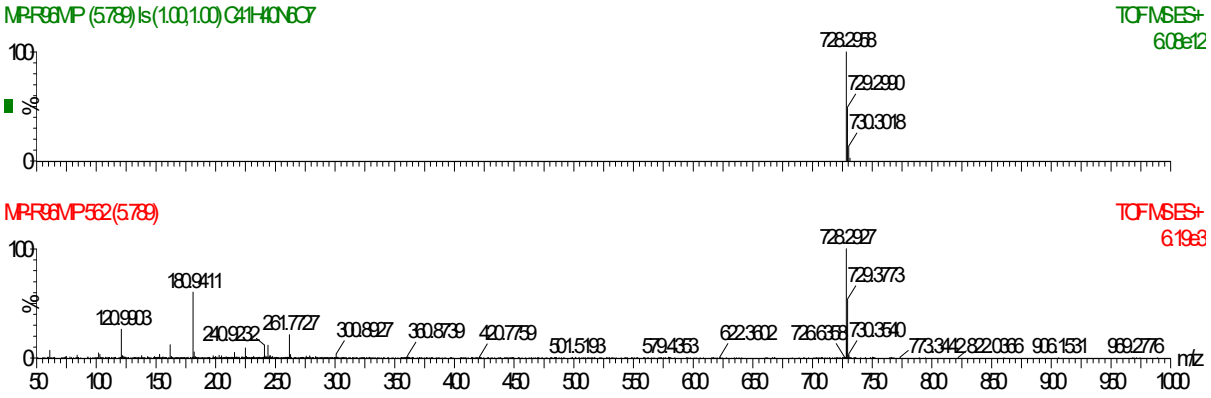

Figure 22. HREIMS spectrum of compound **2c**.

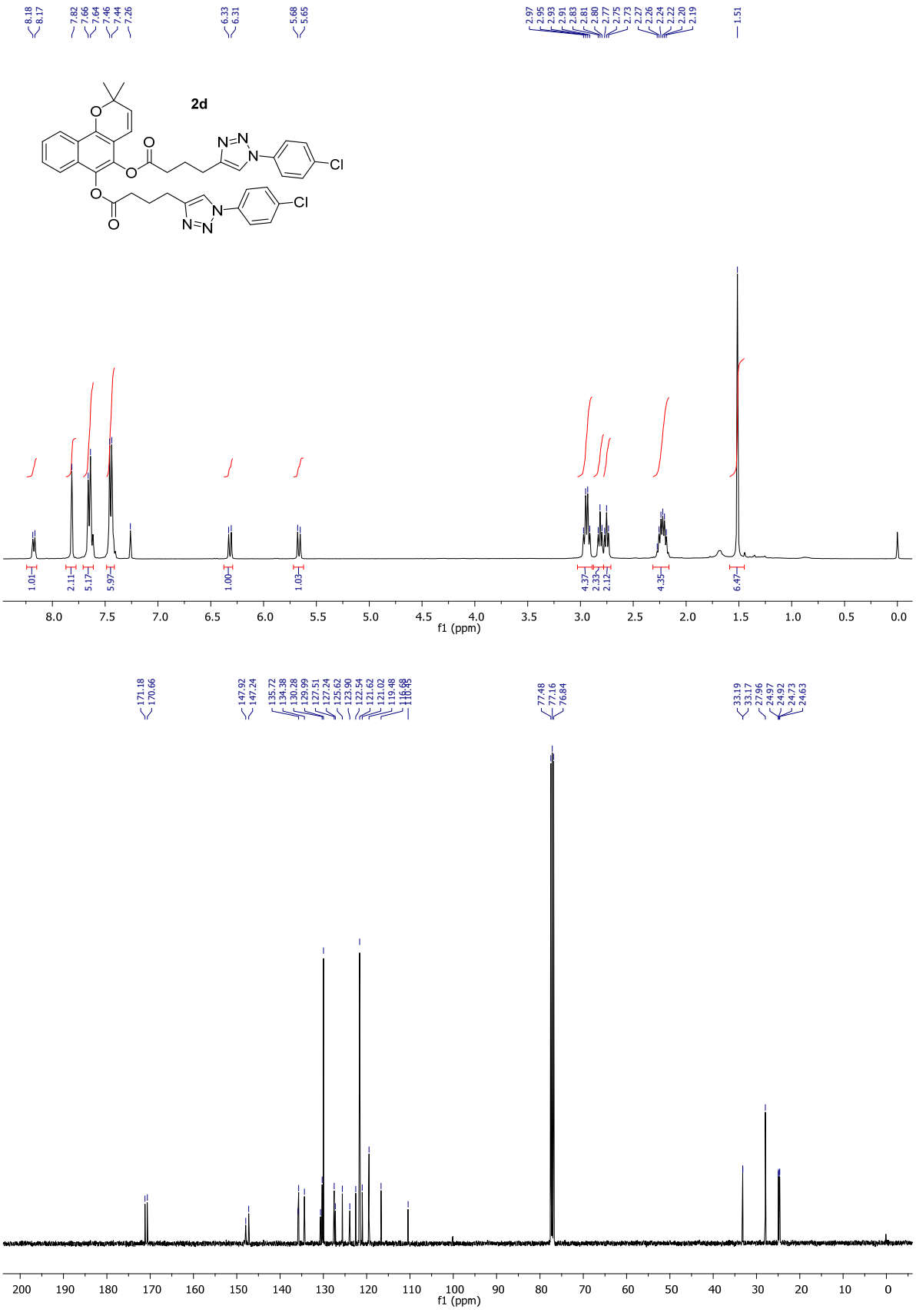

Figure 23. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2d**.

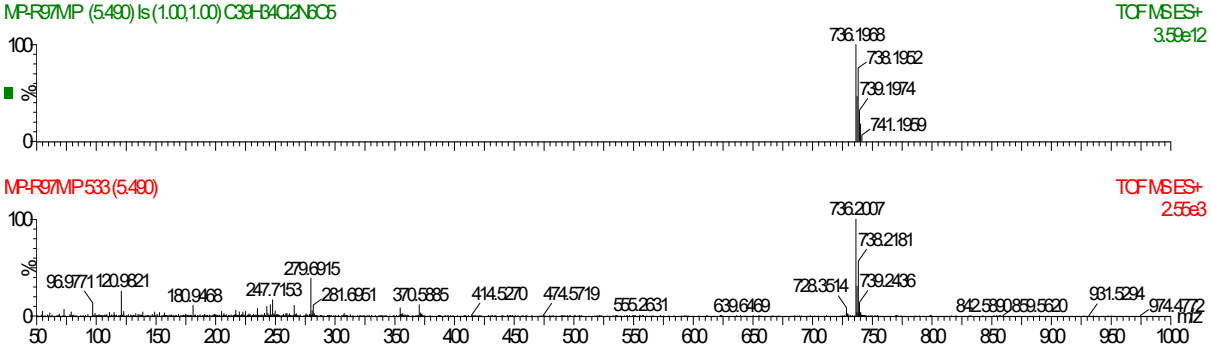

Figure 24. HREIMS spectrum of compound **2d**.

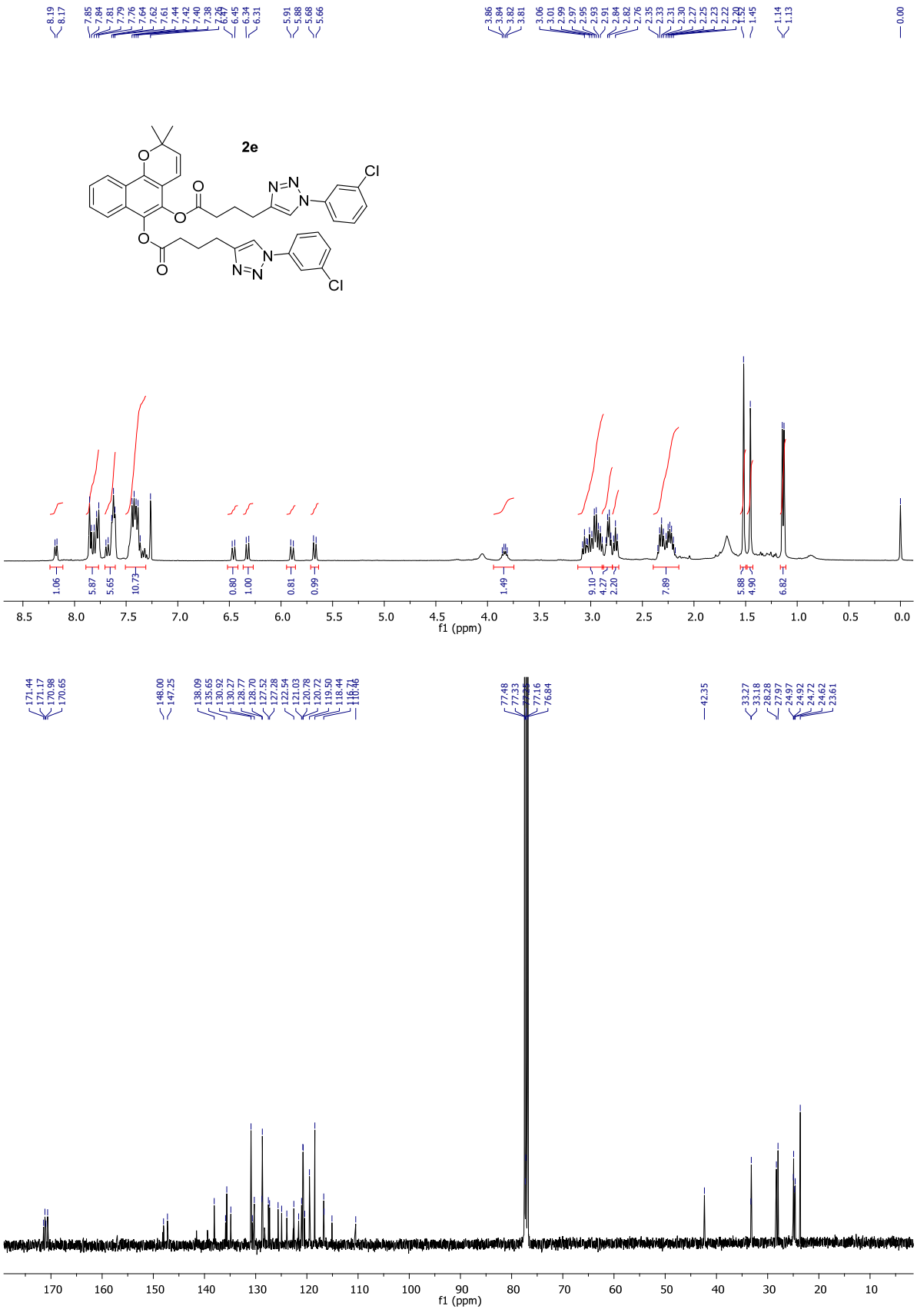

Figure 25. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2e**.

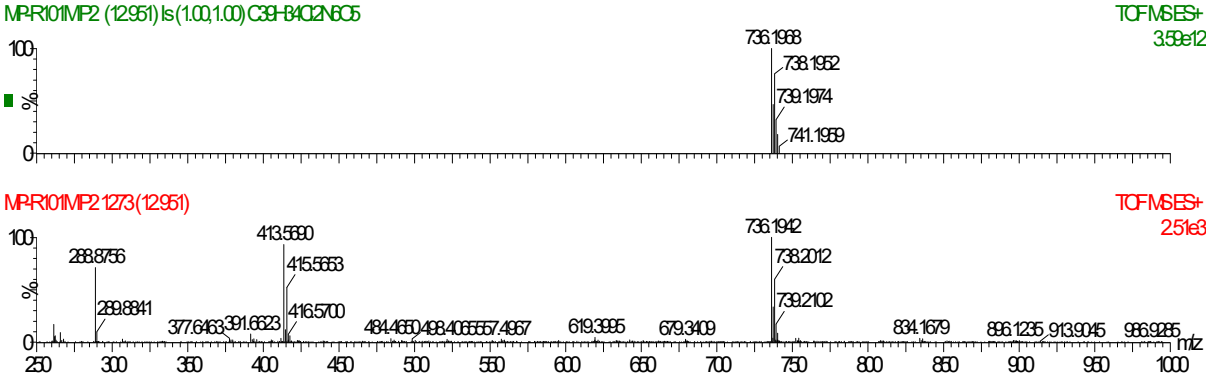

Figure 26. HREIMS spectrum of compound **2e**.

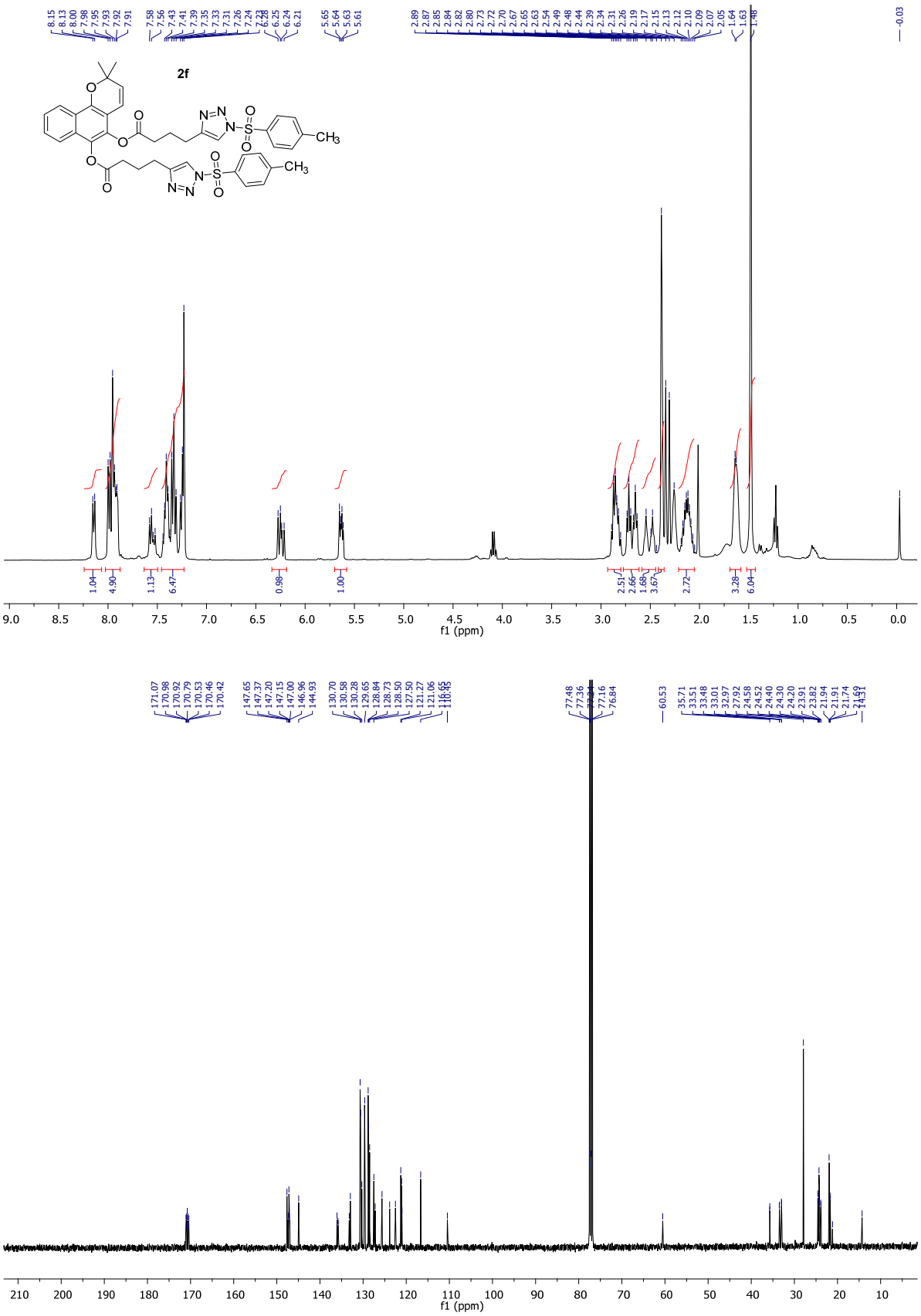

Figure 27. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2f**.

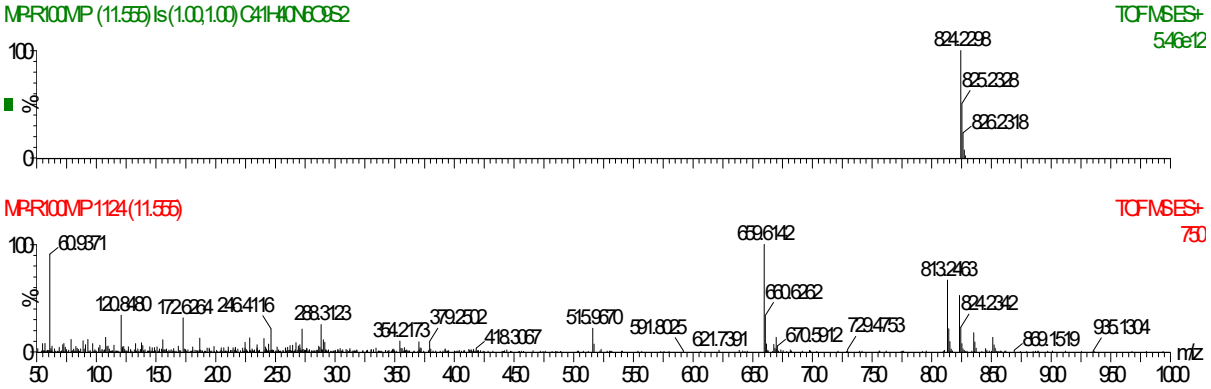

Figure 28. HREIMS spectrum of compound **2f**.

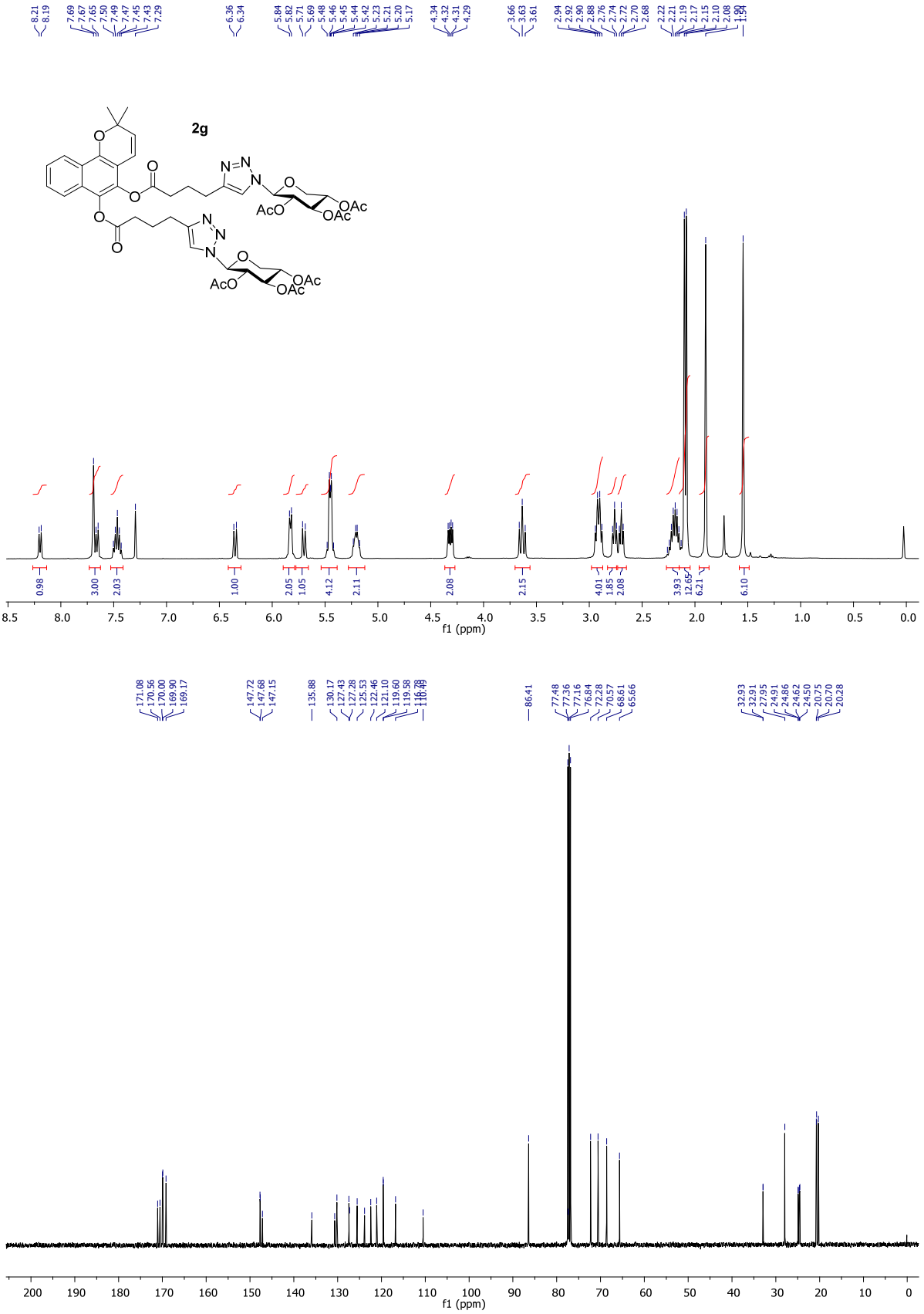

Figure 29. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **2g**.

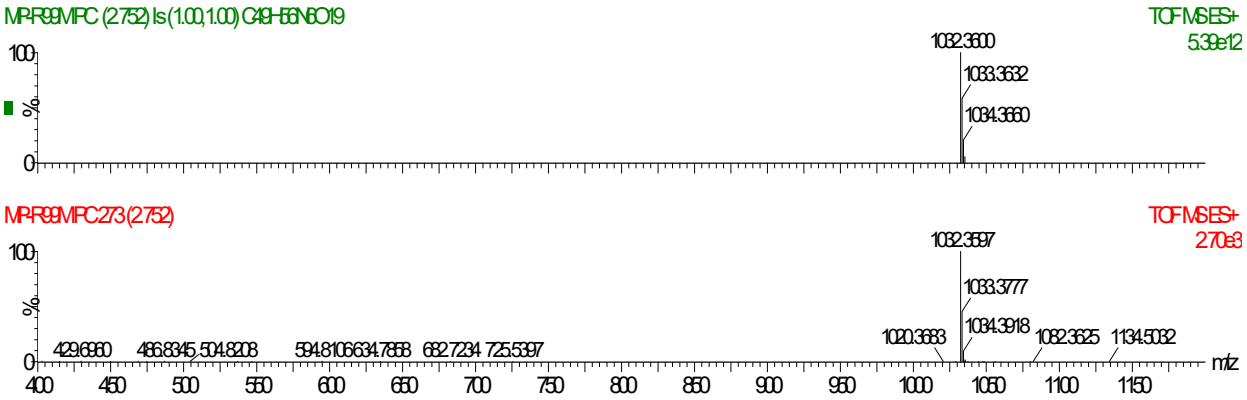

Figure 30. HREIMS spectrum of compound **2g**.

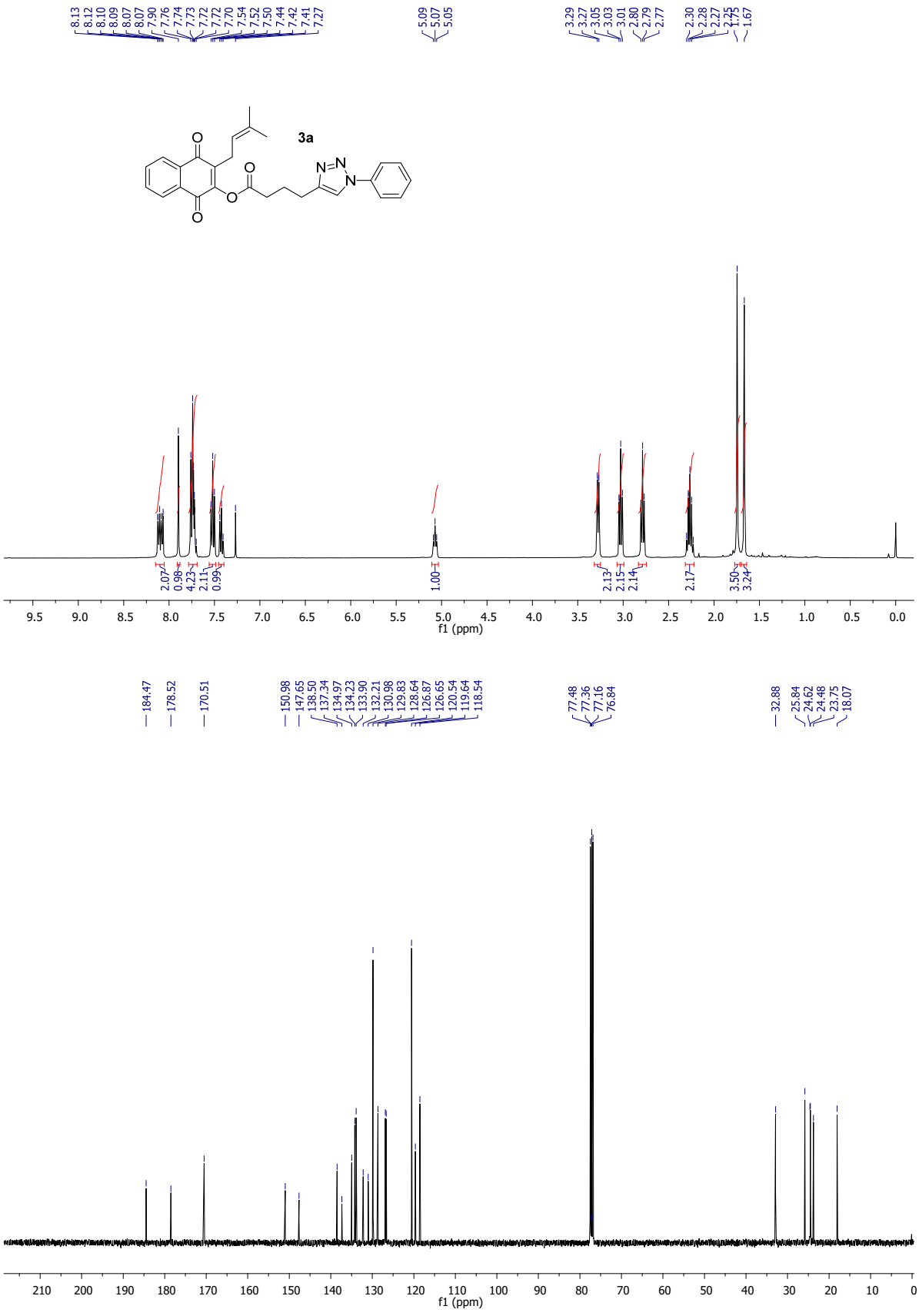

Figure 31. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3a**.

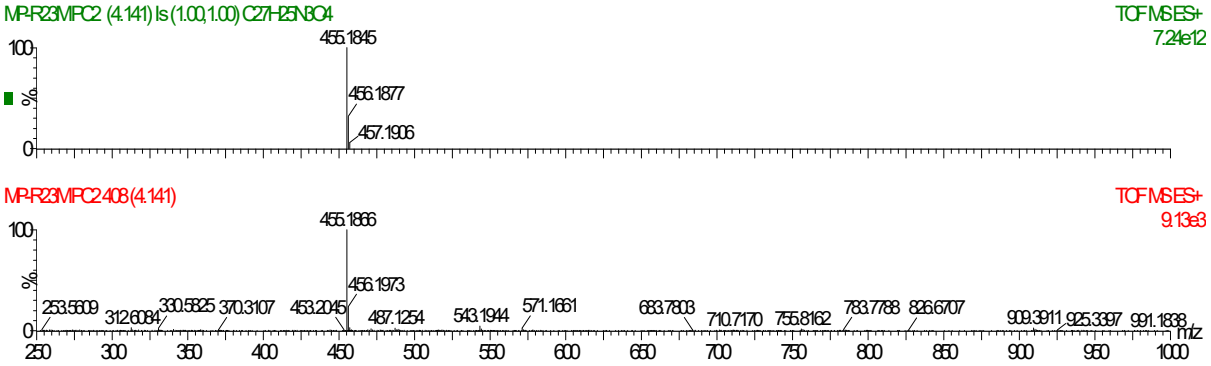

Figure 32. HREIMS spectrum of compound **3a**.

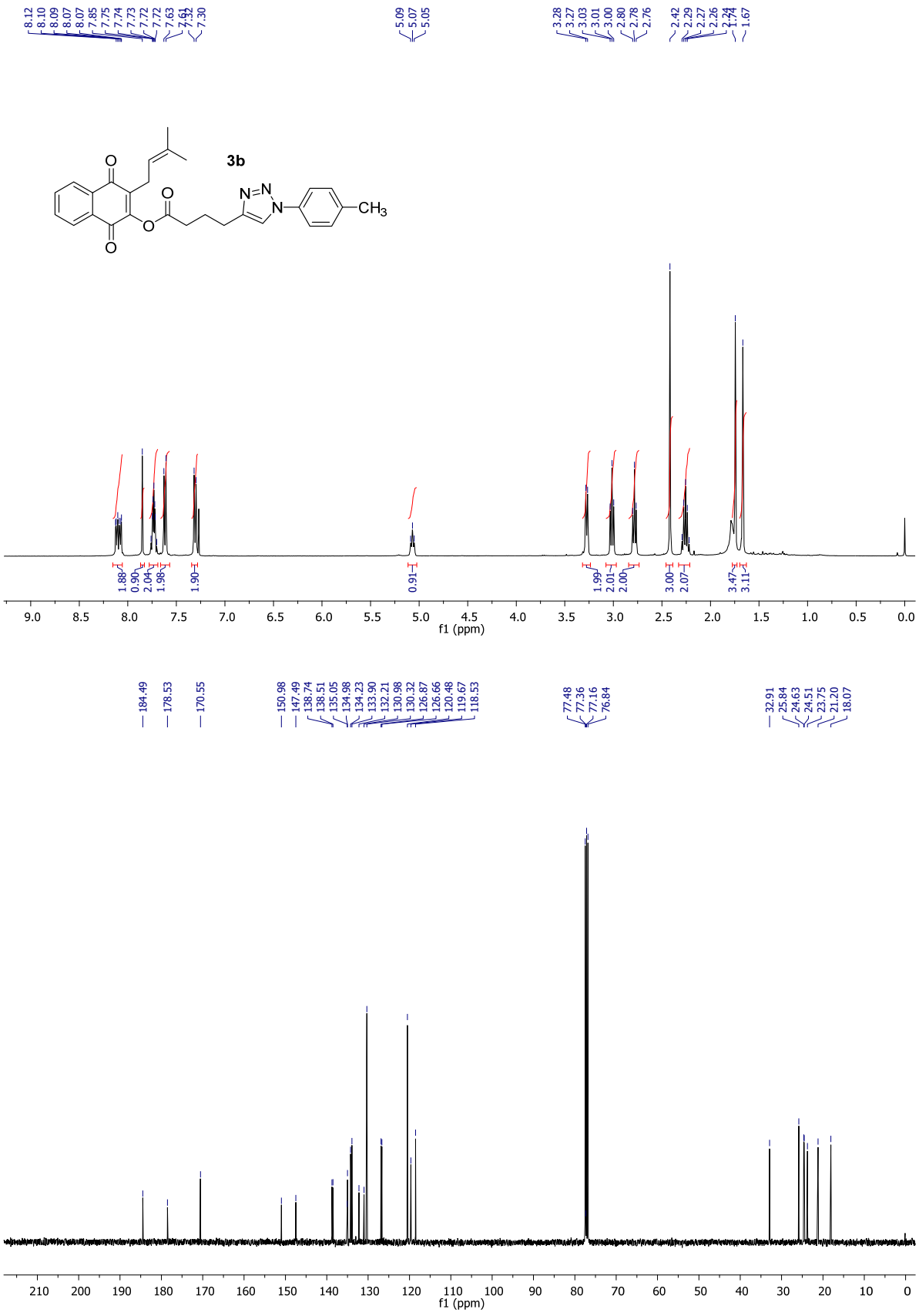

Figure 33. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3b**.

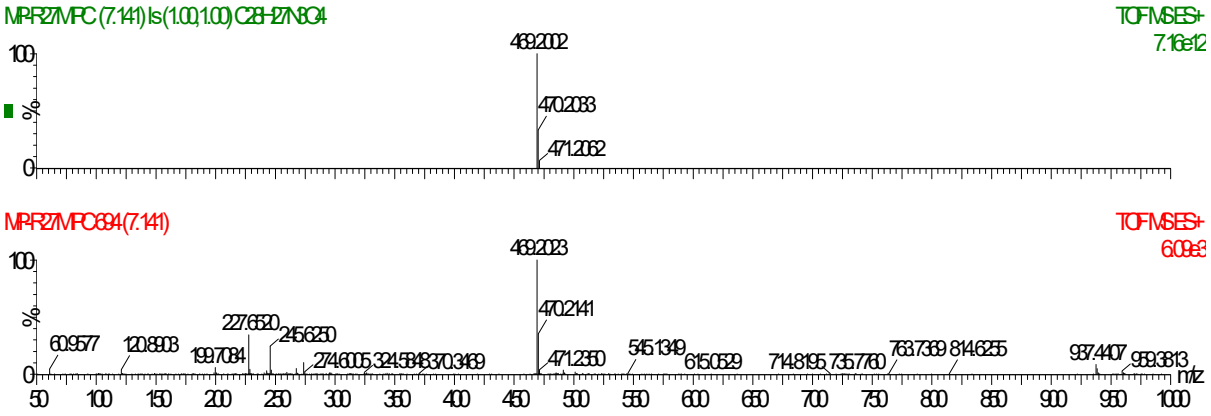

Figure 34. HREIMS spectrum of compound **3b**.

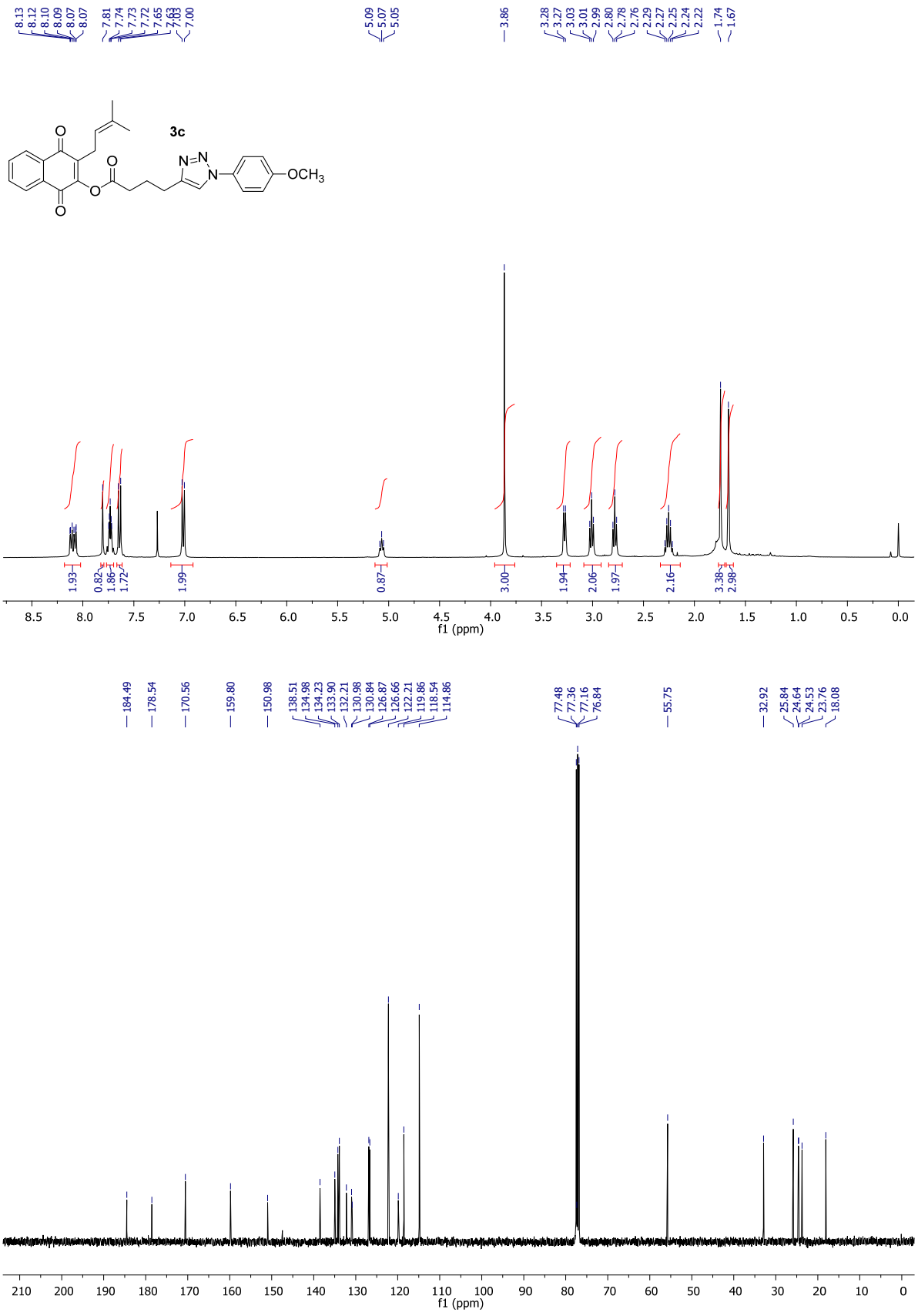

Figure 35. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3c**.

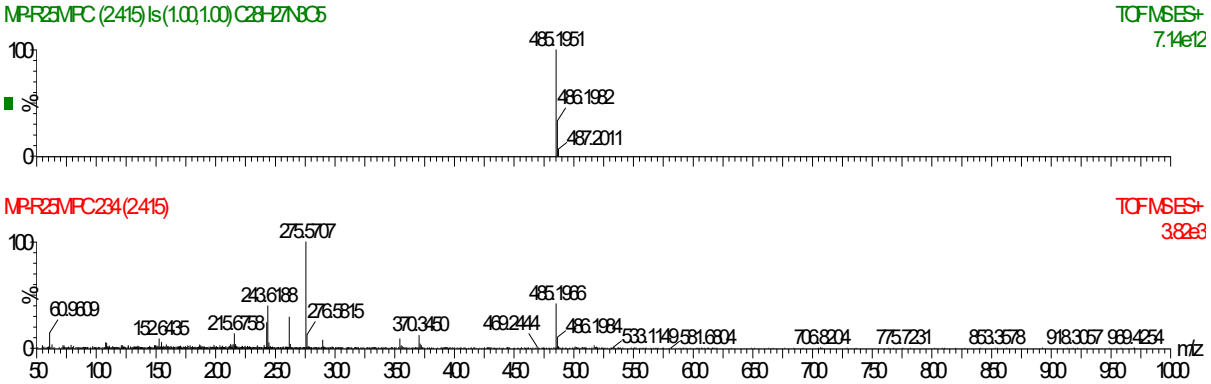

Figure 36. HREIMS spectrum of compound **3c**.

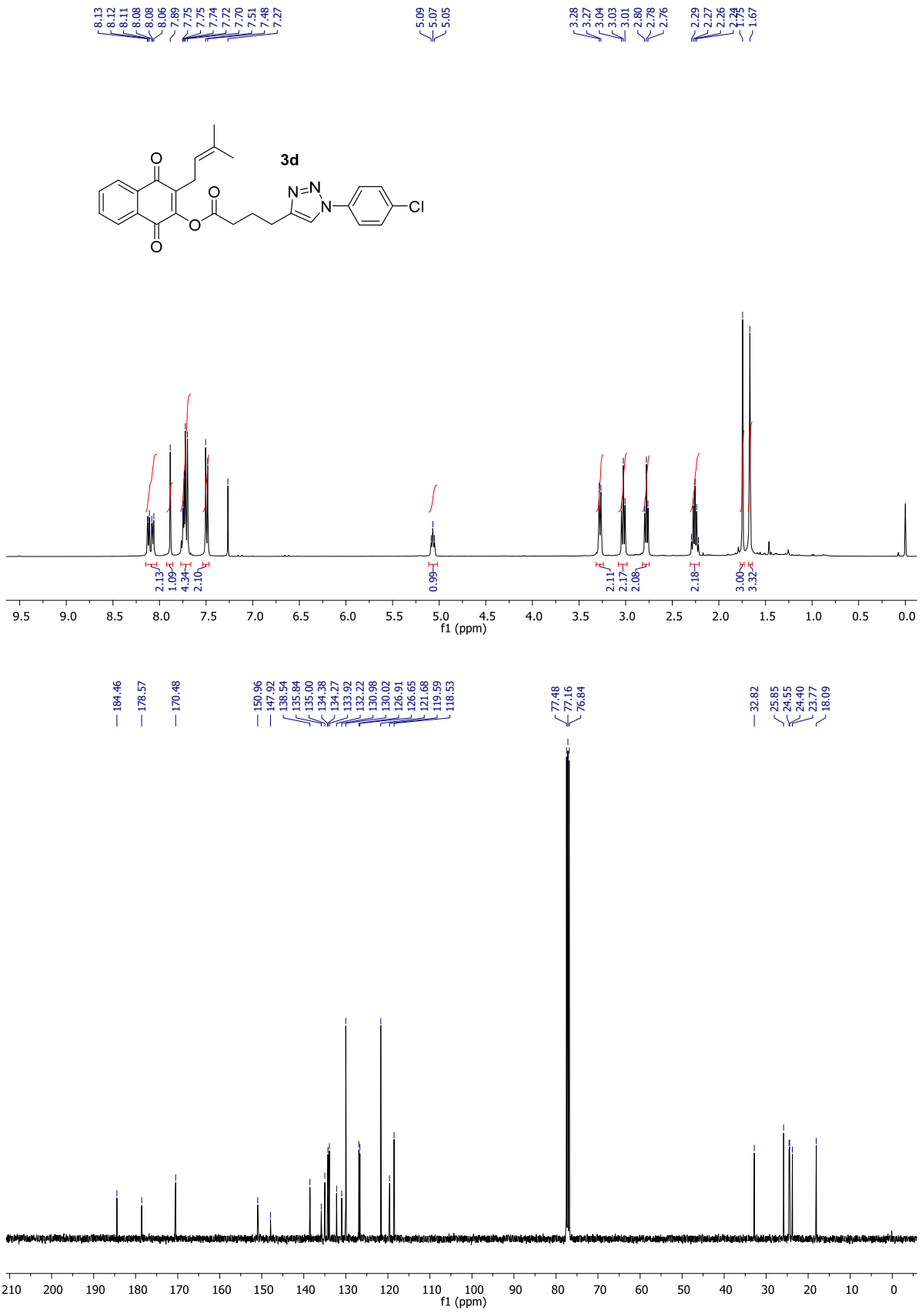

Figure 37. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3d**.

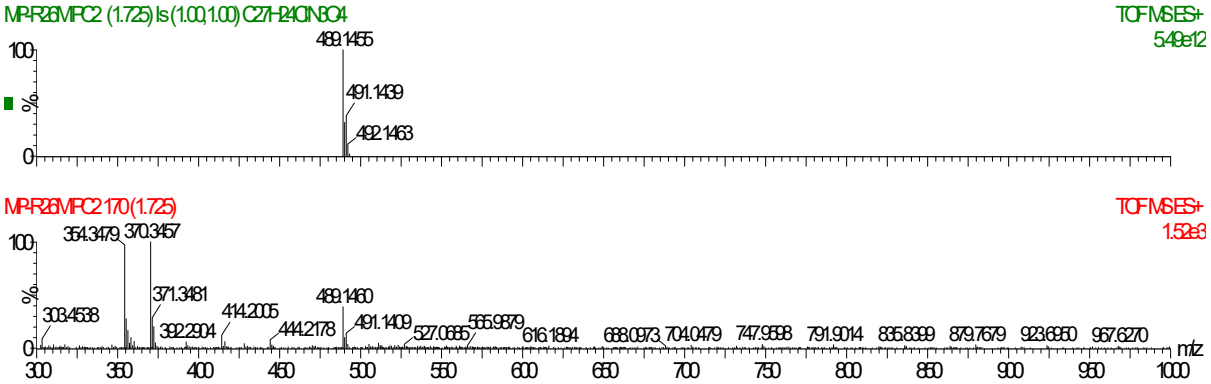

Figure 38. HREIMS spectrum of compound **3d**.

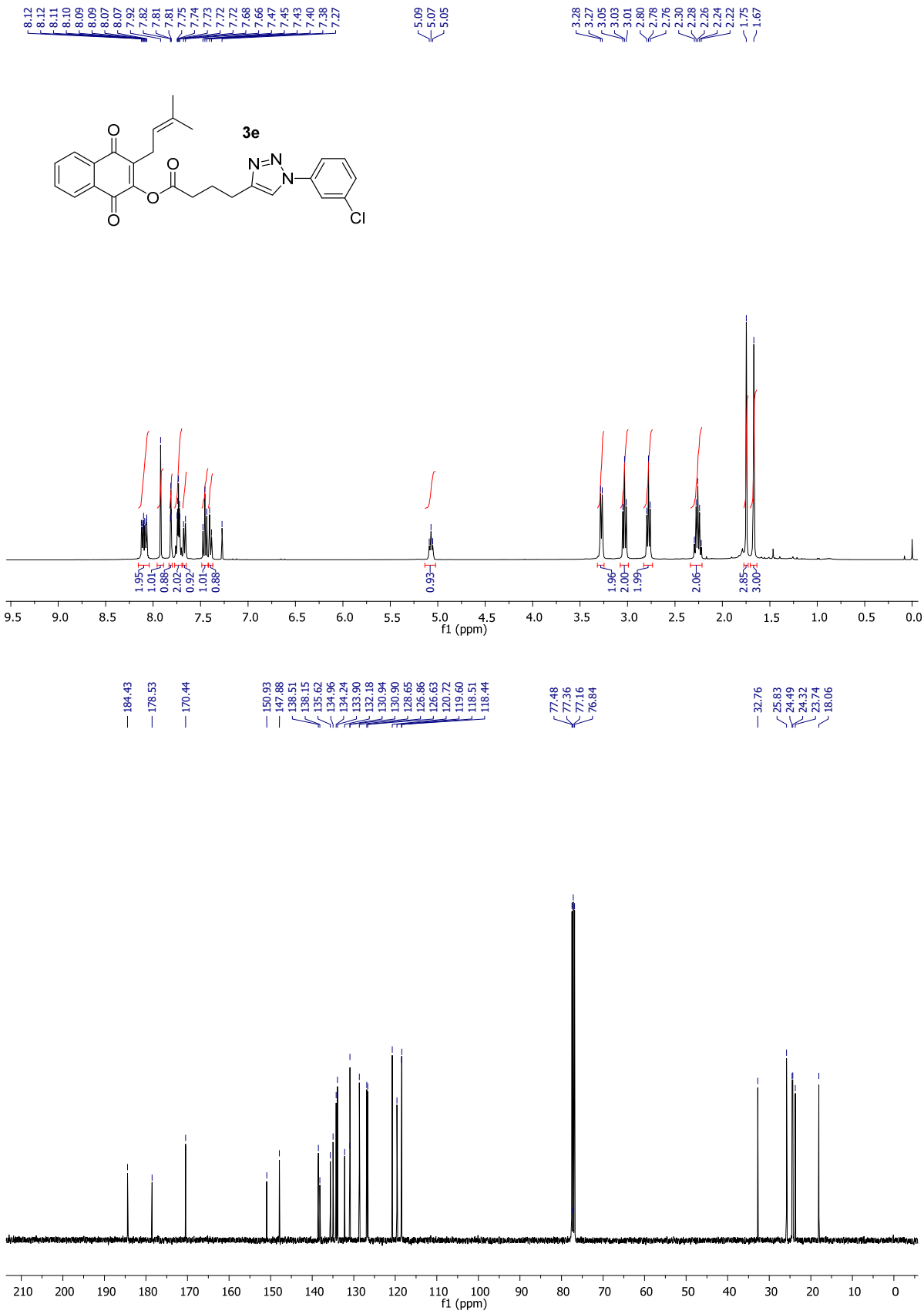

Figure 39. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3e**.

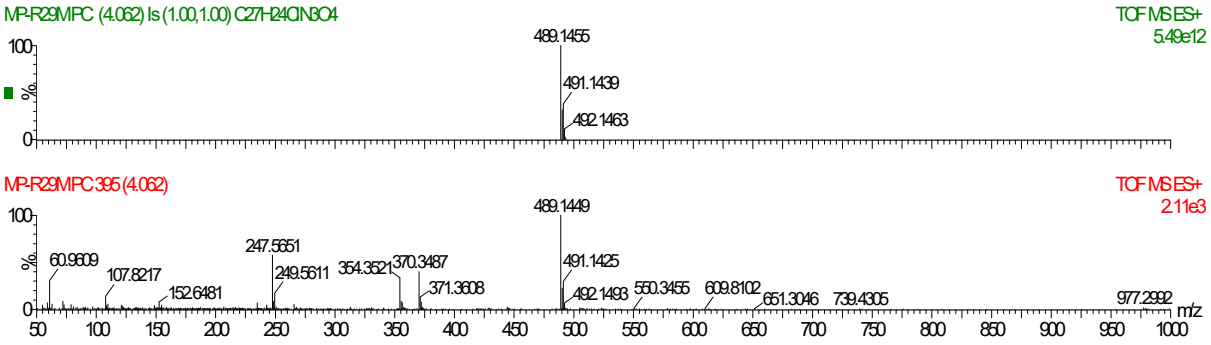

Figure 40. HREIMS spectrum of compound **3e**.

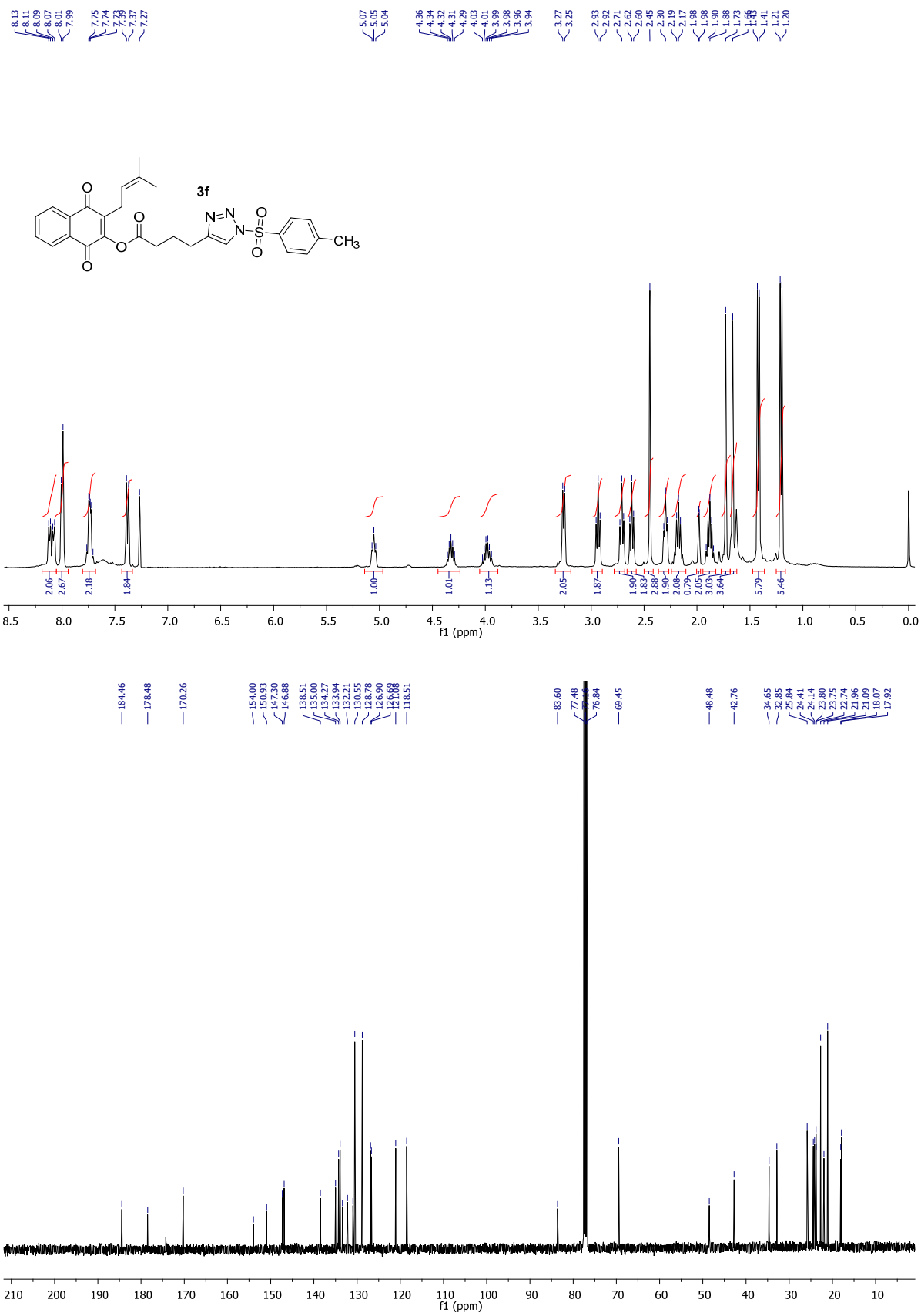

Figure 41. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3f**.

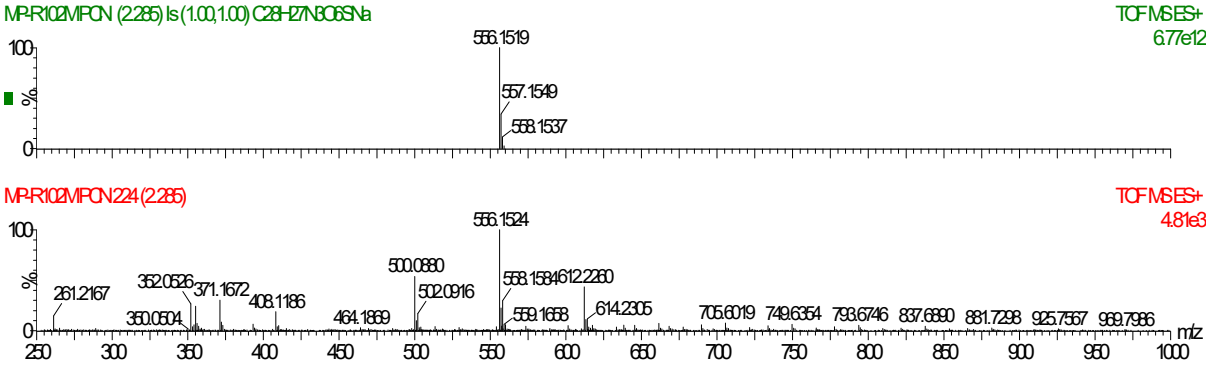

Figure 42. HREIMS spectrum of compound **3f**.

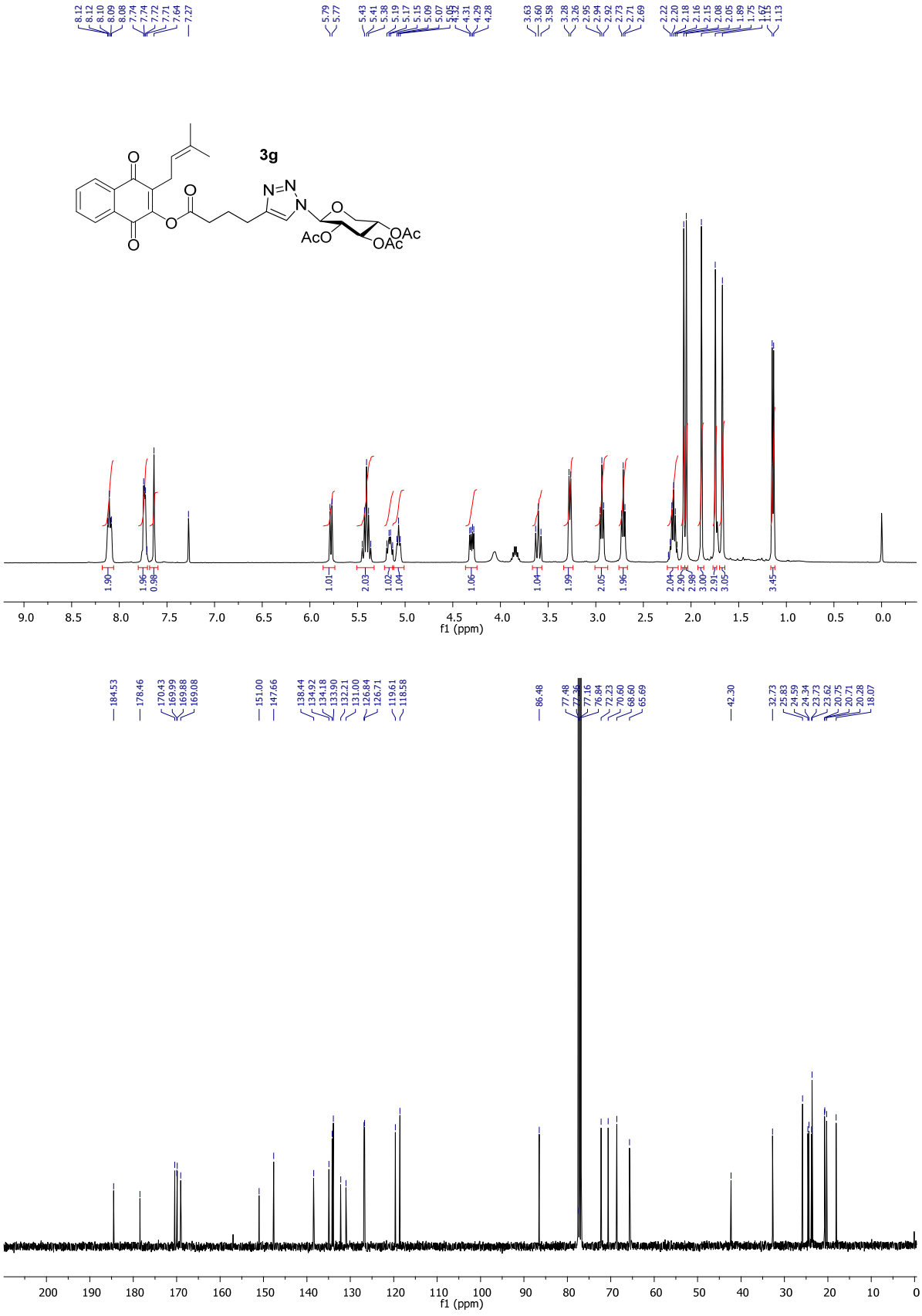

Figure 43. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3g**.

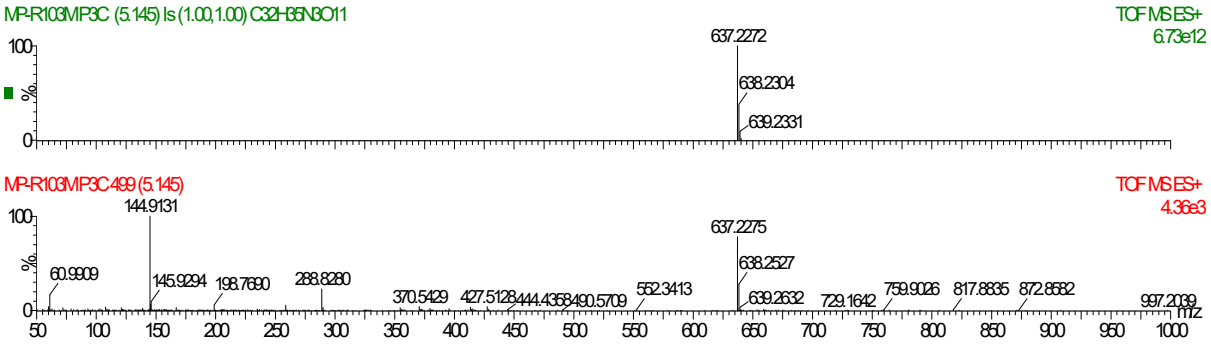

Figure 44. HREIMS spectrum of compound **3g**.

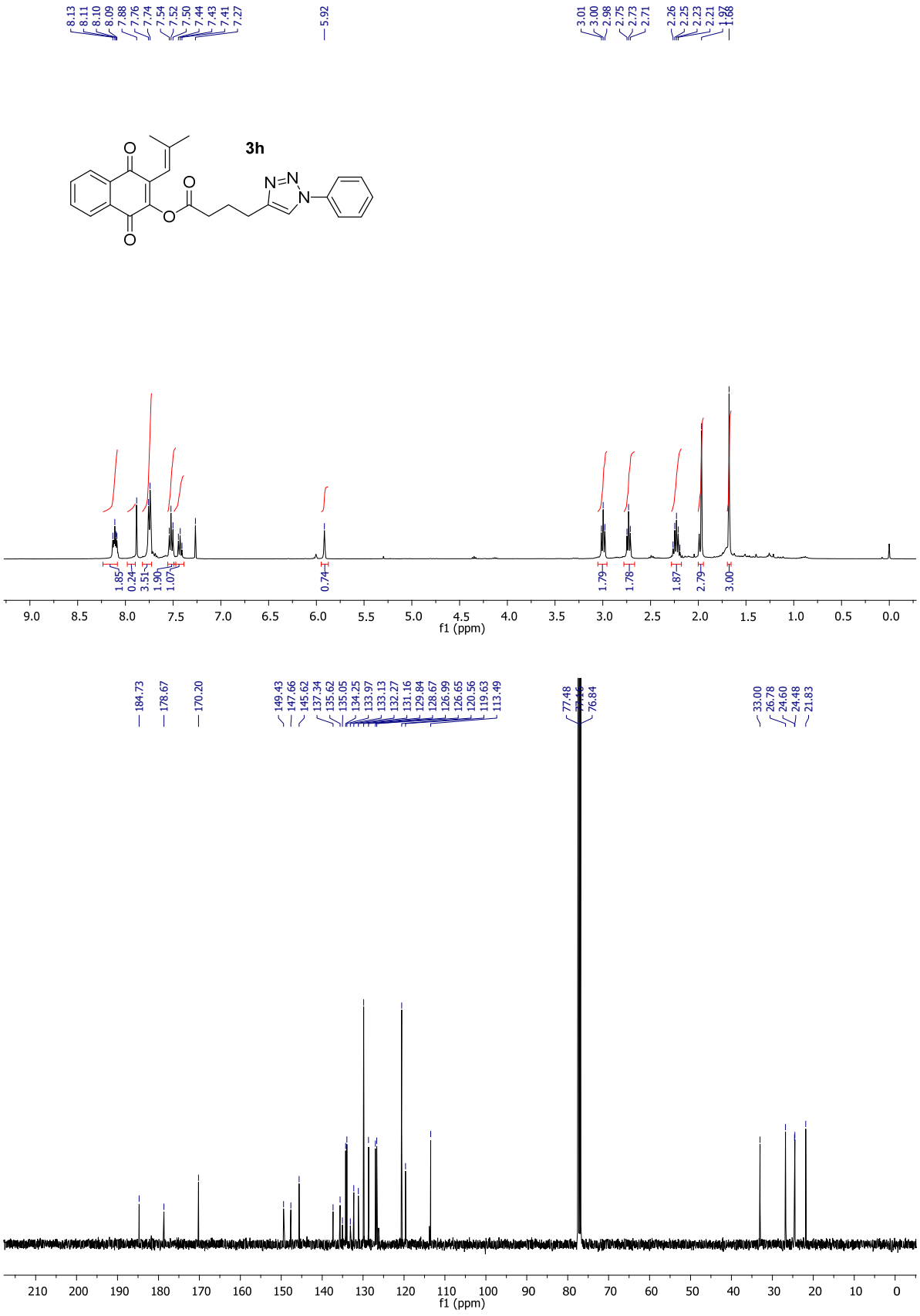

Figure 45. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3h**.

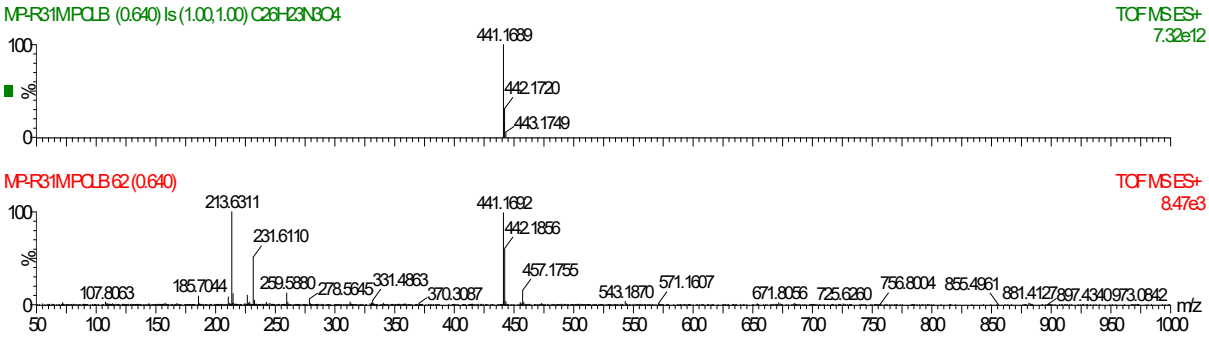

Figure 46. HREIMS spectrum of compound **3h**.

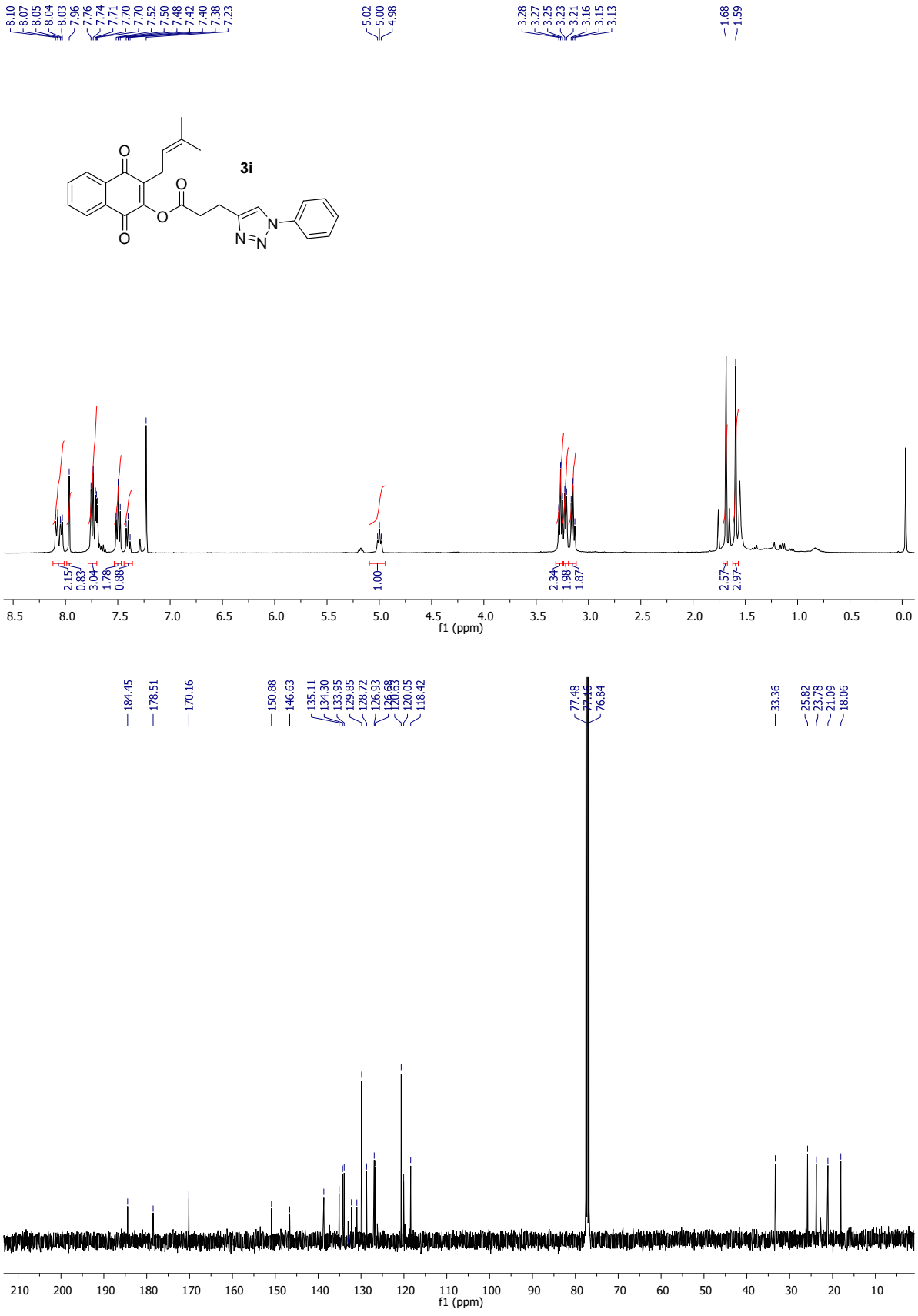

Figure 47. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3i**.

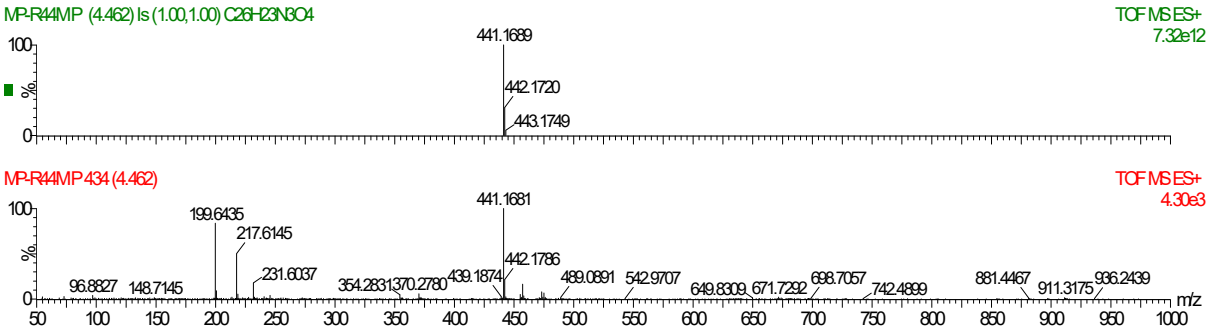

Figure 48. HREIMS spectrum of compound **3i**.

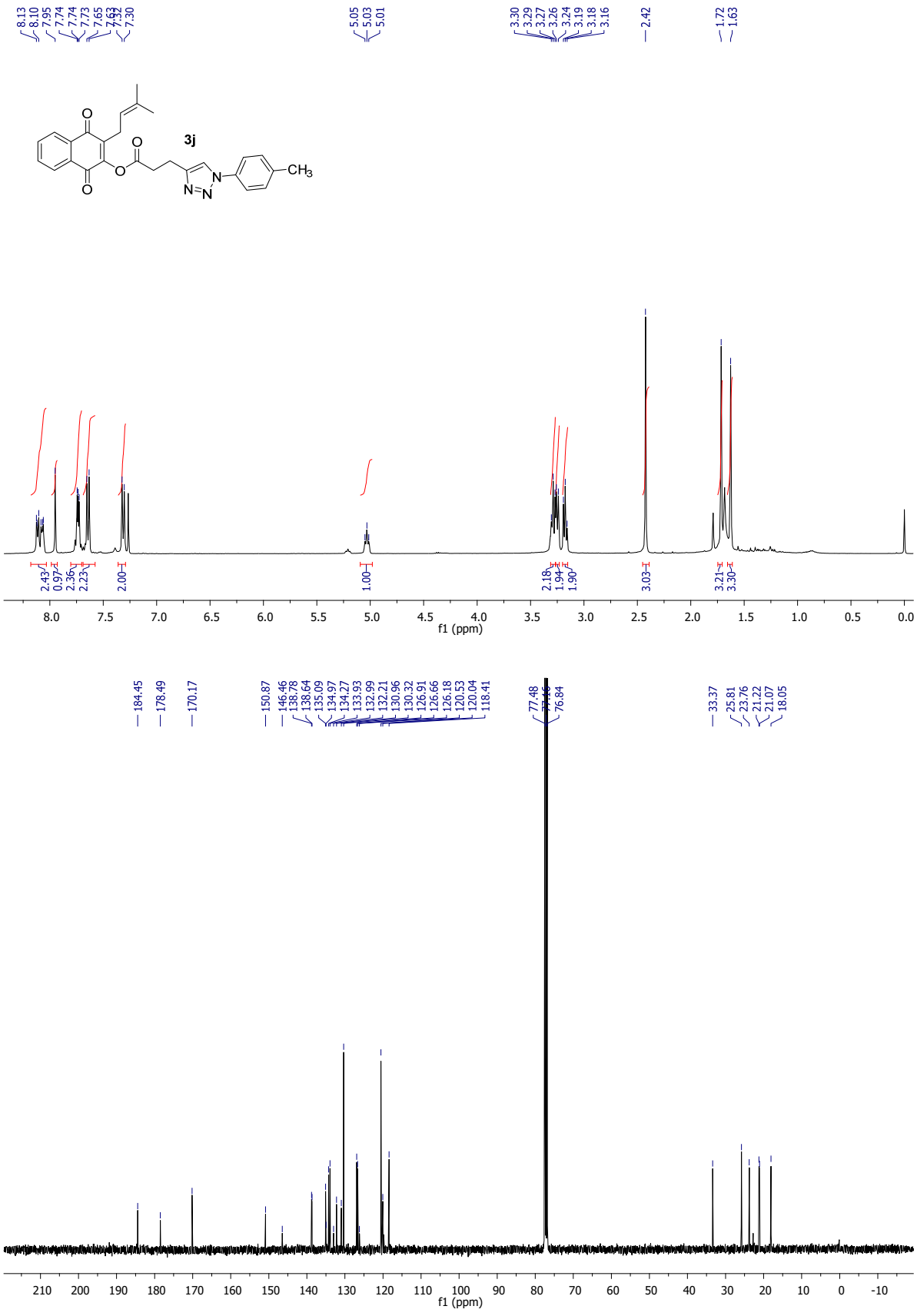

Figure 49. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3j**.

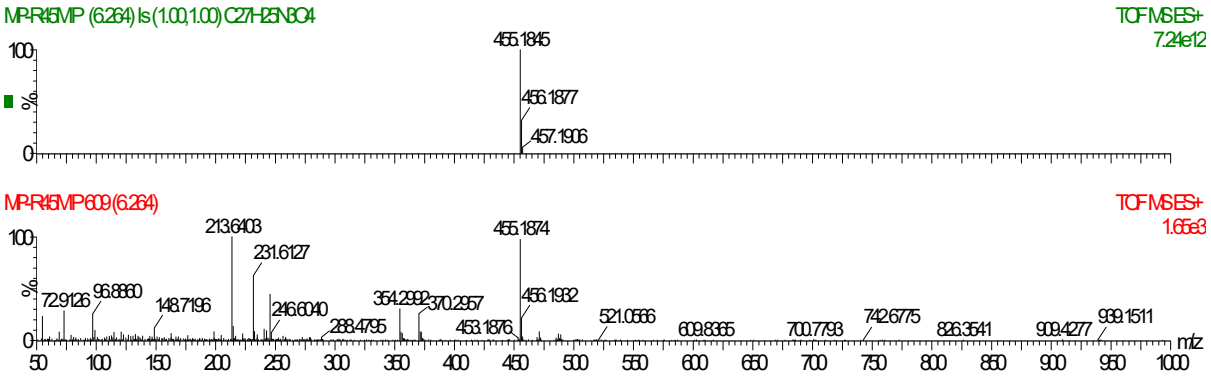

Figure 50. HREIMS spectrum of compound **3j**.

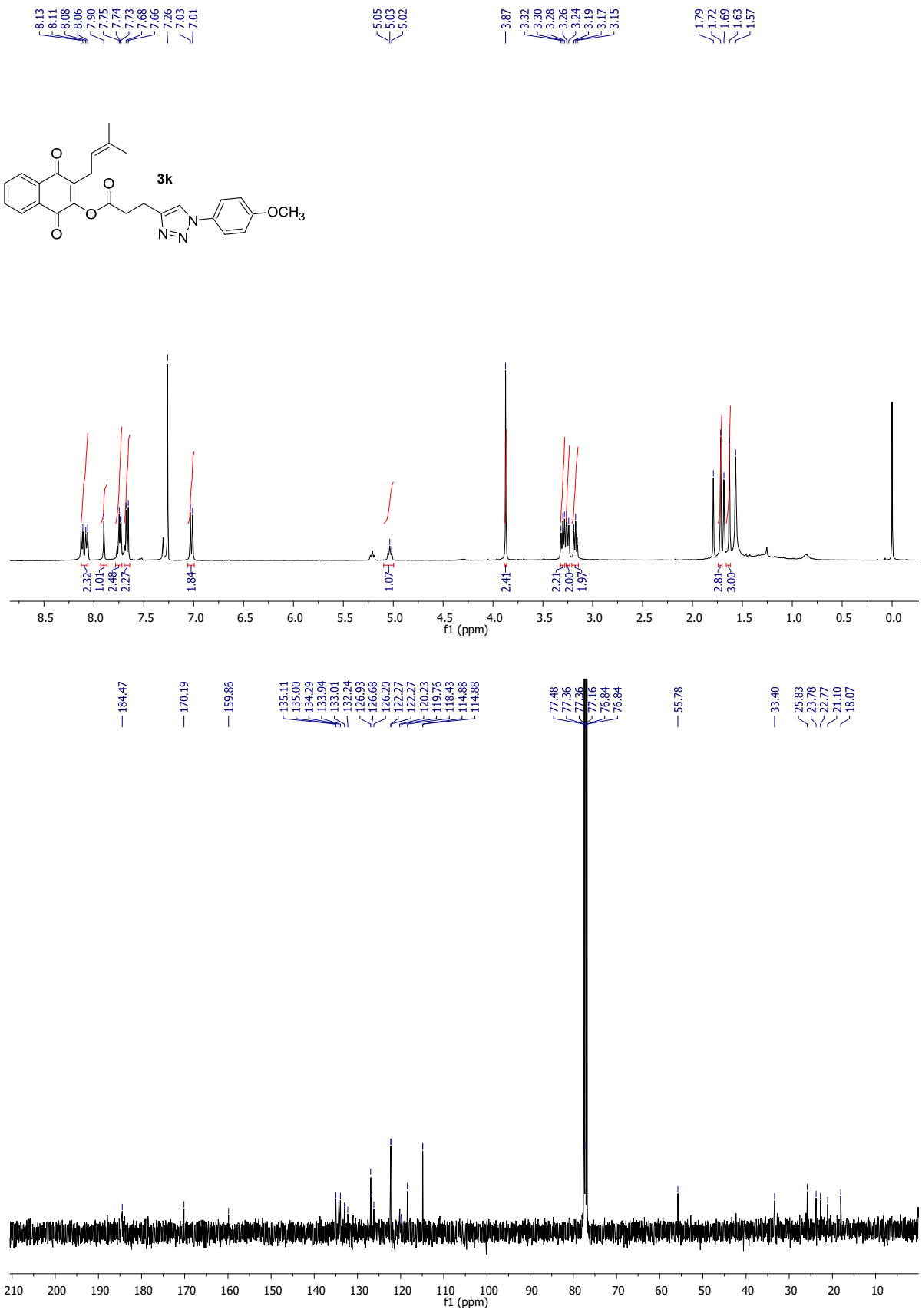

Figure 51. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3k**.

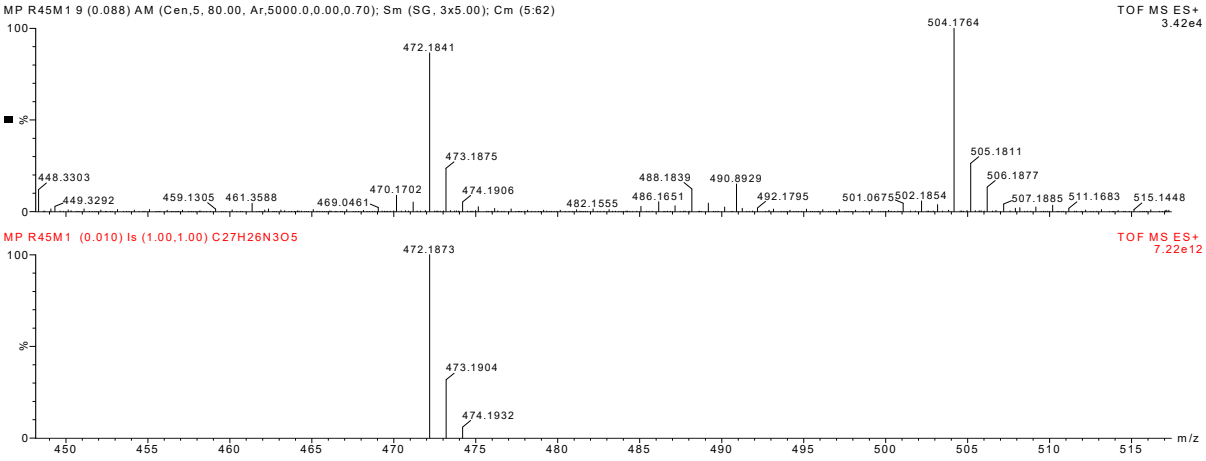

Figure 52. HREIMS spectrum of compound **3k**.

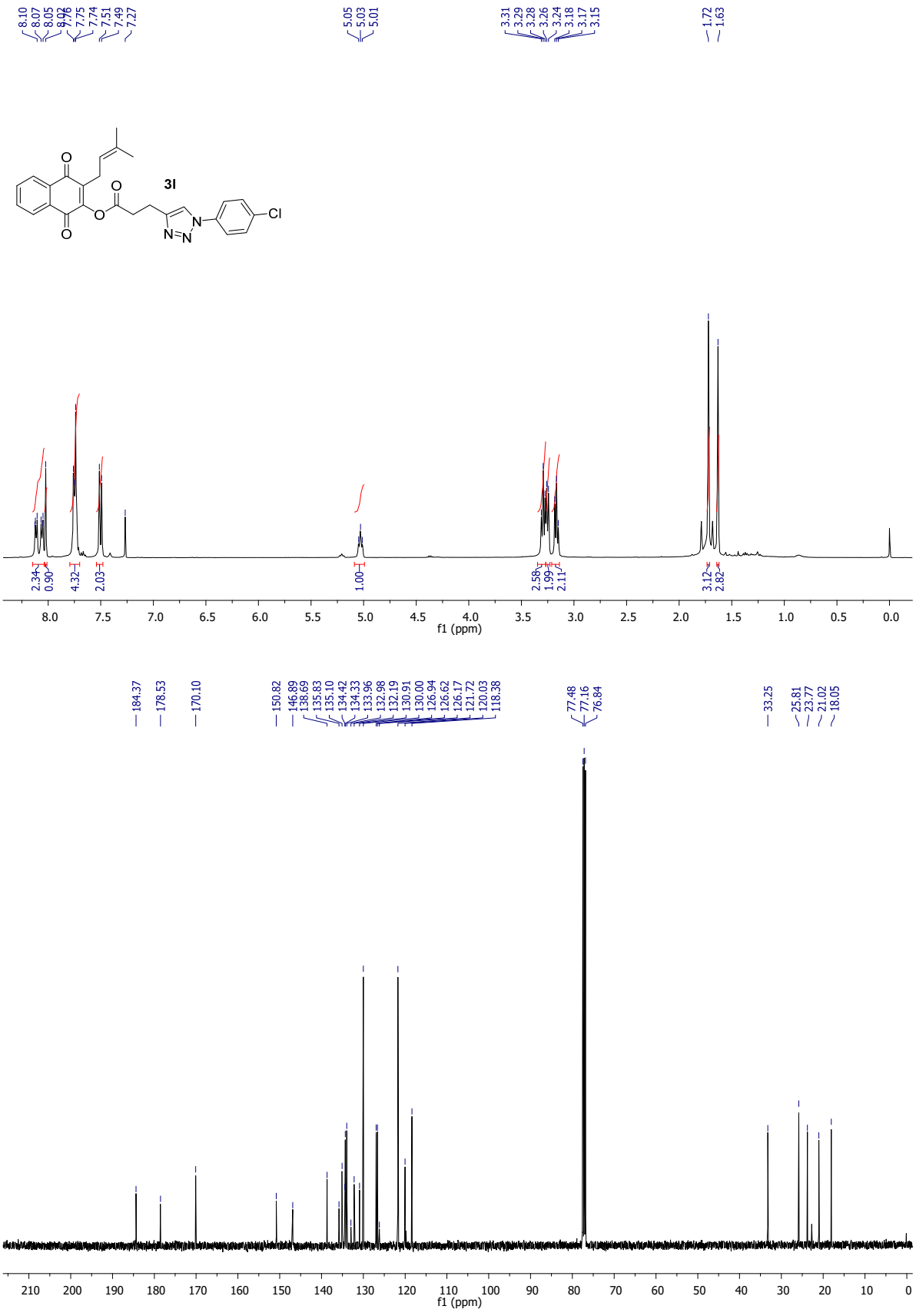

Figure 53. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3l**.

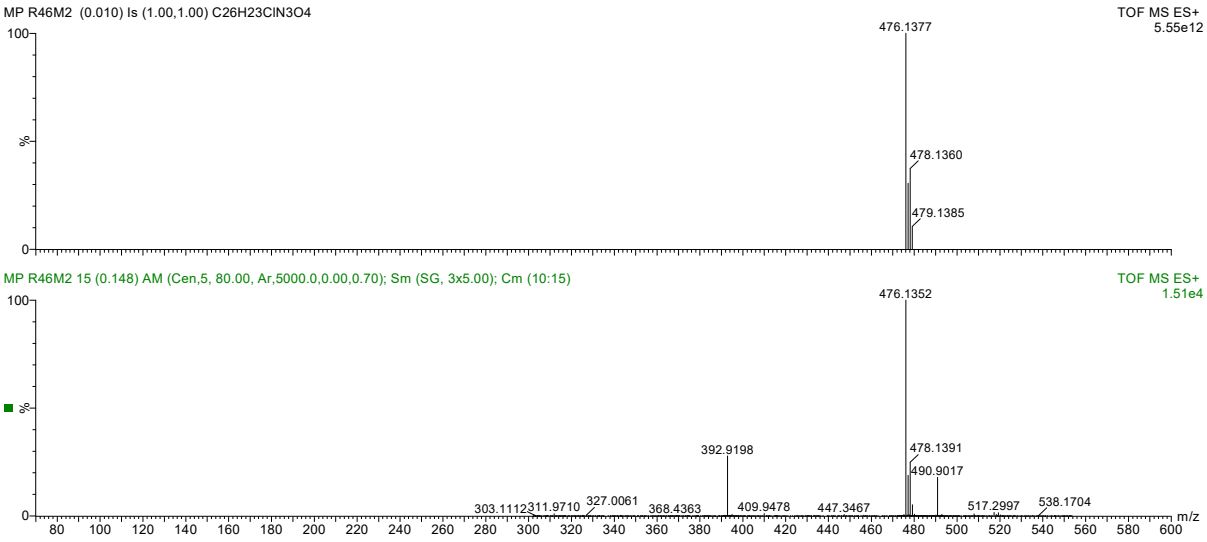

Figure 54. HREIMS spectrum of compound **3l**.

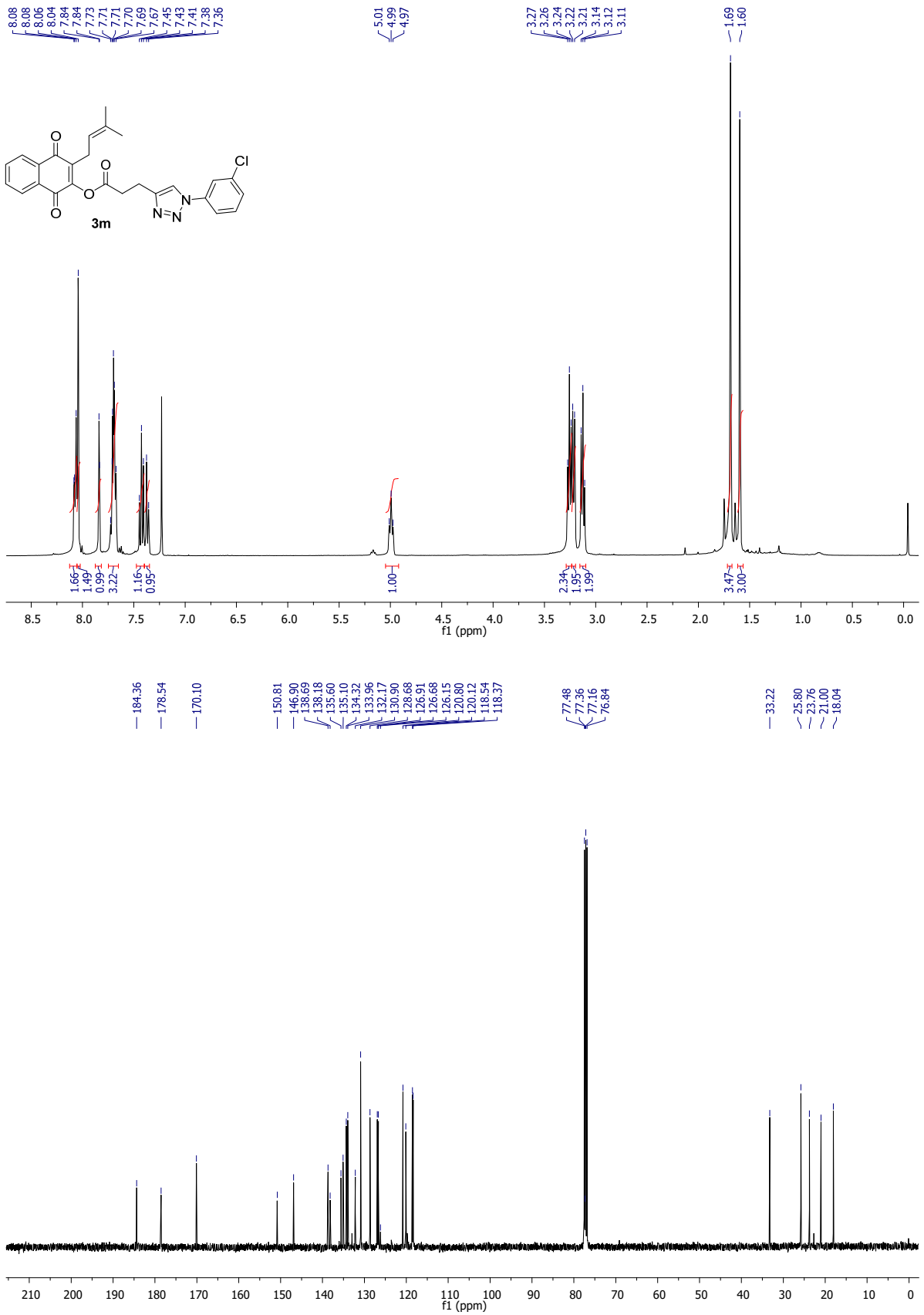

Figure 55. ^{1}H and ^{13}C NMR spectra in $CDCl_3$ of compound **3m**.

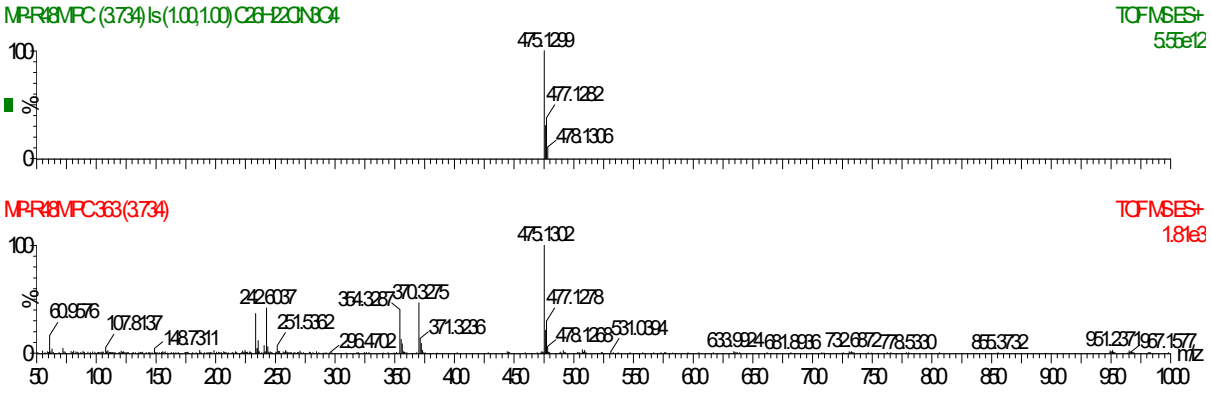

Figure 56. HREIMS spectrum of compound **3m**.