

Supplementary Material

A simple and efficient preparation of bis(indolyl)methanes catalyzed by HCl/silica gel under solvent-free conditions

Praewpan Katrun^{*a} Karnjana Atthawilai^b and Chutima Kuhakarn^c

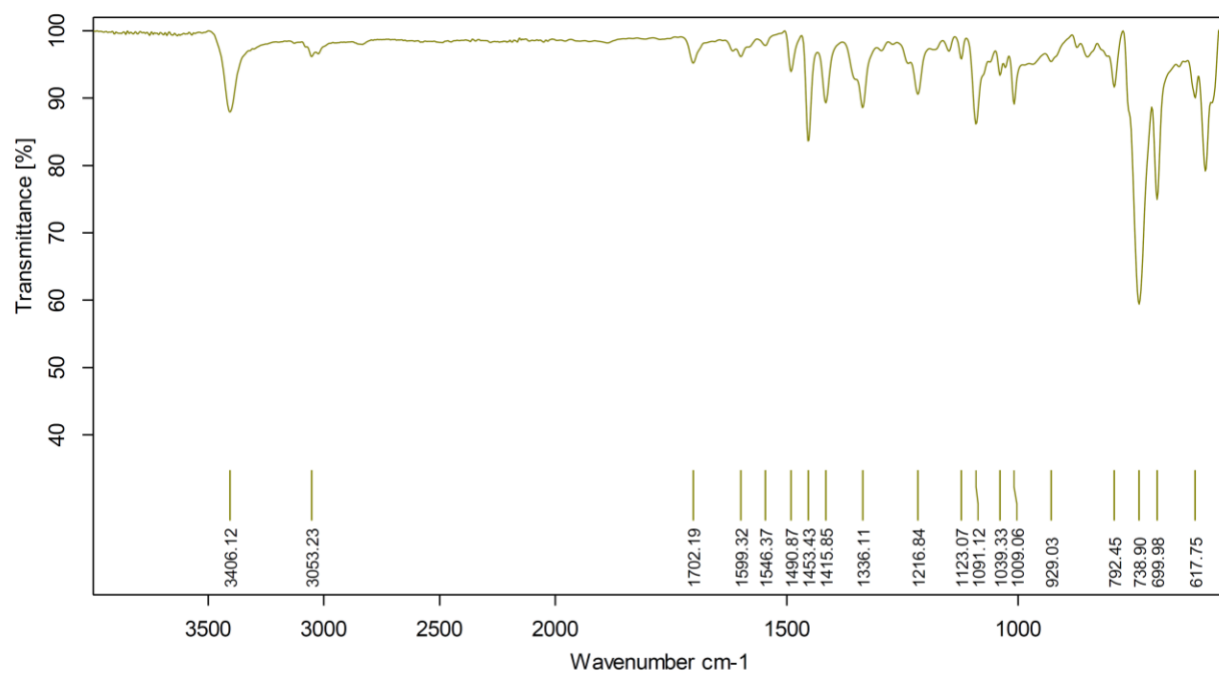
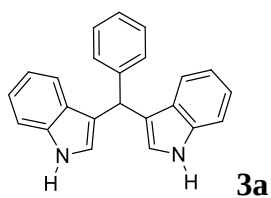
^aNatural Products Research Unit, Department of Chemistry and Center of Excellence for Innovation in Chemistry (PERCH-CIC), Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand

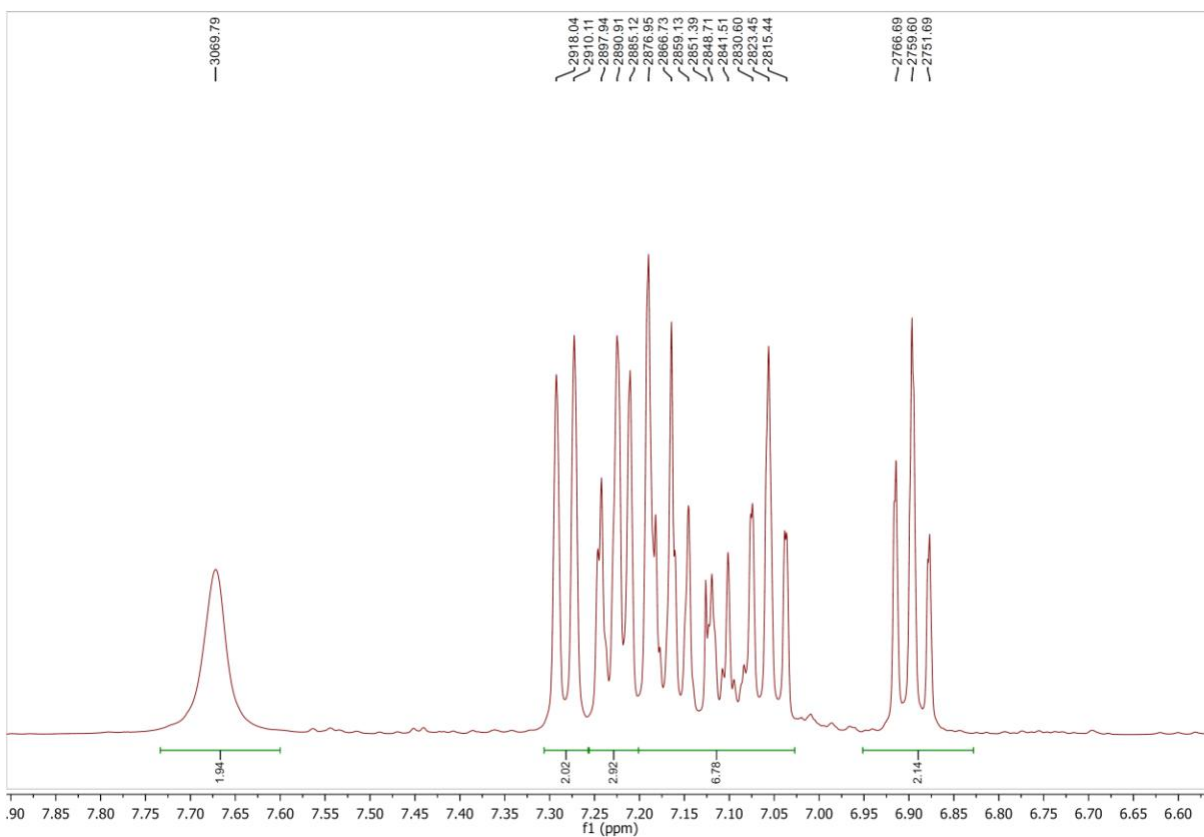
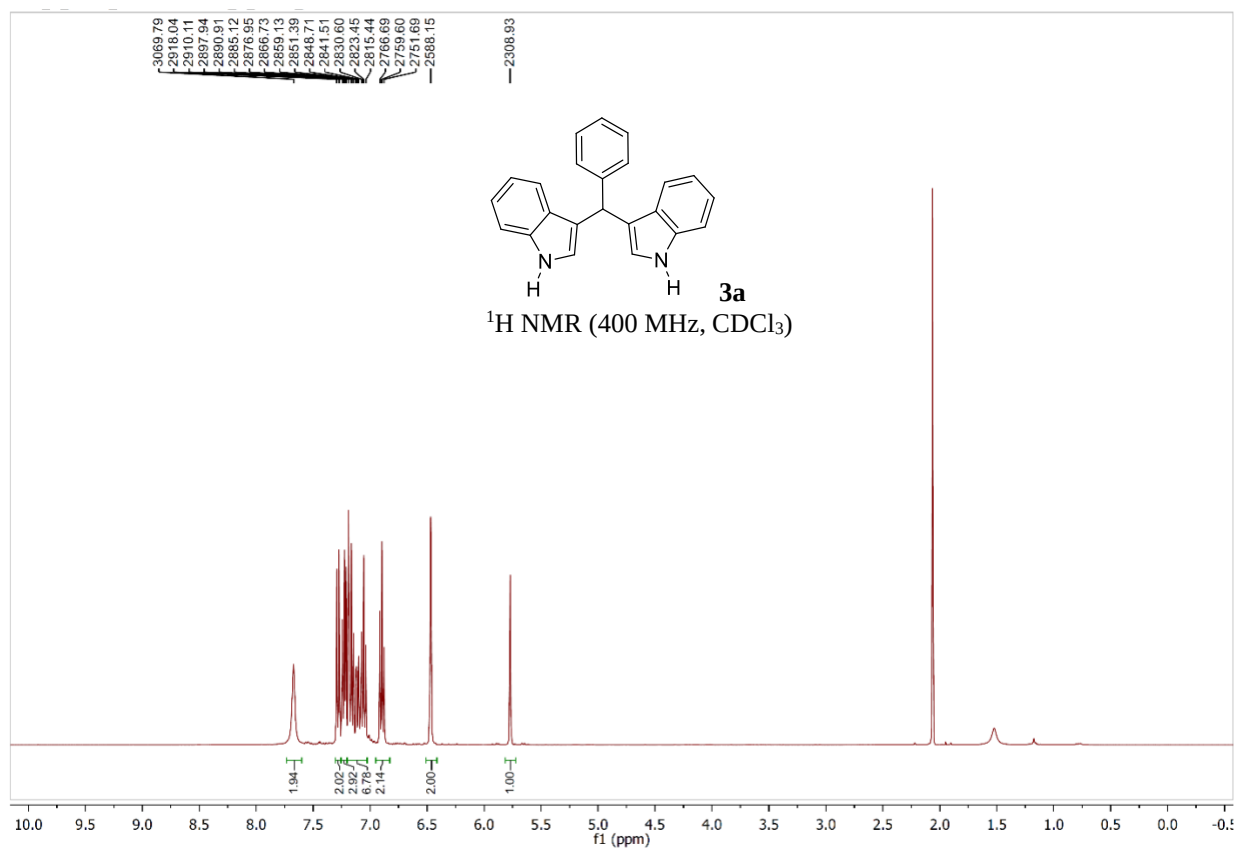
^bDepartment of Chemistry, Faculty of Science, Khon Kaen University, Khon Kaen 40002, Thailand

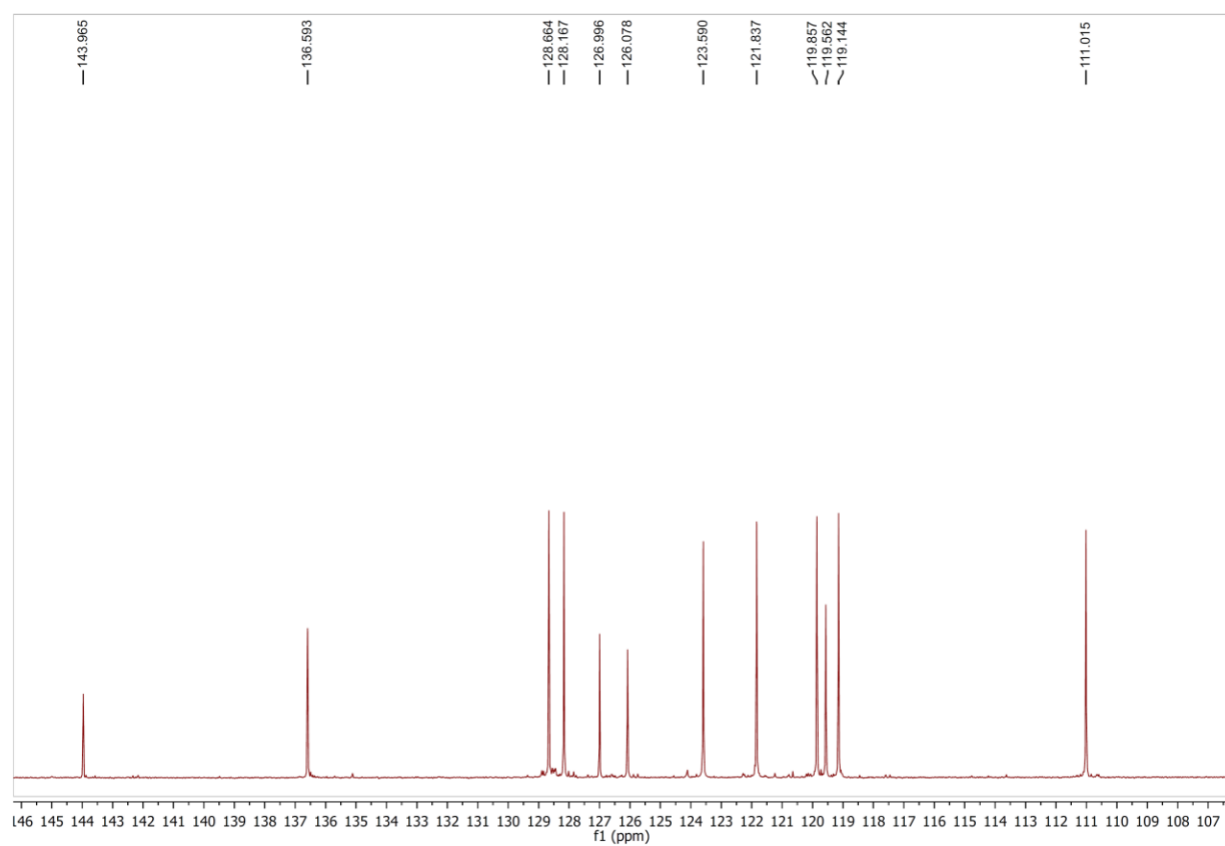
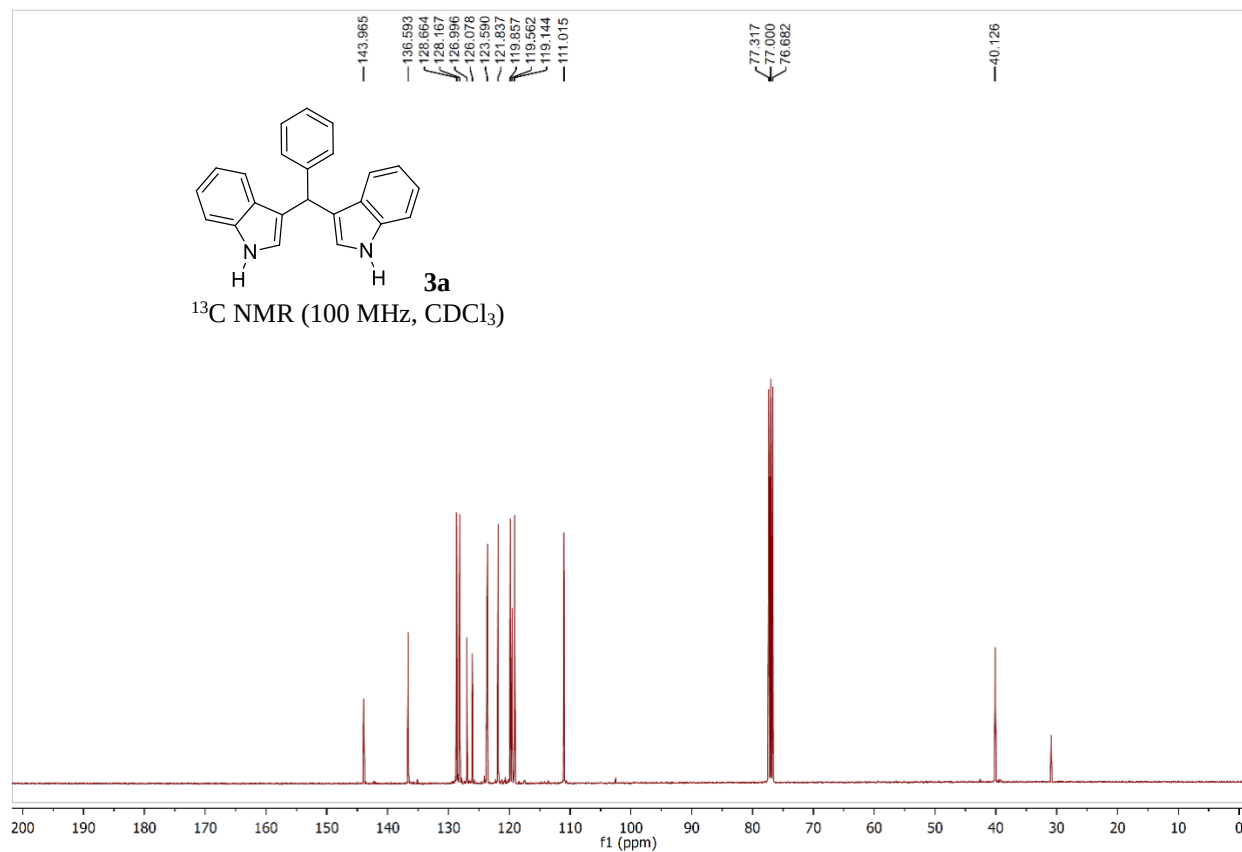
^cDepartment of Chemistry and Center of Excellence for Innovation in Chemistry (PERCH-CIC), Faculty of Science, Mahidol University, Rama 6 Road, Bangkok 10400, Thailand

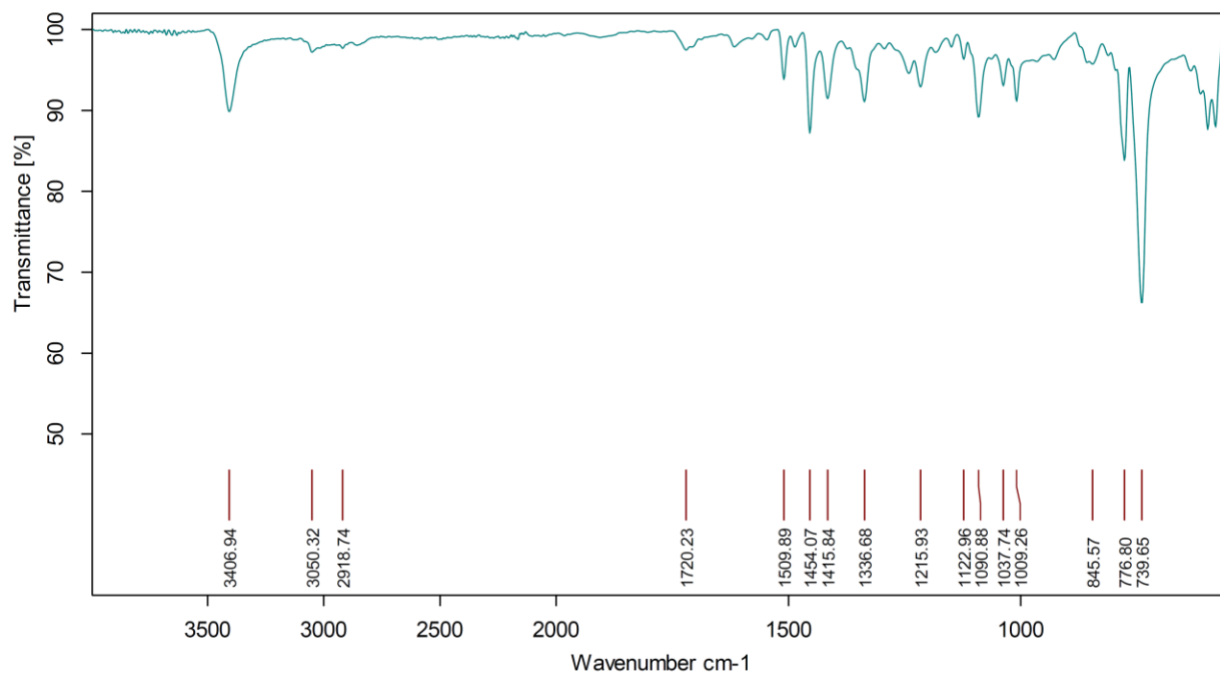
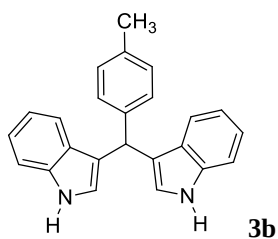
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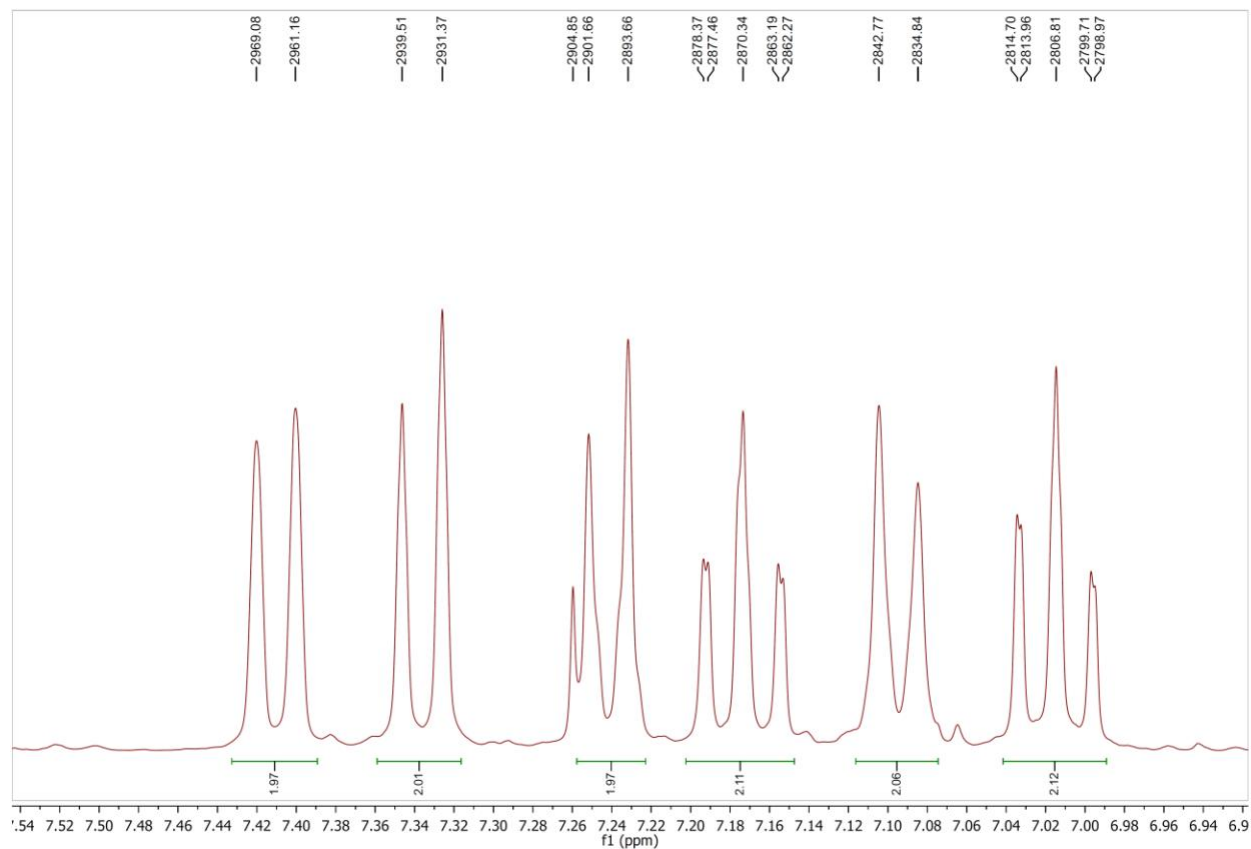
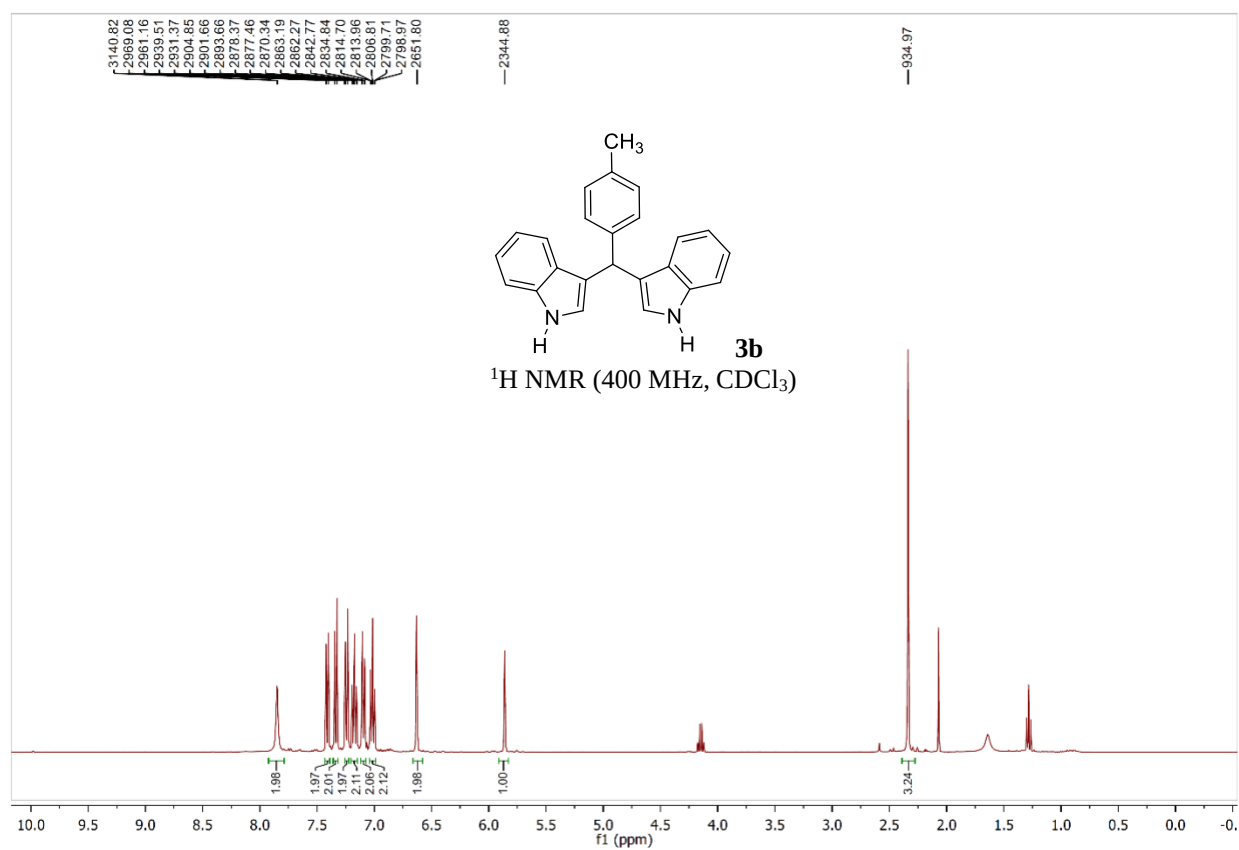
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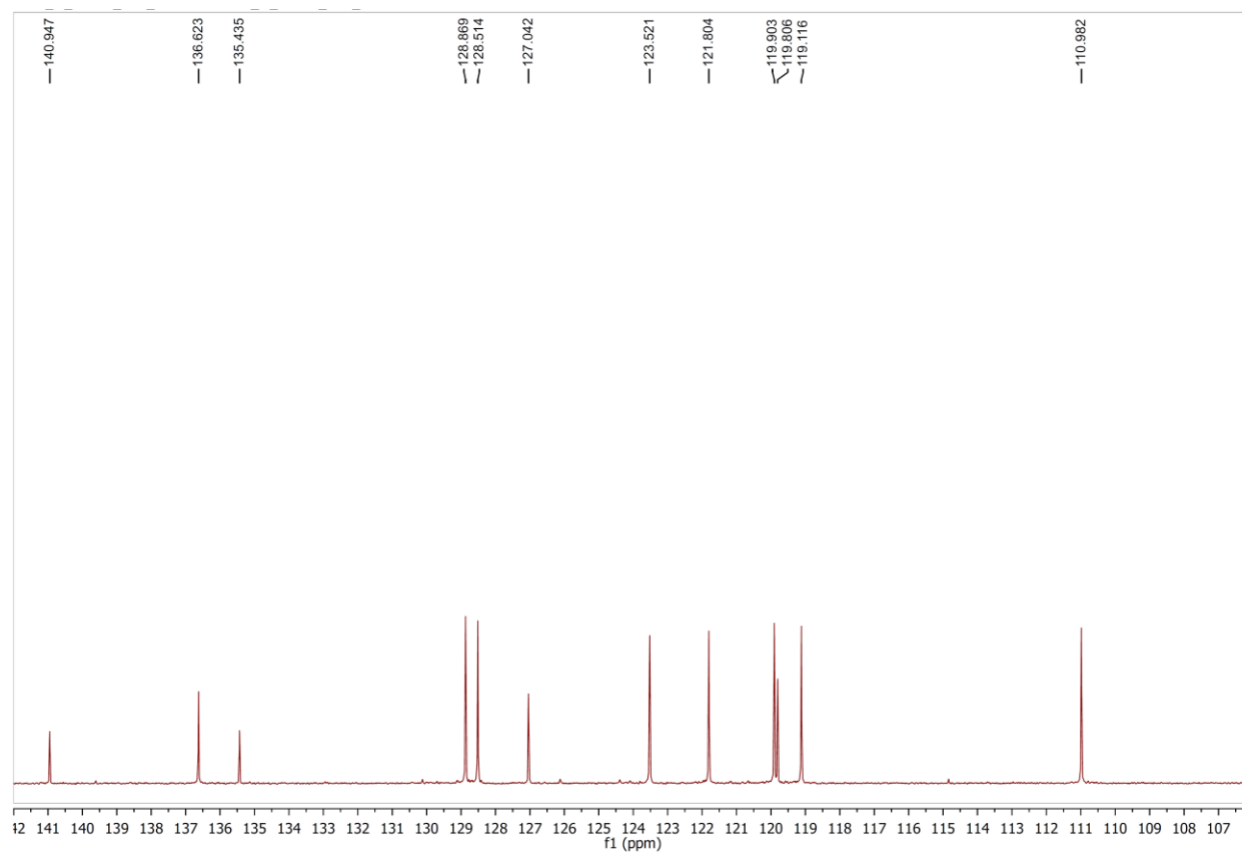
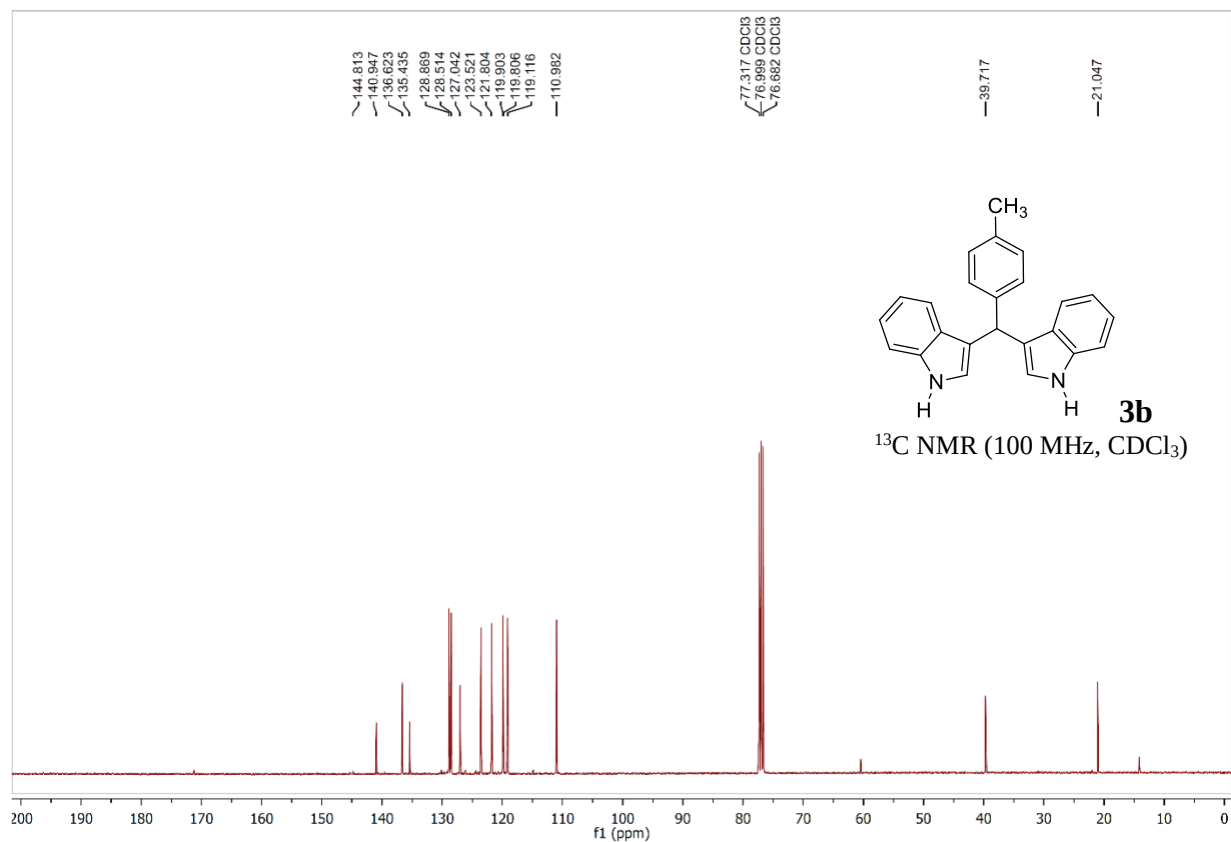
IR, ^1H NMR and ^{13}C NMR spectra3,3'-(Phenylmethylene)bis(1*H*-indole) (3a)

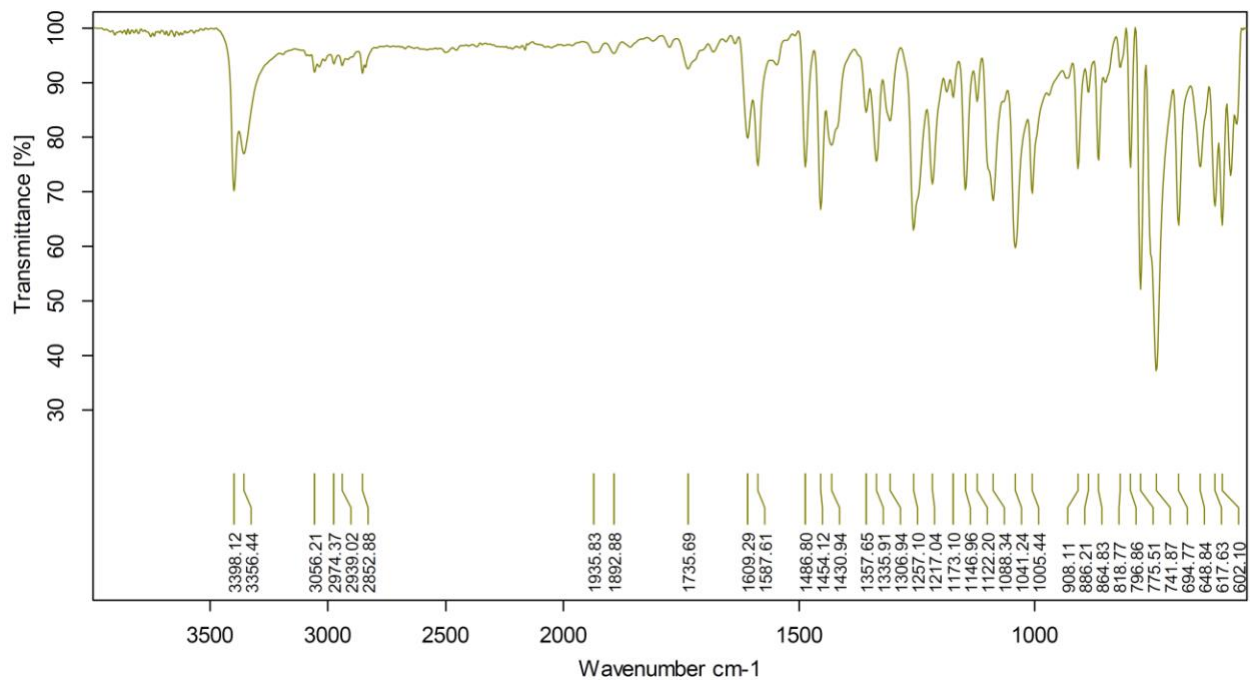
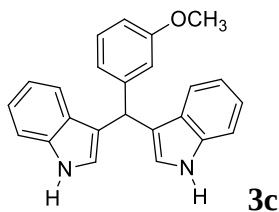


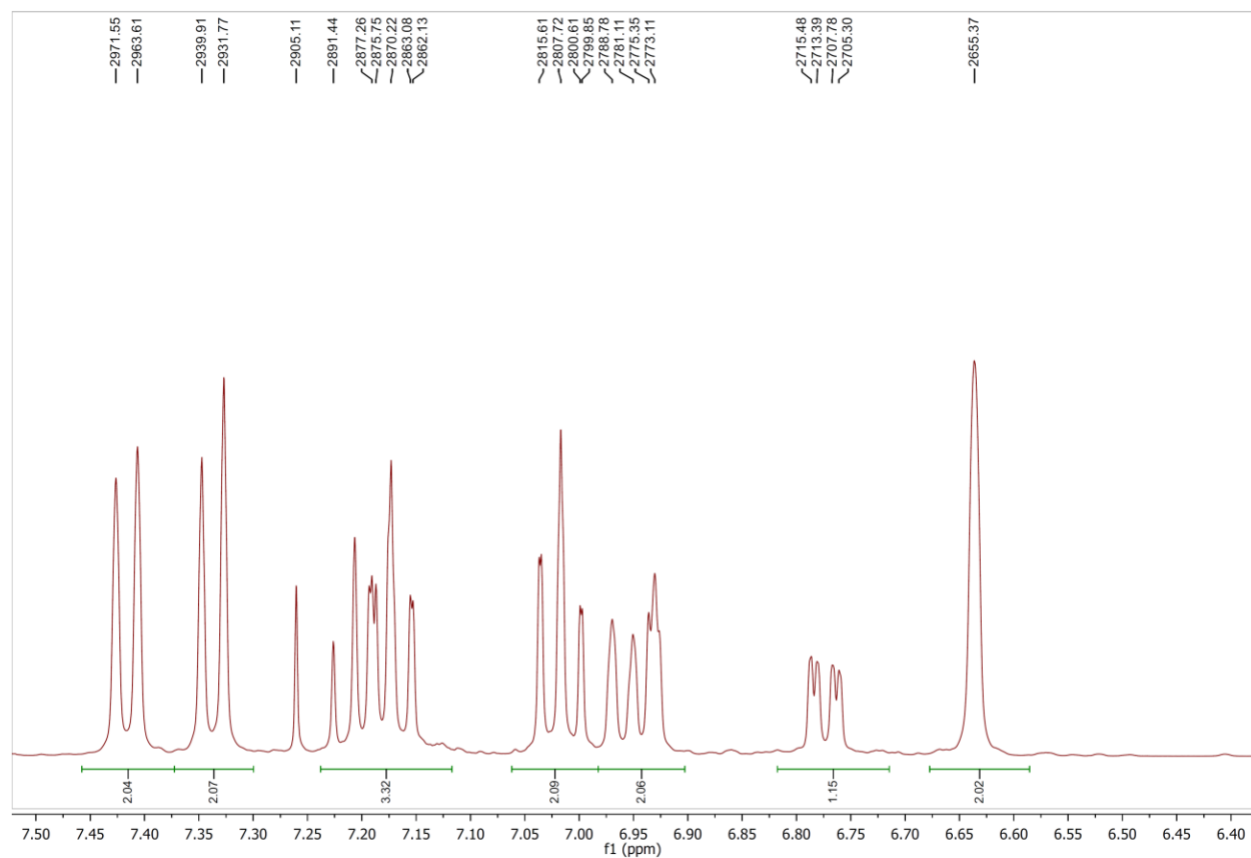
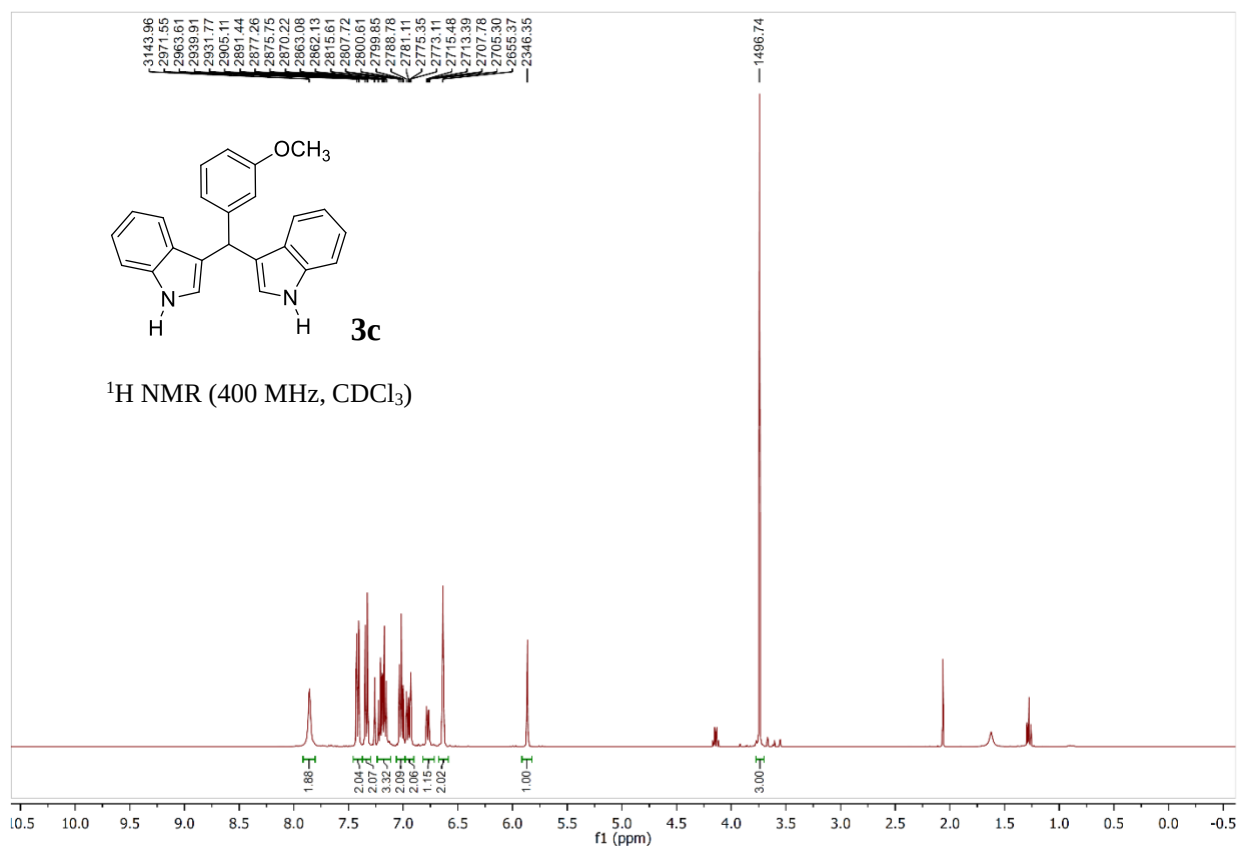


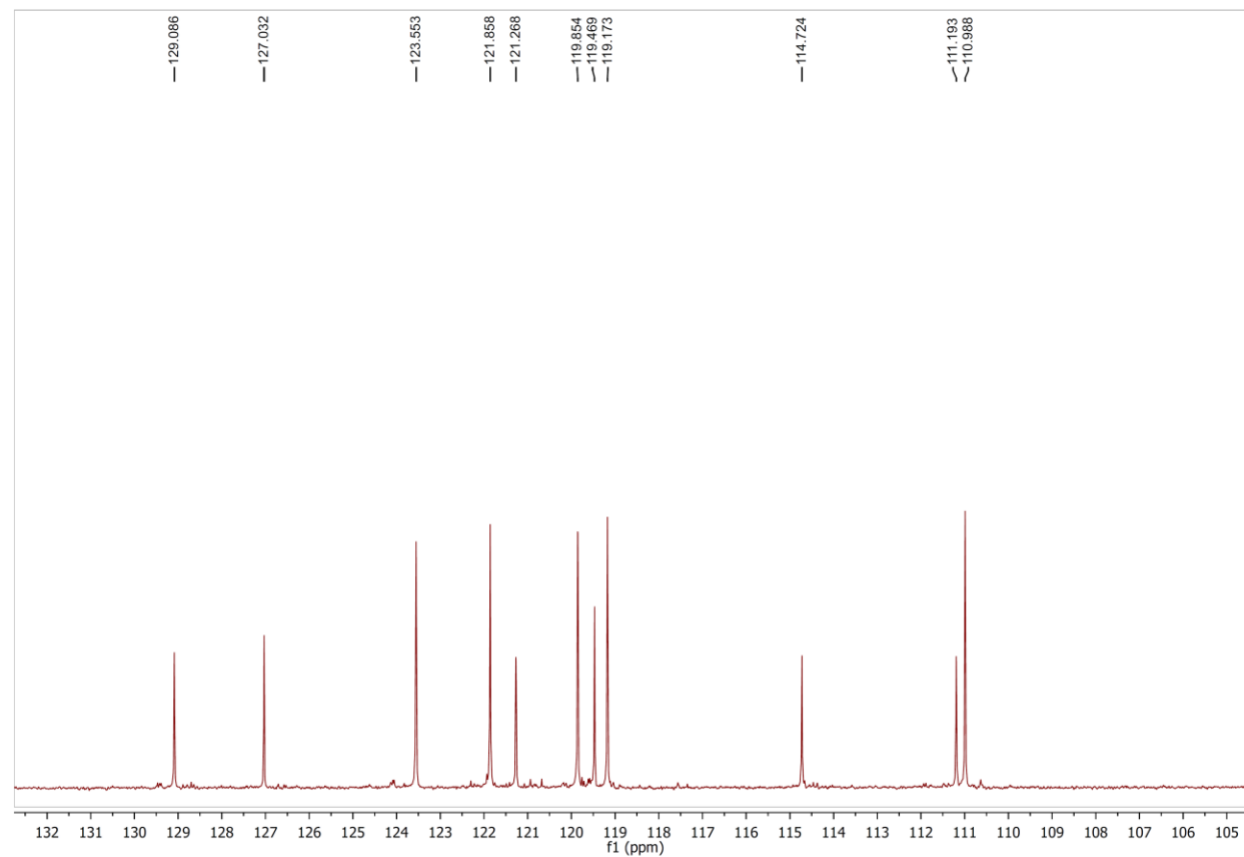
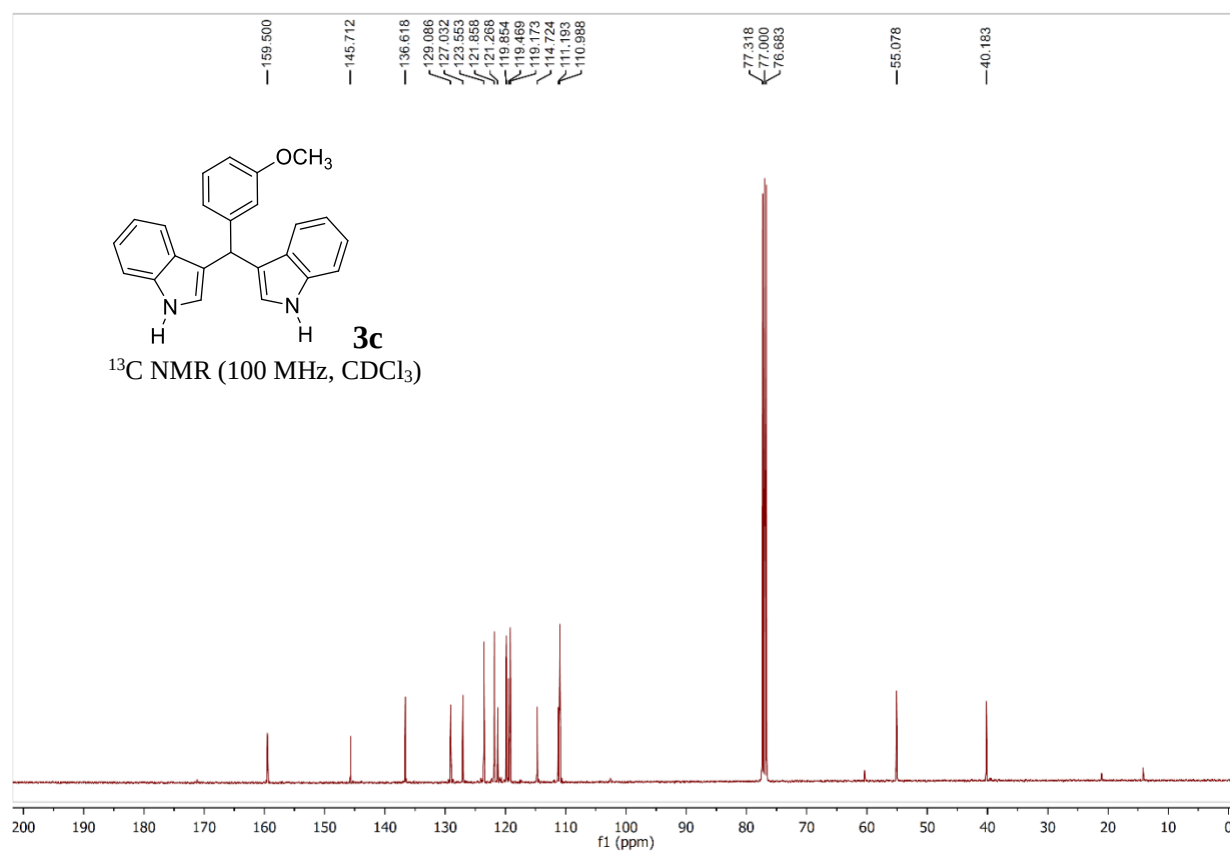
3,3'-(*p*-Tolymethylene)bis(1*H*-indole) (3b)



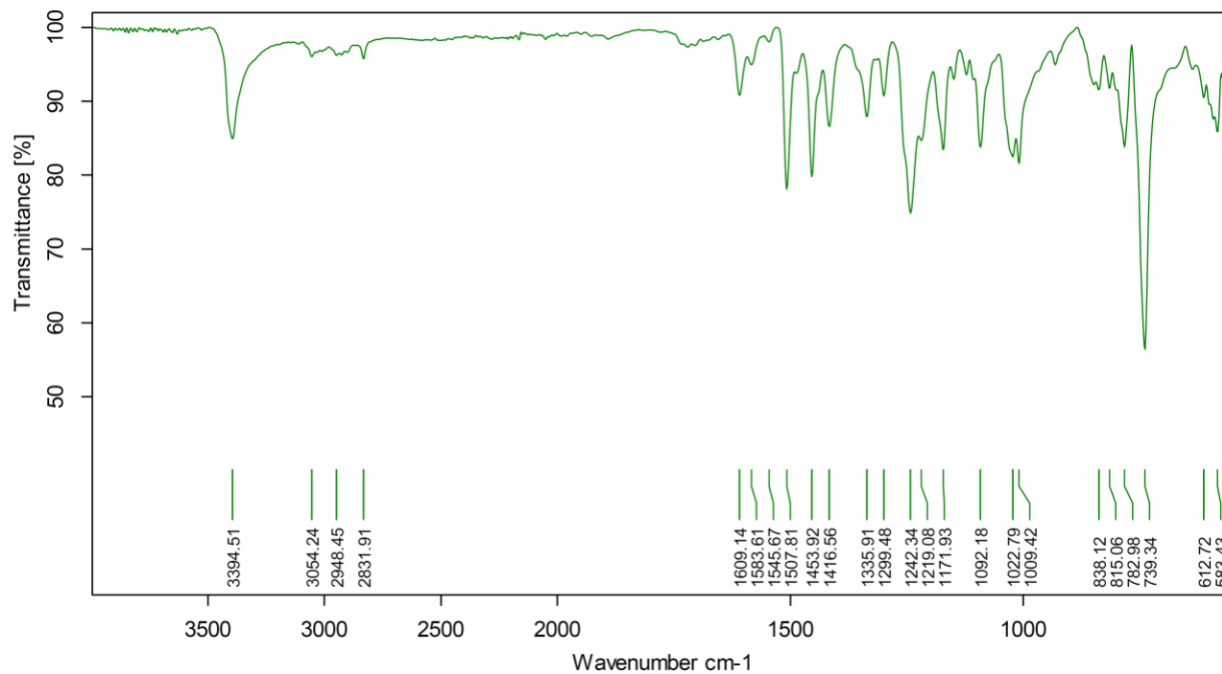
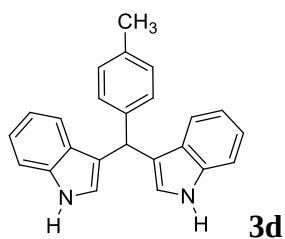


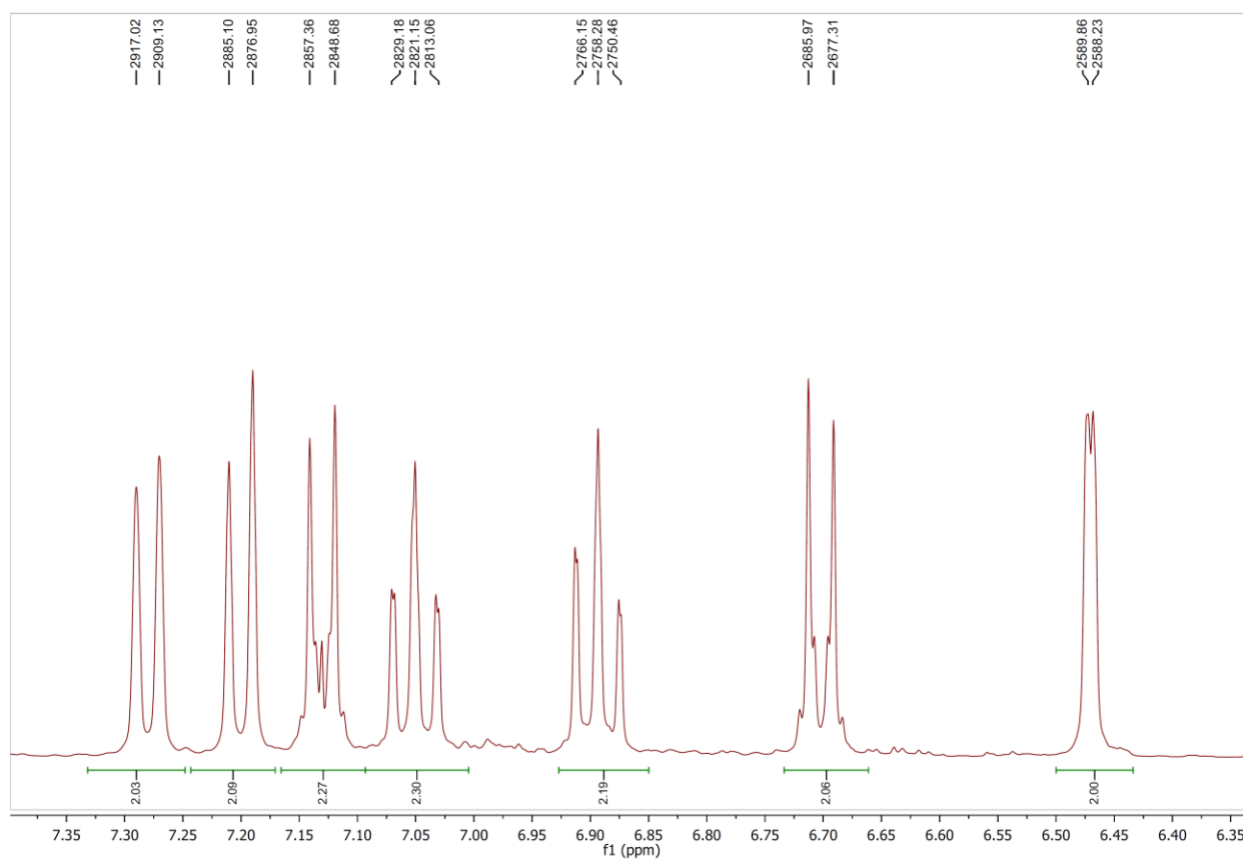
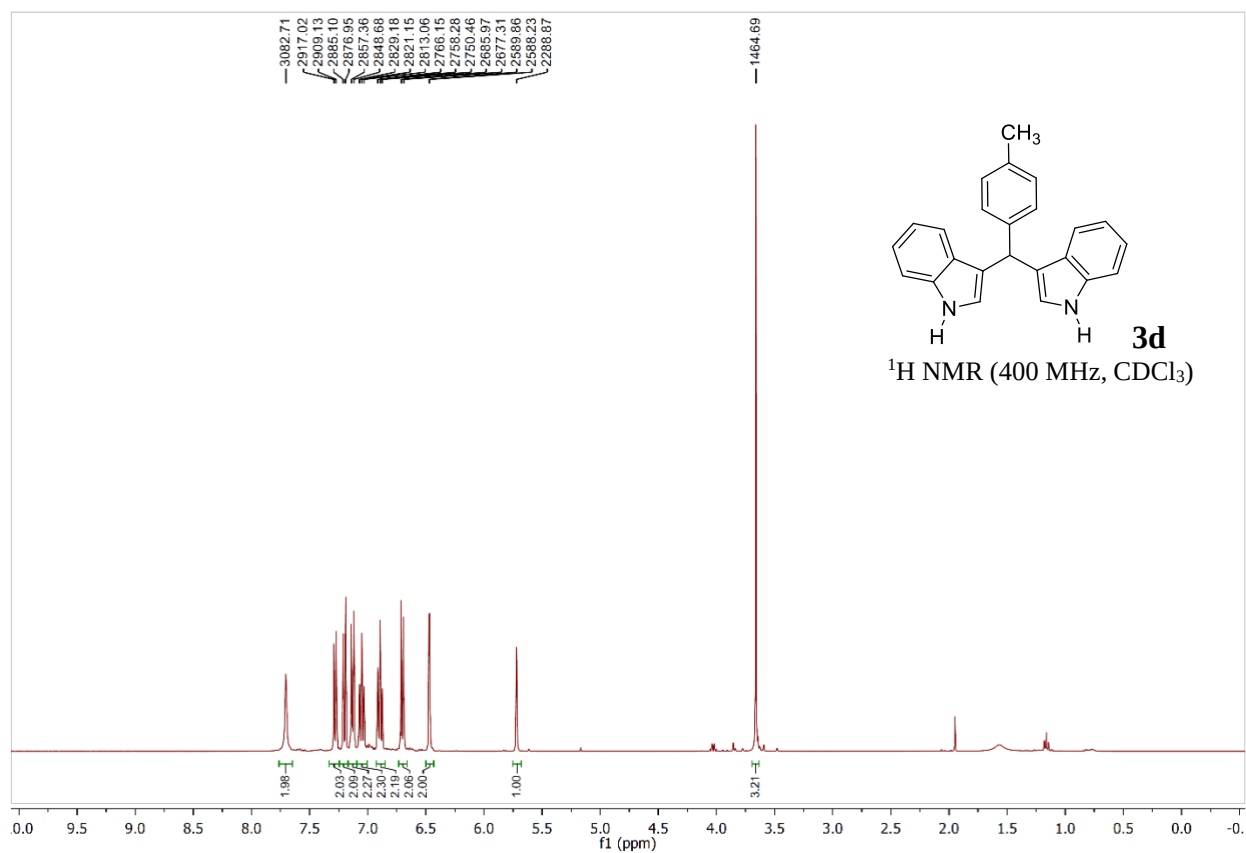
3,3'-((3-Methoxyphenyl)methylene)bis(1*H*-indole) (**3c**)

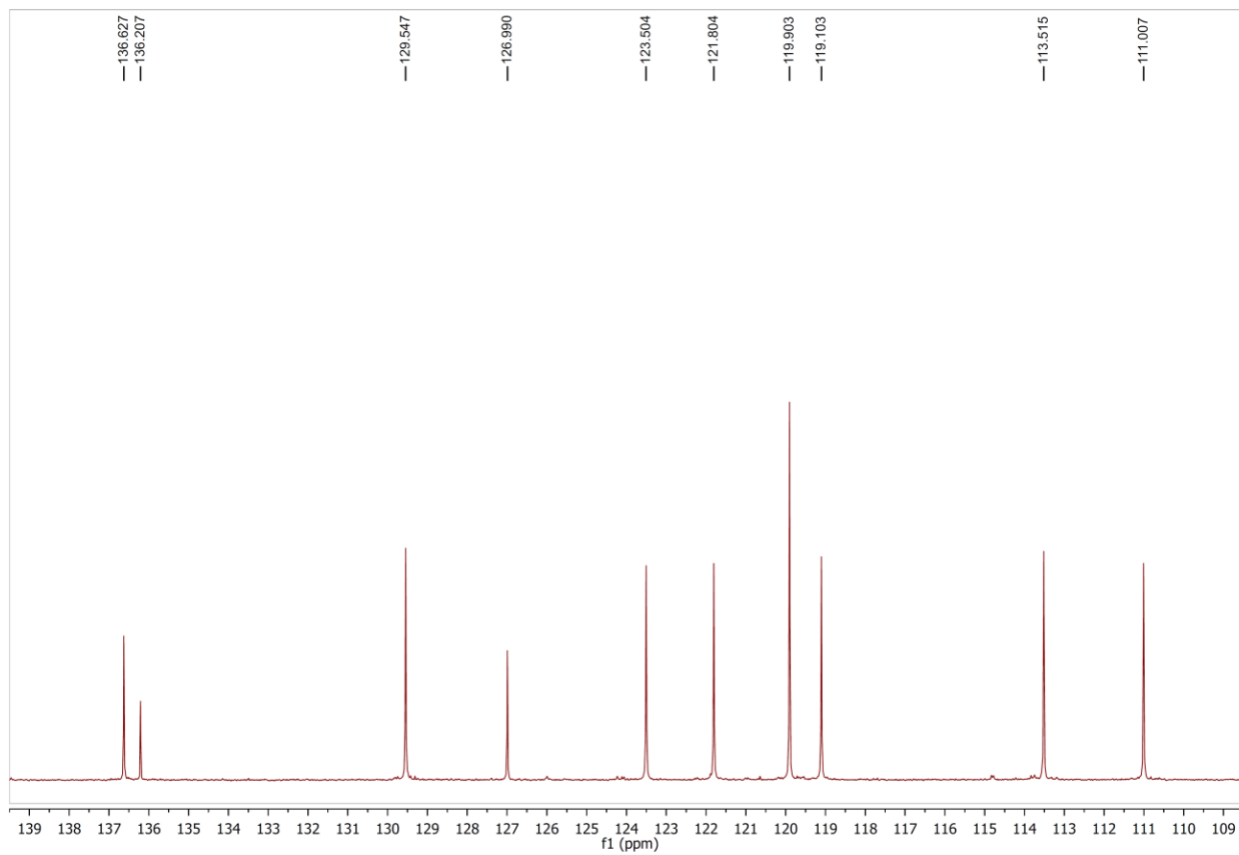
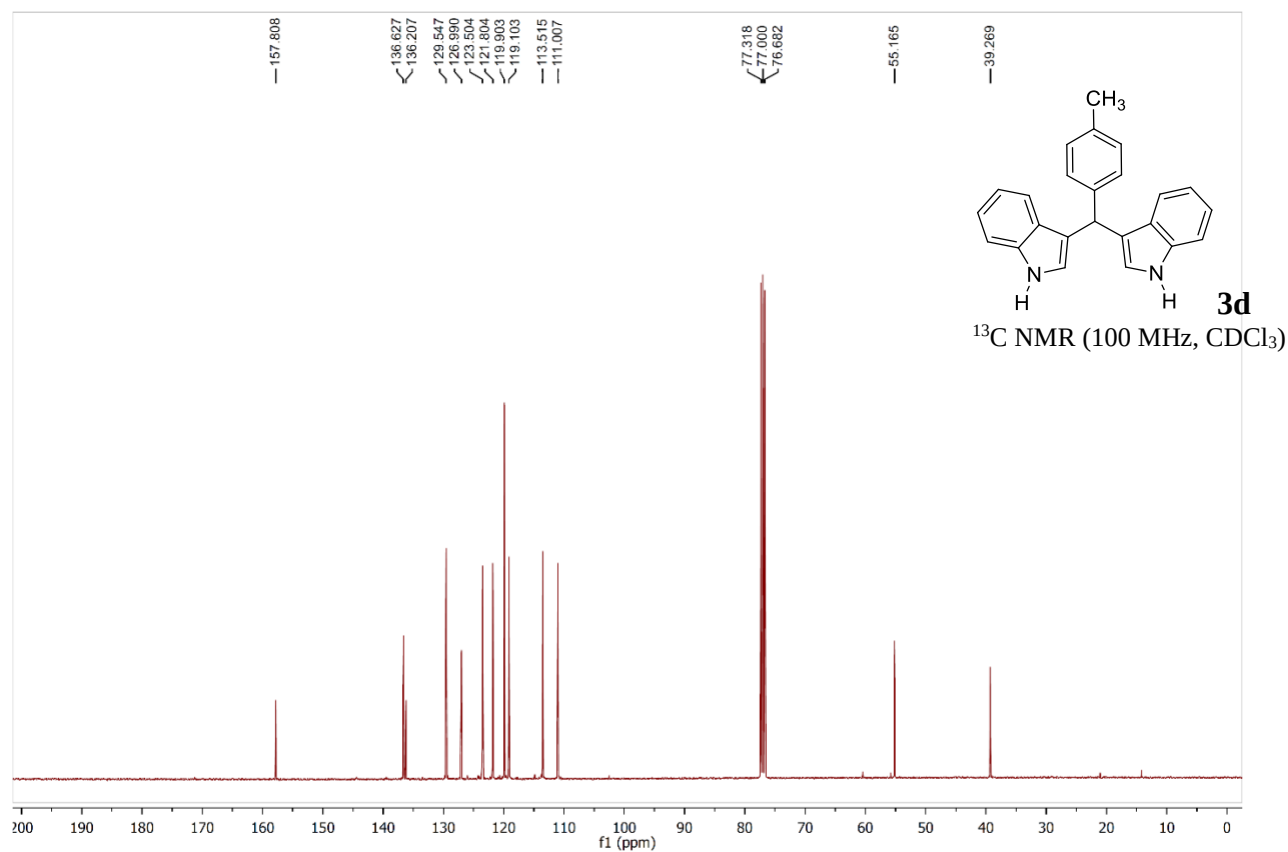


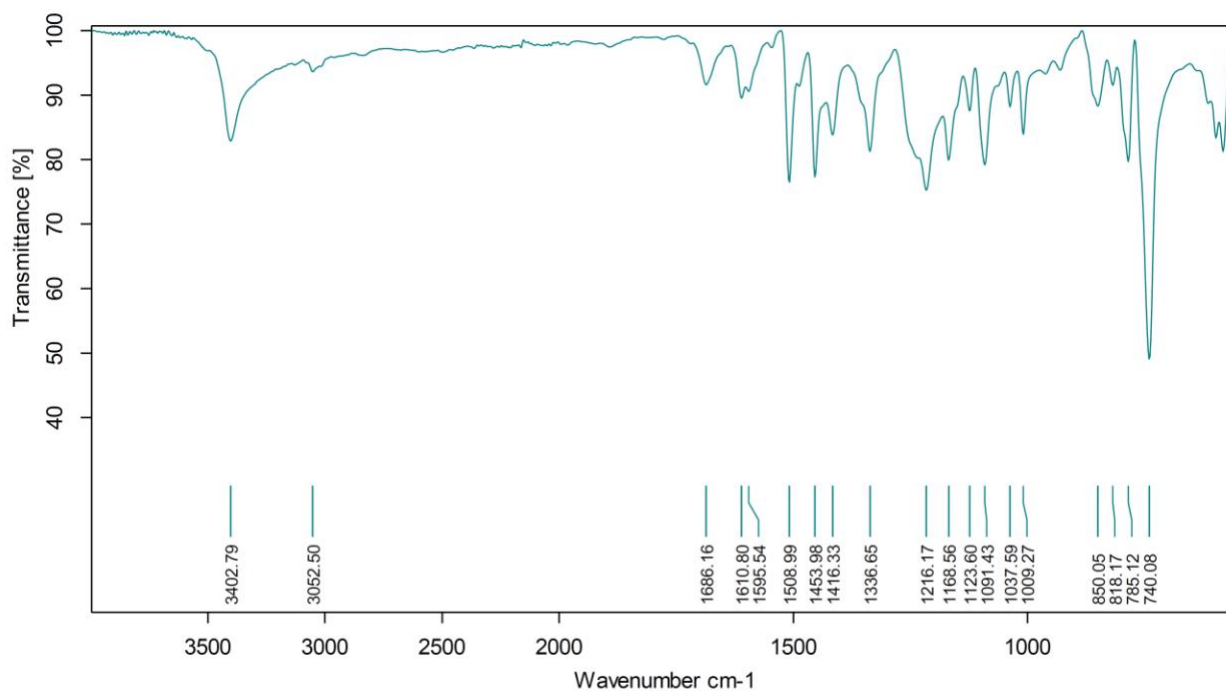
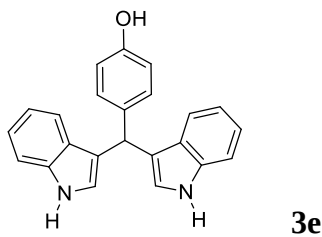


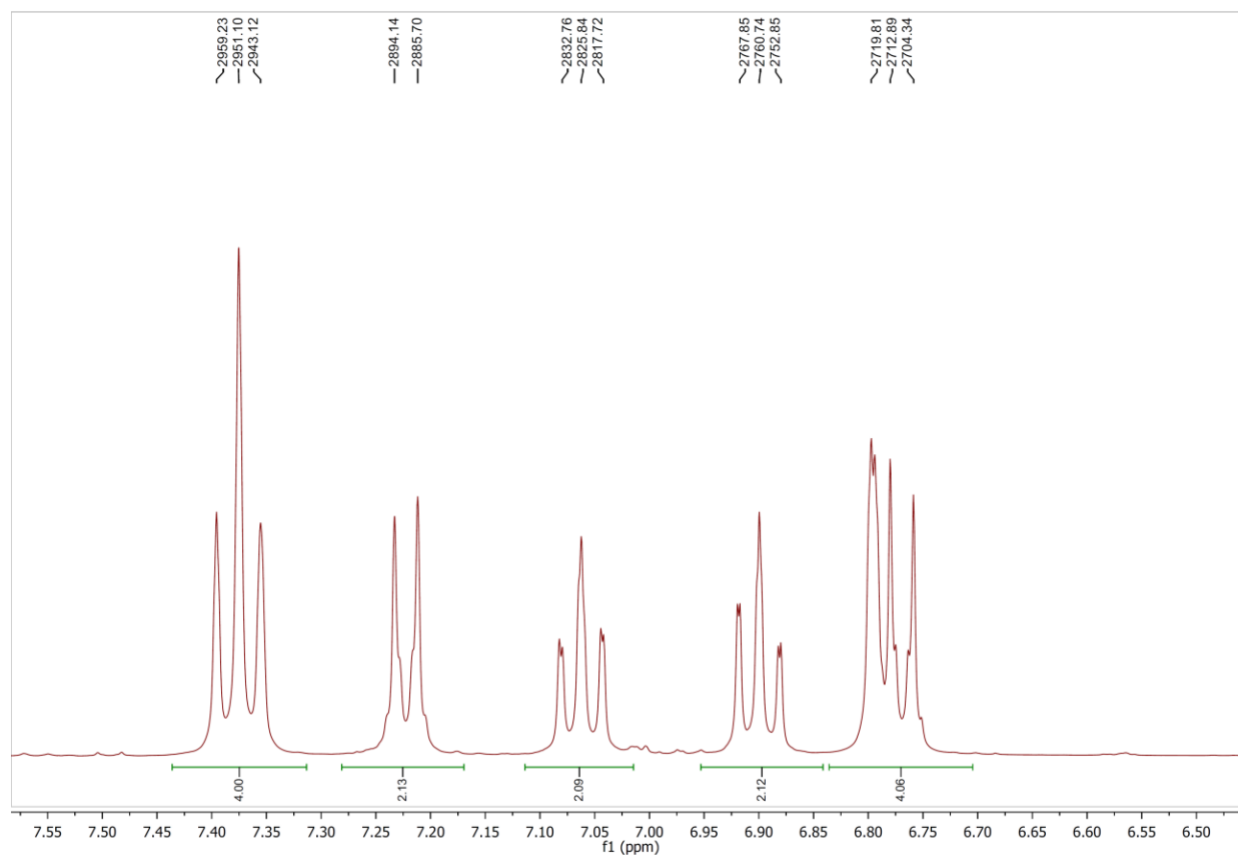
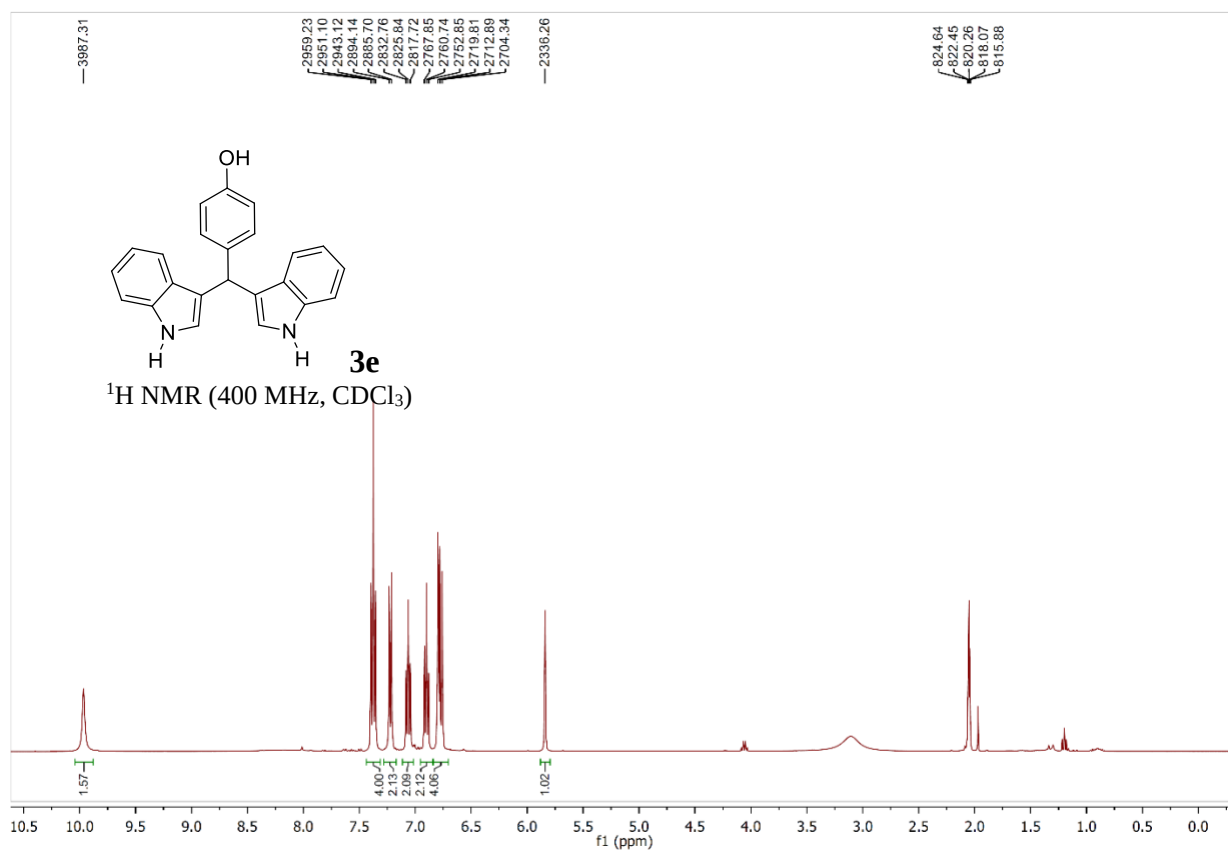
3,3'-((4-Methoxyphenyl)methylene)bis(1H-indole) (3d)

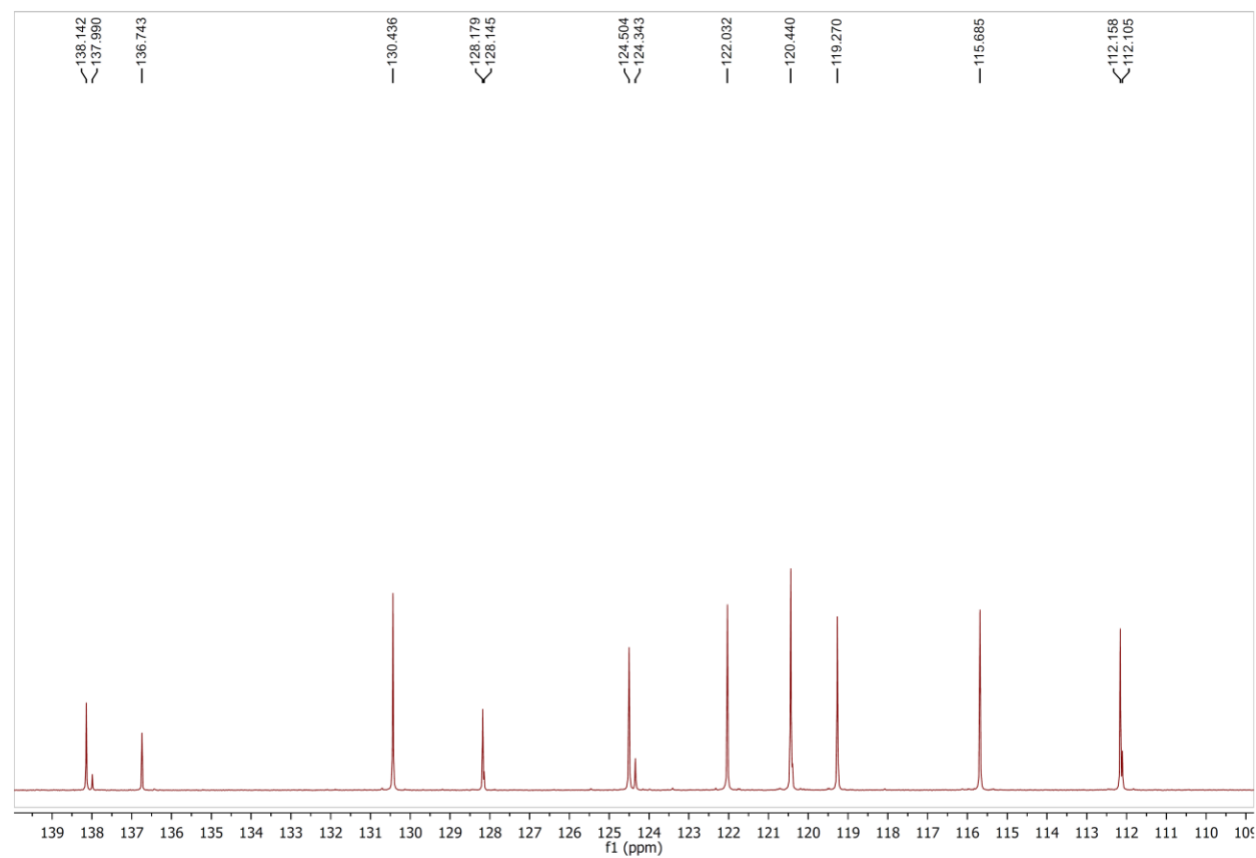
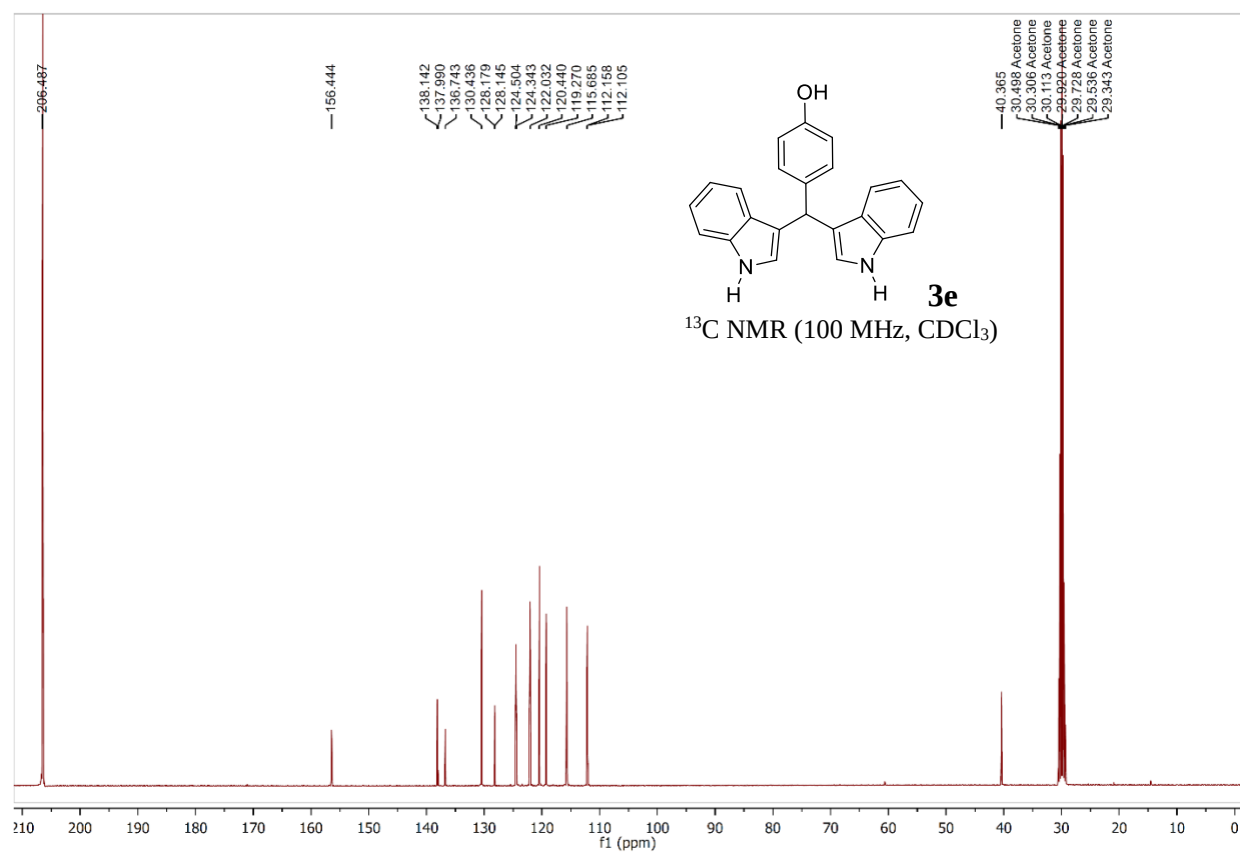


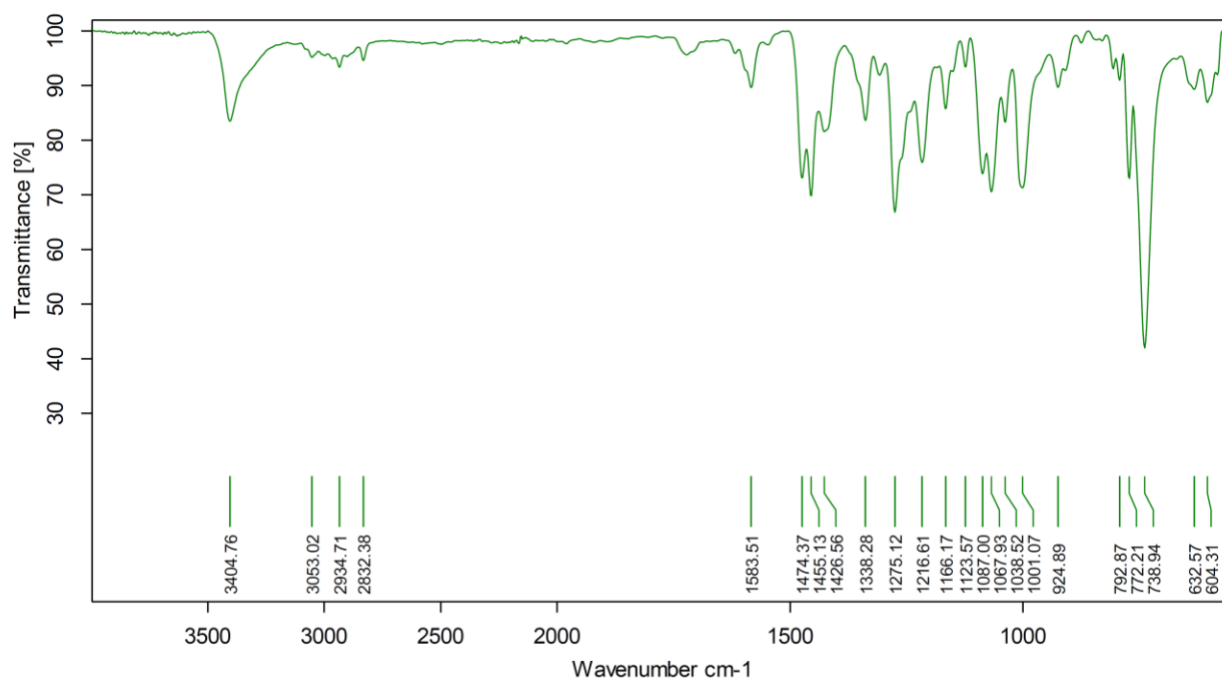
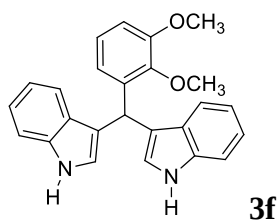


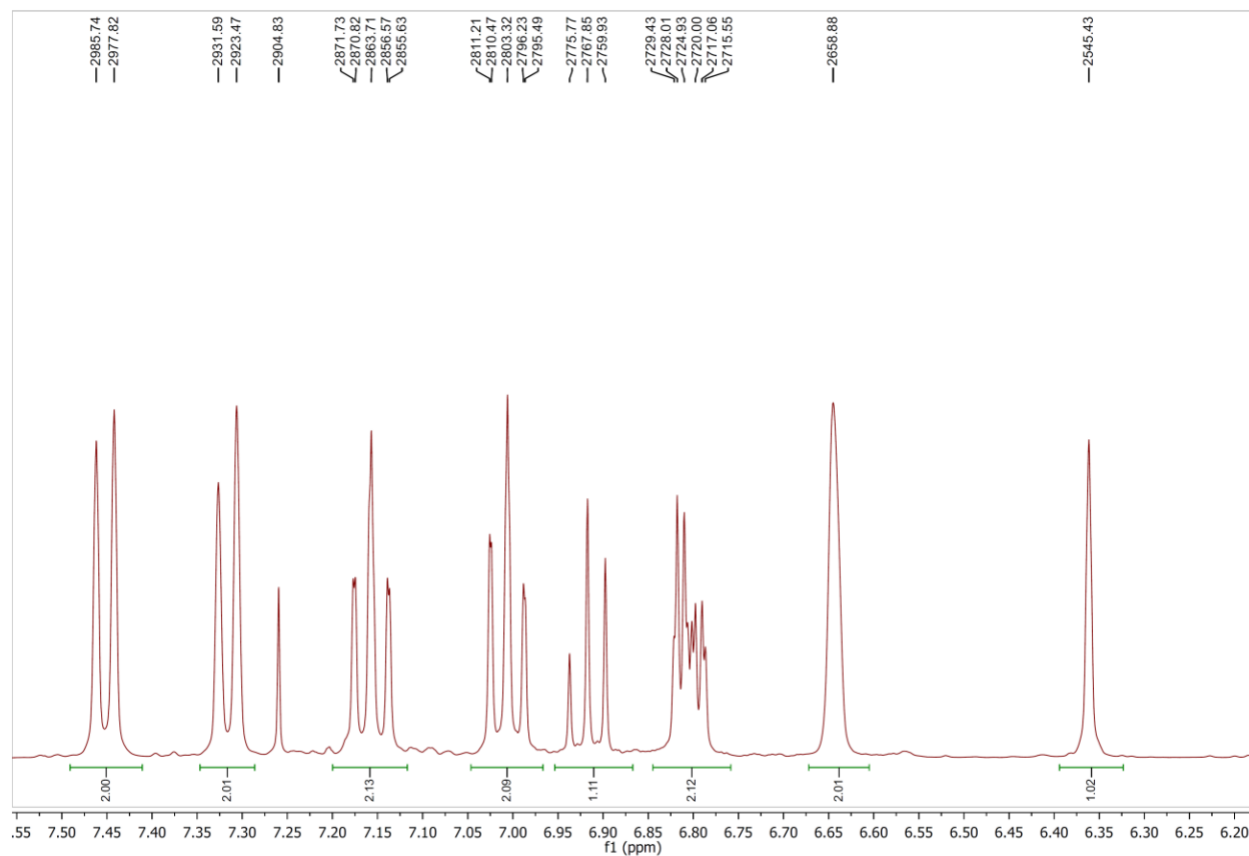
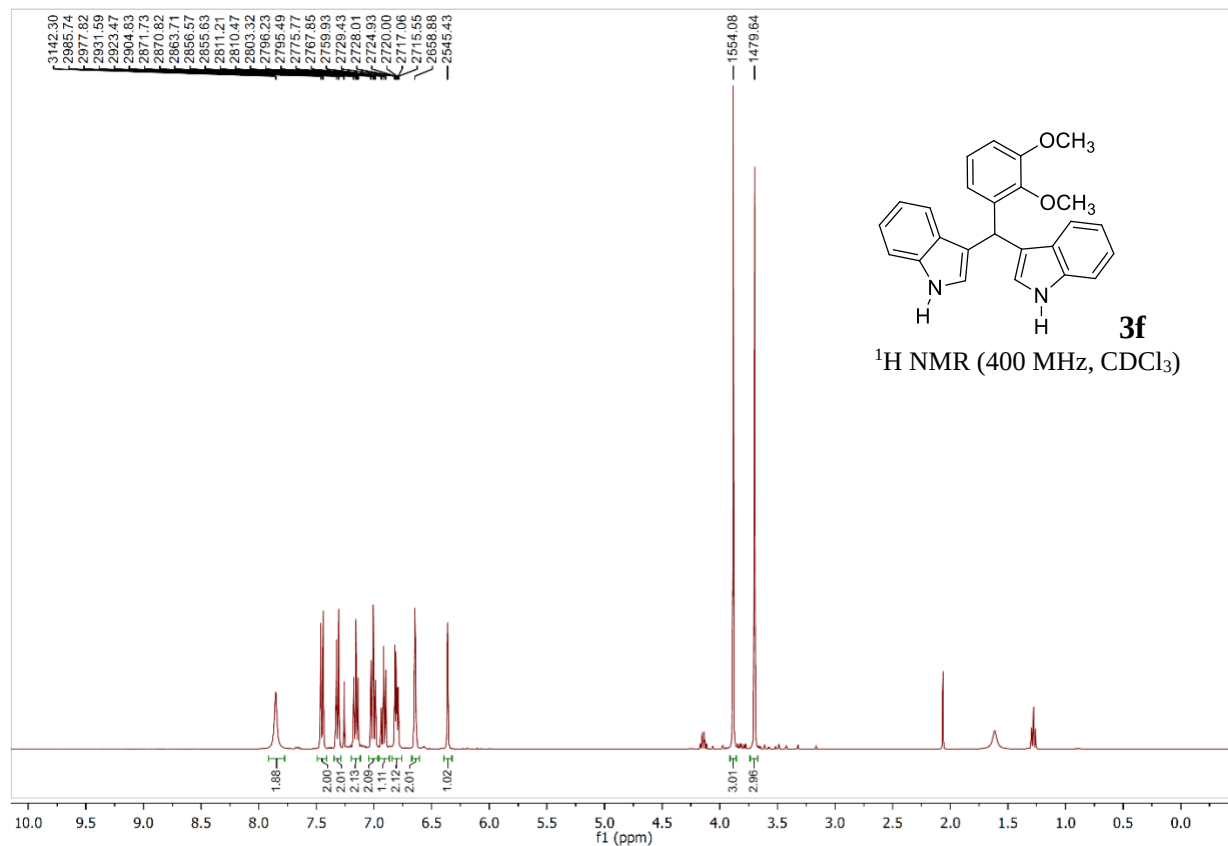


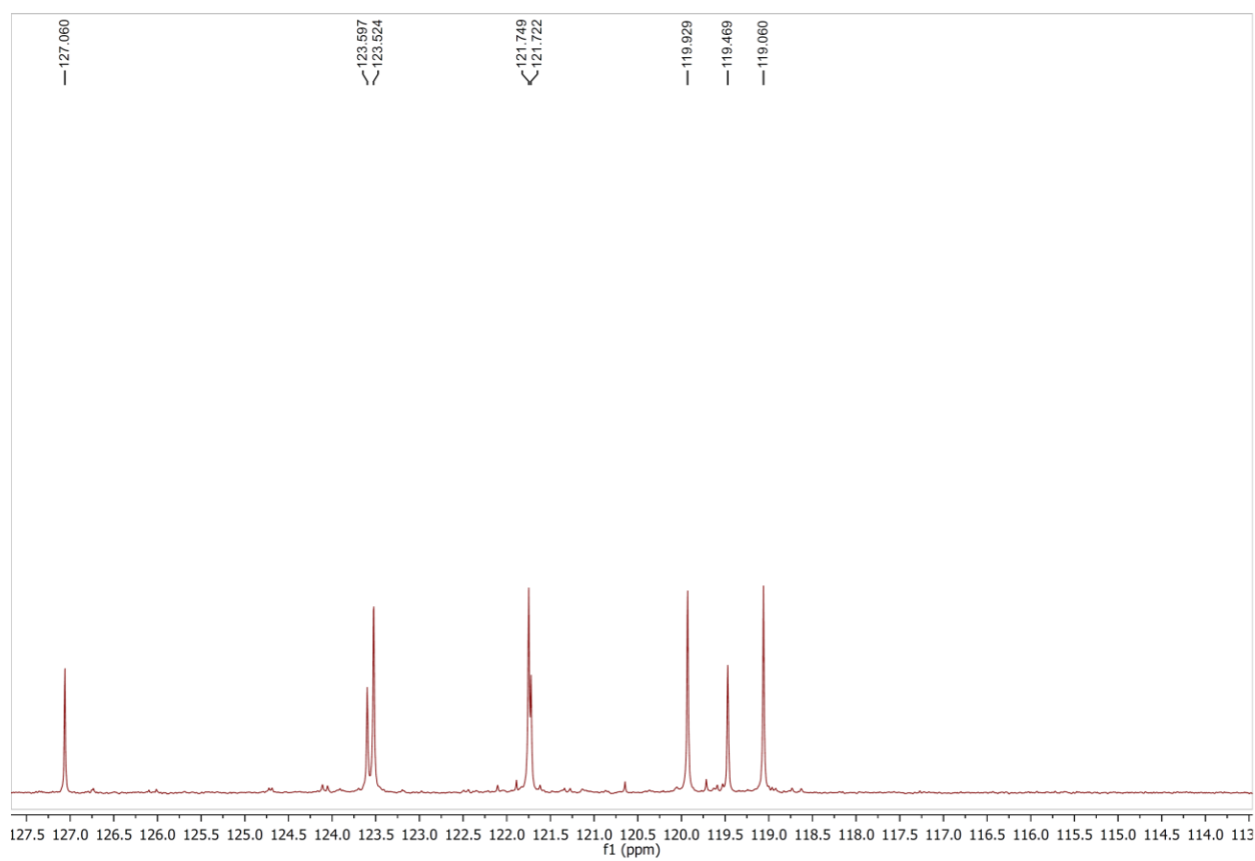
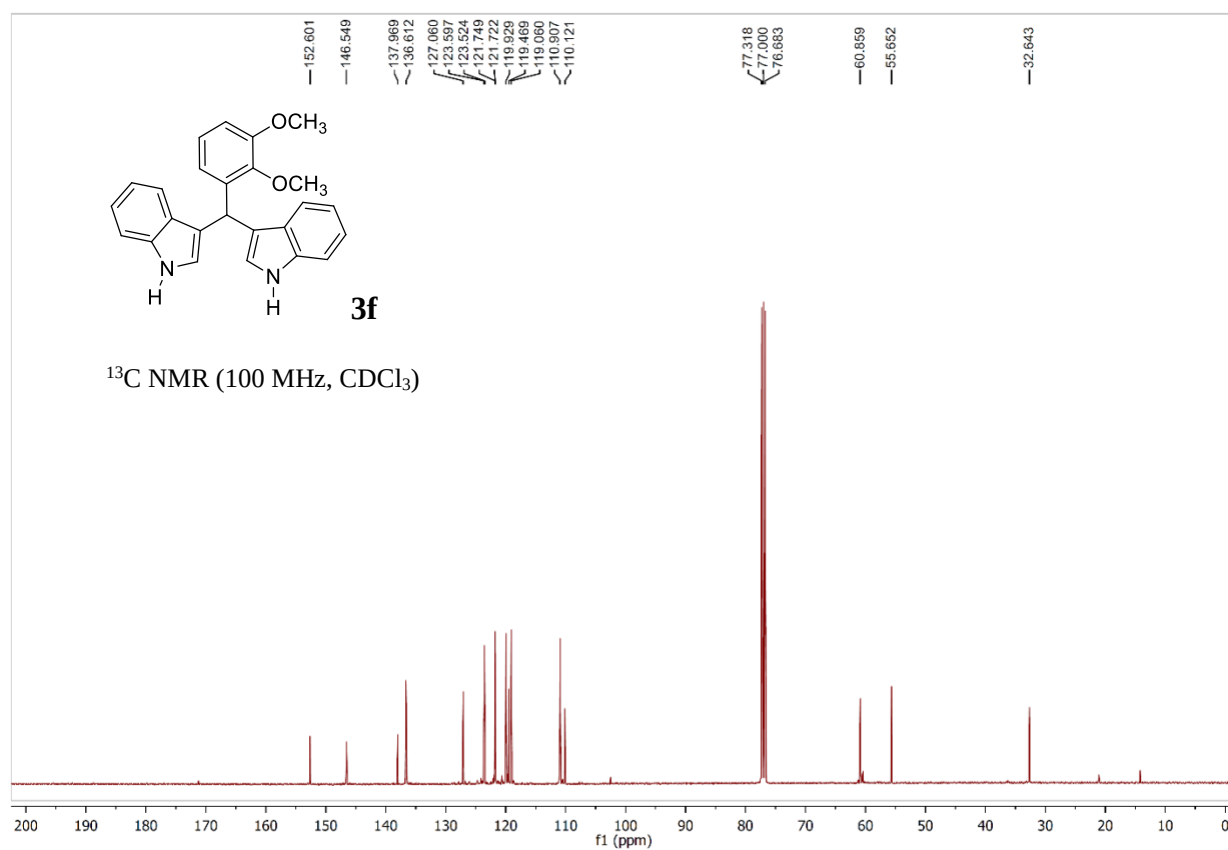
4-(Di(1*H*-indol-3-yl)methyl)phenol (**3e**)

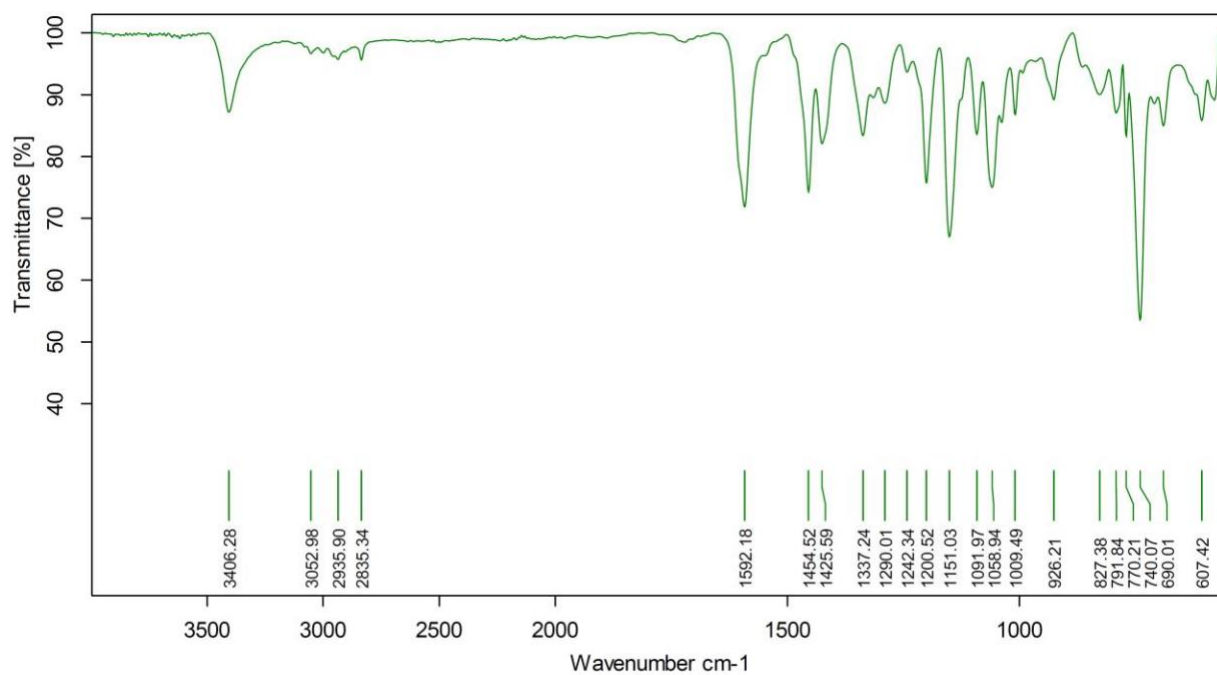
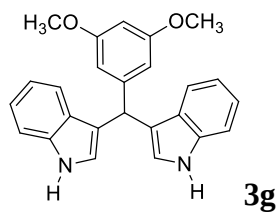


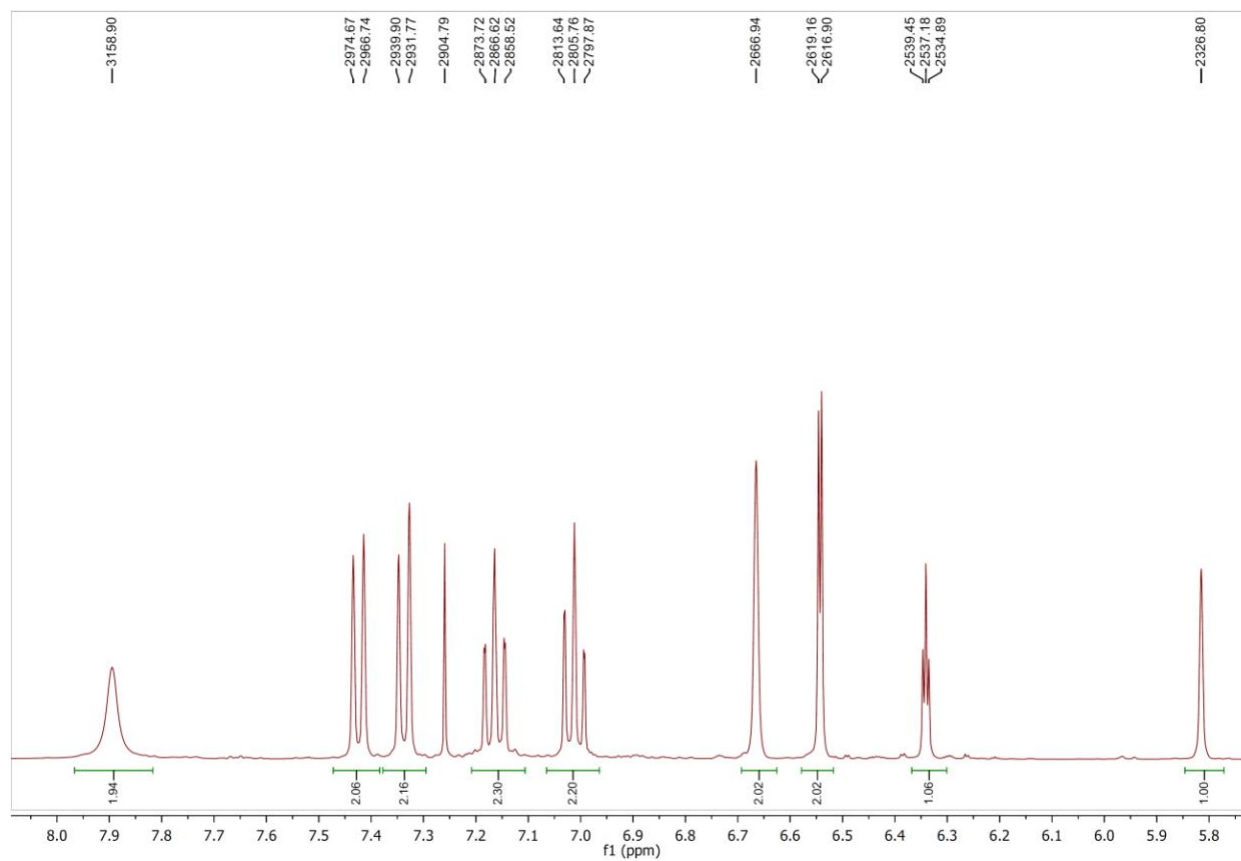
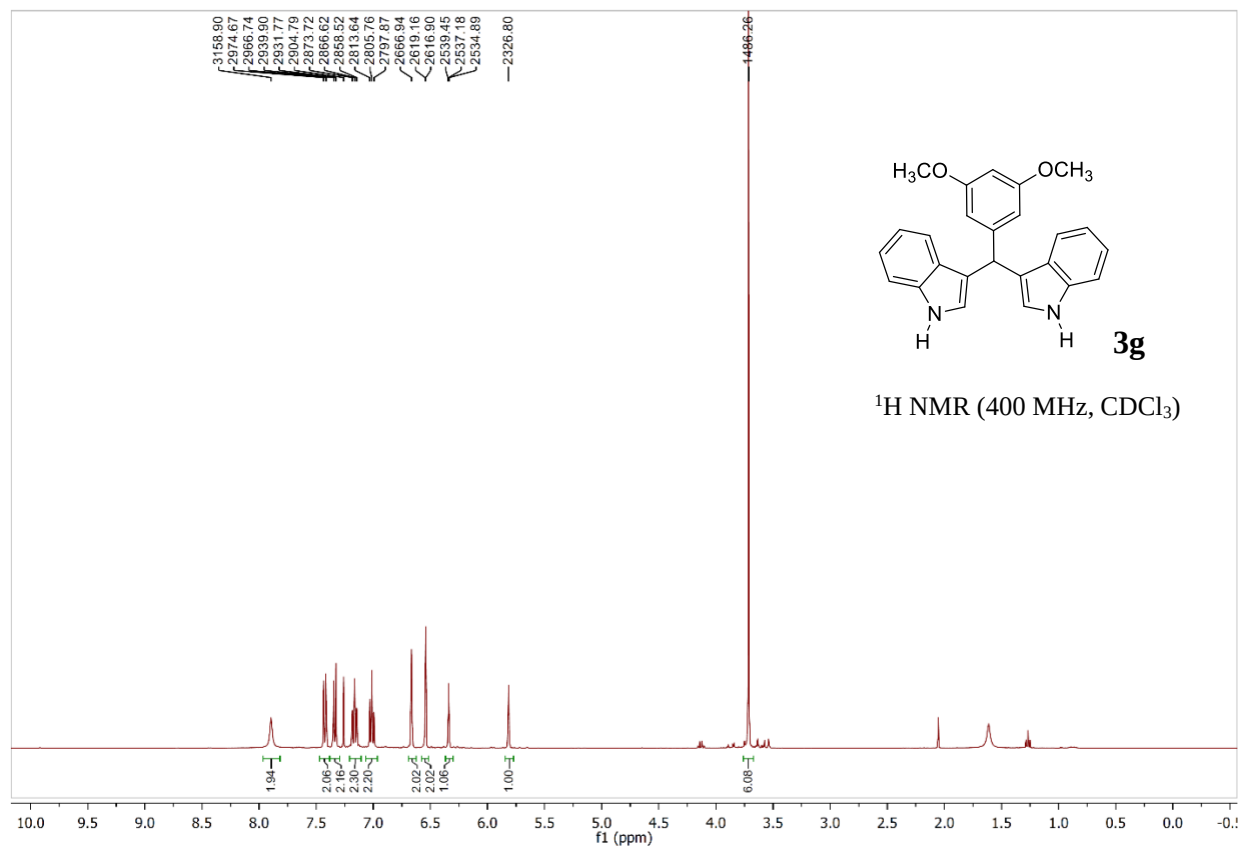


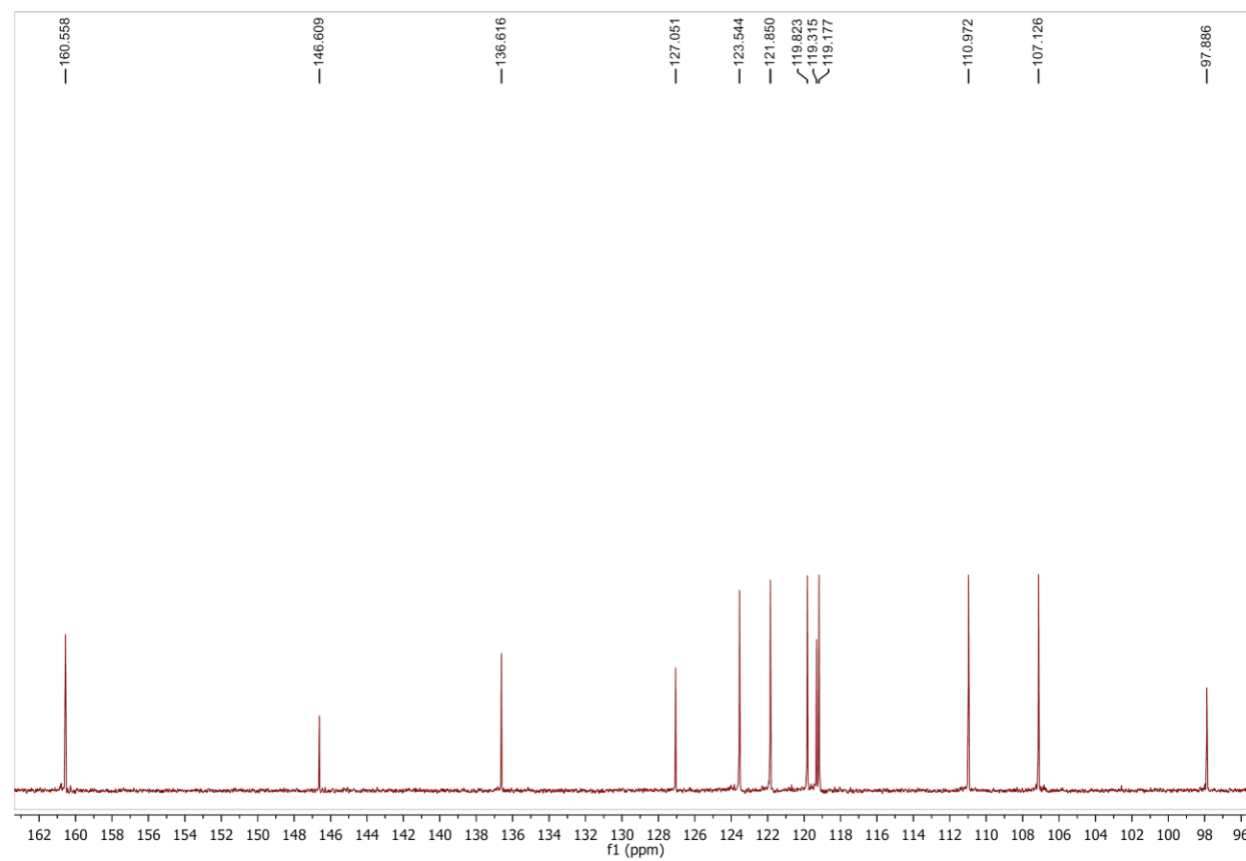
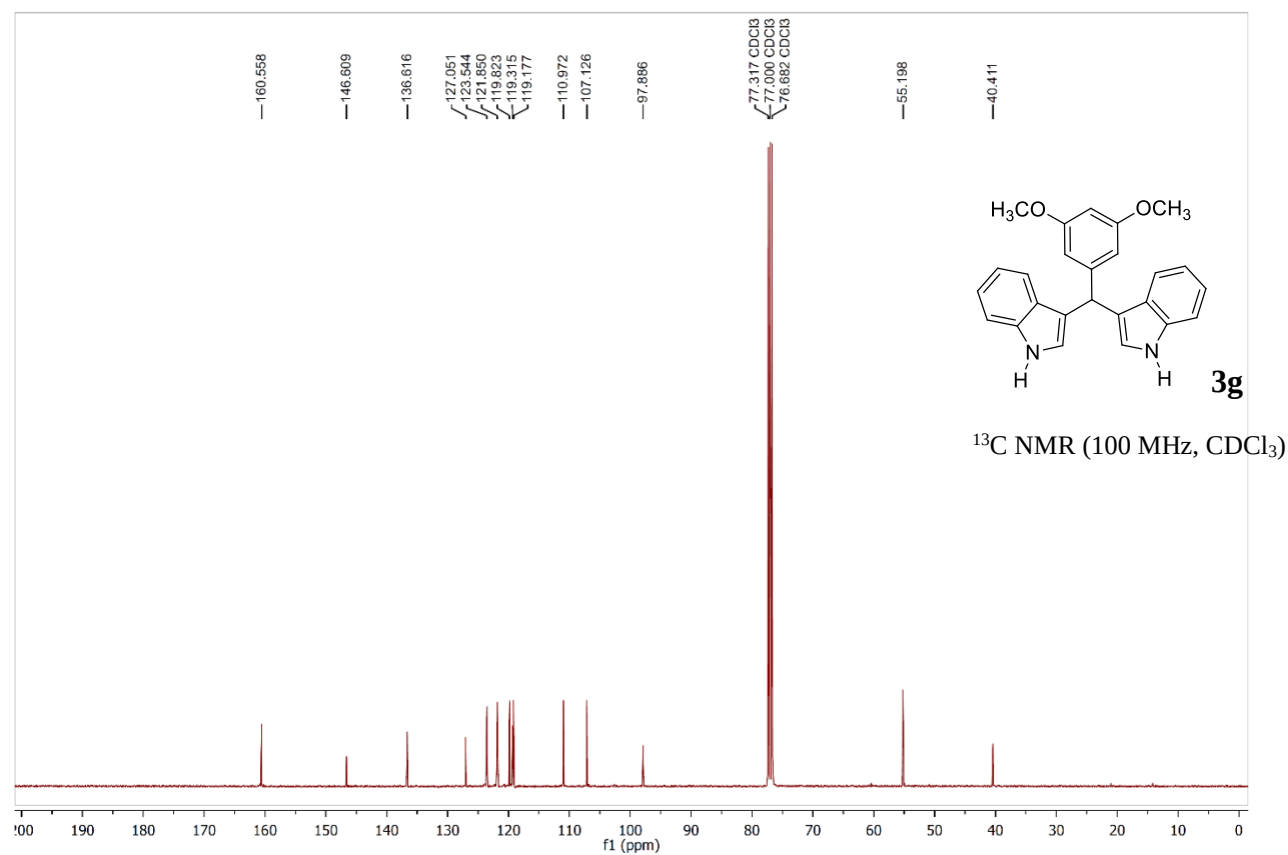
3,3'-((2,3-Dimethoxyphenyl)methylene)bis(1*H*-indol) (3f)

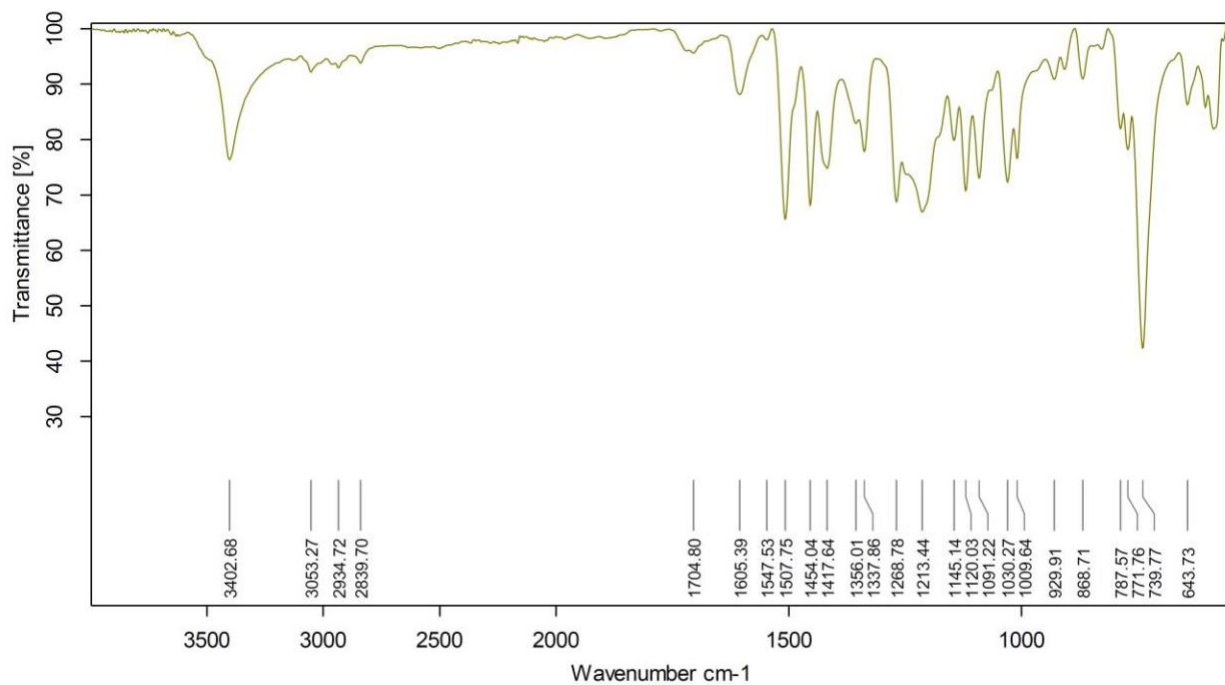
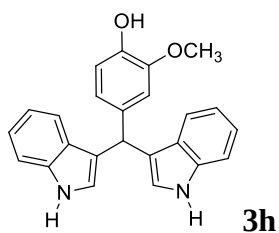


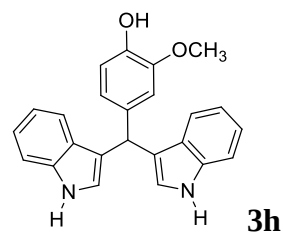
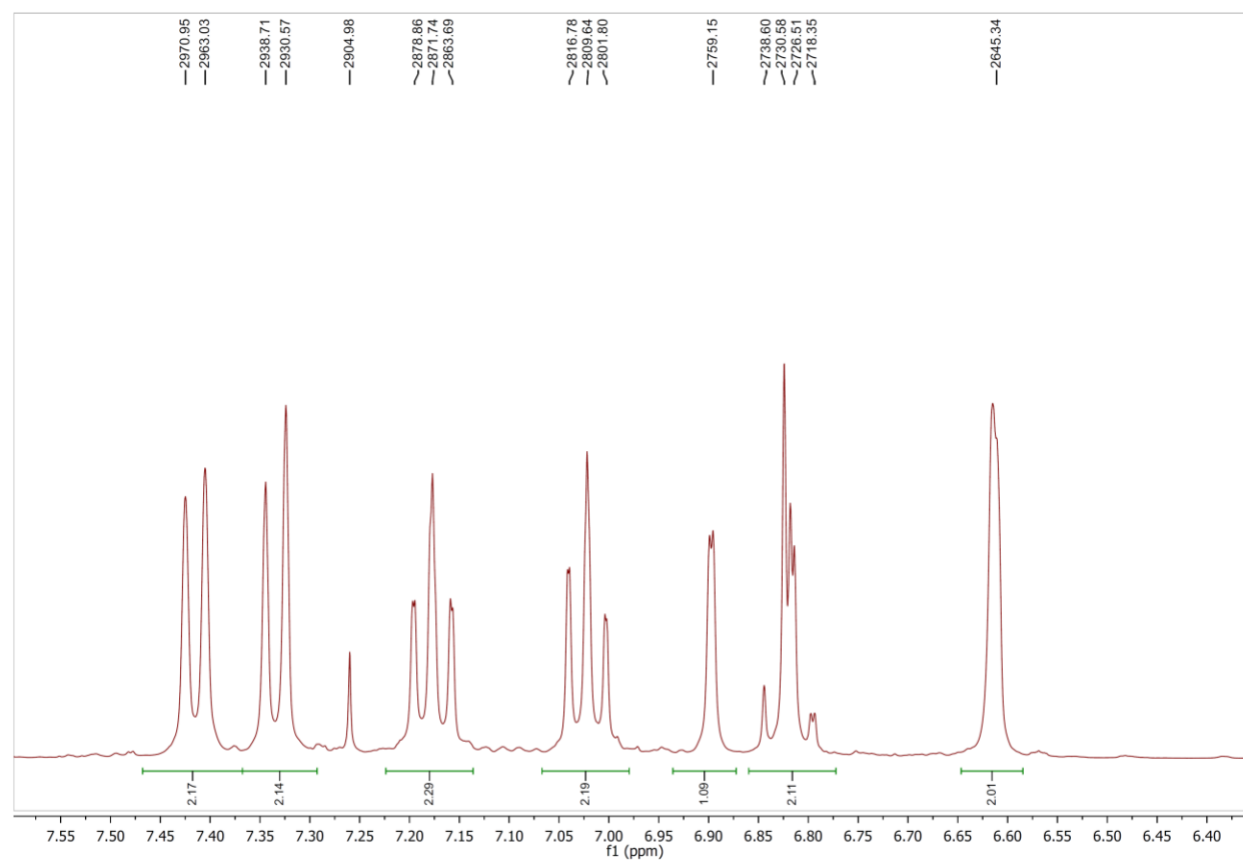


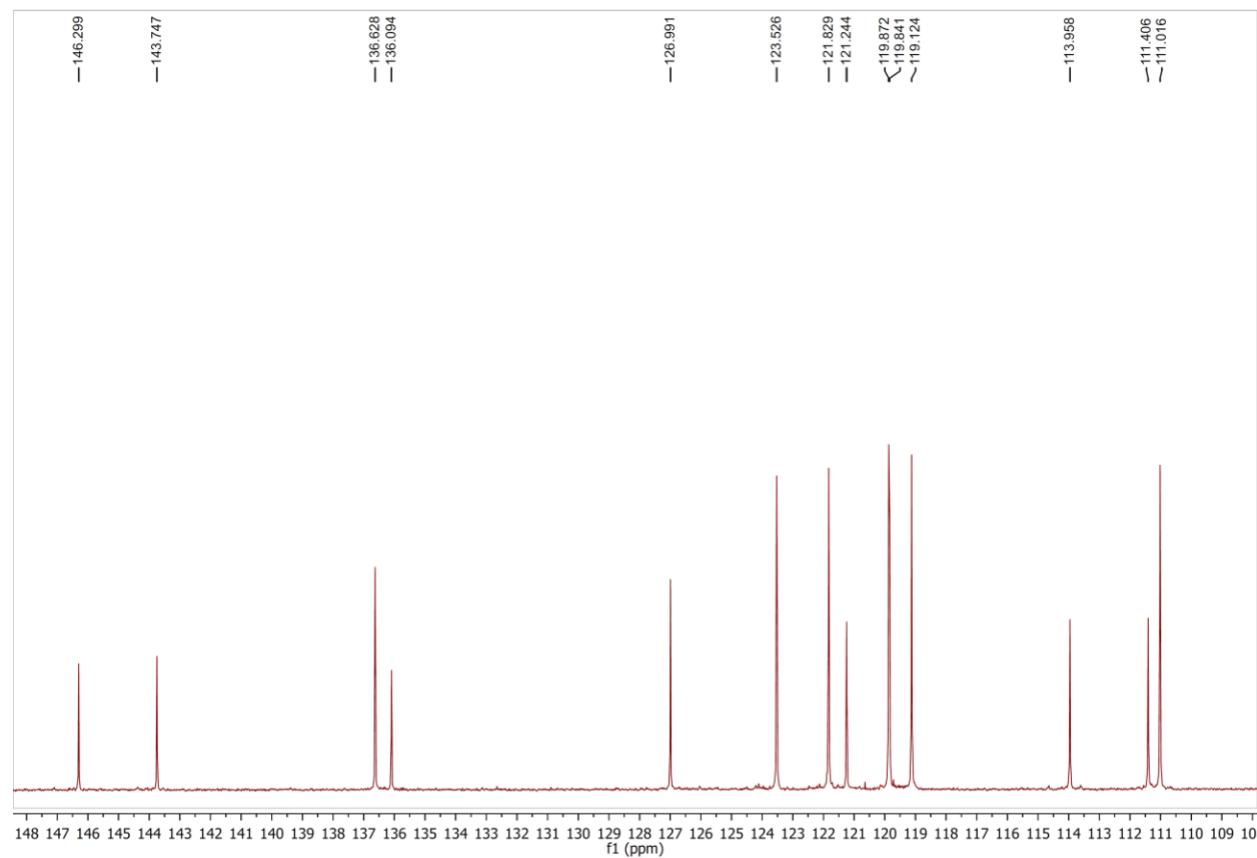
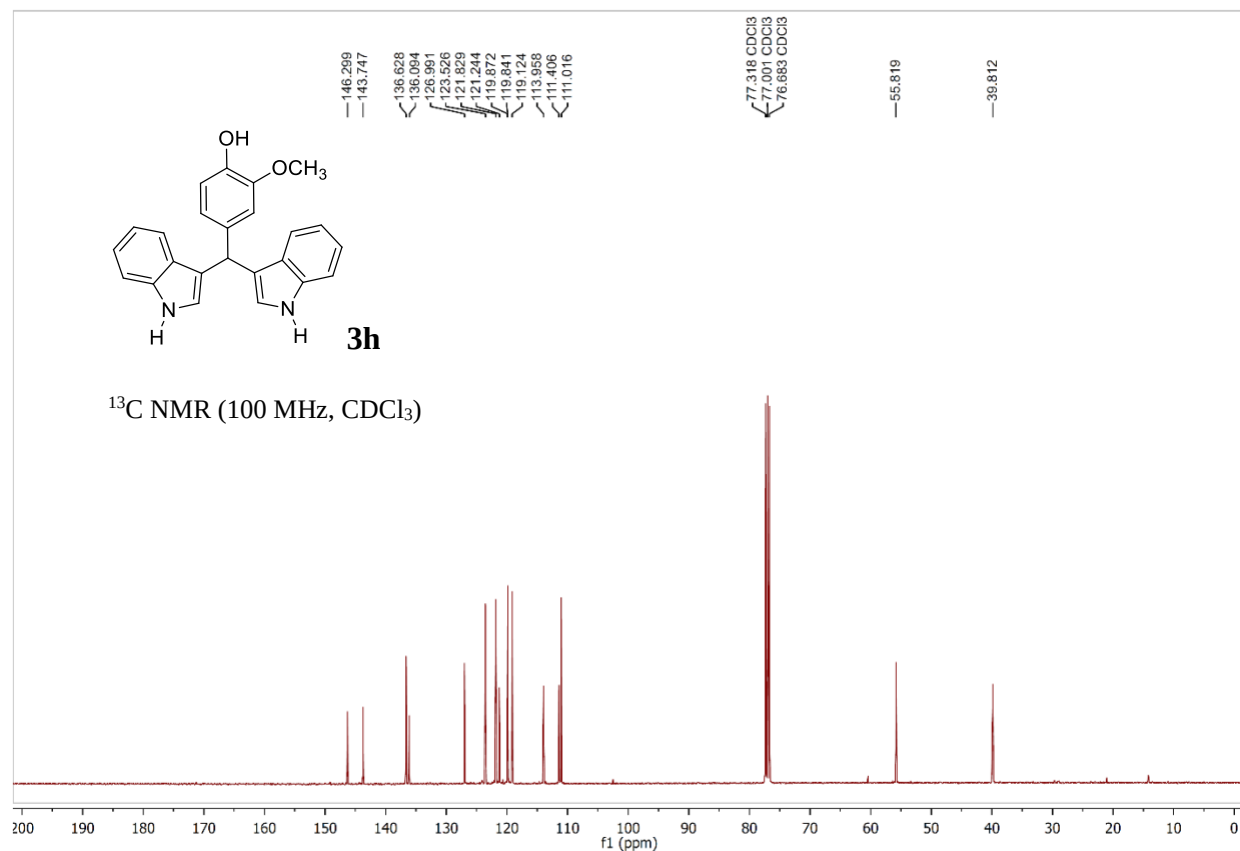
3,3'-((3,5-Dimethoxyphenyl)methylene)bis(1*H*-indol) (3g)

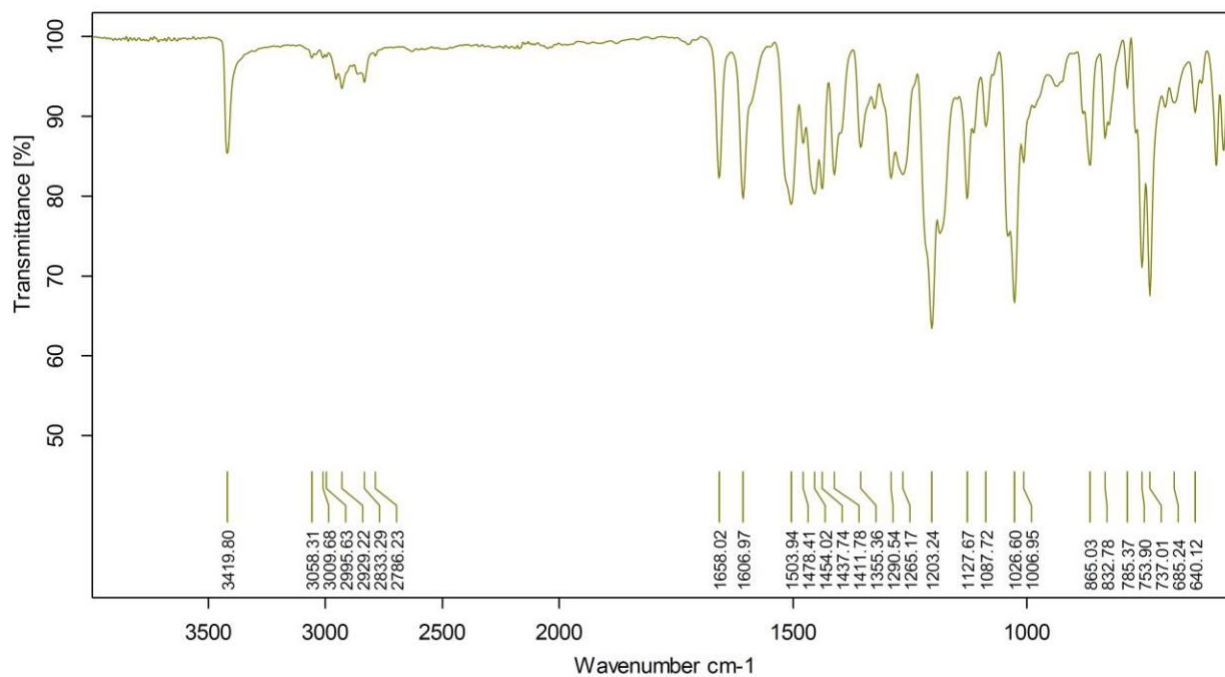
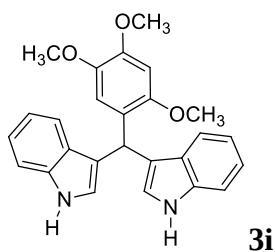


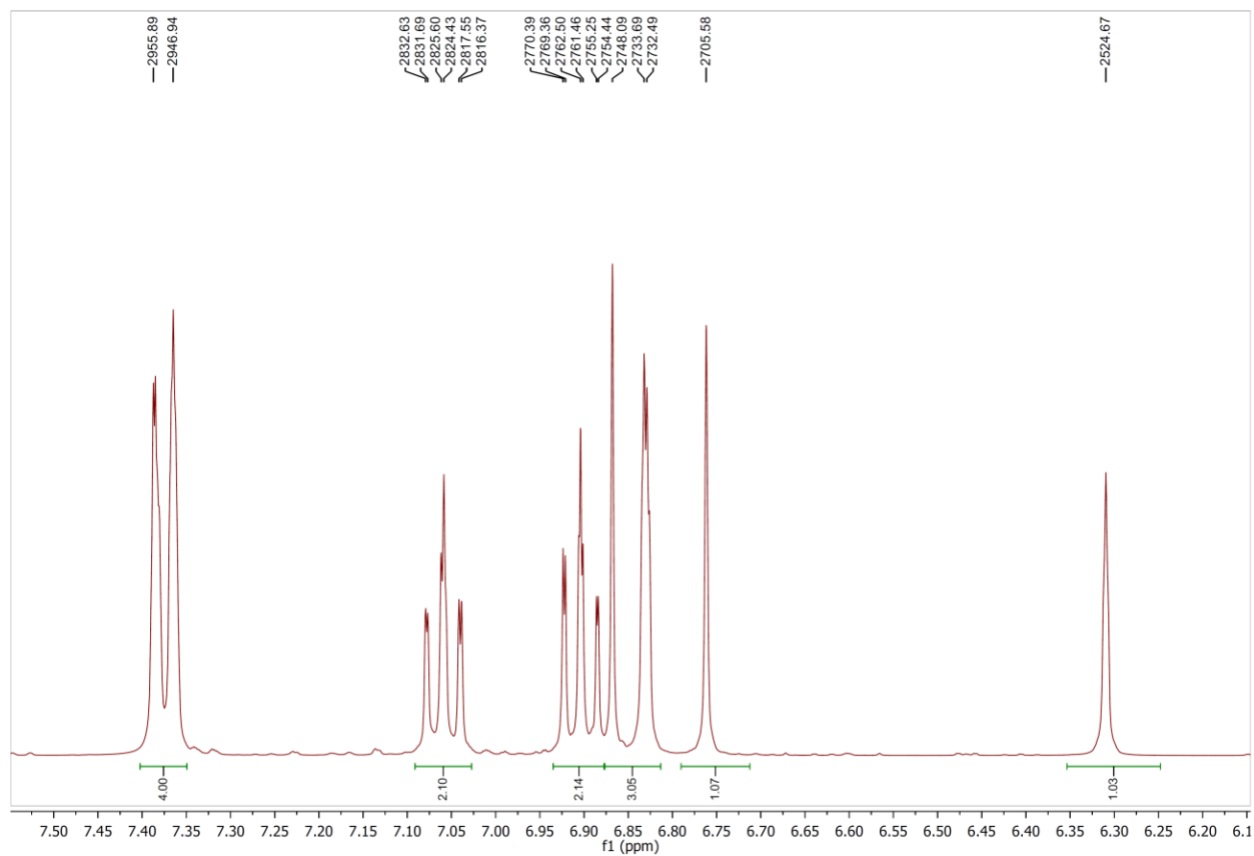
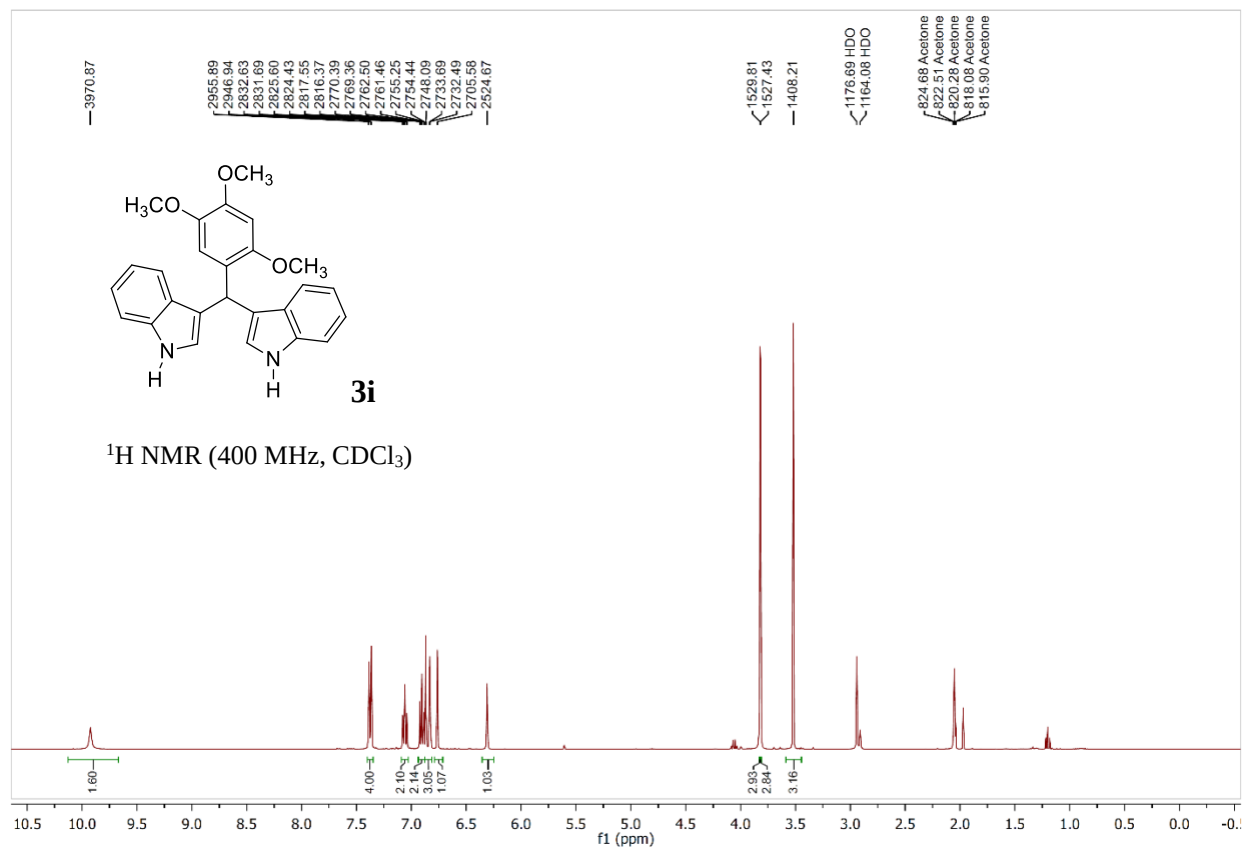


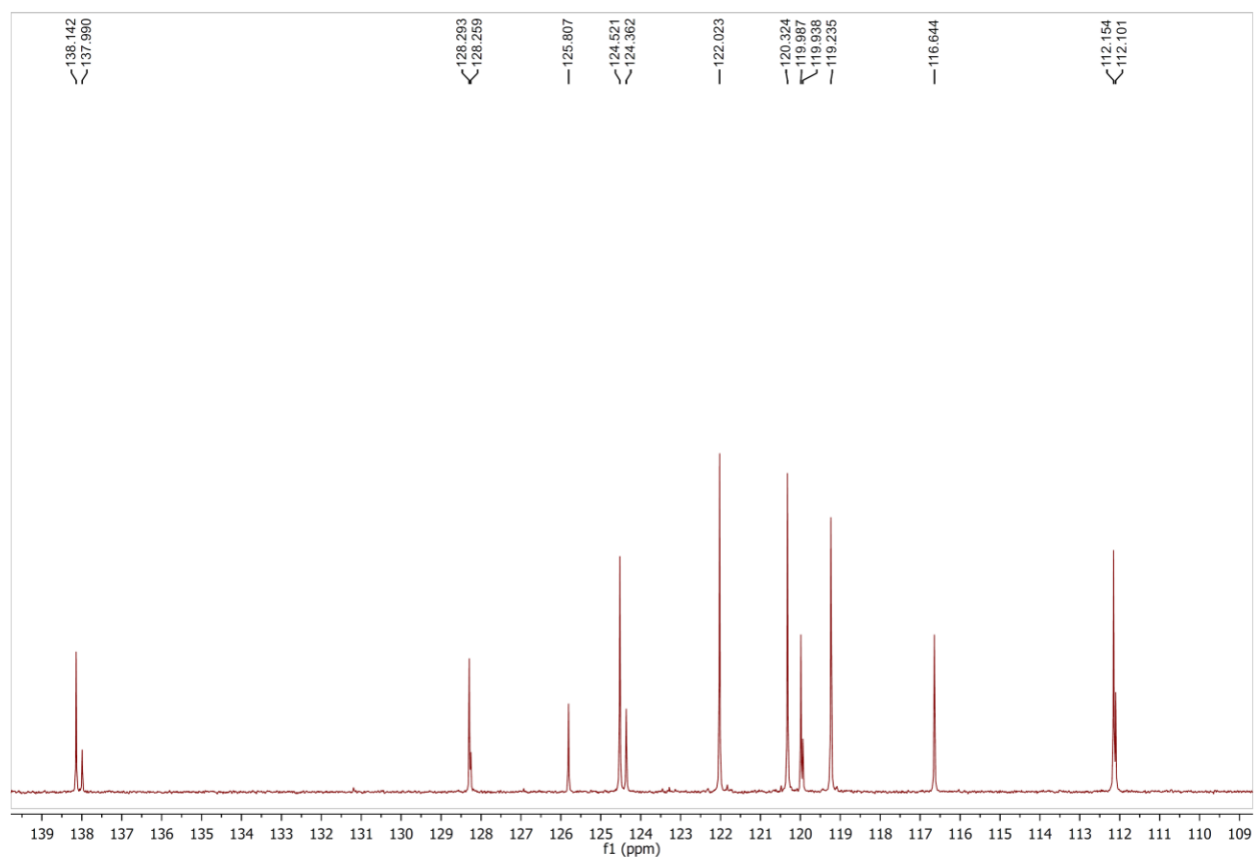
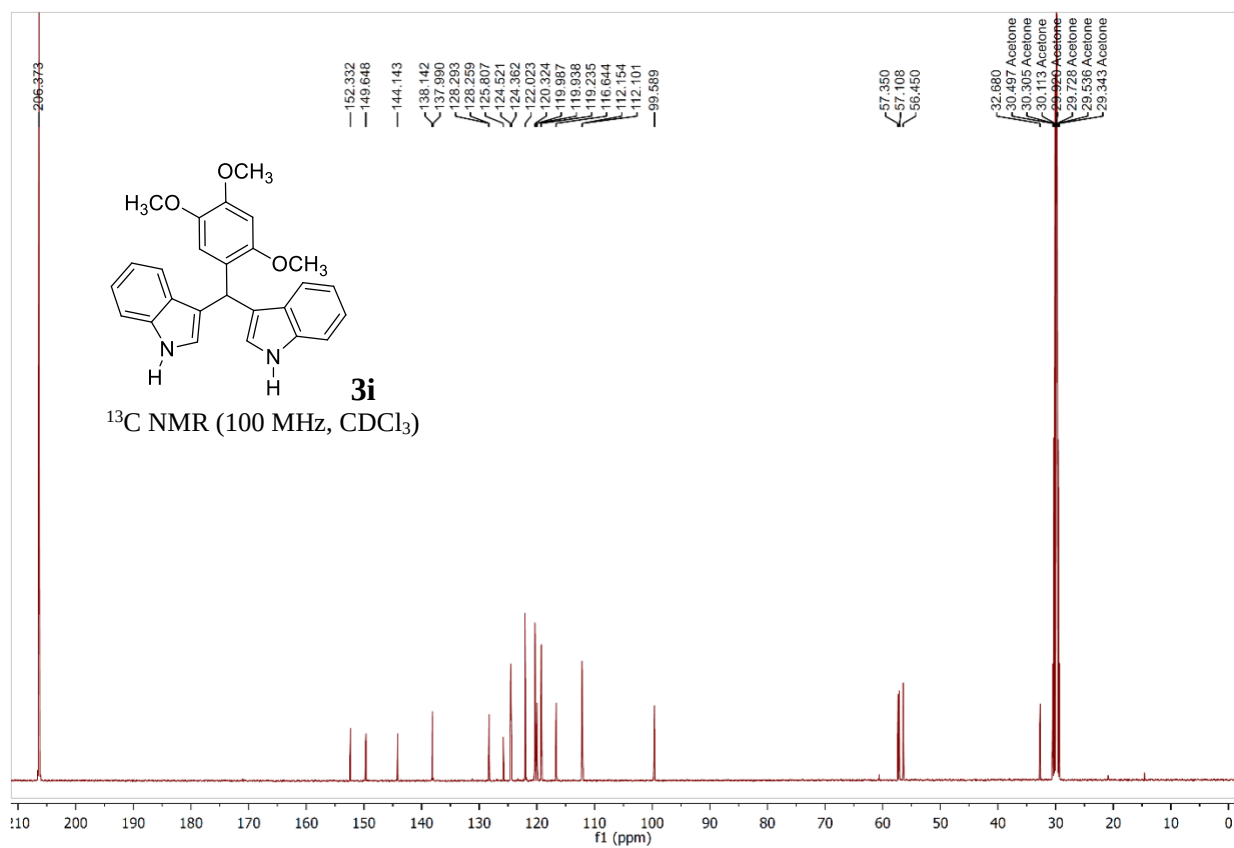
4-(Di(1*H*-indol-3-yl)methyl)-2-methoxyphenyl (3h)

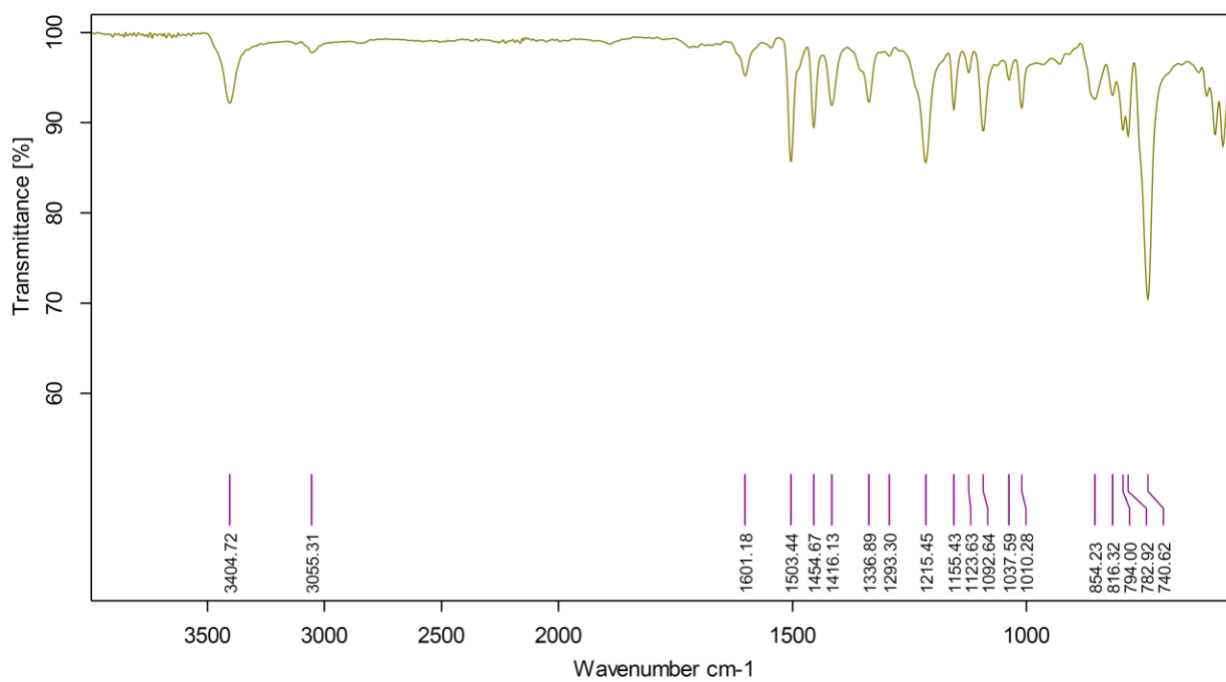
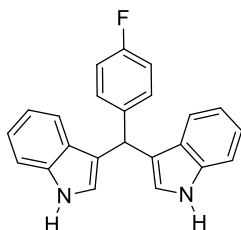
¹H NMR (400 MHz, CDCl₃)

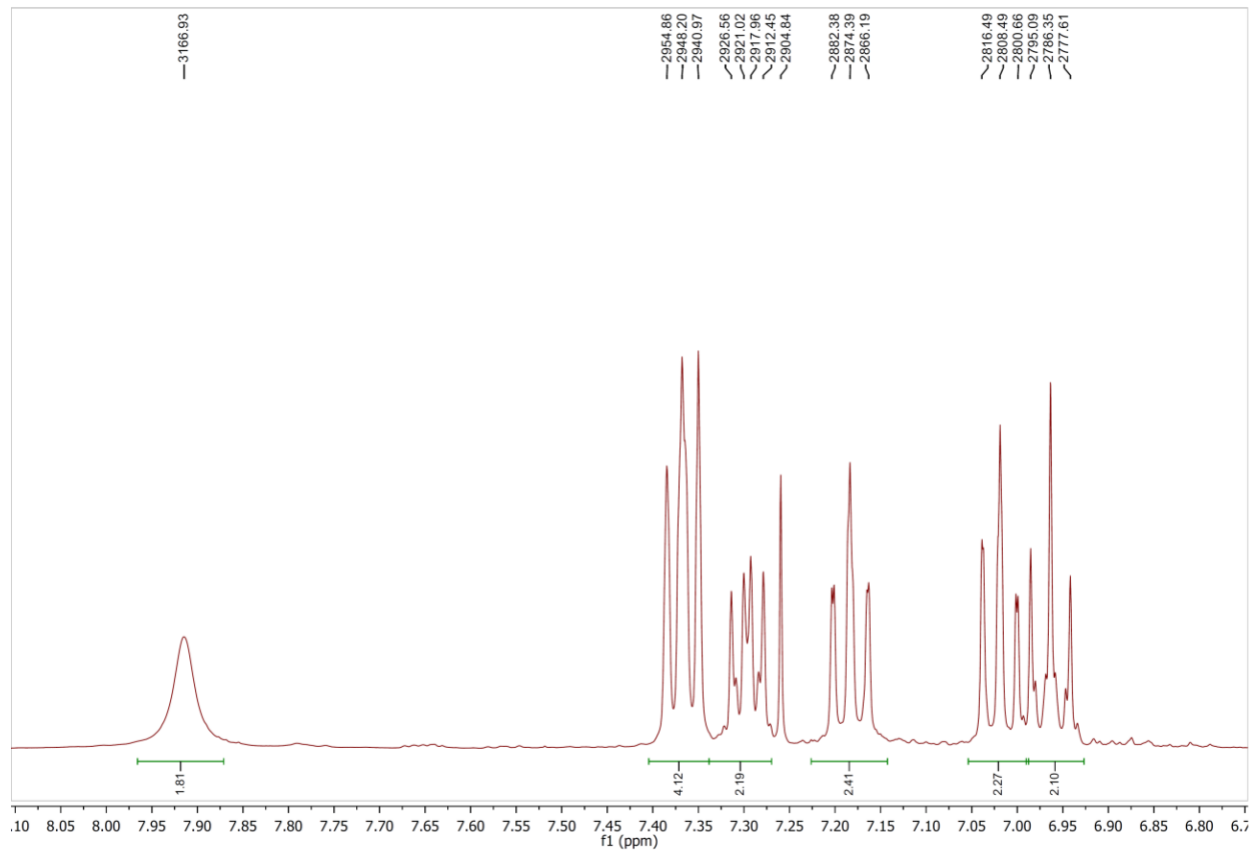
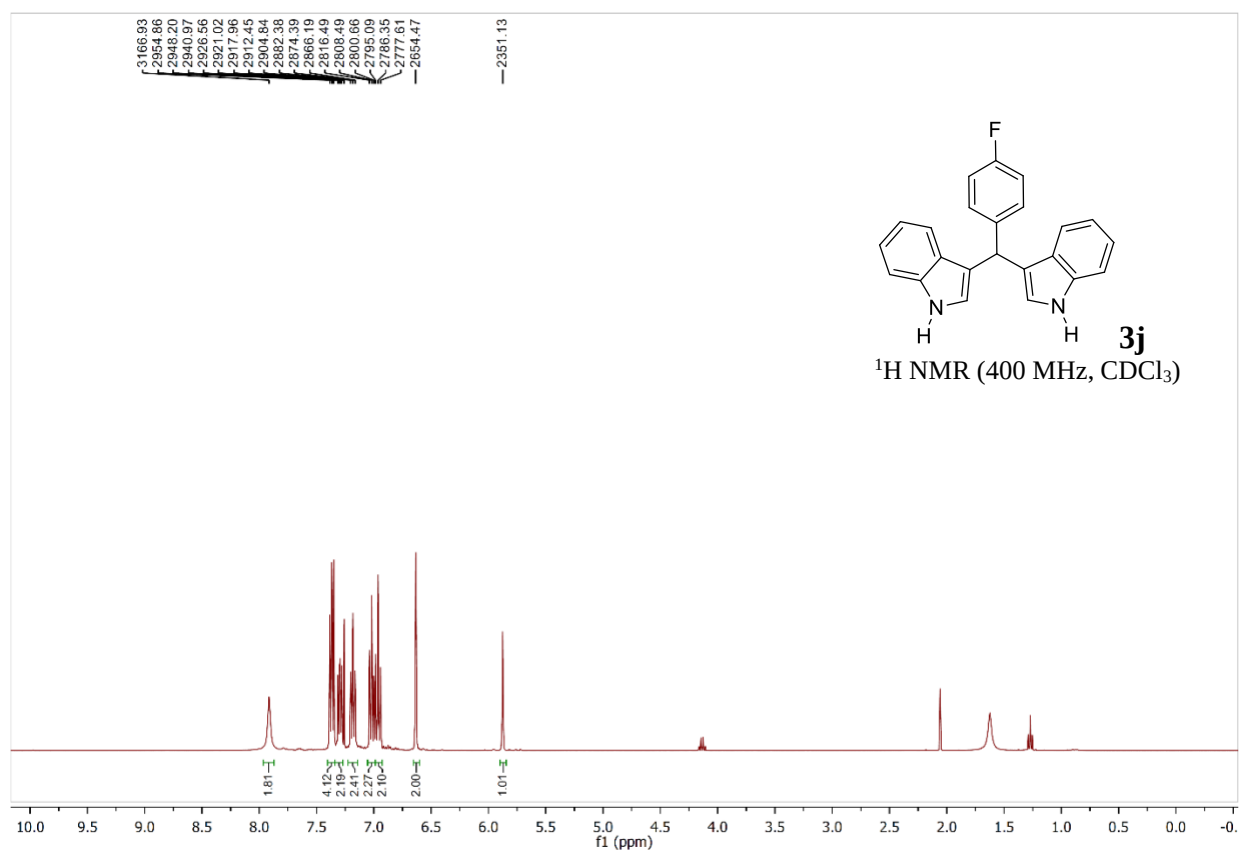


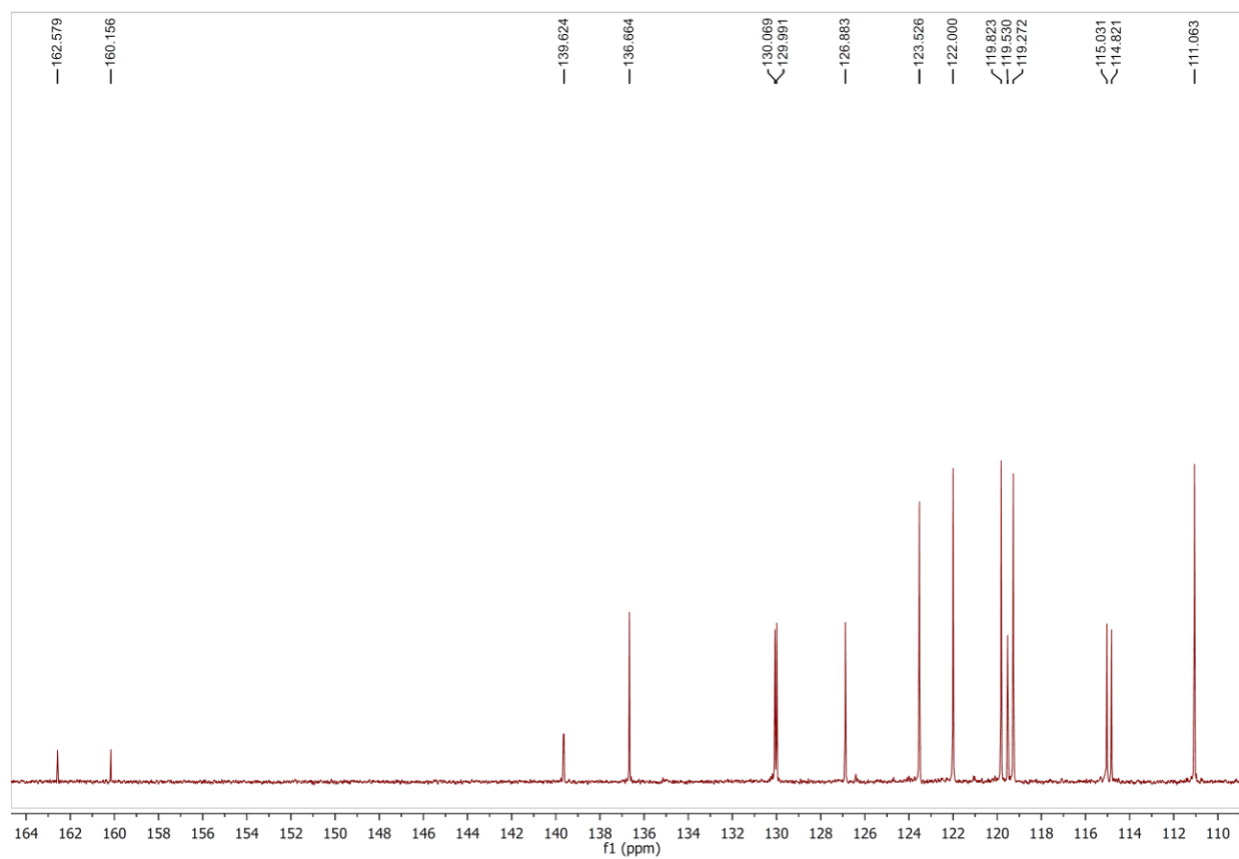
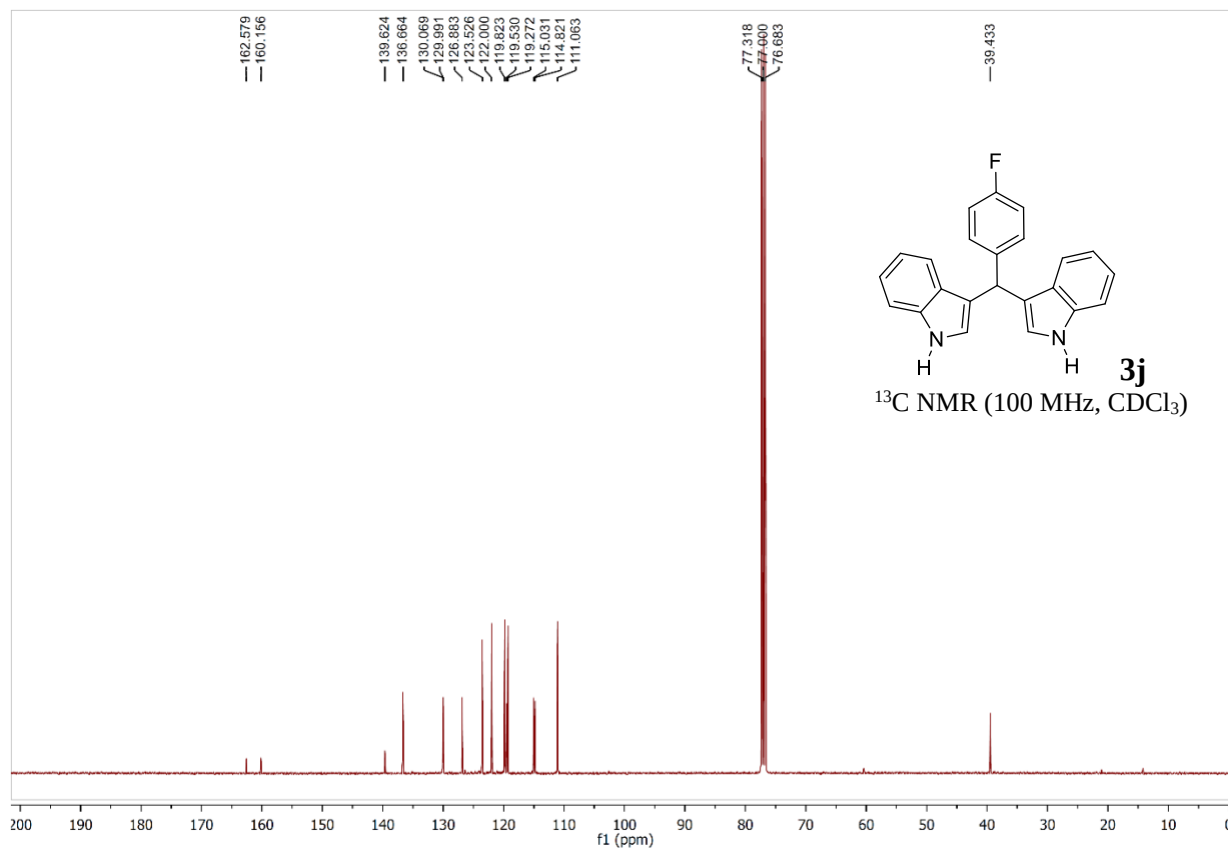
3,3'-((2,4,5-Trimethoxyphenyl)methylene)bis(1*H*-indole) (**3i**)

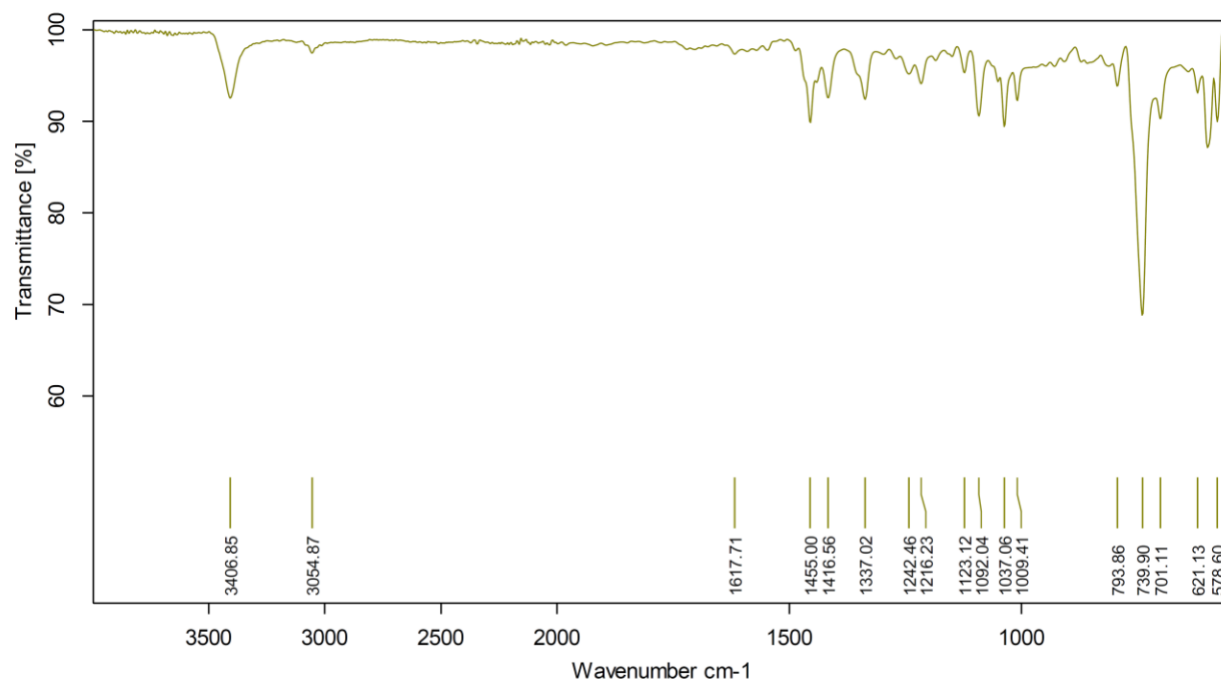
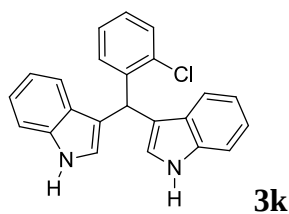


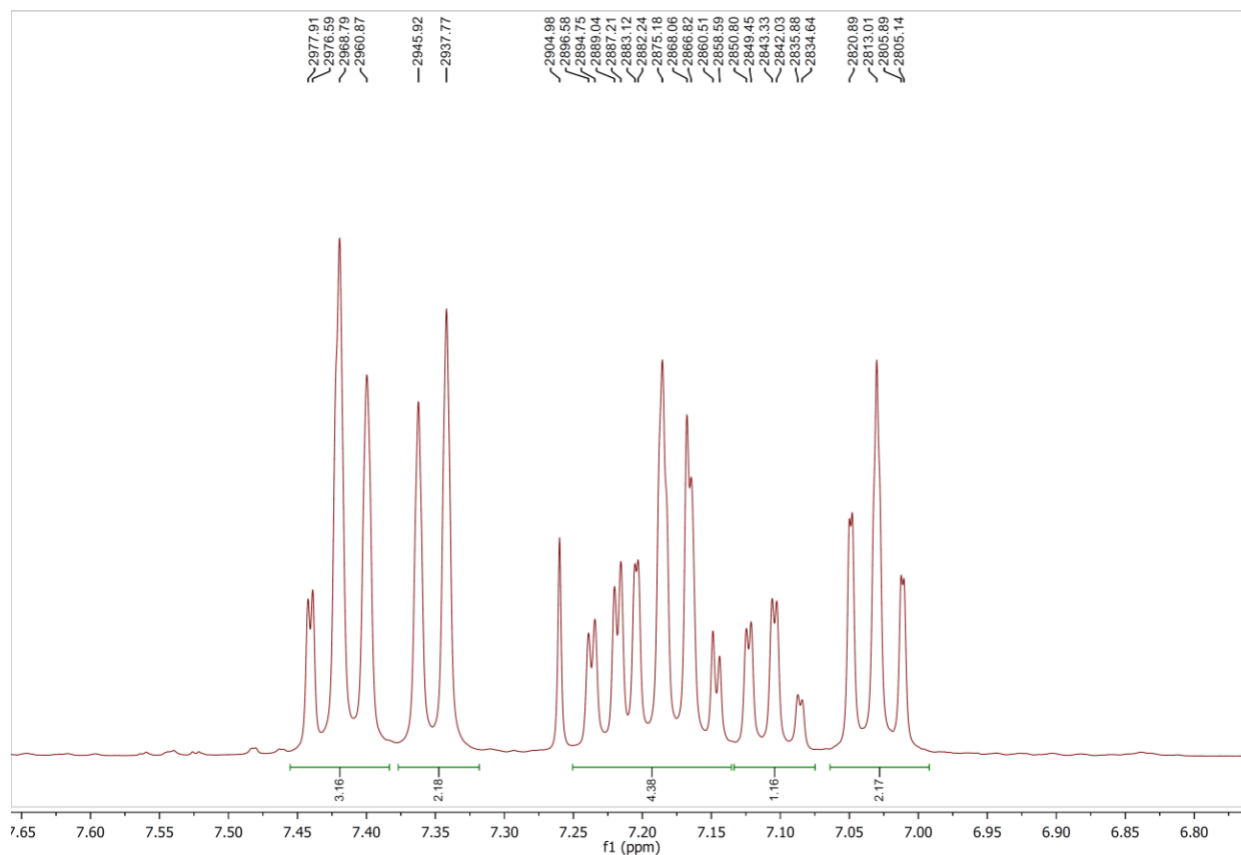
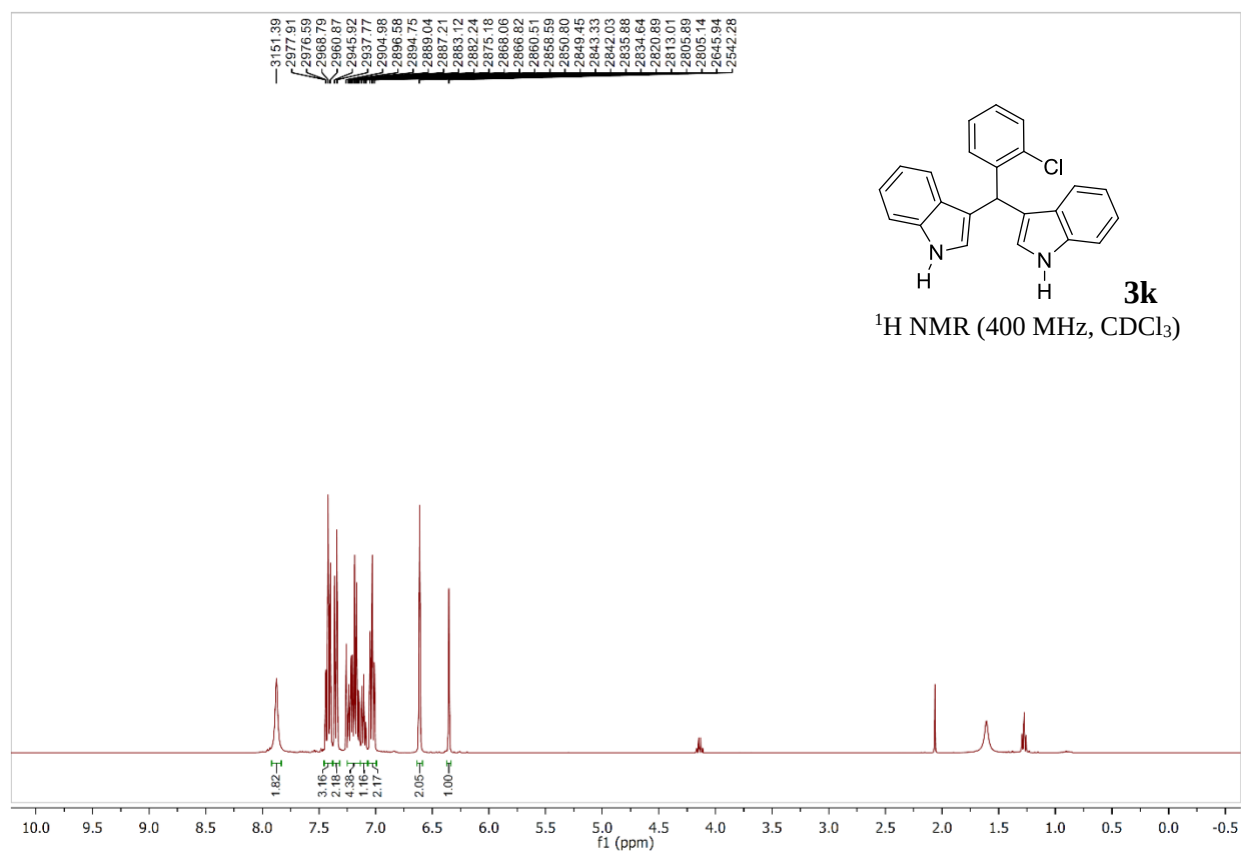


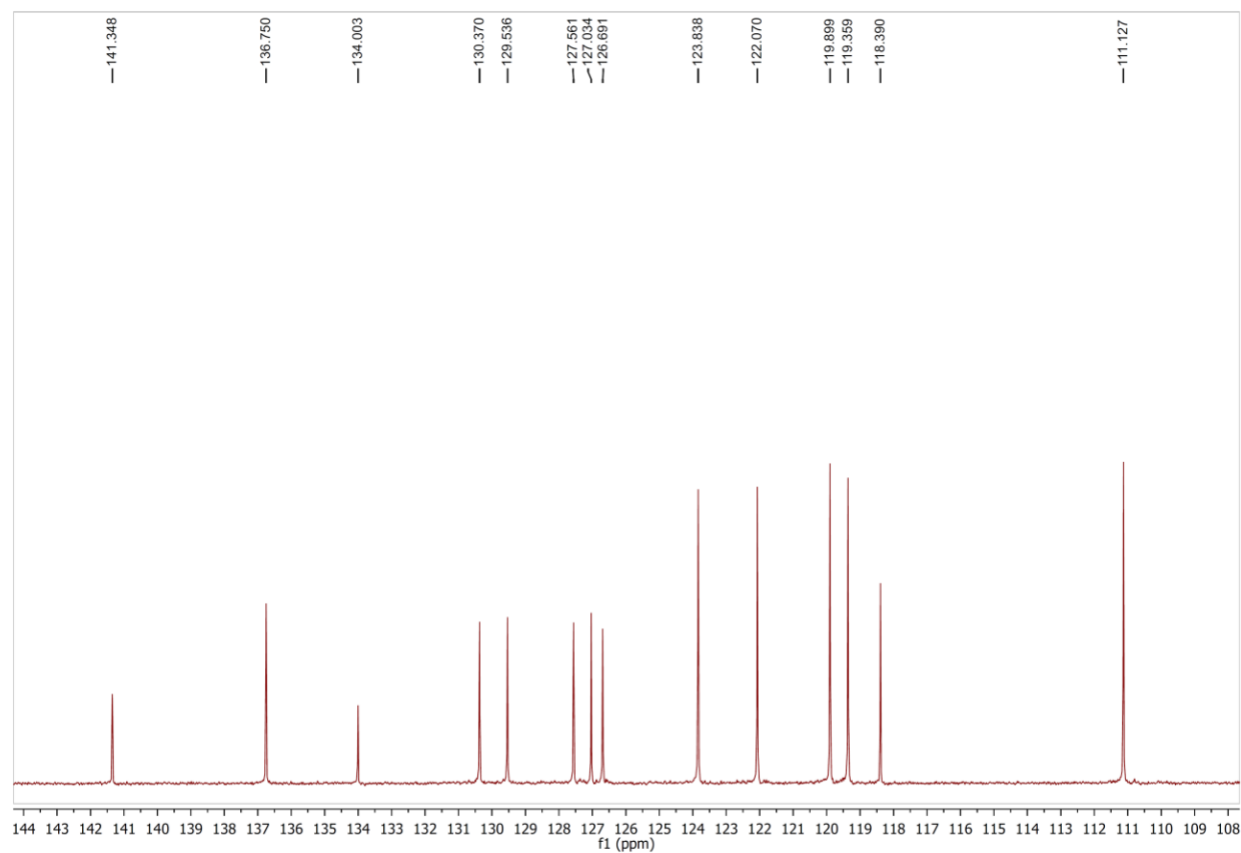
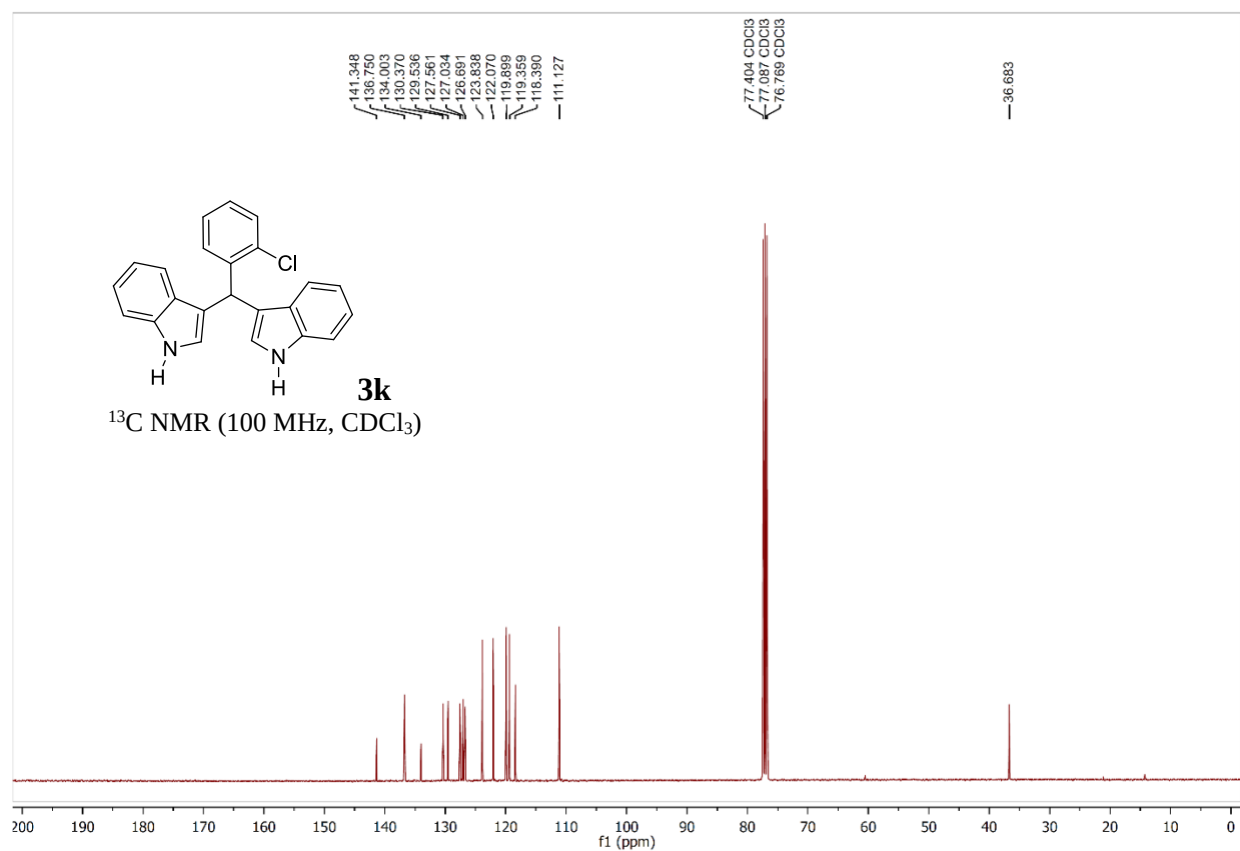
3,3'-((4-Fluorophenyl)methylene)bis(1*H*-indole) (3j)

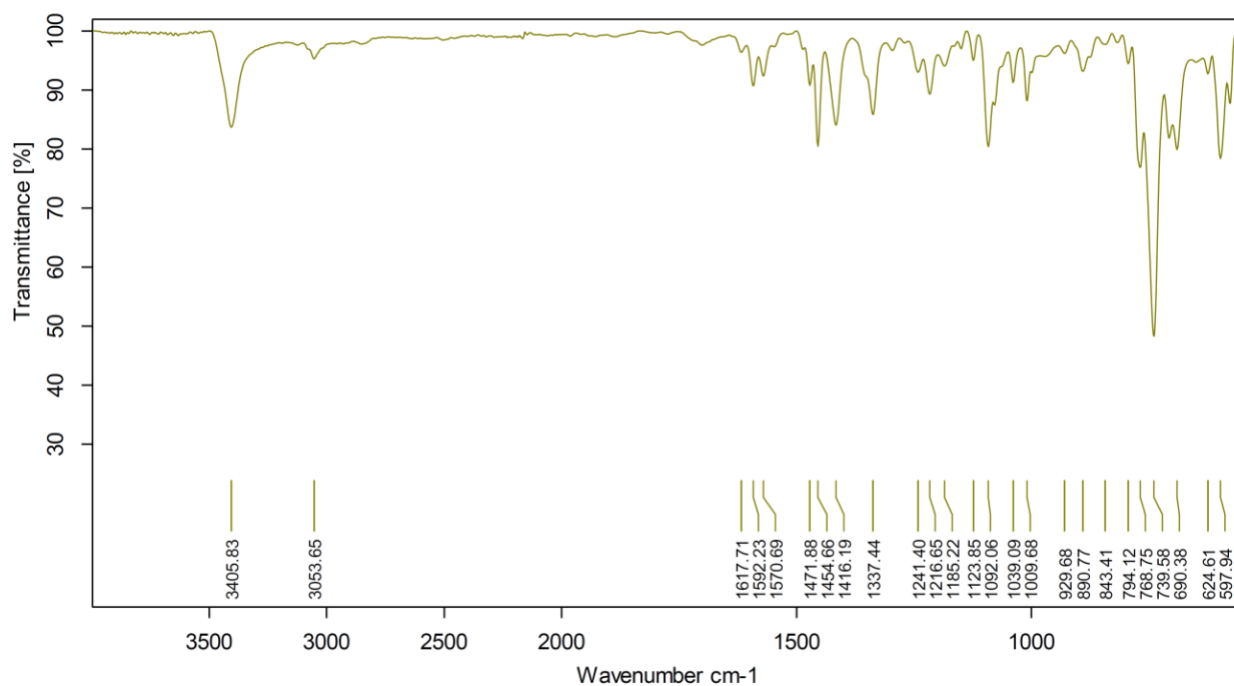
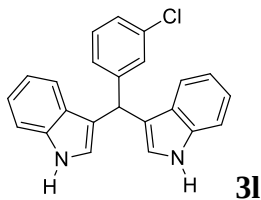


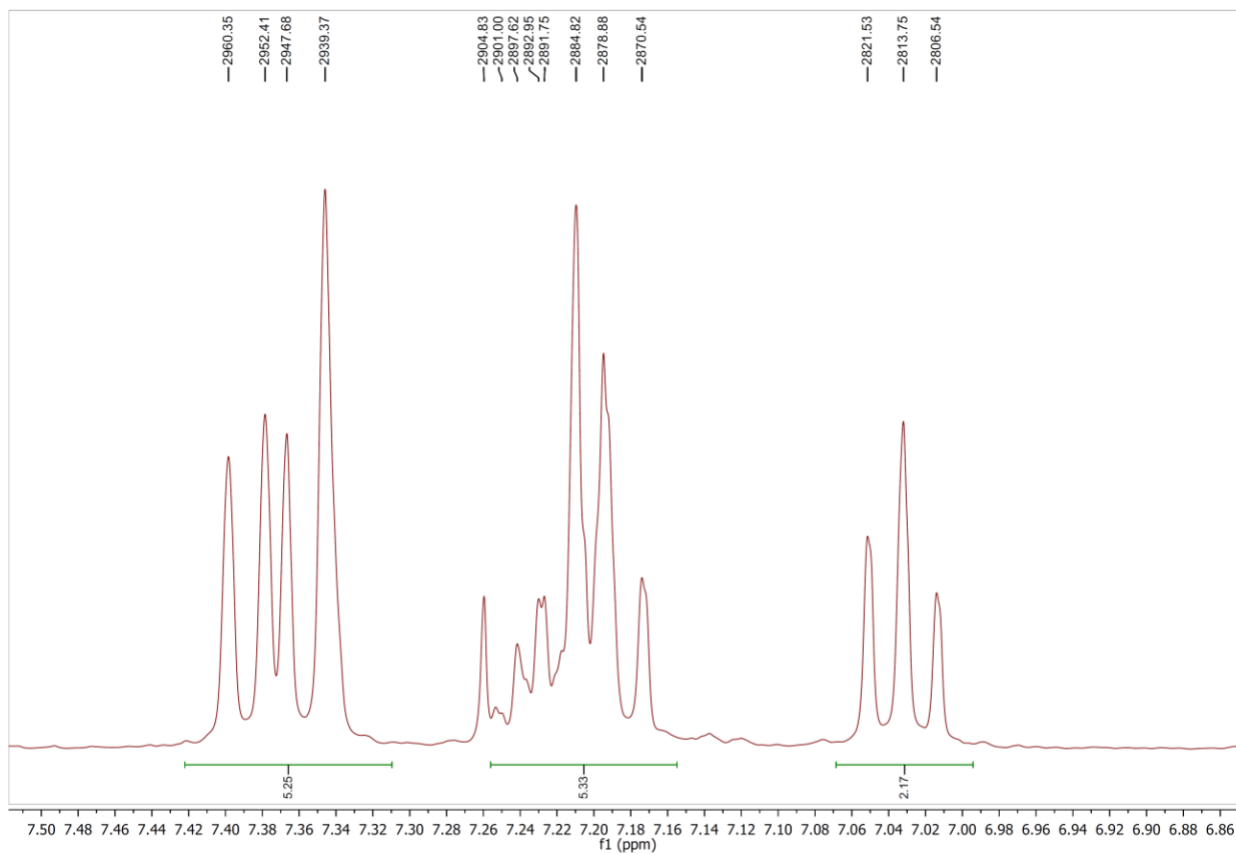
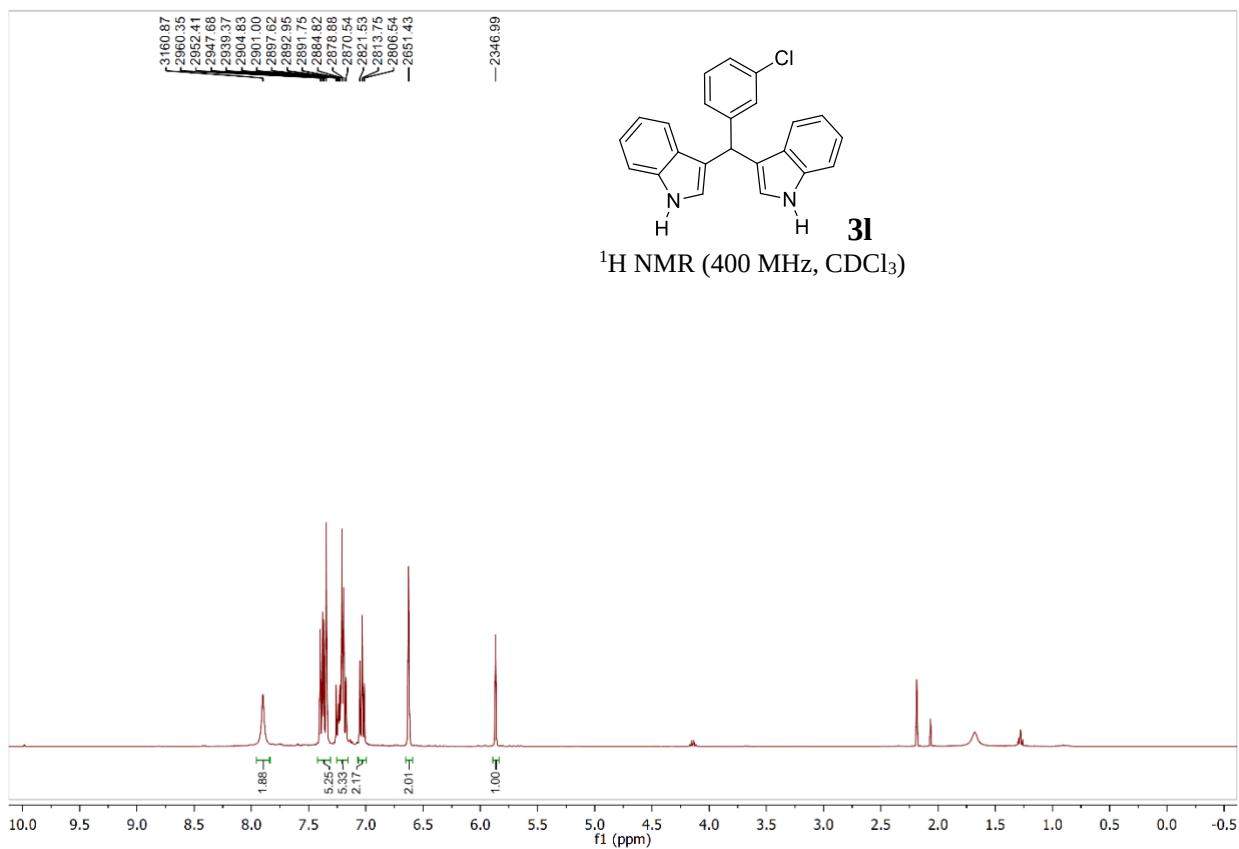


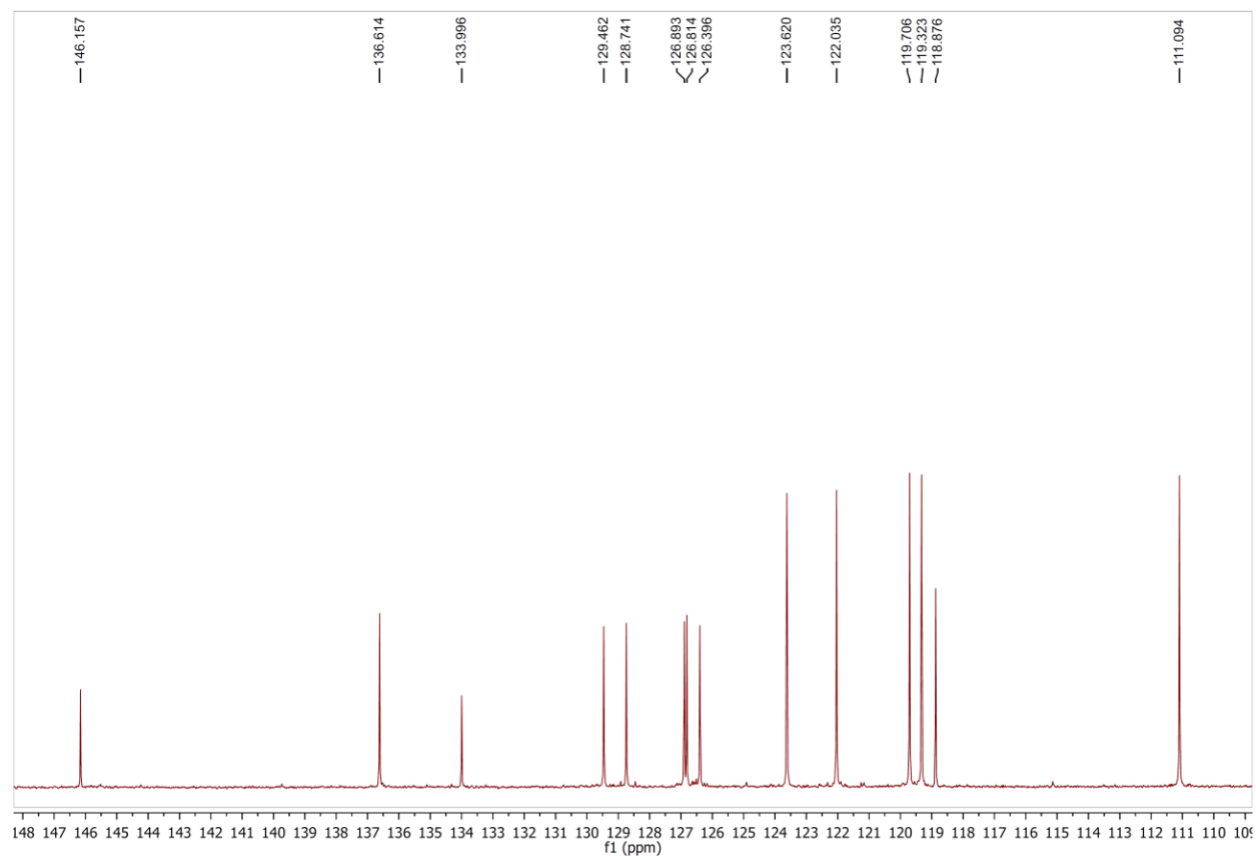
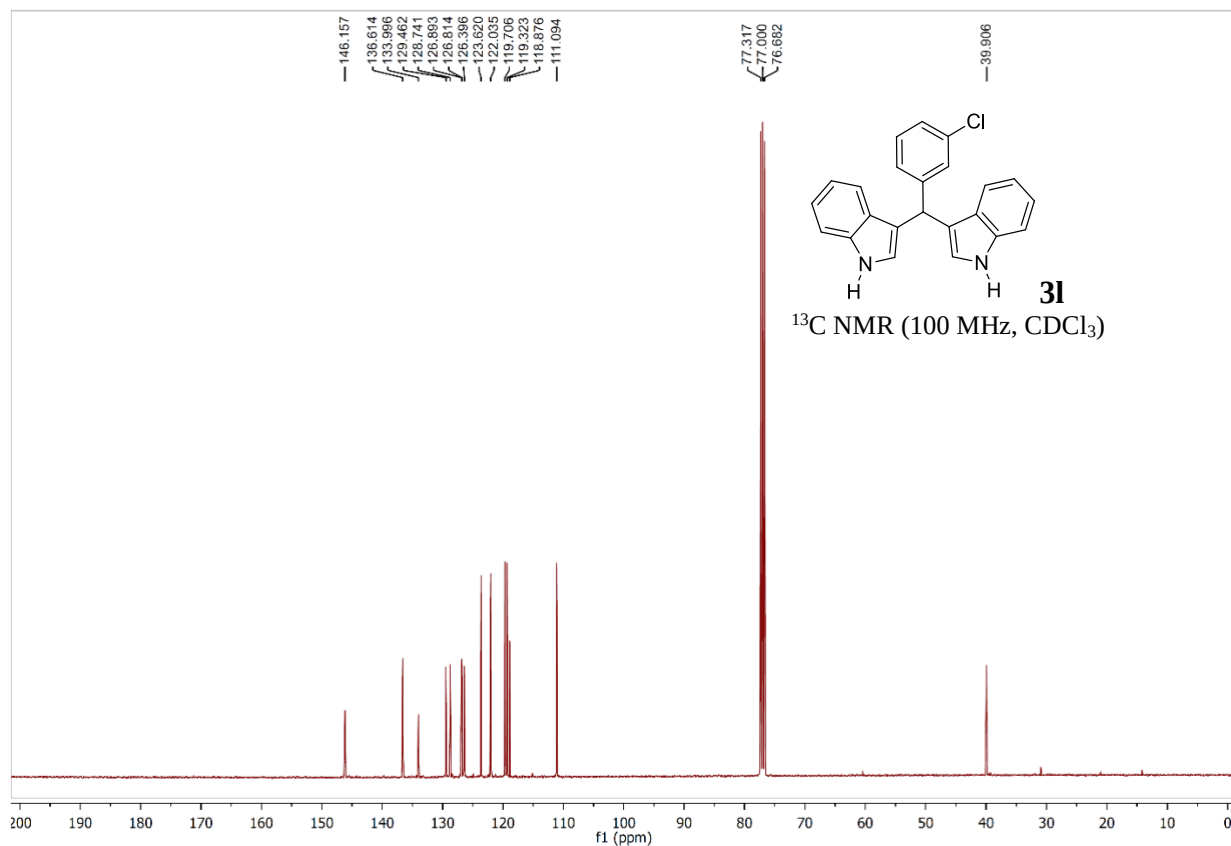
3,3'-((2-Chlorophenyl)methylene)bis(1H-indole) (3k)

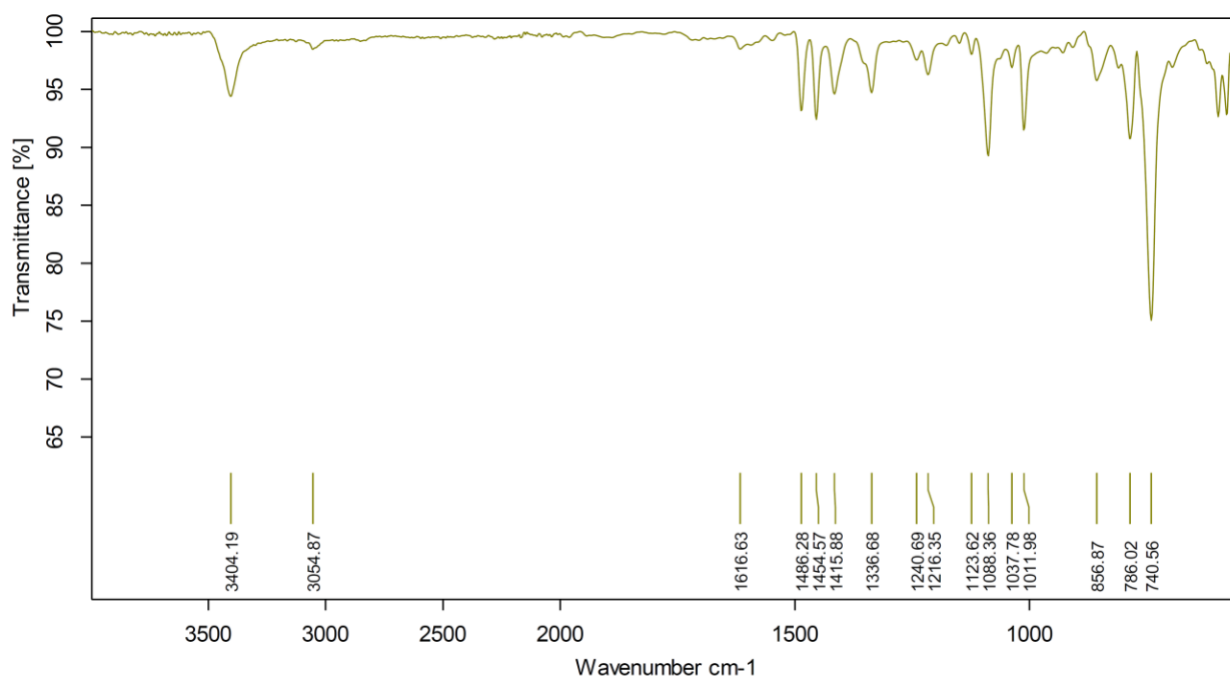
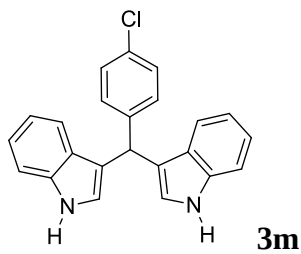


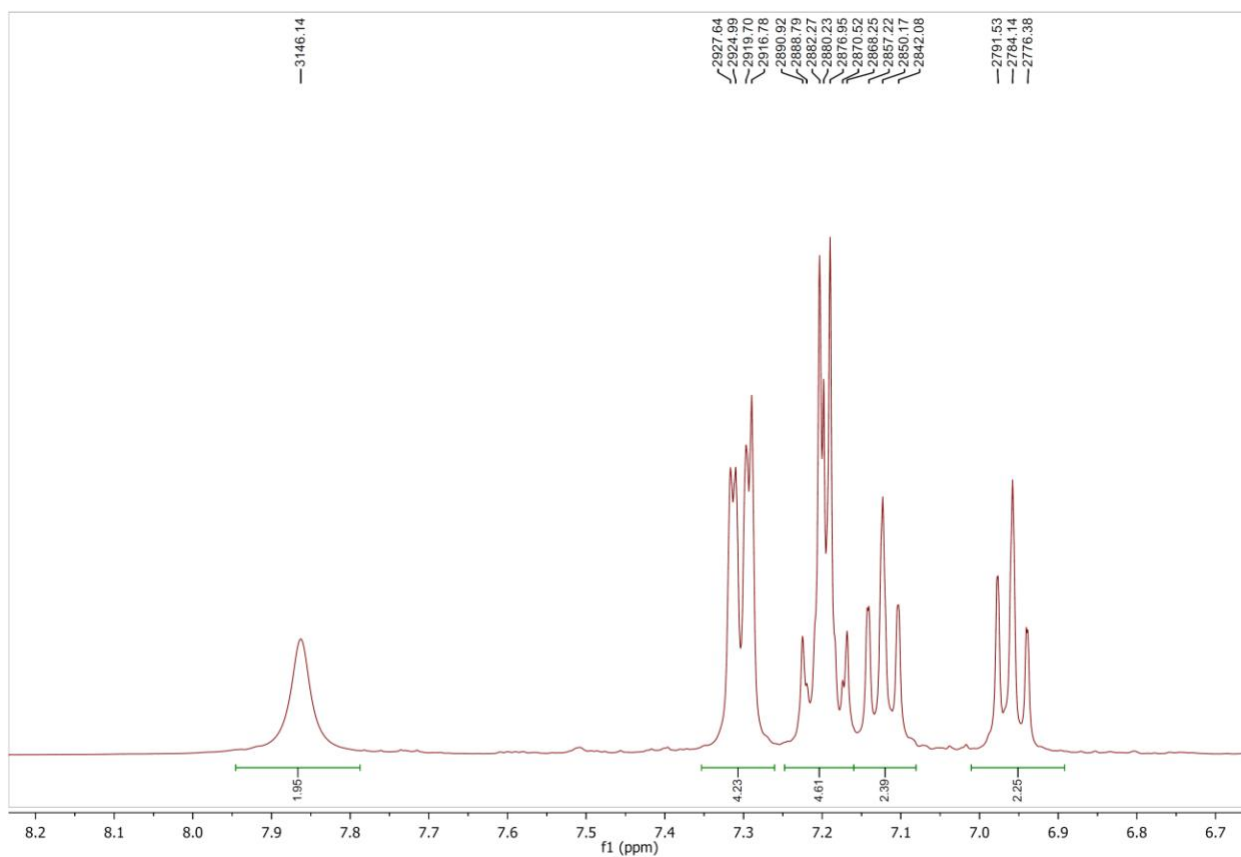
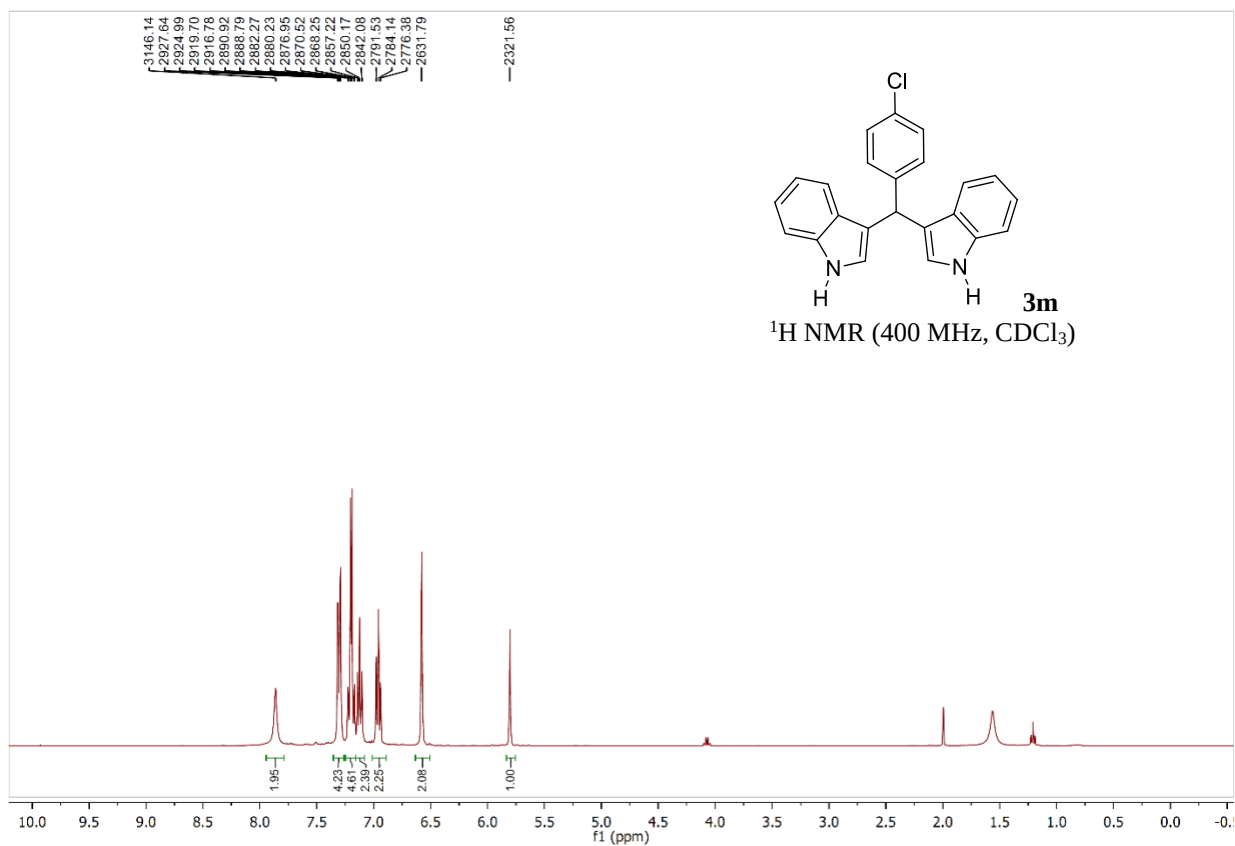
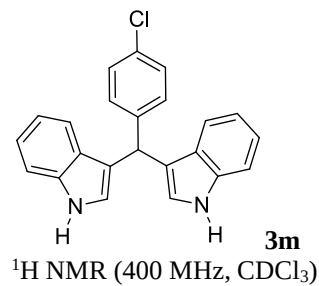


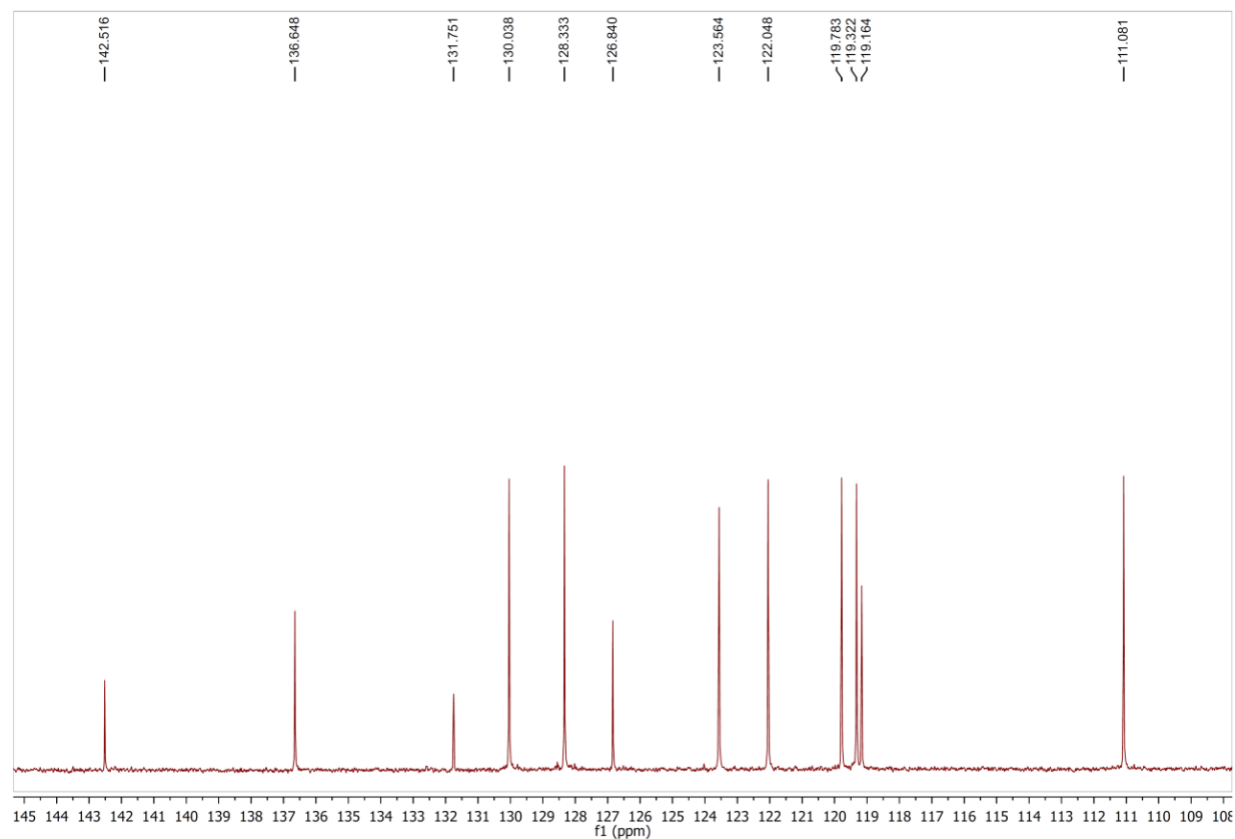
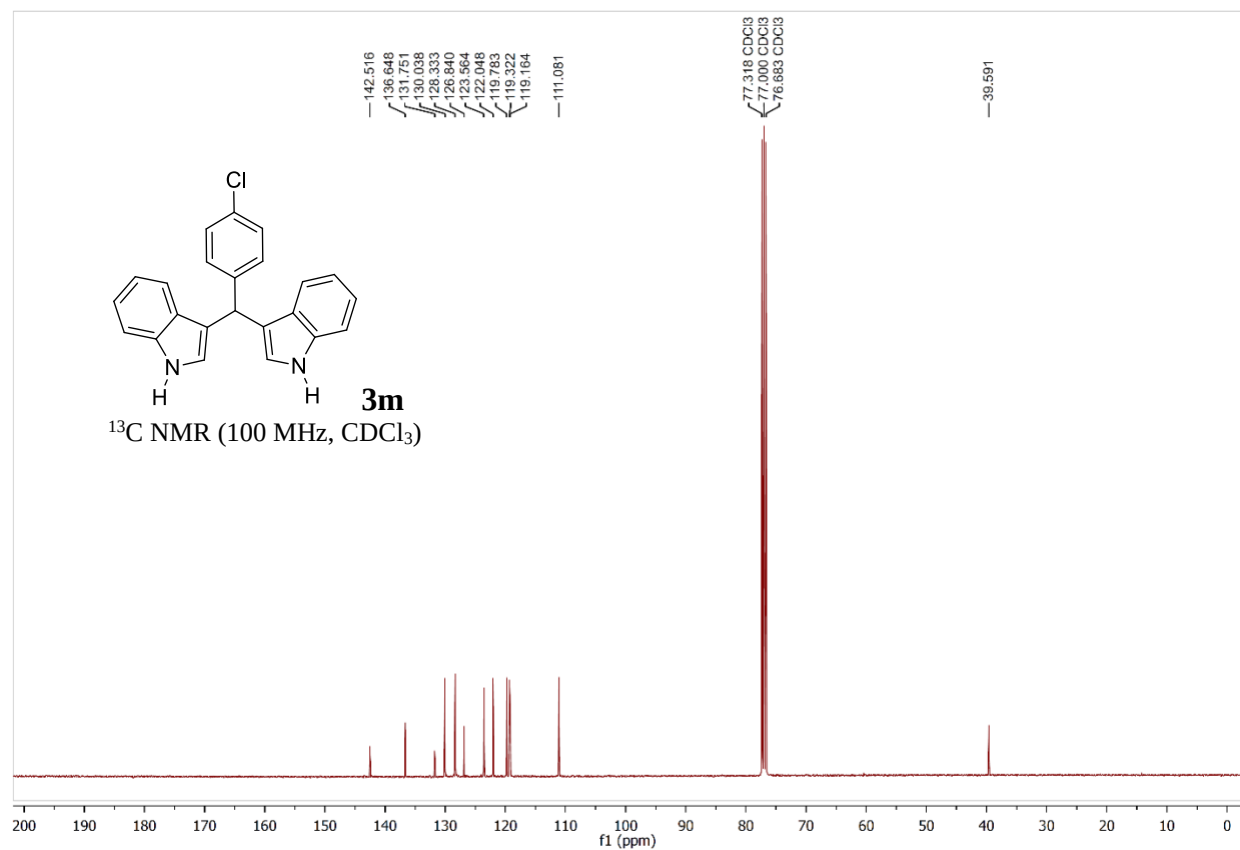
3,3'-((3-Chlorophenyl)methylene)bis(1H-indole) (**3l**)

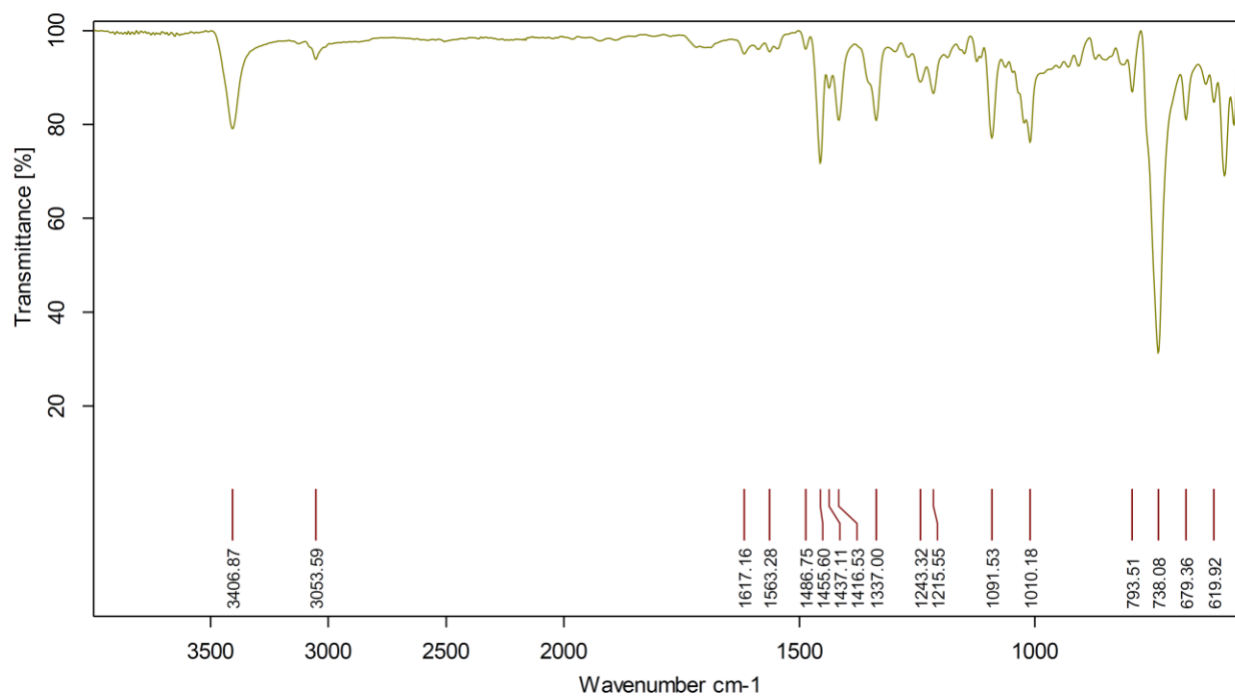
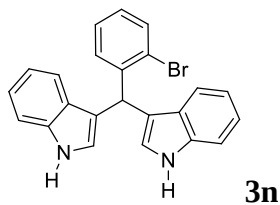


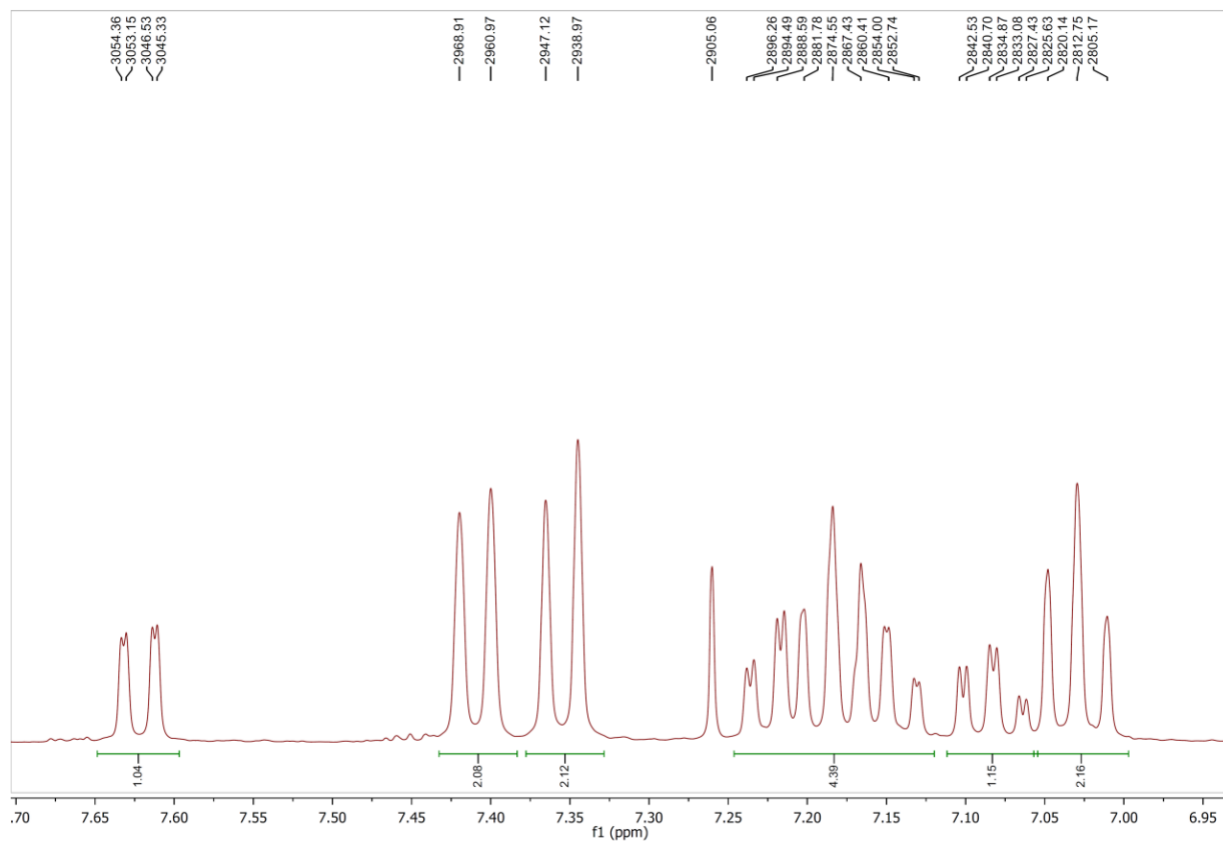
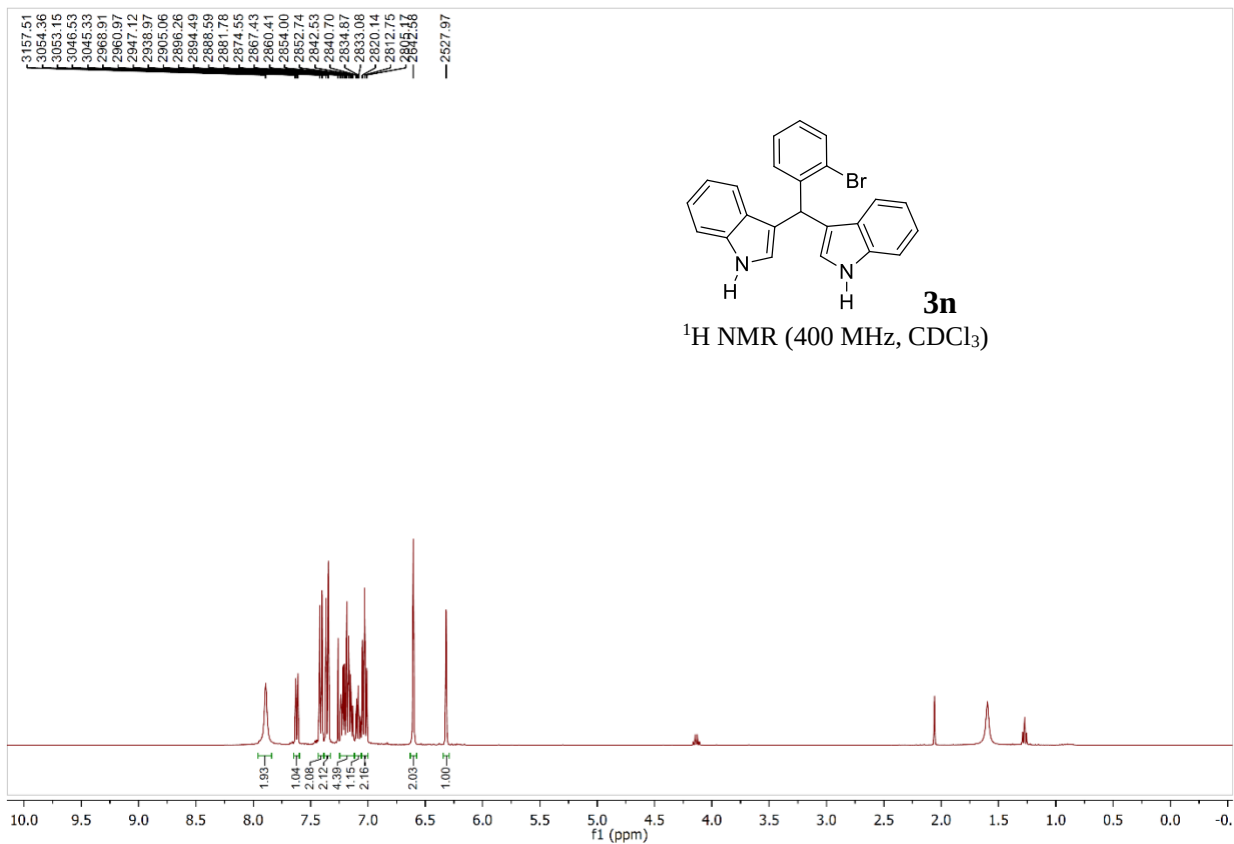


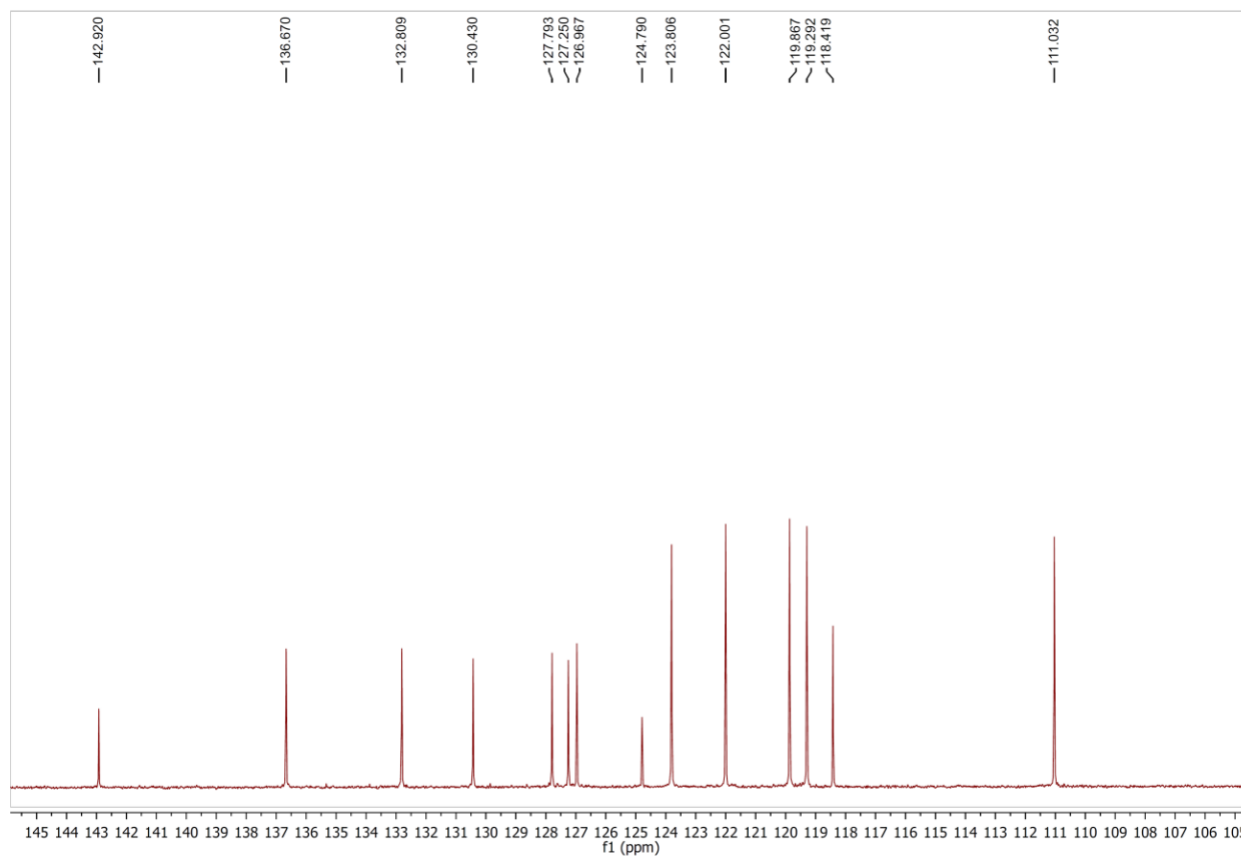
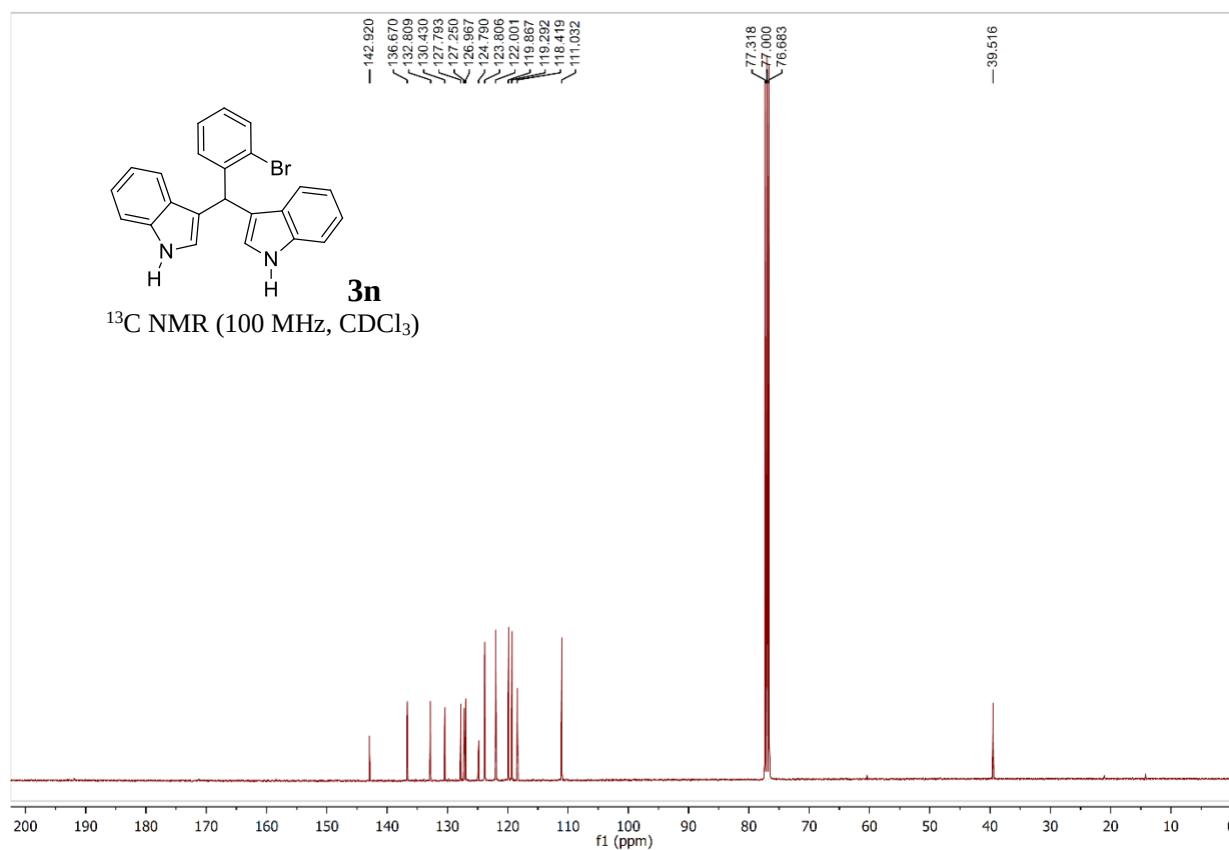
3,3'-((4-Chlorophenyl)methylene)bis(1H-indole) (**3m**)

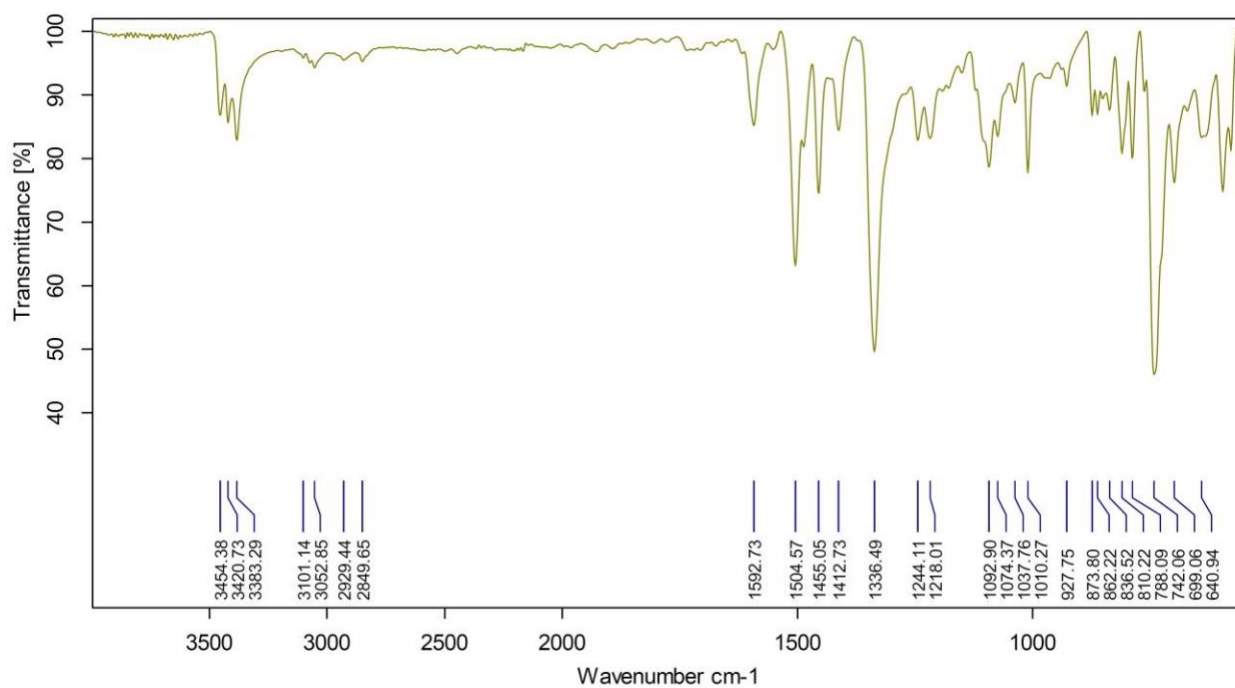
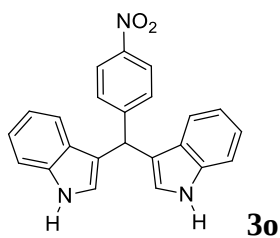


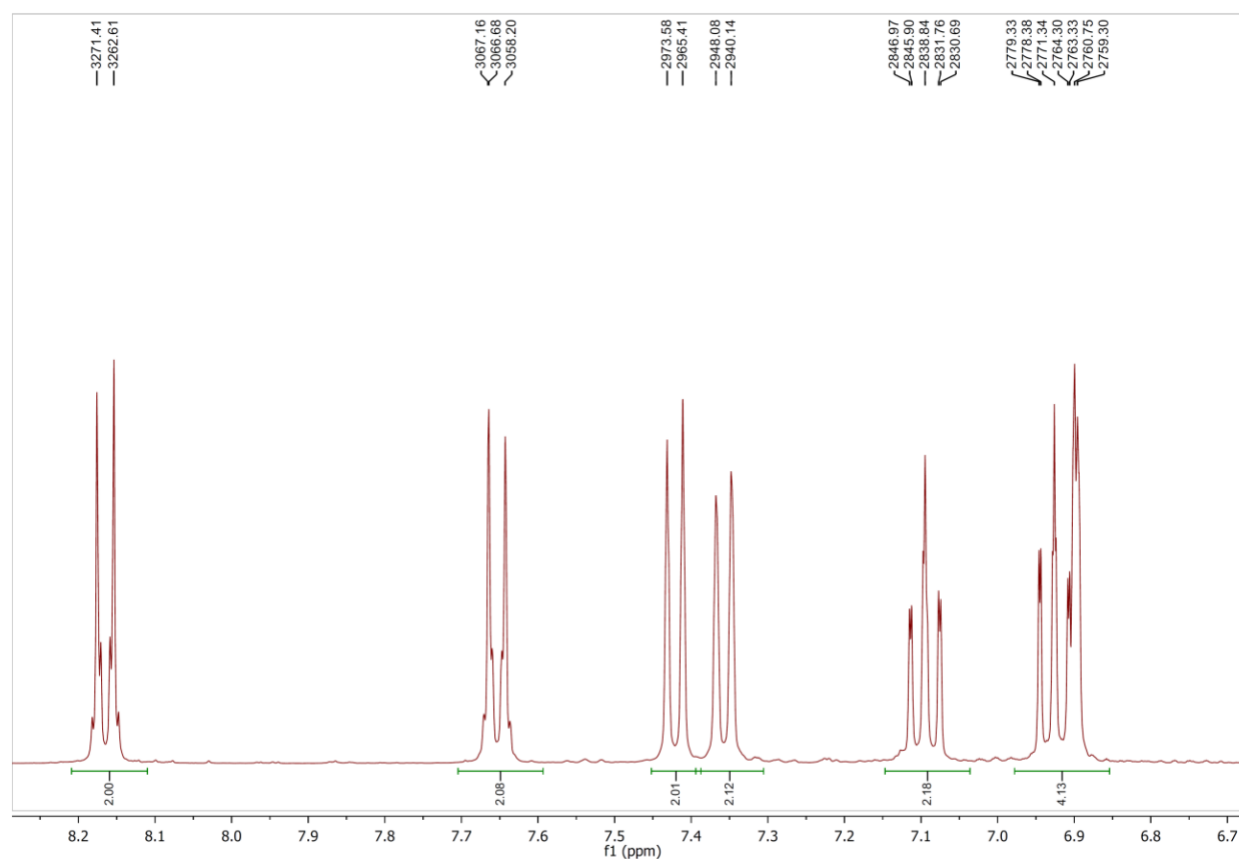
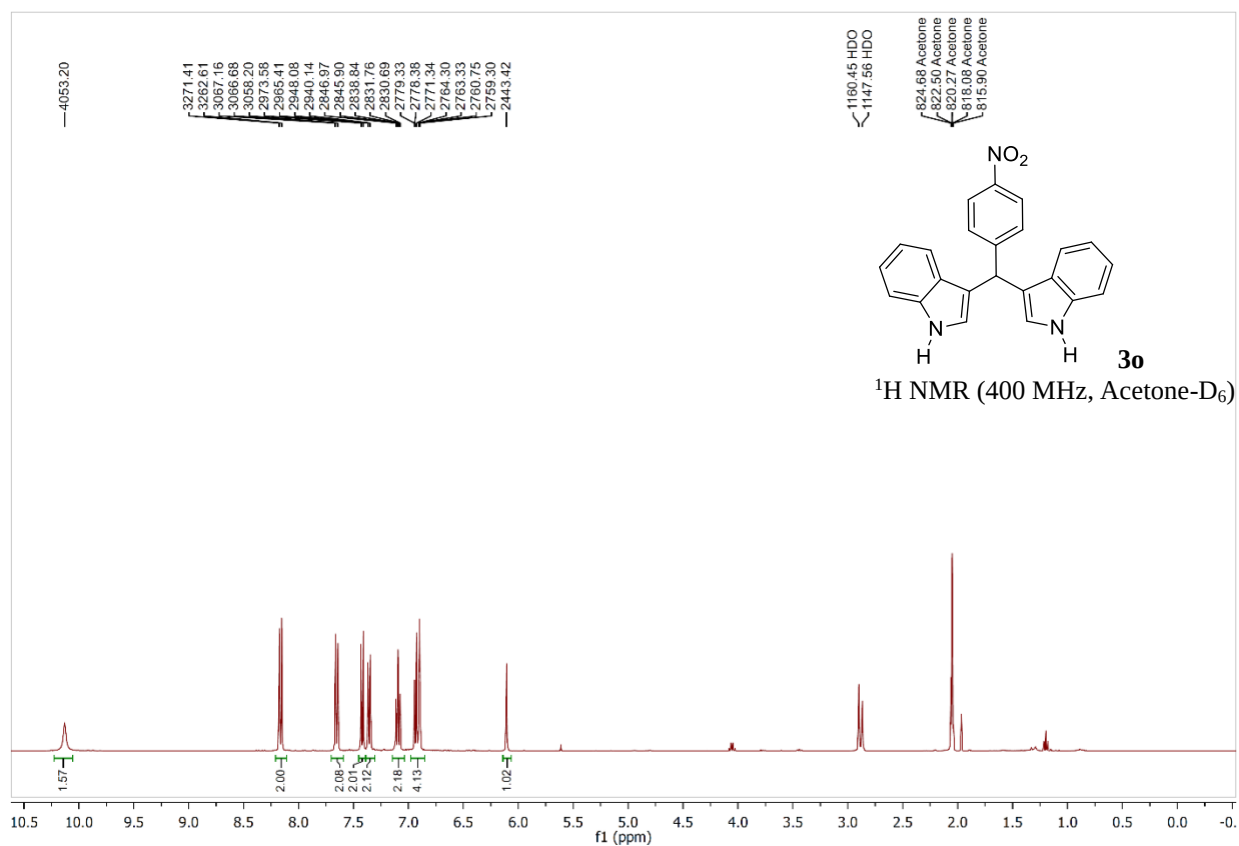


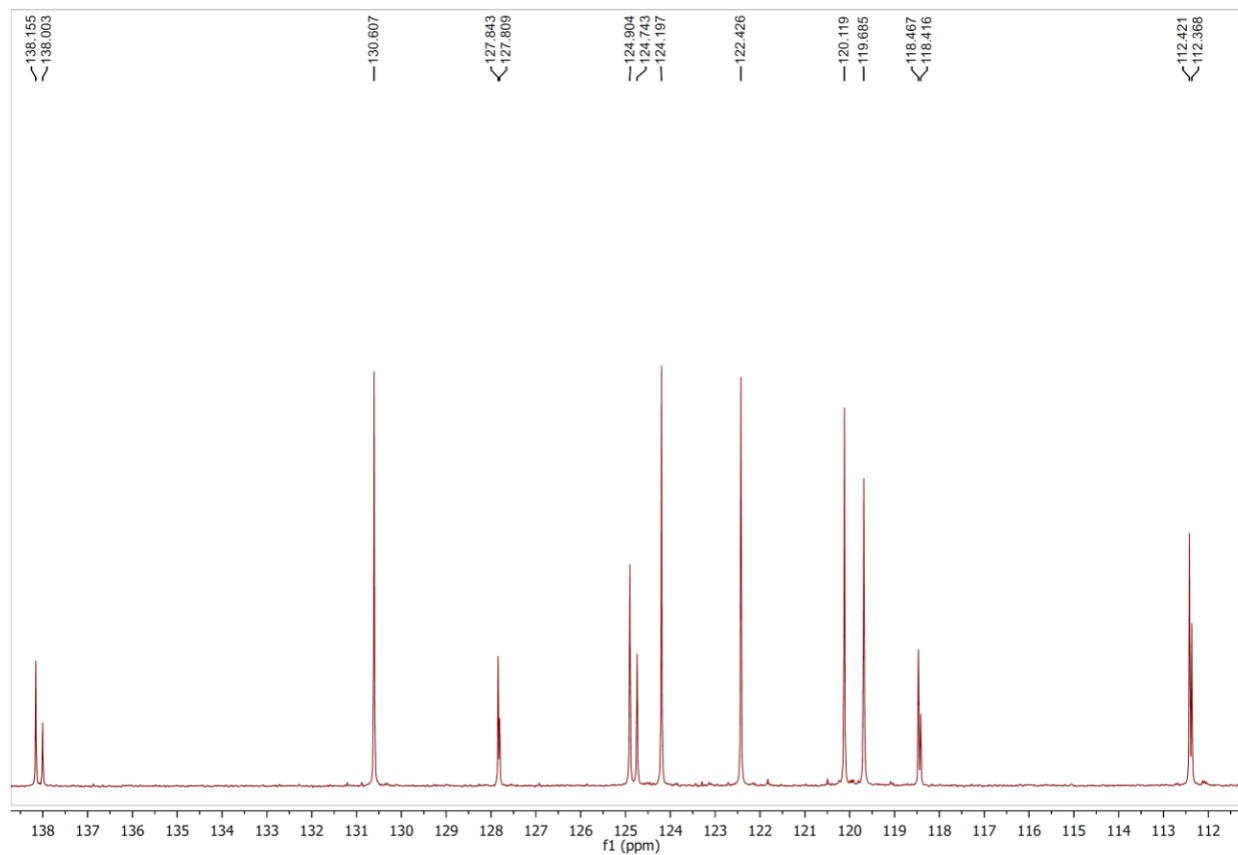
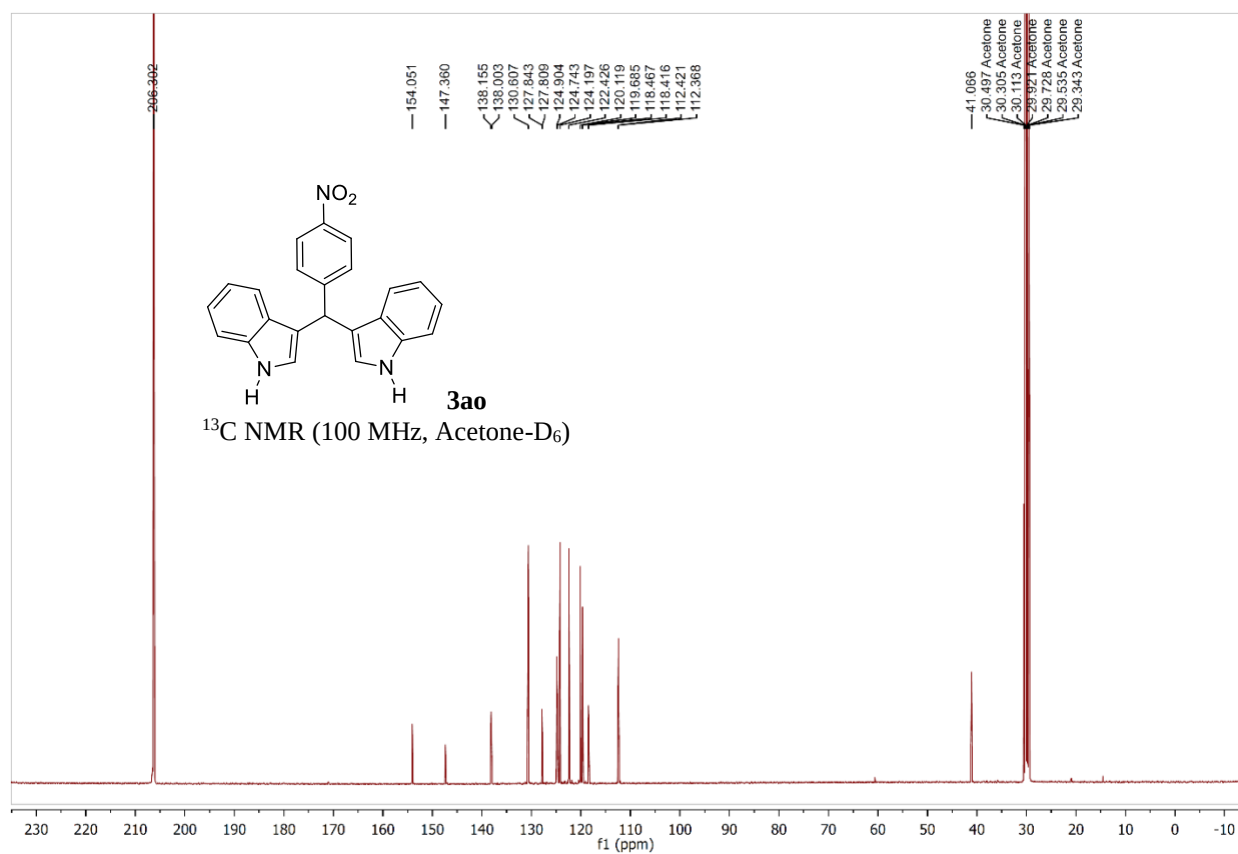
3,3'-((2-Bromophenyl)methylene)bis(1H-indole) (**3n**)

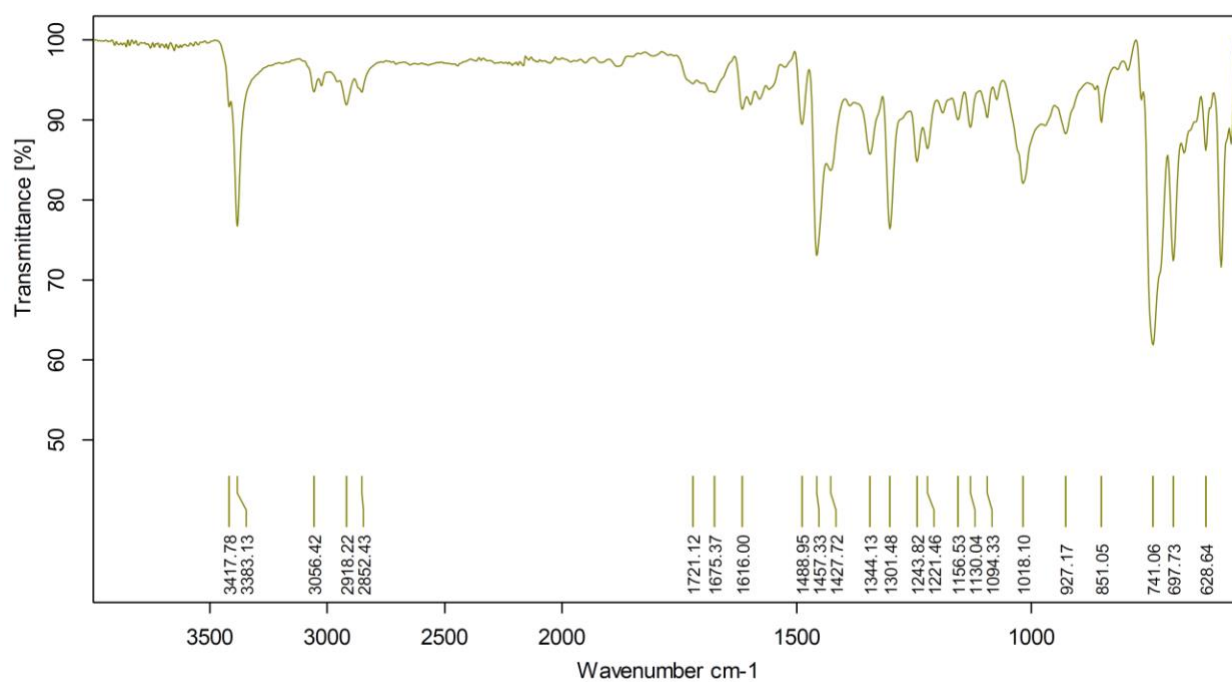
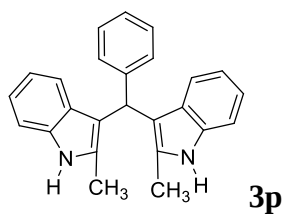


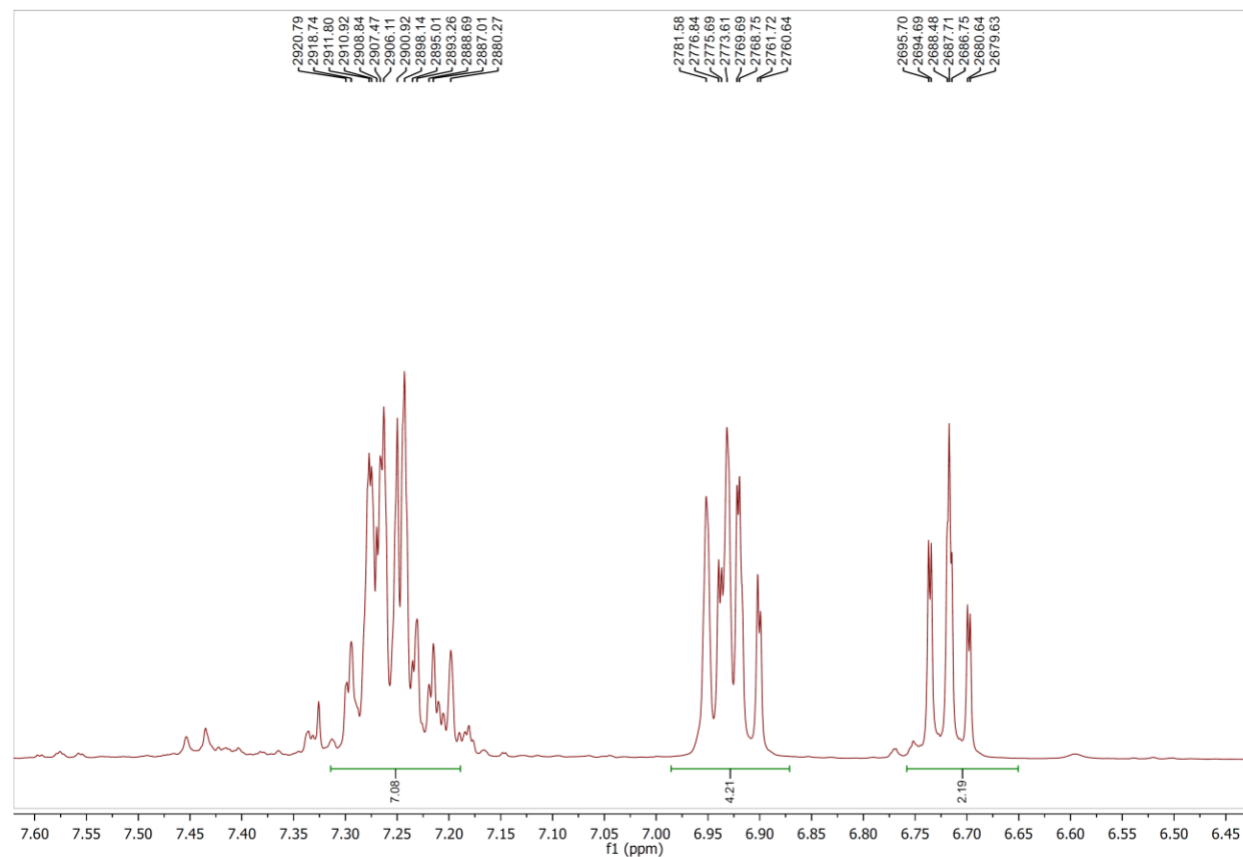
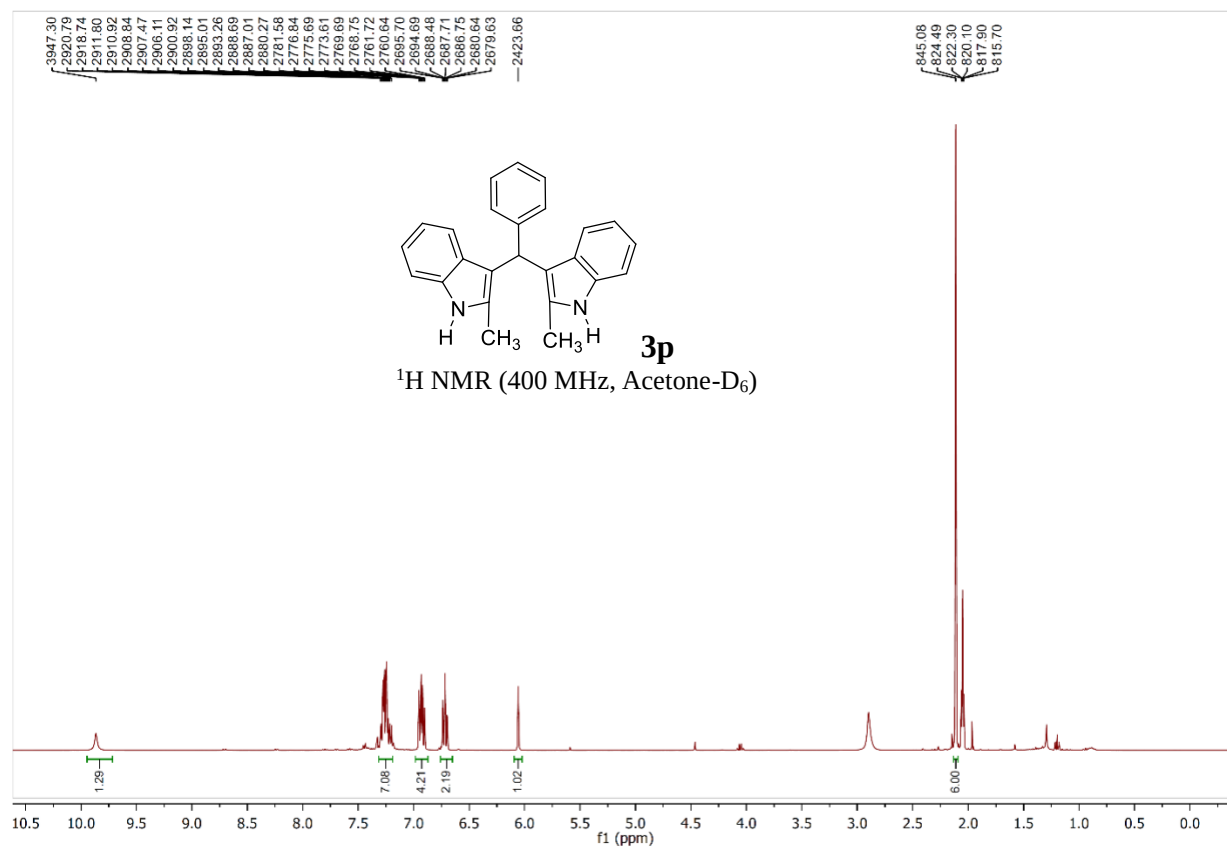


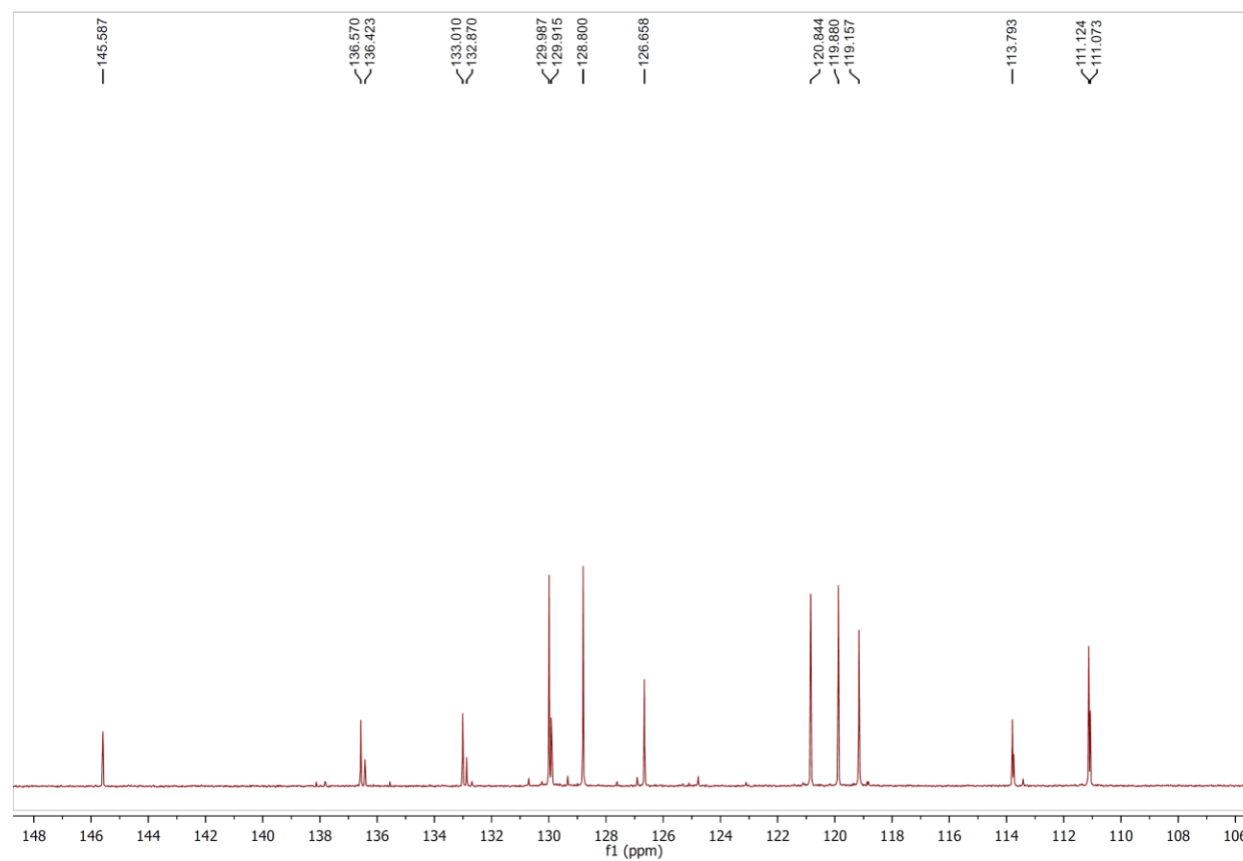
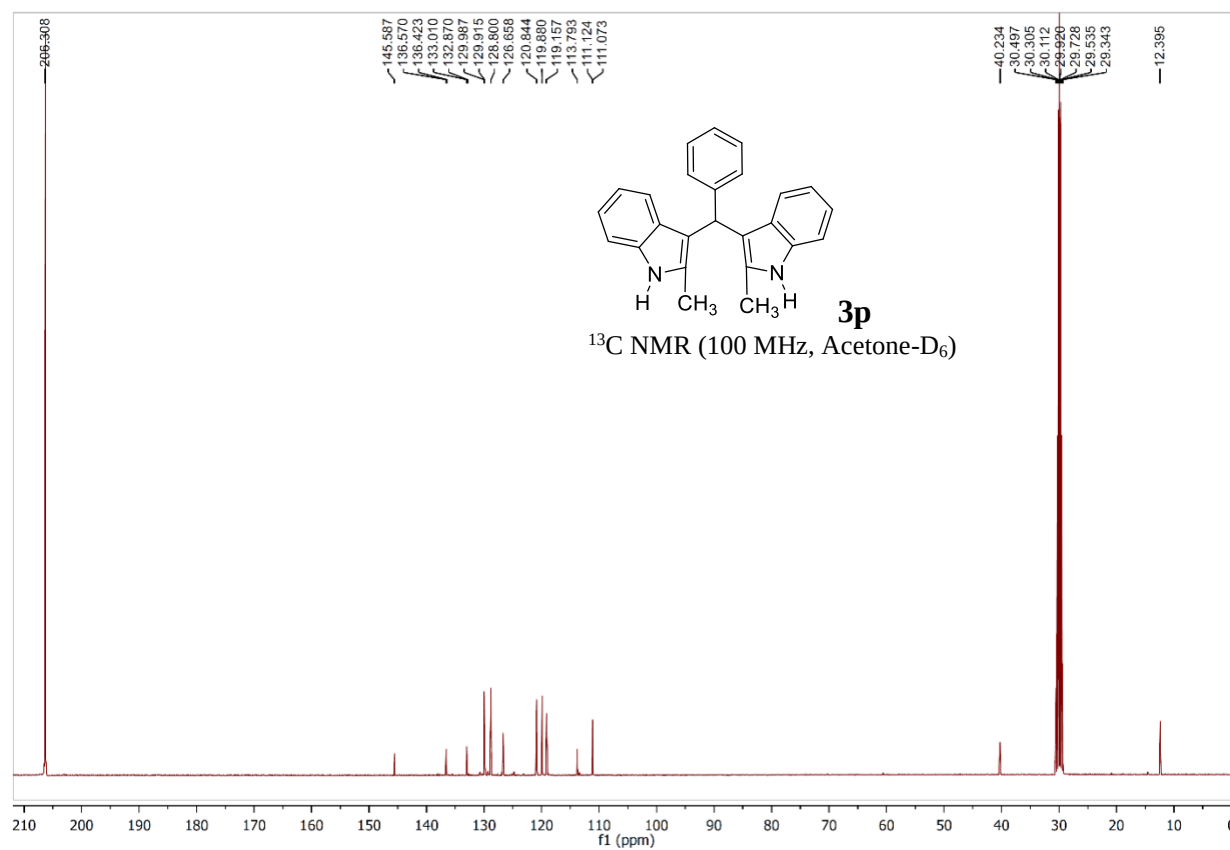
3,3'-((4-Nitrophenyl)methylene)bis(1H-indole) (**3o**)

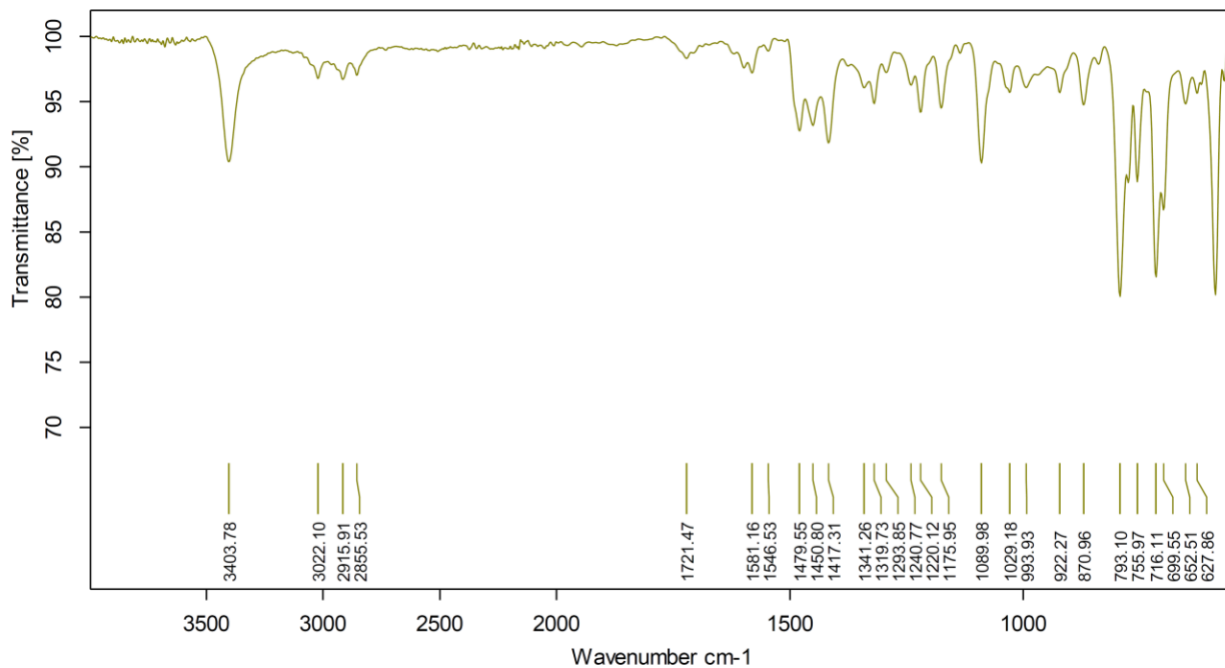
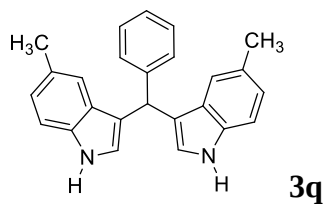


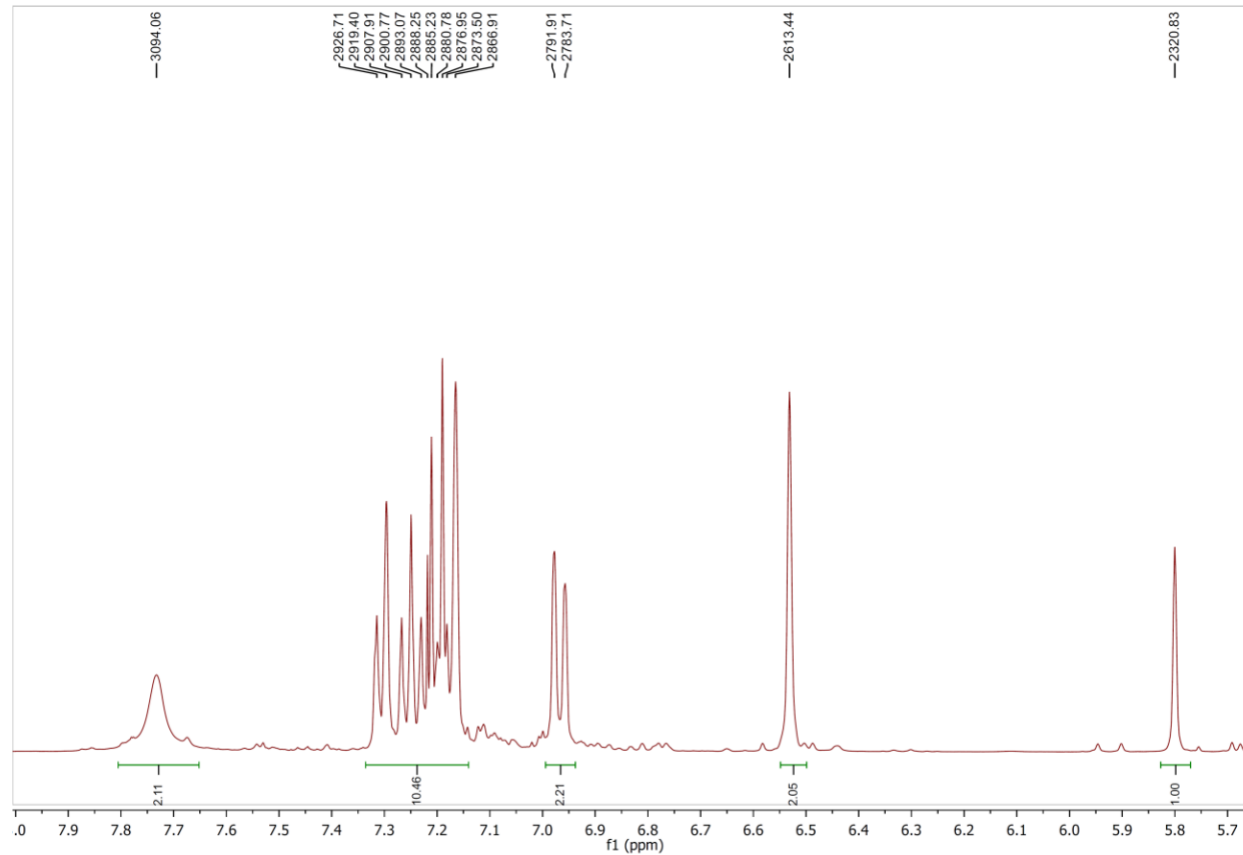
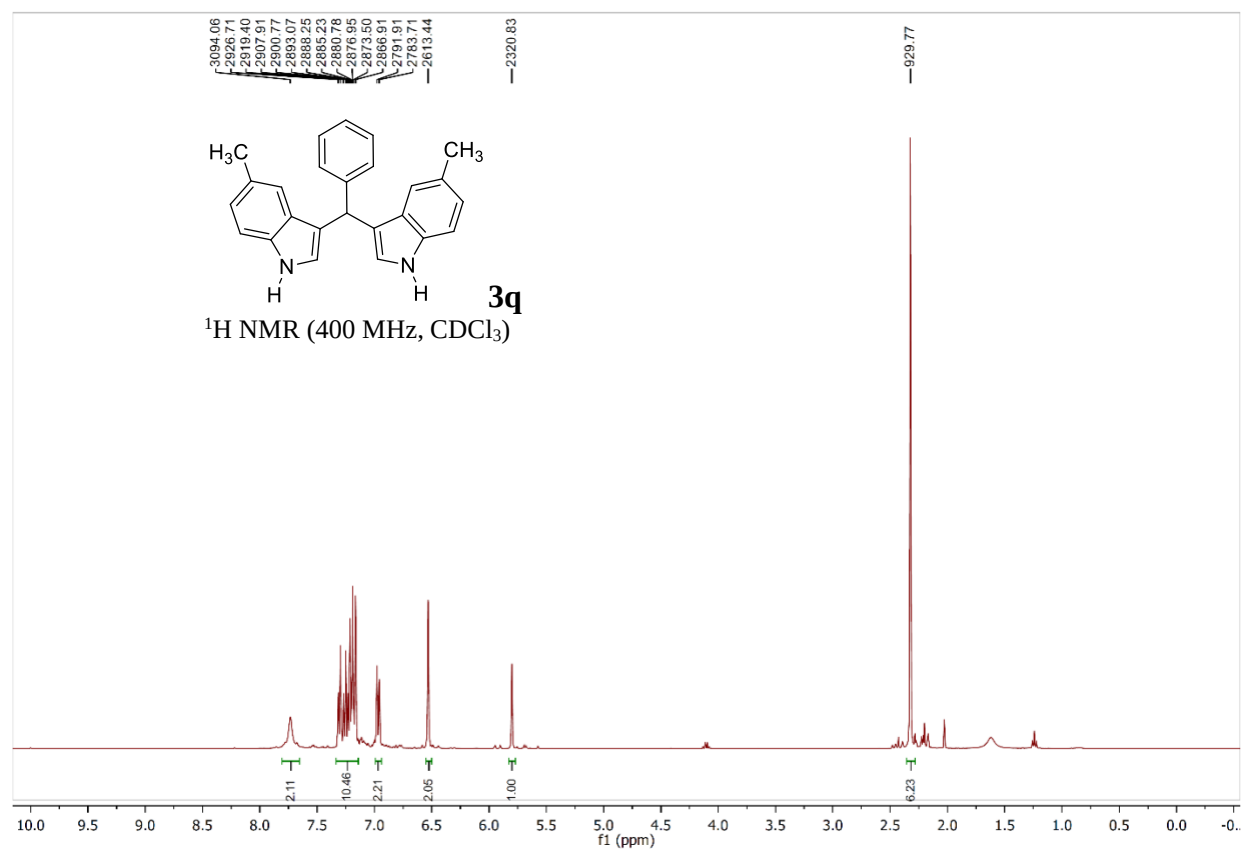


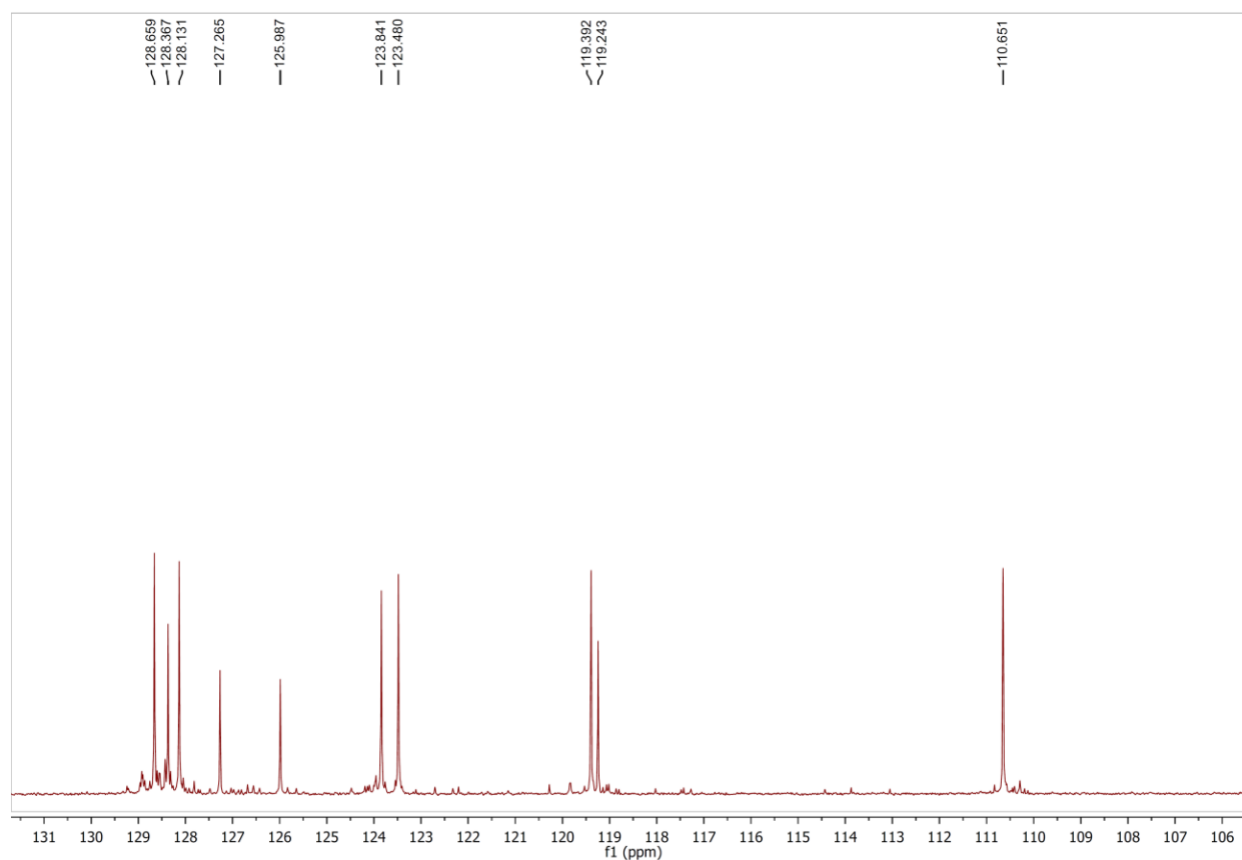
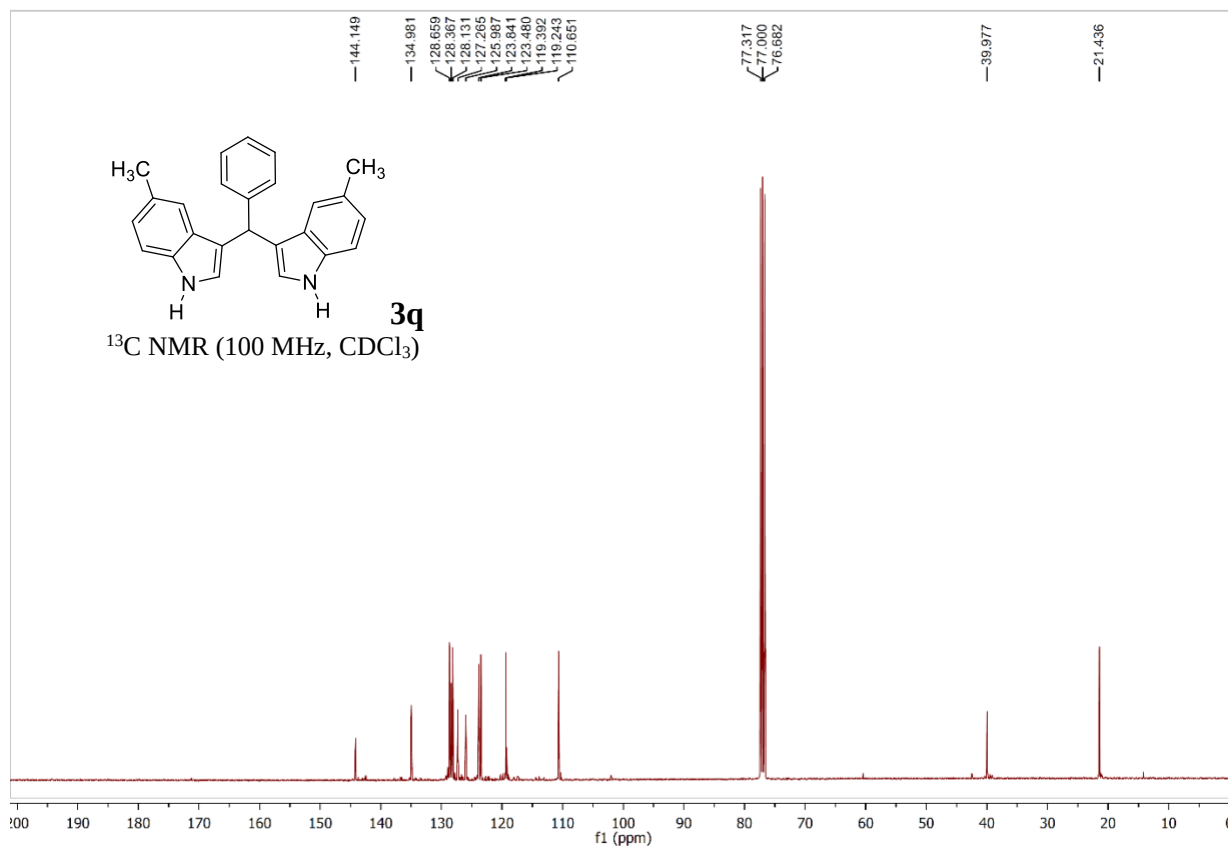
3,3'-(Phenylmethylene)bis(2-methyl-1*H*-indole) (3p)

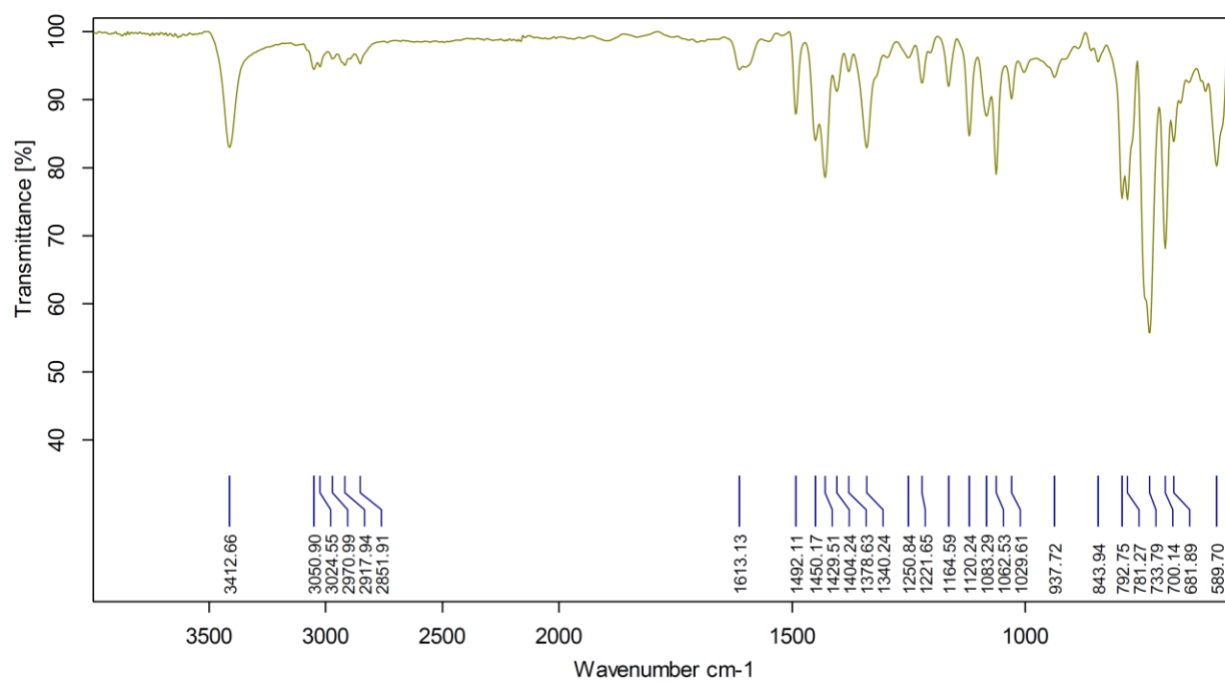
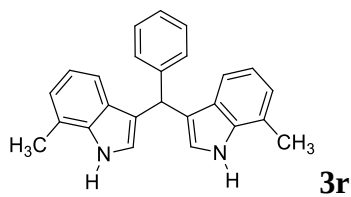


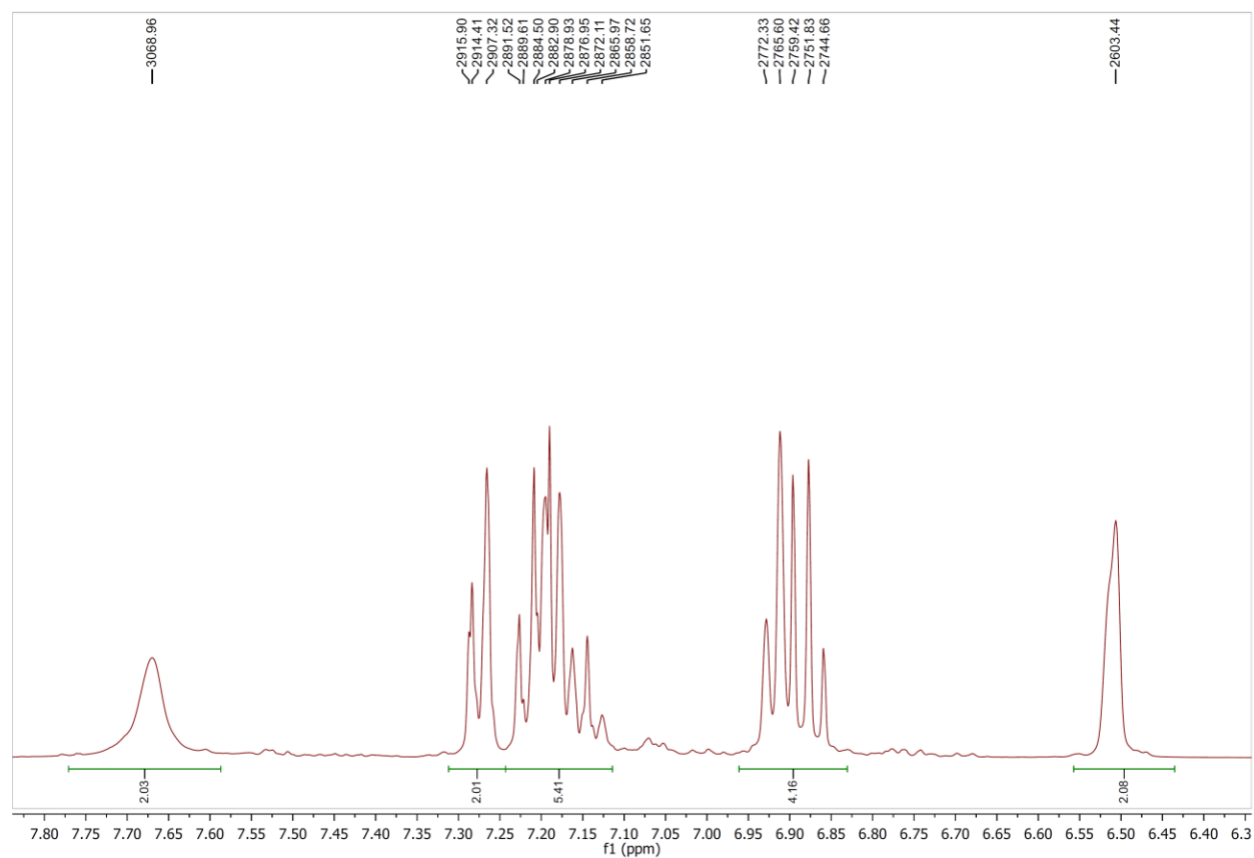
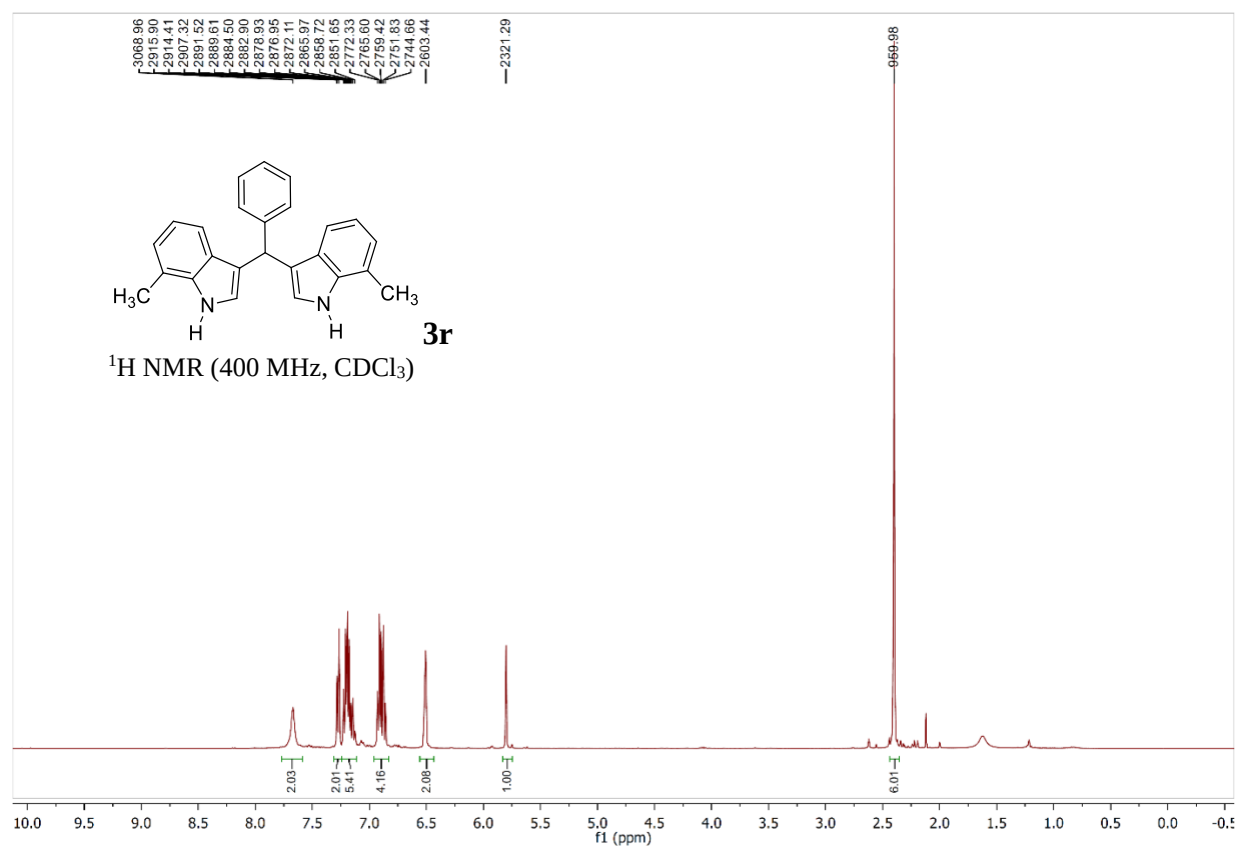


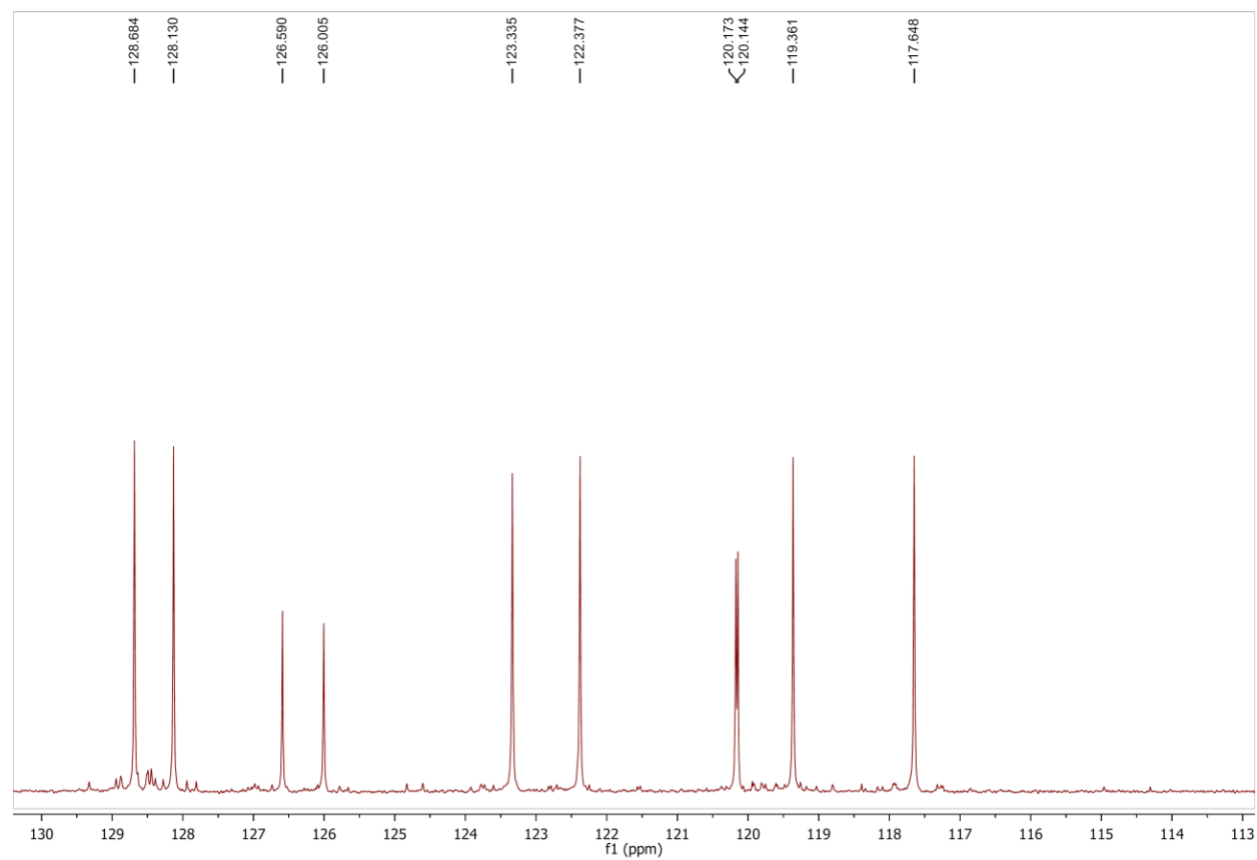
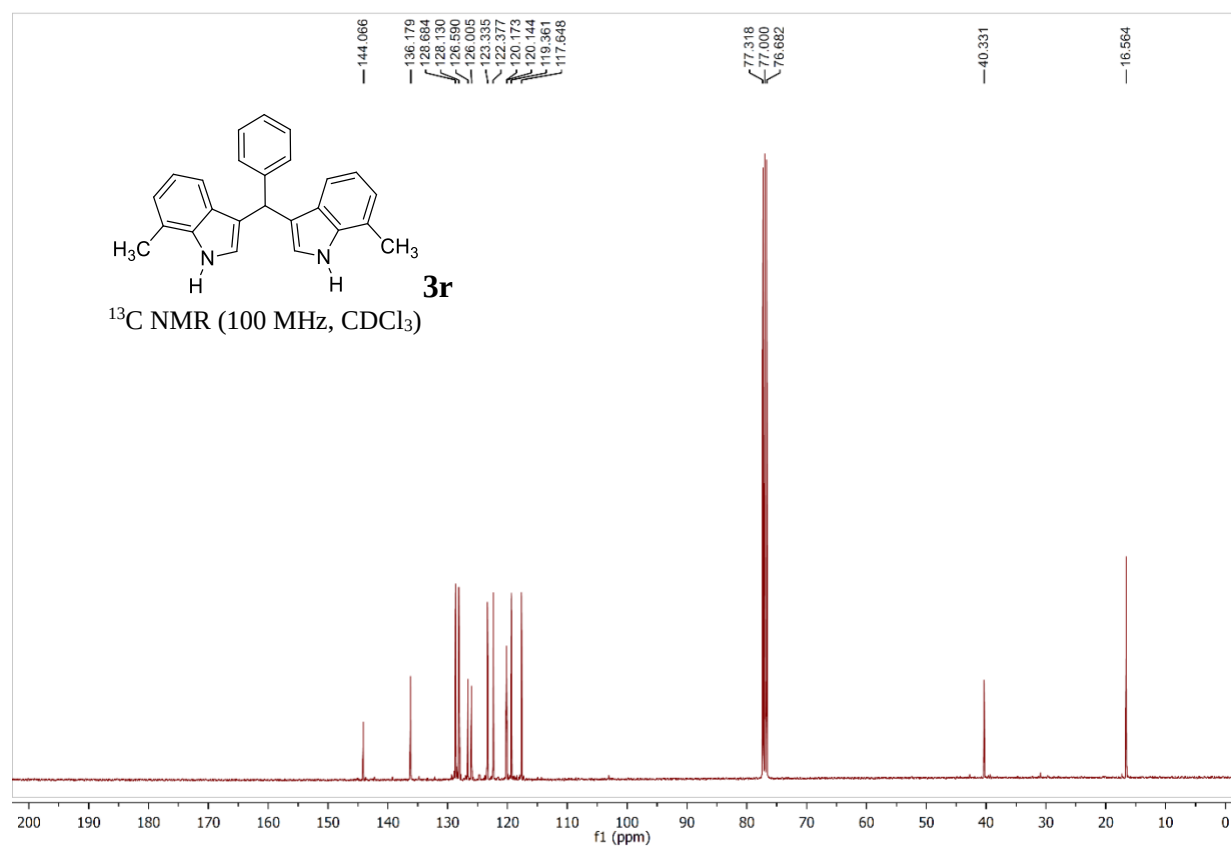
3,3'-(Phenylmethylene)bis(5-methyl-1*H*-indole) (3q)

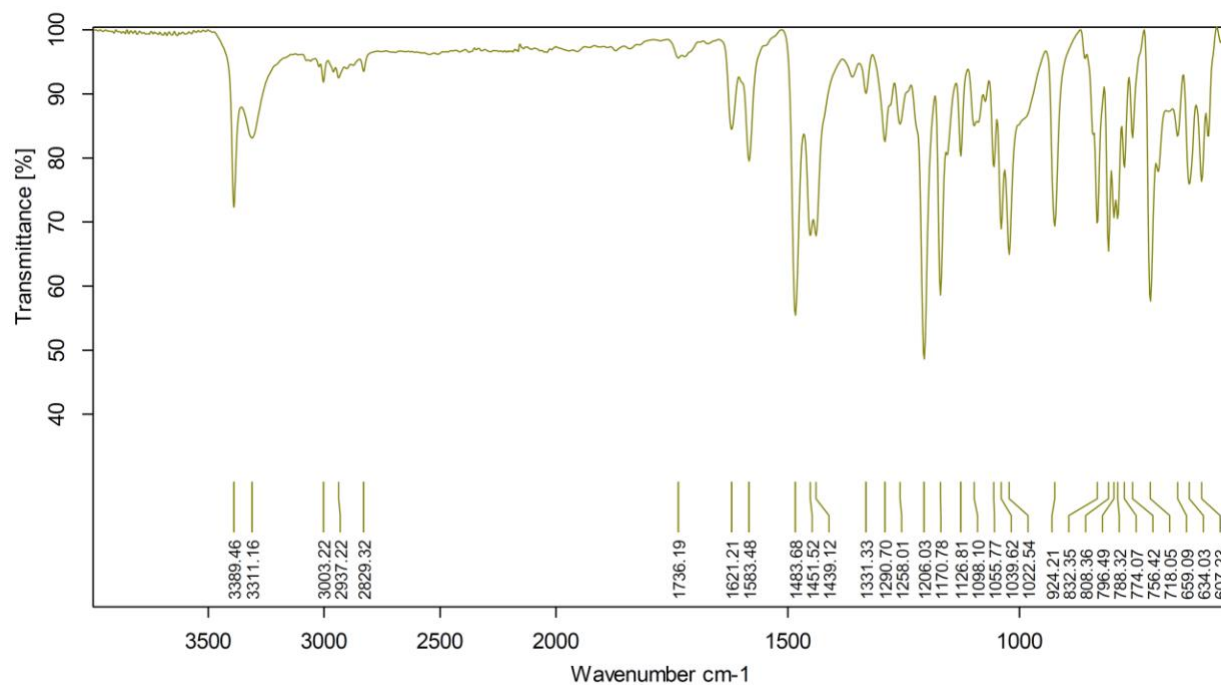
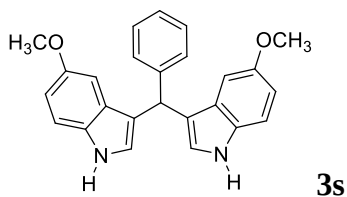


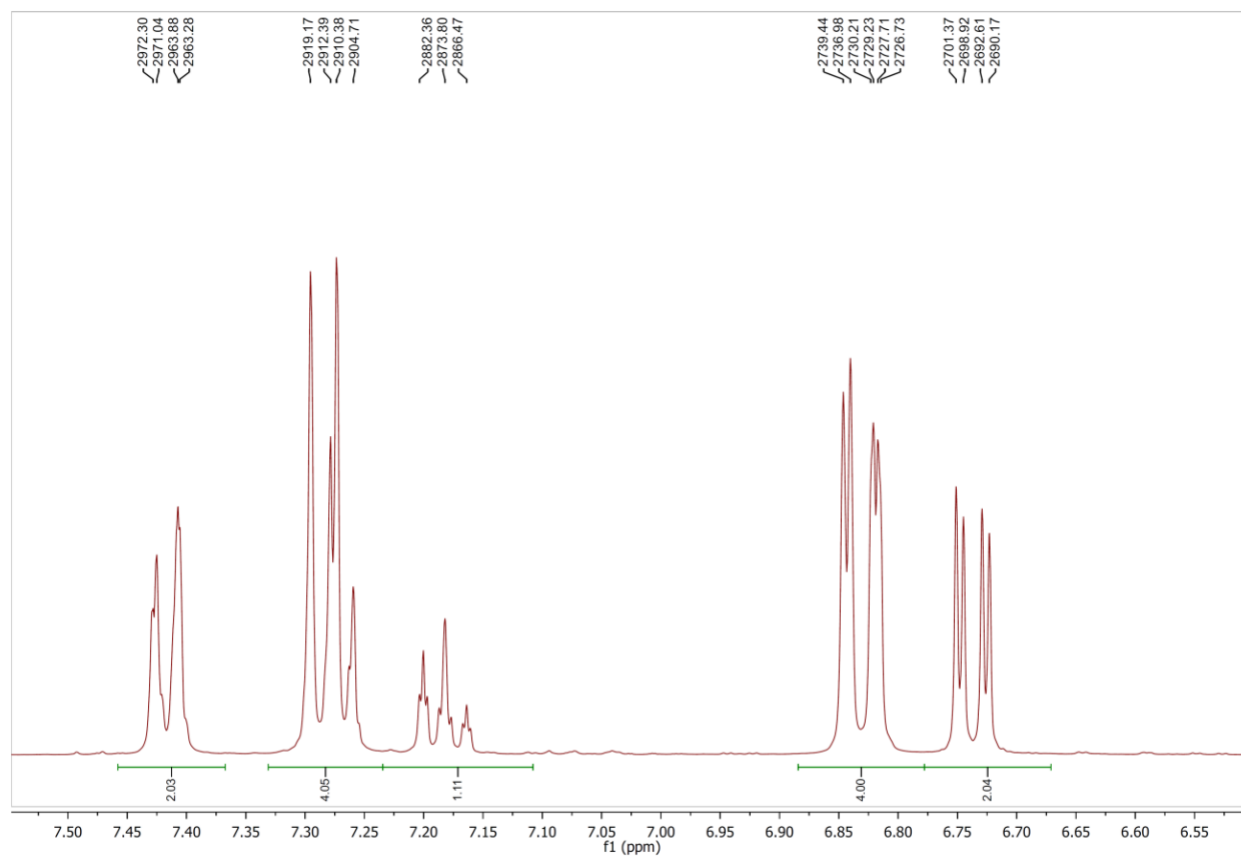
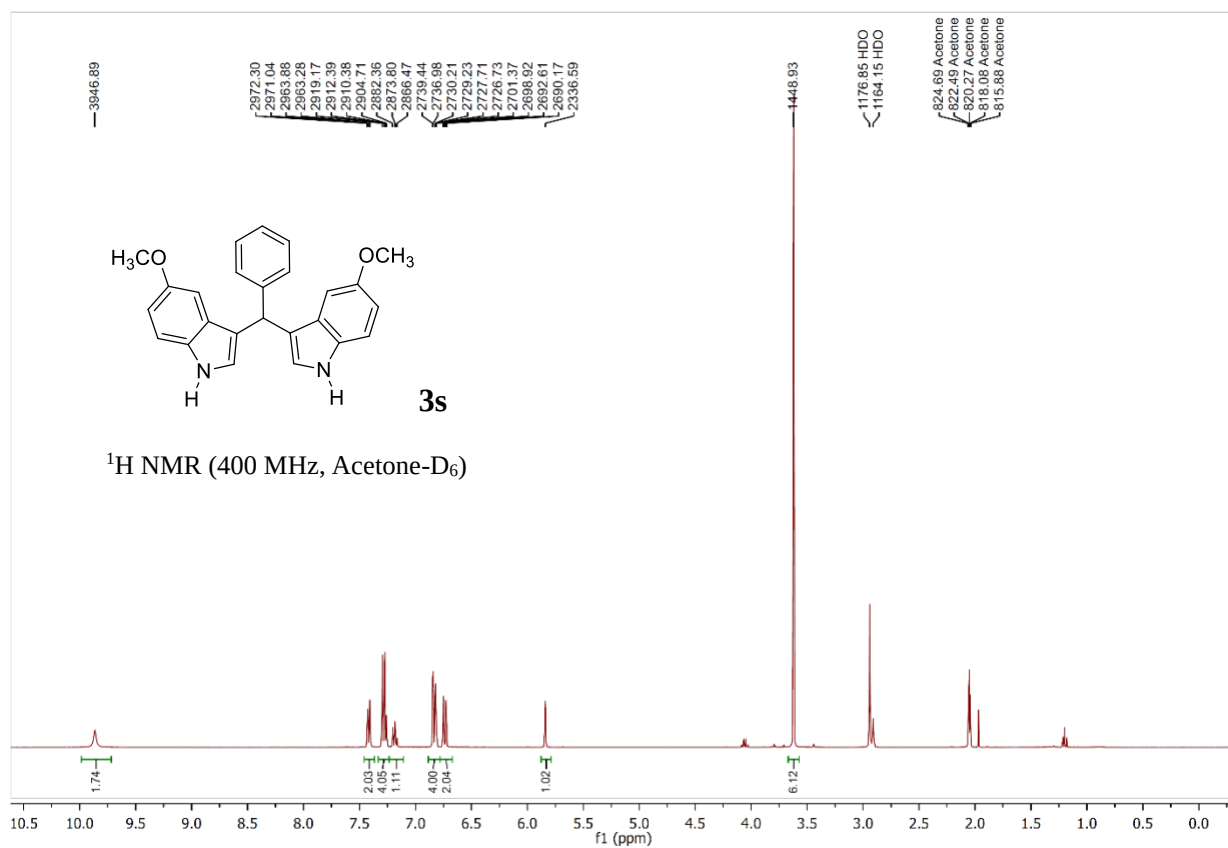


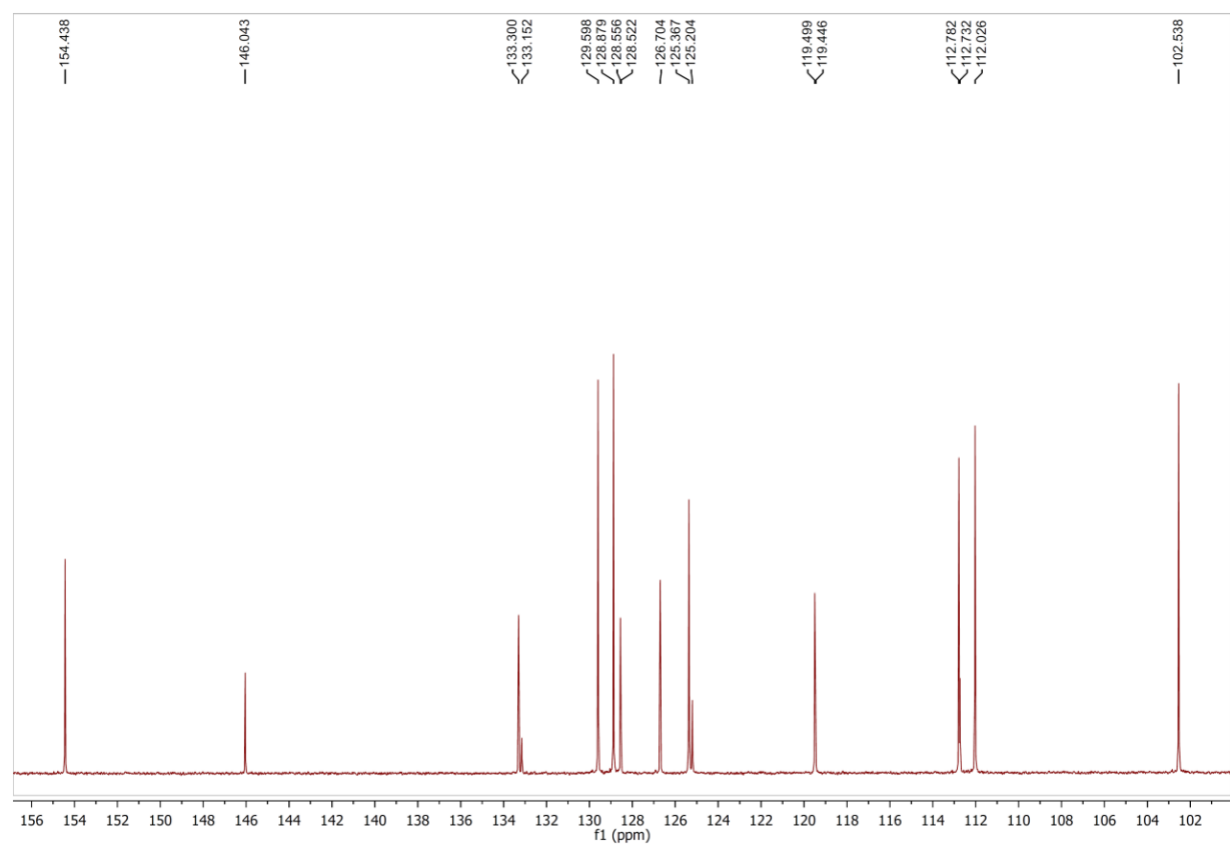
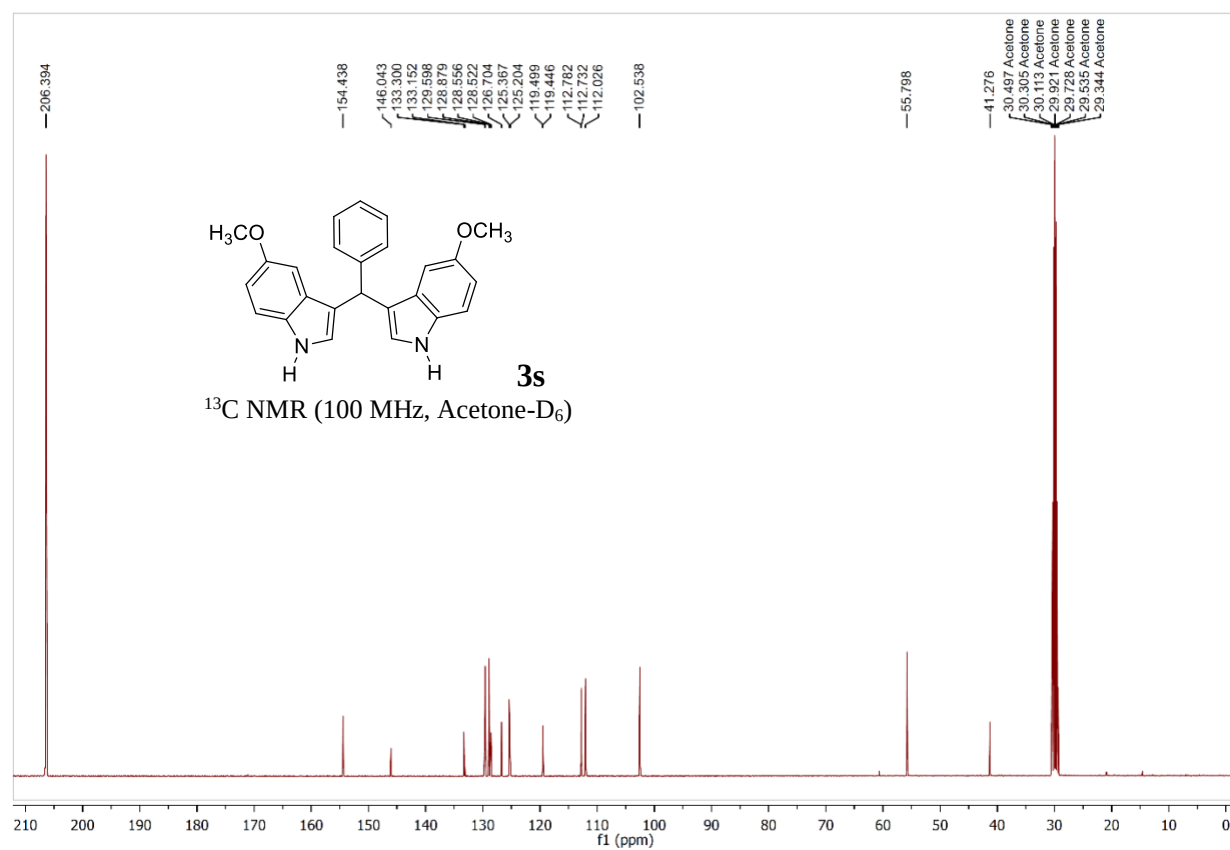
3,3'-(Phenylmethylene)bis(7-methyl-1*H*-indole) (3r)

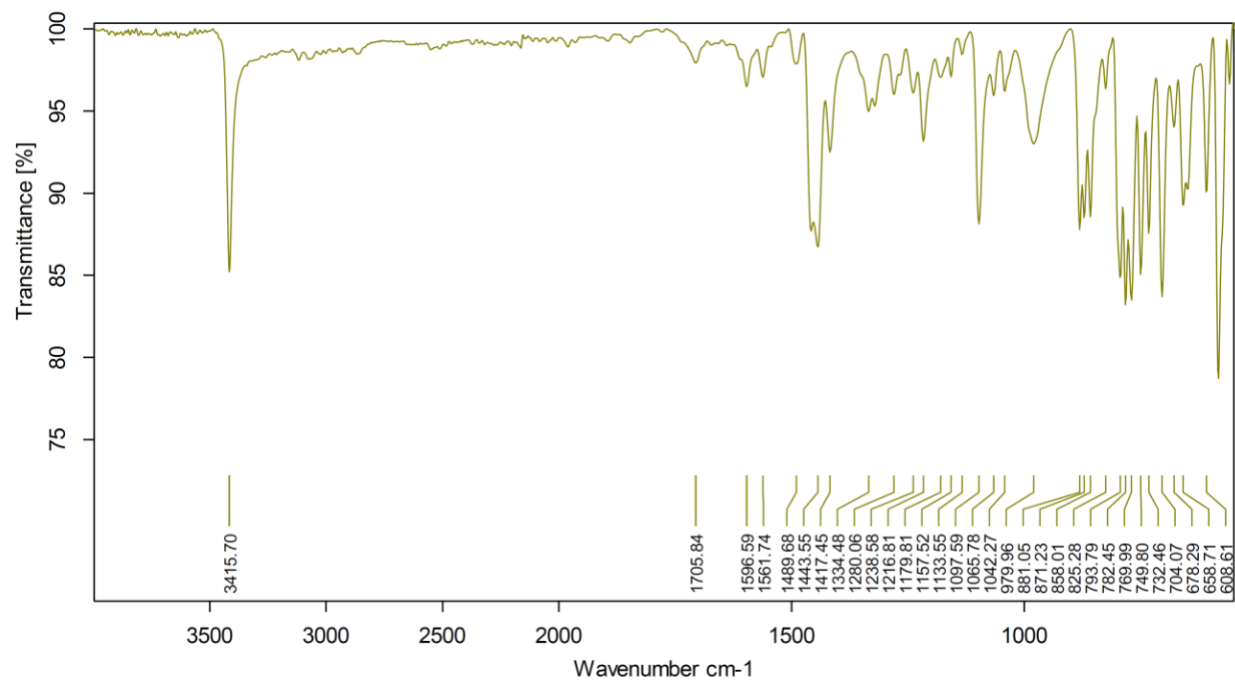
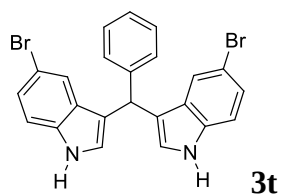


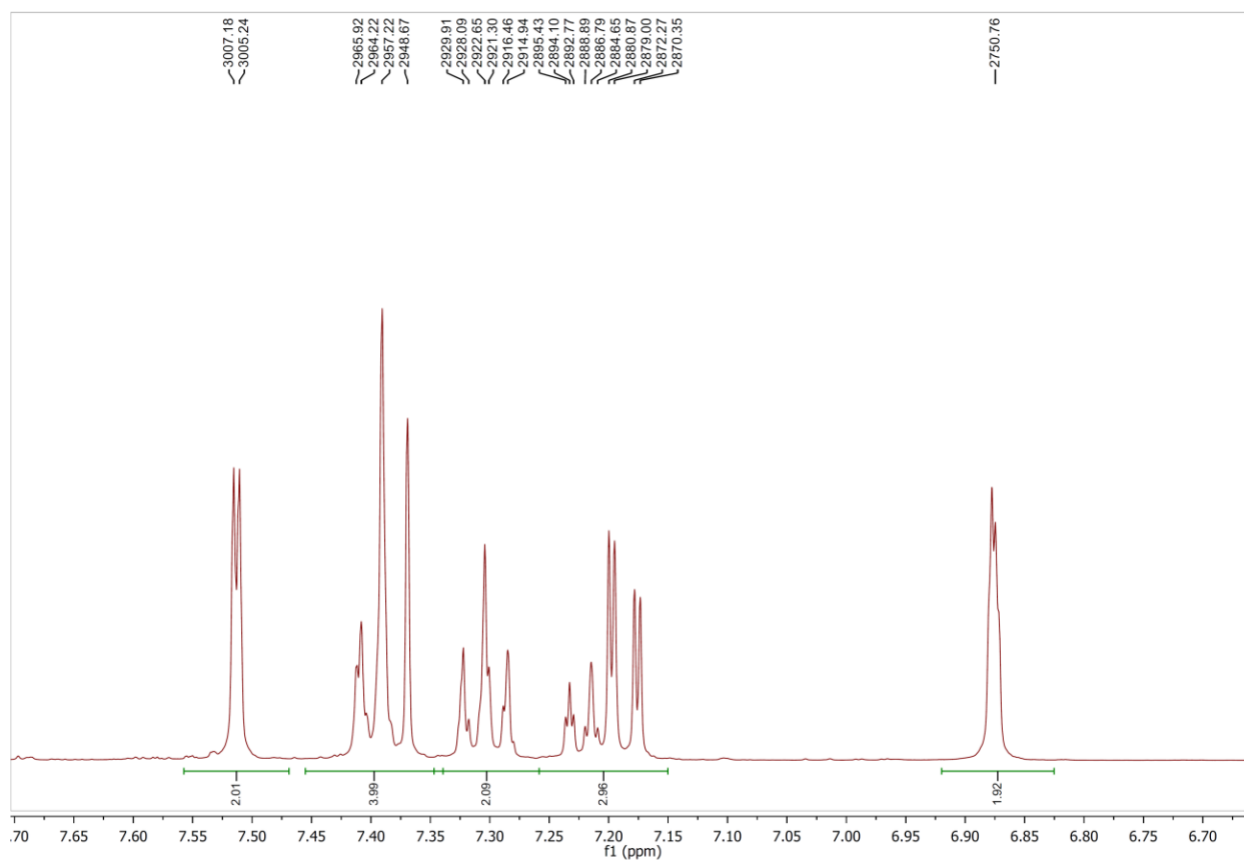


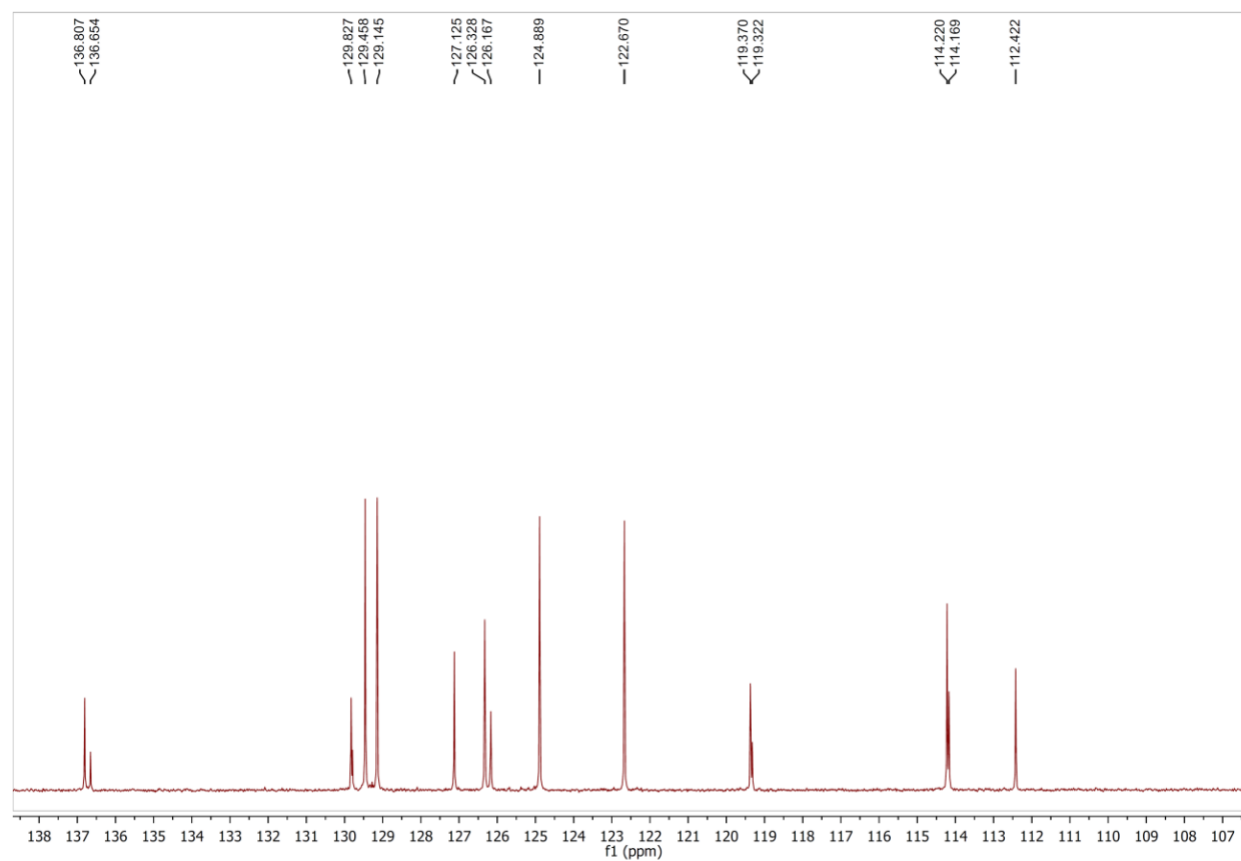
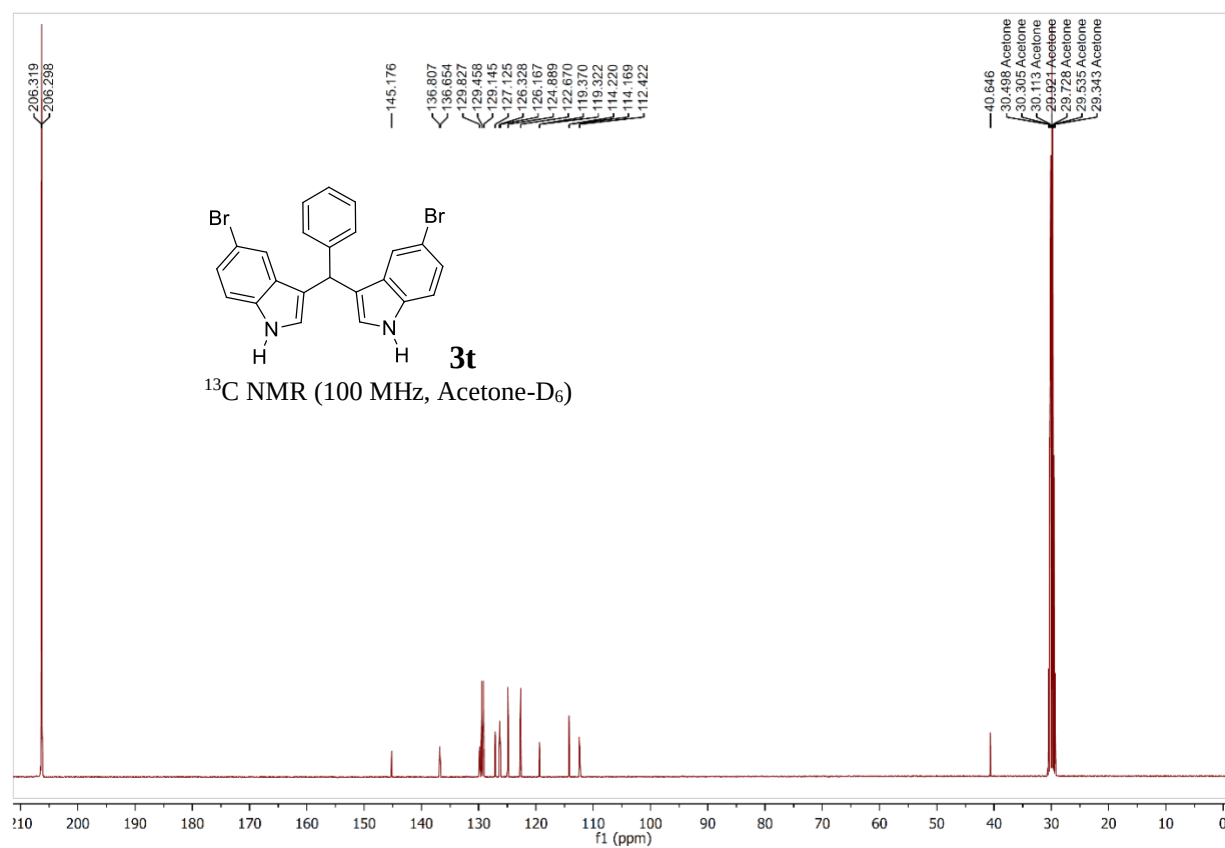
3,3'-(Phenylmethylene)bis(5-methoxy-1H-indole) (3s)

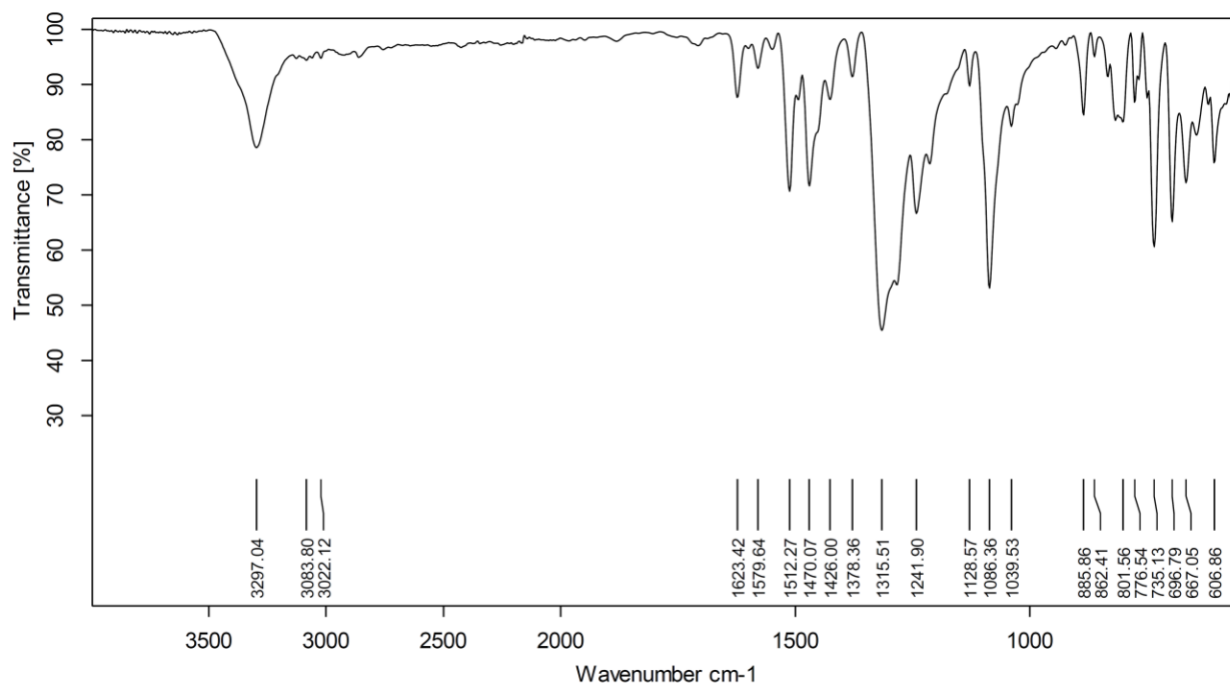
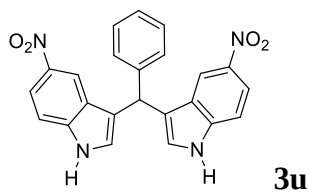


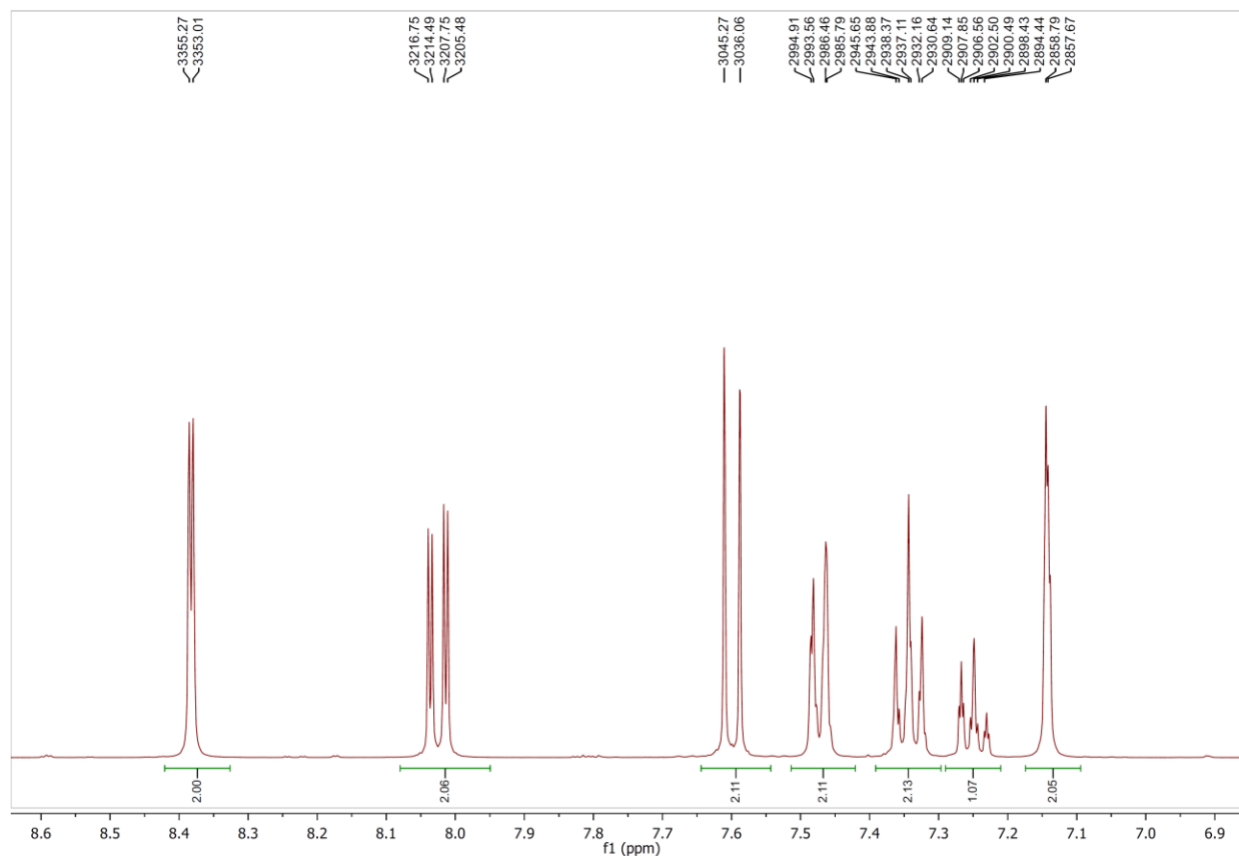
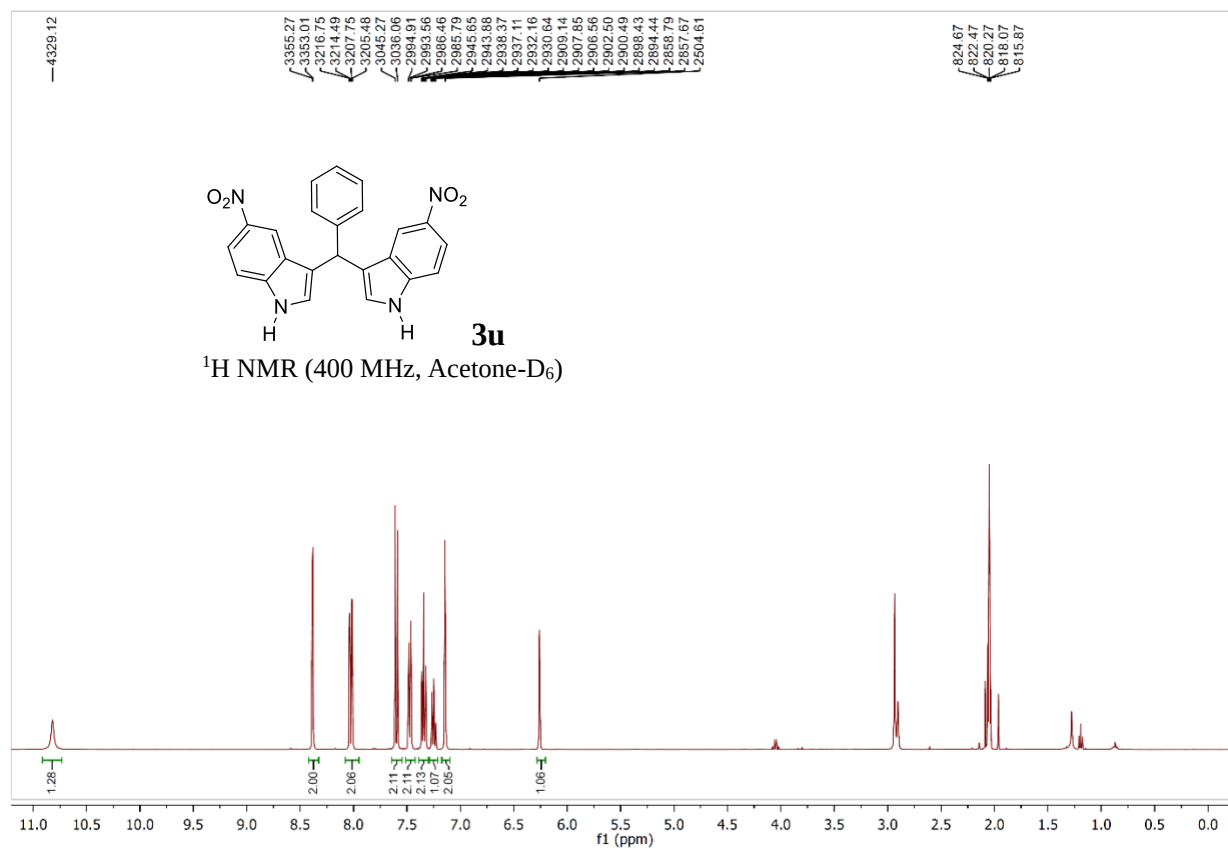


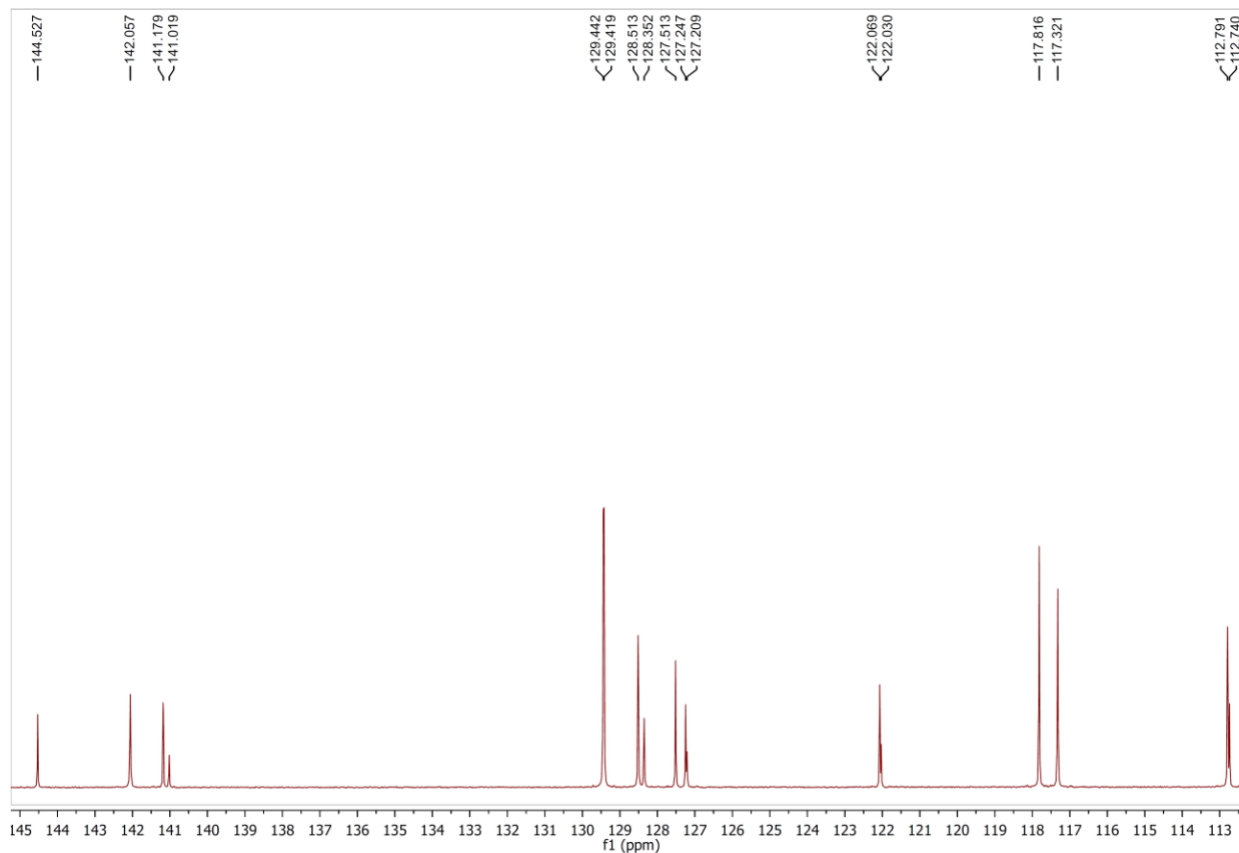
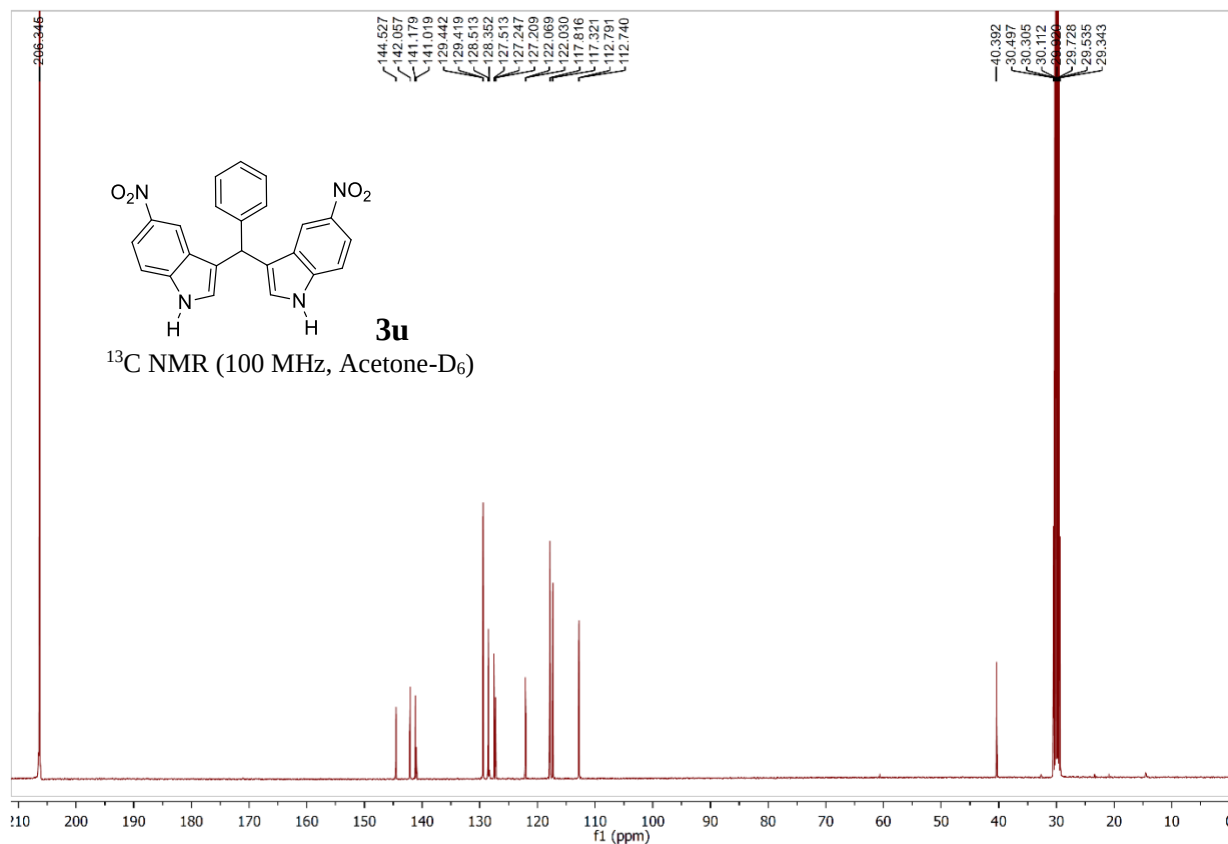
3,3'-(Phenylmethylene)bis(5-bromo-1*H*-indole) (3t)

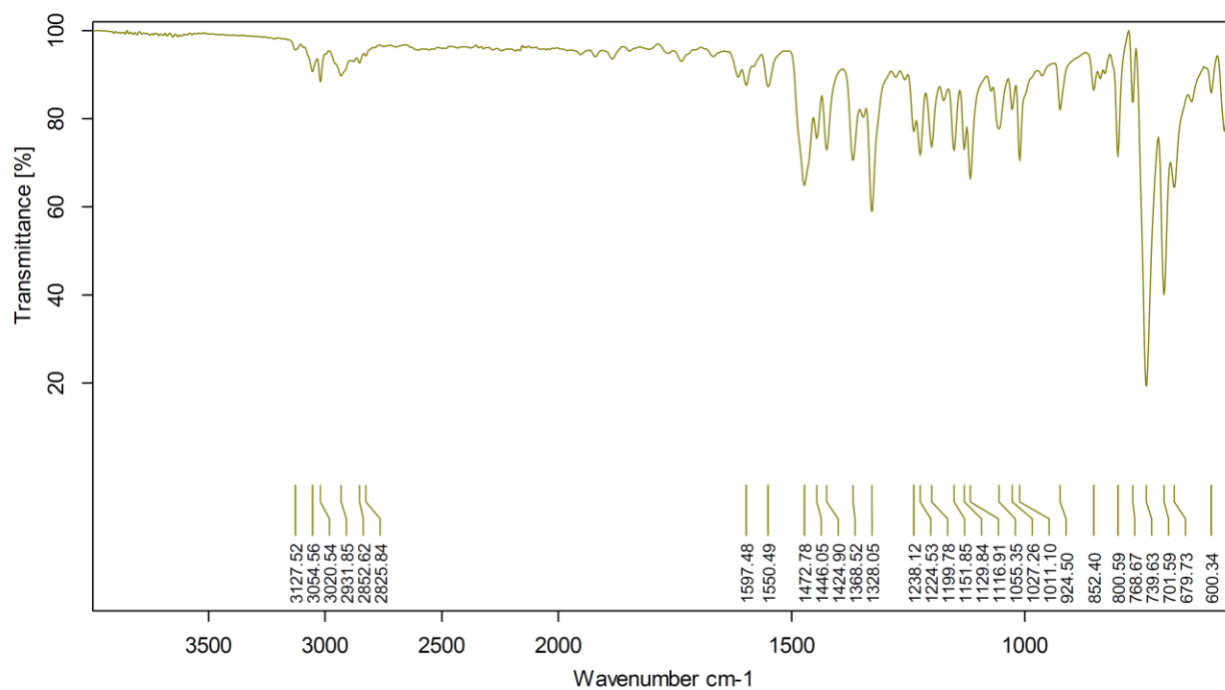
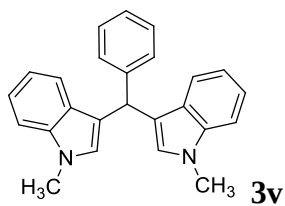


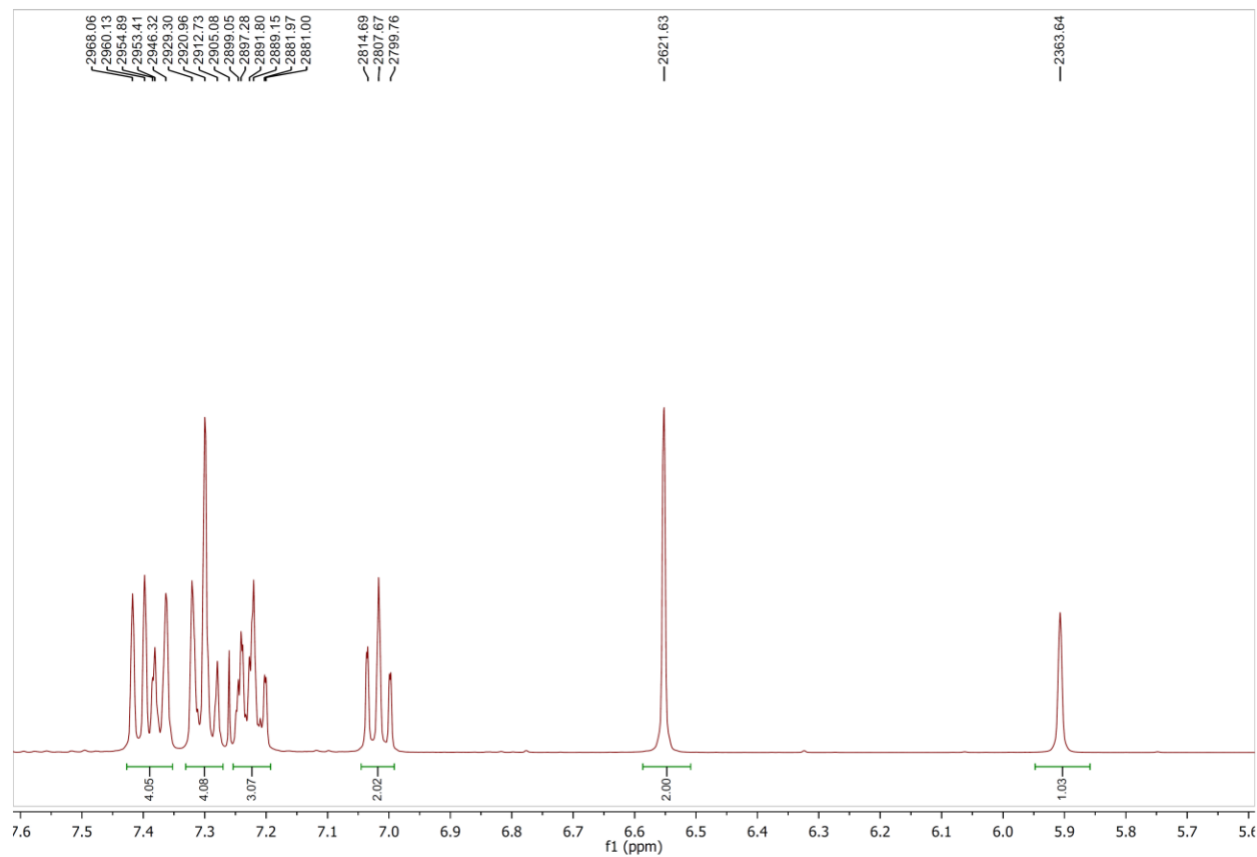
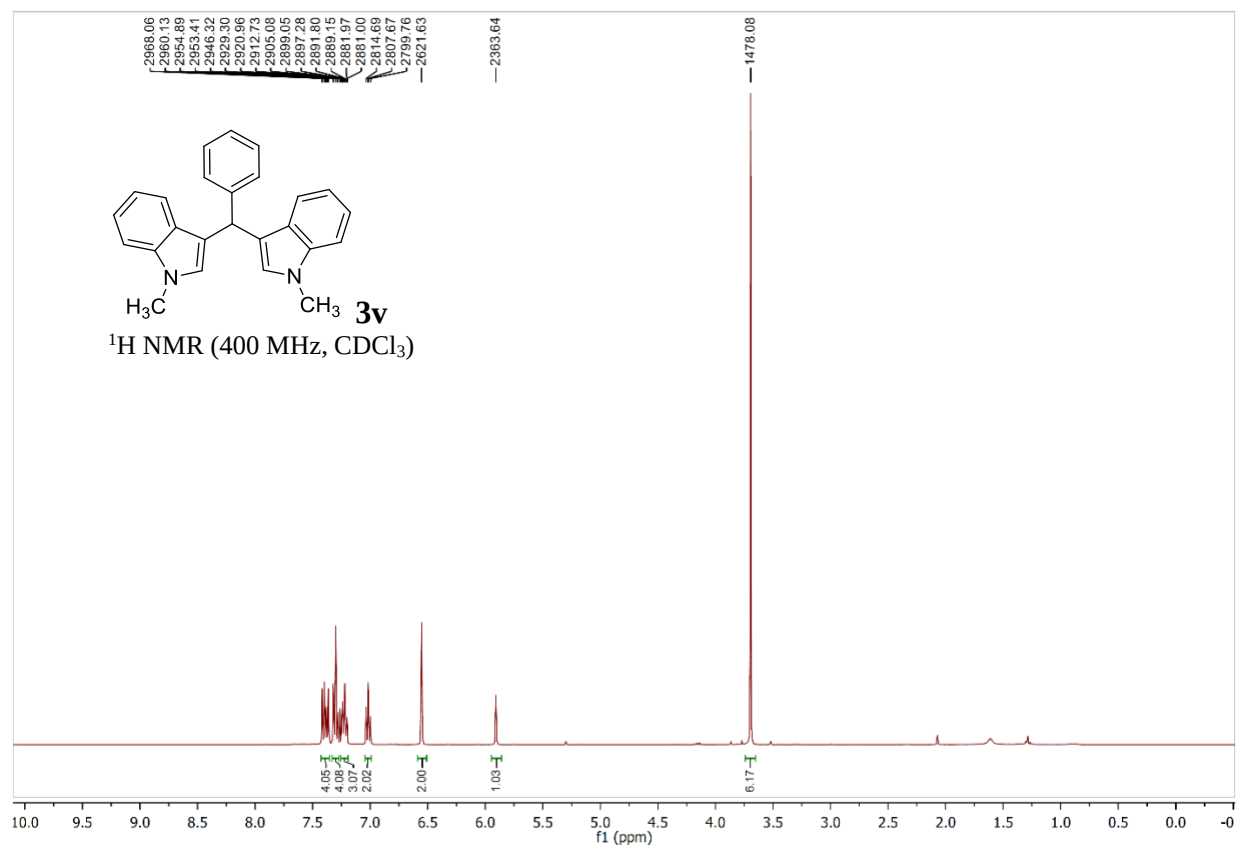


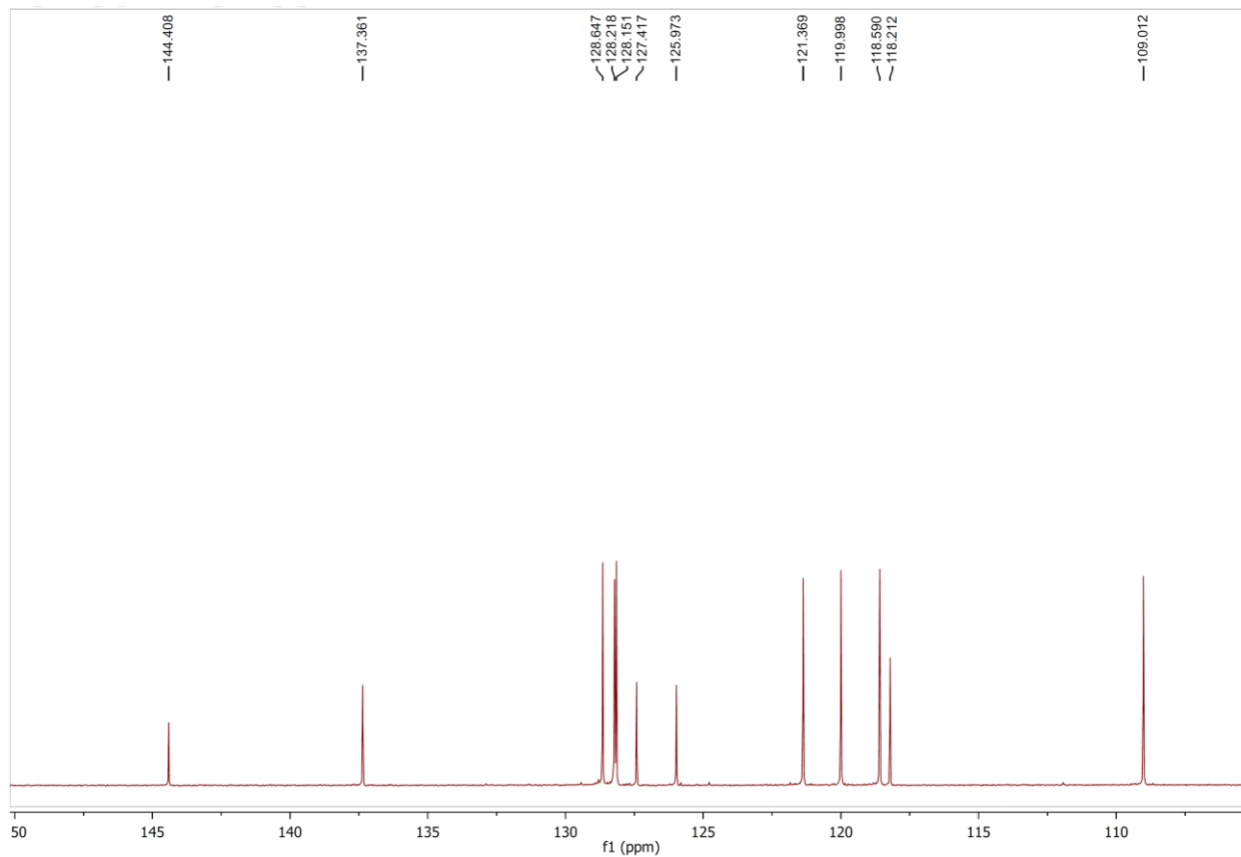
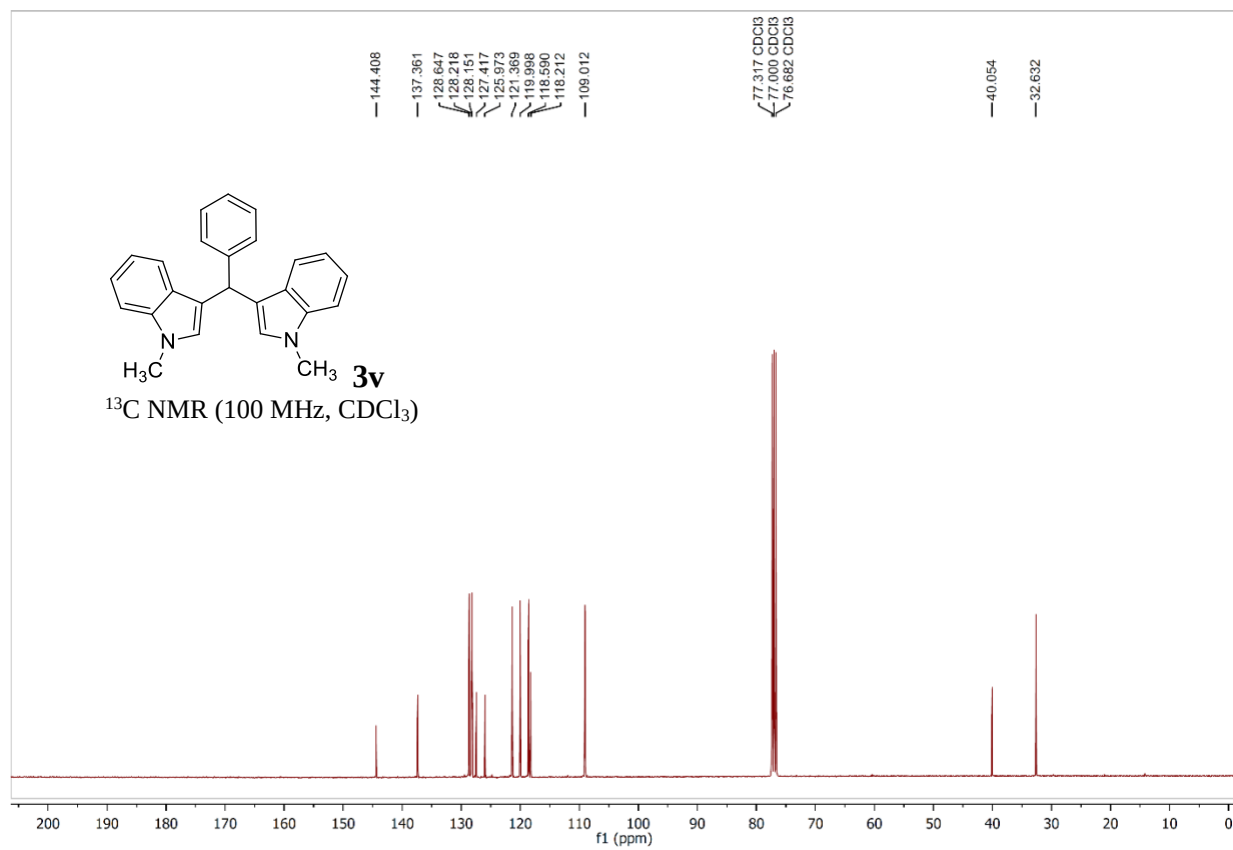
3,3'-(Phenylmethylene)bis(5-nitro-1H-indole) (3u)

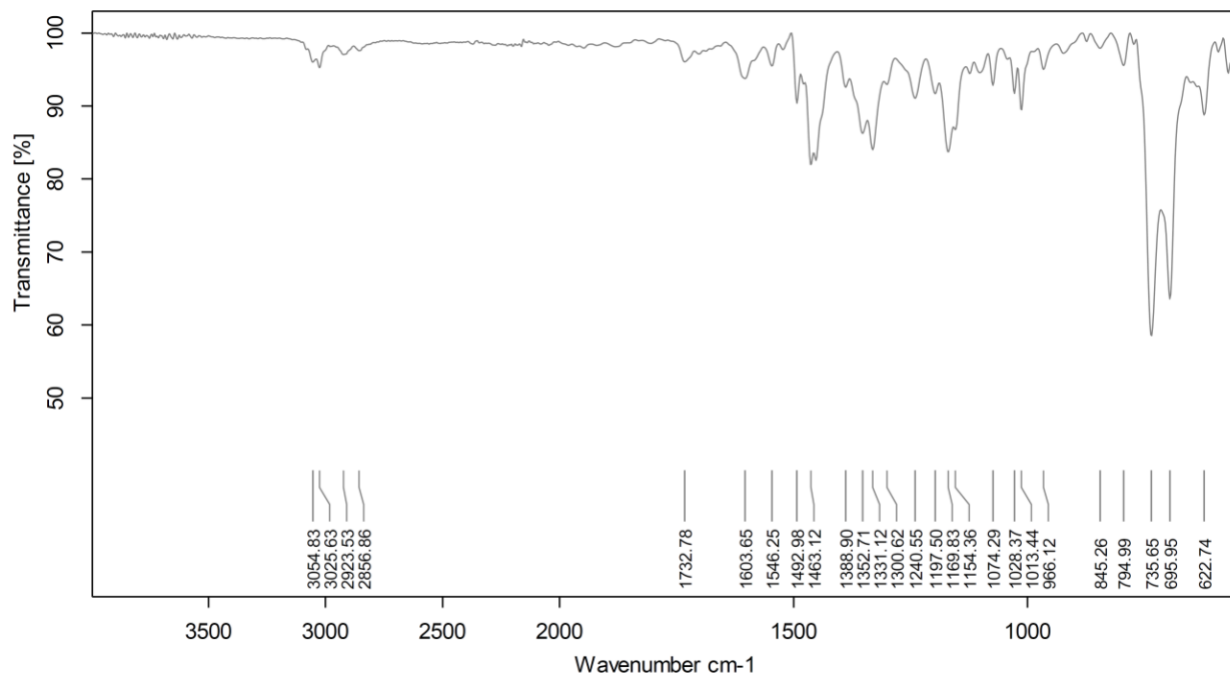
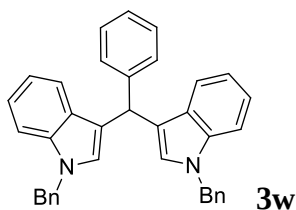


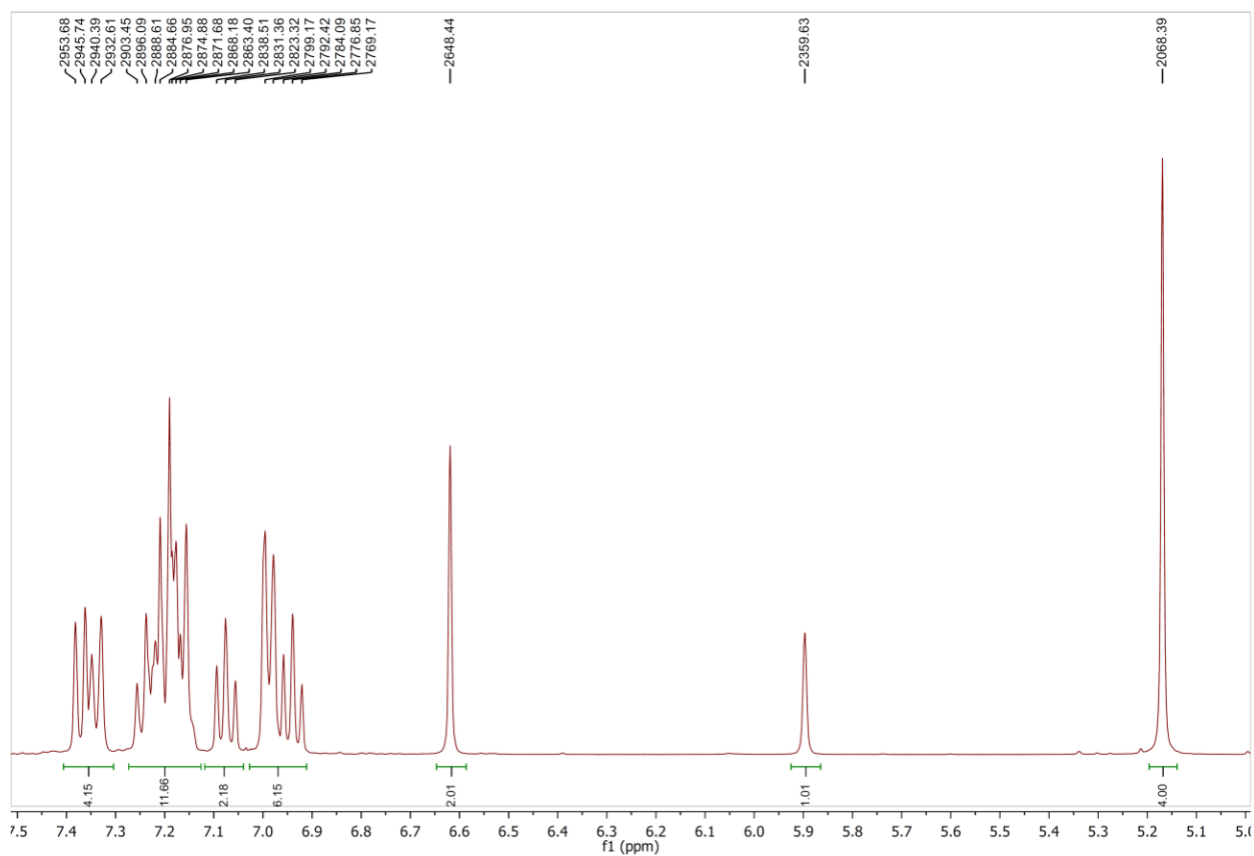
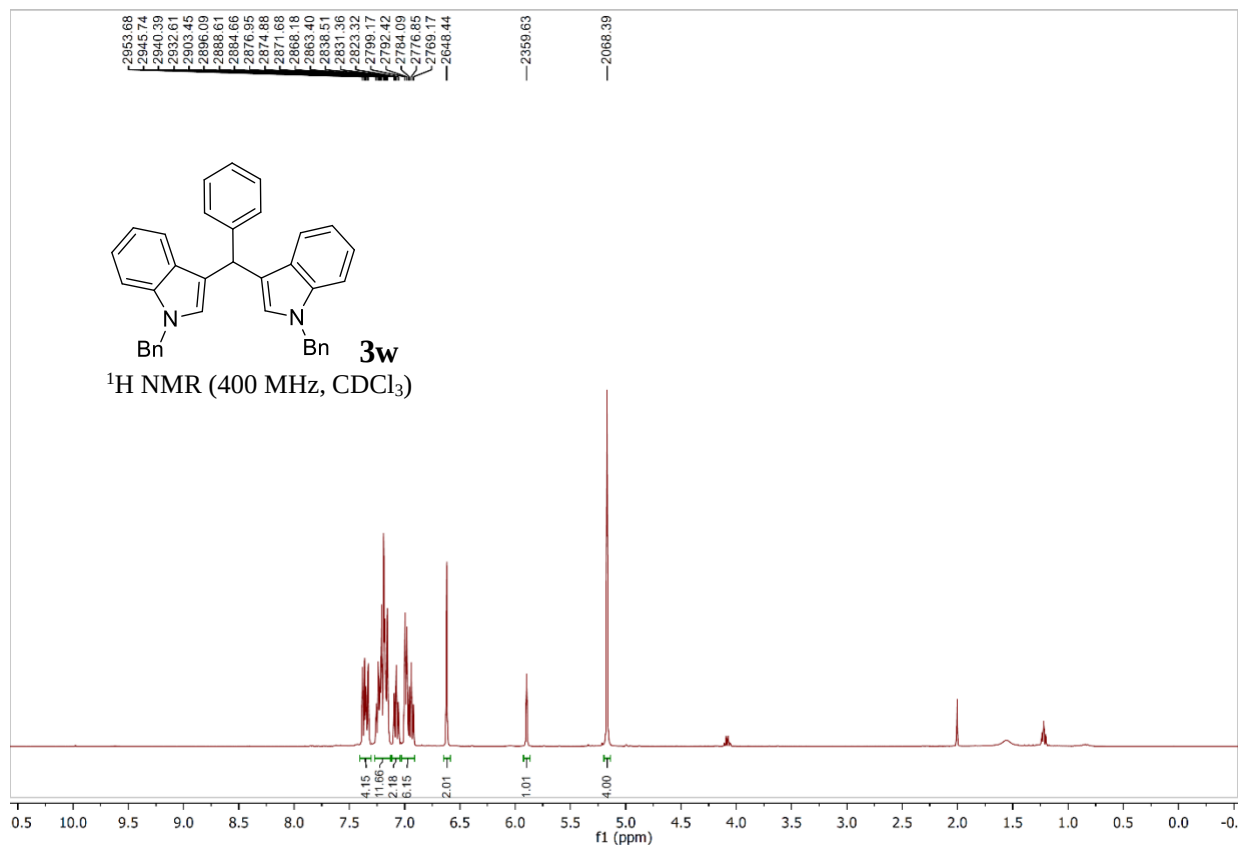


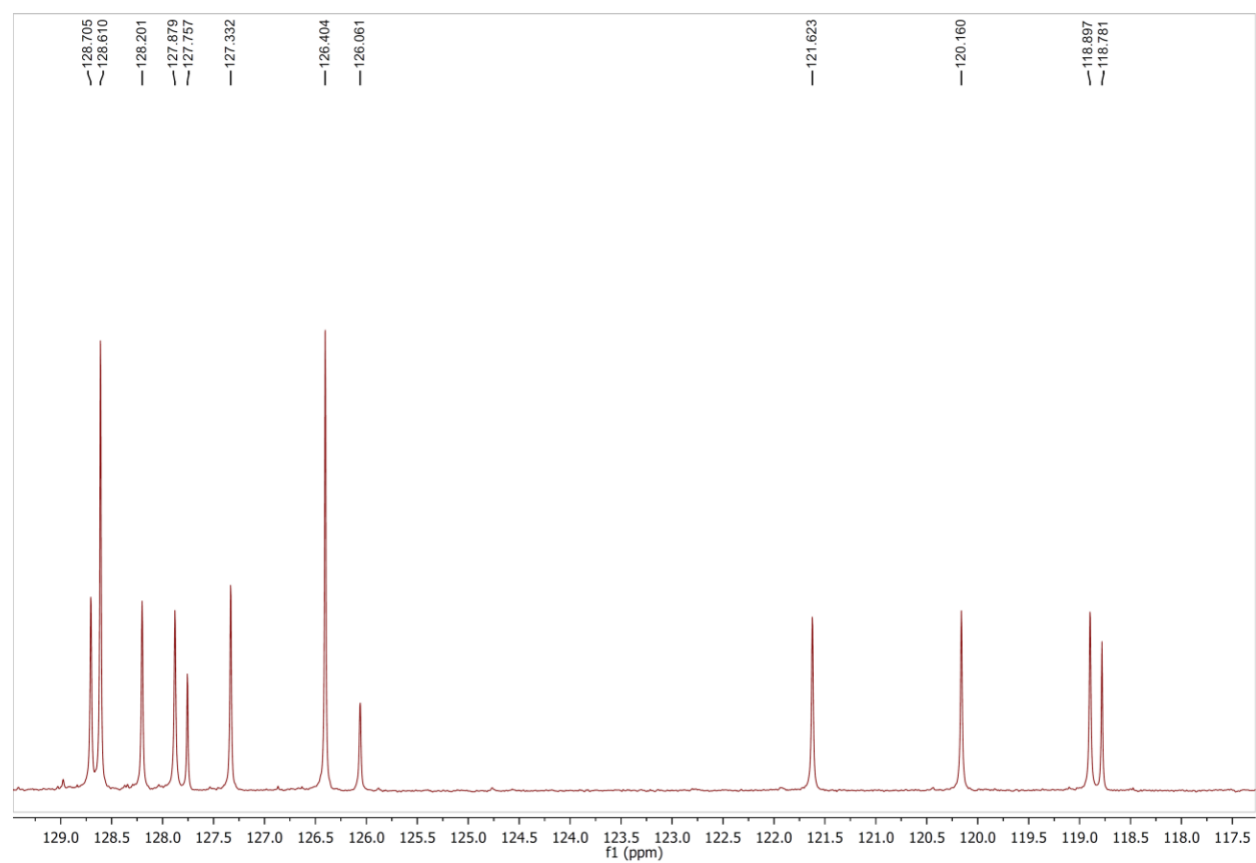
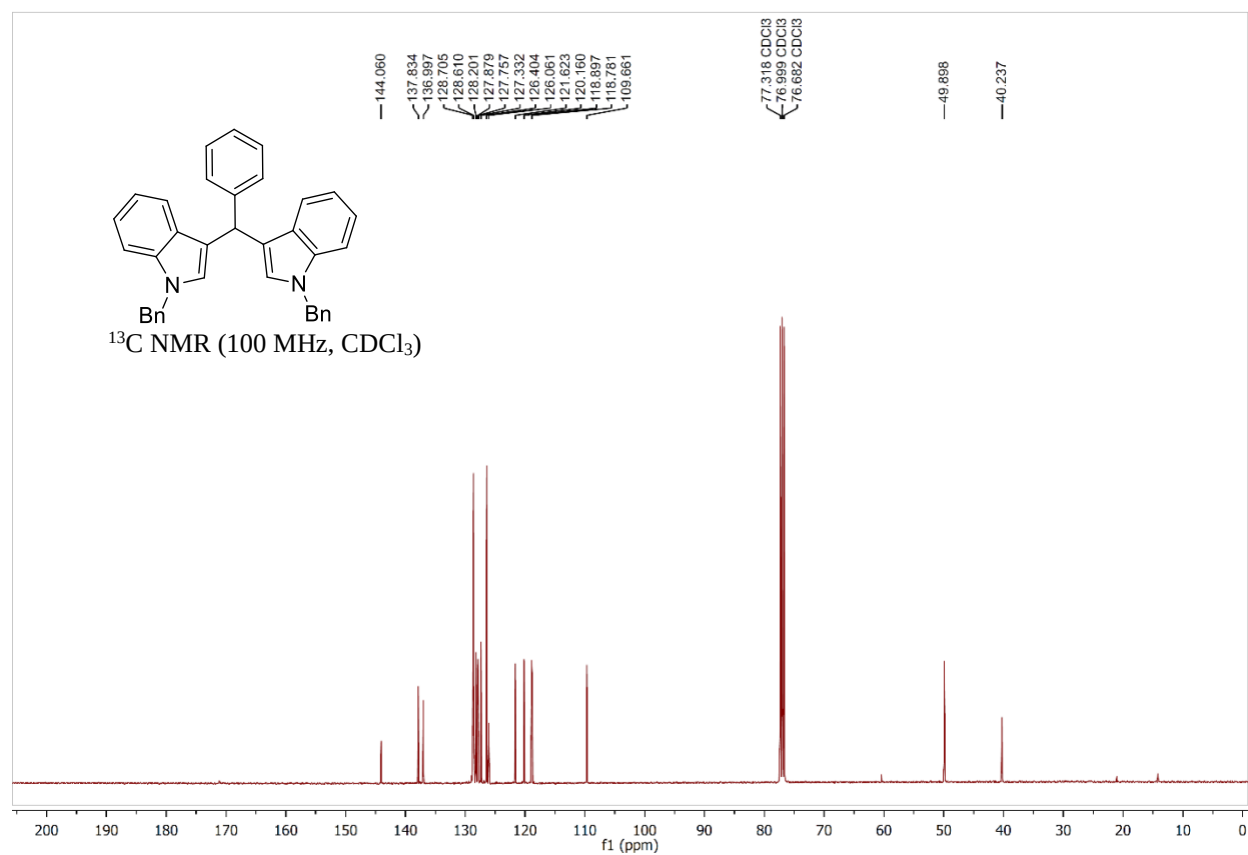
3,3'-(Phenylmethylene)bis(1-methylindole) (3v)





3,3'-(Phenylmethylene)bis(1-benzylindole) (3w)





Trisindoline

