

Supplementary material

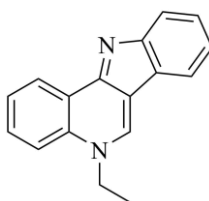
Synthesis and evaluation of the tetracyclic ring-system of isocryptolepine and regioisomers for antimalarial, antiproliferative and antimicrobial activities

Katja S. Håheim^a, Emil Lindbäck^a, Kah Ni Tan^b, Marte Albrigtsen^c, Ida T. Urdal Helgeland^a, Clémence Lauga^a, Théodora Matringe^a, Emily K. Kennedy^b, Jeanette H. Andersen^c, Vicky M. Avery^{b,d,e} and Magne O. Sydnes^{a*}

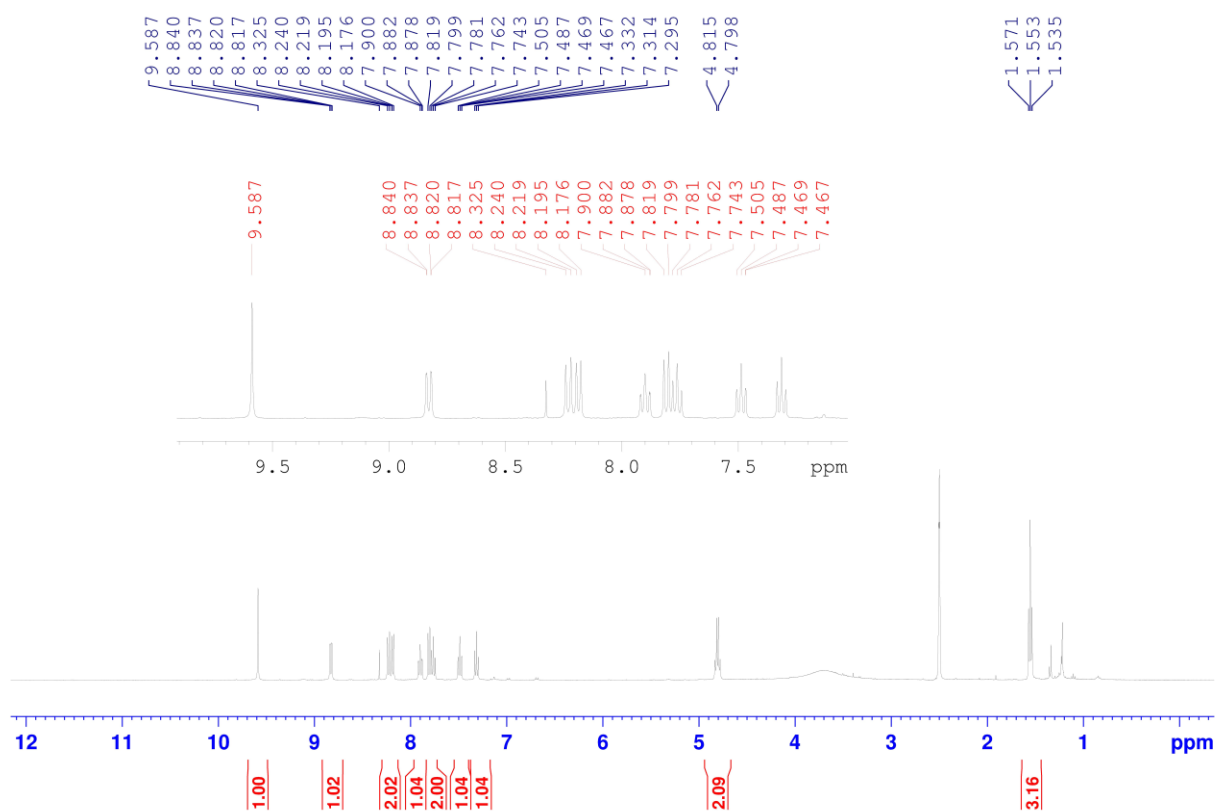
email: magne.o.sydnes@uis.no

Enclosed is the ¹H-, ¹³C-, where relevant, ¹⁹F-NMR and 2D NMR (COSY, NOESY, HMBC and HSQC) spectra for compounds **3b**, **3c**, **7c**, **8a**, **8b**, **9a**, **9b**, **10** and **21**.

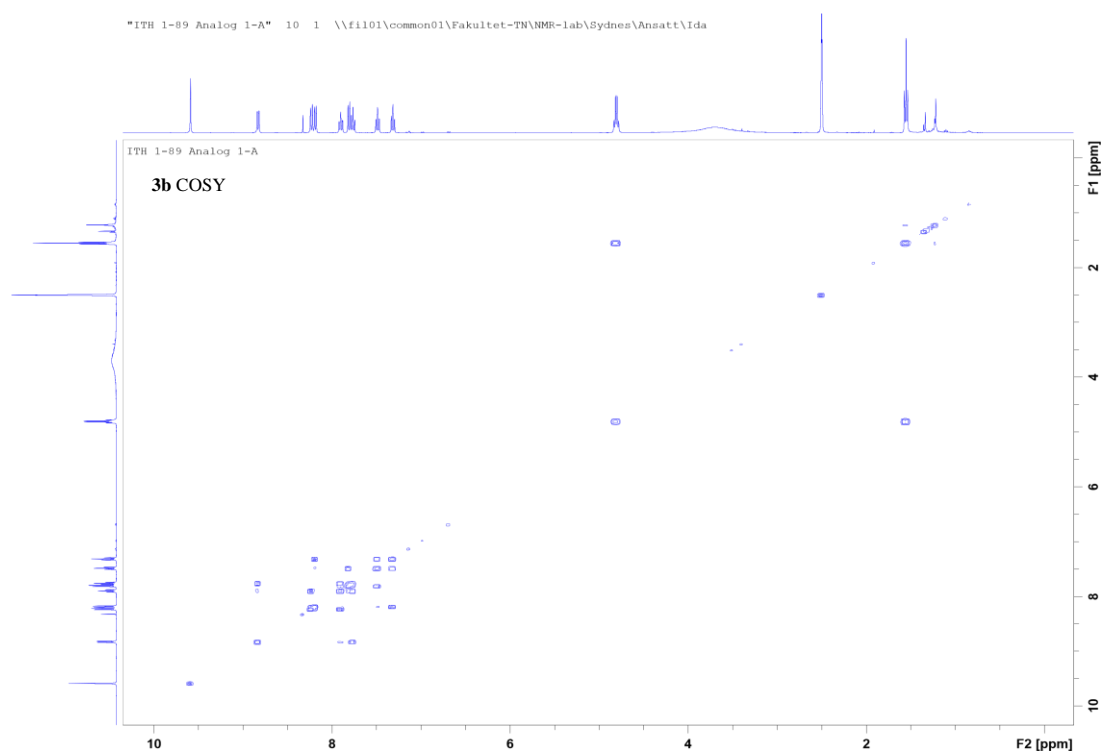
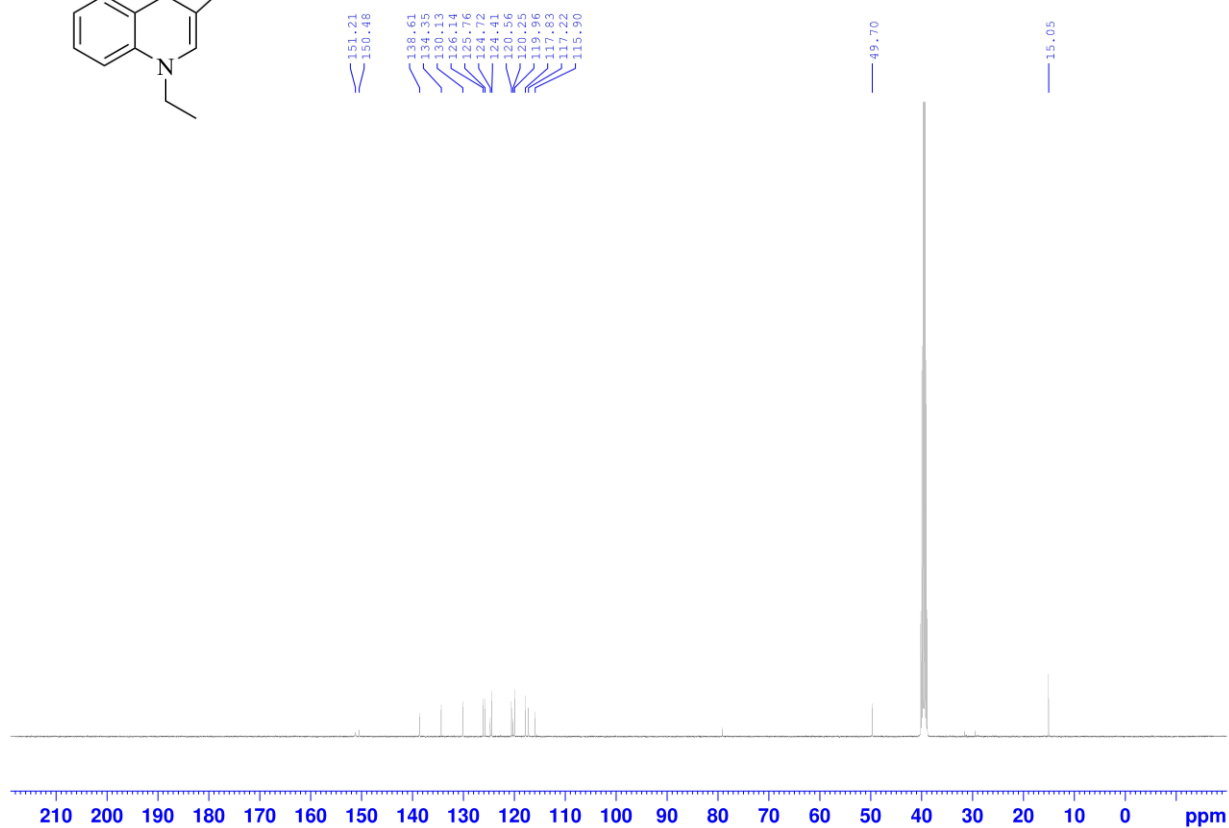
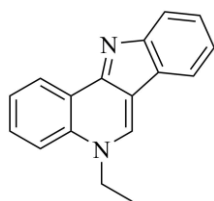
5-Ethyl-5*H*-indolo[3,2-*c*]quinoline (3b)



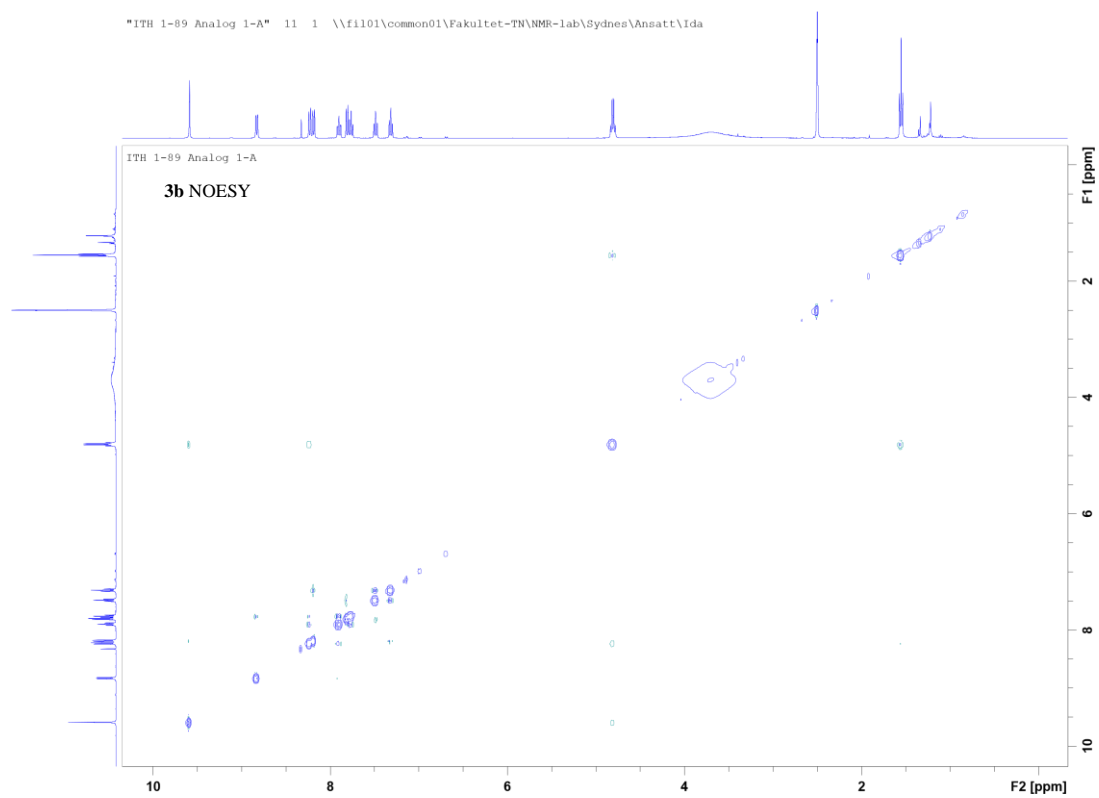
¹H NMR (400 MHz, DMSO-*d*₆)



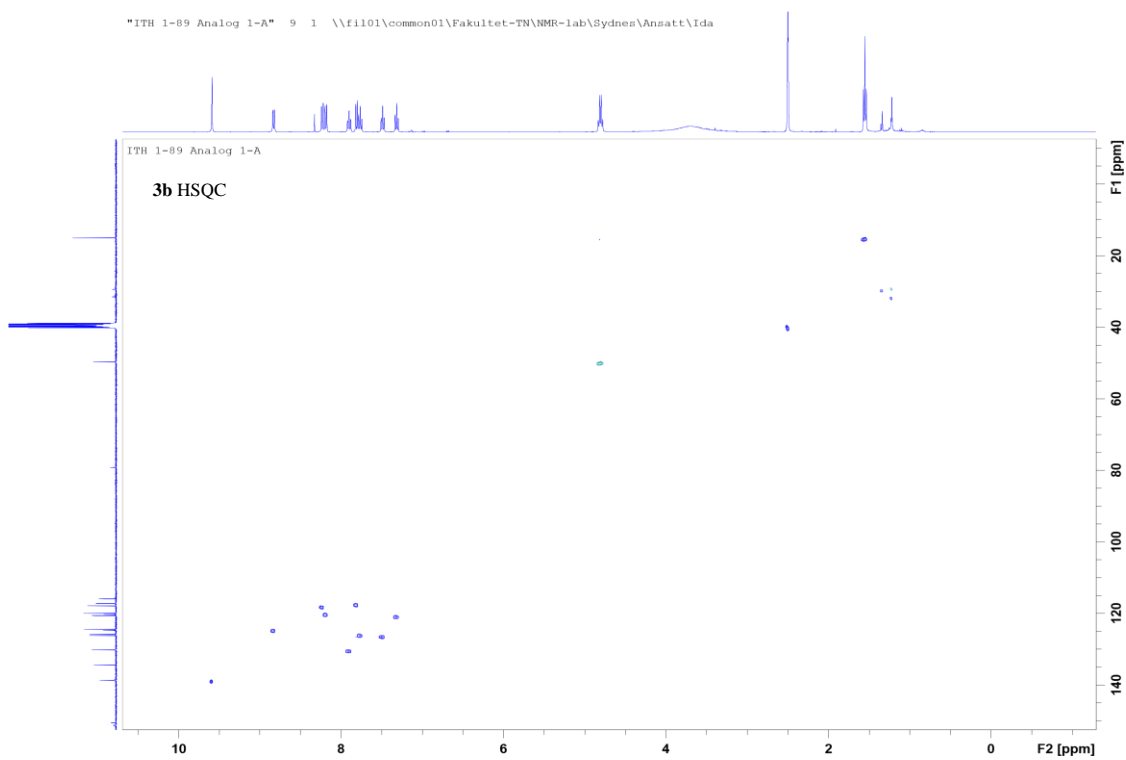
^{13}C NMR (100 MHz, $\text{DMSO}-d_6$)

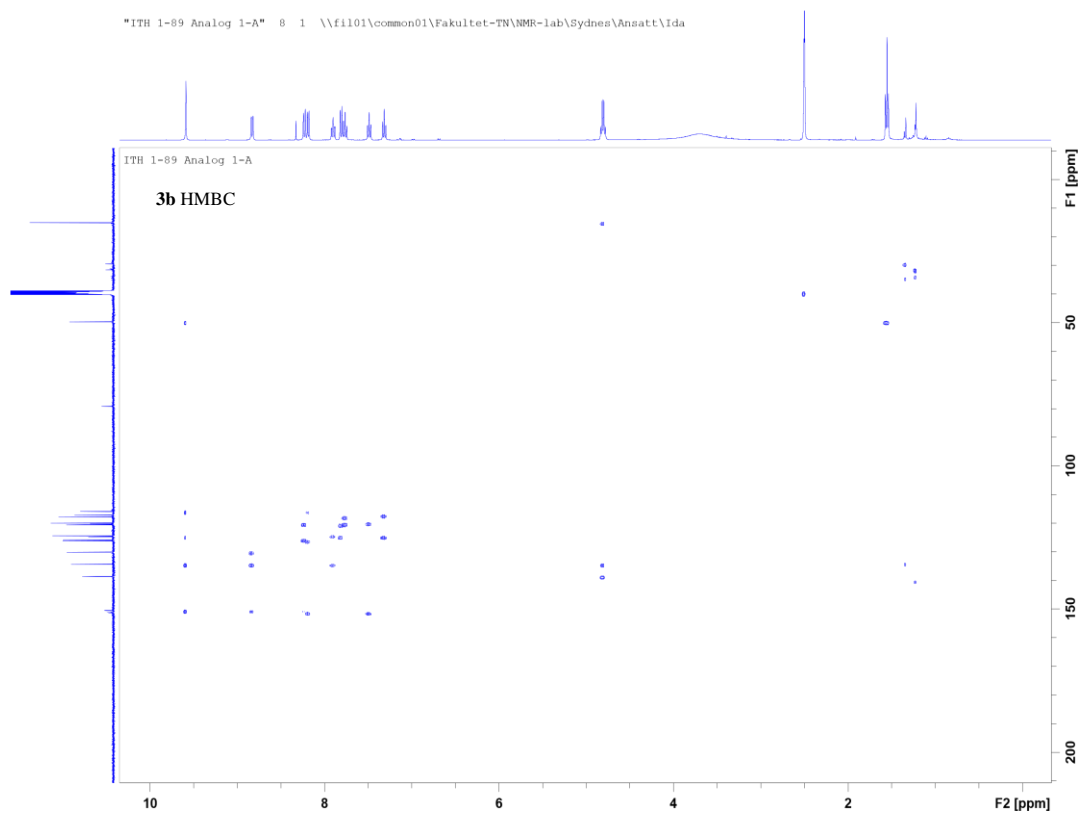


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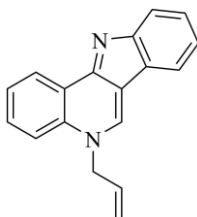


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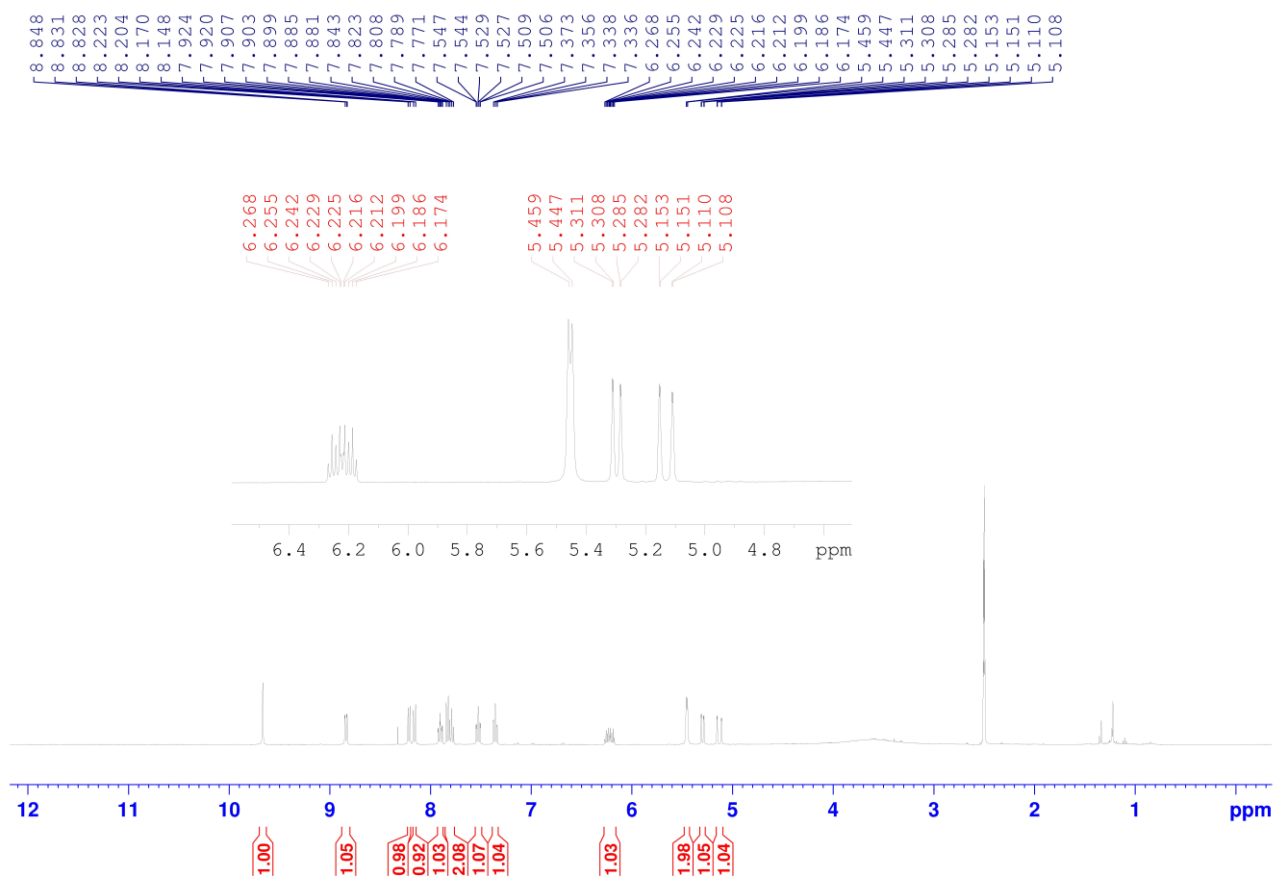




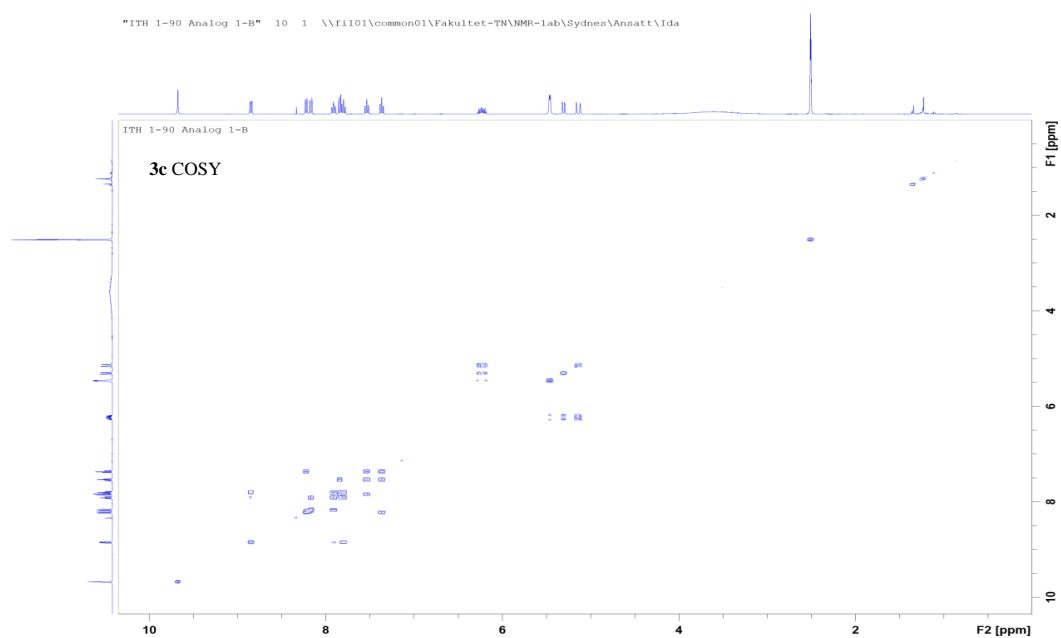
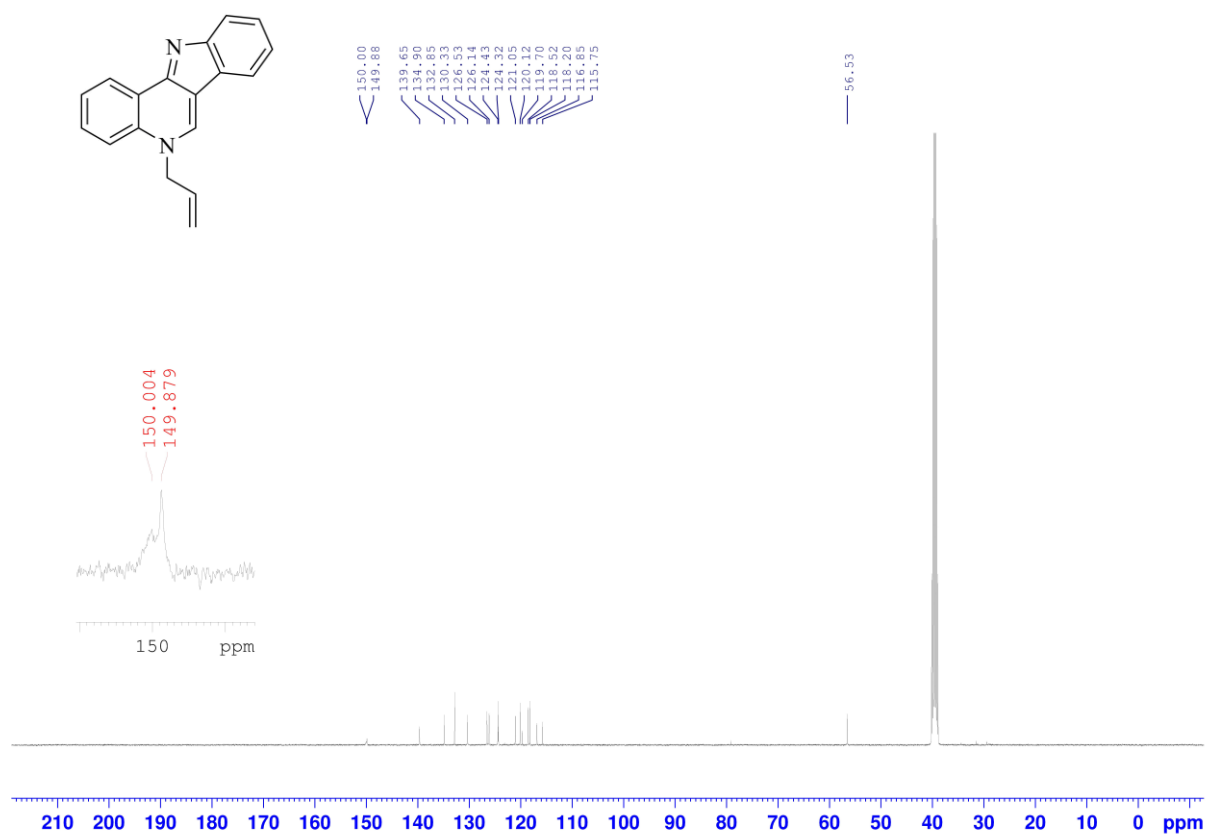
5-Allyl-5*H*-indolo[3,2-*c*]quinoline (3c)



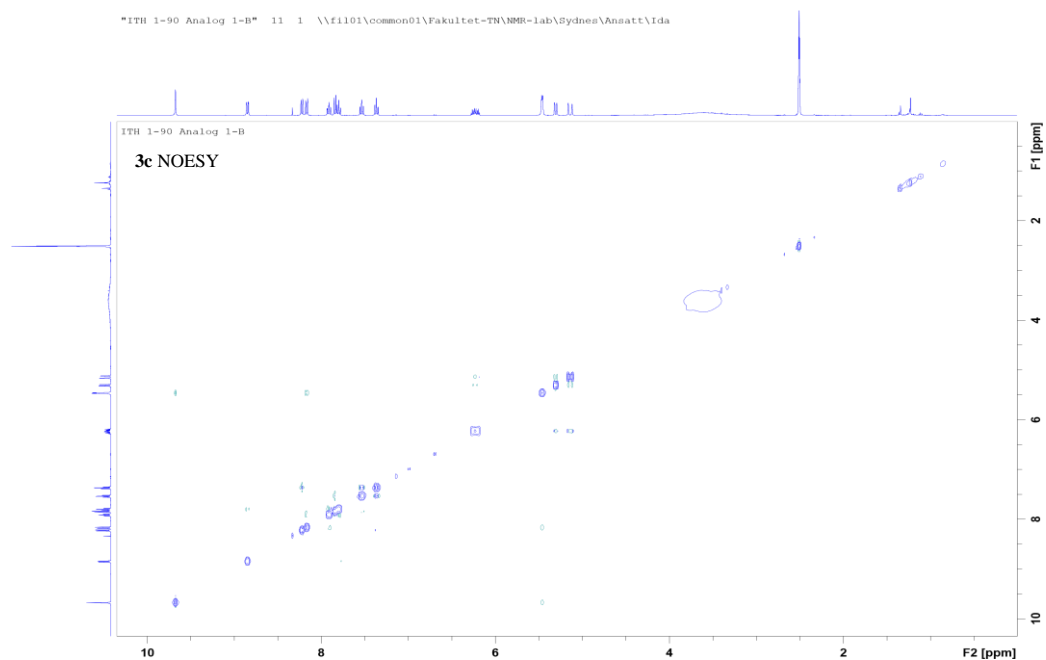
¹H NMR (400 MHz, DMSO-*d*₆)



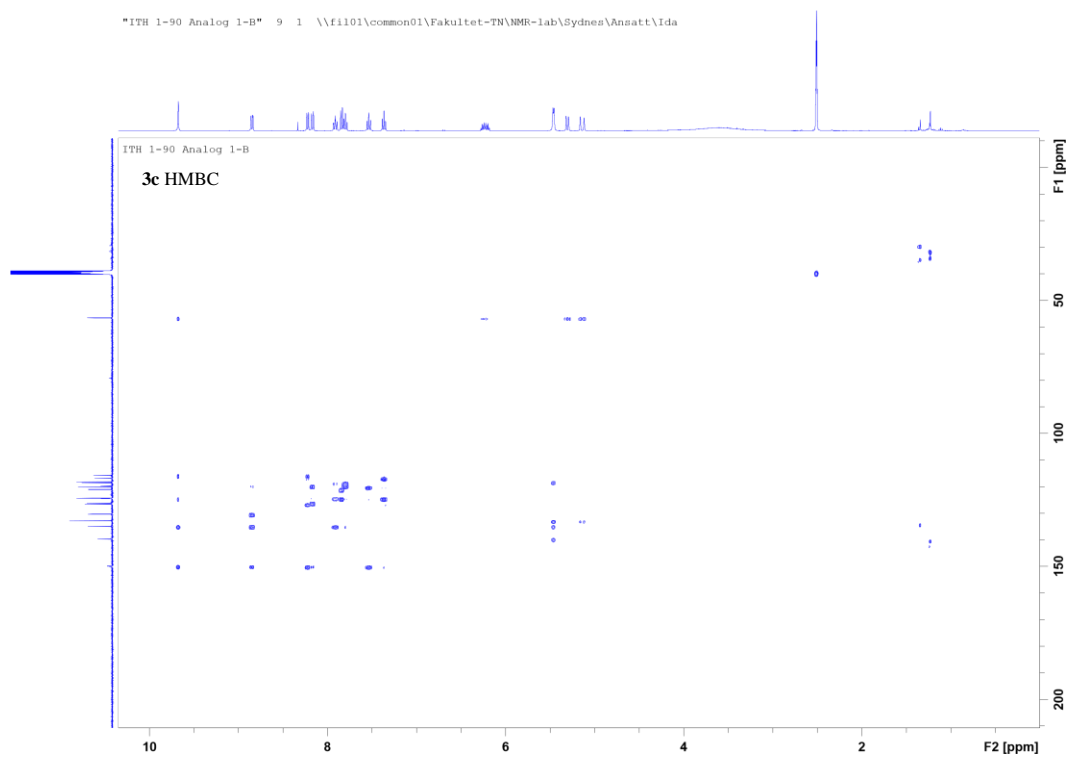
^{13}C NMR (100 MHz, $\text{DMSO}-d_6$)



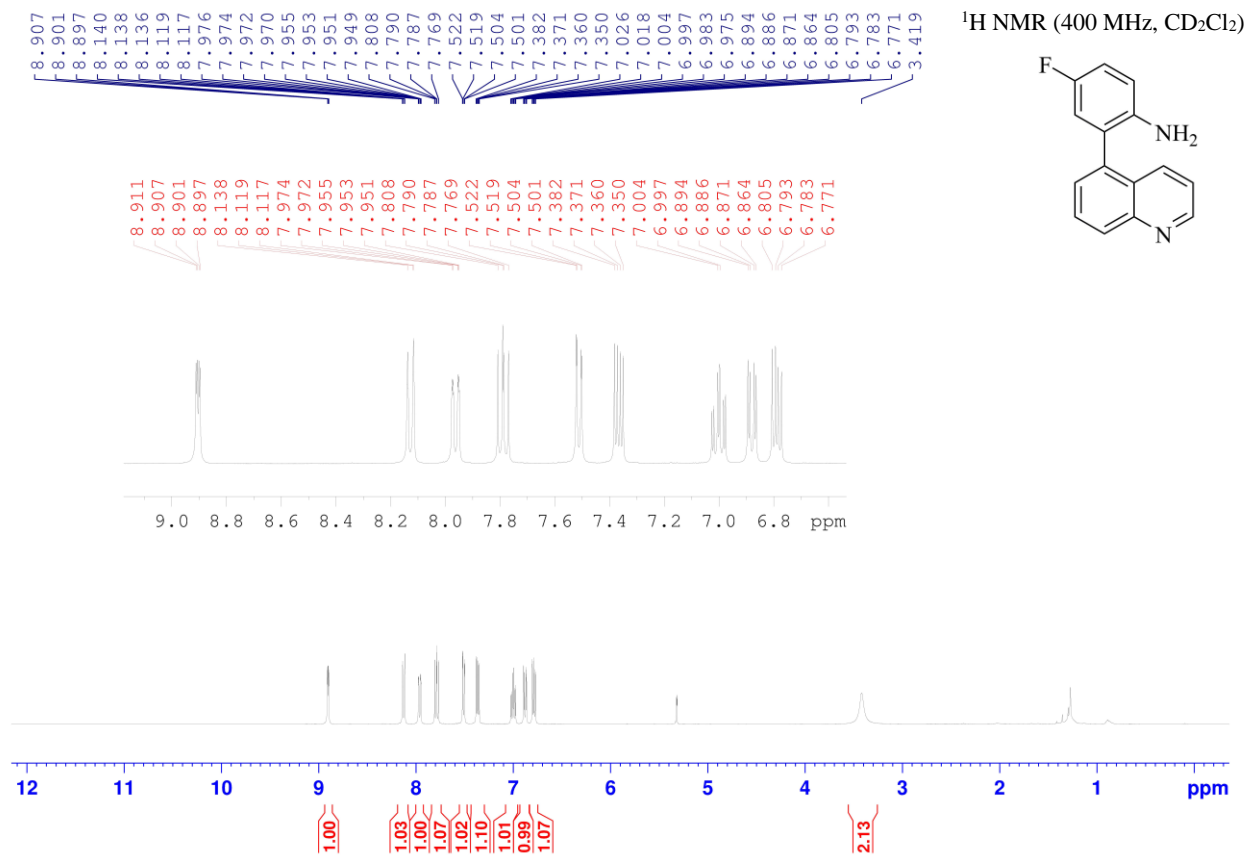
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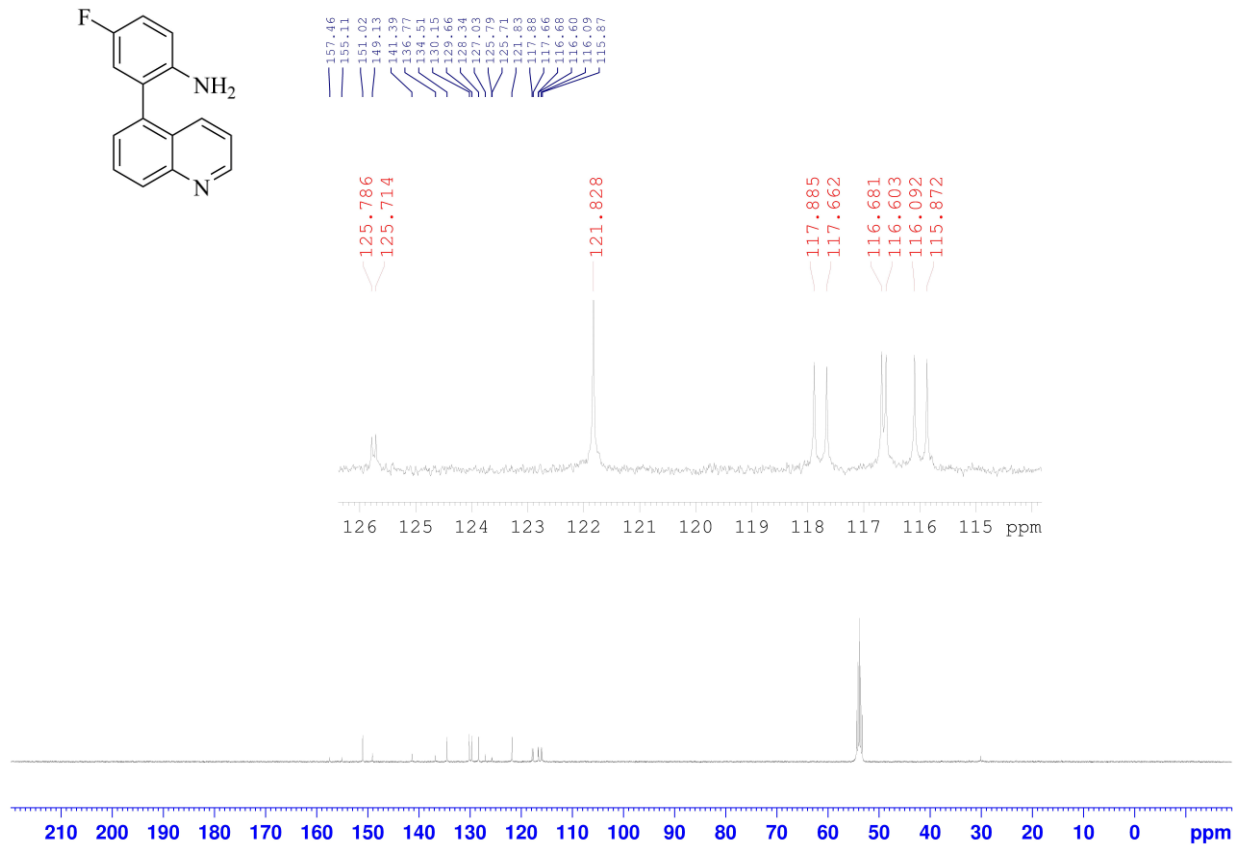
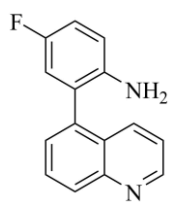
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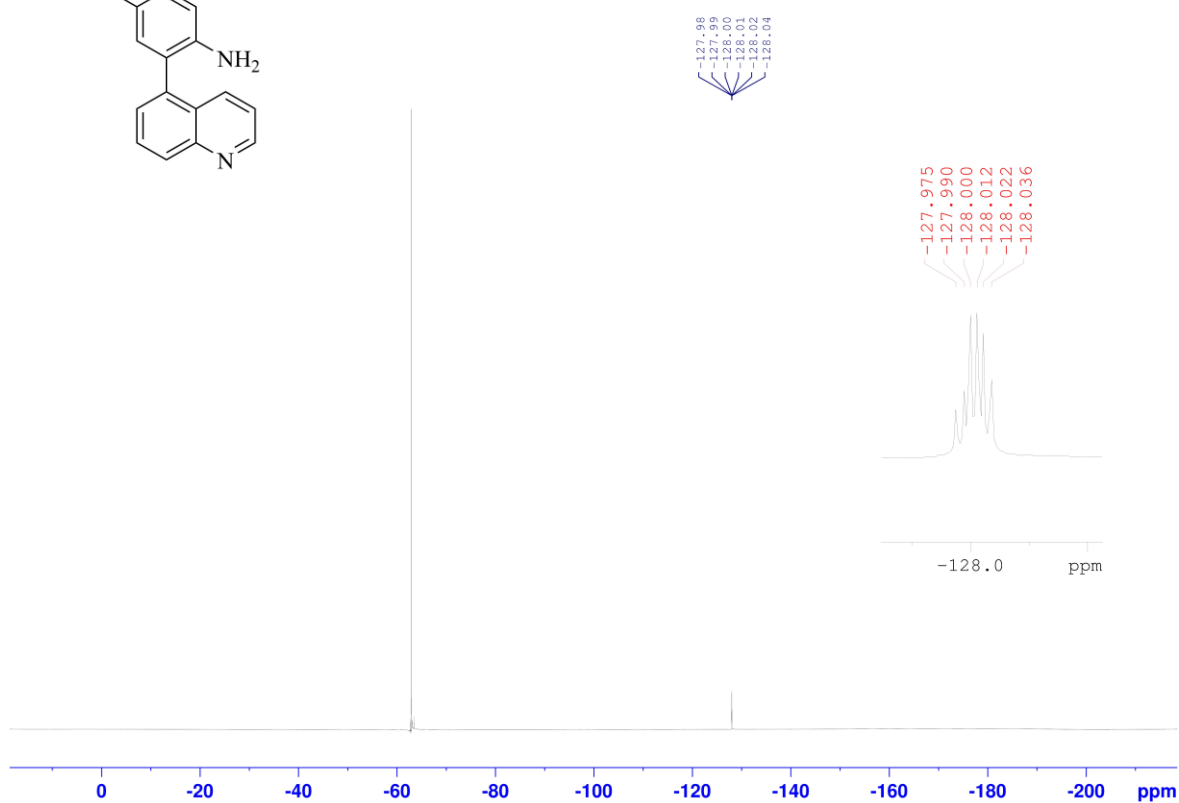
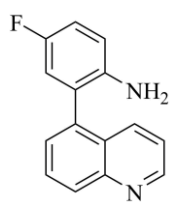
4-Fluoro-2-(quinolin-5-yl)aniline (7c)



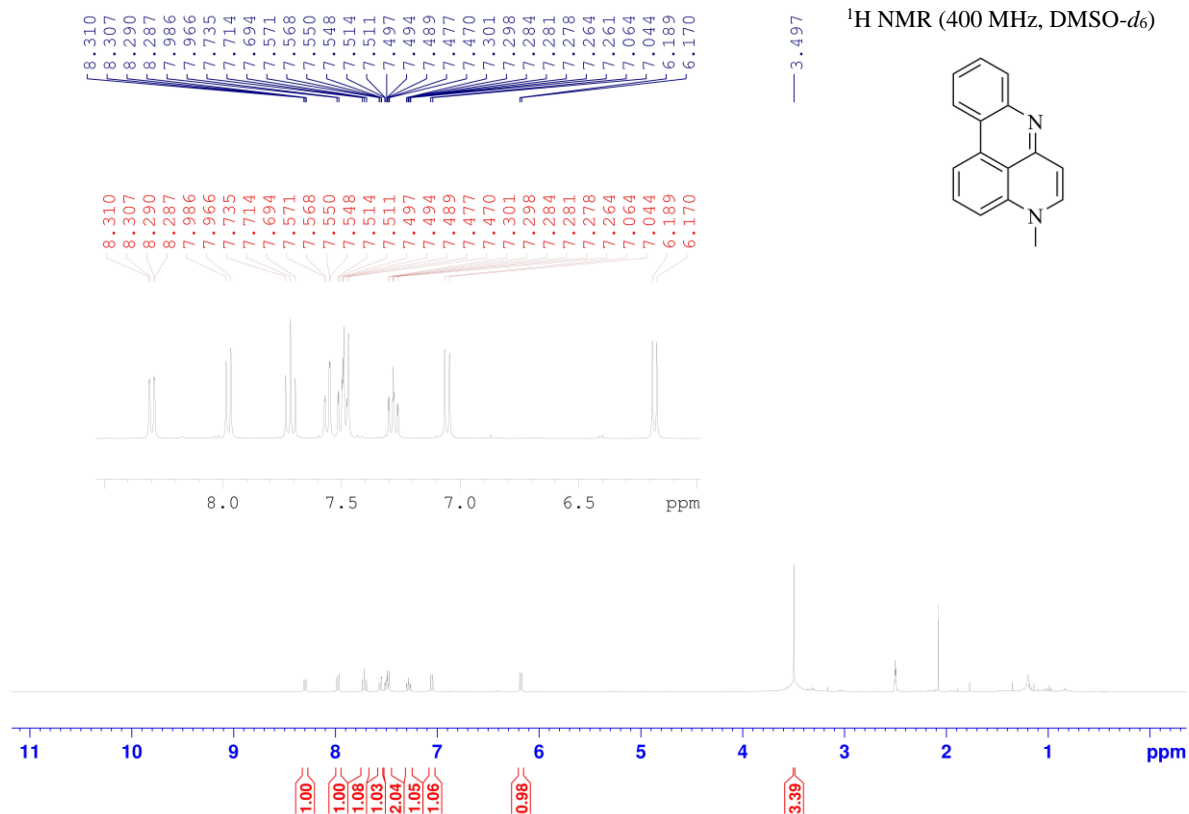
^{13}C NMR (100 MHz, CD_2Cl_2)



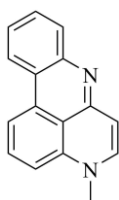
^{19}F NMR (376 MHz, CD_2Cl_2)



4-Methyl-4*H*-pyrido[4,3,2-*gh*]phenanthridine (8a)

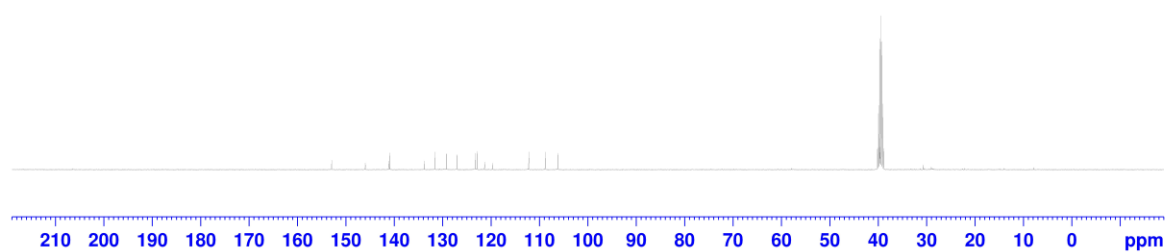


^{13}C NMR (100 MHz, $\text{DMSO}-d_6$)

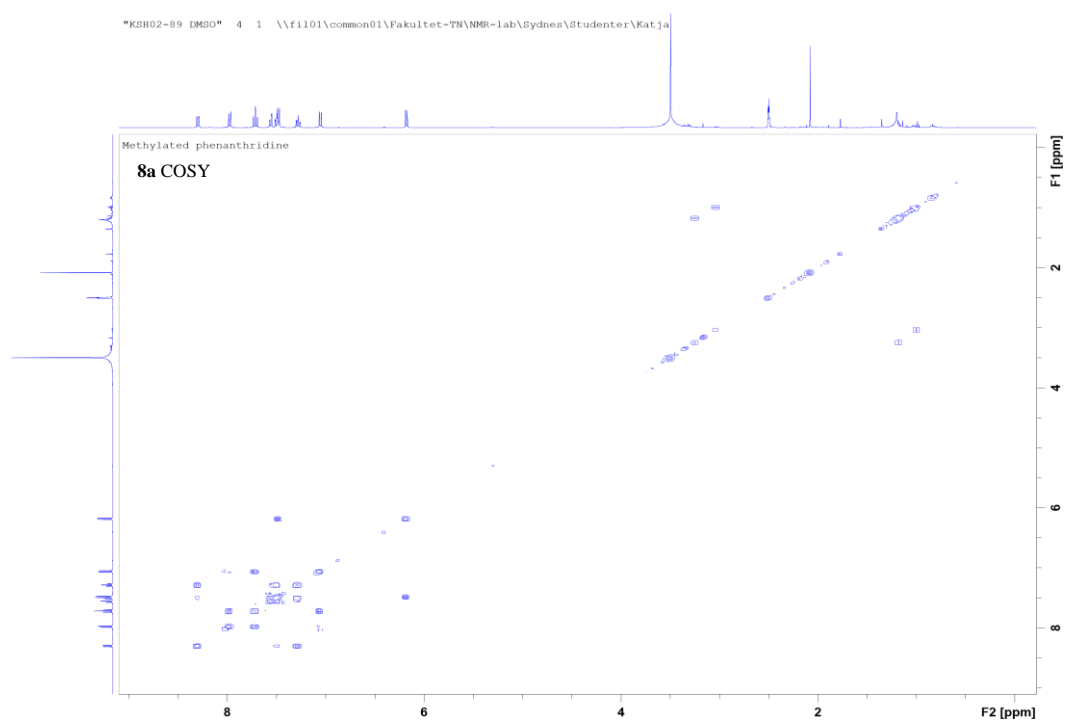


152.94
145.99
141.05
140.89
133.83
131.59
129.17
127.04
126.28
122.88
121.36
119.62
112.22
108.83
106.22

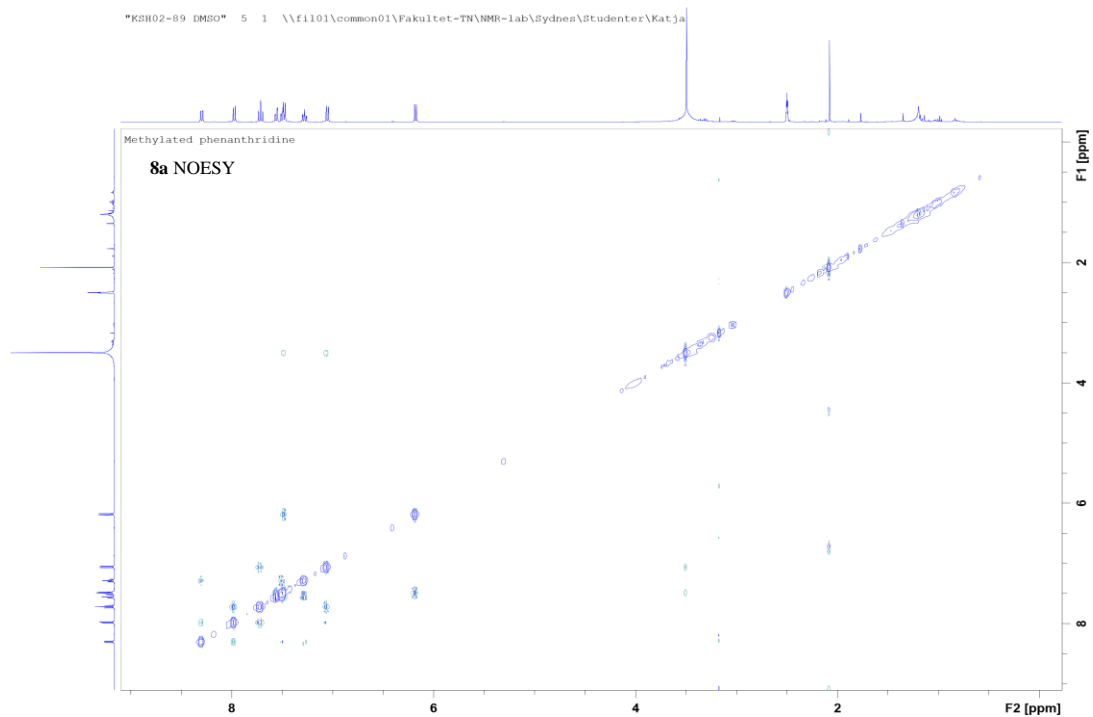
39.61



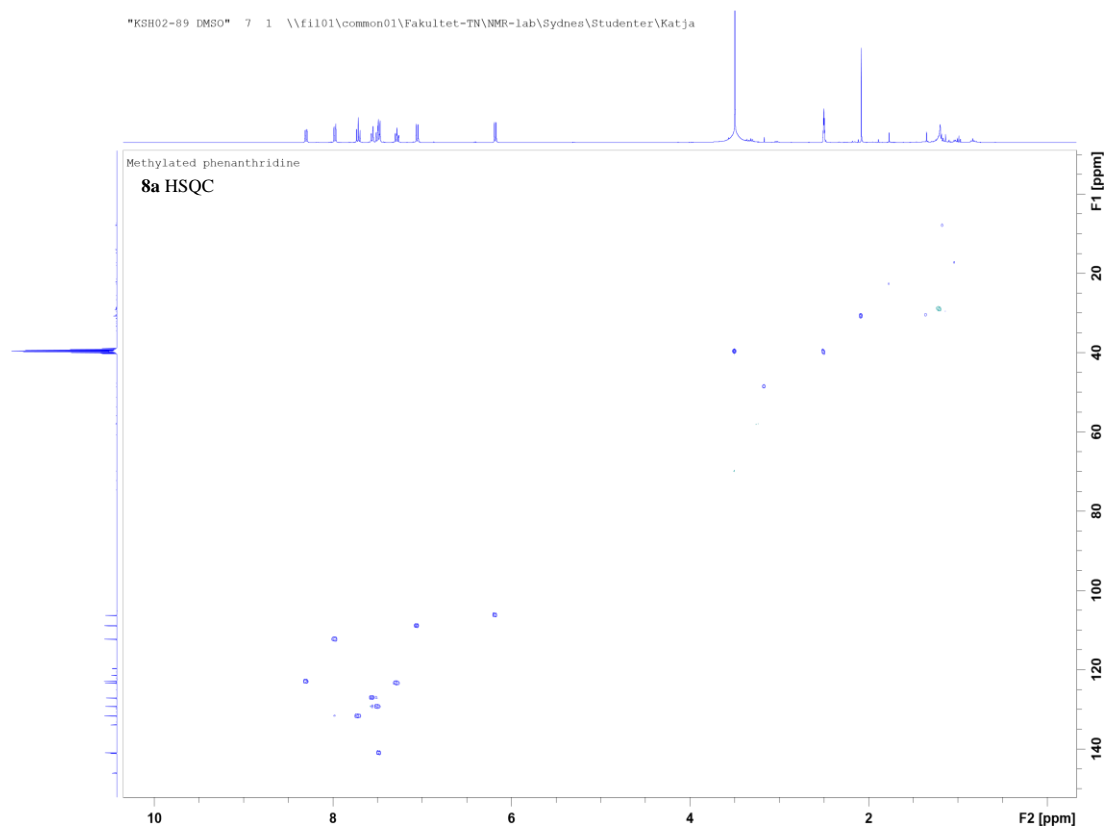
KSH02-89 DMSO 4 1 \\f1101\common01\Fakultet-TW\NMR-lab\Sydney\Studenten\Katja



"KSH02-89 DMSO" 5 1 \\f1101\common01\Fakultet-TN\NMR-lab\Sydney\Studenten\Katja



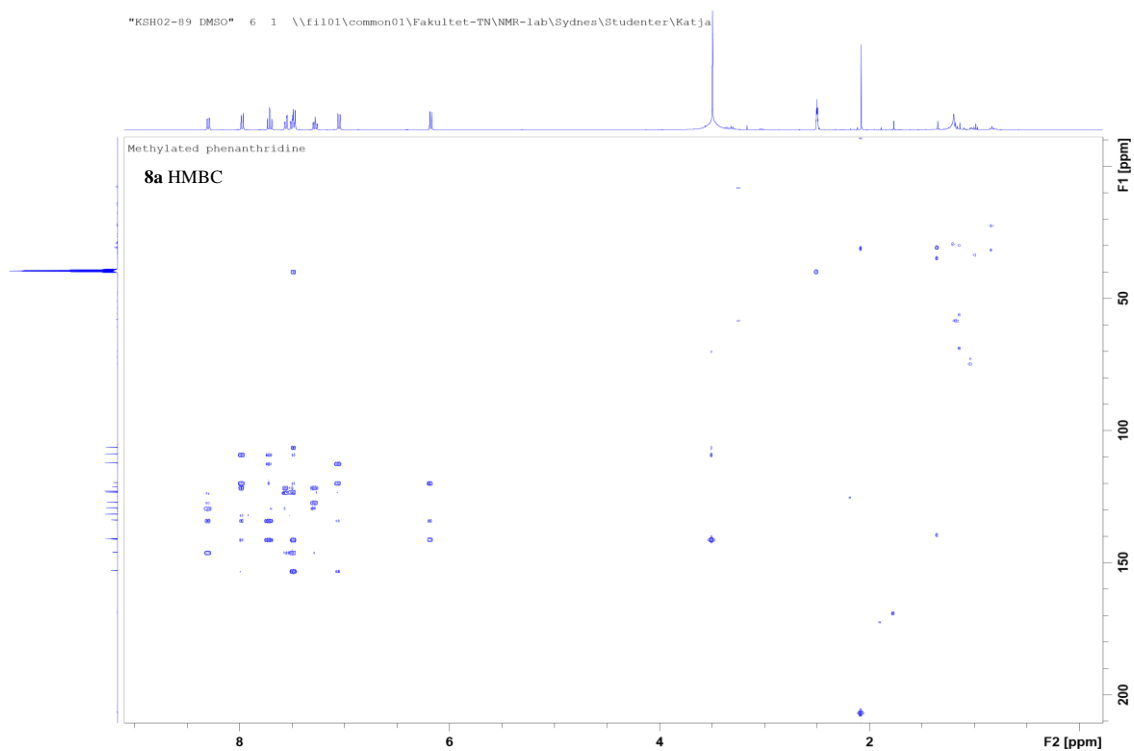
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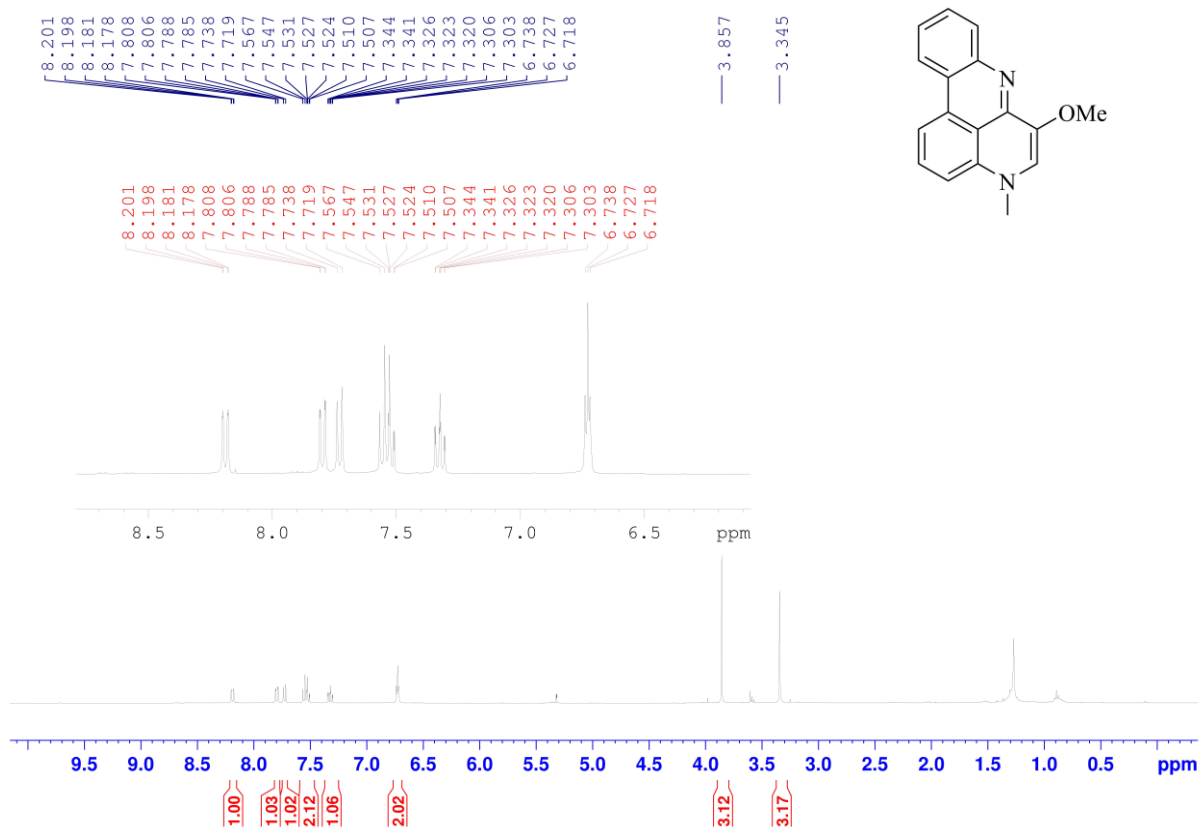
Methylated phenanthridine

8a HMBC

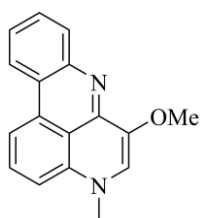


6-Methoxy-4-methyl-4*H*-pyrido[4,3,2-*gh*]phenanthridine (8b)

¹H NMR (400 MHz, CD₂Cl₂)



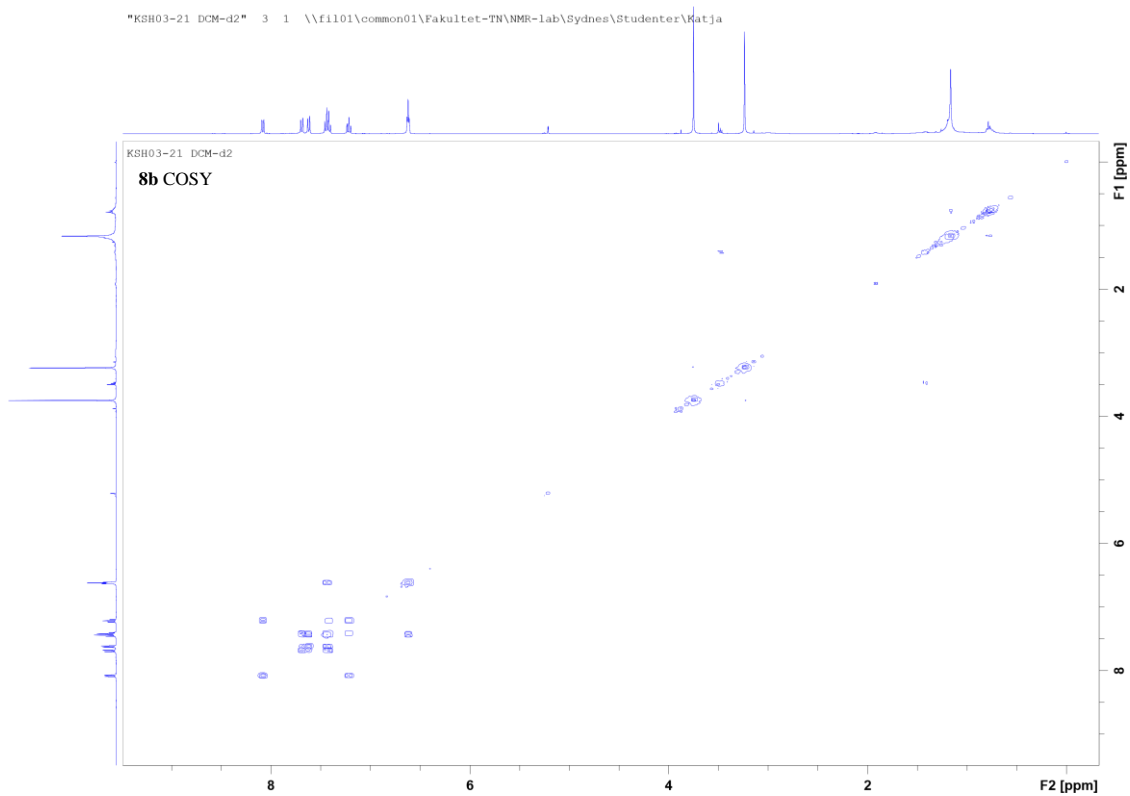
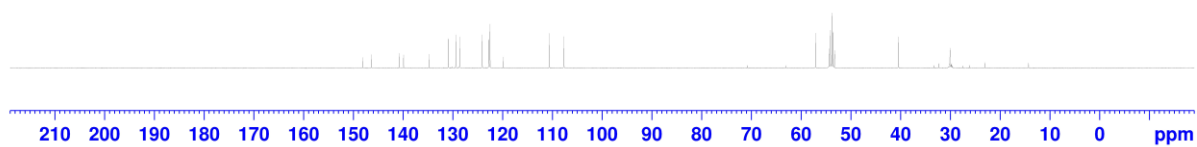
^{13}C NMR (100 MHz, CD_2Cl_2)



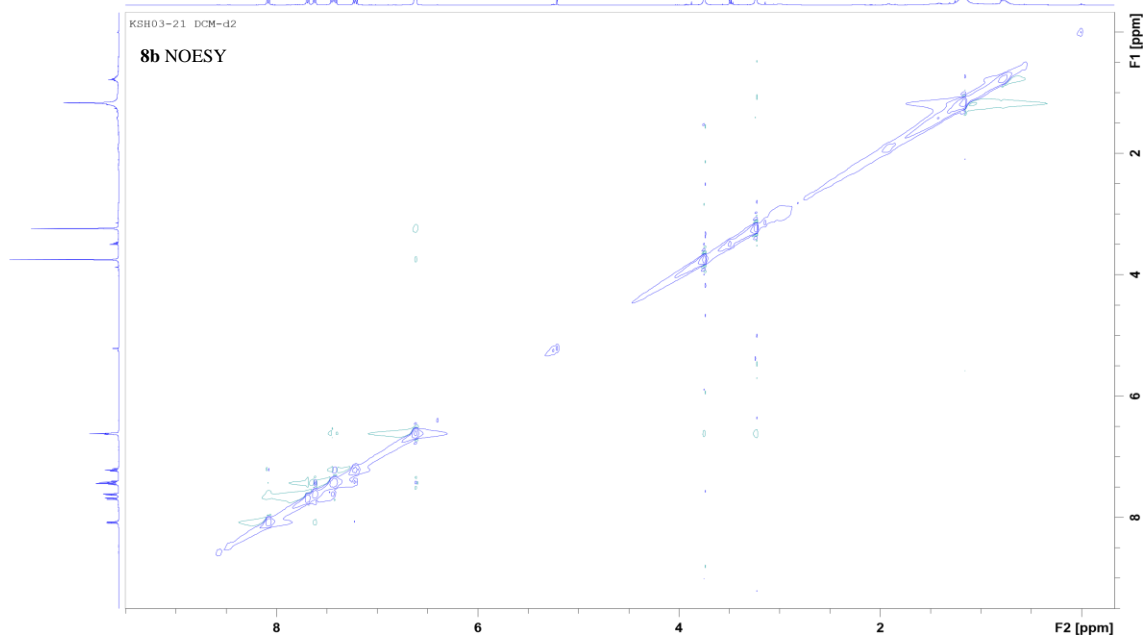
148.10
146.32
140.81
139.90
134.82
130.86
128.40
128.61
124.10
122.75
122.54
119.88
110.61
107.68

57.08

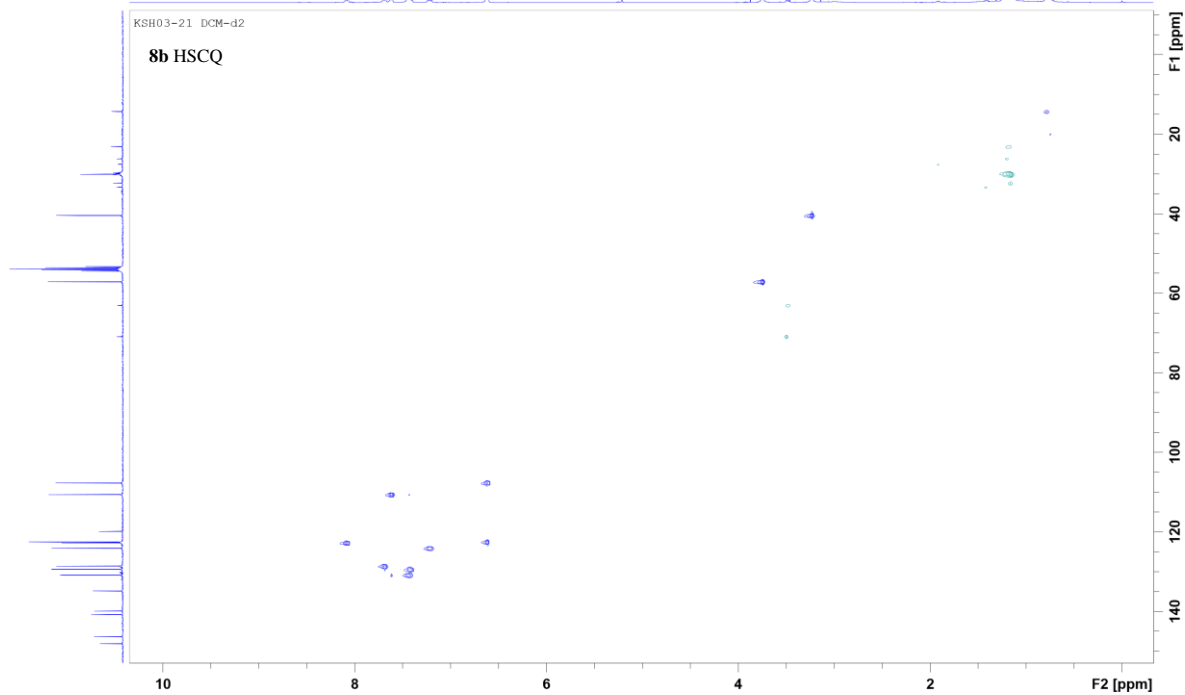
40.42



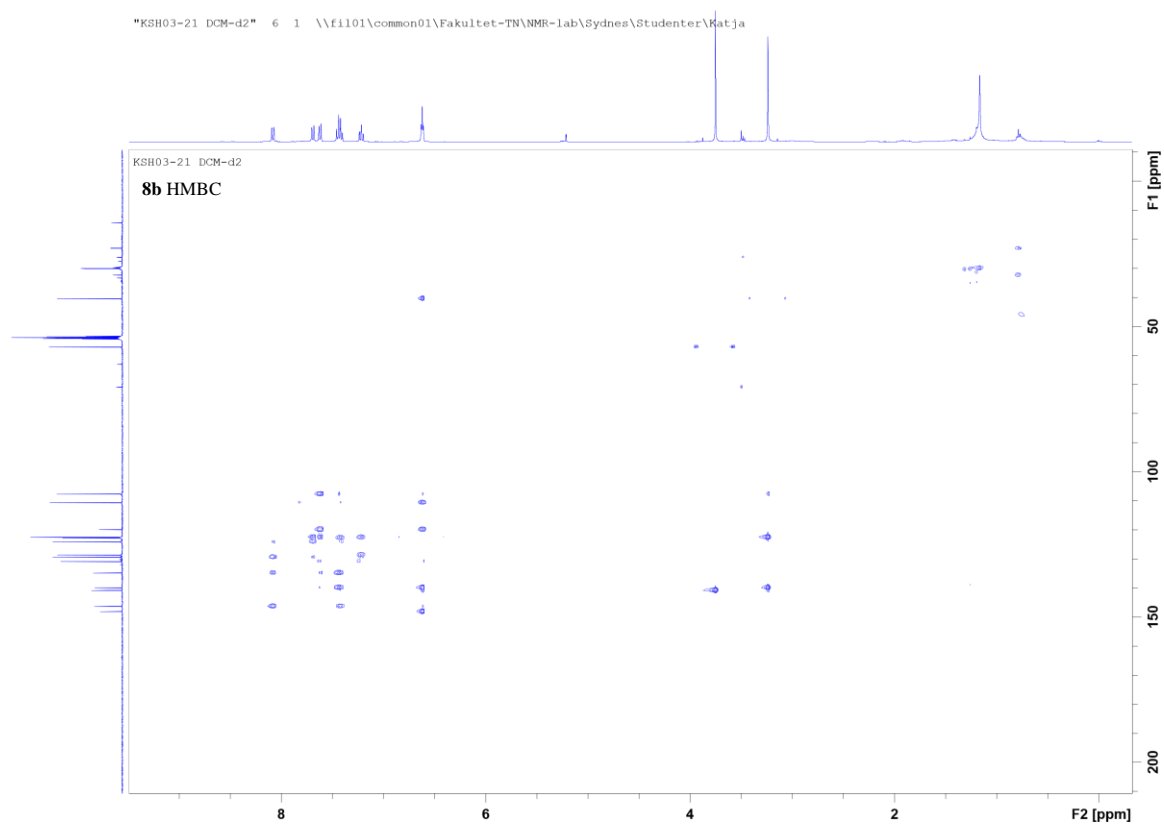
"KSH03-21 DCM-d2" 7 1 \\f1101\common01\Fakultet-TN\NMR-lab\Sydney\Studenten\Katja



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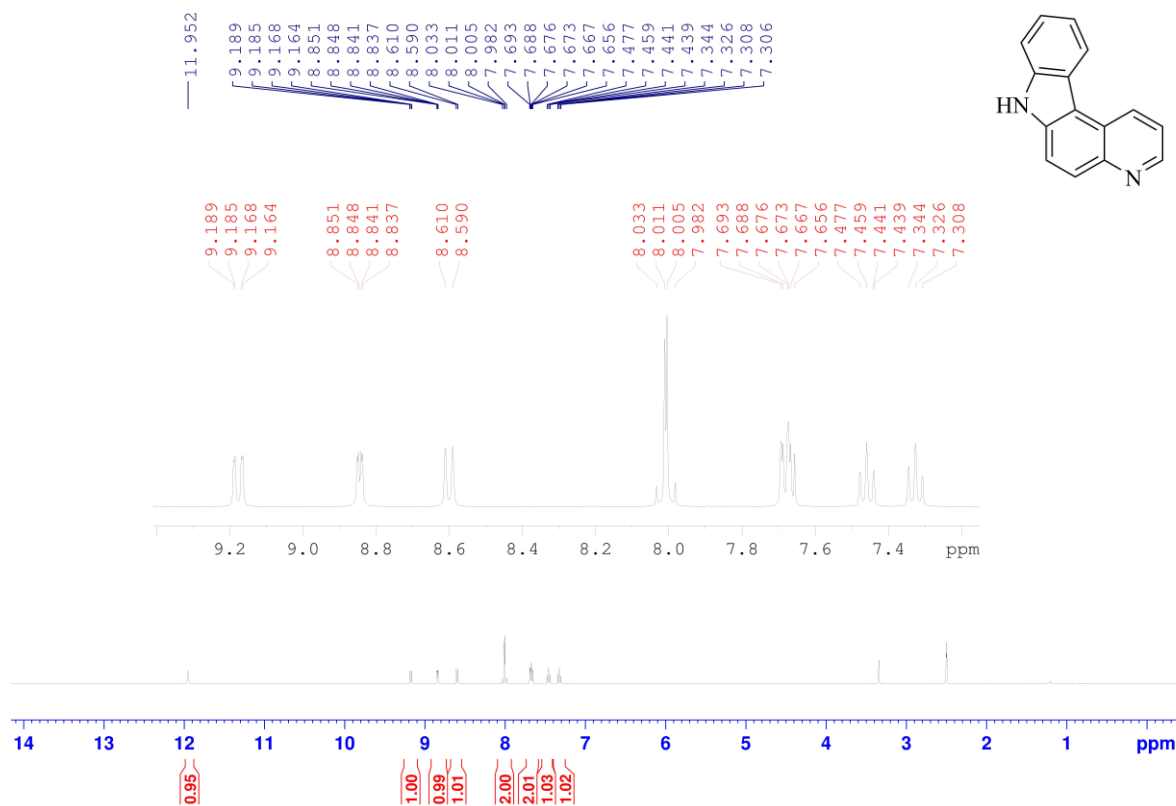


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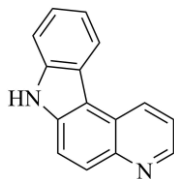


7H-Pyrido[2,3-c]carbazole (9a)

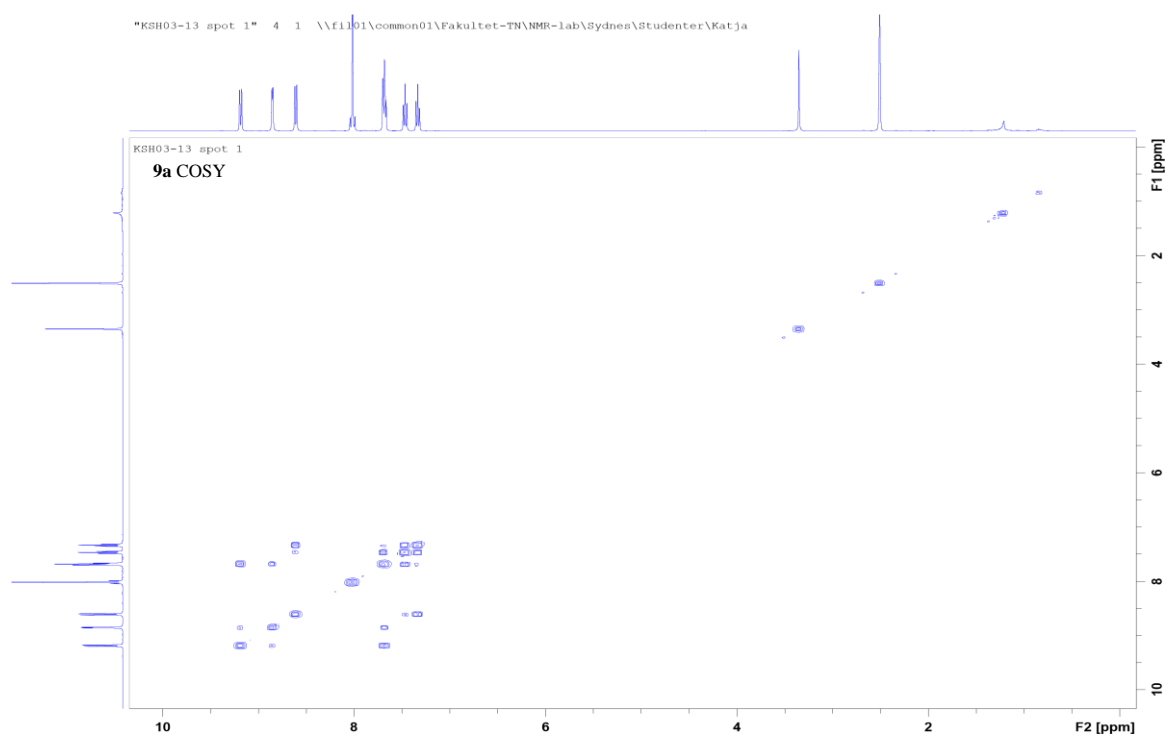
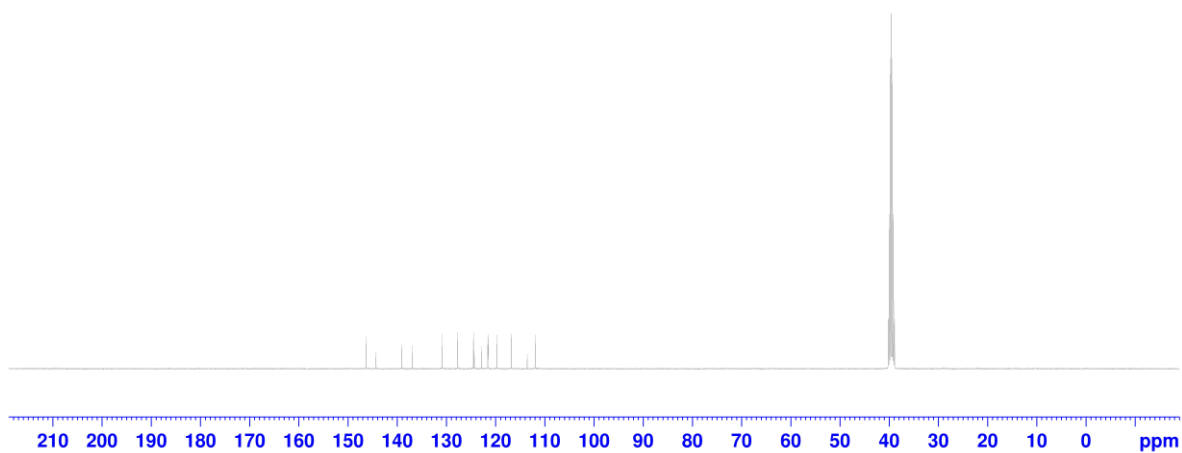
¹H NMR (400 MHz, DMSO-*d*₆)

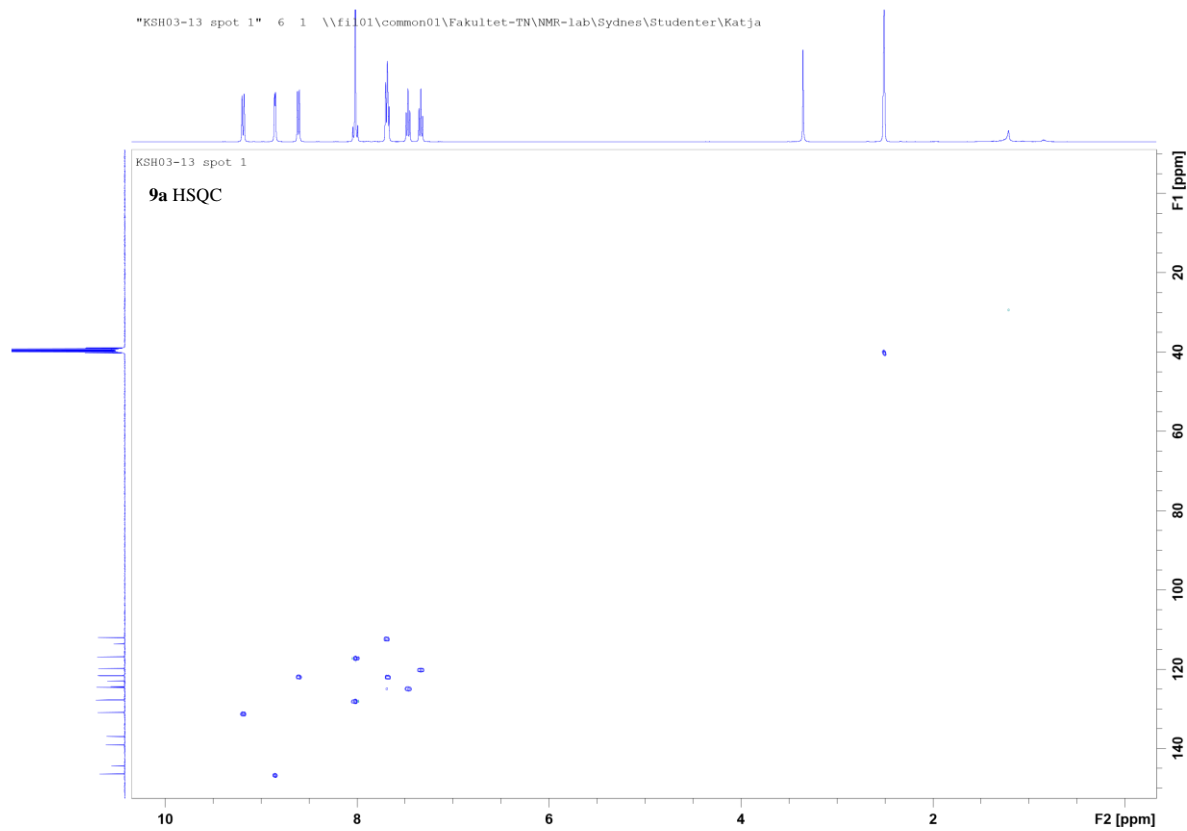
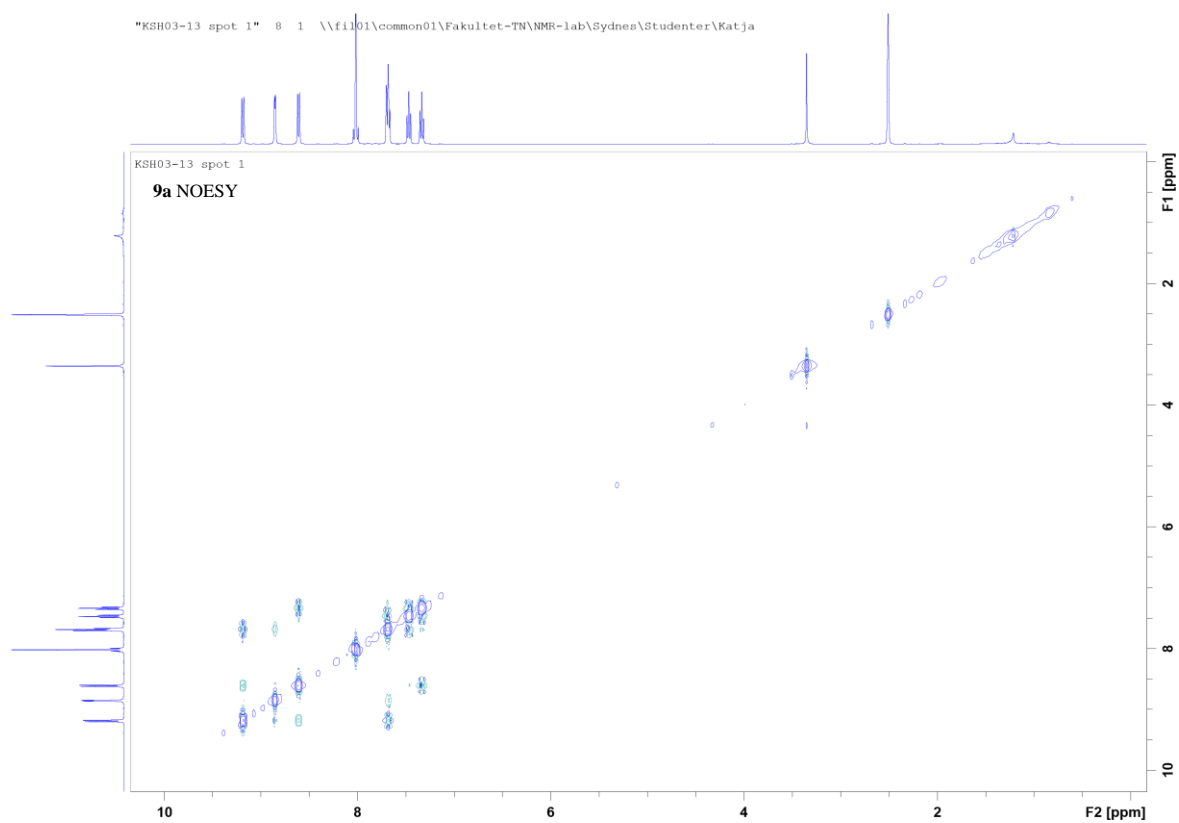


^{13}C NMR (100 MHz, $\text{DMSO}-d_6$)

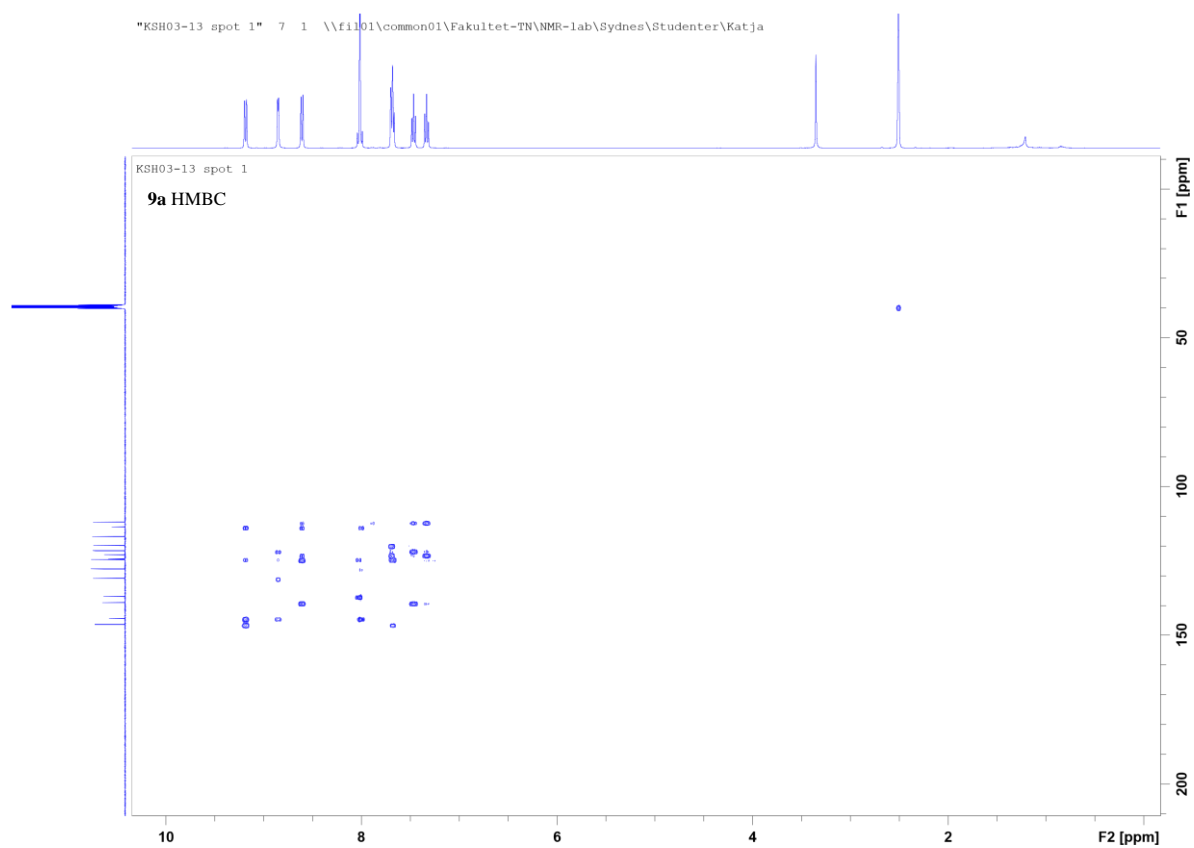


146.36
144.30
139.02
136.21
130.84
127.69
127.51
124.33
122.91
121.58
121.53
118.82
118.62
113.56
111.96

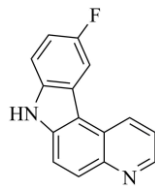




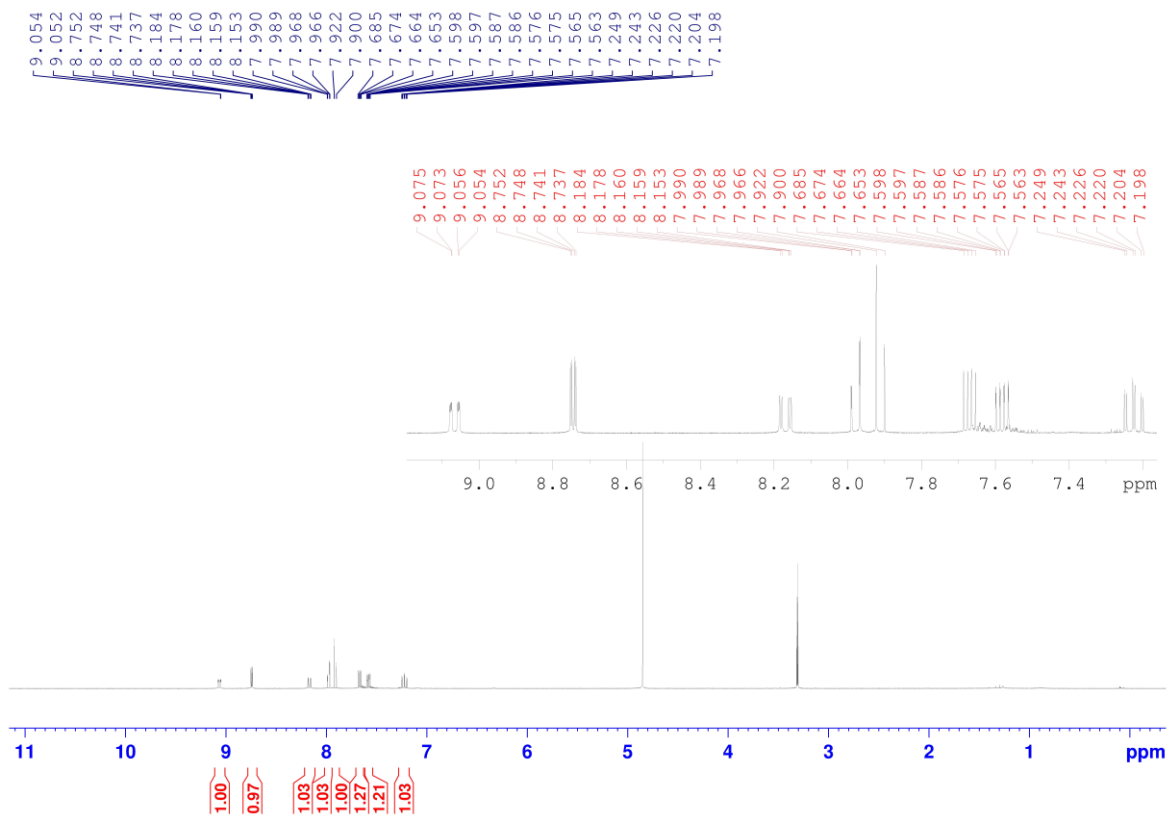
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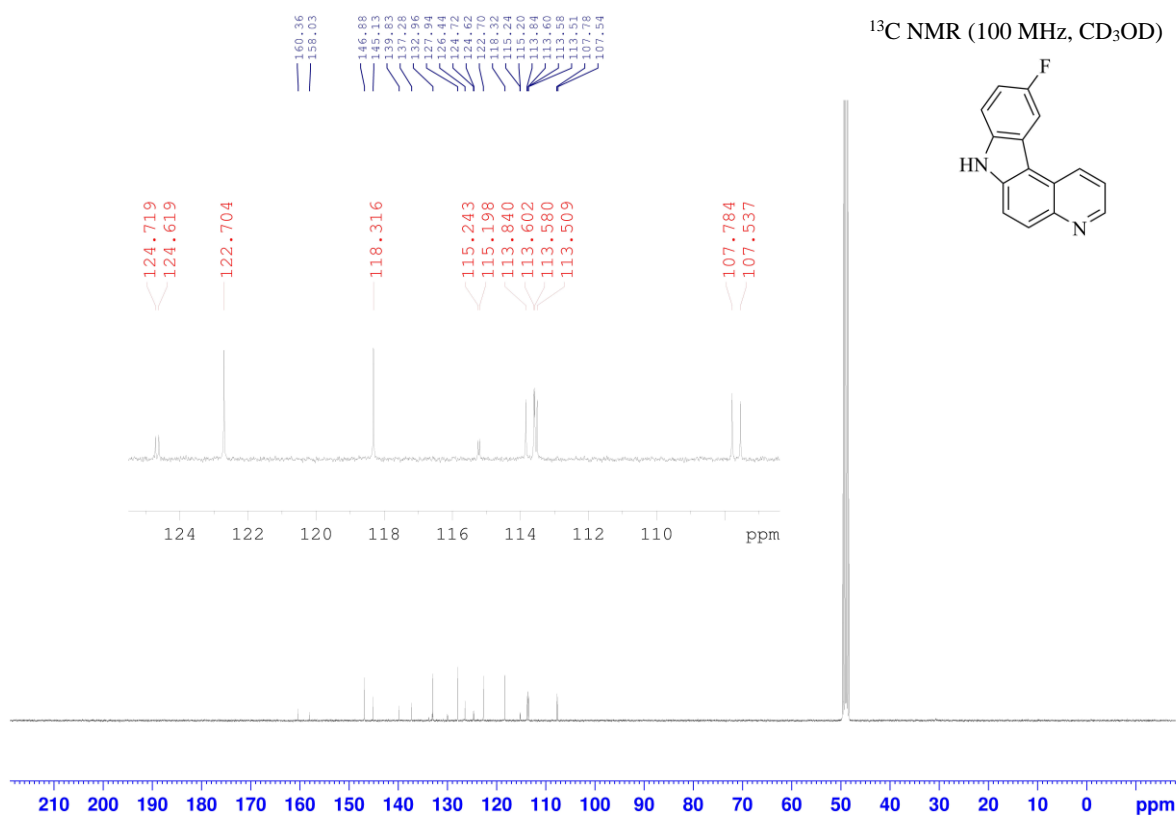


10-Fluoro-7H-pyrido[2,3-c]carbazole (9b)

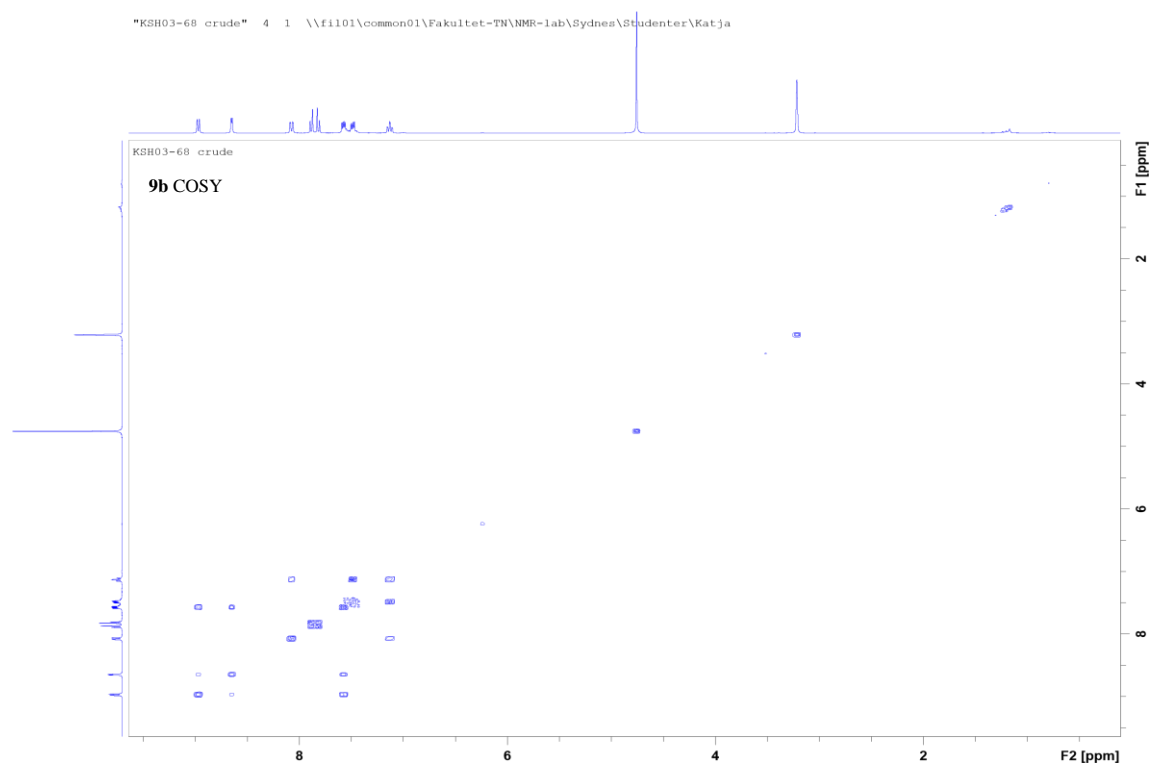
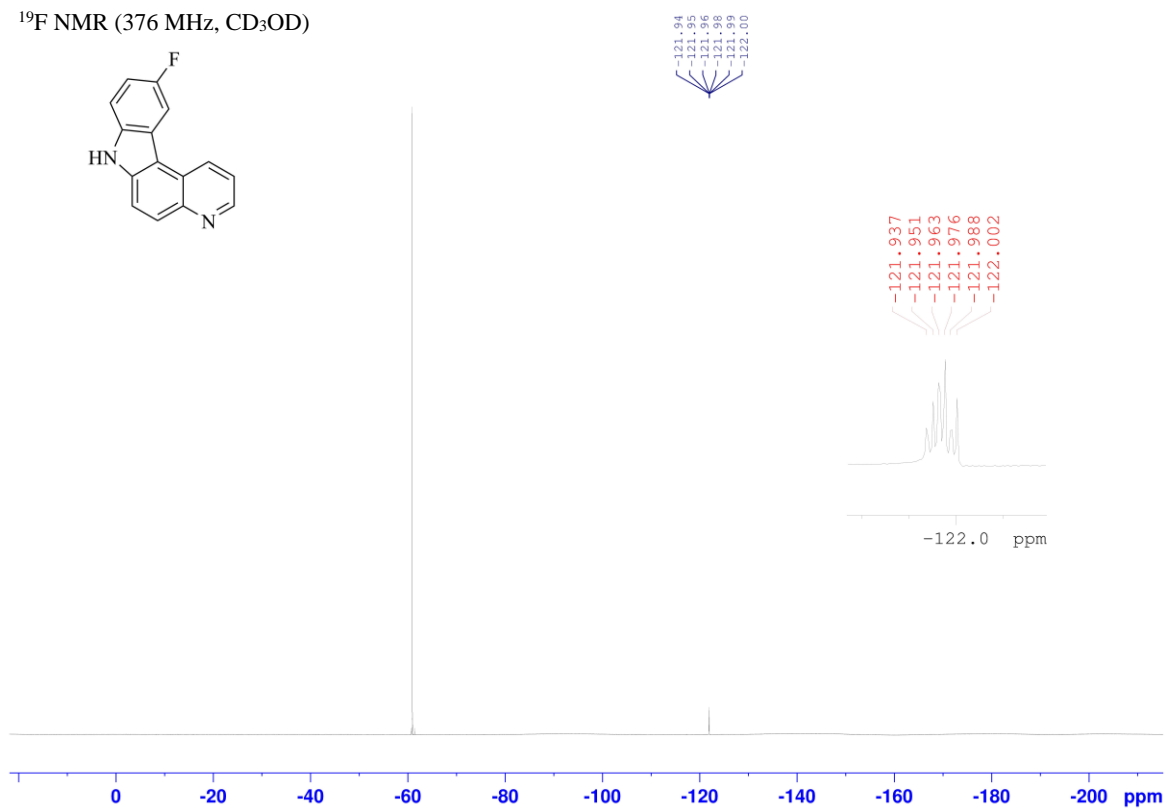
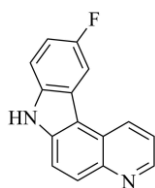


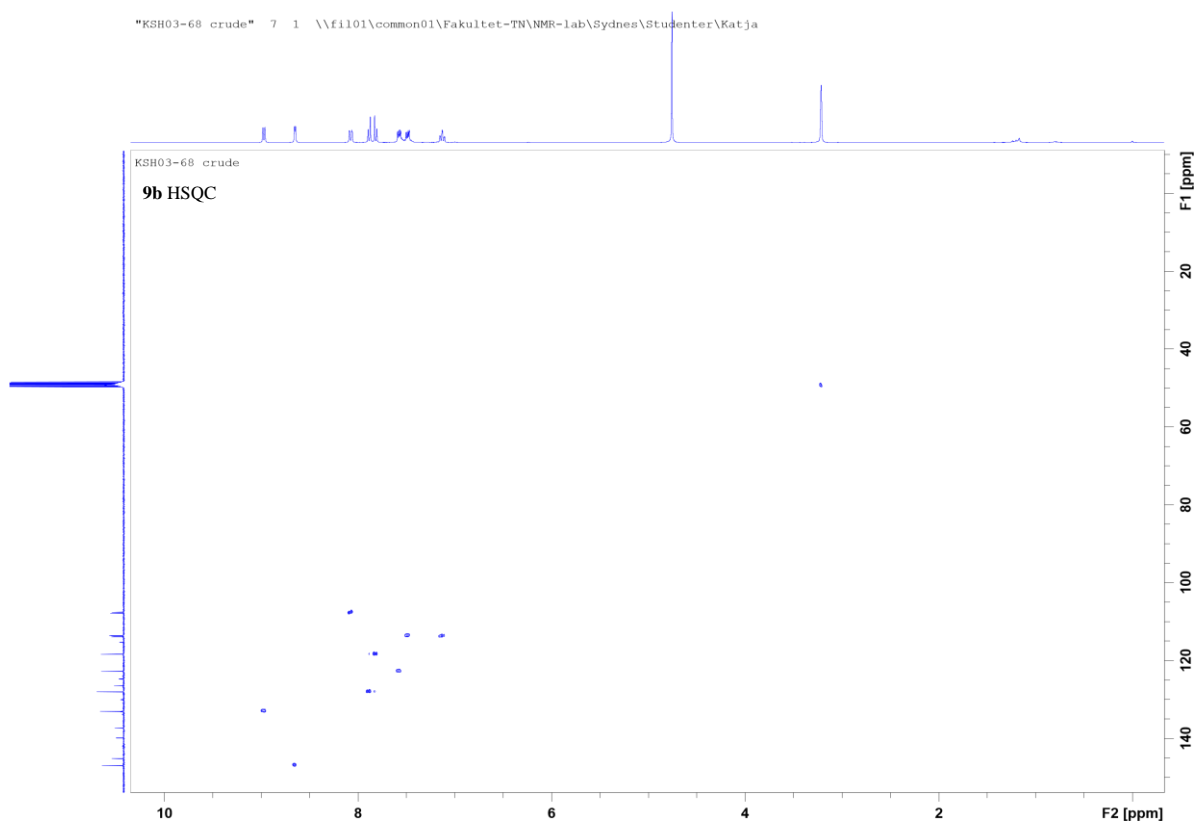
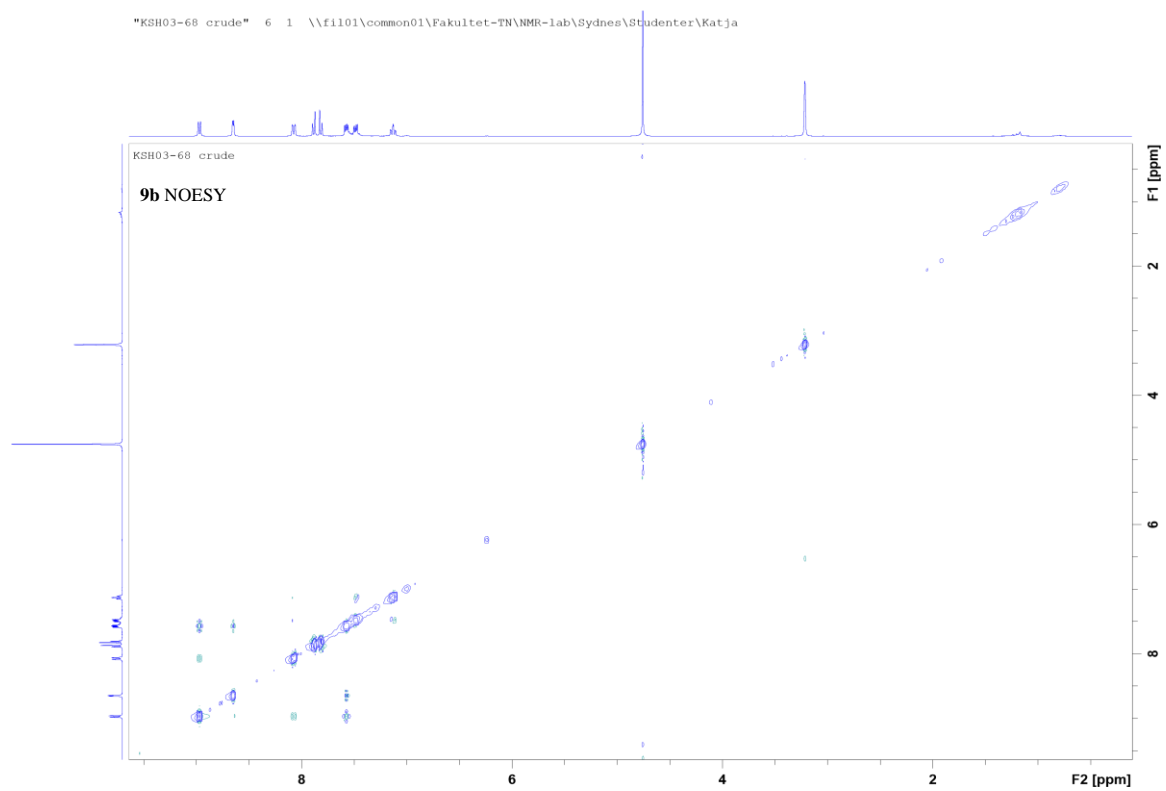
¹H NMR (400 MHz, CD₃OD)



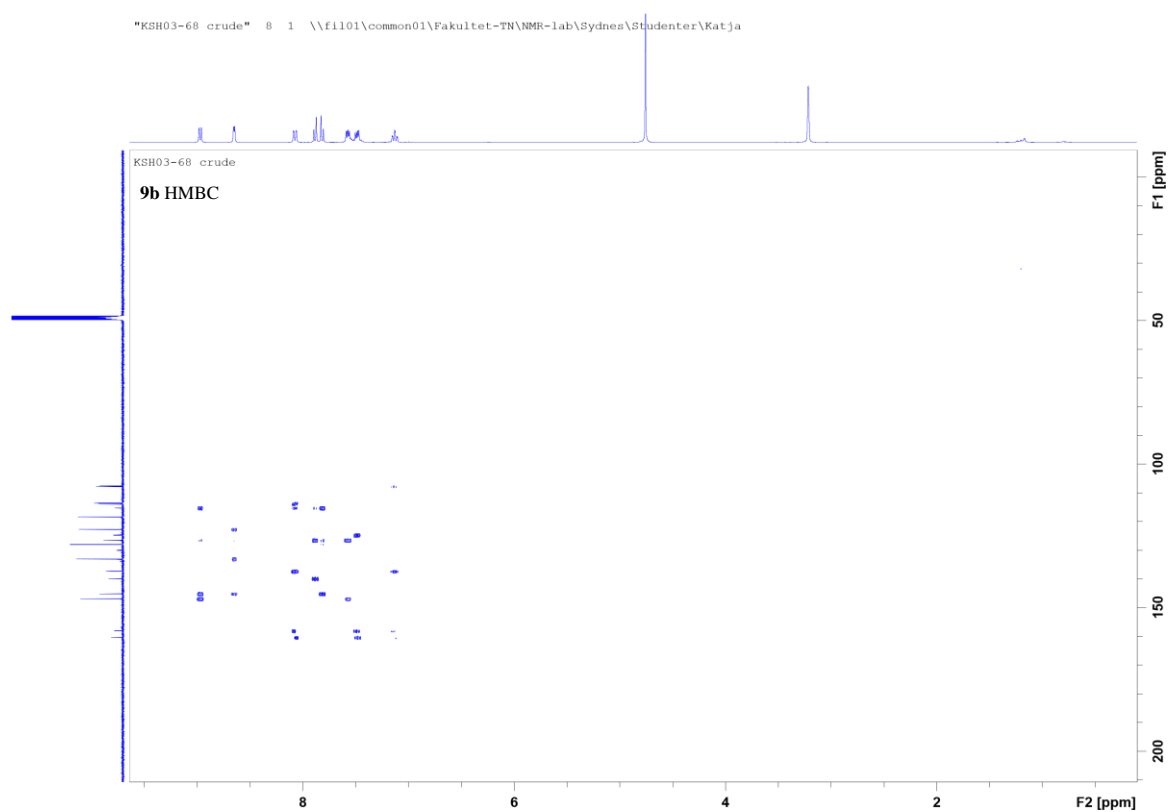


^{19}F NMR (376 MHz, CD_3OD)

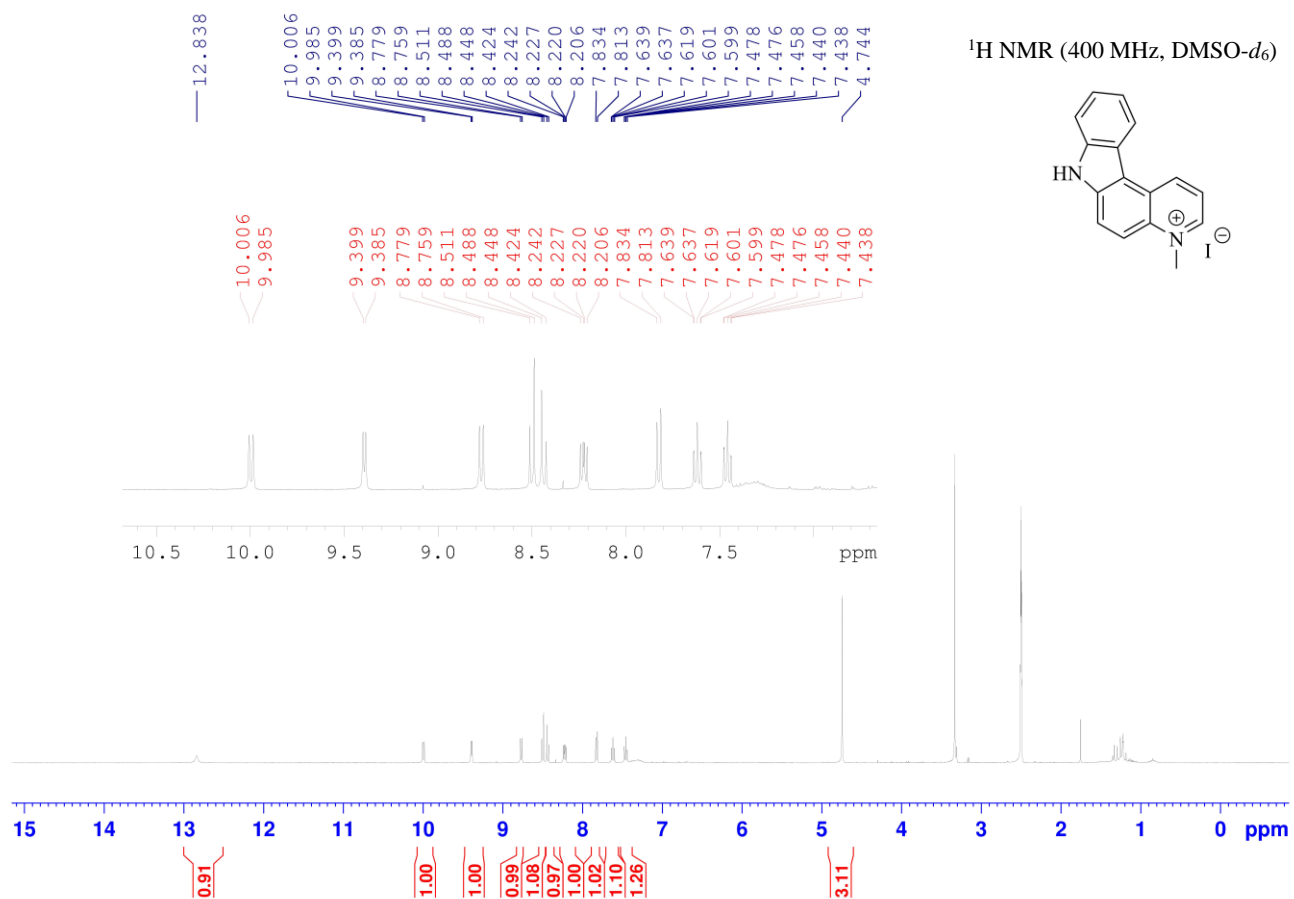


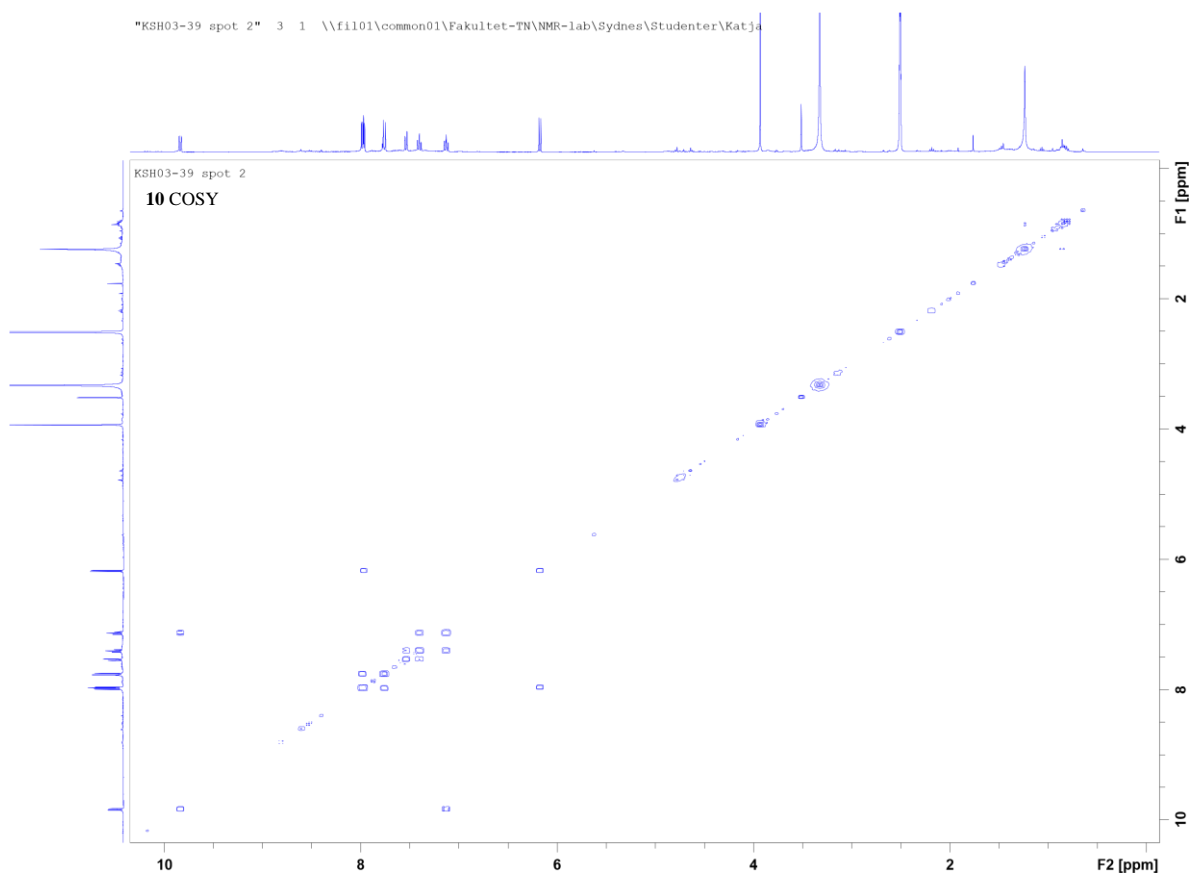
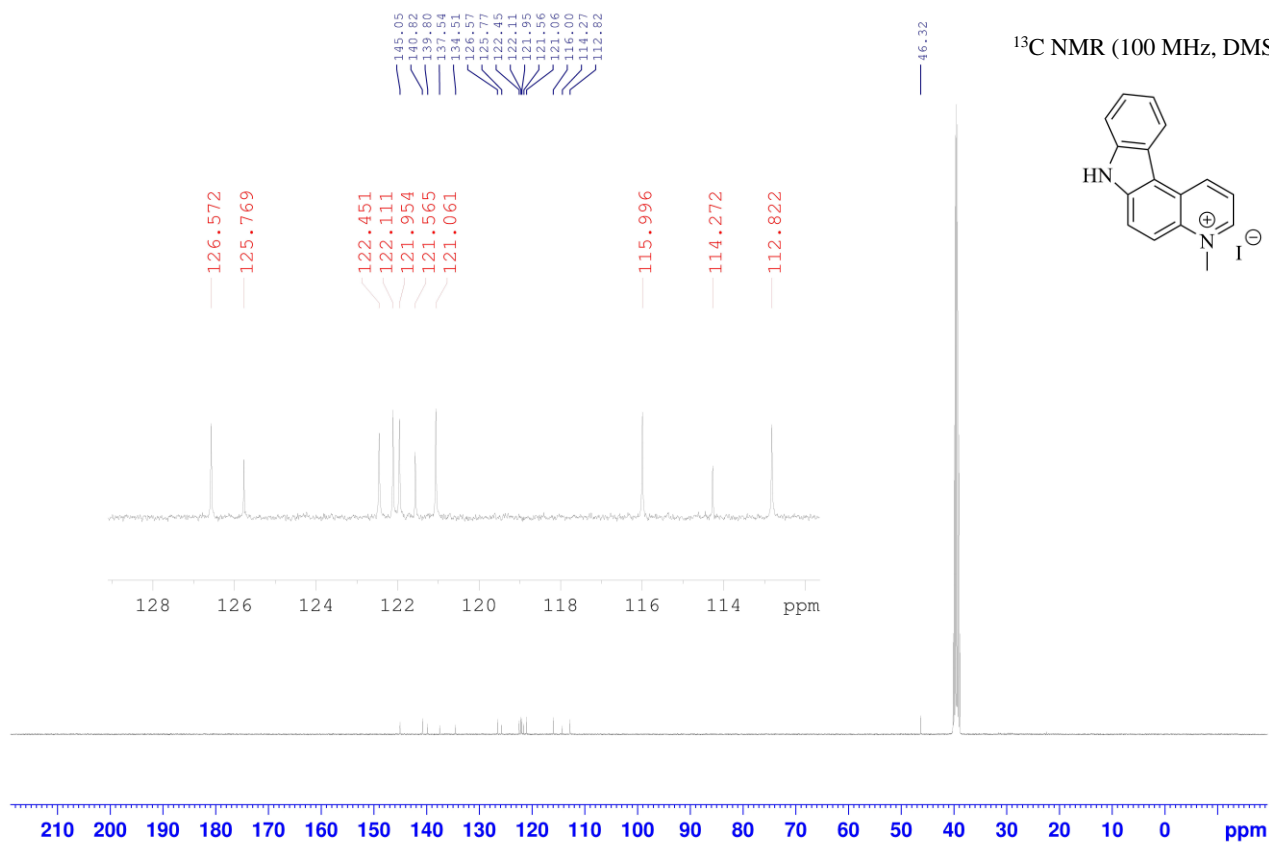


"KSH03-68 crude" 8 1 \\f1101\common01\Fakultet-TN\NMR-lab\Sydnea\Studenten\Katja

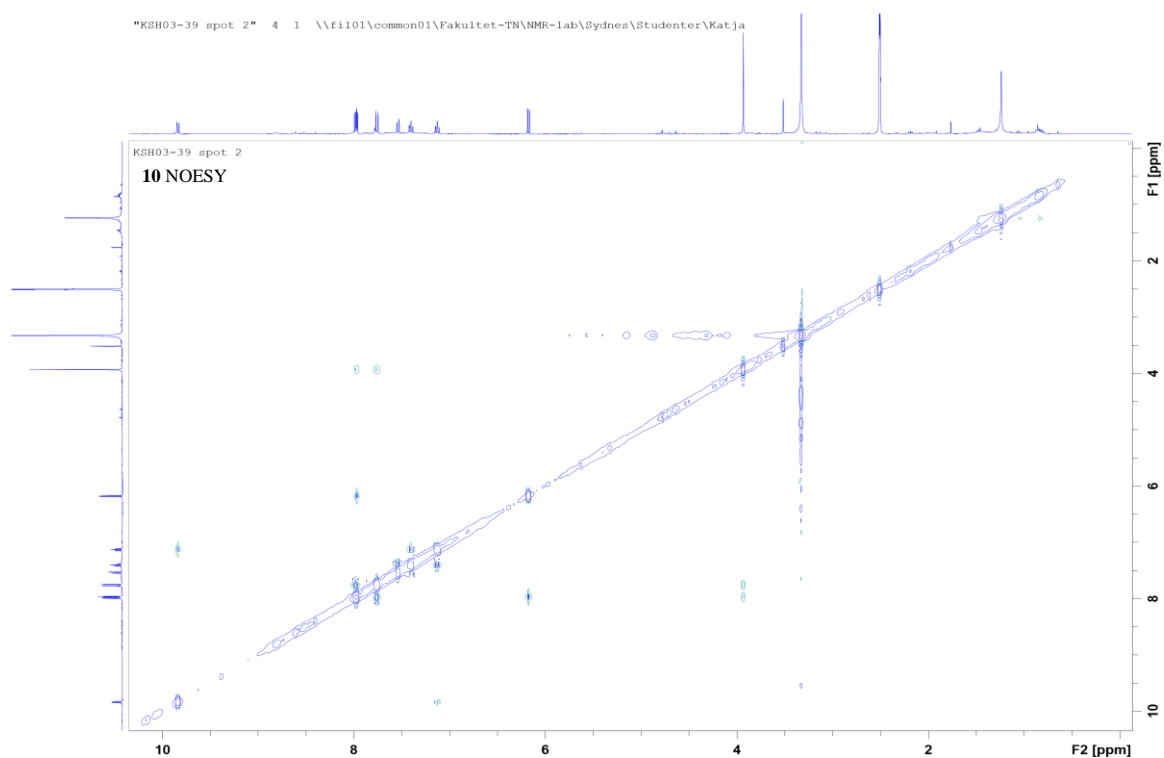


4-Methyl-7H-pyrido[2,3-c]carbazolium iodide (10)

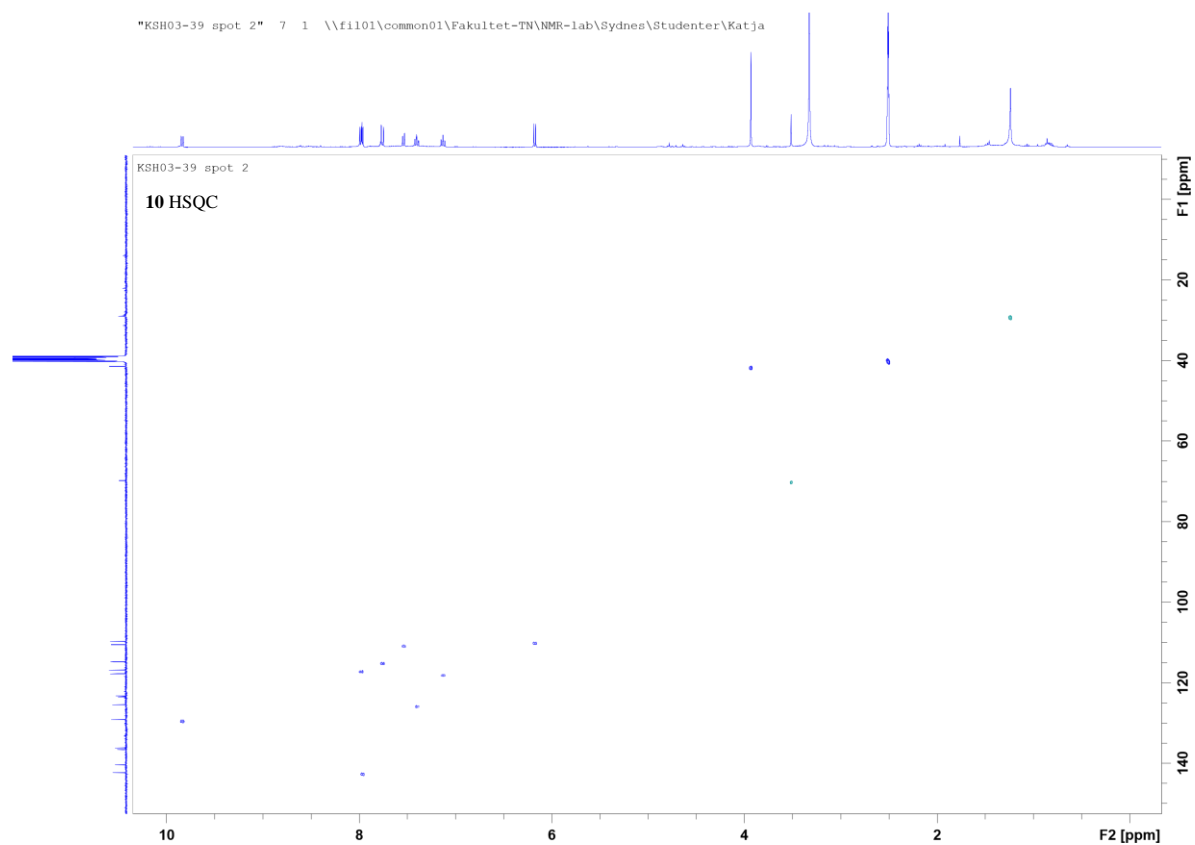




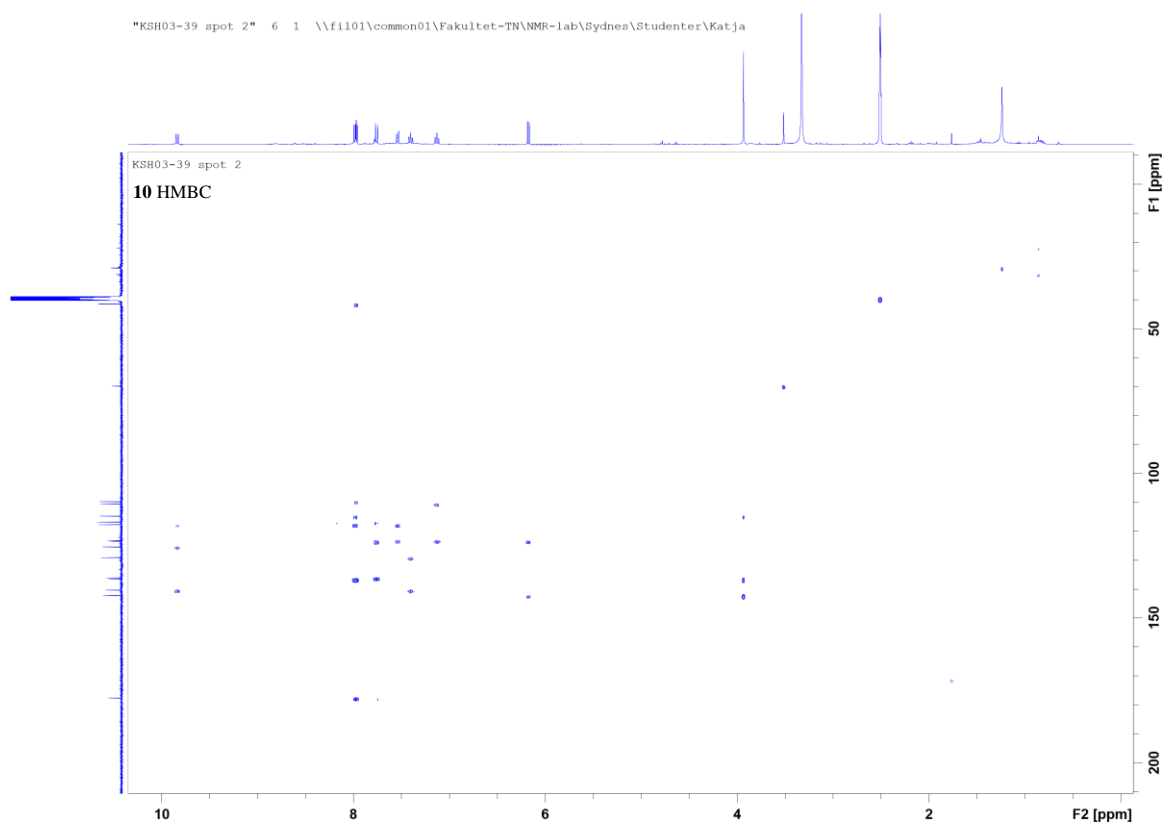
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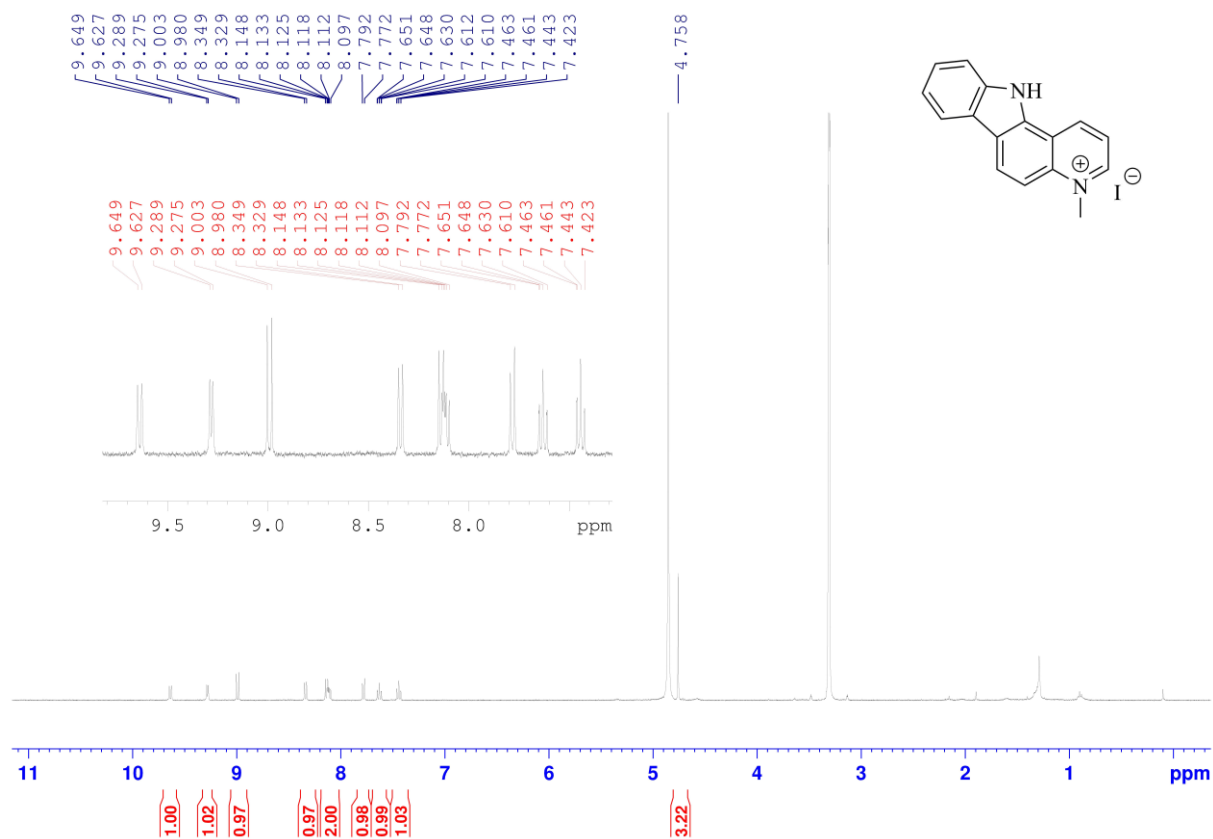


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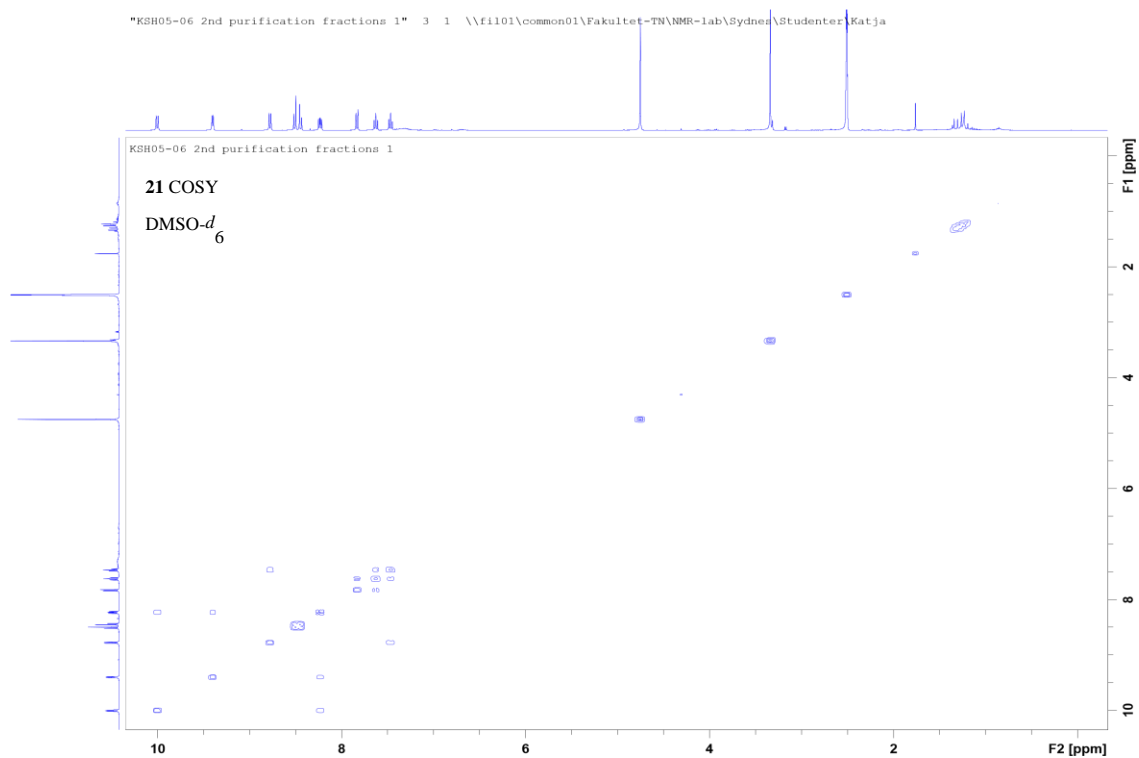
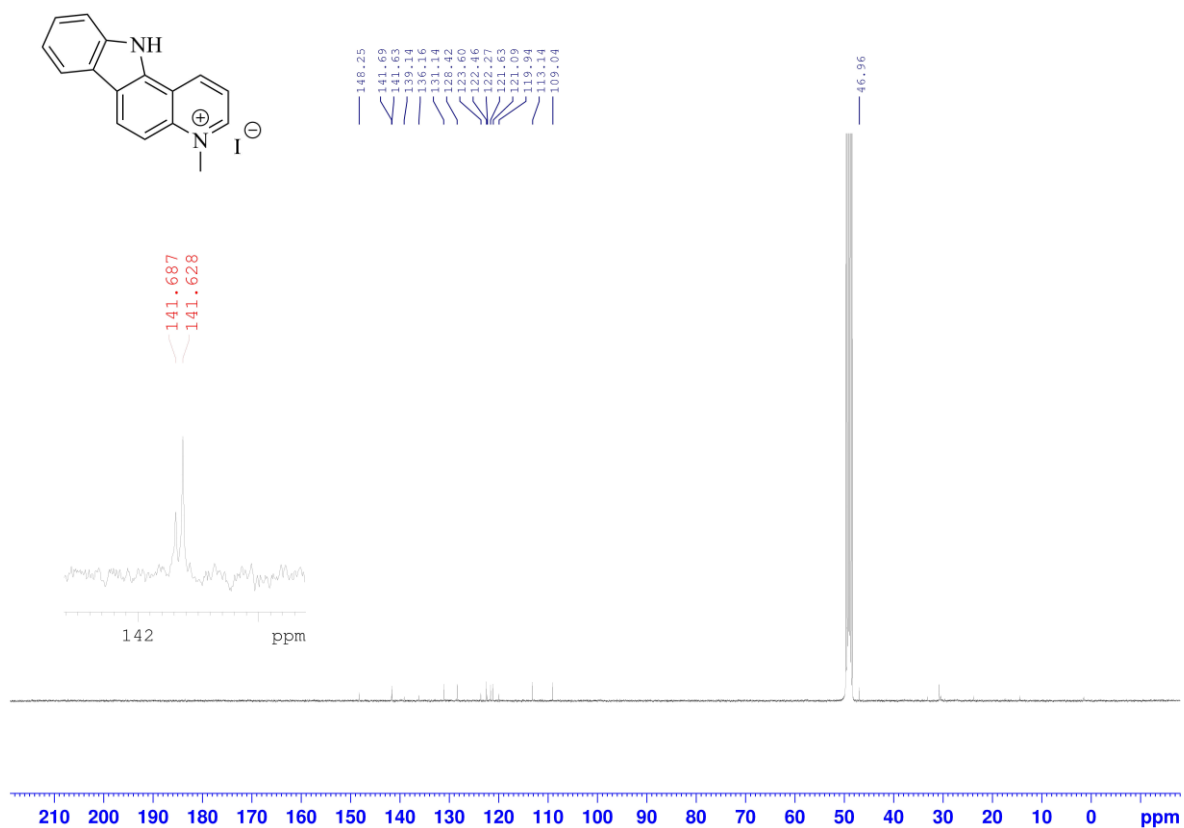


4-Methyl-11*H*-pyrido[3,2-*a*]carbazolium iodide (21)

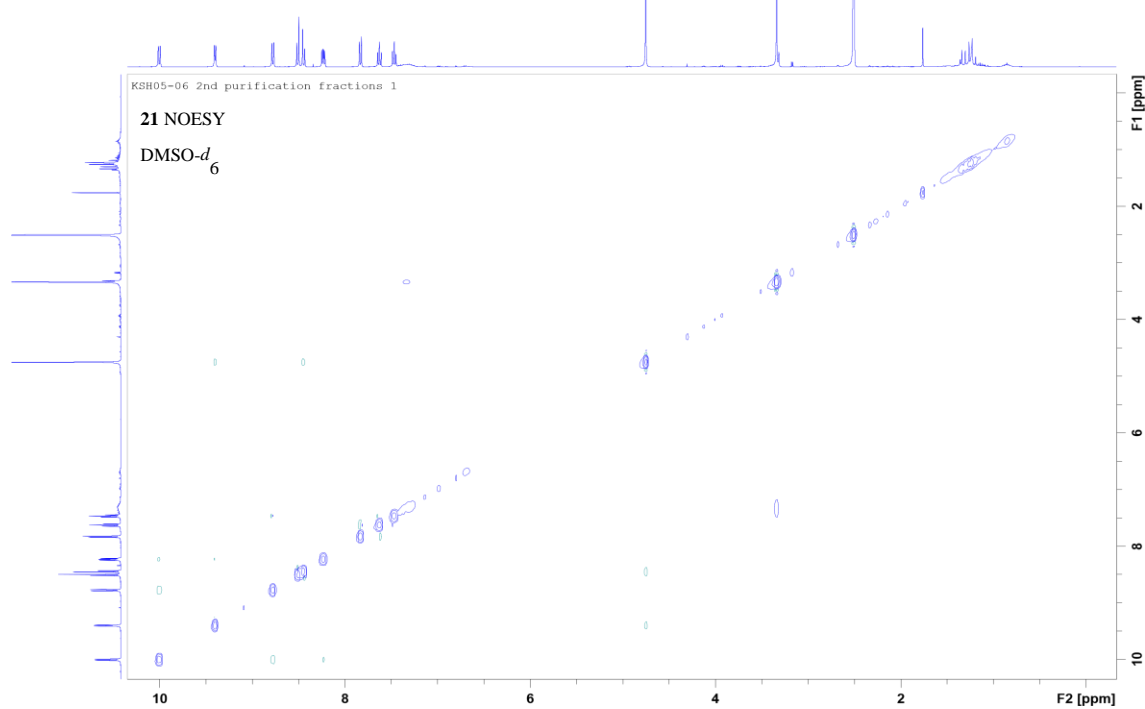
¹H NMR (400 MHz, CD₃OD)



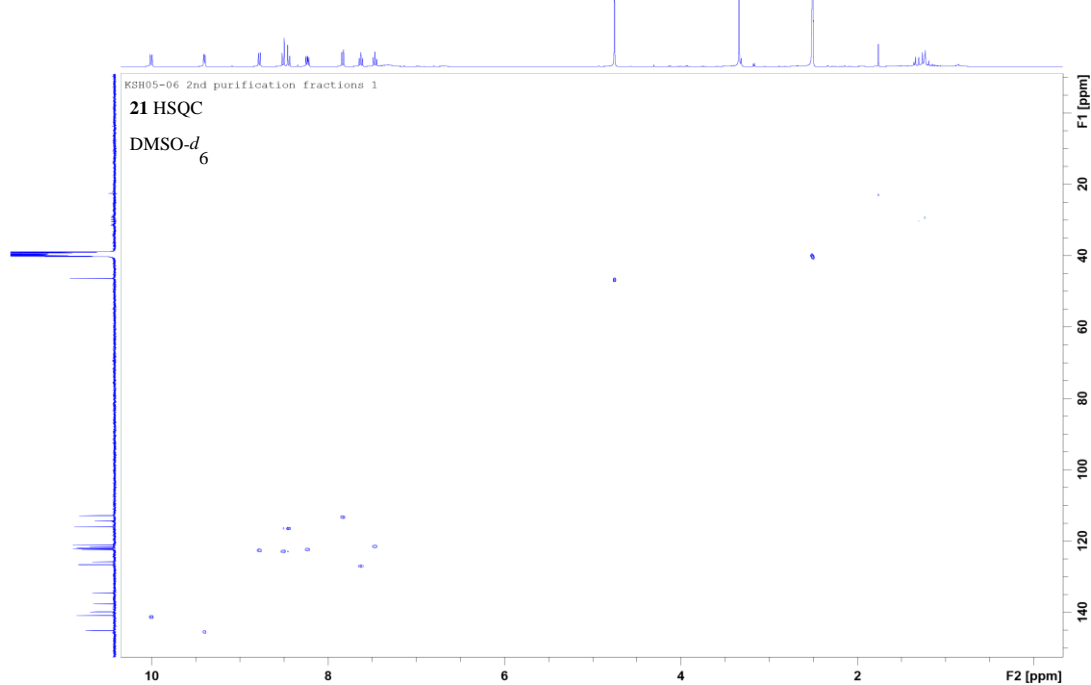
^{13}C NMR (100 MHz, CD_3OD)



"KSH05-06 2nd purification fractions 1" 7 1 \\fil01\common01\Fakultet-TN\NMR-lab\Sydney\Studenten\Katja



"KSH05-06 2nd purification fractions 1" 5 1 \\fil01\common01\Fakultet-TN\NMR-lab\Sydney\Studenten\Katja



"KSH05-06 2nd purification fractions 1" 6 1 \\fil01\common01\Fakultet-TN\NMR-lab\Sydney\Studenten\Katja

