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

Palladium Catalyzed Synthesis of Poly-substituted and Poly-functionalised Conjugated 1,3-Dienes from Allyl Bromides and α-Diazoesters.

Hilal Ahmad Khan, Vikiho Wotsa, Lavanya. J and Chinnappan Sivasankar*

*Catalysis and Energy Laboratory, Department of Chemistry, Pondicherry University , R. V. Nagar, Puducherry 605 014, India.

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X-Ray Crystallographic Data for 3a:

The structure of **3a** was also determined by x-ray analysis. The single crystal for the analysis was grown by slow evaporation of solution of **3a** in hexane-ethylacetate mixture. X Ray Crystallography: CCDC2149586 contains the supplementary crystallographic data for this paper. The data can be obtained free of charge from the Cambridge Crystallographic Data Centre via www.ccdc.cam.ac.uk/data_request/cif.

Crystal data and structure refinement Compound 3a

Formula: $C_{20}\ H_{18}O_4$

Formula weight: 322.34 g/mol

Wave length: = 0.71073 Å

Crystal system: triclinic

Space group: P -1

Color of crystal: colourless

Unit cell parameters: a = 9.8517(5) Å α = 86.084(2)°

b = 10.0871(5) Å β = 71.973(2)°

c = 10.0861(5) Å γ = 64.392(2)°

Temperature of data collection: 300(2) K

Values of Z, R, GOF:

Z = 2

R(reflections) = 0.0443(2849), wR2(reflections) = 0.1151(3478)

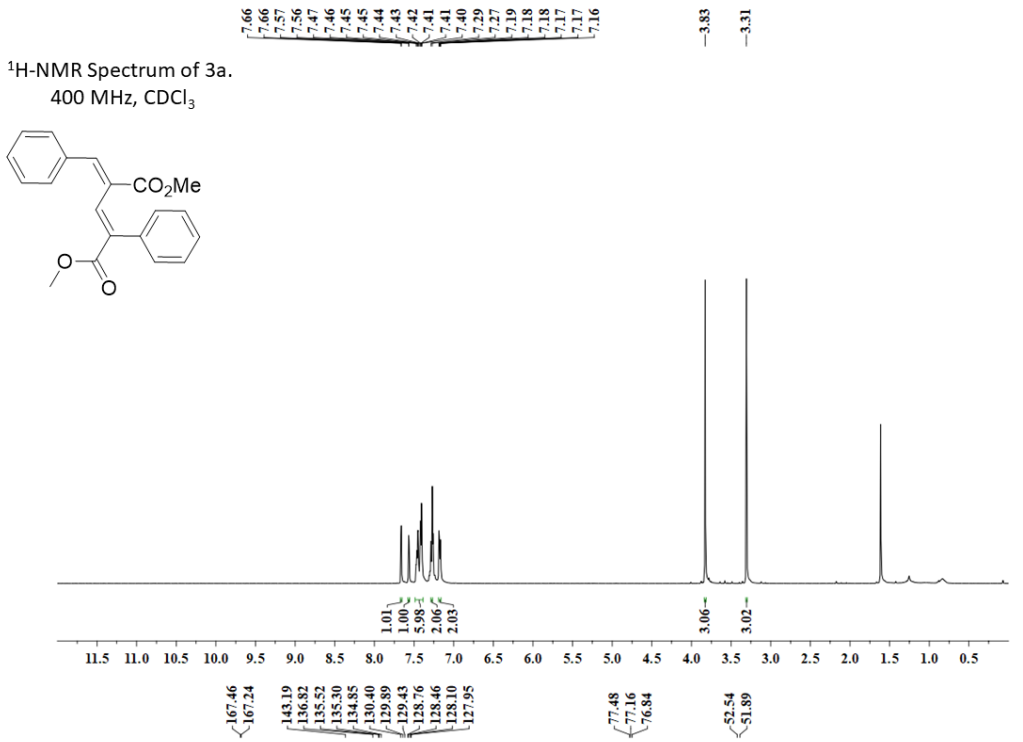
GOF = 1.035

Measurement device type: Bruker D8 goniometer

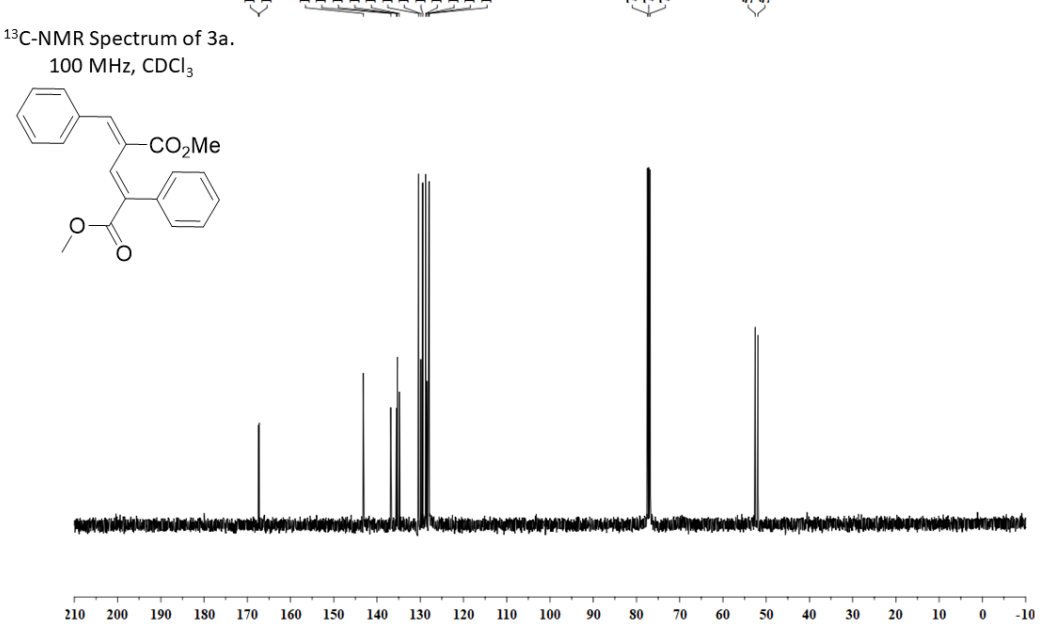
Computing structure solution: SHELXT 2018/2 (Sheldrick, 2018)

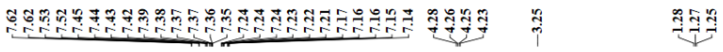
Computing structure refinement: SHELXL-2018/3 (Sheldrick, 2018)

^{1}H-NMR Spectrum of 3a.
400 MHz, $CDCl_3$

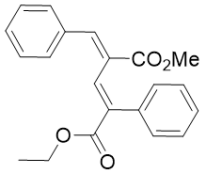


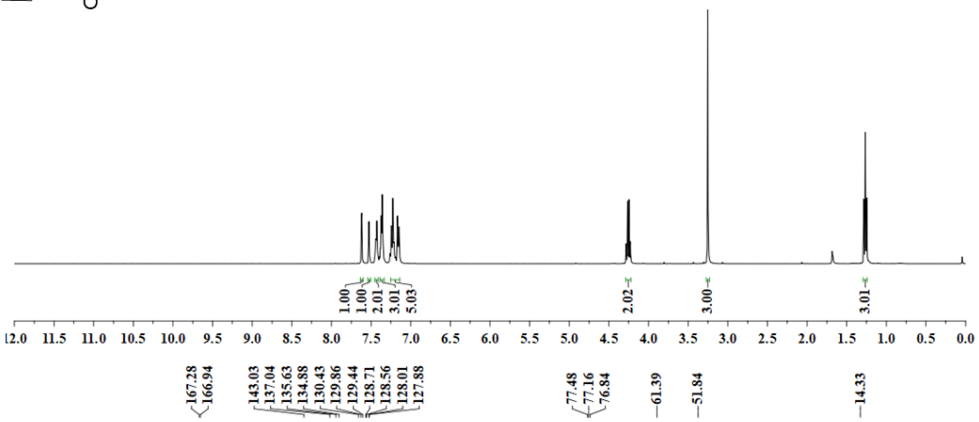
^{13}C-NMR Spectrum of 3a.
100 MHz, $CDCl_3$



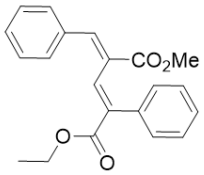


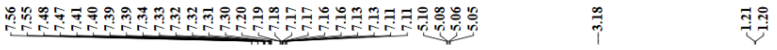
^{1}H-NMR MHz of 3b.
400 MHz, $CDCl_3$



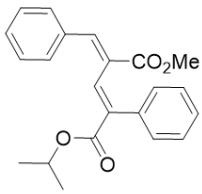


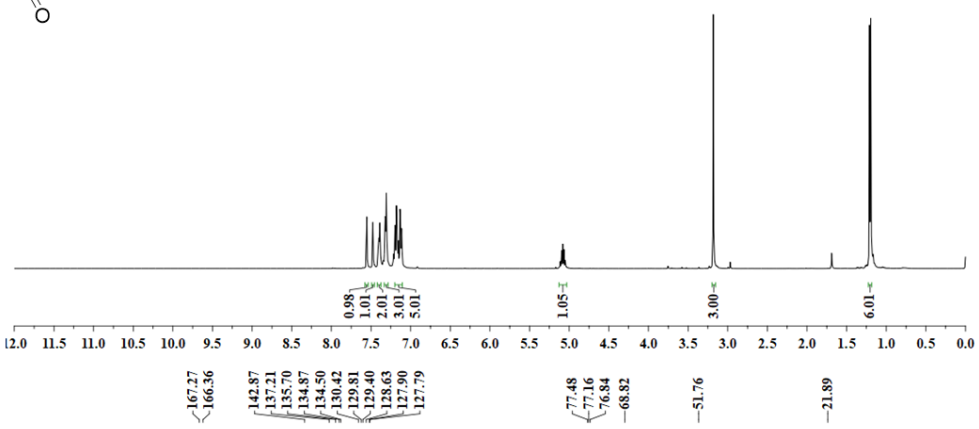
^{13}C-NMR spectrum of 3b.
100 MHz, $CDCl_3$



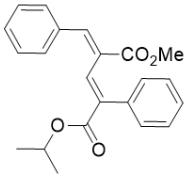


^{1}H-NMR spectrum of 3c.
400 MHz, $CDCl_3$

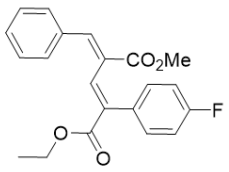




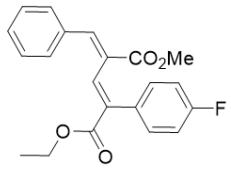
^{13}C-NMR spectrum of 3c.
100 MHz, $CDCl_3$

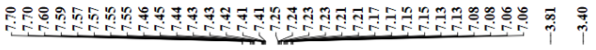


^{1}H-NMR spectrum of 3d.
400 MHz, $CDCl_3$

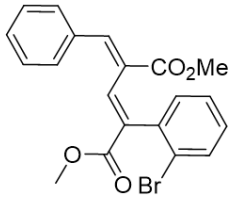


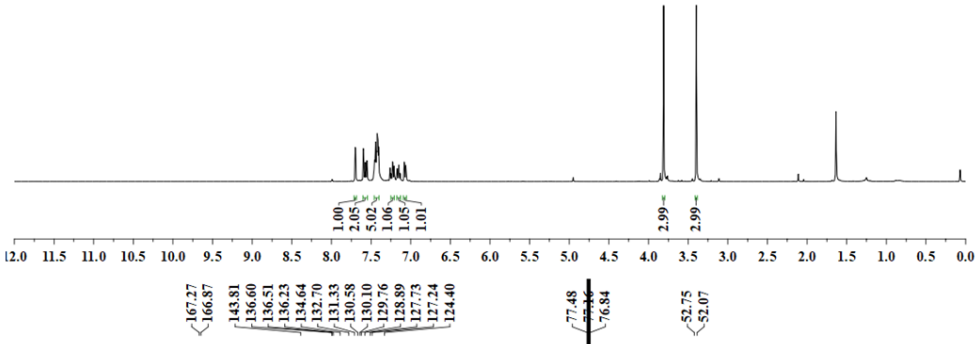
^{13}C-NMR spectrum of 3d.
100 MHz, $CDCl_3$



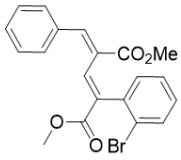


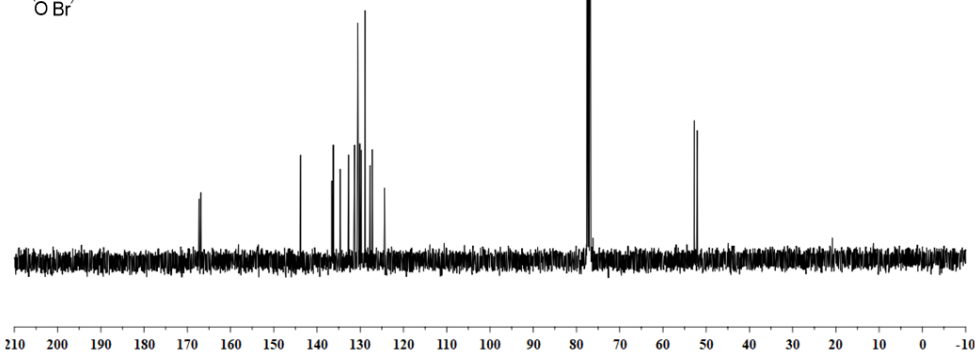
^{1}H-NMR spectrum of 3e.
400 MHz, $CDCl_3$

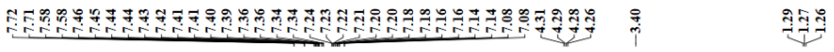




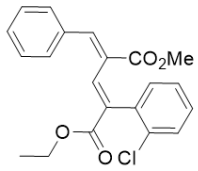
^{13}C-NMR spectrum of 3e.
100 MHz, $CDCl_3$

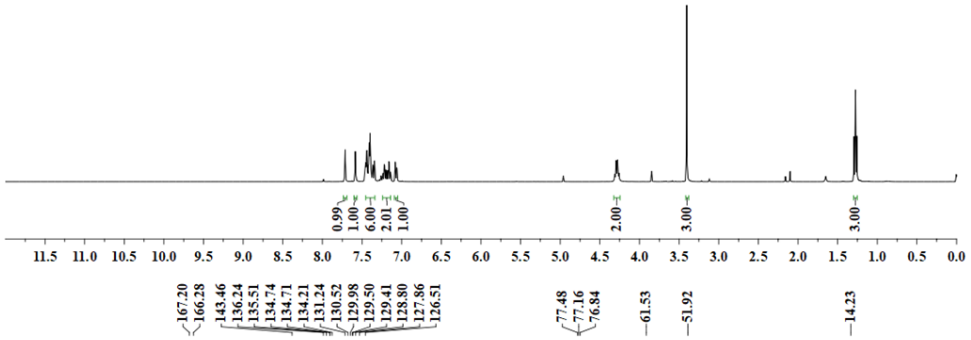




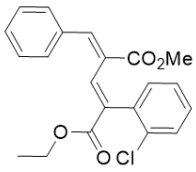


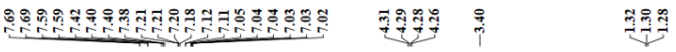
^{1}H-NMR spectrum of 3f.
400 MHz, $CDCl_3$



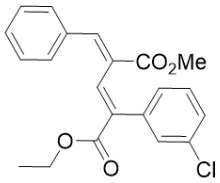


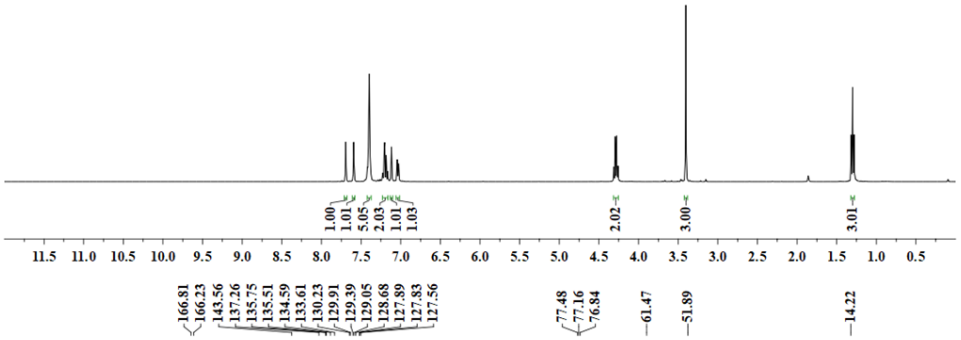
^{13}C-NMR spectrum of 3f.
100 MHz, $CDCl_3$



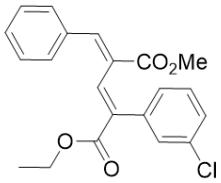


^{1}H-NMR spectrum of 3g.
400 MHz, $CDCl_3$

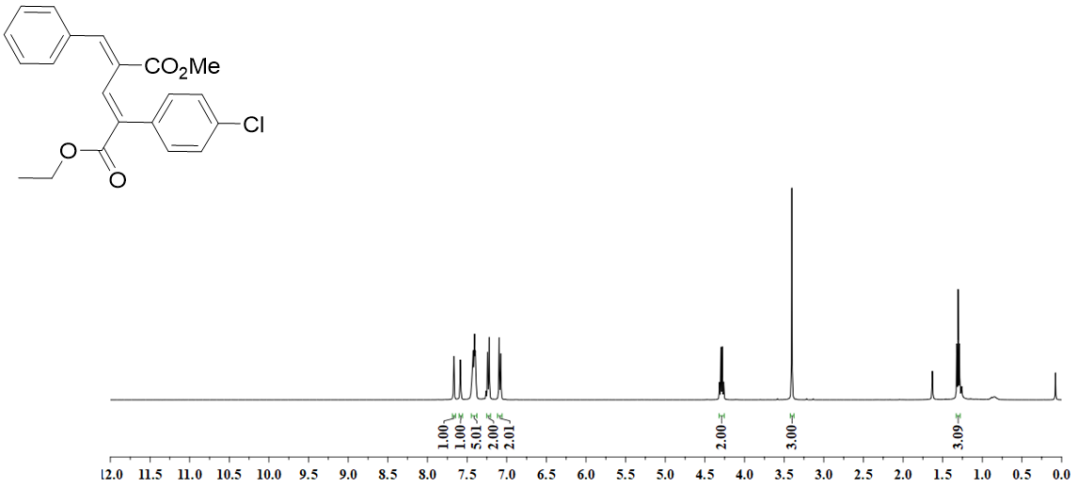




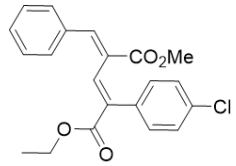
^{13}C-NMR spectrum of 3g.
100 MHz, $CDCl_3$



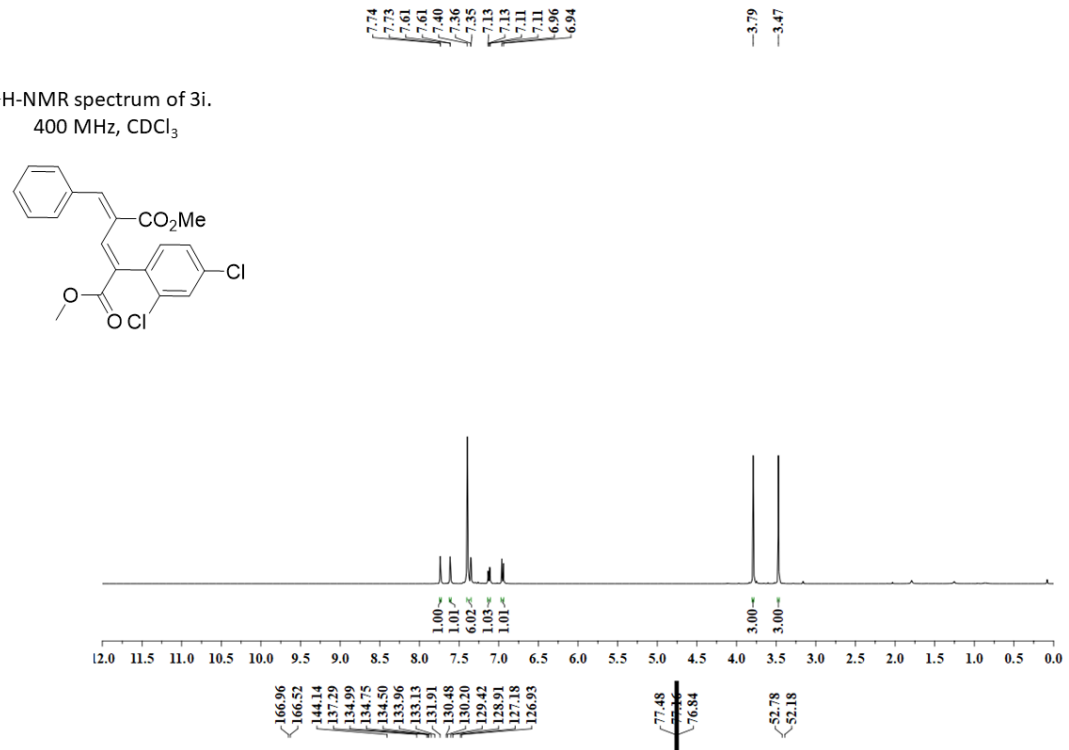
^{1}H-NMR spectrum of 3h.
400 MHz, $CDCl_3$



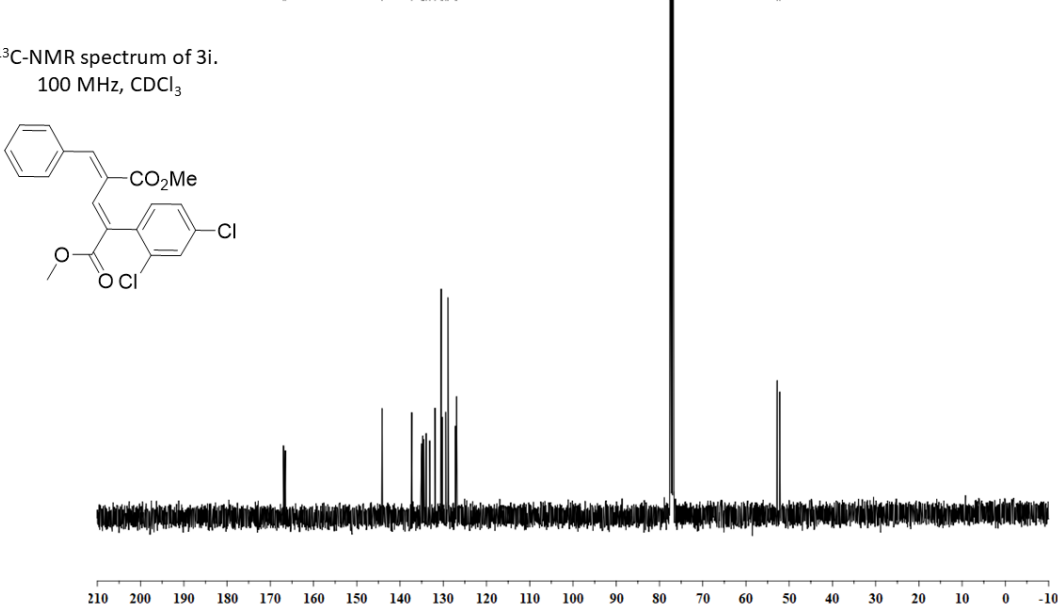
^{13}C-NMR spectrum of 3h.
100 MHz, $CDCl_3$



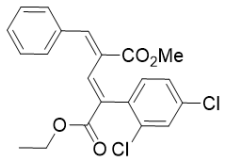
^{1}H-NMR spectrum of 3i.
400 MHz, $CDCl_3$



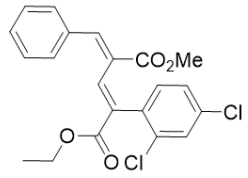
^{13}C-NMR spectrum of 3i.
100 MHz, $CDCl_3$

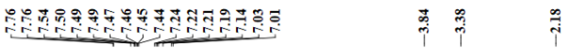


^{1}H-NMR spectrum of 3j.
400 MHz, $CDCl_3$

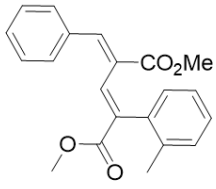


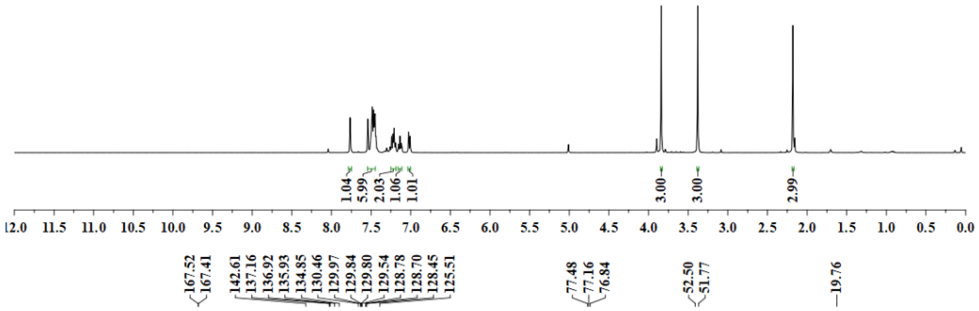
^{13}C-NMR spectrum of 3j.
100 MHz, $CDCl_3$



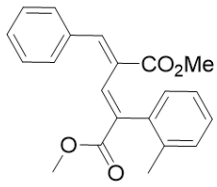


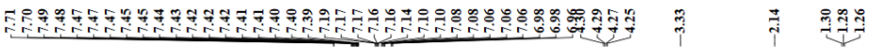
^{1}H-NMR spectrum of 3k.
400 MHz, $CDCl_3$



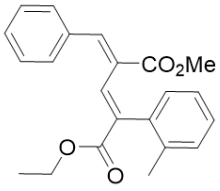


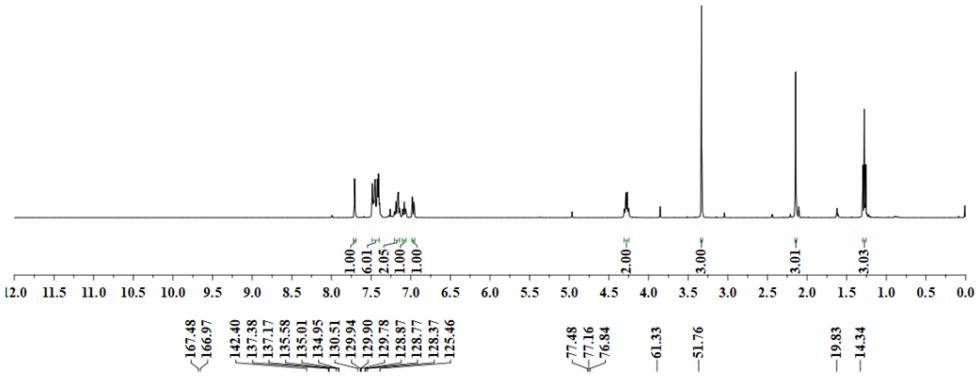
^{13}C-NMR spectrum of 3k.
100 MHz, $CDCl_3$



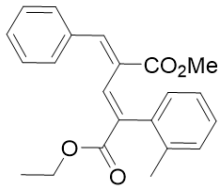


^{1}H-NMR spectrum of 3l.
400 MHz, $CDCl_3$

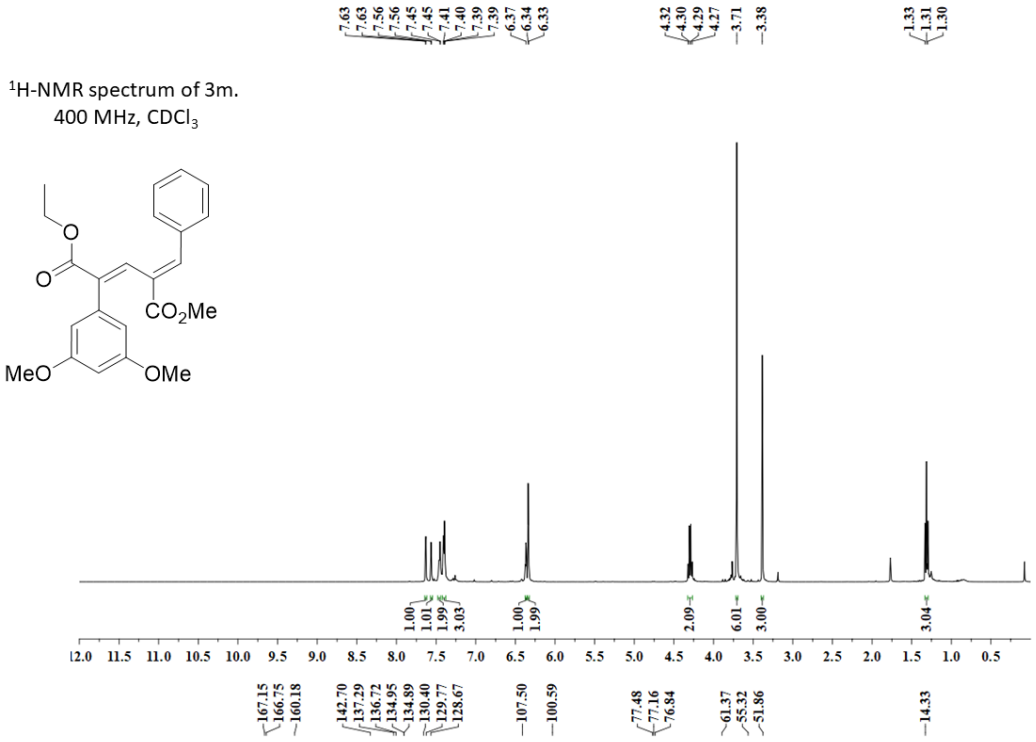




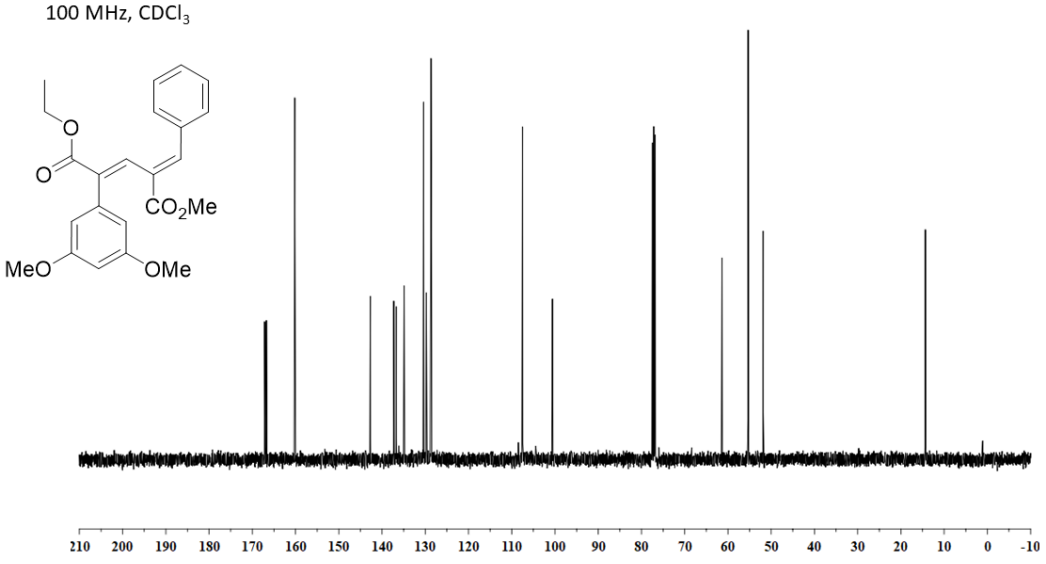
^{13}C-NMR spectrum of 3l.
100 MHz, $CDCl_3$

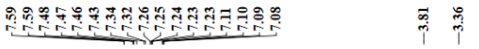


^{1}H-NMR spectrum of 3m.
400 MHz, $CDCl_3$

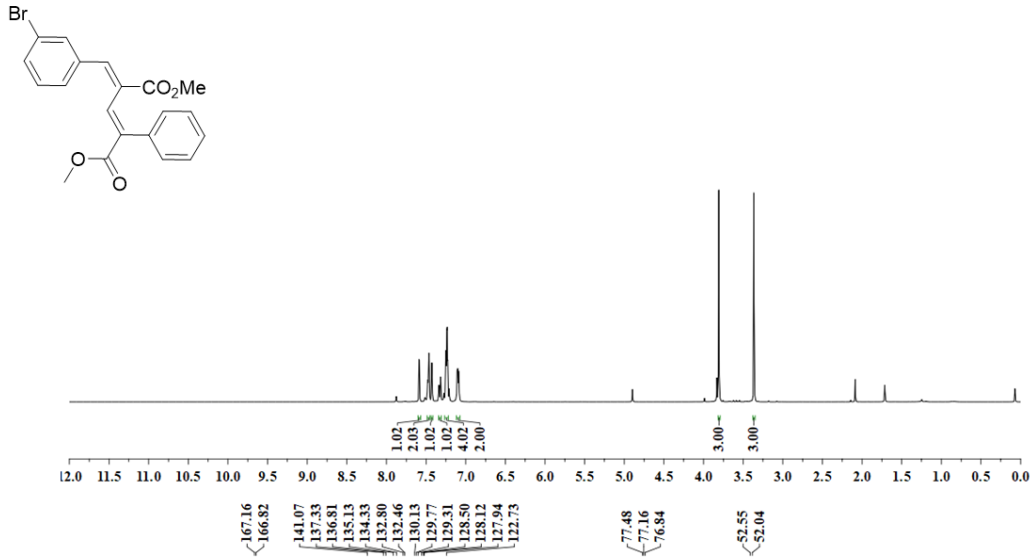


^{13}C-NMR spectrum of 3m.
100 MHz, $CDCl_3$

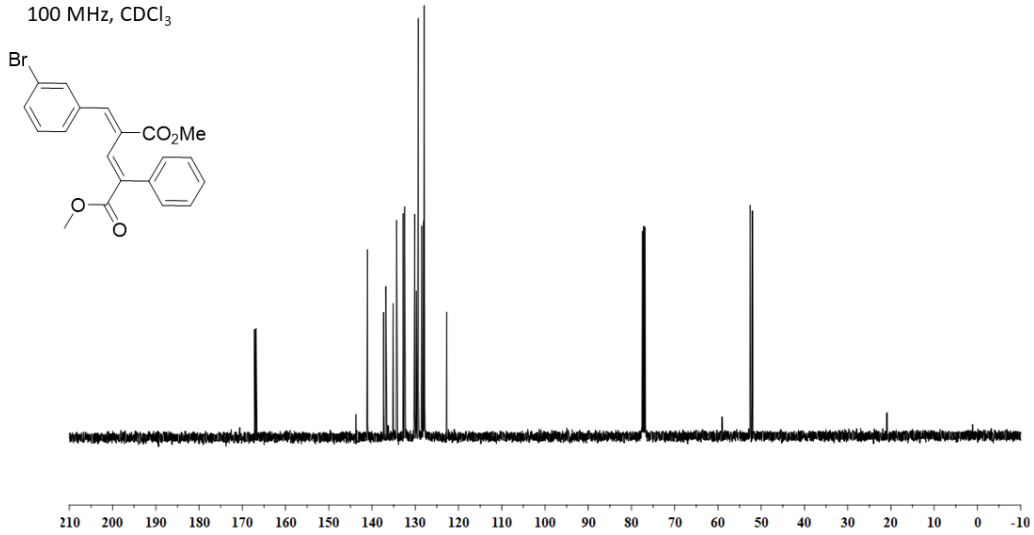


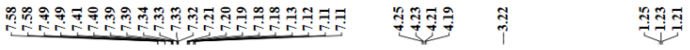


^{1}H-NMR spectrum of 4a.
400 MHz, $CDCl_3$

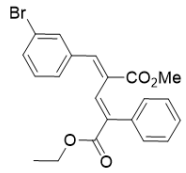


^{13}C-NMR spectrum of 4a.
100 MHz, $CDCl_3$

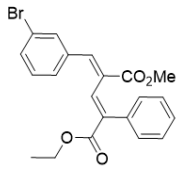


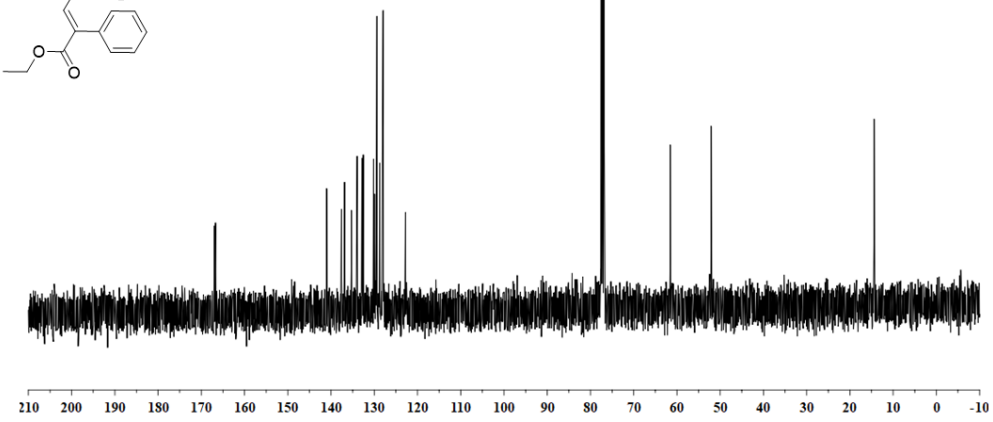


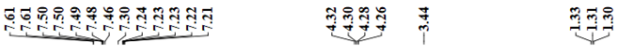
^{1}H-NMR spectrum of 4b.
400 MHz, $CDCl_3$



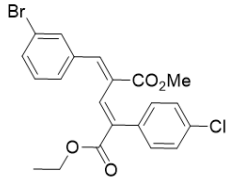
^{13}C-NMR spectrum of 4b.
100 MHz, $CDCl_3$

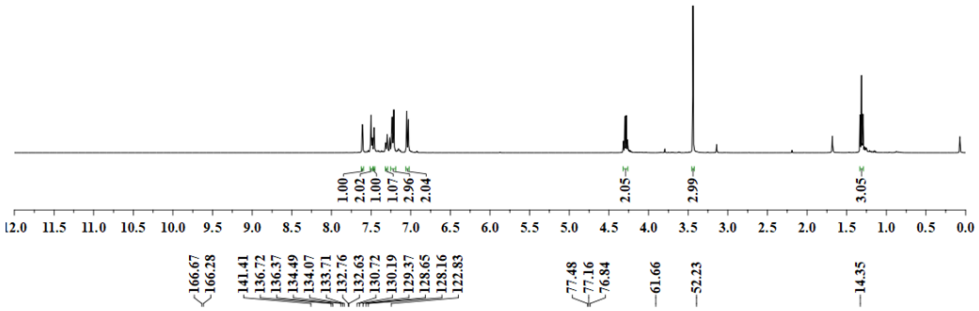




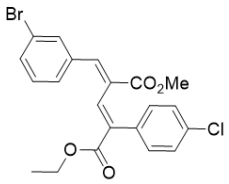


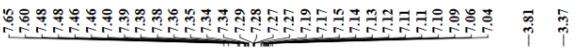
^{1}H-NMR spectrum of 4c.
400 MHz, $CDCl_3$



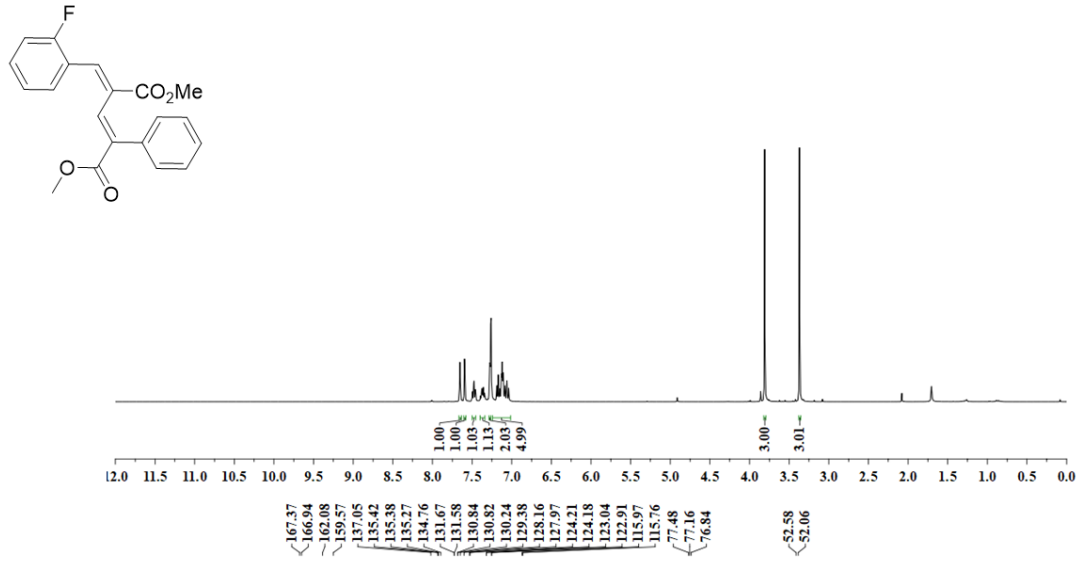


^{13}C-NMR spectrum of 4c.
100 MHz, $CDCl_3$

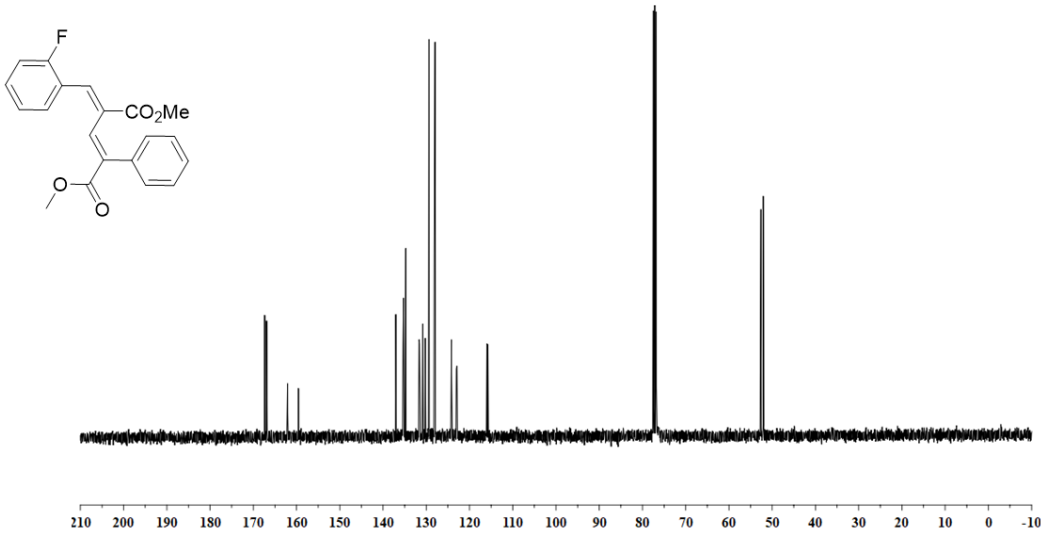


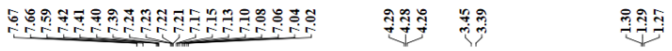


^{1}H-NMR spectrum of 4d.
400 MHz, $CDCl_3$

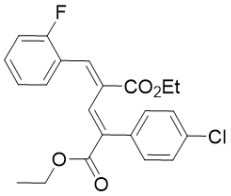


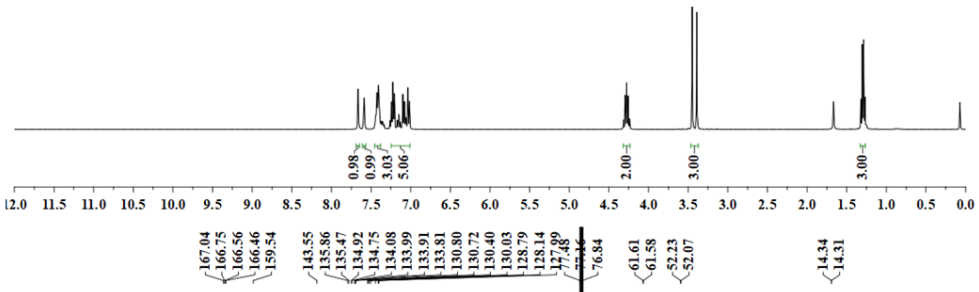
^{13}C-NMR spectrum of 4d.
100 MHz, $CDCl_3$



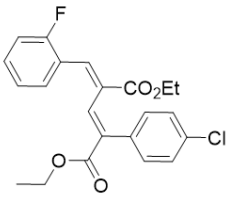


^{1}H-NMR spectrum of 4e.
400 MHz, $CDCl_3$

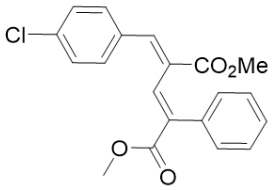




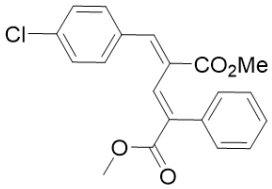
^{13}C-NMR spectrum of 4e.
100 MHz, $CDCl_3$

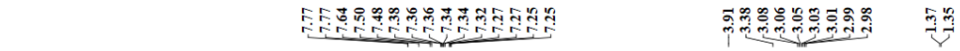


^{1}H-NMR spectrum of 4f.
400 MHz, $CDCl_3$

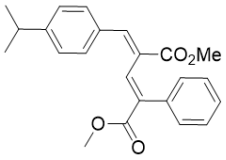


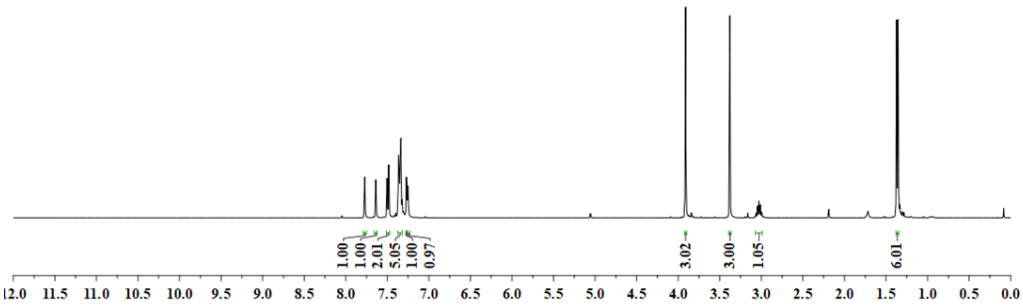
^{13}C-NMR spectrum of 4f.
100 MHz, $CDCl_3$

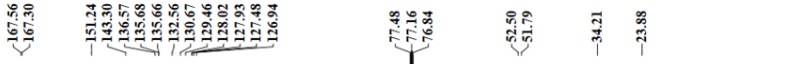




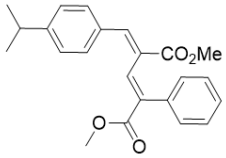
^{1}H-NMR spectrum of 4g.
400 MHz, $CDCl_3$



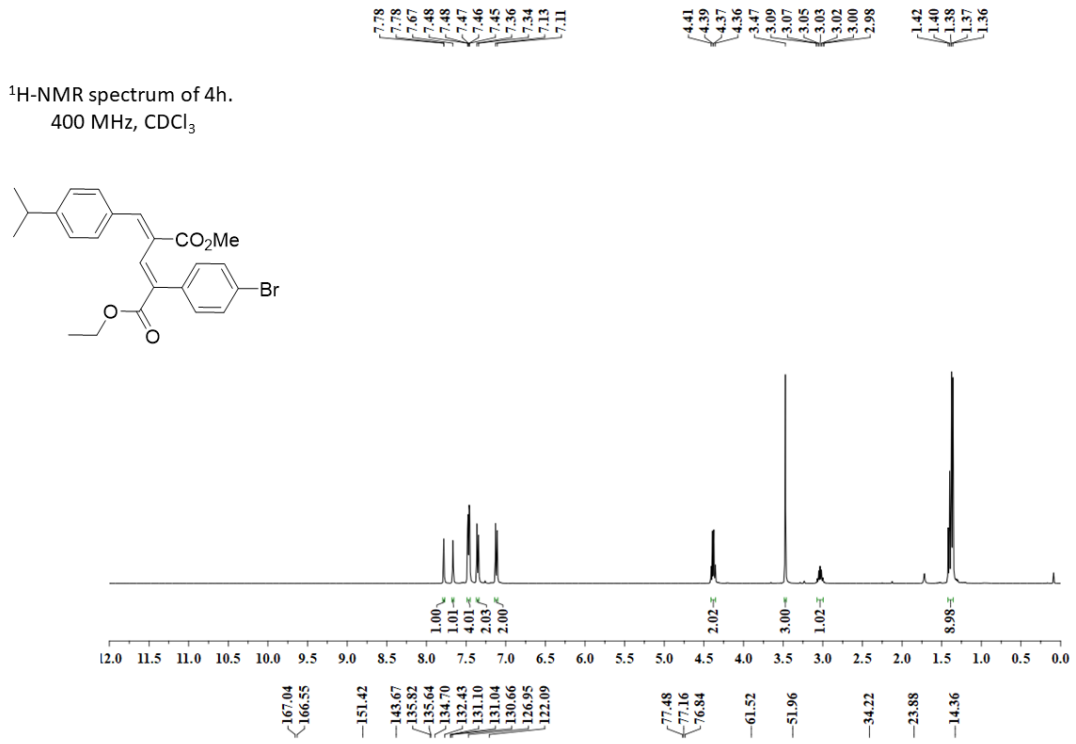




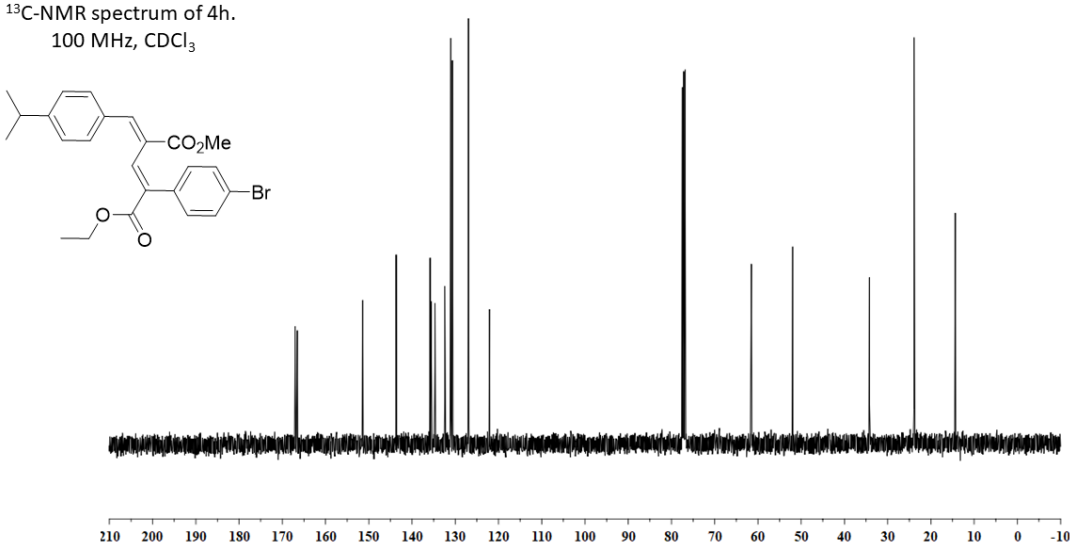
^{13}C-NMR spectrum of 4g.
100 MHz, $CDCl_3$



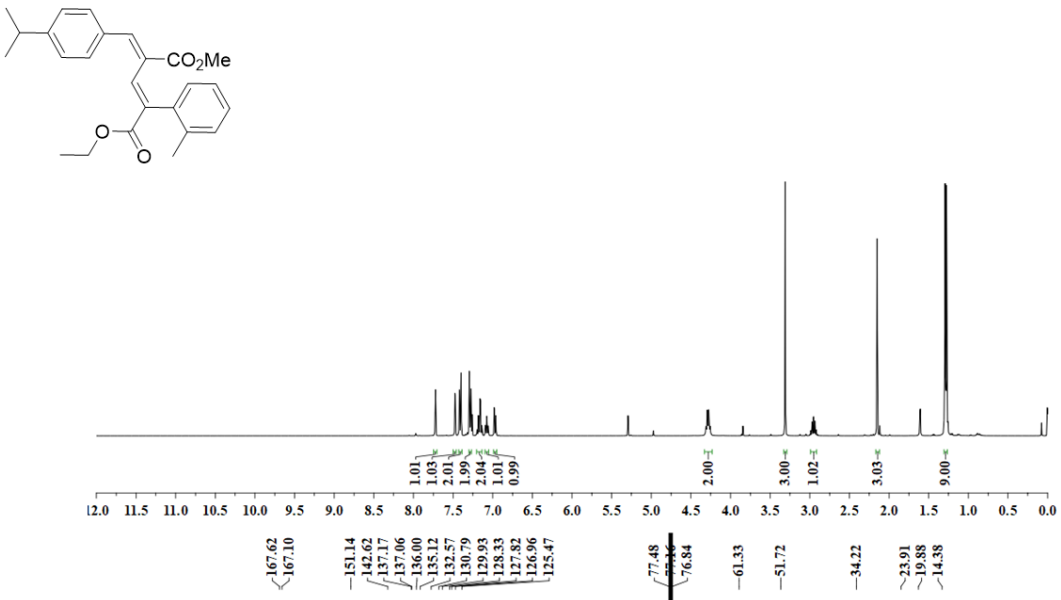
^{1}H-NMR spectrum of 4h.
400 MHz, $CDCl_3$



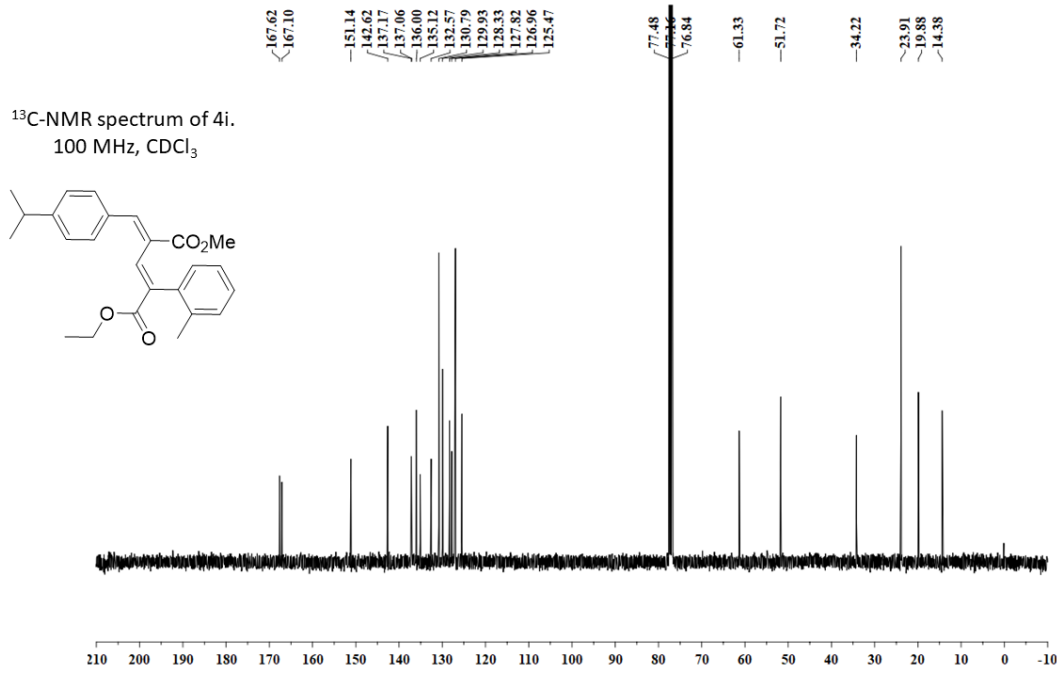
^{13}C-NMR spectrum of 4h.
100 MHz, $CDCl_3$



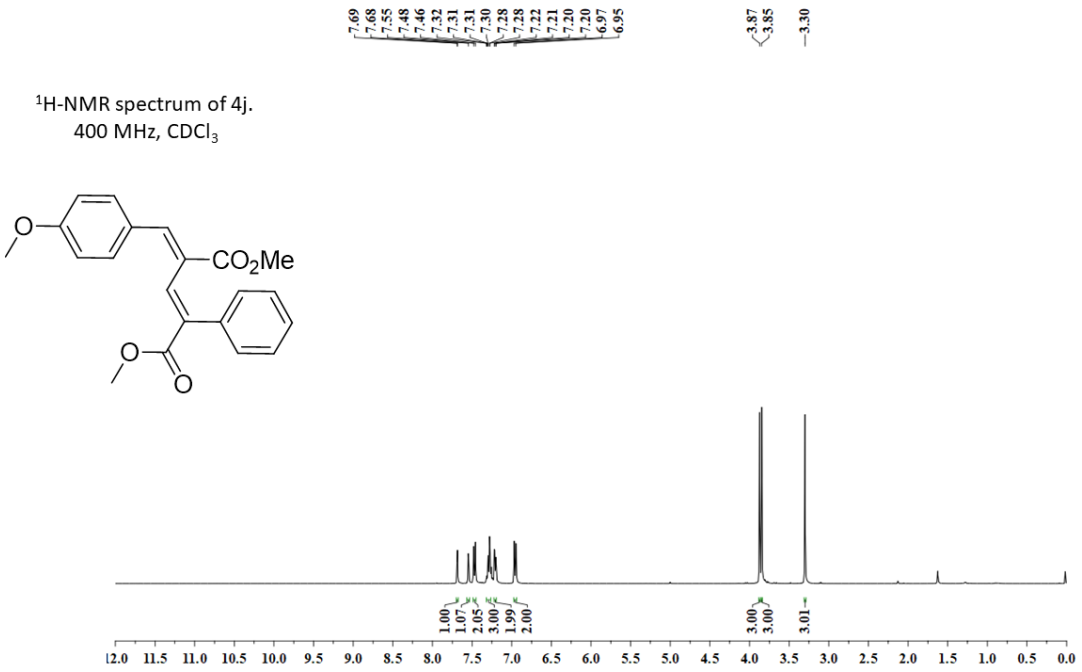
^{1}H-NMR spectrum of 4i.
400 MHz, $CDCl_3$



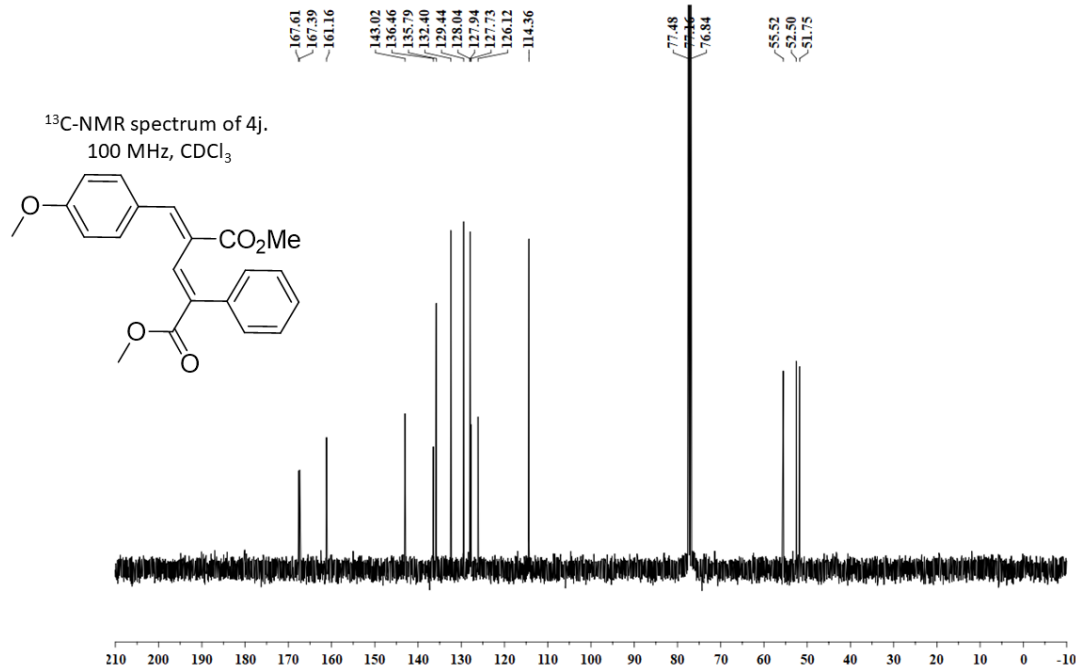
^{13}C-NMR spectrum of 4i.
100 MHz, $CDCl_3$



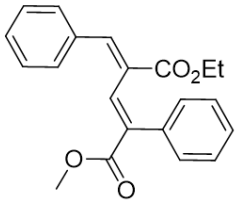
^{1}H-NMR spectrum of 4j.
400 MHz, $CDCl_3$

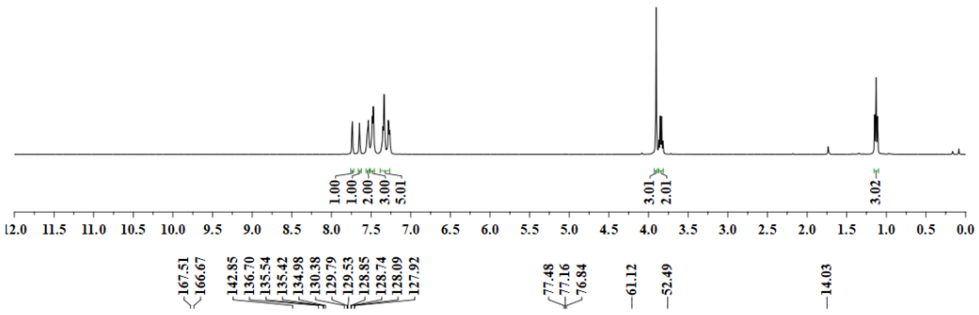


^{13}C-NMR spectrum of 4j.
100 MHz, $CDCl_3$

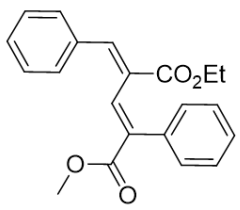


^{1}H-NMR spectrum of 4k.
400 MHz, $CDCl_3$

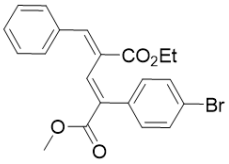


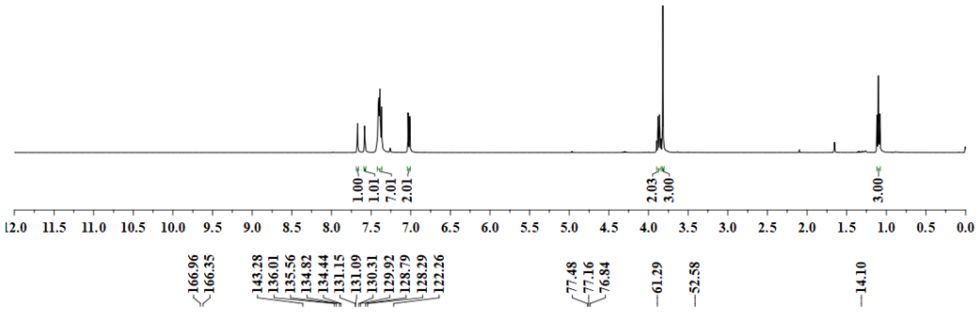


^{13}C-NMR spectrum of 4k.
100 MHz, $CDCl_3$

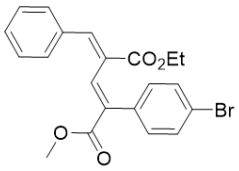


^{1}H-NMR spectrum of 4l.
400 MHz, $CDCl_3$

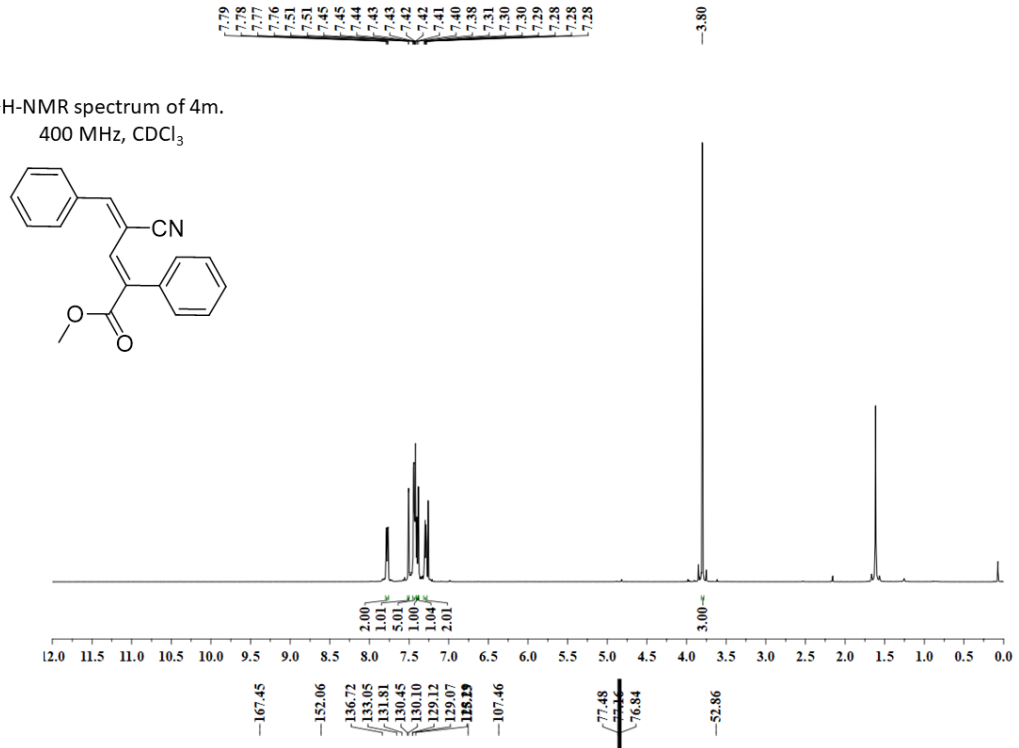




^{13}C-NMR spectrum of 4l.
100 MHz, $CDCl_3$



^{1}H-NMR spectrum of 4m.
400 MHz, $CDCl_3$



^{13}C-NMR spectrum of 4m.
100 MHz, $CDCl_3$