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Regioselective α-arylation of coumarins and 2-pyridones with phenylhydrazines under transition-metal-free condition

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[b]*National Institute of Pharmaceutical Education and Research, Raebareli, India-229010.*

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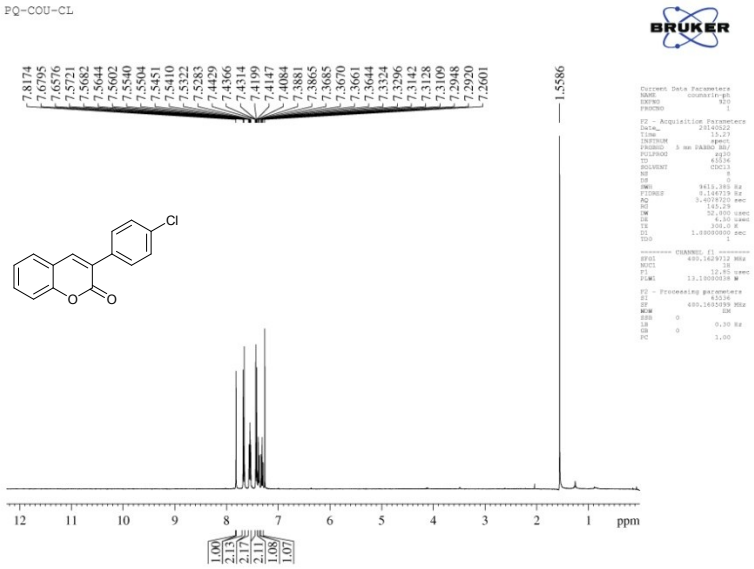
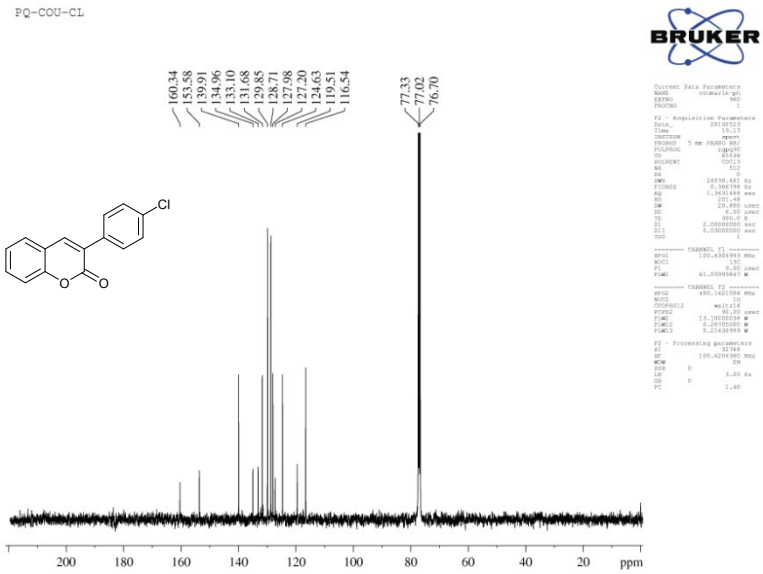
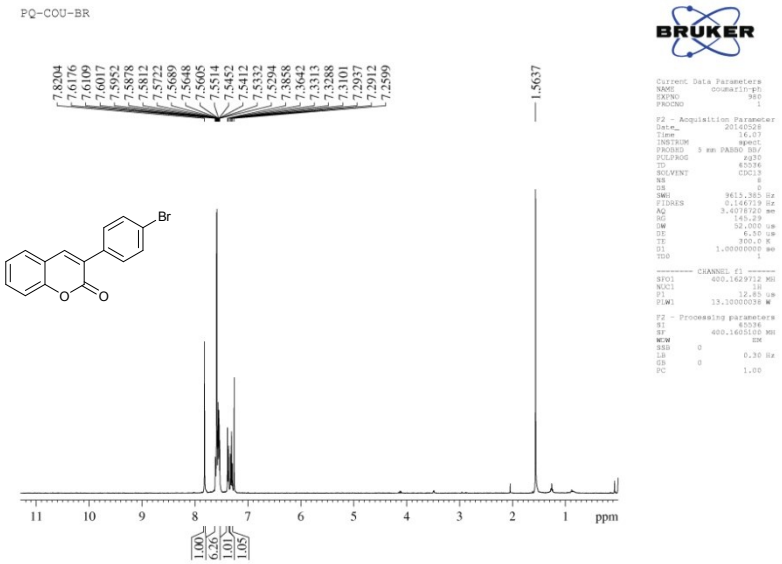


^{1}H NMR Spectra of (**3a**) (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**3a**) (100 MHz, $CDCl_3$)



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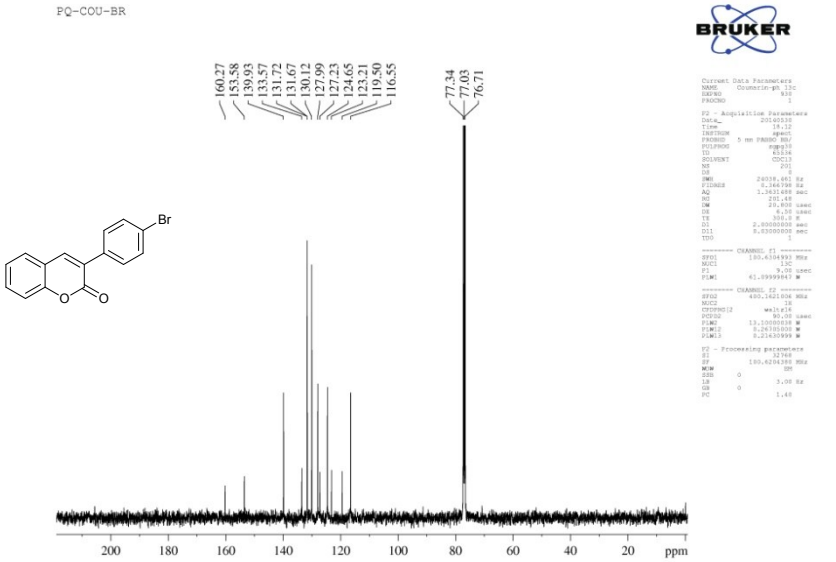
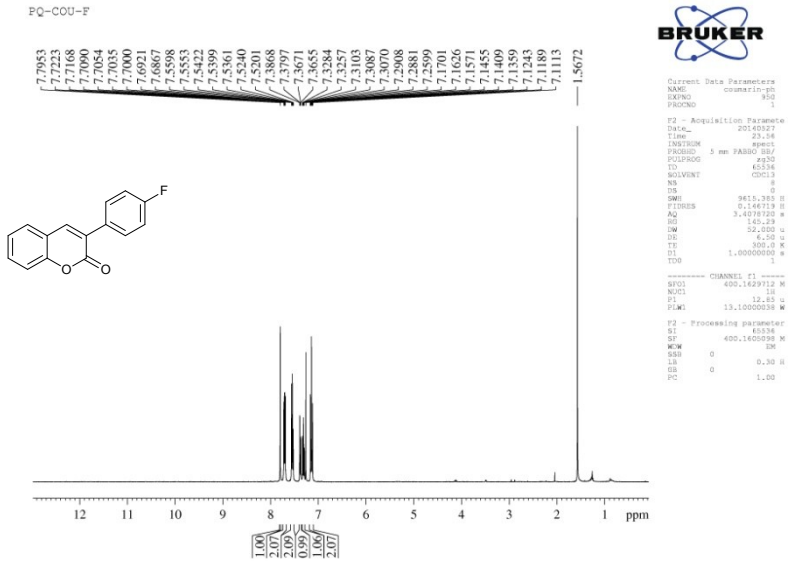
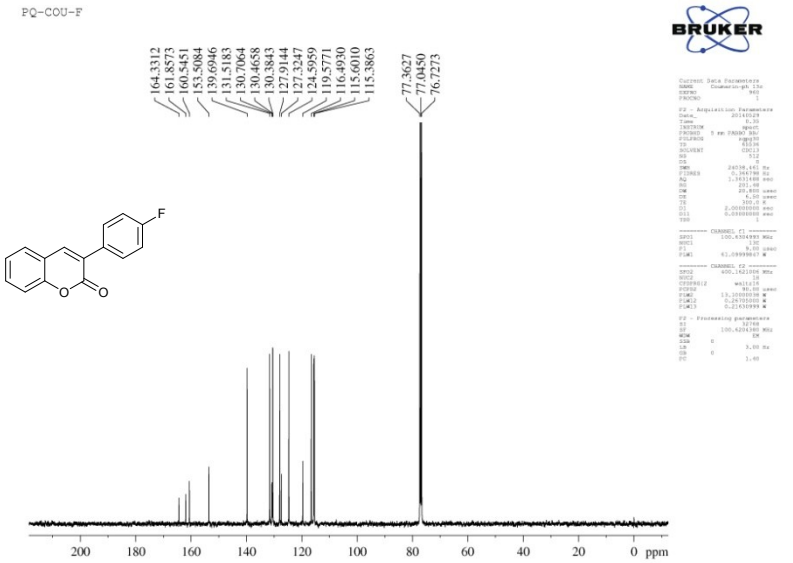


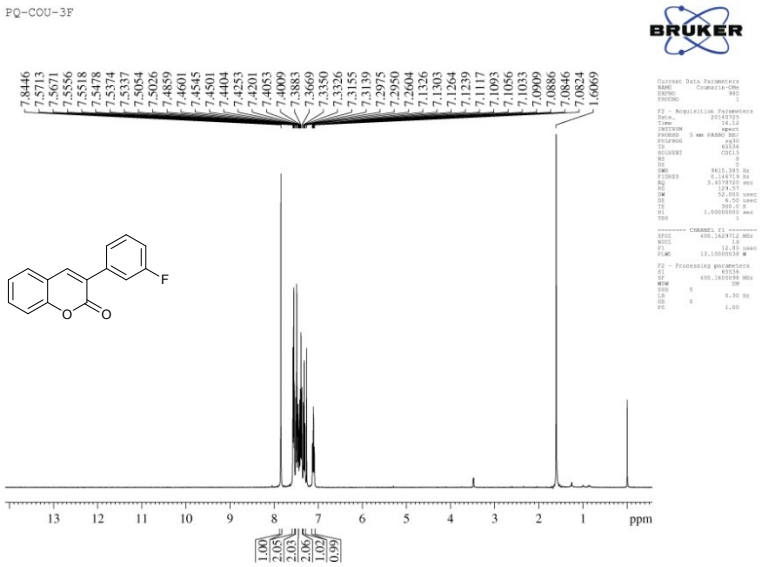
^{13}C NMR Spectra of **(3b)** (100 MHz, $CDCl_3$)



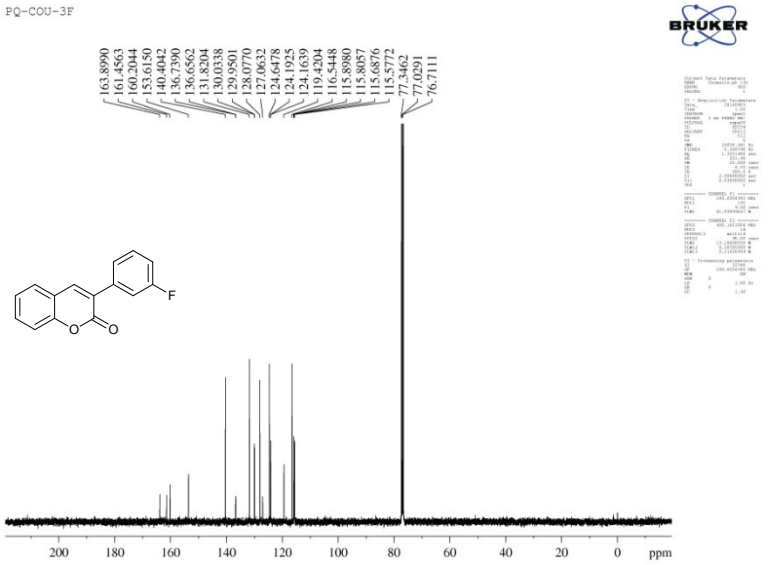
^{1}H NMR Spectra of **(3c)** (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**3c**) (100 MHz, $CDCl_3$)



^{1}H NMR Spectra of (**3d**) (400 MHz, $CDCl_3$)



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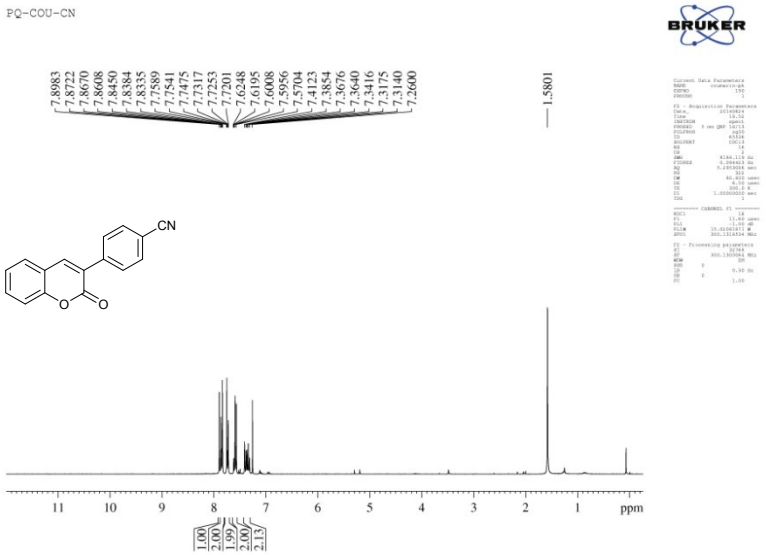

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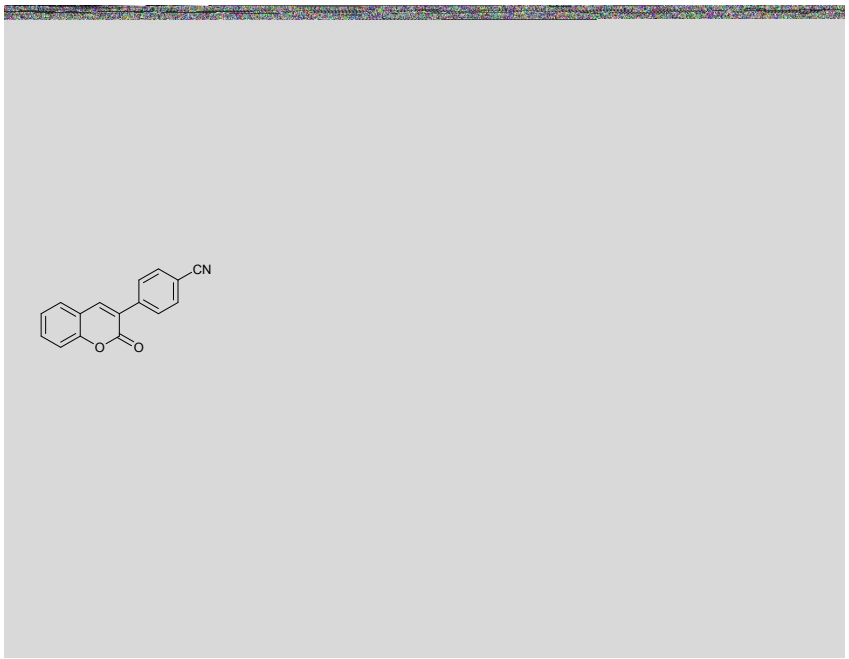
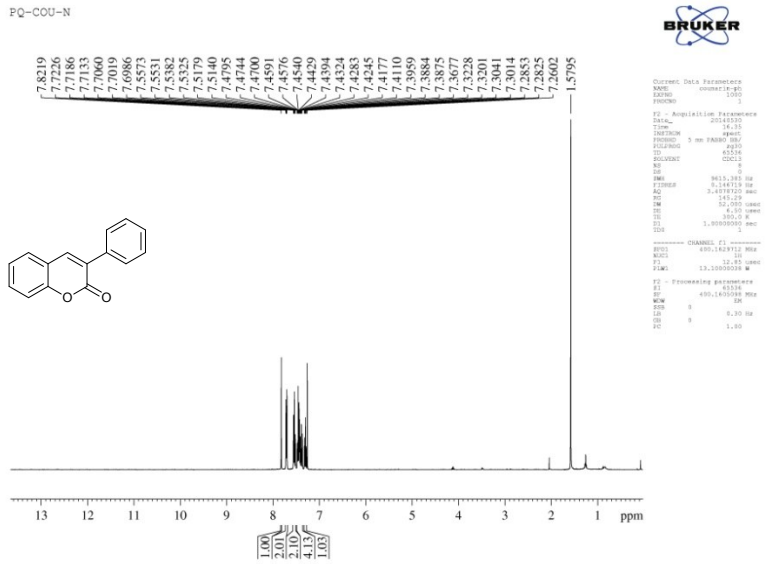


^{13}C NMR Spectra of (**3e**) (75 MHz, $CDCl_3$)



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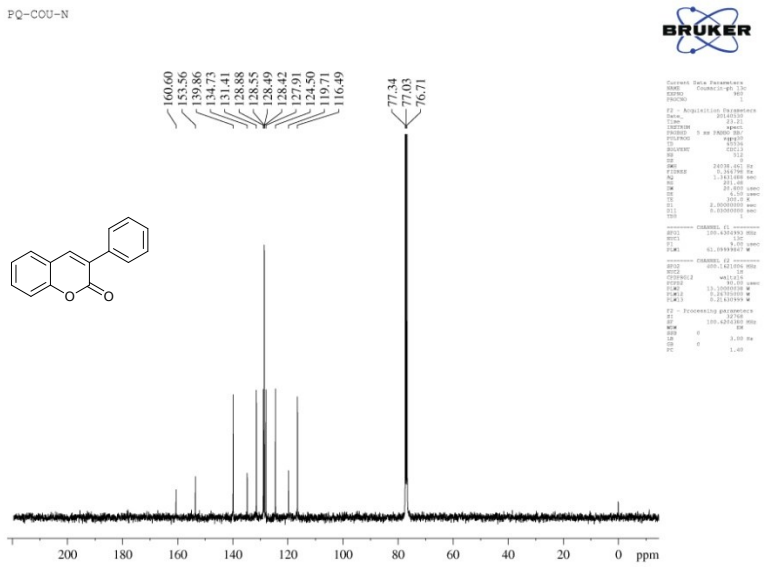
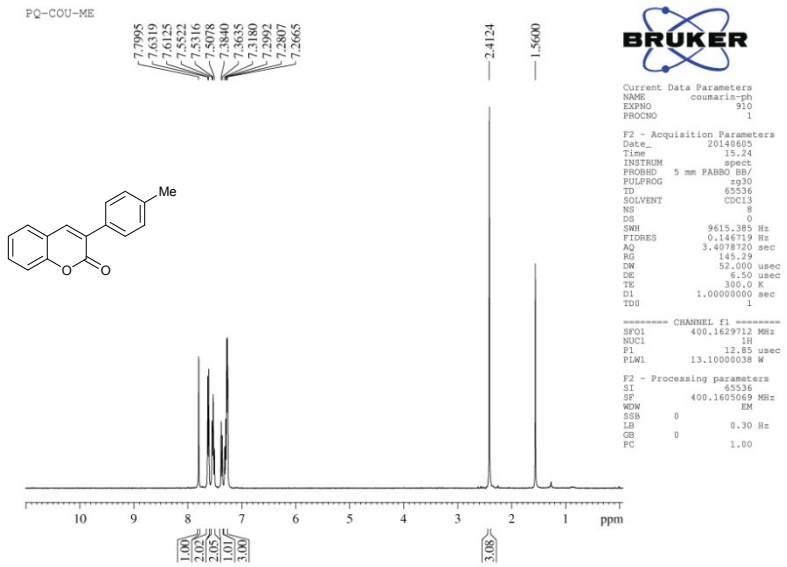


^{13}C NMR Spectra of (**3f**) (100 MHz, $CDCl_3$)



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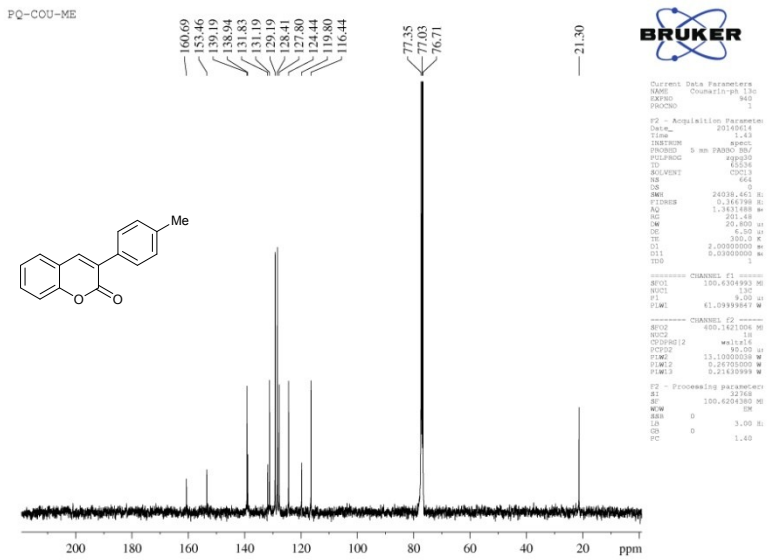
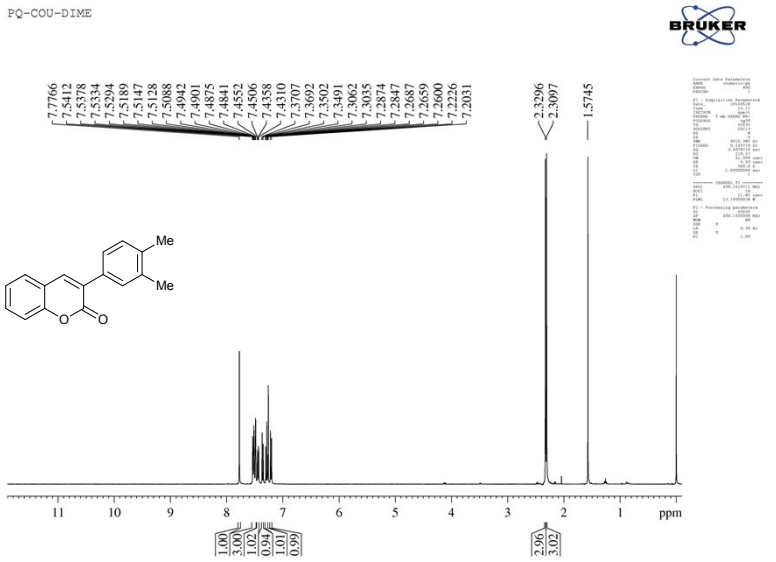
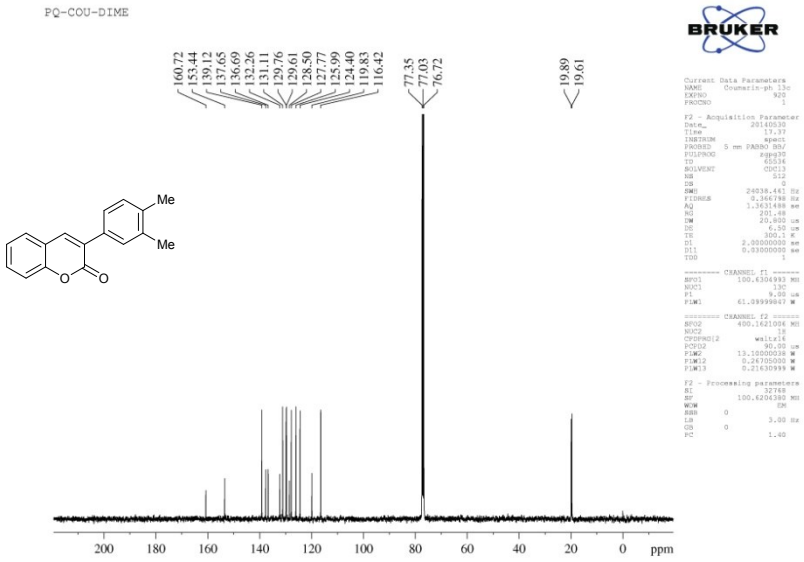


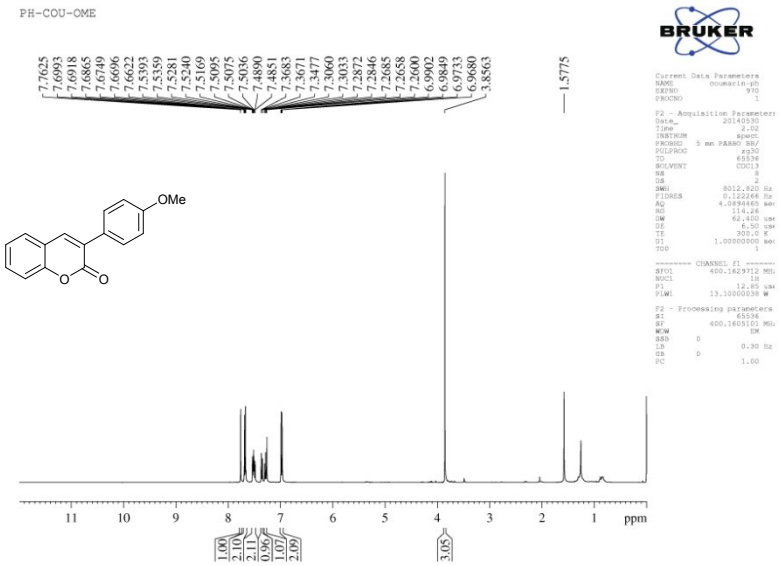
^{13}C NMR Spectra of (**3g**) (100 MHz, $CDCl_3$)



^{1}H NMR Spectra of (**3h**) (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**3h**) (100 MHz, $CDCl_3$)



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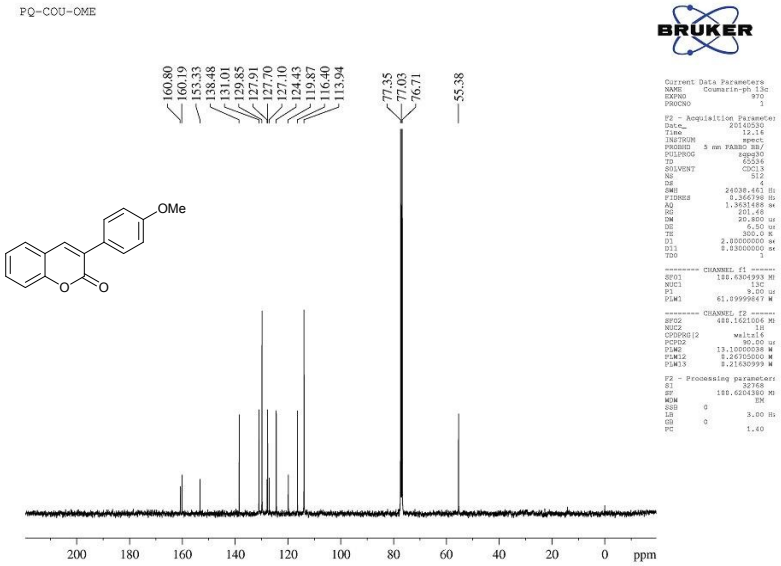

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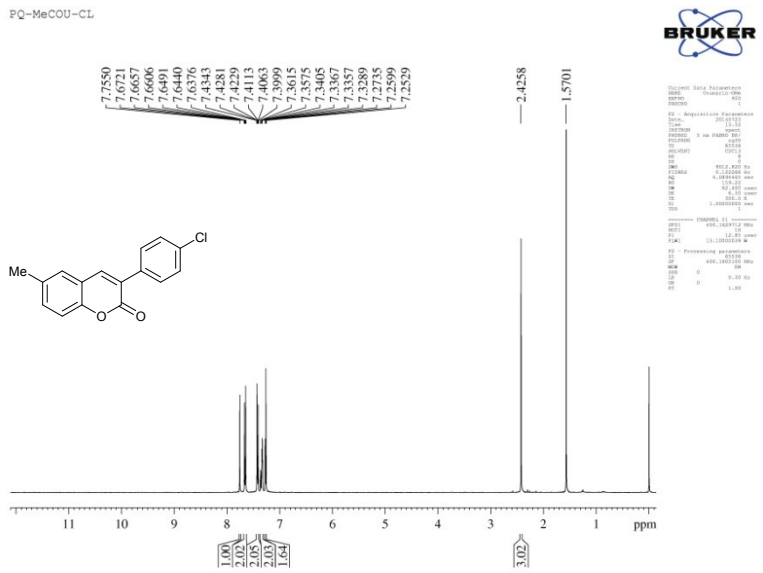

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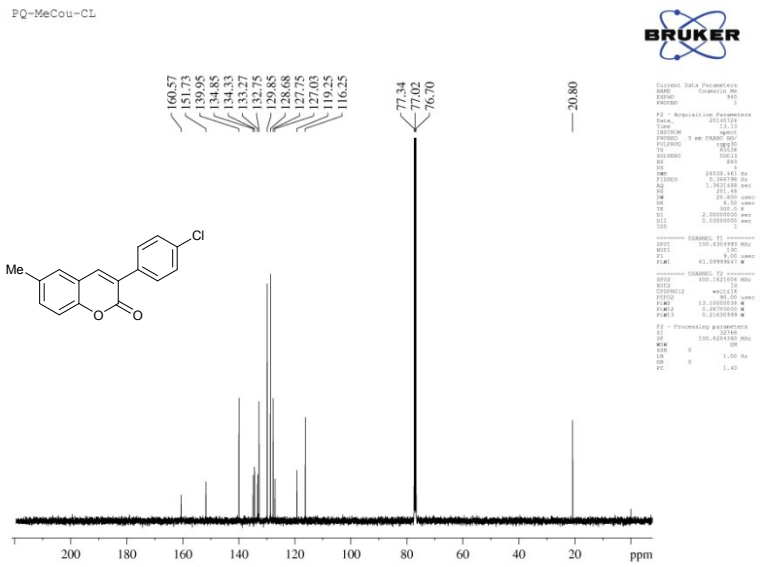
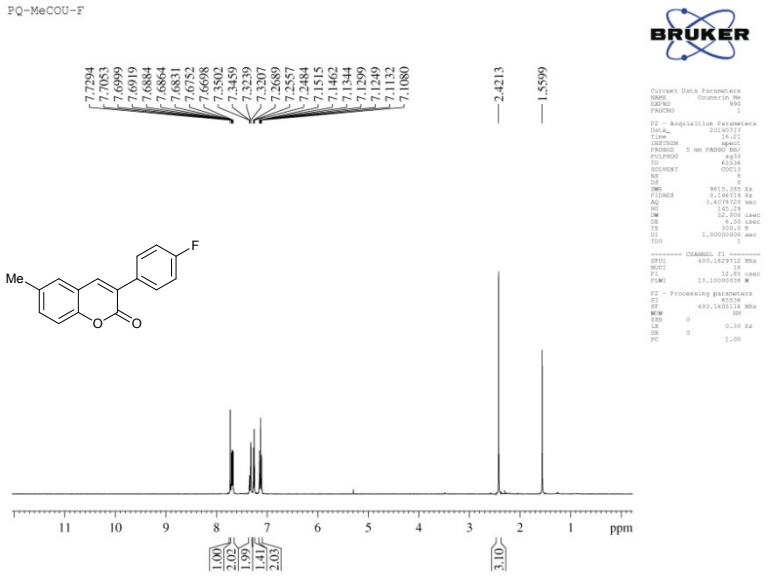


^{13}C NMR Spectra of (**3j**) (100 MHz, $CDCl_3$)



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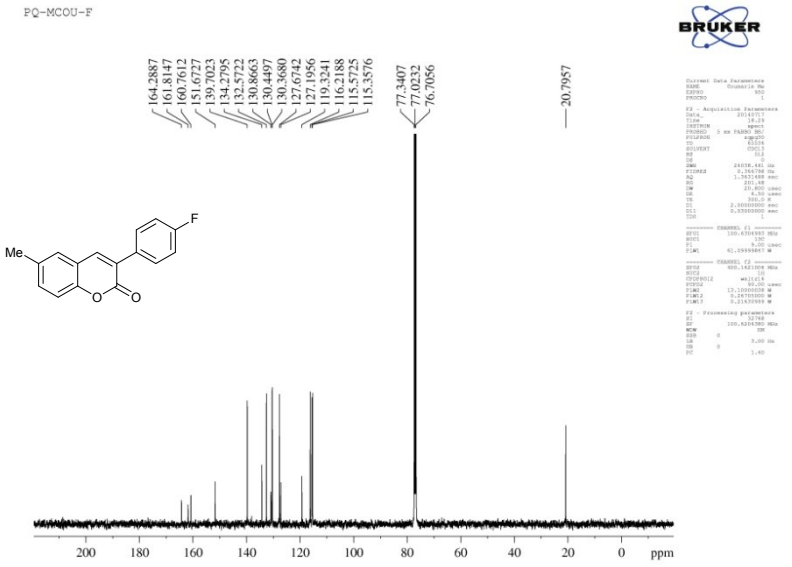

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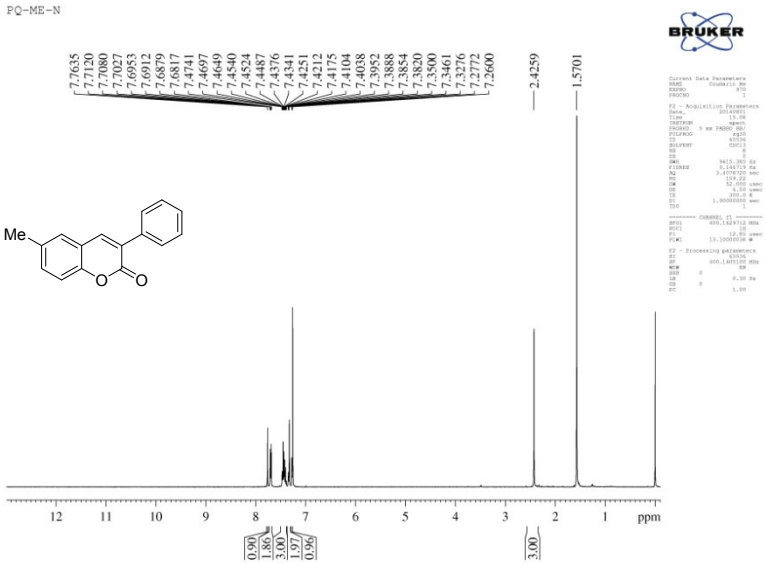

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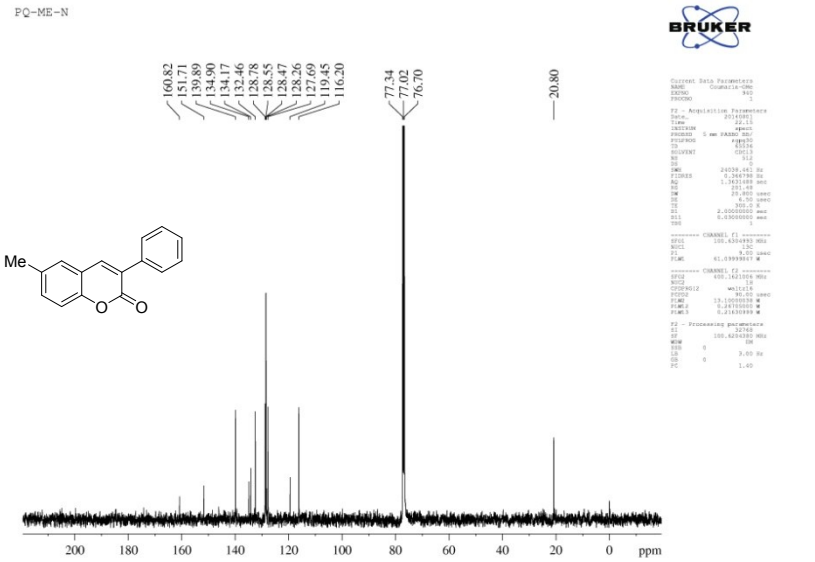

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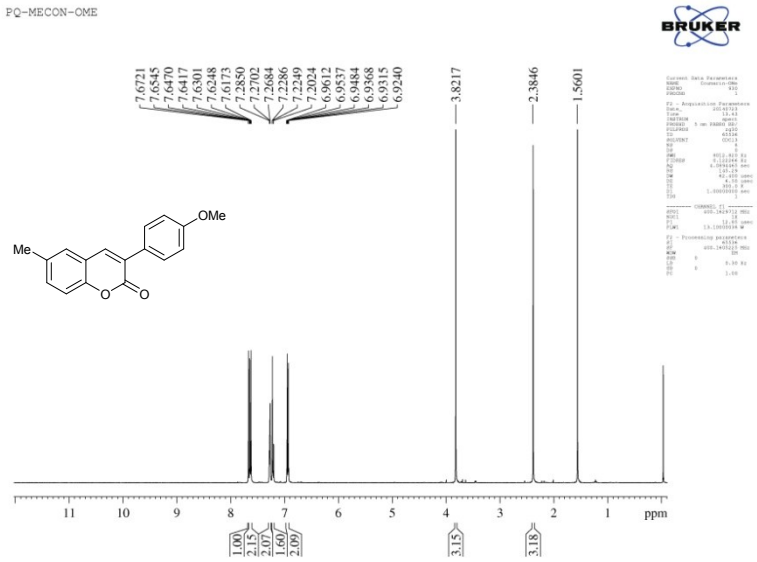

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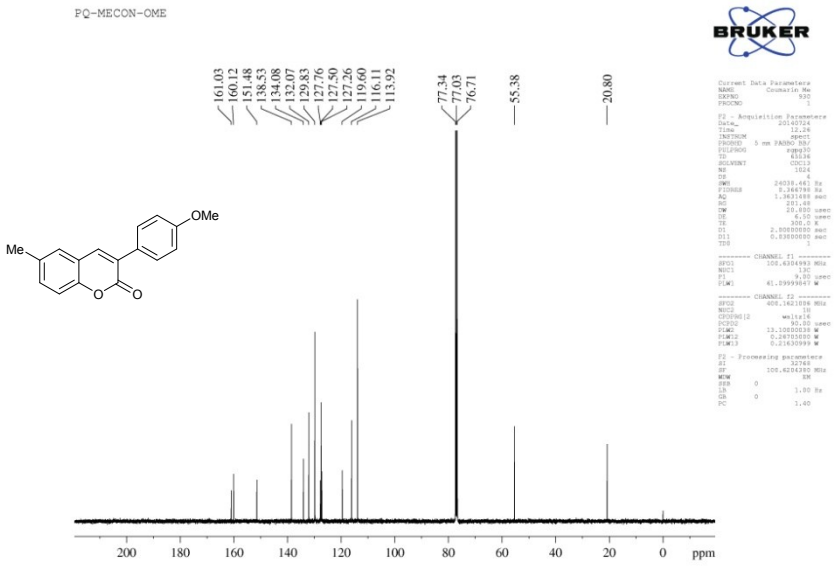
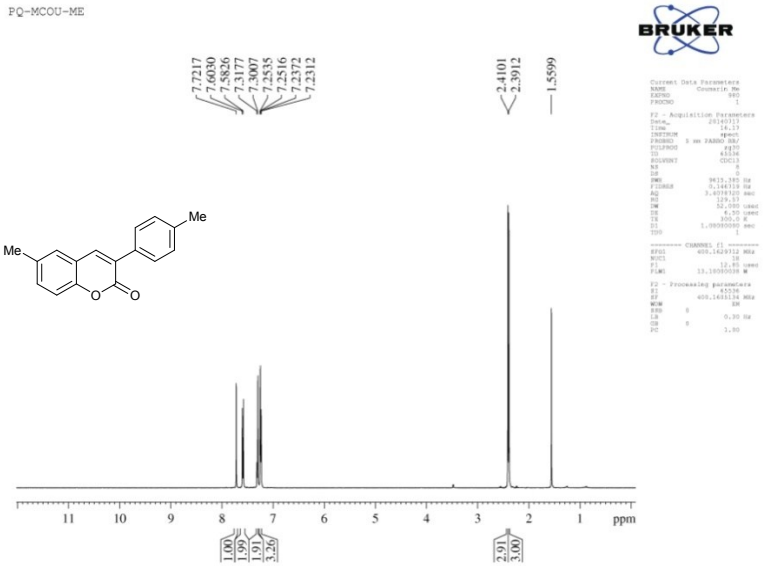
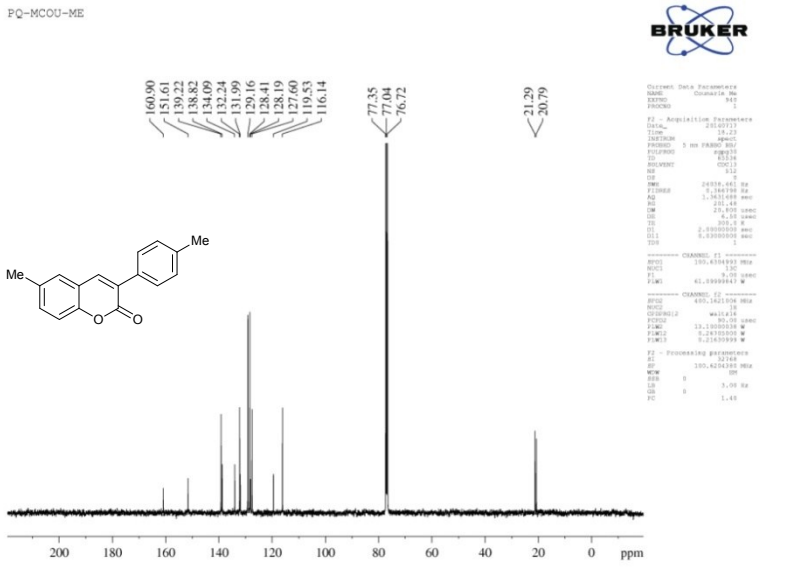


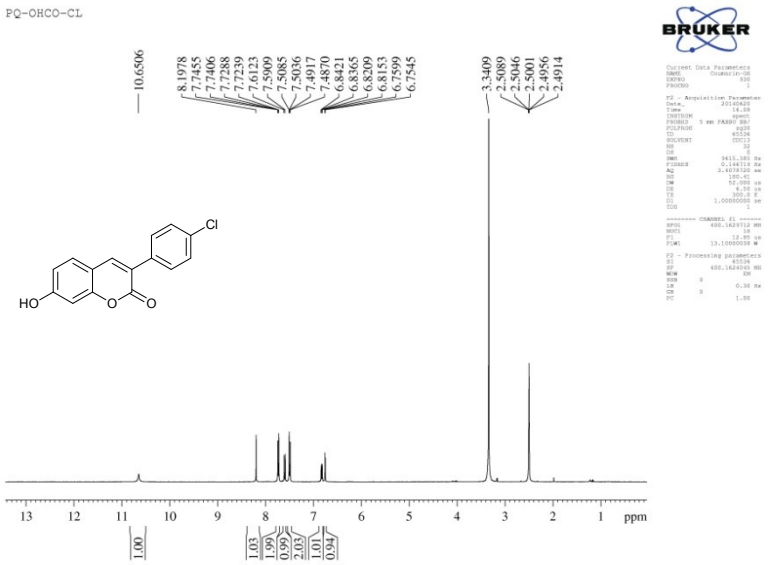
^{13}C NMR Spectra of (**3m**) (100 MHz, $CDCl_3$



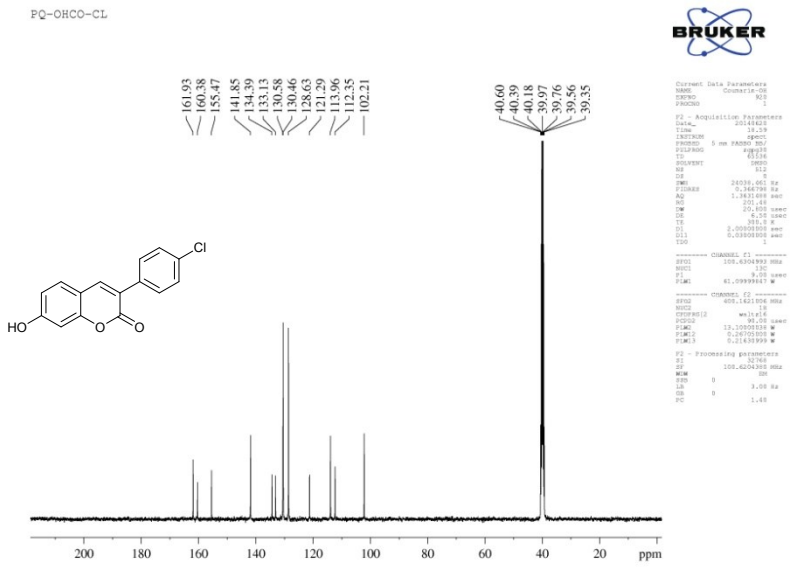
^{1}H NMR Spectra of (**3n**) (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**3n**) (100 MHz, $CDCl_3$)



^{1}H NMR Spectra of (**3o**) (400 MHz, DMSO-d_6)



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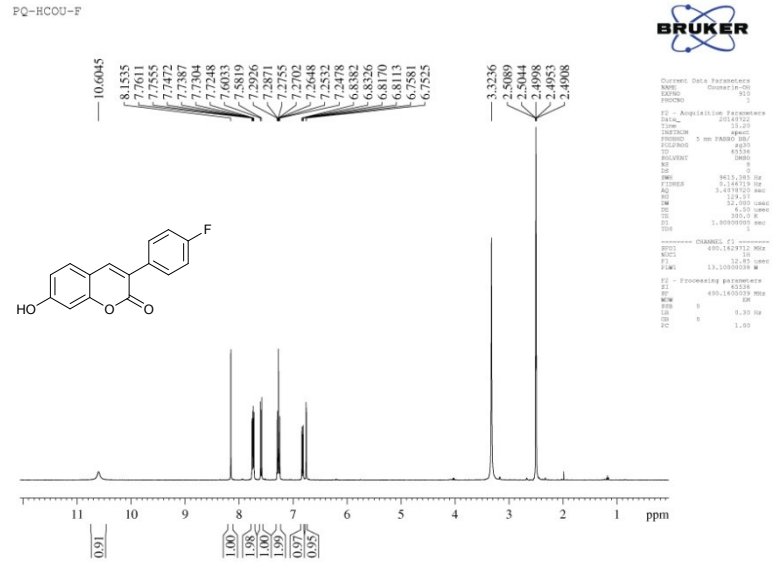
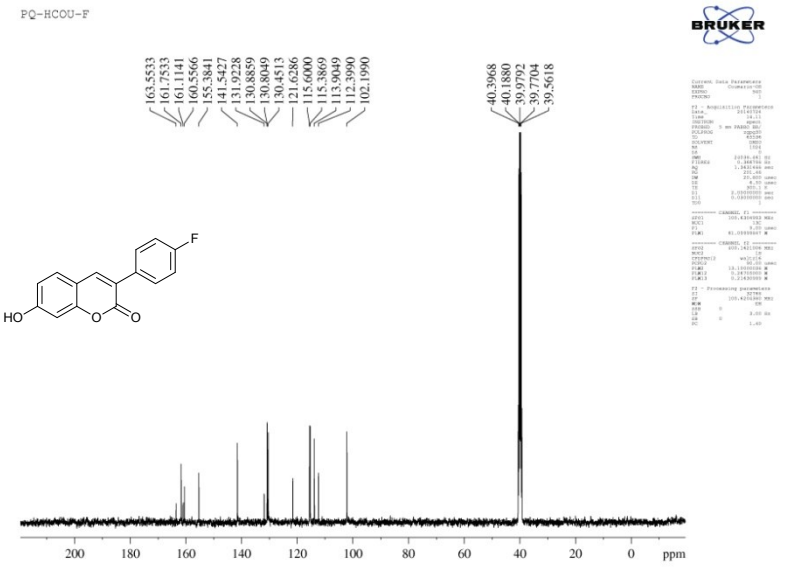
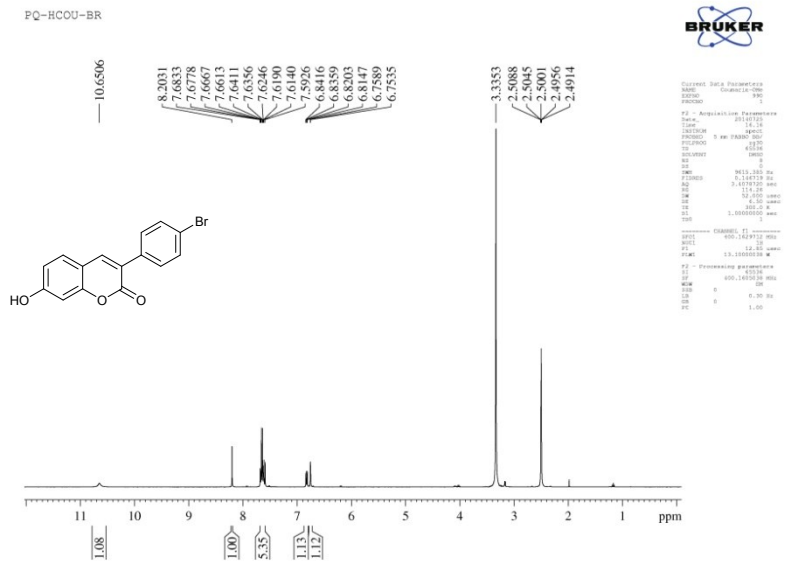


^{1}H NMR Spectra of (**3p**) (400 MHz, DMSO-d_6)



^{13}C NMR Spectra of (**3p**) (100 MHz, DMSO-d_6)



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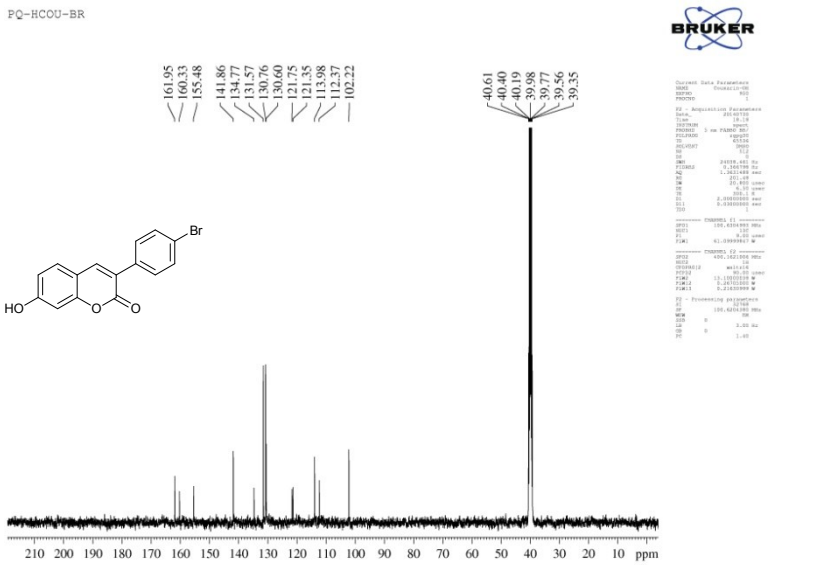
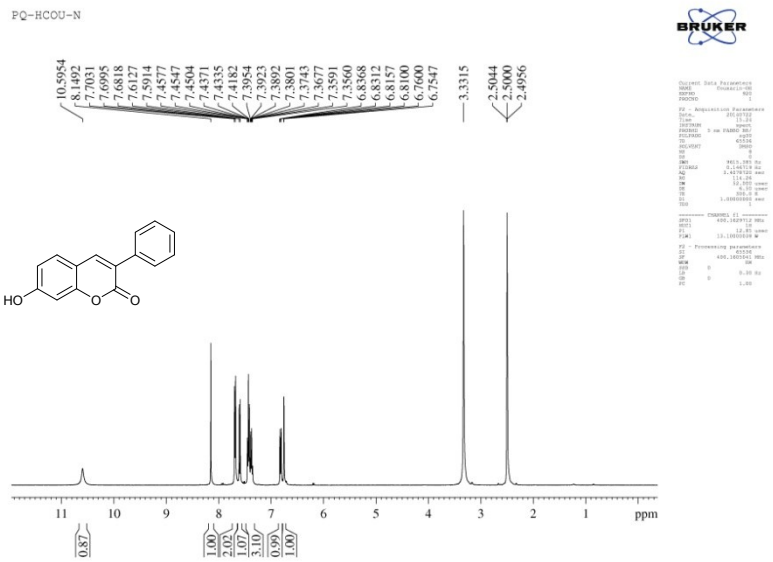


^{13}C NMR Spectra of (**3q**) (100 MHz, DMSO-d_6)



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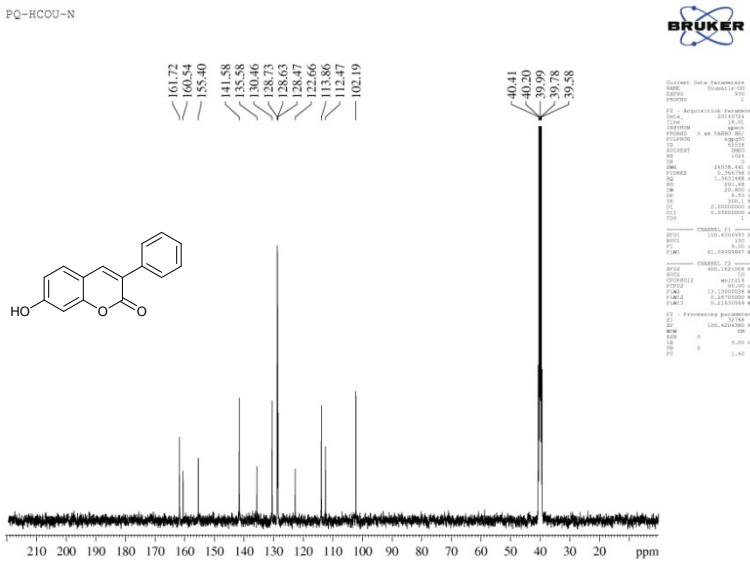

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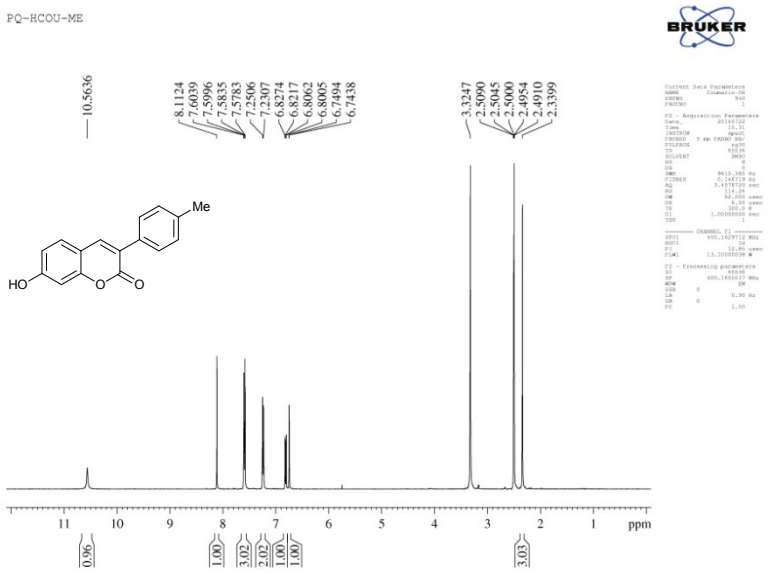

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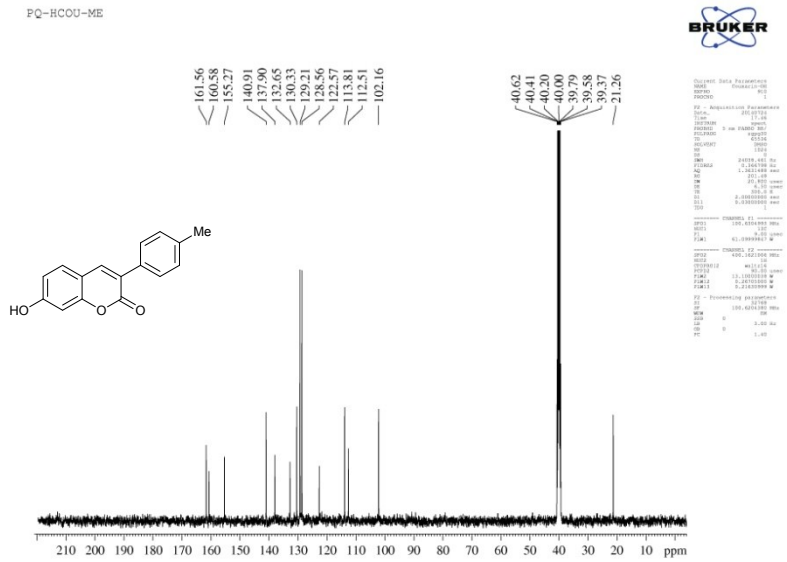

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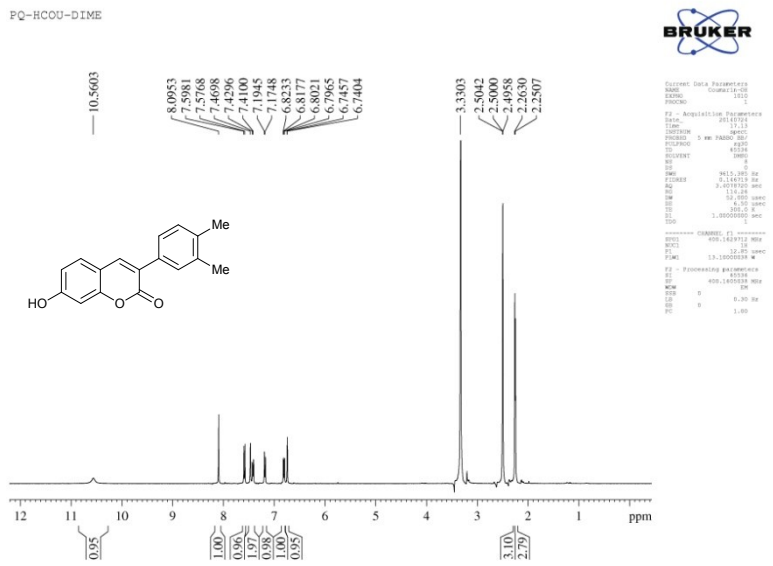

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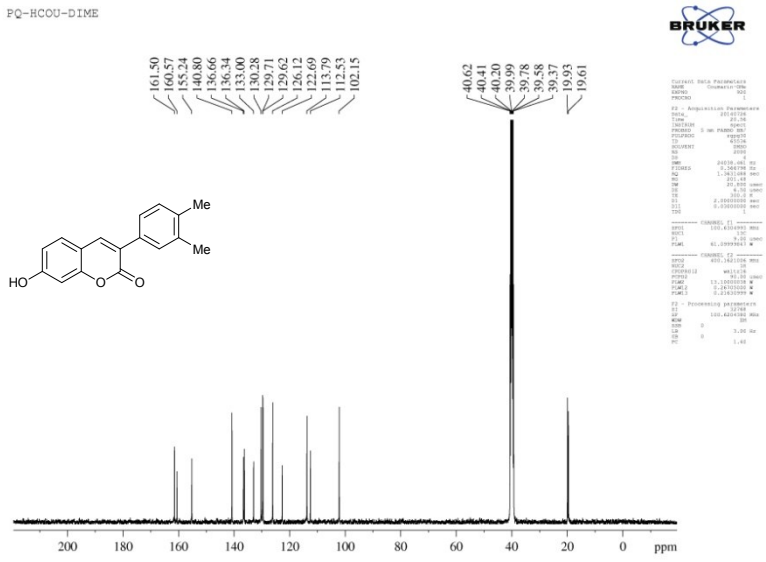
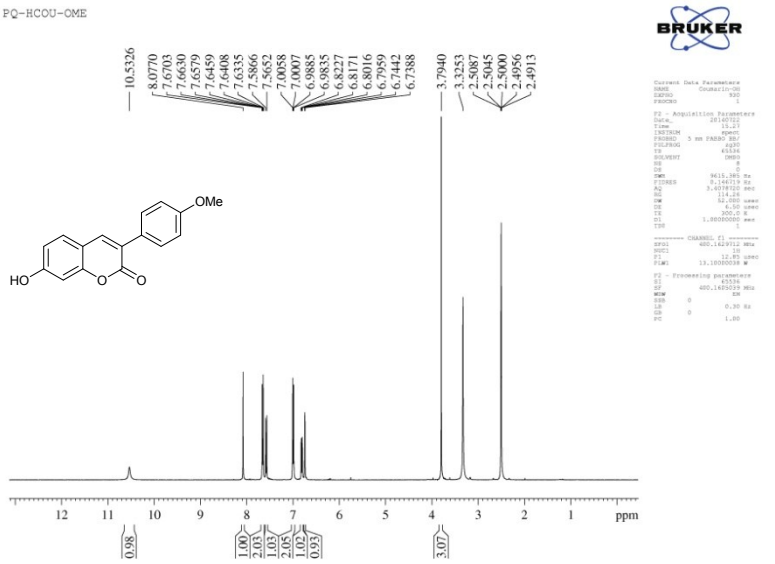
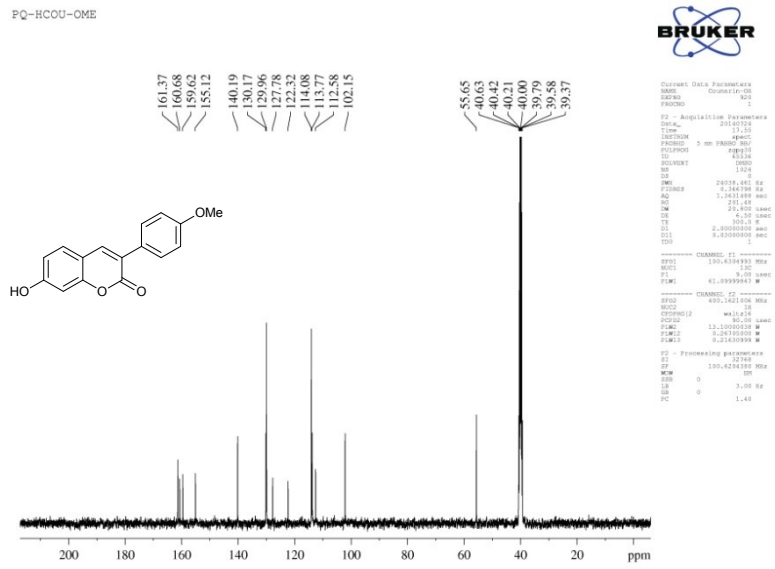


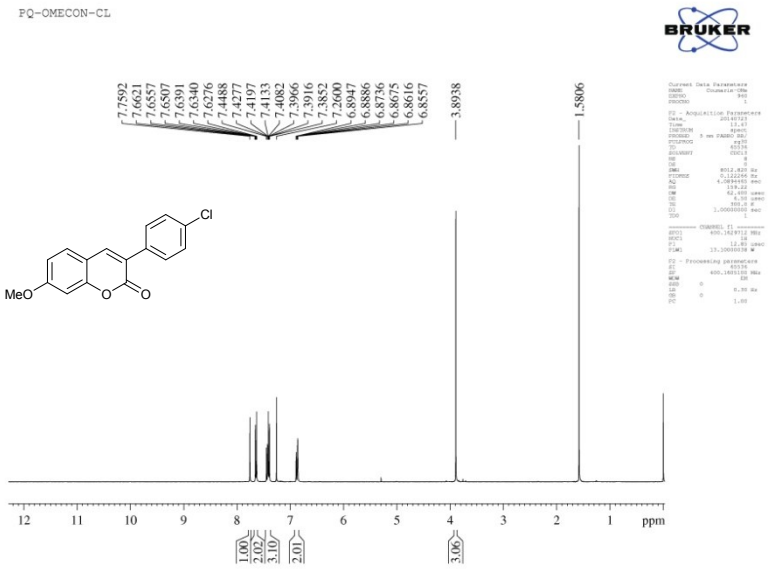
^{13}C NMR Spectra of (**3t**) (100 MHz, DMSO-d_6)



^{1}H NMR Spectra of (**3u**) (400 MHz, DMSO-d_6)



^{13}C NMR Spectra of (**3u**) (100 MHz, DMSO-d_6)



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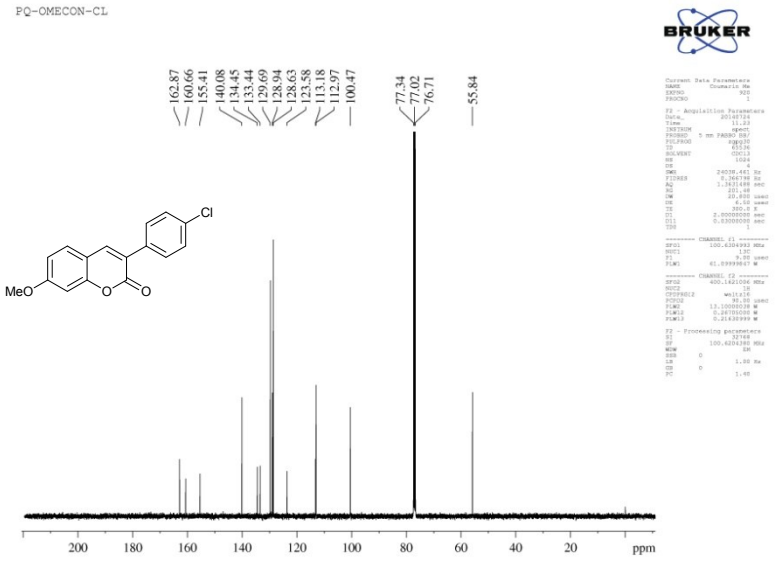
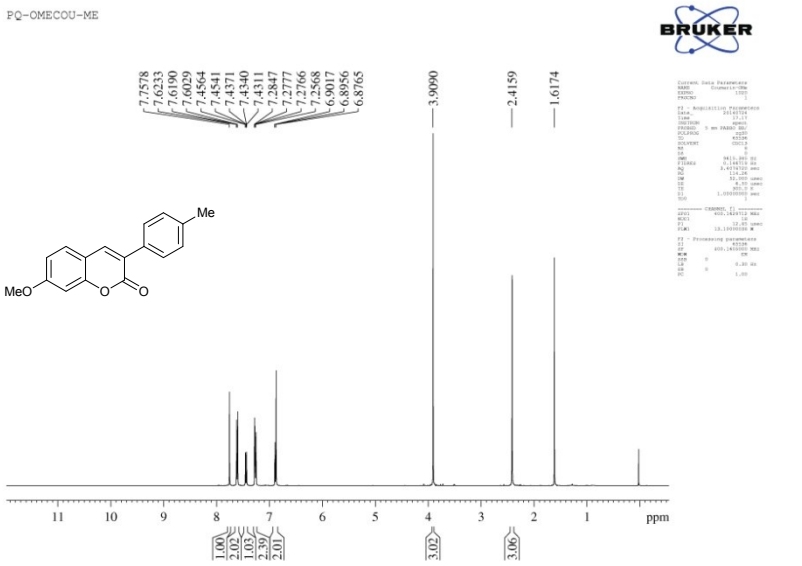
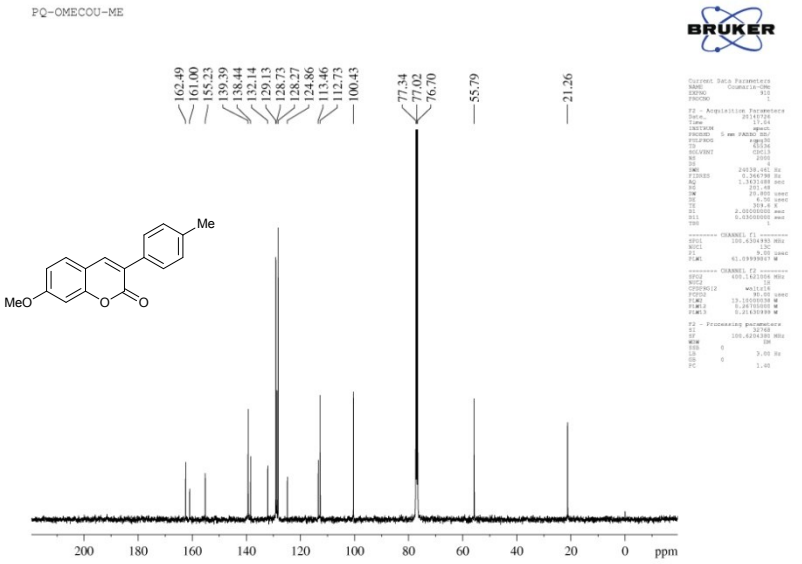


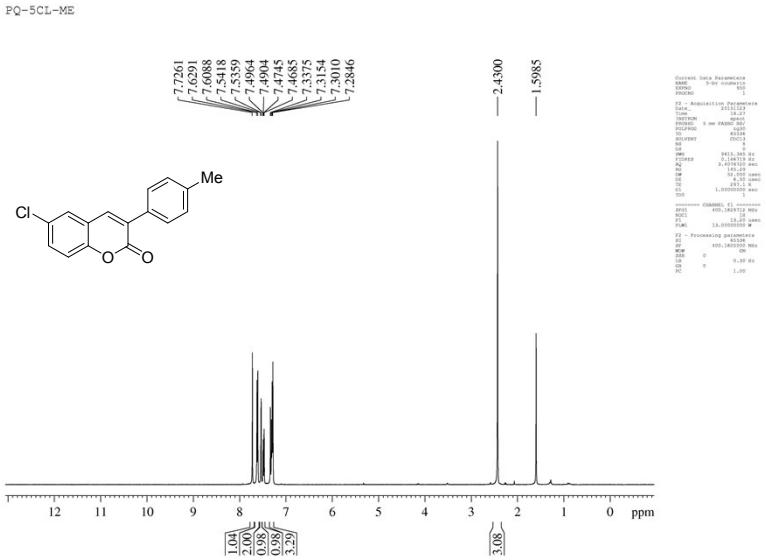
^{13}C NMR Spectra of (**3v**) (400 MHz, $CDCl_3$)



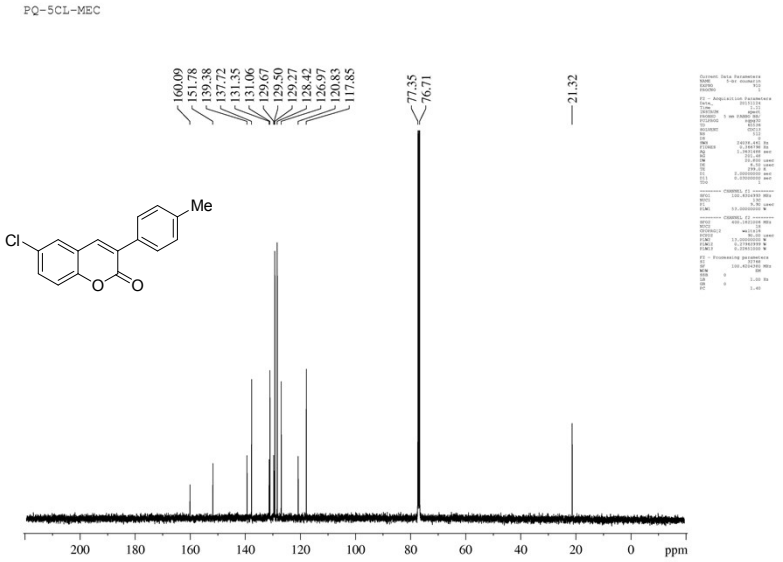
^{1}H NMR Spectra of (**3w**) (400 MHz, $CDCl_3$)



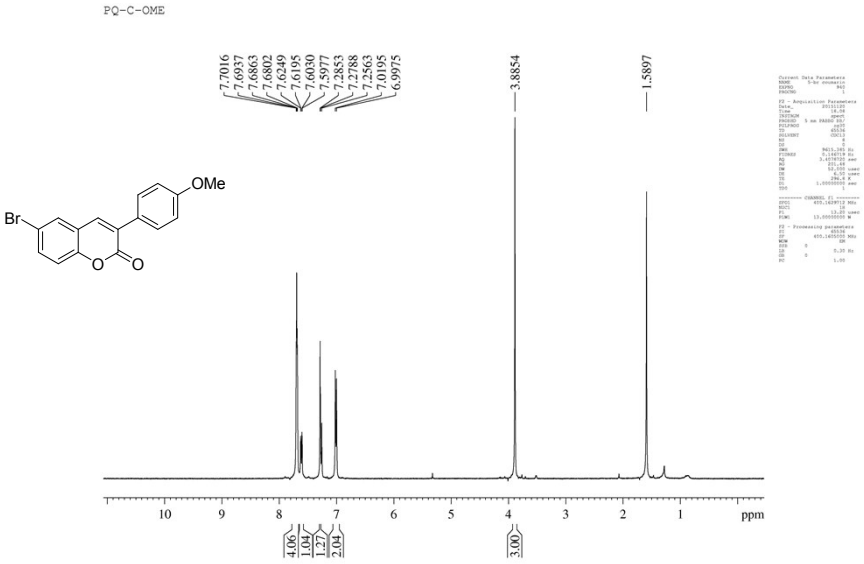
^{13}C NMR Spectra of (**3w**) (400 MHz, $CDCl_3$)



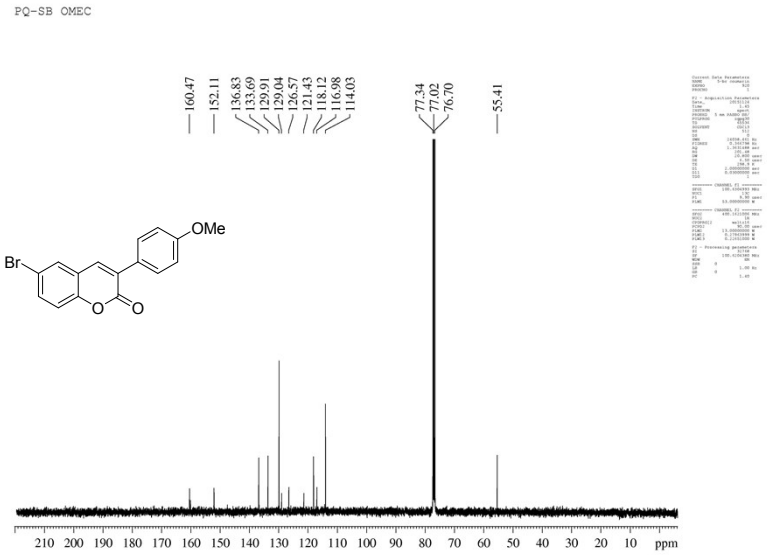
^{1}H NMR Spectra of (**3y**) (400 MHz, $CDCl_3$)



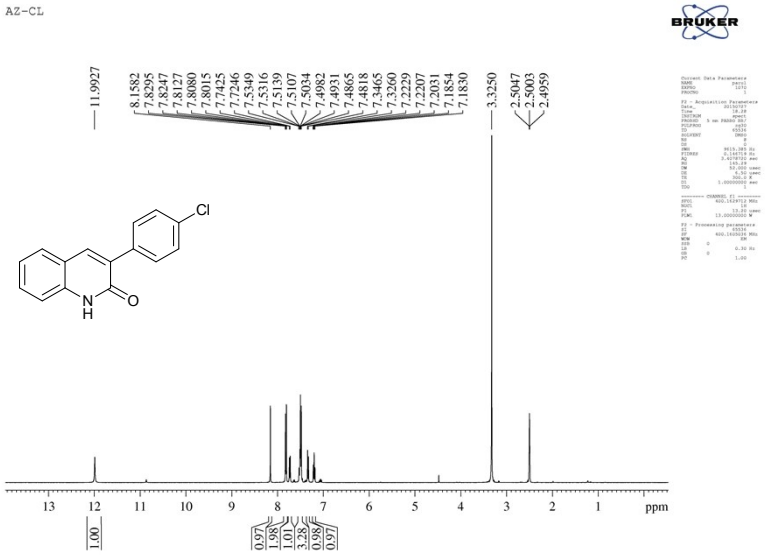
^{13}C NMR Spectra of (**3y**) (400 MHz, $CDCl_3$)



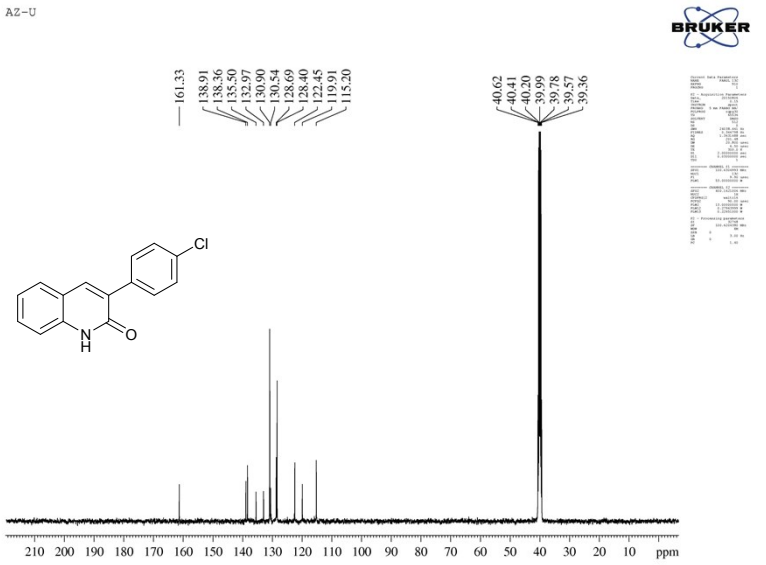
^{1}H NMR Spectra of (**3z**) (400 MHz, $CDCl_3$)



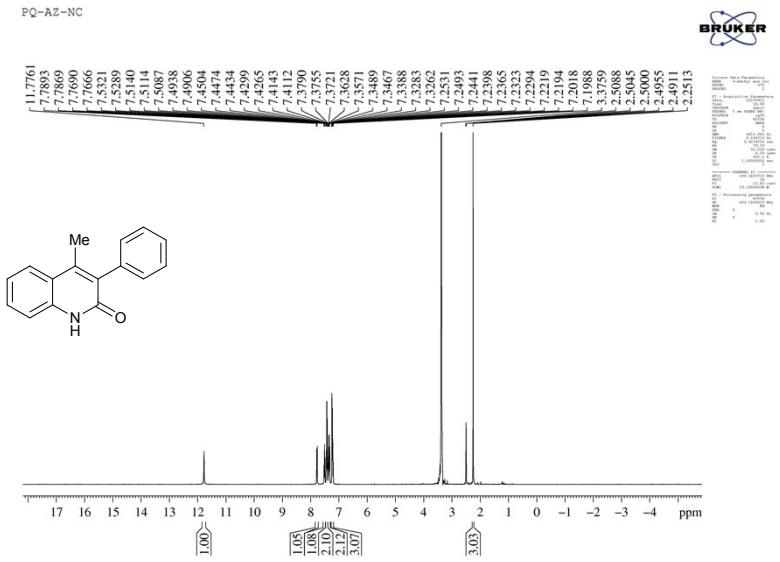
^{13}C NMR Spectra of (**3z**) (400 MHz, $CDCl_3$)



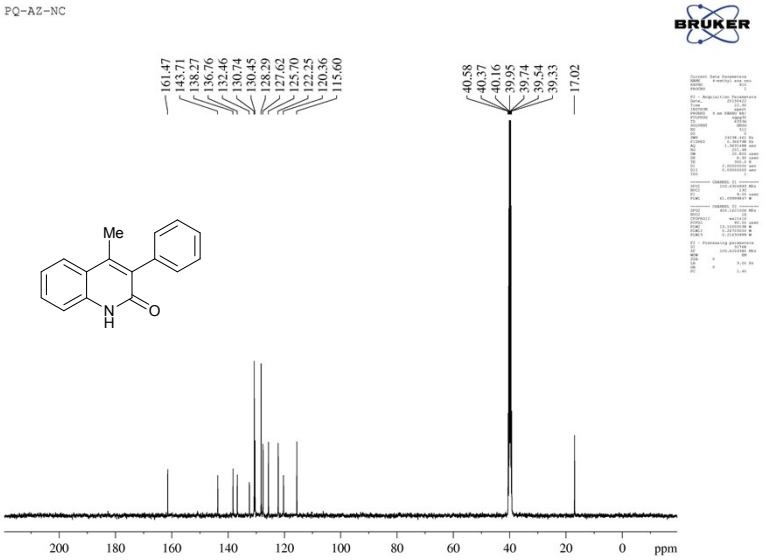
^{1}H NMR Spectra of (**3za**) (400 MHz, DMSO- d_6)



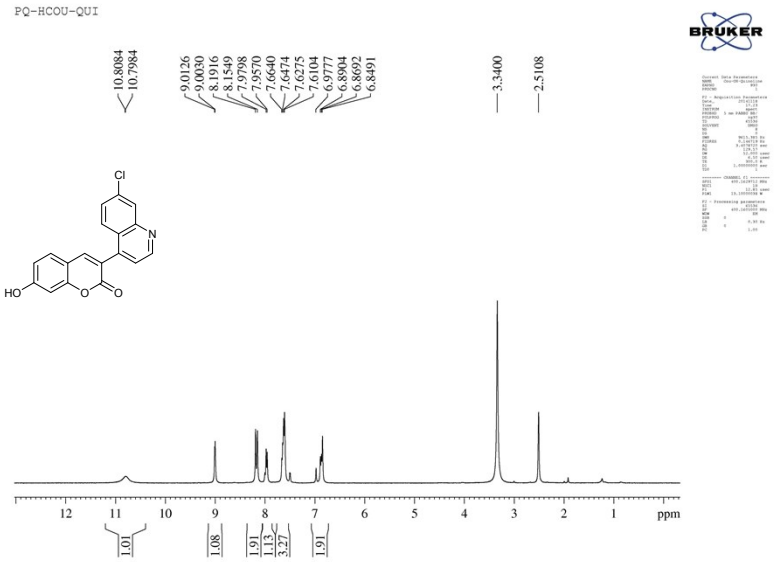
^{13}C NMR Spectra of (**3za**) (100 MHz, DMSO- d_6)



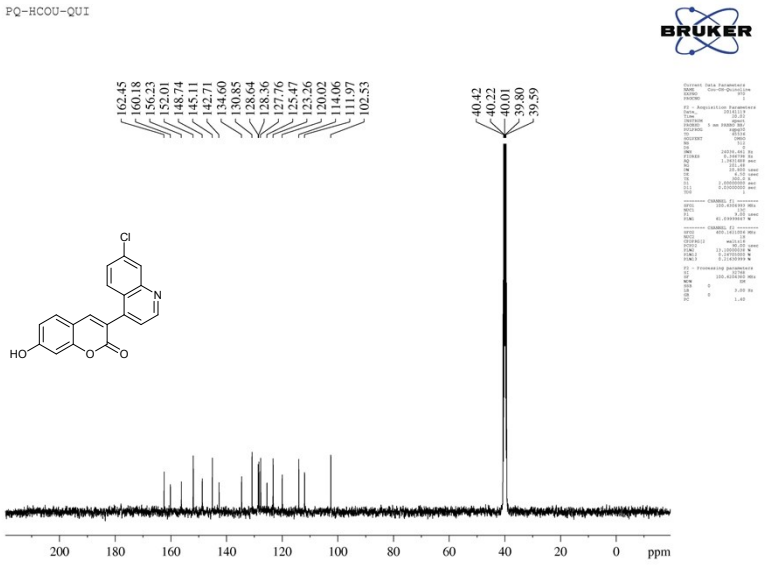
^{1}H NMR Spectra of (**3zb**) (400 MHz, DMSO- d_6)



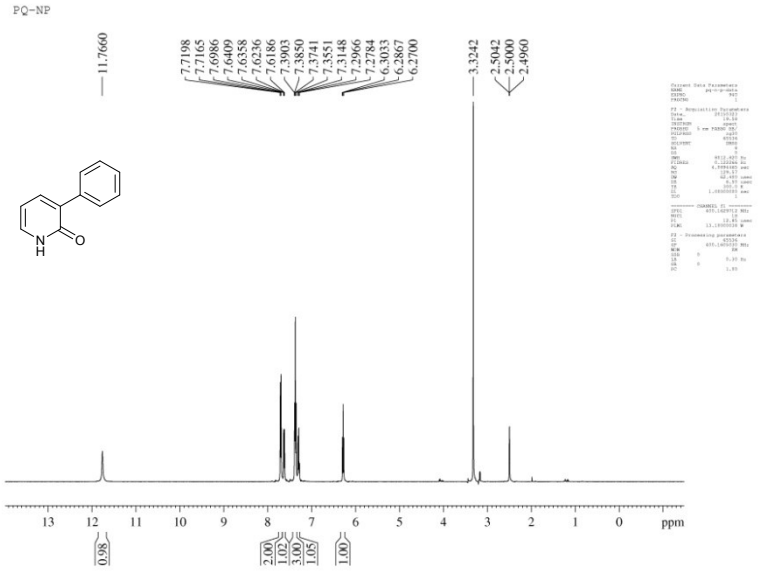
^{13}C NMR Spectra of (**3zb**) (100 MHz, DMSO- d_6)



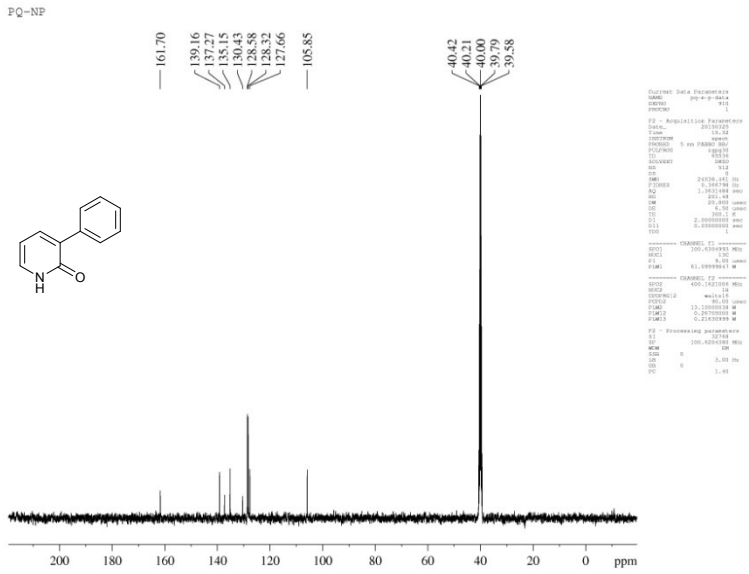
^{1}H NMR Spectra of (**4**) (400 MHz, DMSO- d_6)



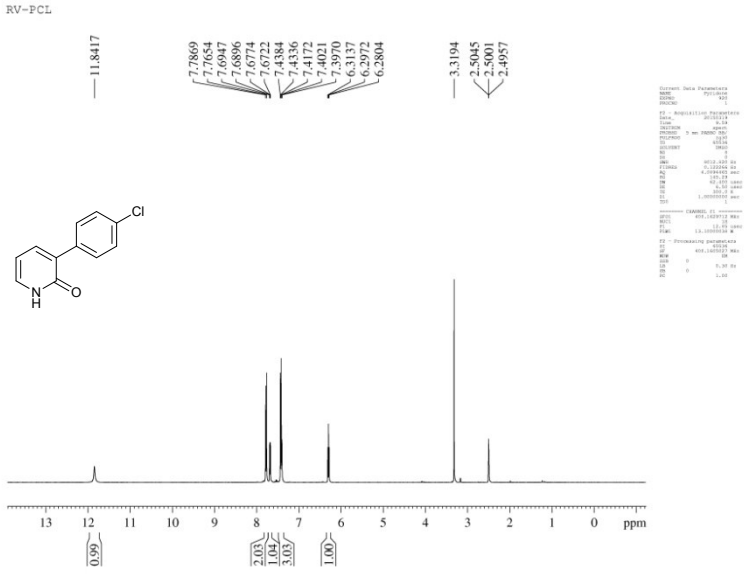
^{13}C NMR Spectra of (**4**) (400 MHz, DMSO- d_6)



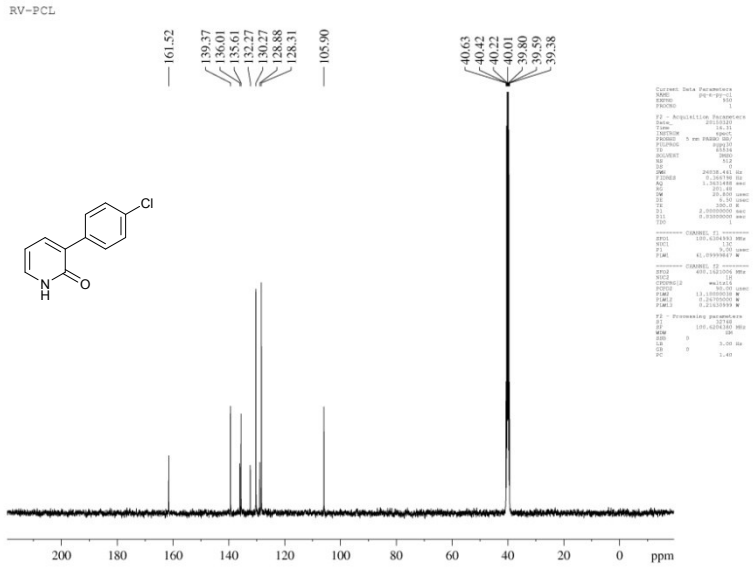
^{1}H NMR Spectra of (**6a**) (400 MHz, DMSO- d_6)



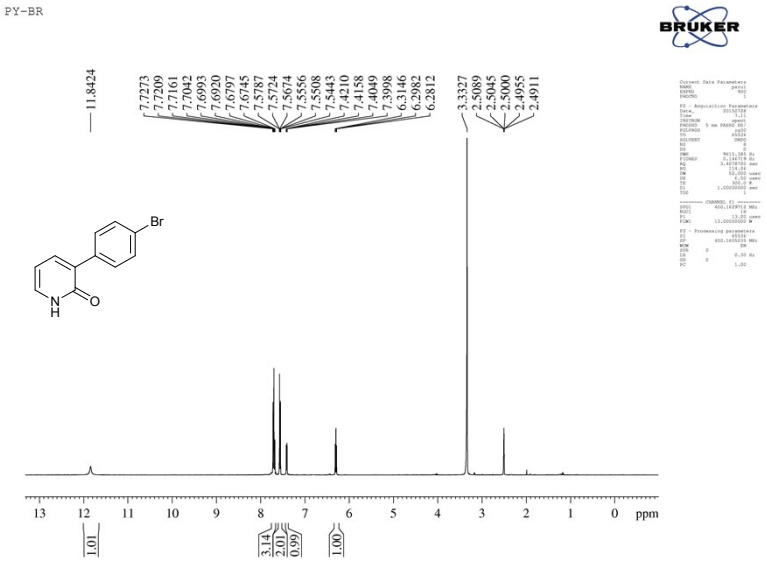
^{13}C NMR Spectra of (**6a**) (100 MHz,DMSO- d_6)



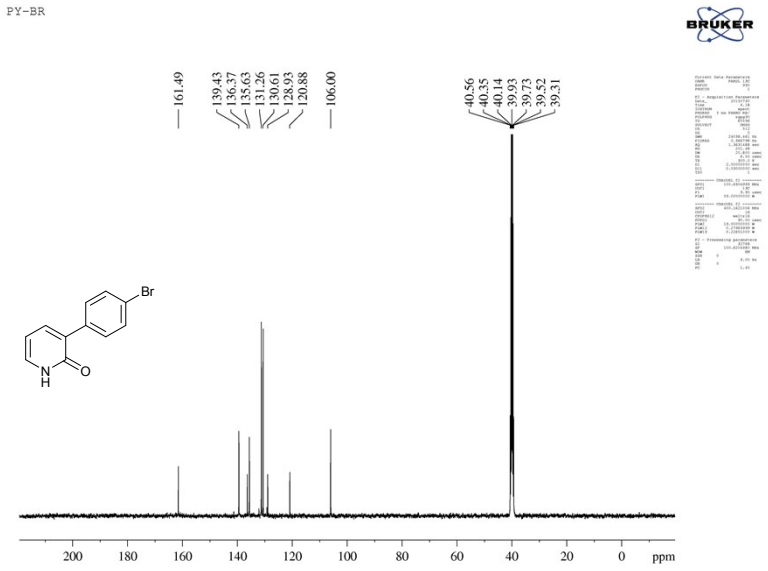
^{1}H NMR Spectra of (**6b**) (400 MHz, DMSO- d_6)



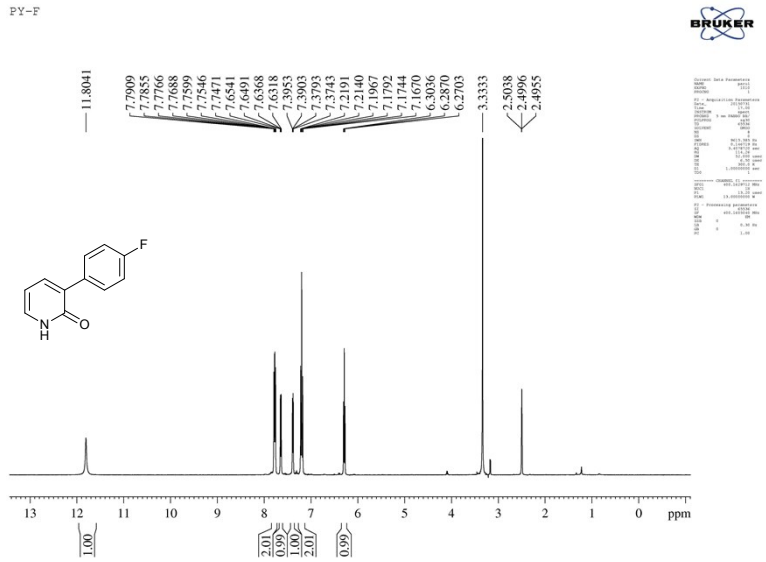
^{13}C NMR Spectra of (**6b**) (100 MHz,DMSO- d_6)



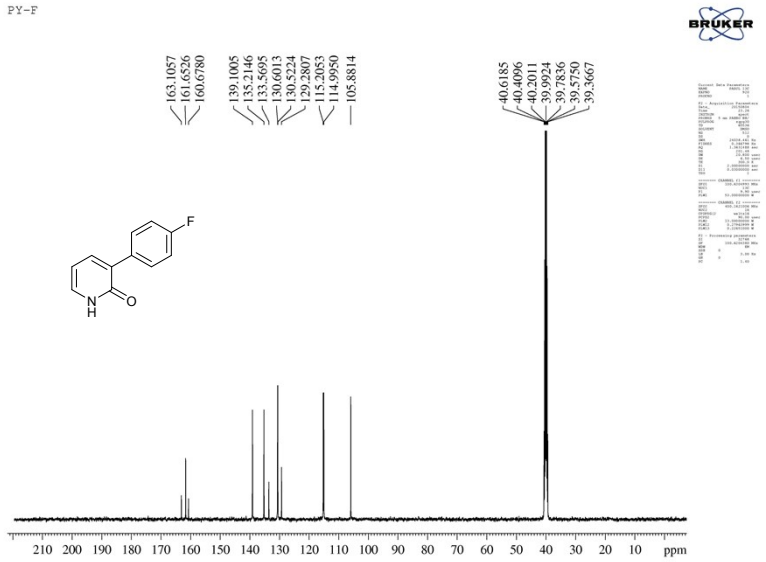
^{1}H NMR Spectra of (**6c**) (400 MHz, DMSO- d_6)



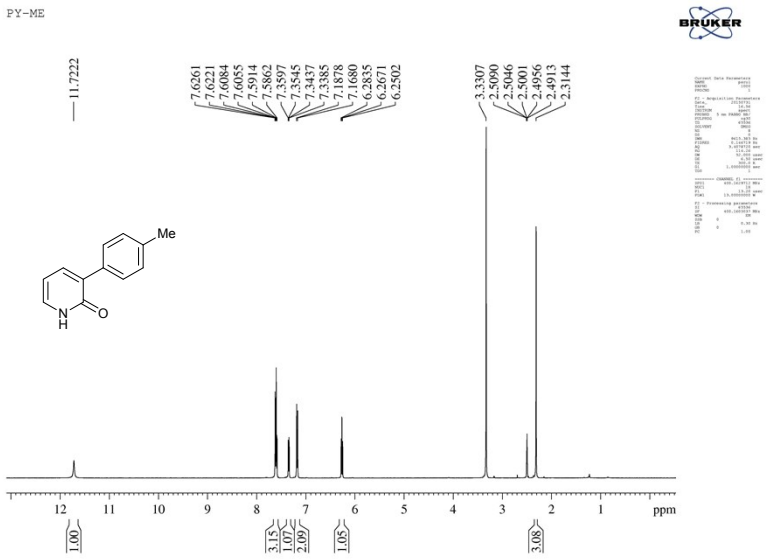
^{13}C NMR Spectra of (**6c**) (100 MHz,DMSO- d_6)



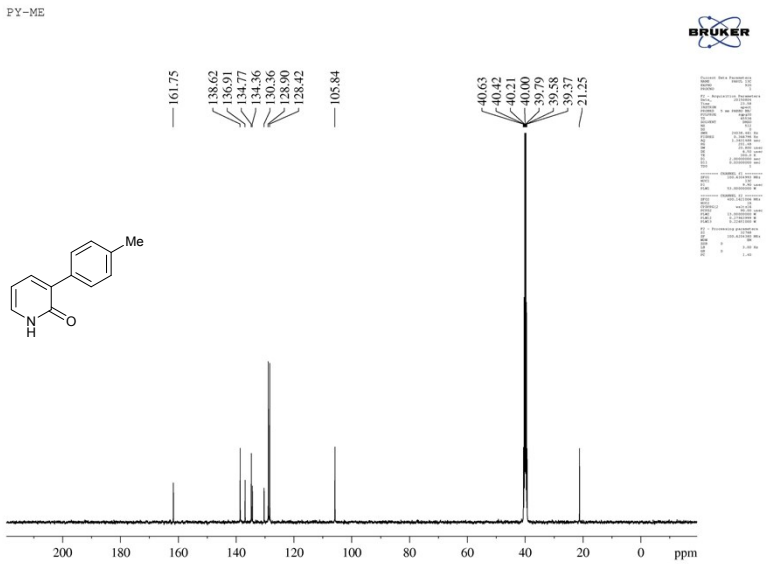
^{1}H NMR Spectra of (**6d**) (400 MHz, DMSO- d_6)



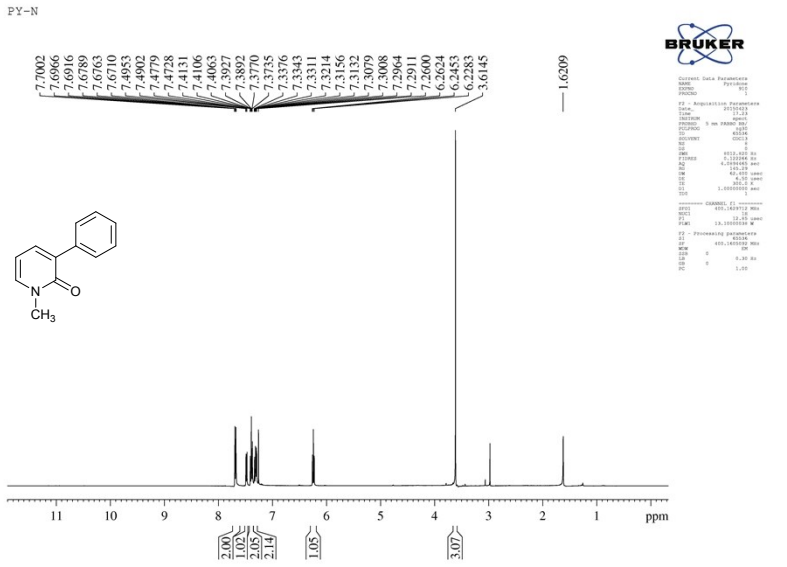
^{13}C NMR Spectra of (**6d**) (100 MHz,DMSO- d_6)



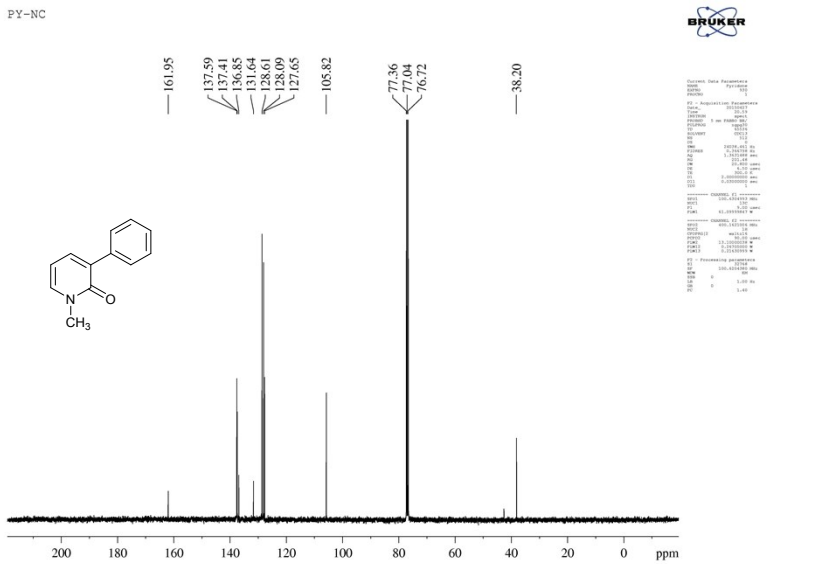
^{1}H NMR Spectra of (**6e**) (400 MHz, DMSO- d_6)



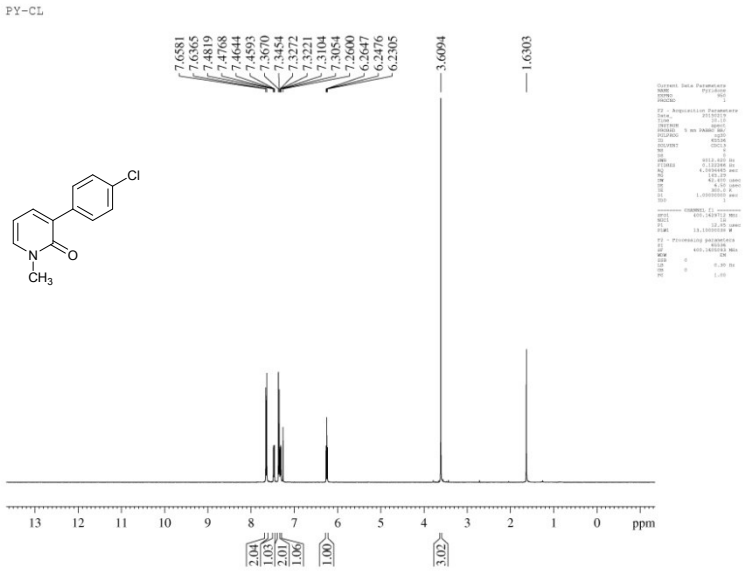
^{13}C NMR Spectra of (**6e**) (100 MHz,DMSO- d_6)



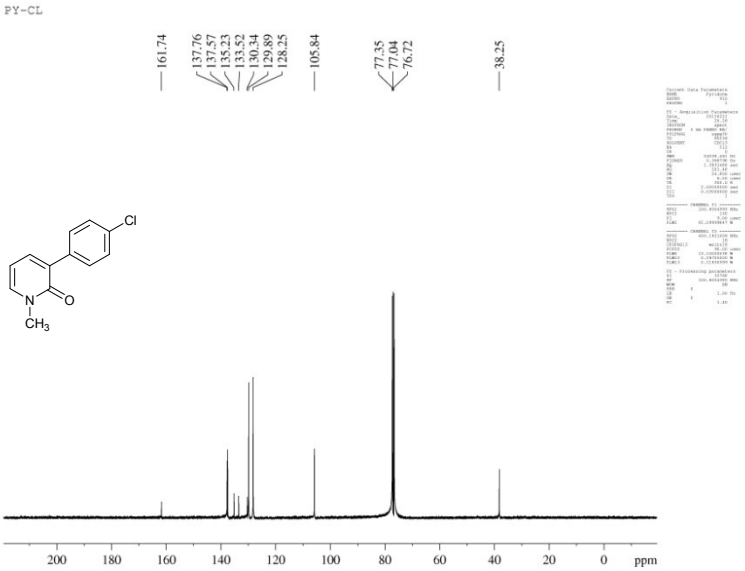
^{1}H NMR Spectra of (**6f**) (400 MHz, $CDCl_3$)



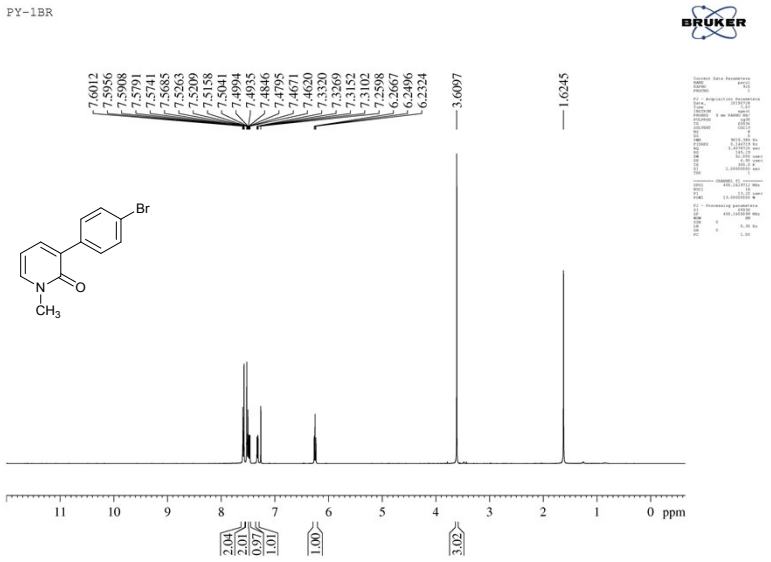
^{13}C NMR Spectra of (**6f**) (100 MHz,$CDCl_3$)



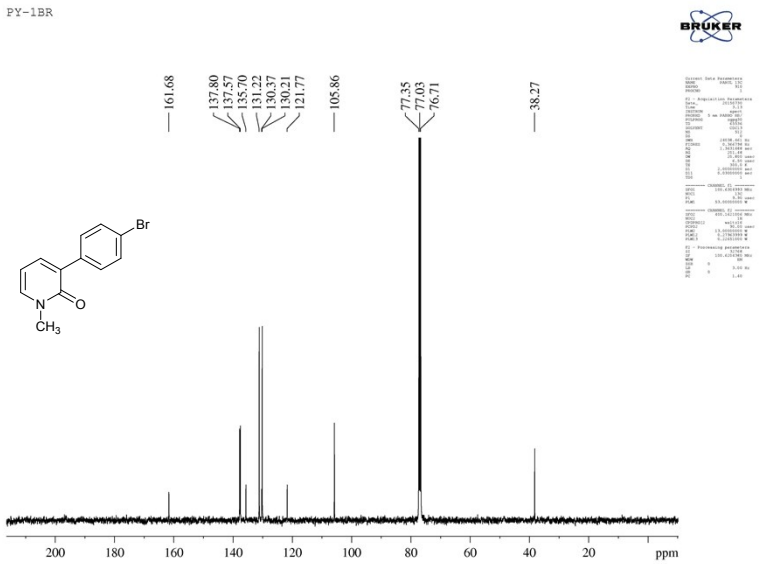
^{1}H NMR Spectra of (**6g**) (400 MHz, $CDCl_3$)



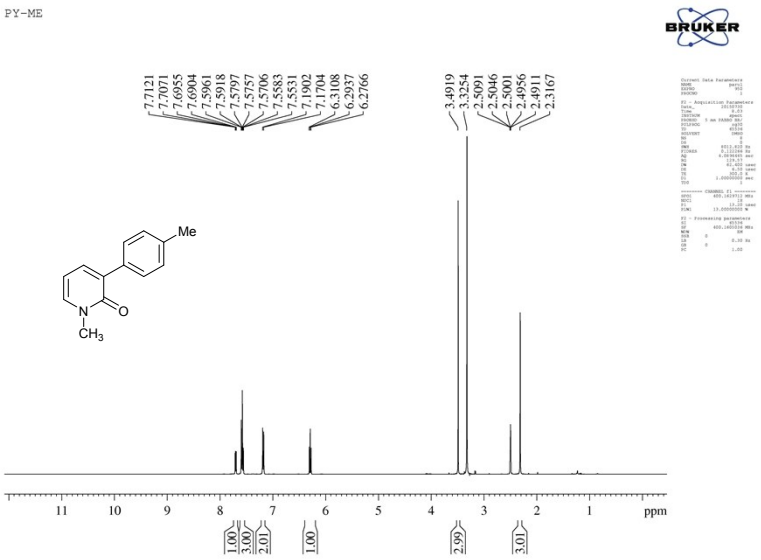
^{13}C NMR Spectra of (**6g**) (100 MHz,$CDCl_3$)



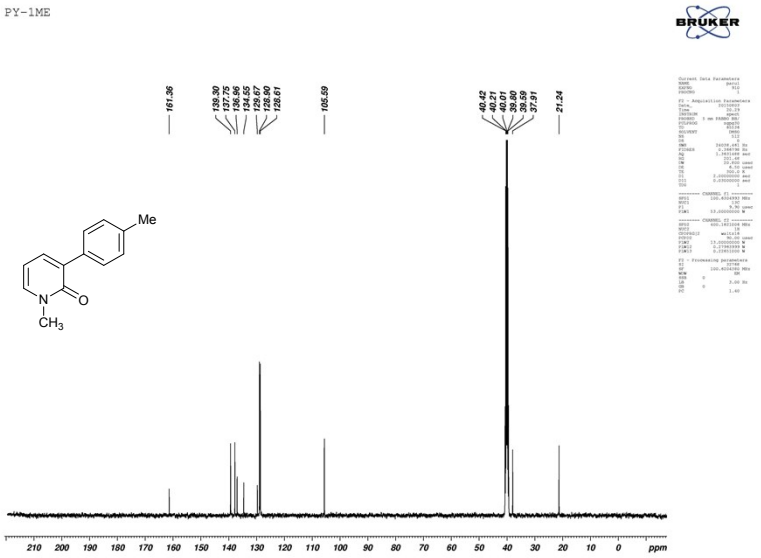
^{1}H NMR Spectra of (**6h**) (400 MHz, $CDCl_3$)



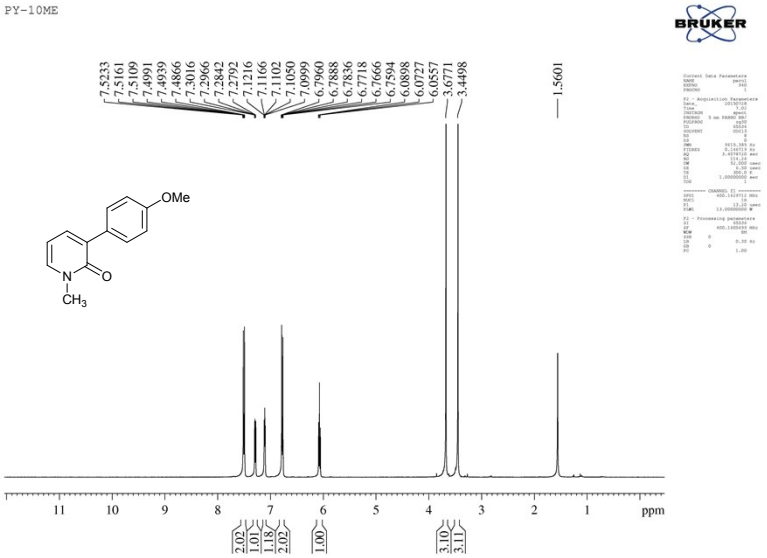
^{13}C NMR Spectra of (**6h**) (100 MHz,$CDCl_3$)



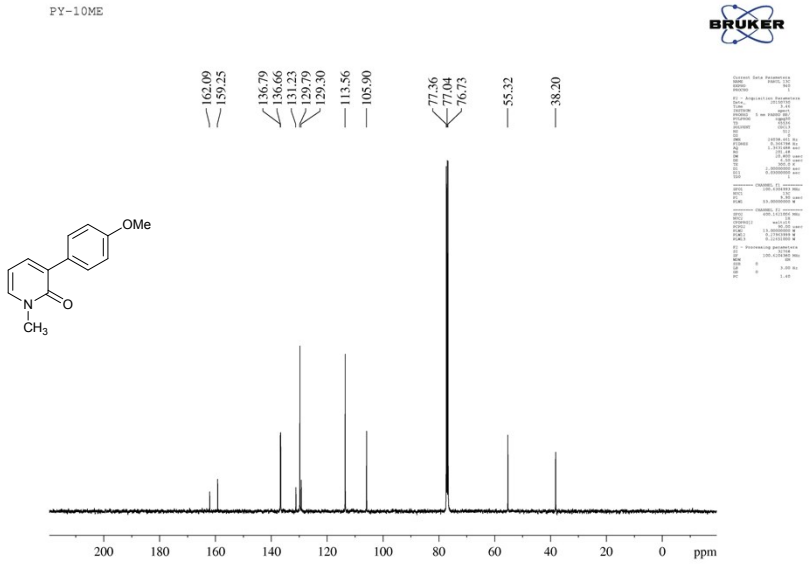
^{1}H NMR Spectra of (**6i**) (400 MHz, DMSO- d_6)



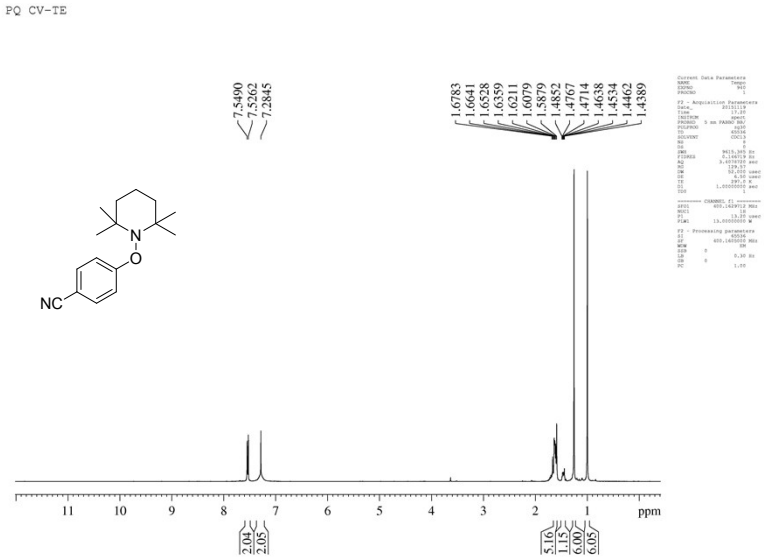
^{13}C NMR Spectra of (**6i**) (100 MHz,DMSO- d_6)



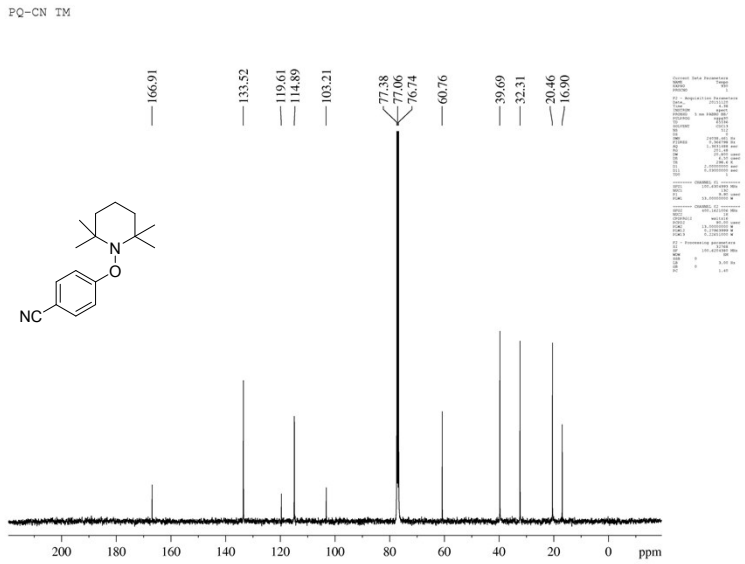
^{1}H NMR Spectra of (**6j**) (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**6j**) (100 MHz,$CDCl_3$)



^{1}H NMR Spectra of (**7**) (400 MHz, $CDCl_3$)



^{13}C NMR Spectra of (**7**) (100 MHz,$CDCl_3$)