

Supplementary Material

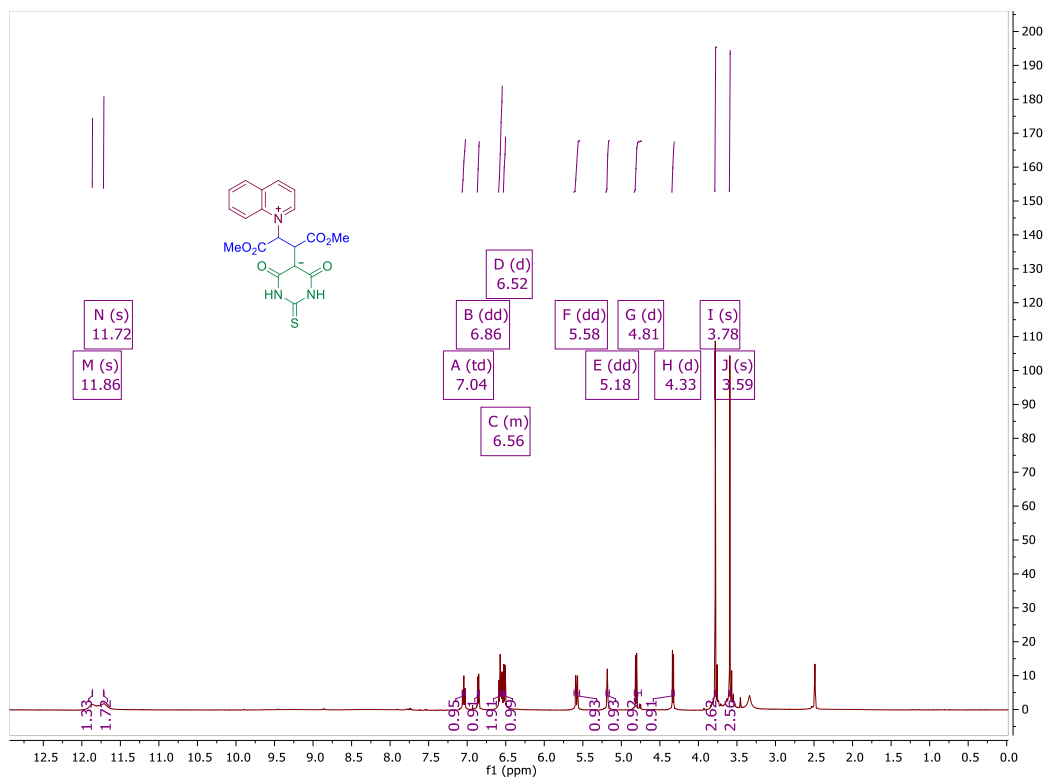
Formation of zwitterionic salts via via three-component reactions of barbituric/thiobarbituric acid, N-heterocyclic compounds and dialkyl acetylenedicarboxylates

Mohammad Anary-Abbasinejad^a, Frershteh Nezhad-shshrokhadi^a

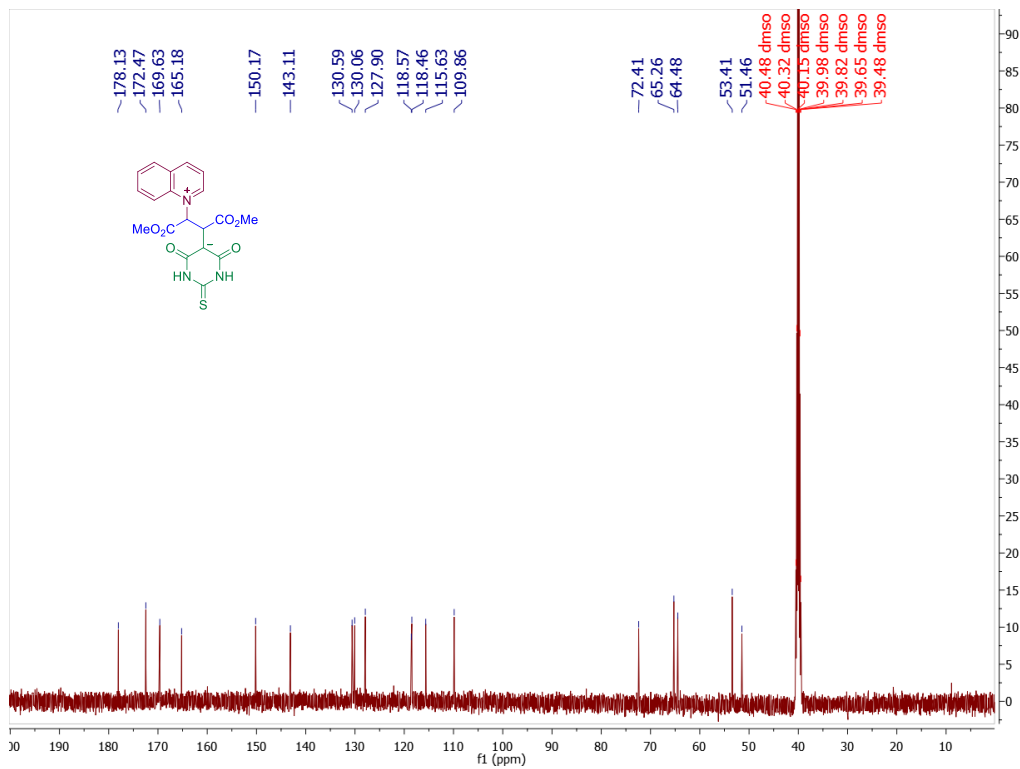
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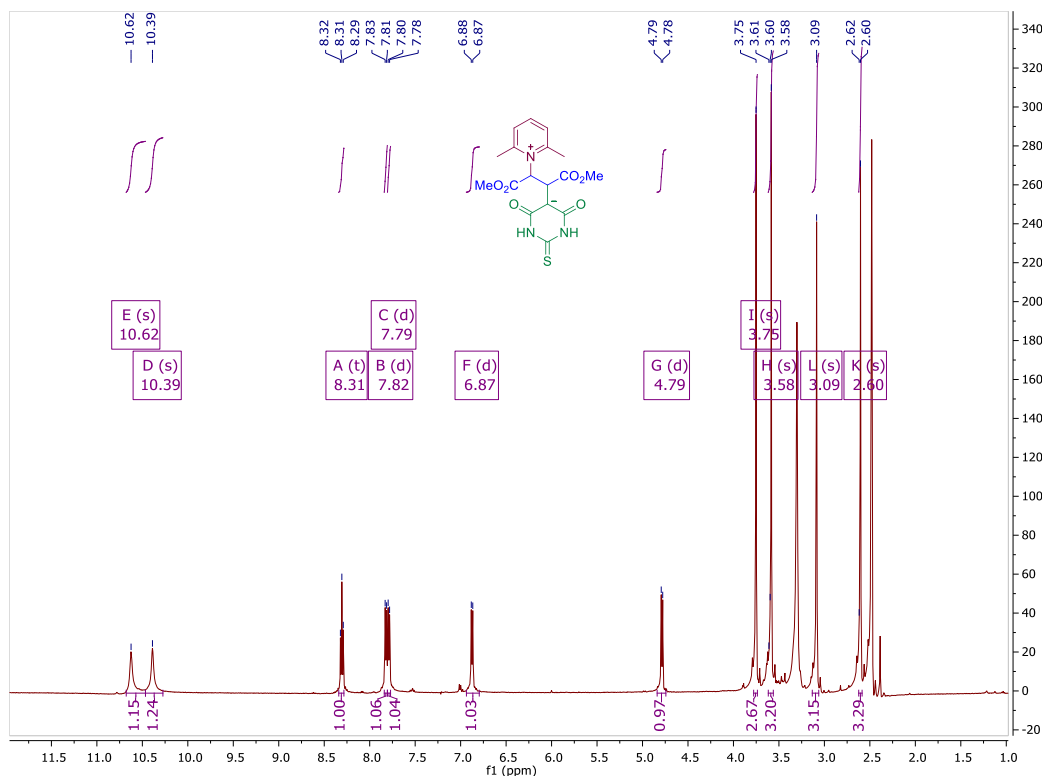
1. ¹H NMR and ¹³C NMR spectrums for compounds **4a-l** S2



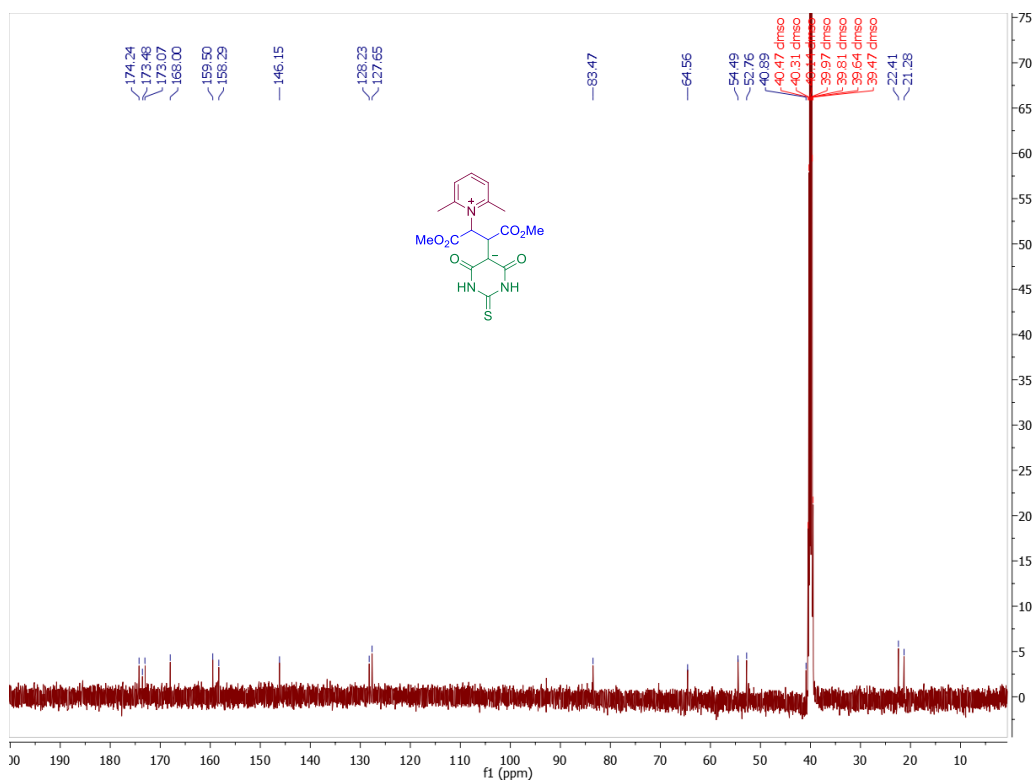
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4a):



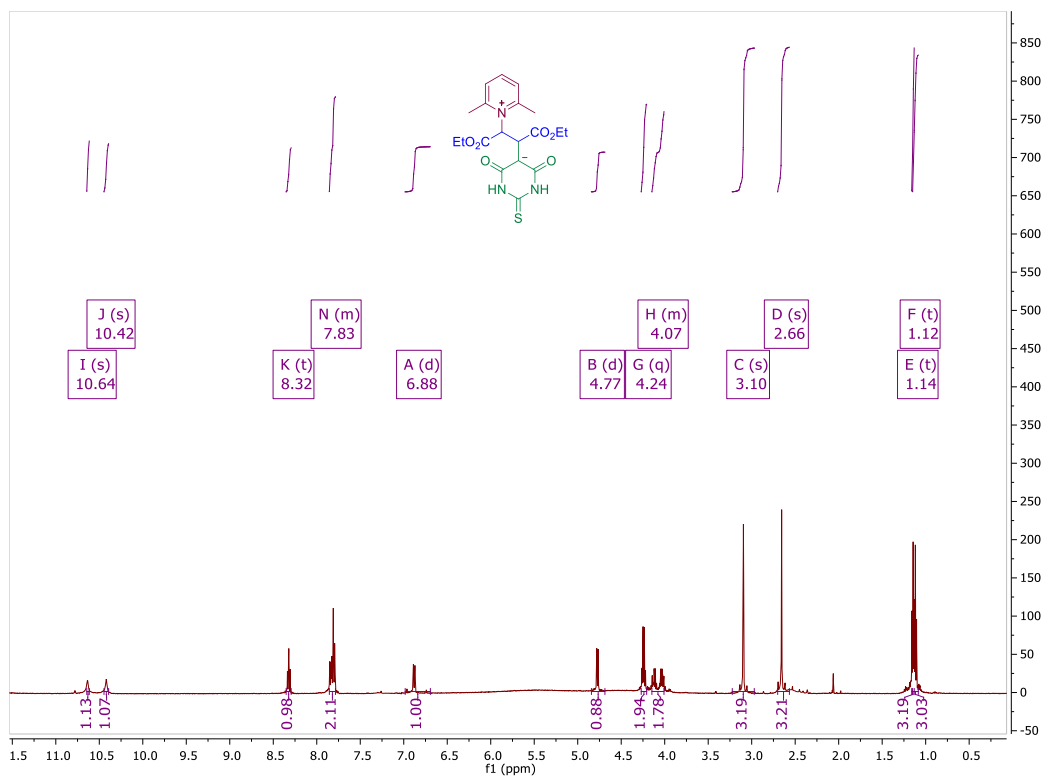
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound (4a):



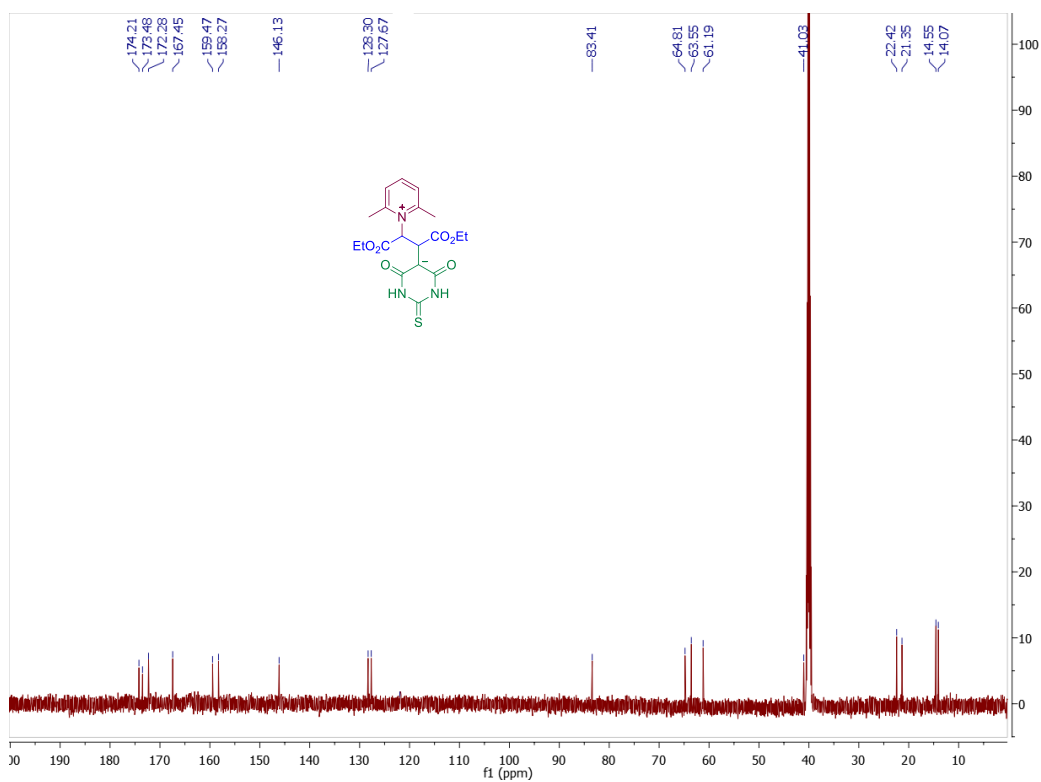
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4b):



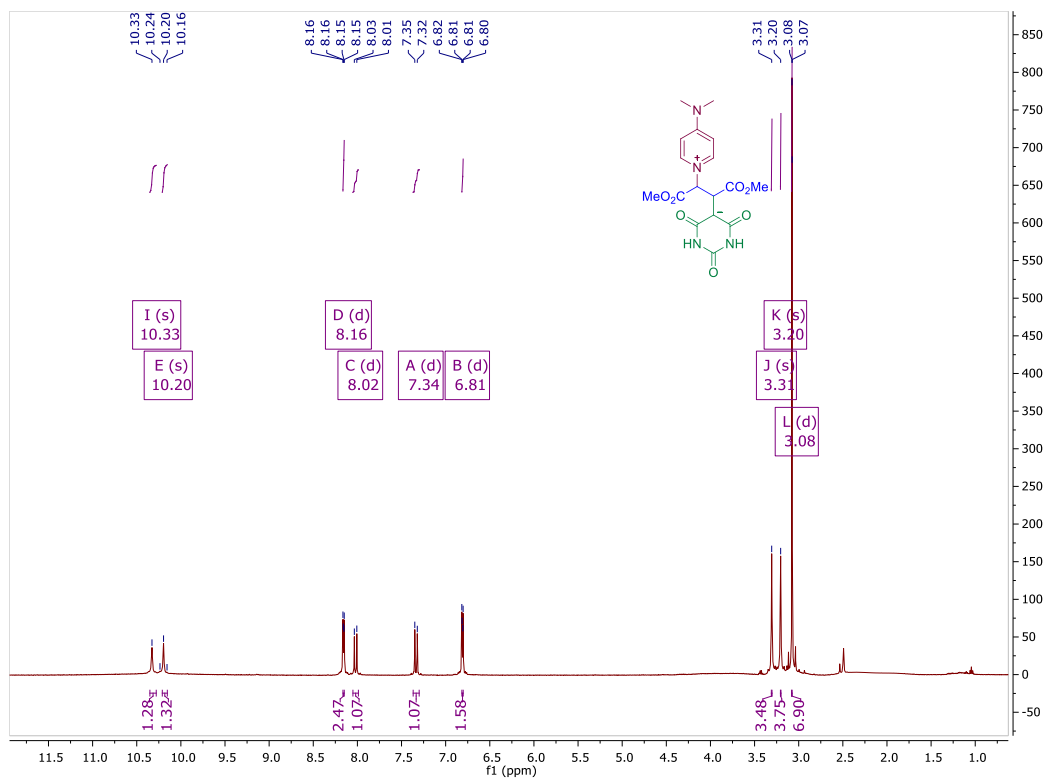
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound (4b):



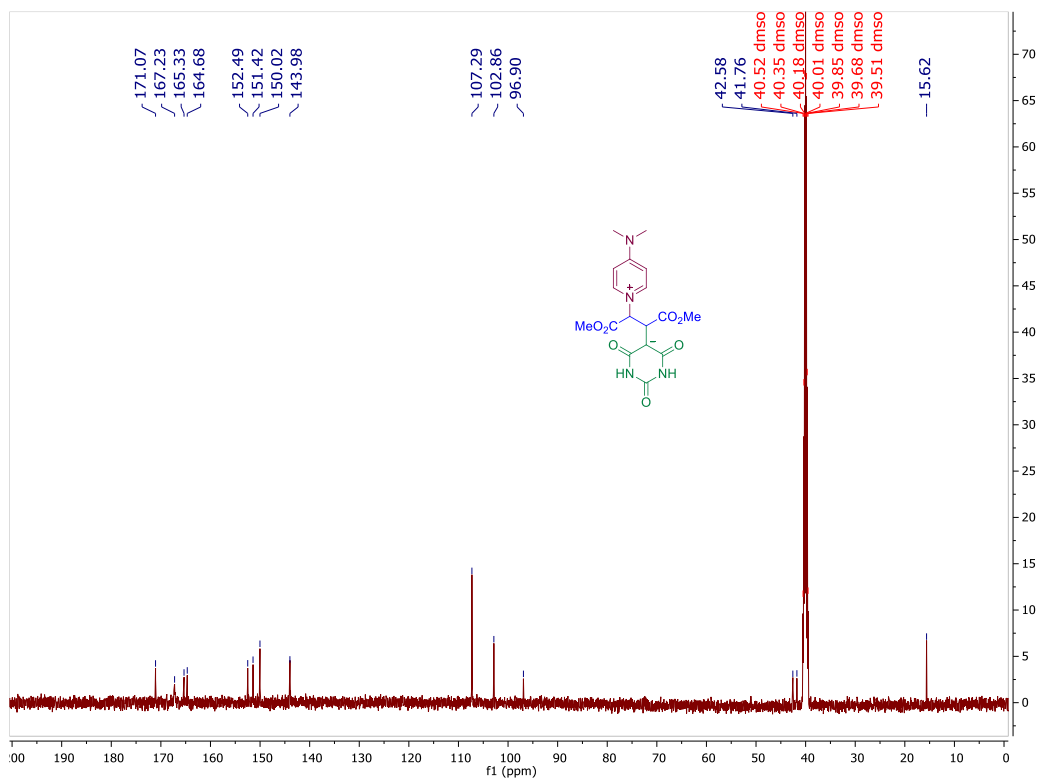
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4c):



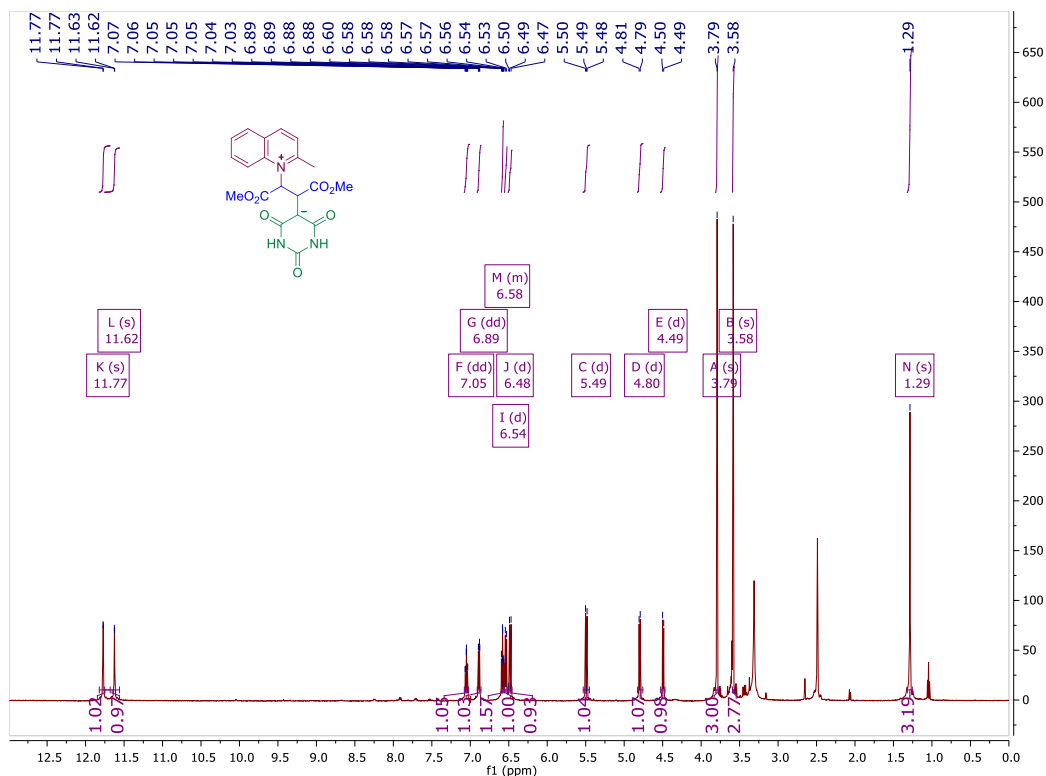
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound (4c):



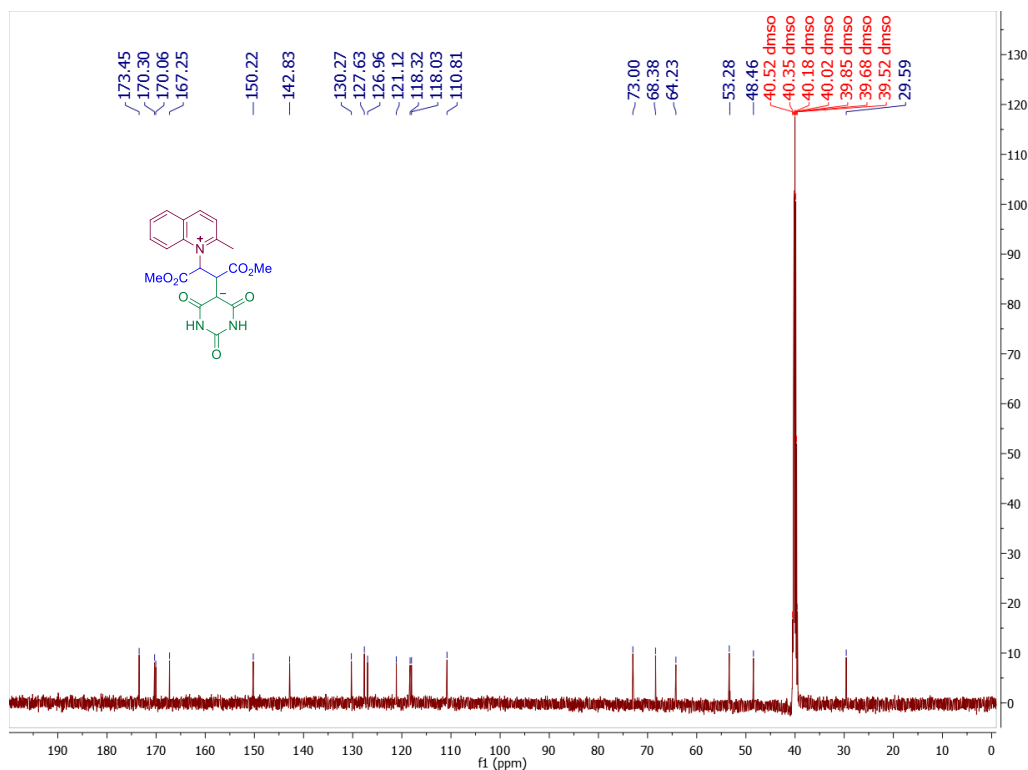
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4d):



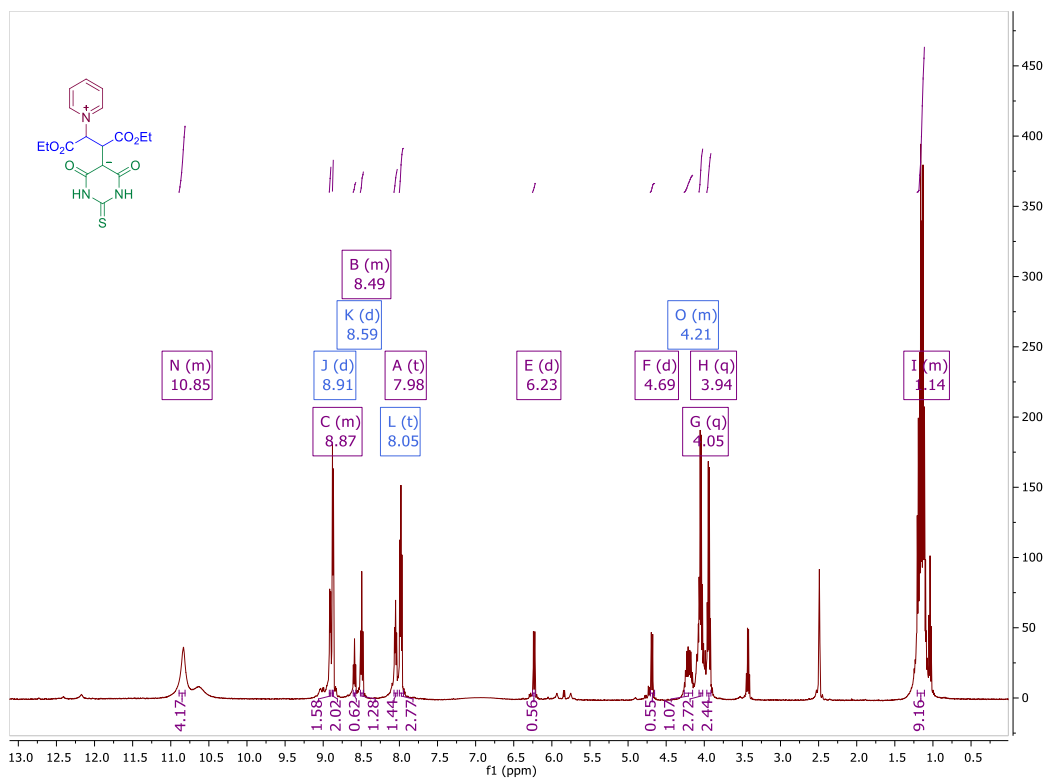
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound(4d)



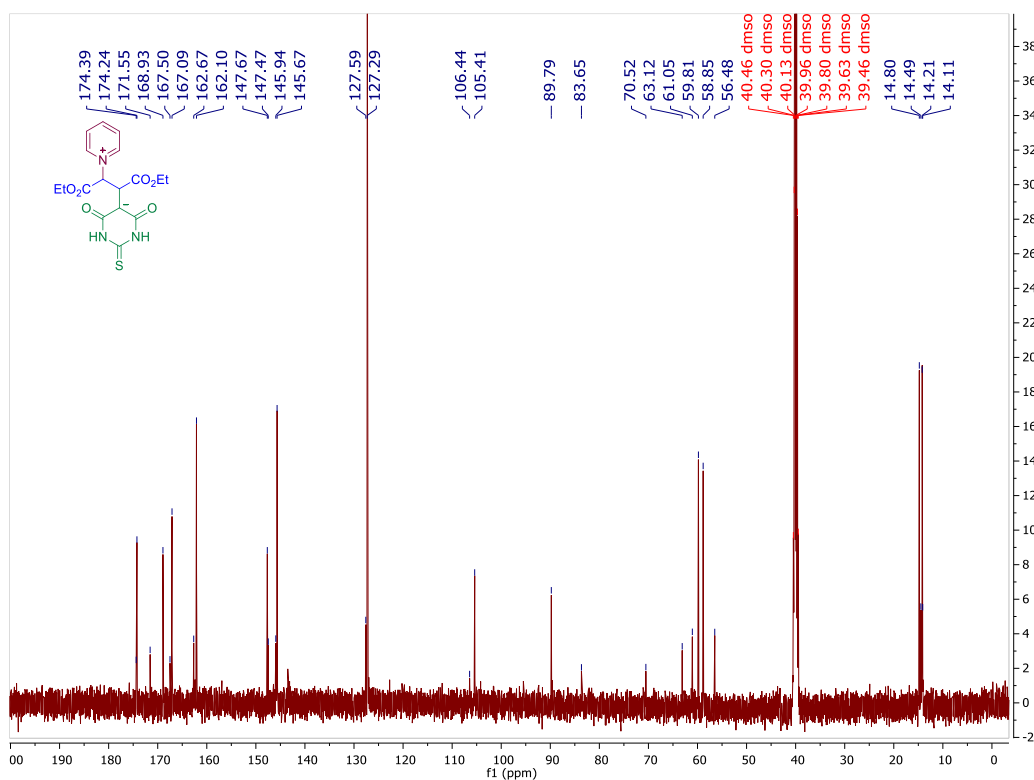
^1H NMR Spectrum (500 MHz, DMSO- d_6) of compound (4e):



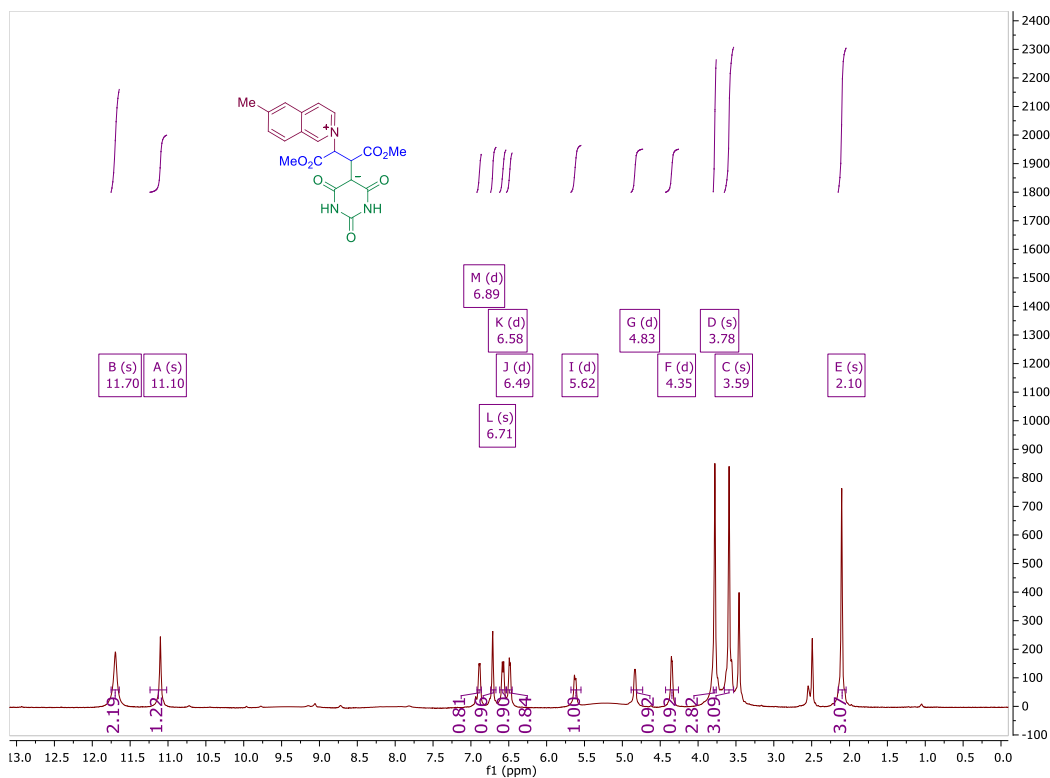
^{13}C NMR (125 MHz, DMSO- d_6) spectrum of compound(4e):



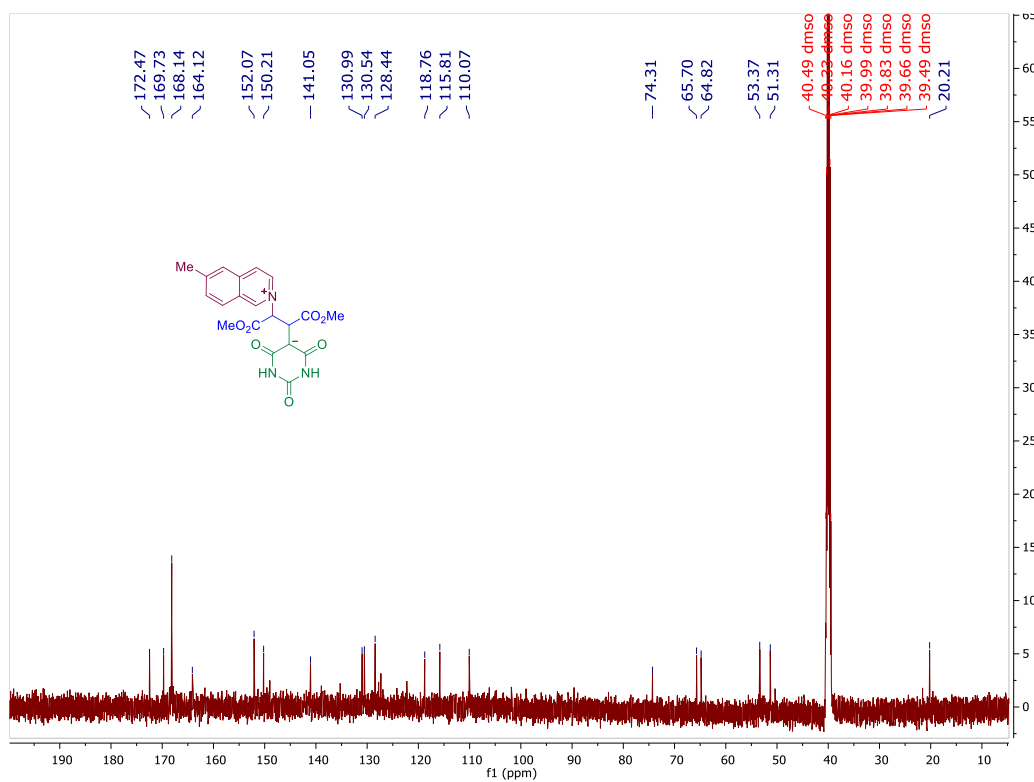
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4f):



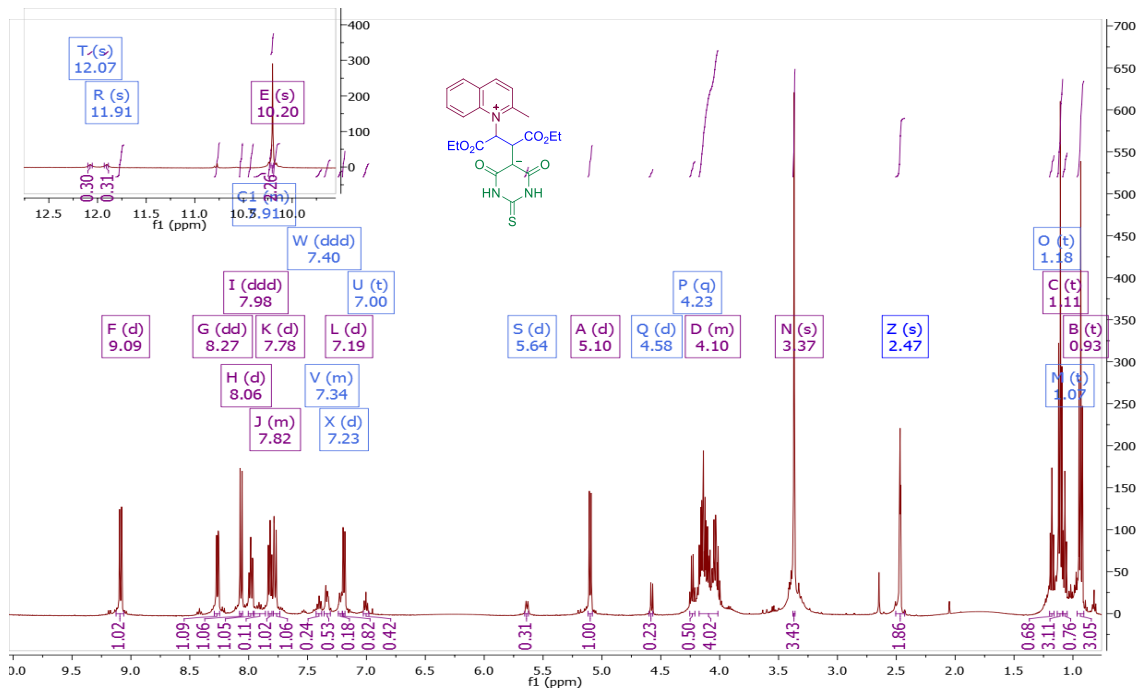
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound (4f):



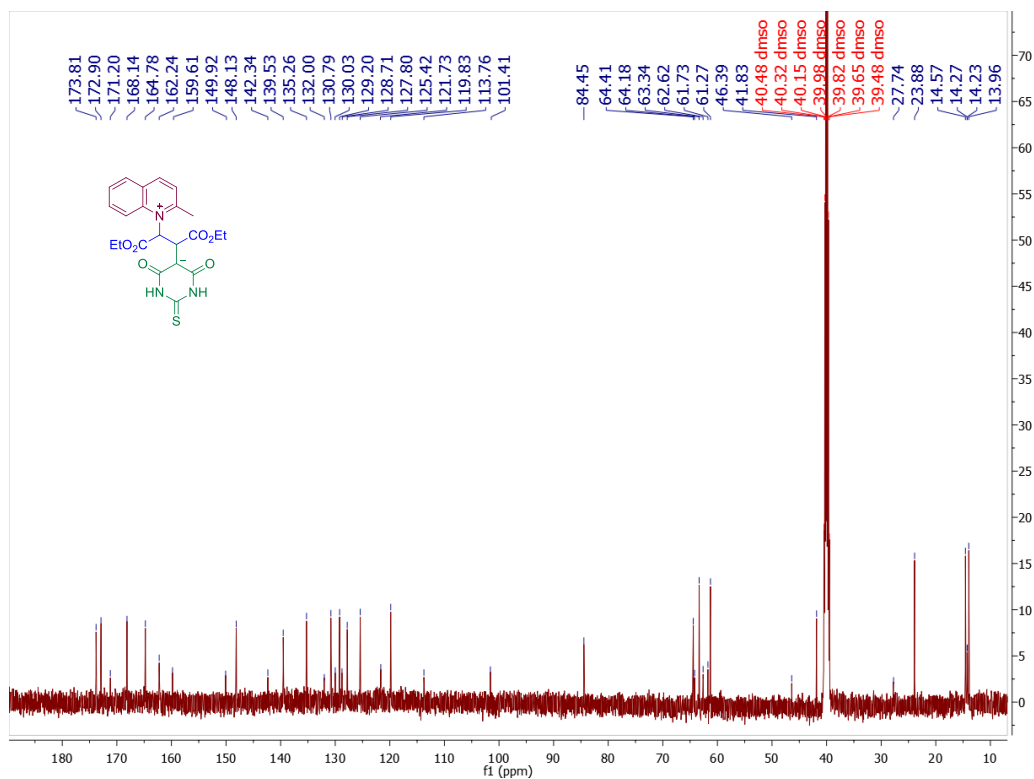
^1H NMR Spectrum (500 MHz, DMSO- d_6) of compound (4g):



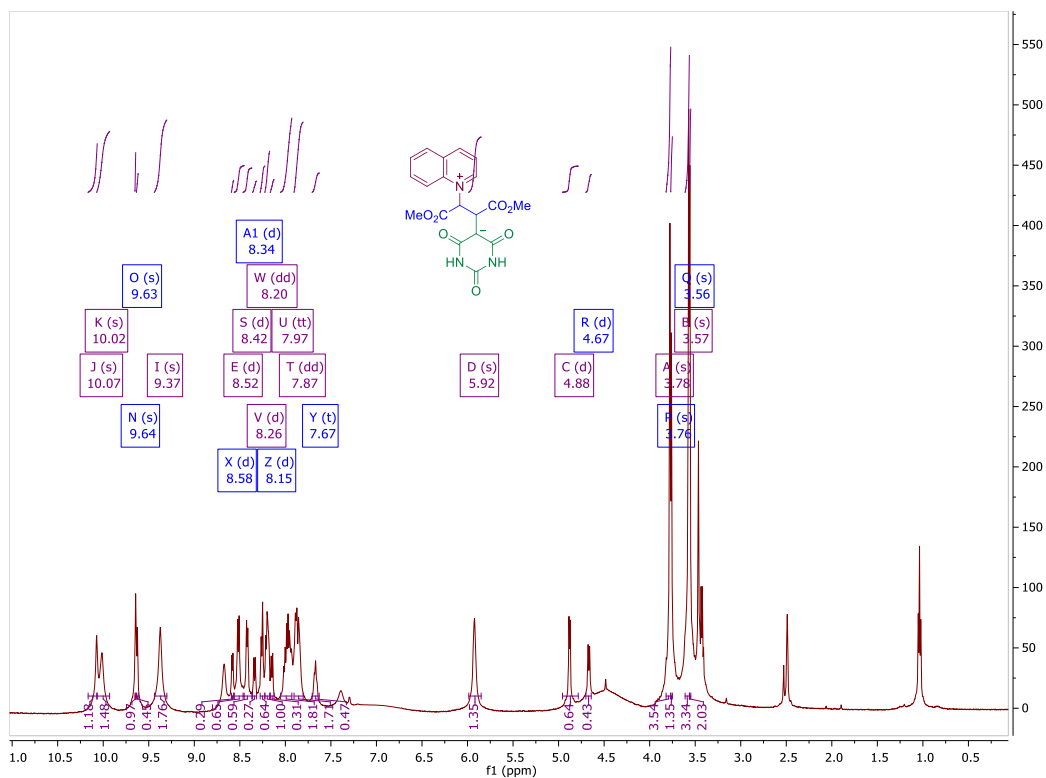
^{13}C NMR (125 MHz, DMSO- d_6) spectrum of compound(4g):



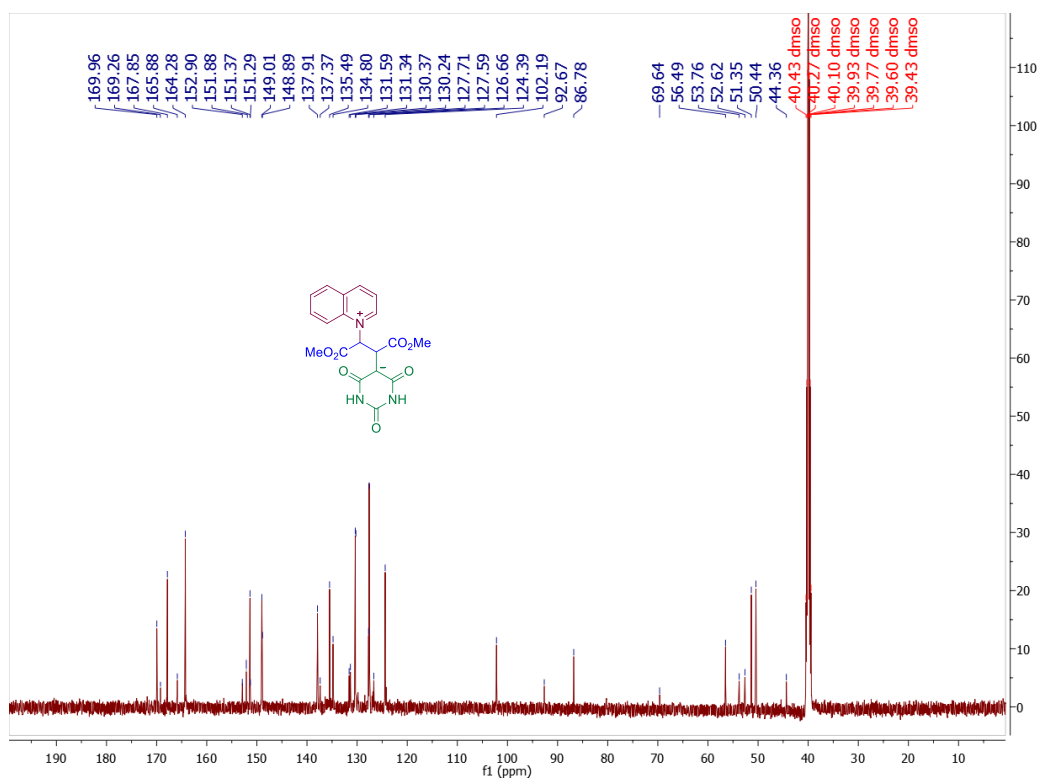
¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4h):



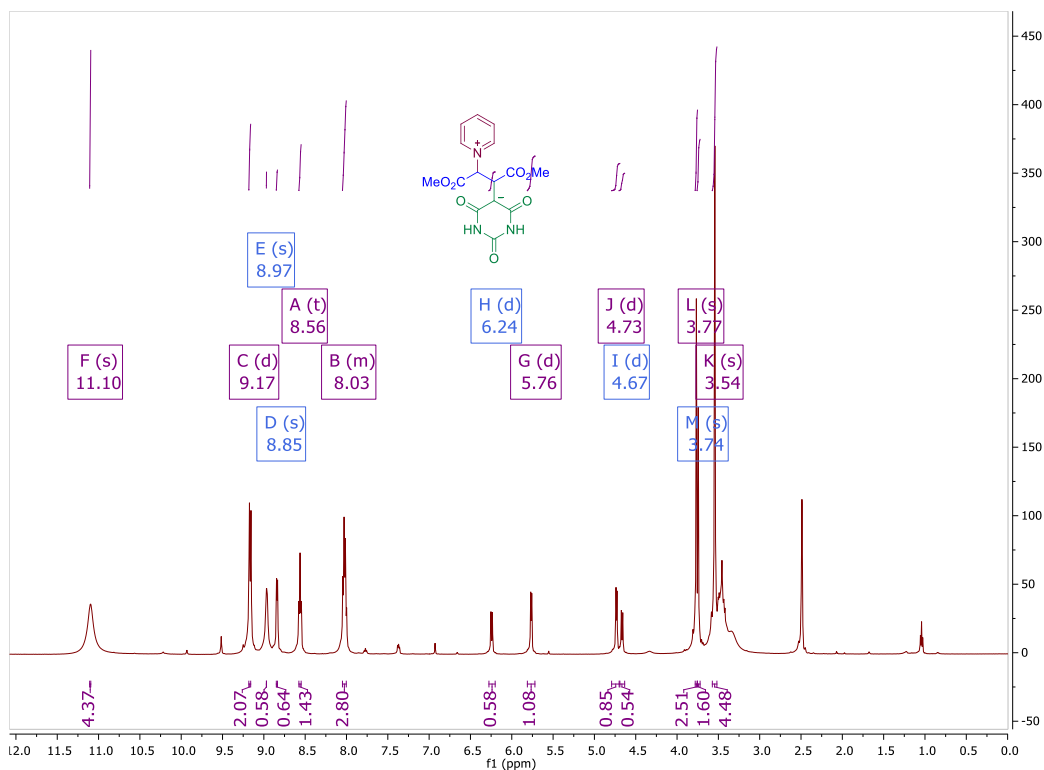
¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound(4h):



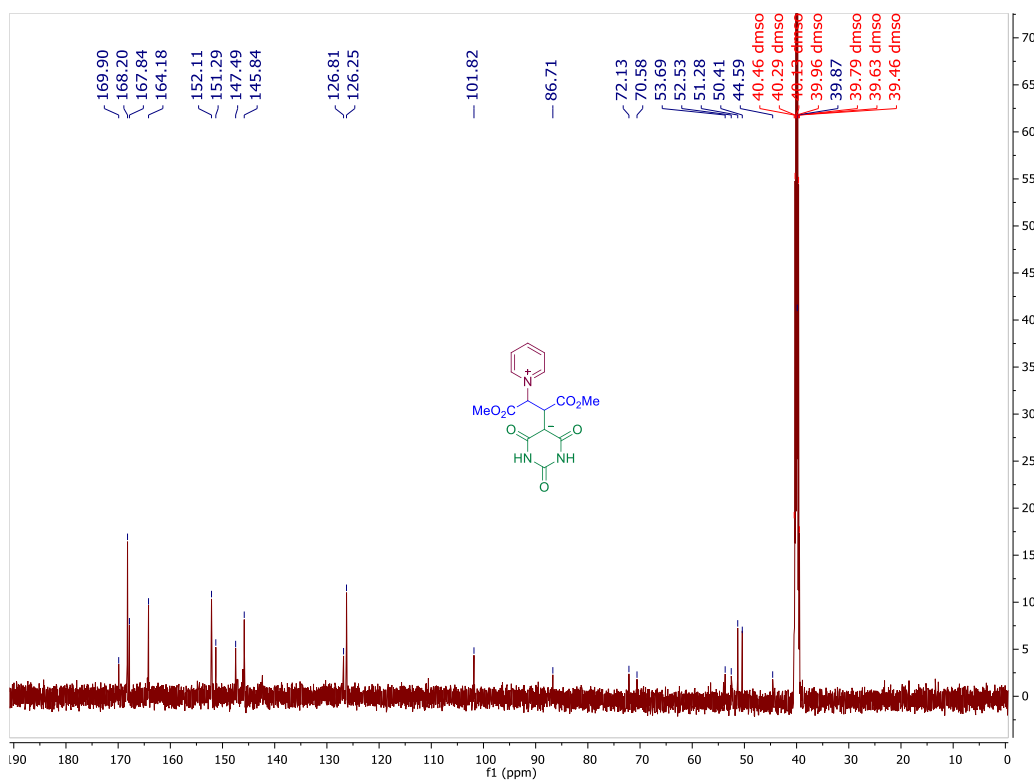
^1H NMR Spectrum (500 MHz, DMSO- d_6) of compound (4i):



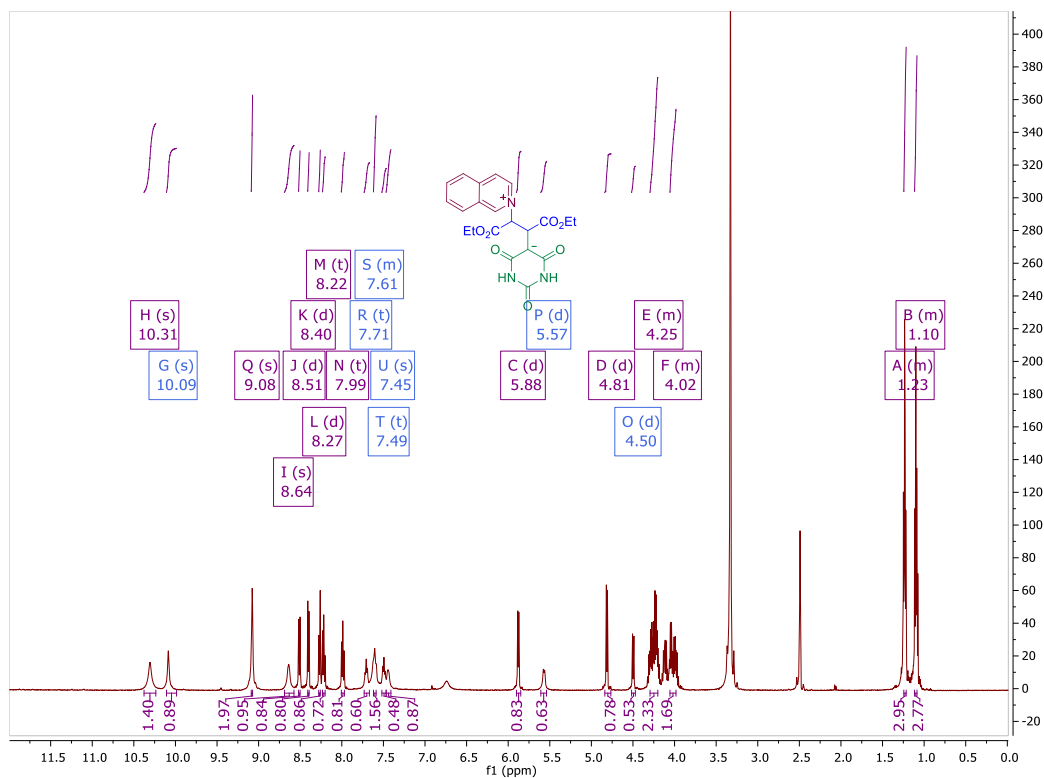
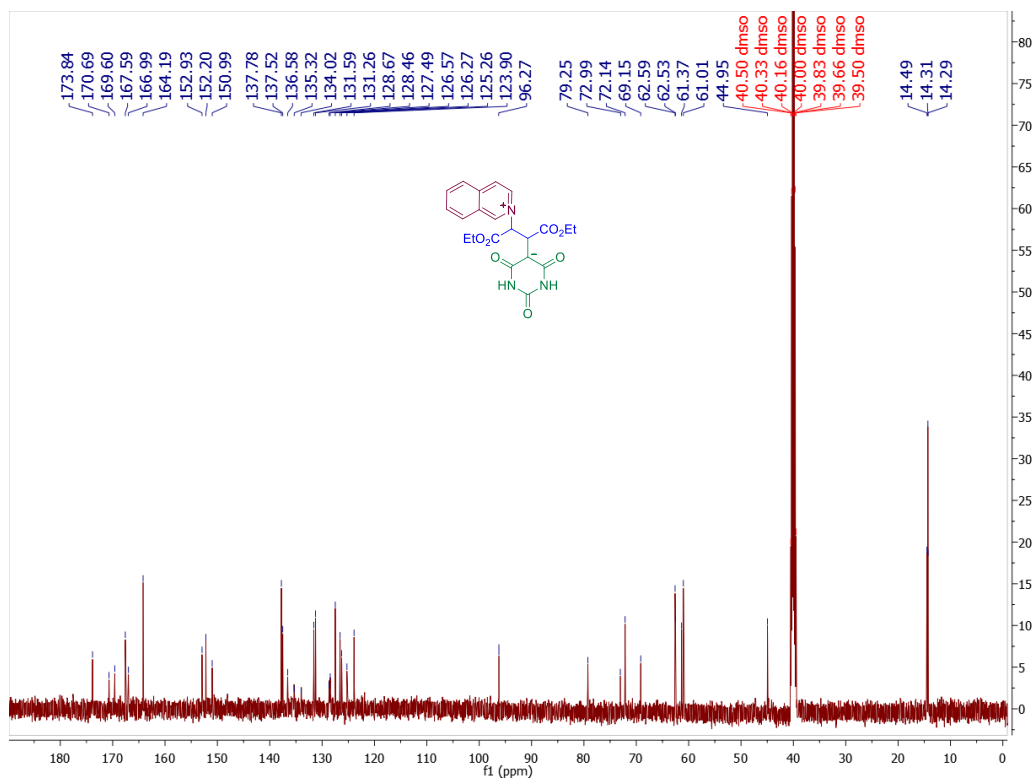
^{13}C NMR (125 MHz, DMSO- d_6) spectrum of compound (4i):

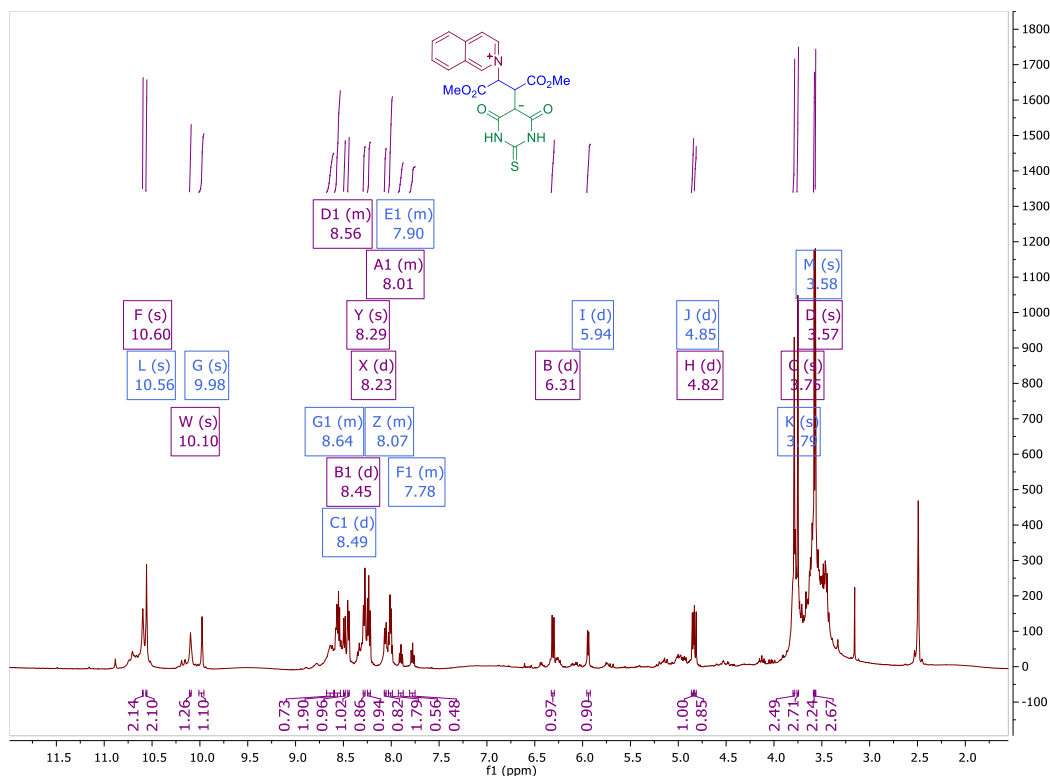
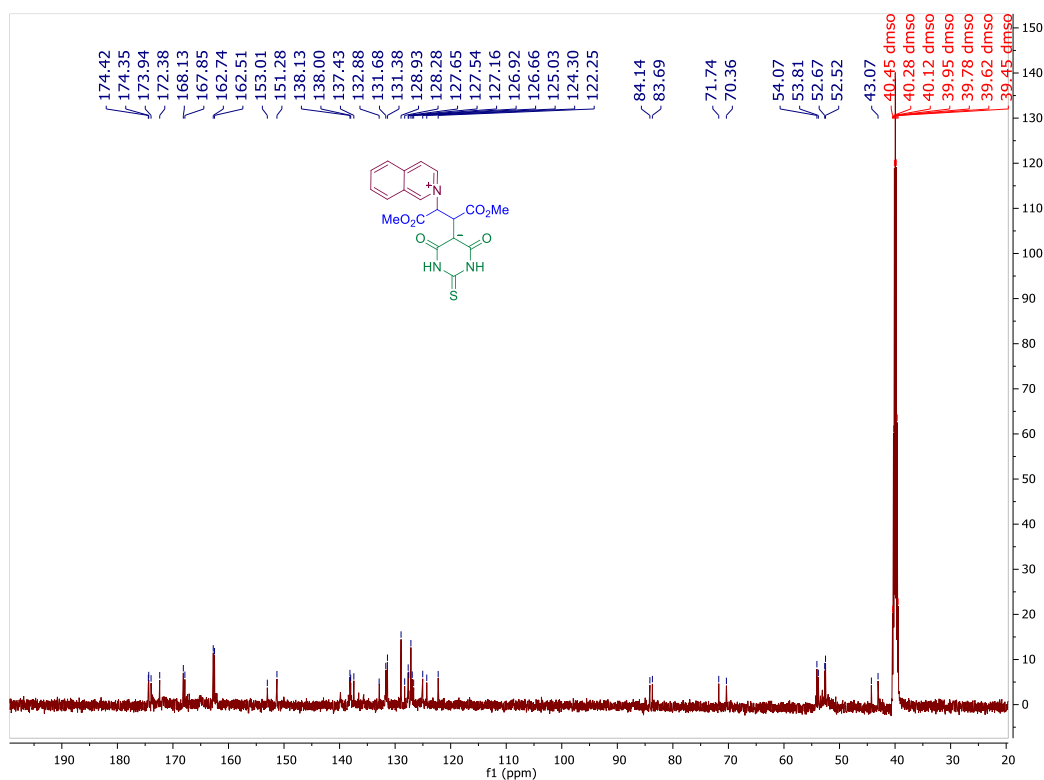


¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4j):



¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound (4j):

 ^1H NMR Spectrum (500 MHz, DMSO- d_6) of compound (4k): ^{13}C NMR (125 MHz, DMSO- d_6) spectrum of compound (4k)

¹H NMR Spectrum (500 MHz, DMSO- d₆) of compound (4l):¹³C NMR (125 MHz, DMSO- d₆) spectrum of compound(4l)