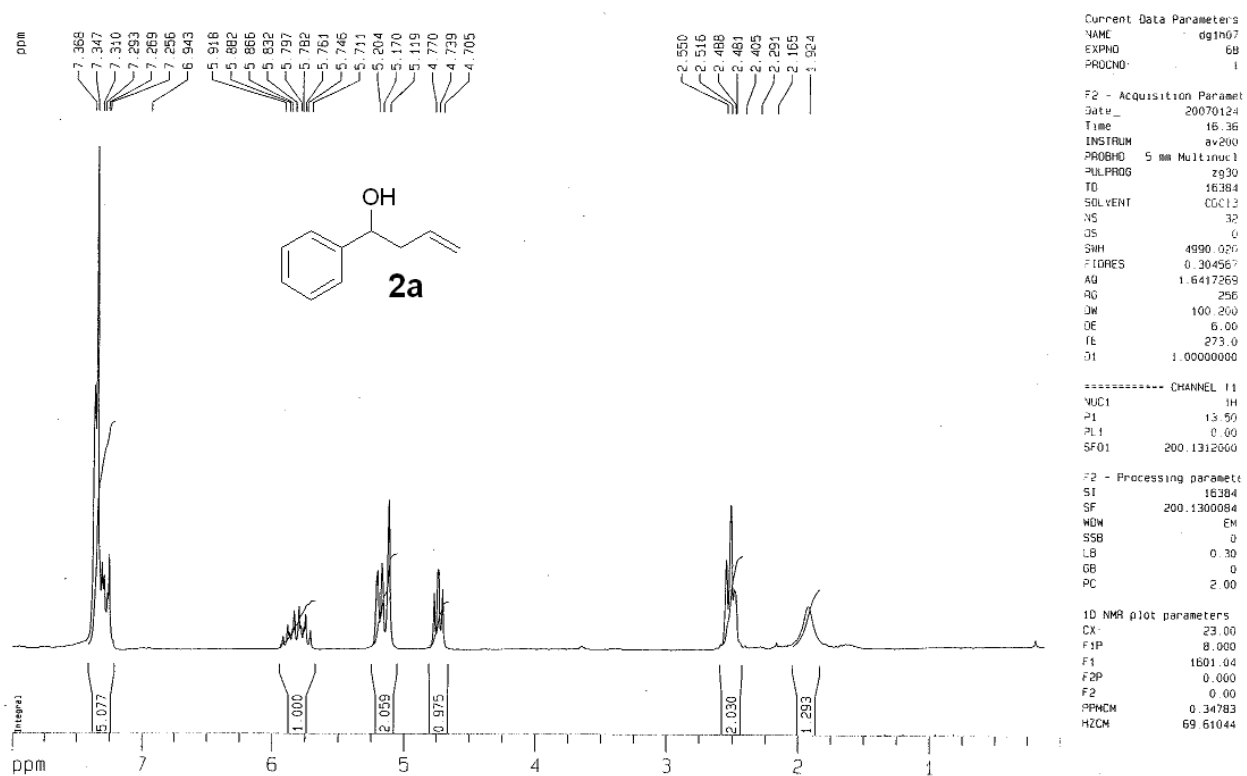


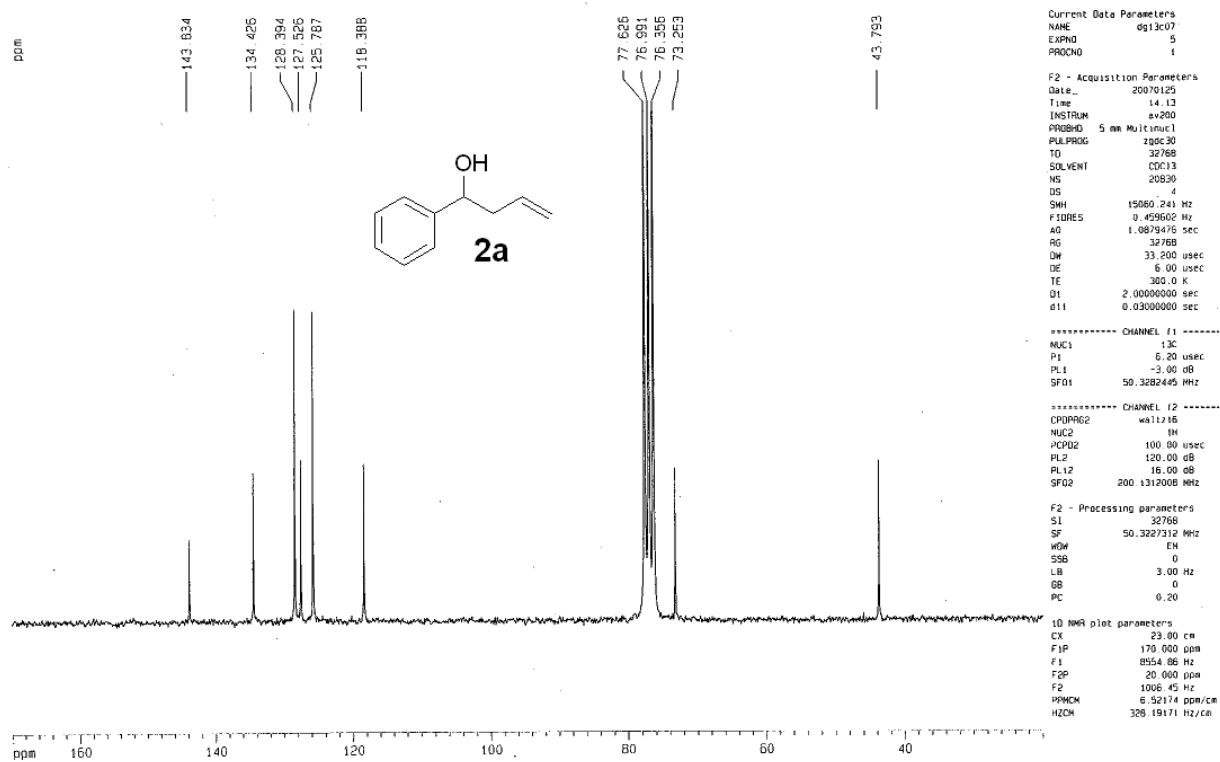
[bmim][Br], as a Solvent and Activator for the Ga-mediated Barbier Allylation: Direct formation of a N-Heterocyclic Carbene from Ga-metal.

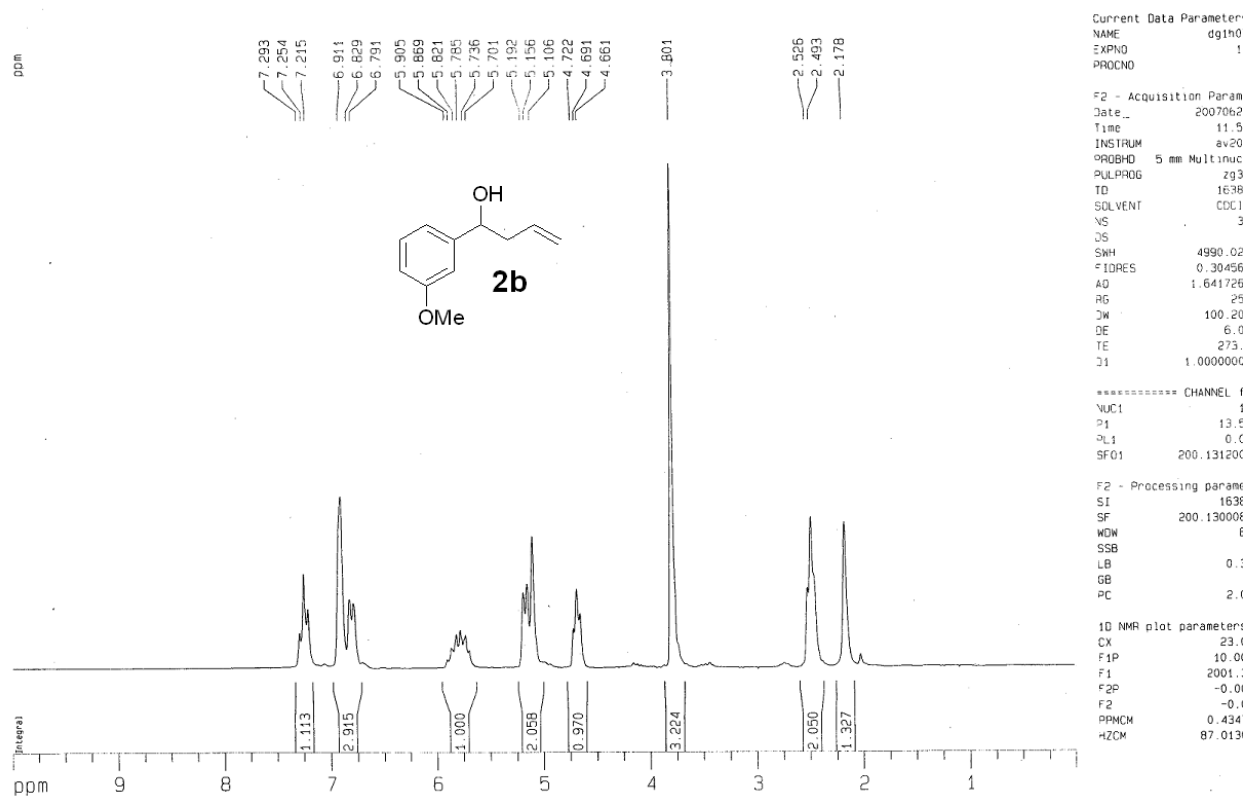
Dibakar Goswami, Angshuman Chattopadhyay, Anubha Sharma and Subrata Chattopadhyay*

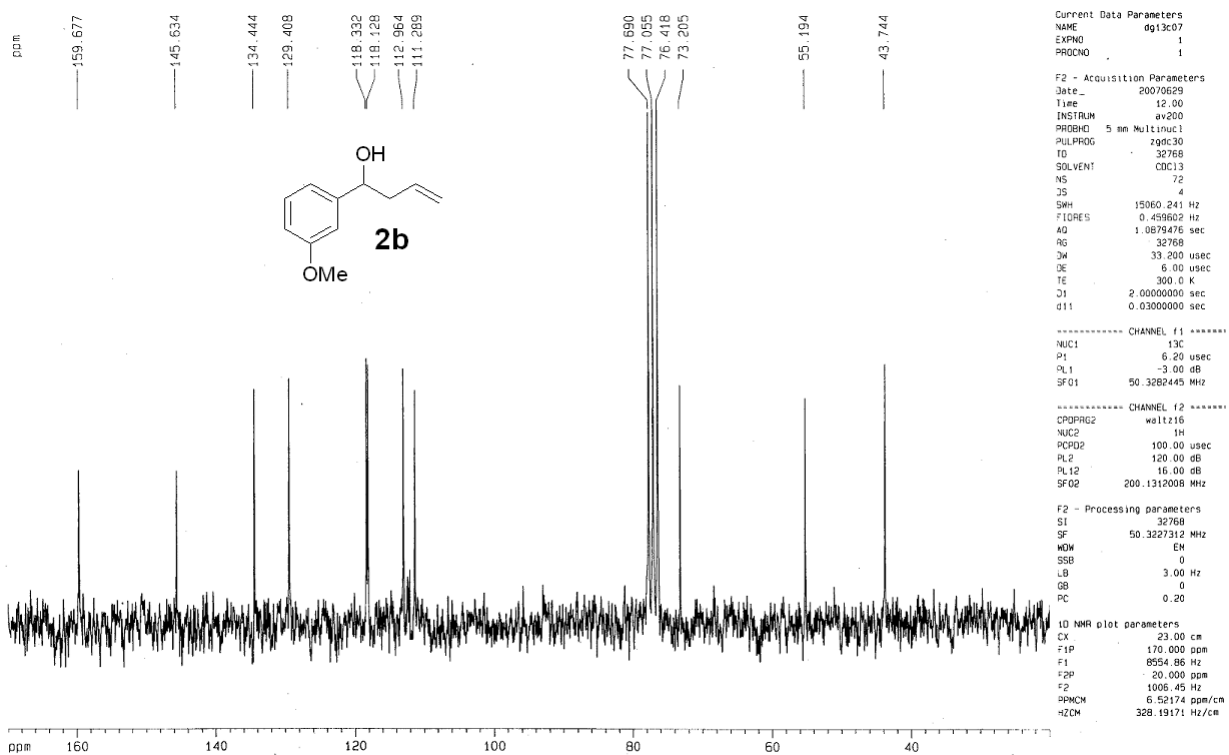
^aBio-Organic Division, Bhabha Atomic Research Centre, Mumbai - 400 085, India

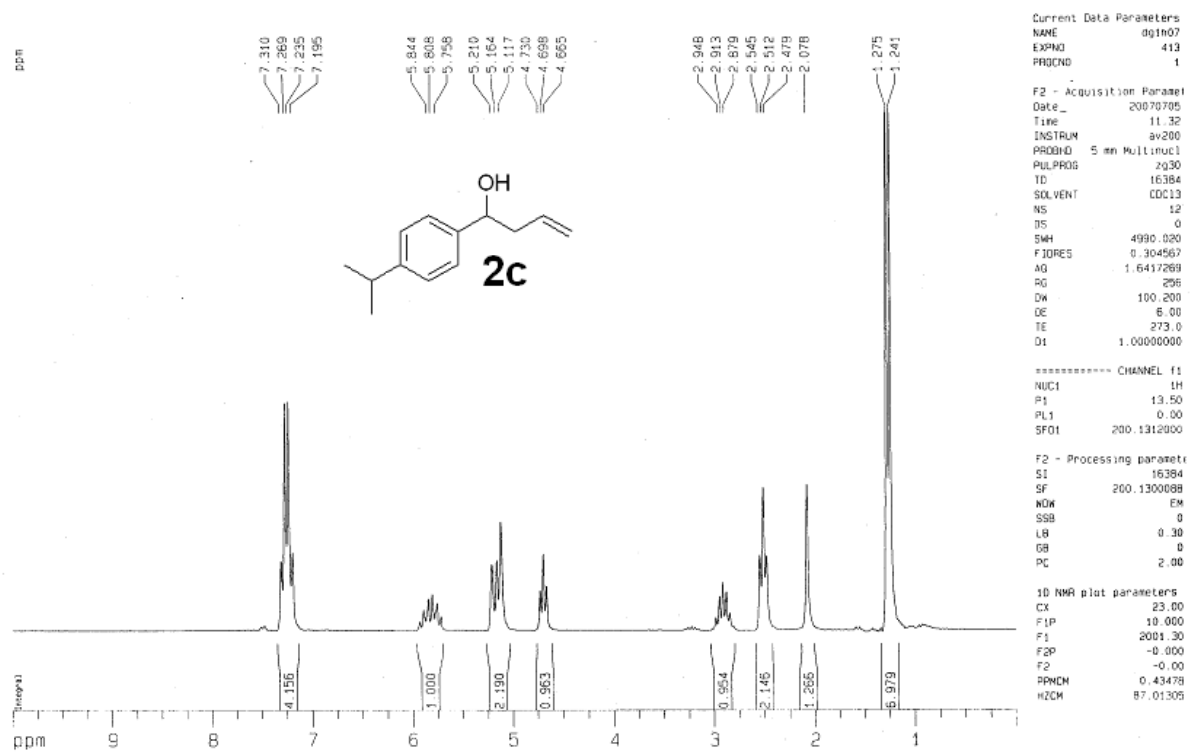
Spectrum	page numbers	Spectrum	page numbers
¹ H/ ¹³ C NMR of 2a	S 2/3	¹ H/ ¹³ C NMR of 2o	S 30/31
¹ H/ ¹³ C NMR of 2b	S 4/5	¹ H/ ¹³ C NMR of 2p	S 32/33
¹ H/ ¹³ C NMR of 2c	S 6/7	¹ H/ ¹³ C NMR of 2q	S 34/35
¹ H/ ¹³ C NMR of 2d	S 8/9	¹ H/ ¹³ C NMR of 2r	S 36/37
¹ H/ ¹³ C NMR of 2e	S 10/11	¹ H NMR of II	S 38
¹ H/ ¹³ C NMR of 2f	S 12/13	¹³ C NMR of II	S 39
¹ H/ ¹³ C NMR of 2g	S 14/15	Results of DSC experiments	S 40
¹ H/ ¹³ C NMR of 2h	S 16/17	¹ H NMR and ¹³ C NMR of [bmim]Br and [bmim]Br + Ga (after 0.5 h)	S 41
¹ H/ ¹³ C NMR of 2i	S 18/19		
¹ H/ ¹³ C NMR of 2j	S 20/21	¹ H NMR of reaction mixture (after 4 h) showing formation of I	S 42
¹ H/ ¹³ C NMR of 2k	S 22/23		
¹ H/ ¹³ C NMR of 2l	S 24/25	¹ H NMR of (Allyl) ₂ -GaCl	S 43
¹ H/ ¹³ C NMR of 2m	S 26/27	¹³ C NMR of (Allyl) ₂ -GaCl	S 44
¹ H/ ¹³ C NMR of 2n	S 28/29		

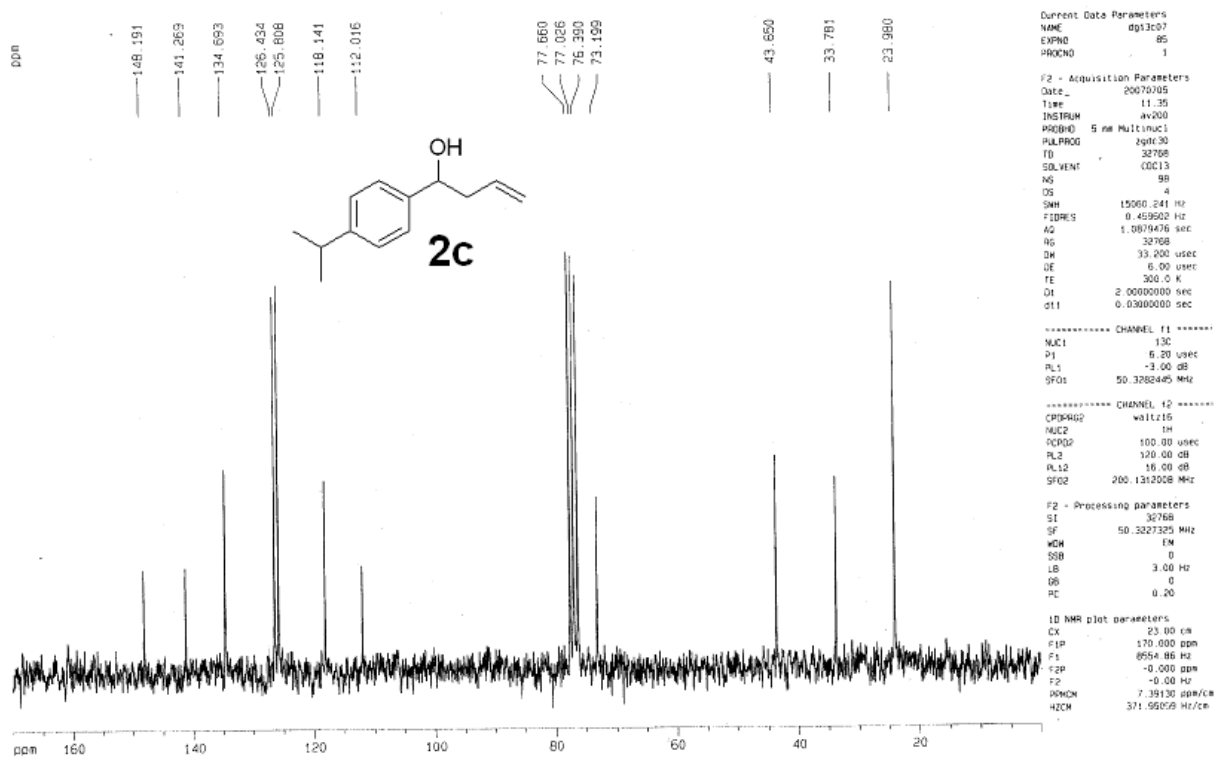


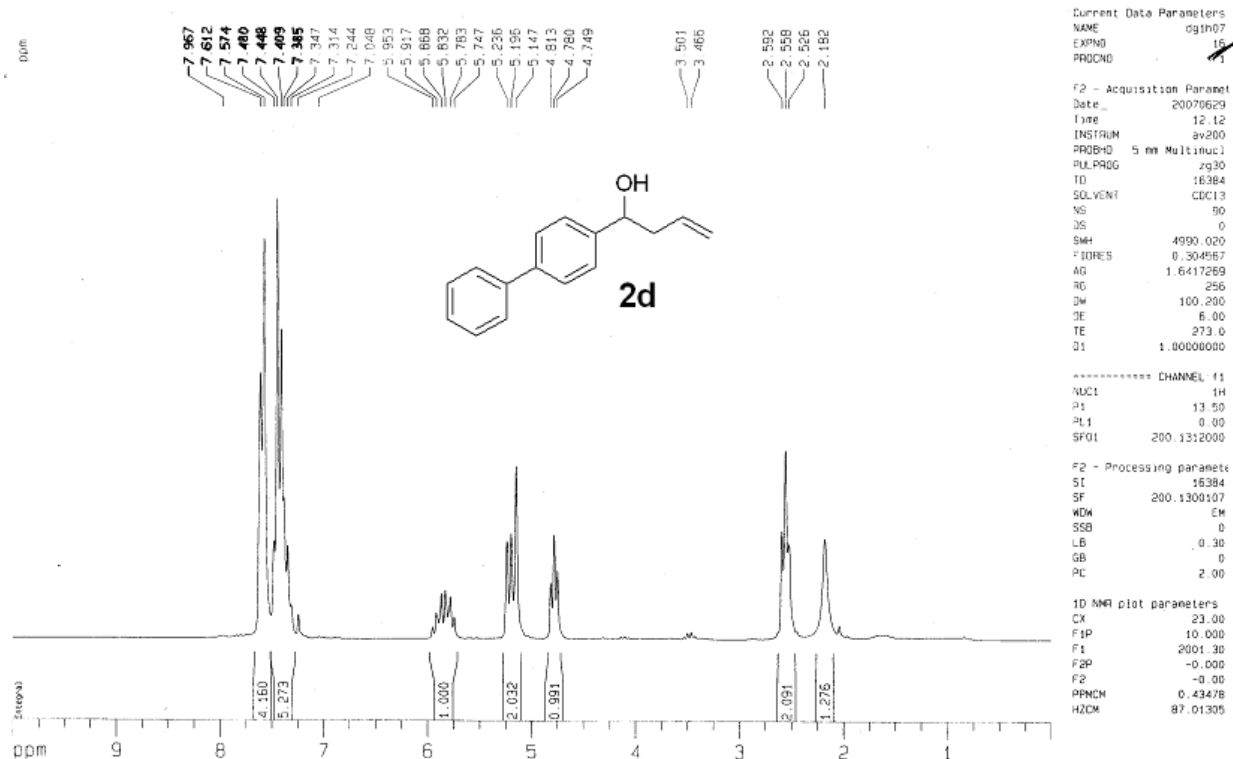


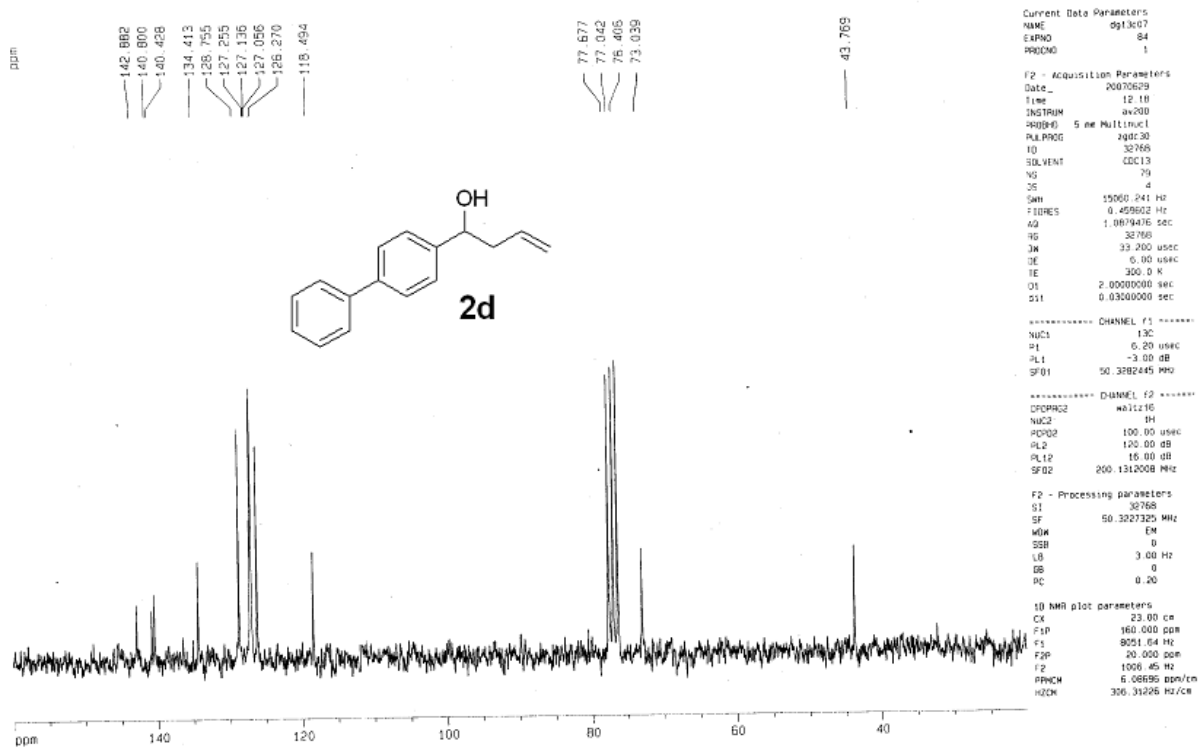




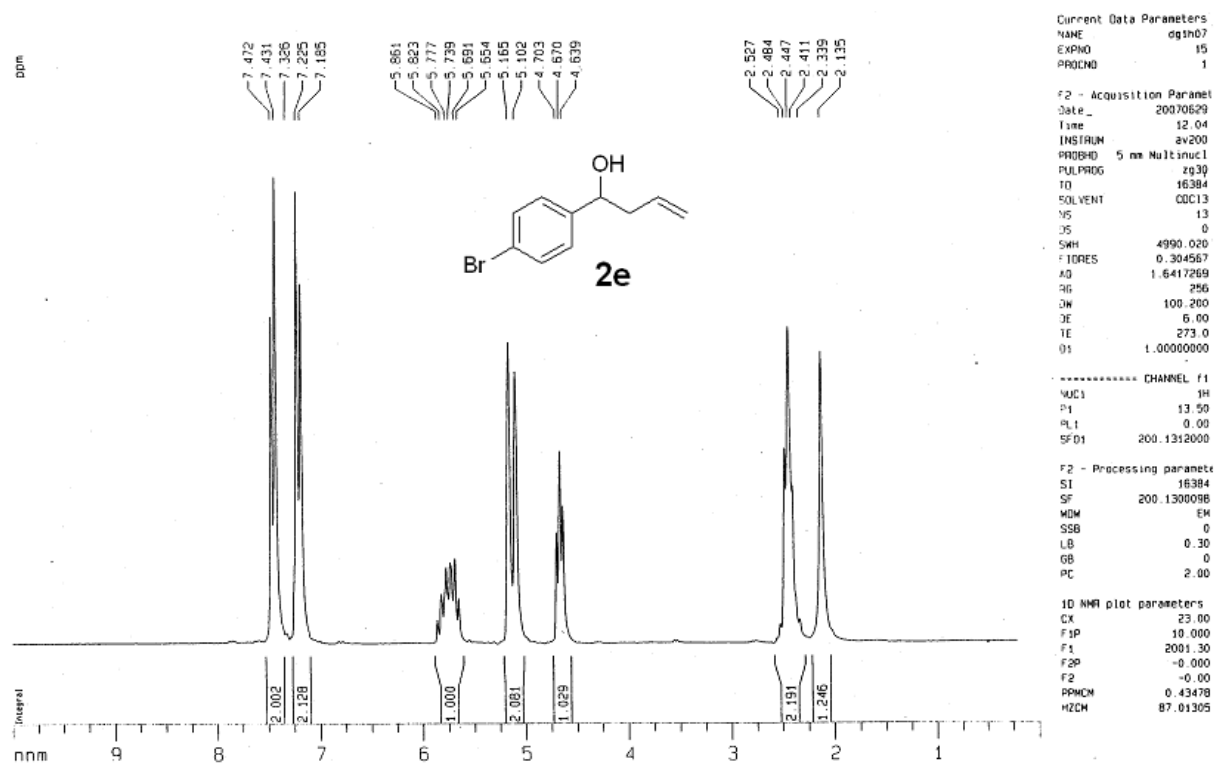


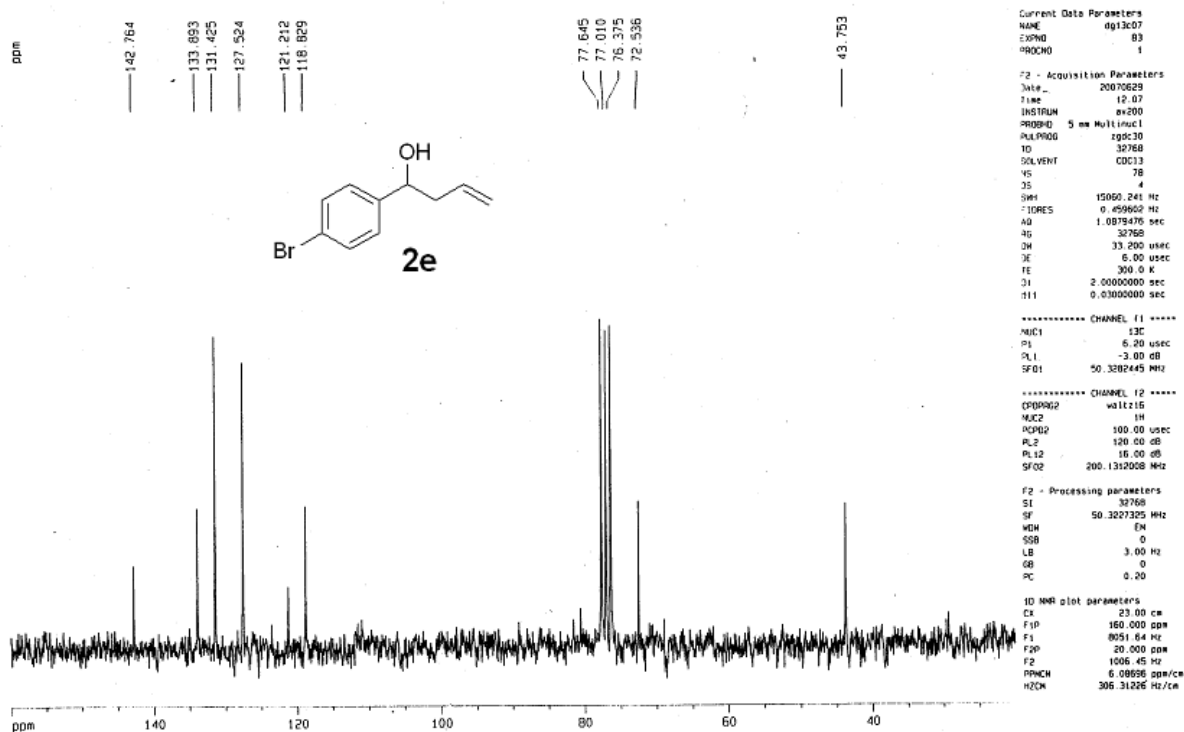


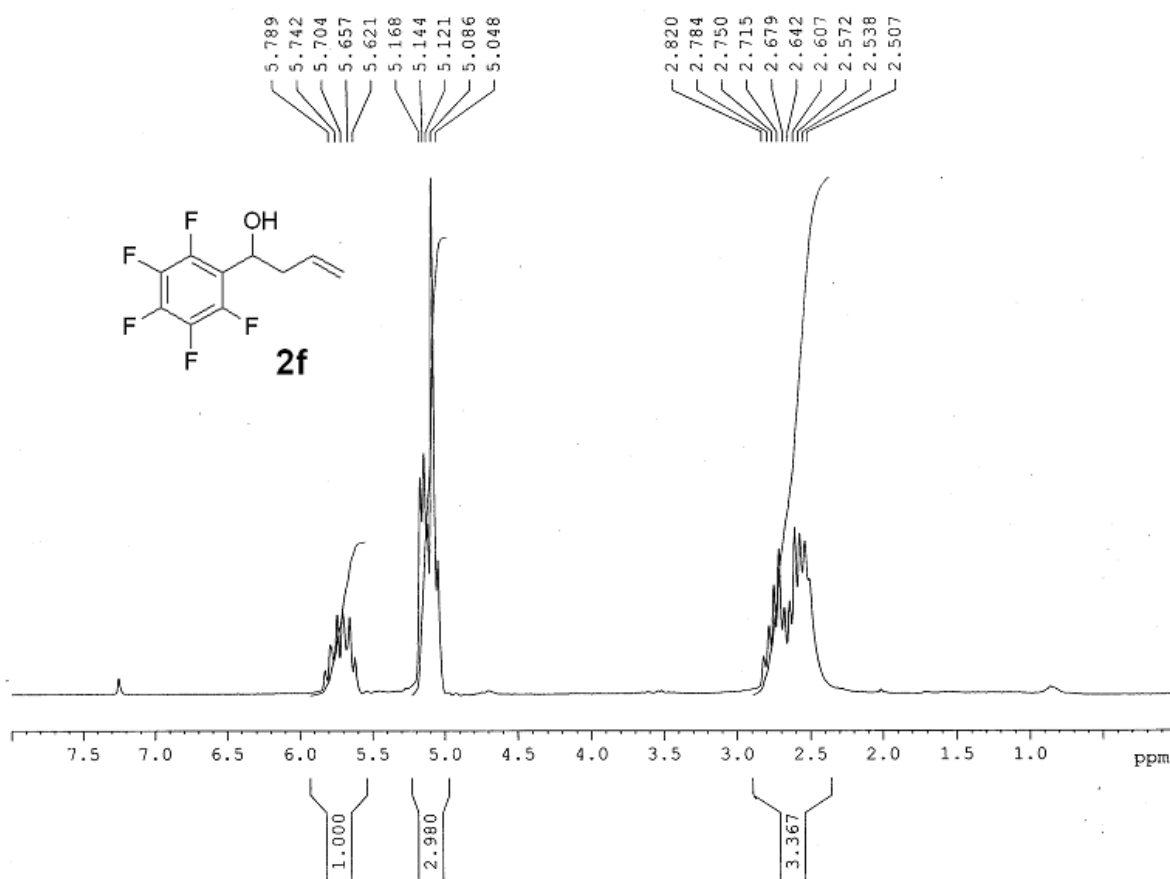


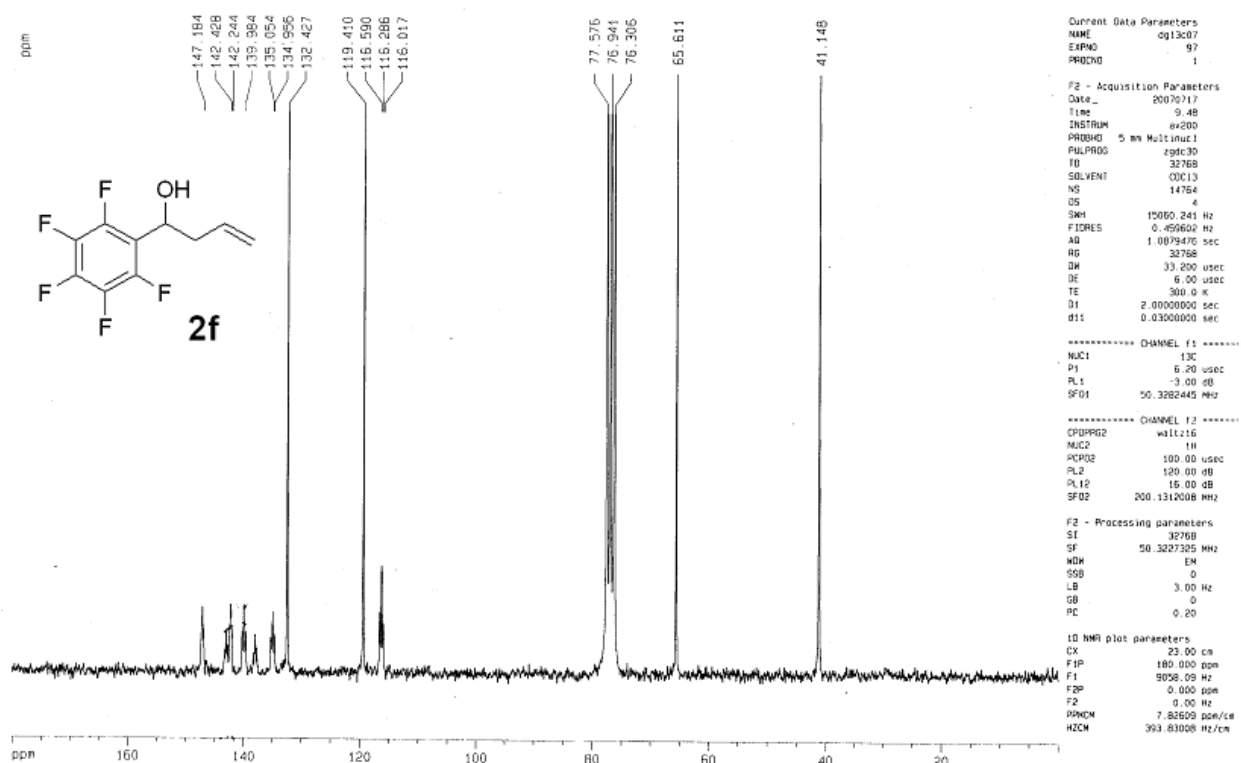


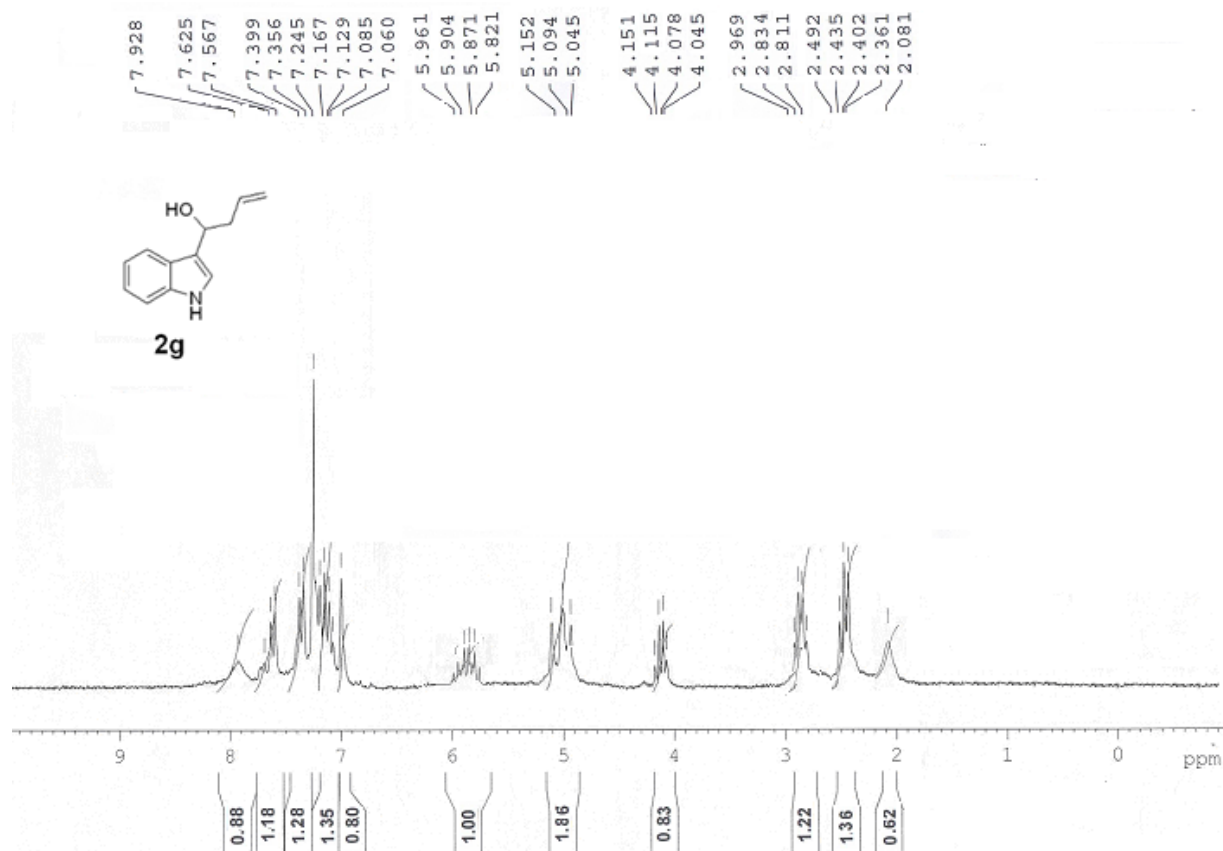
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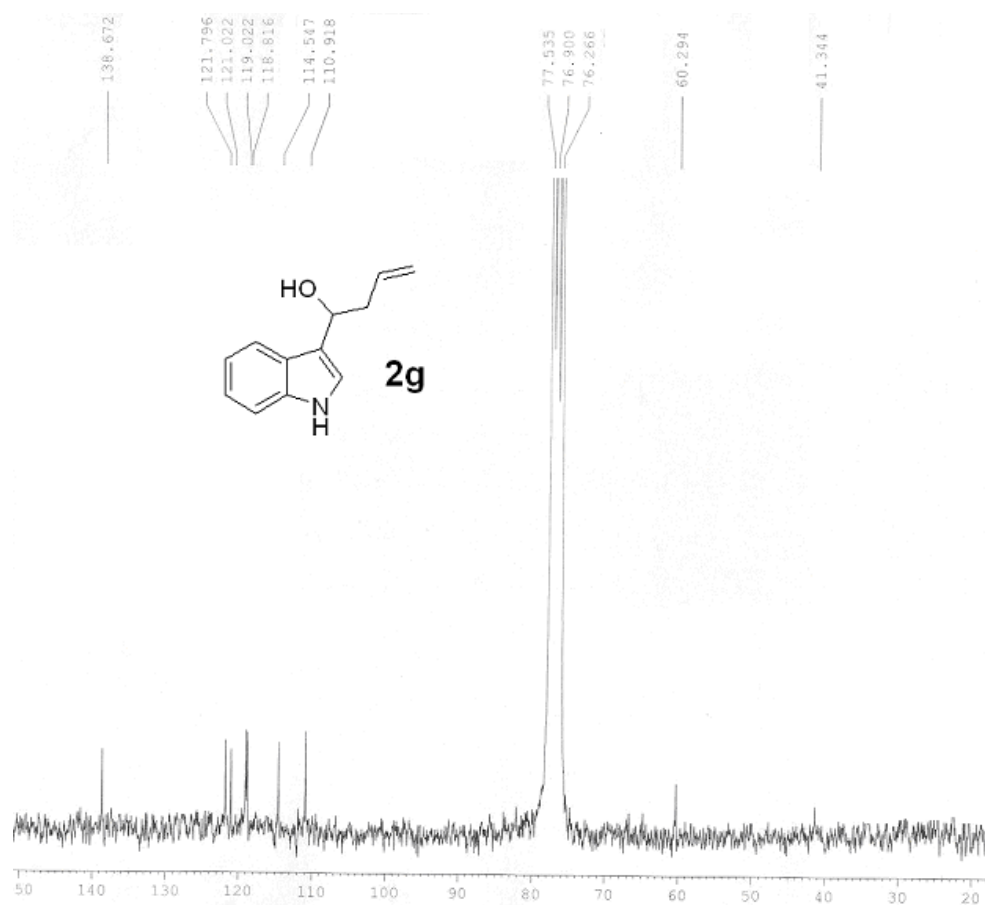


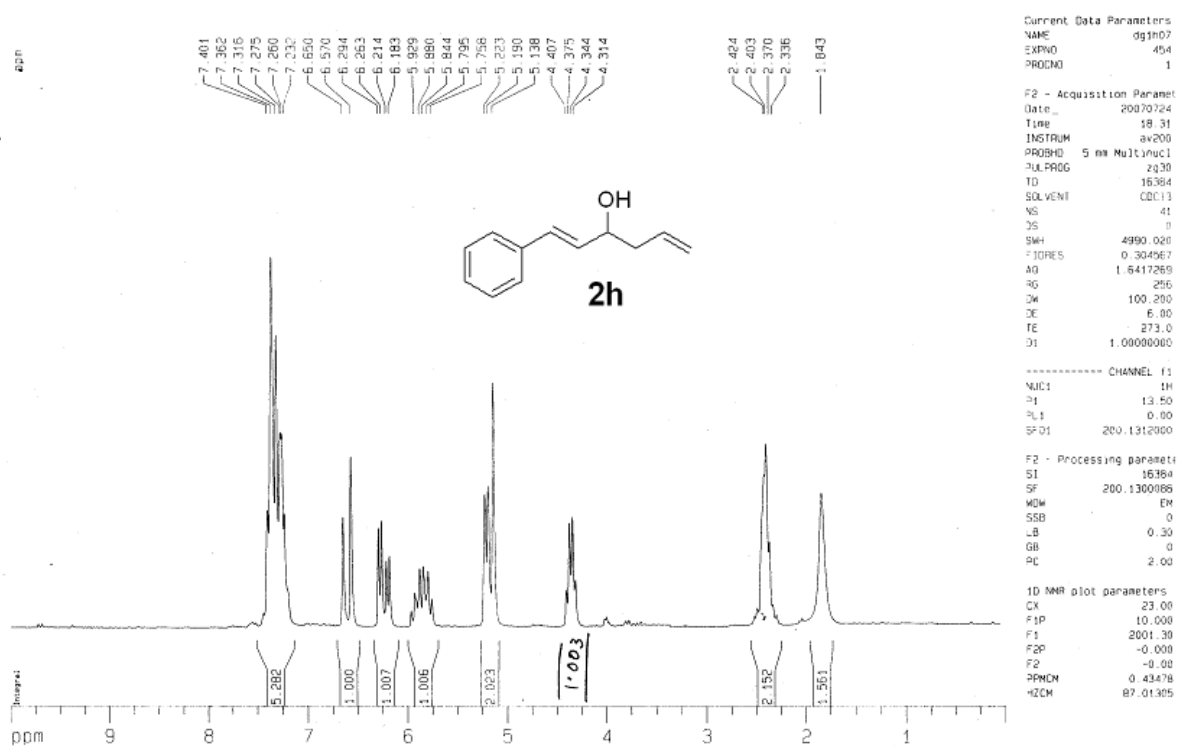


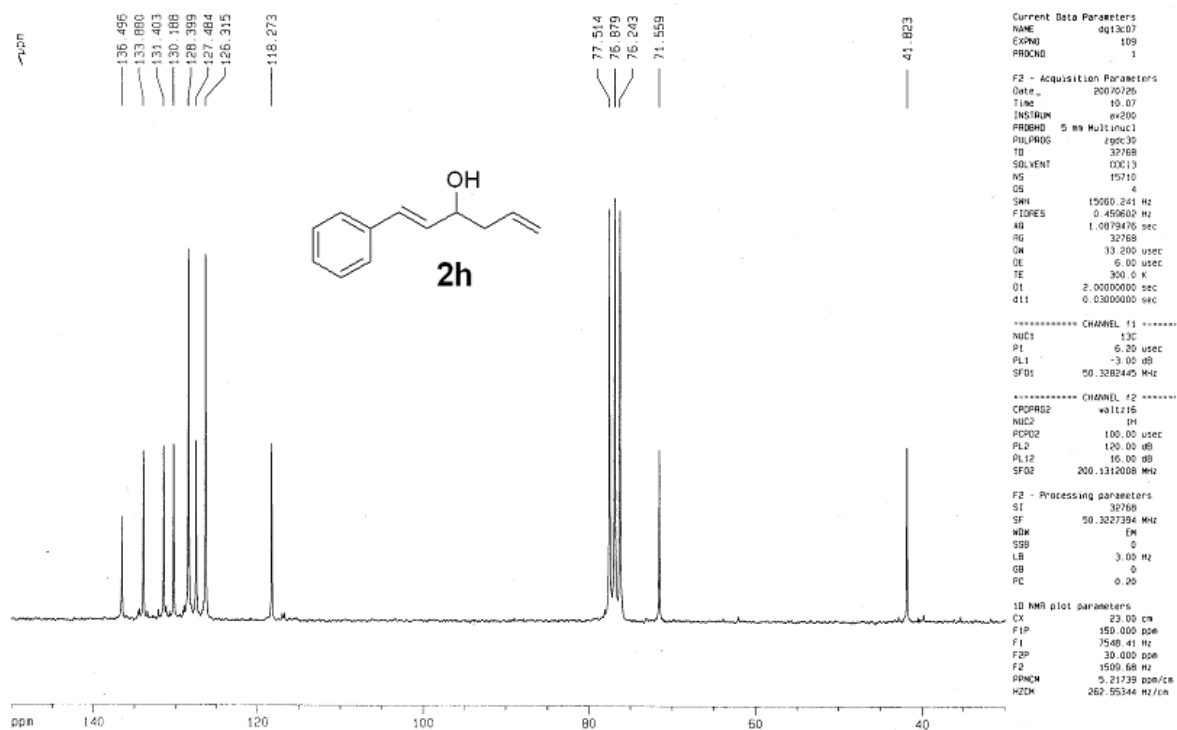


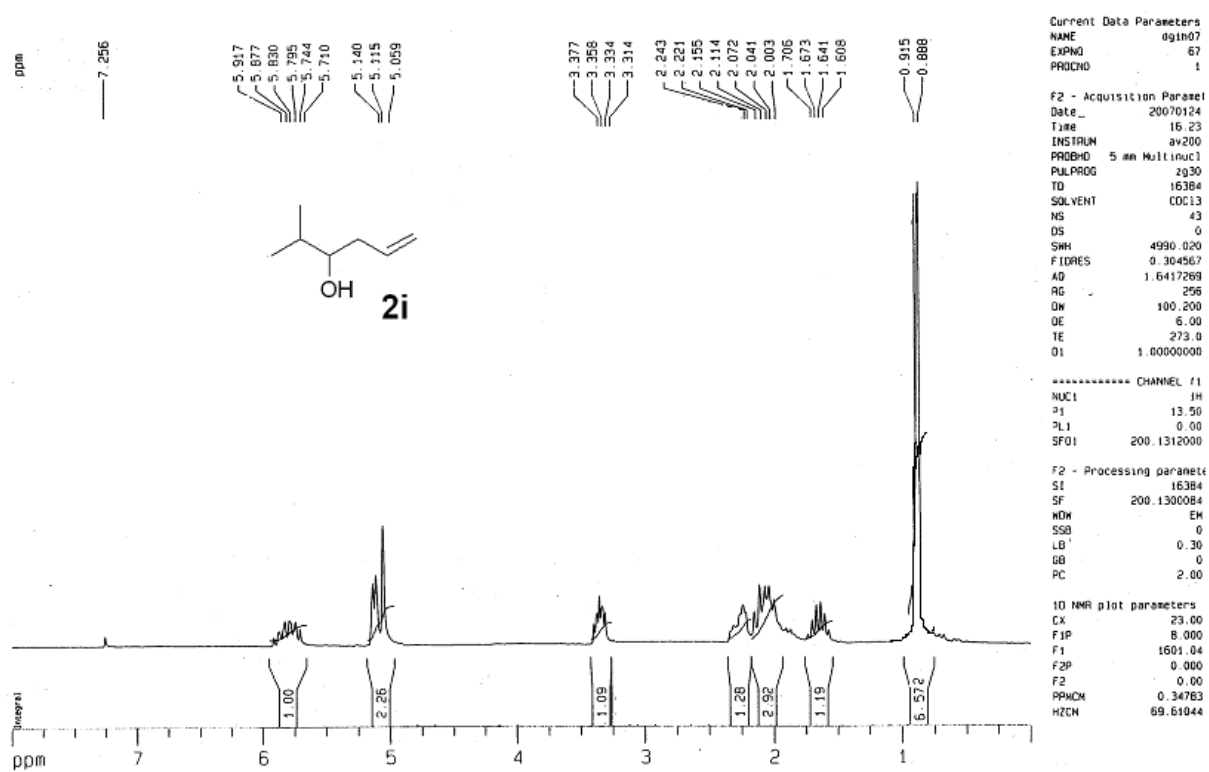


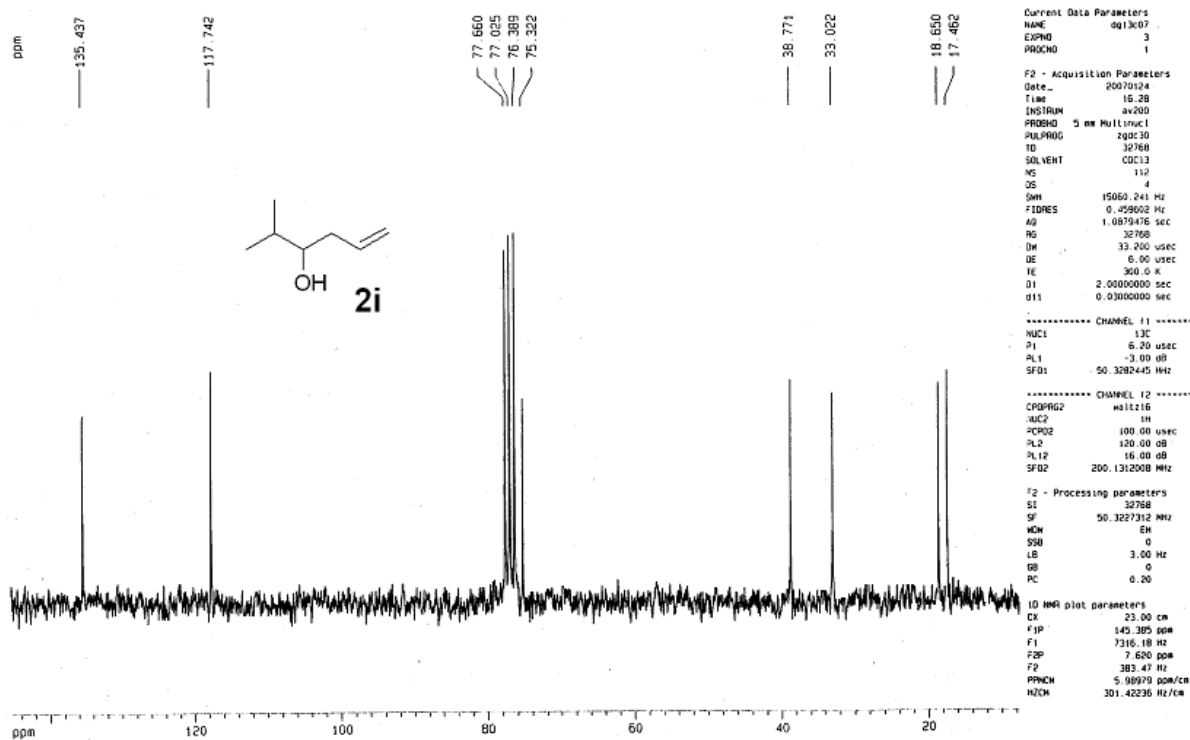


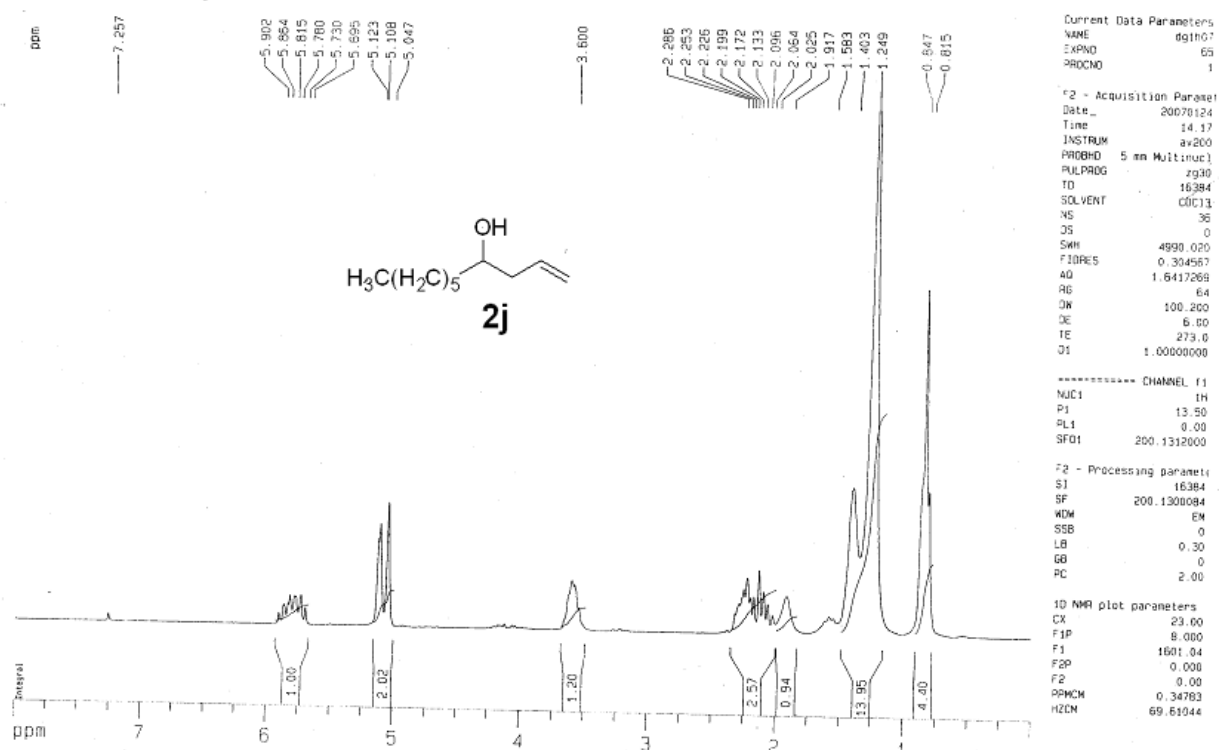


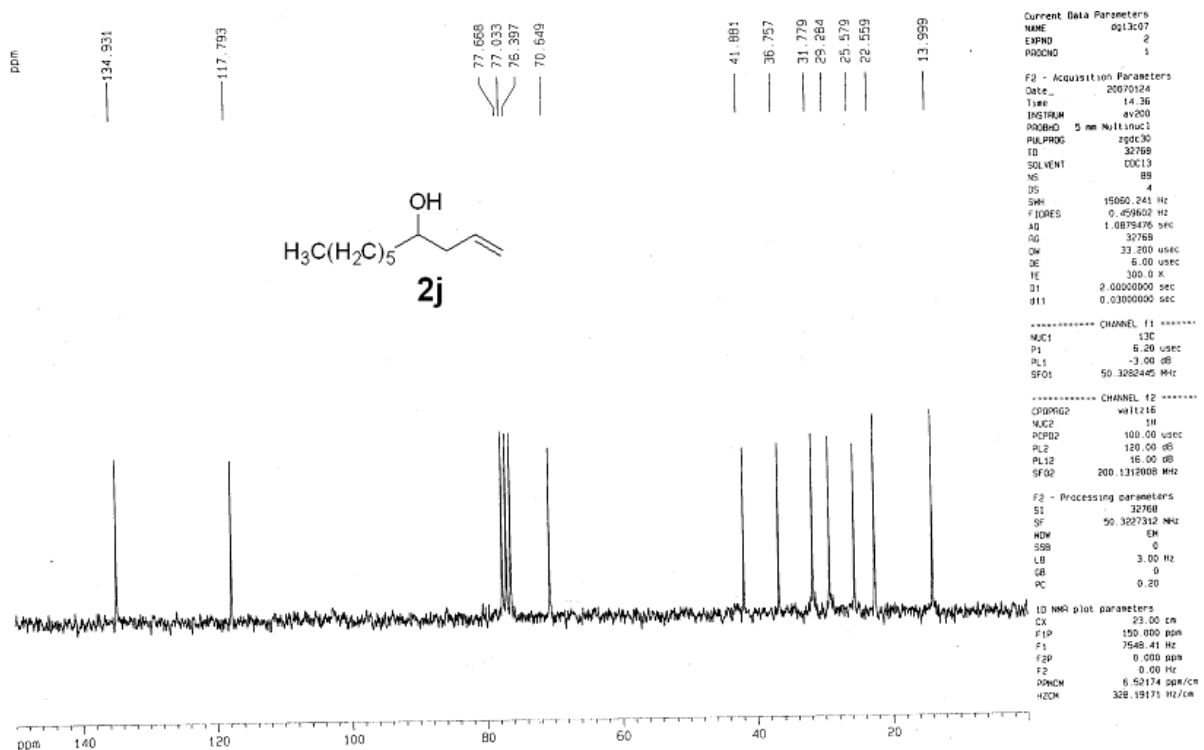


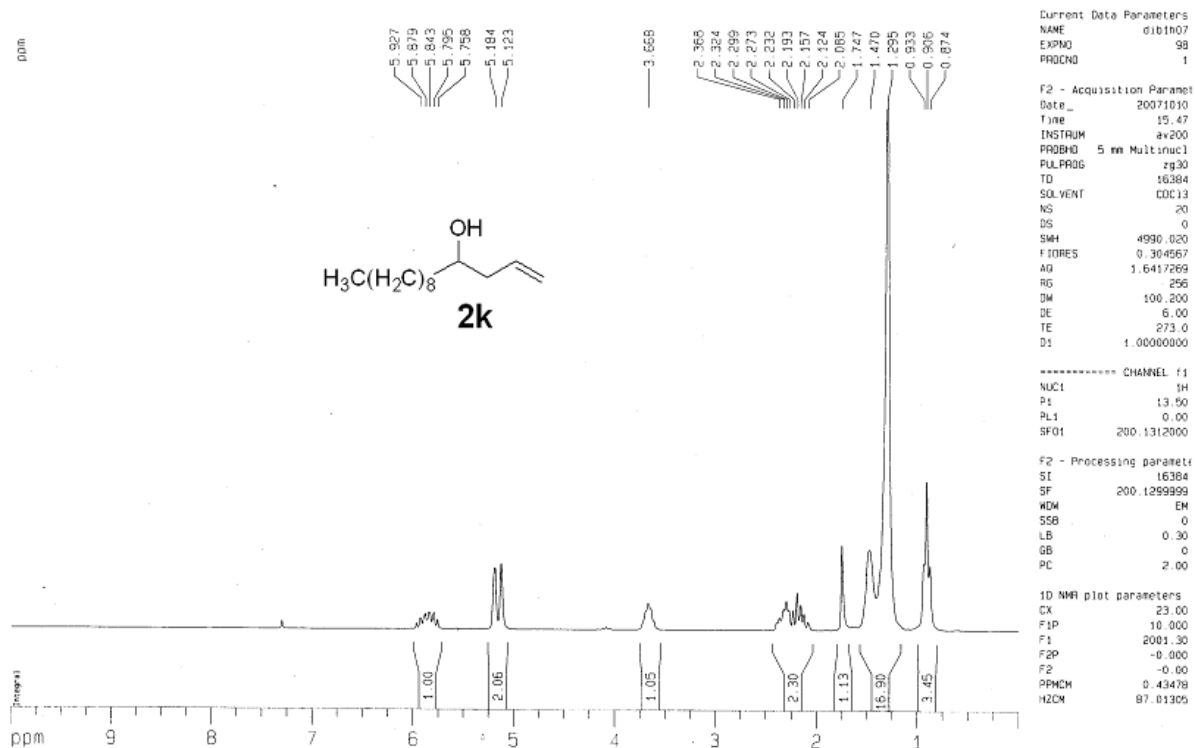


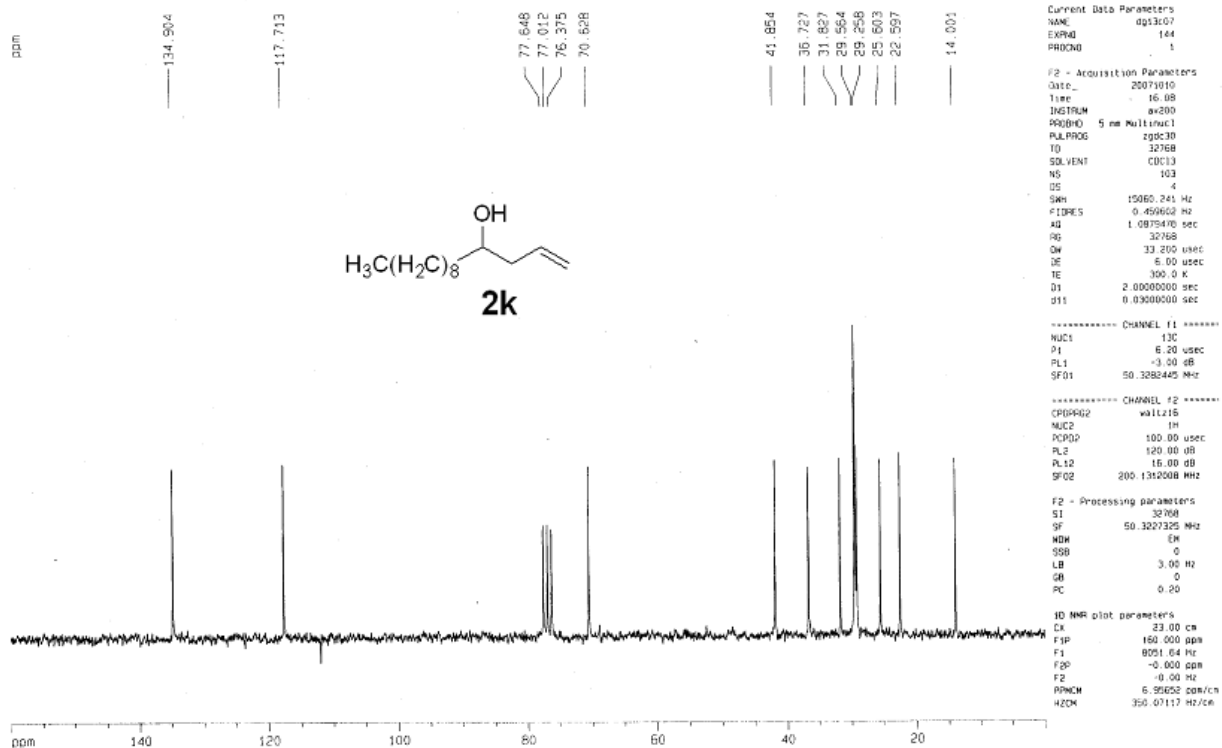




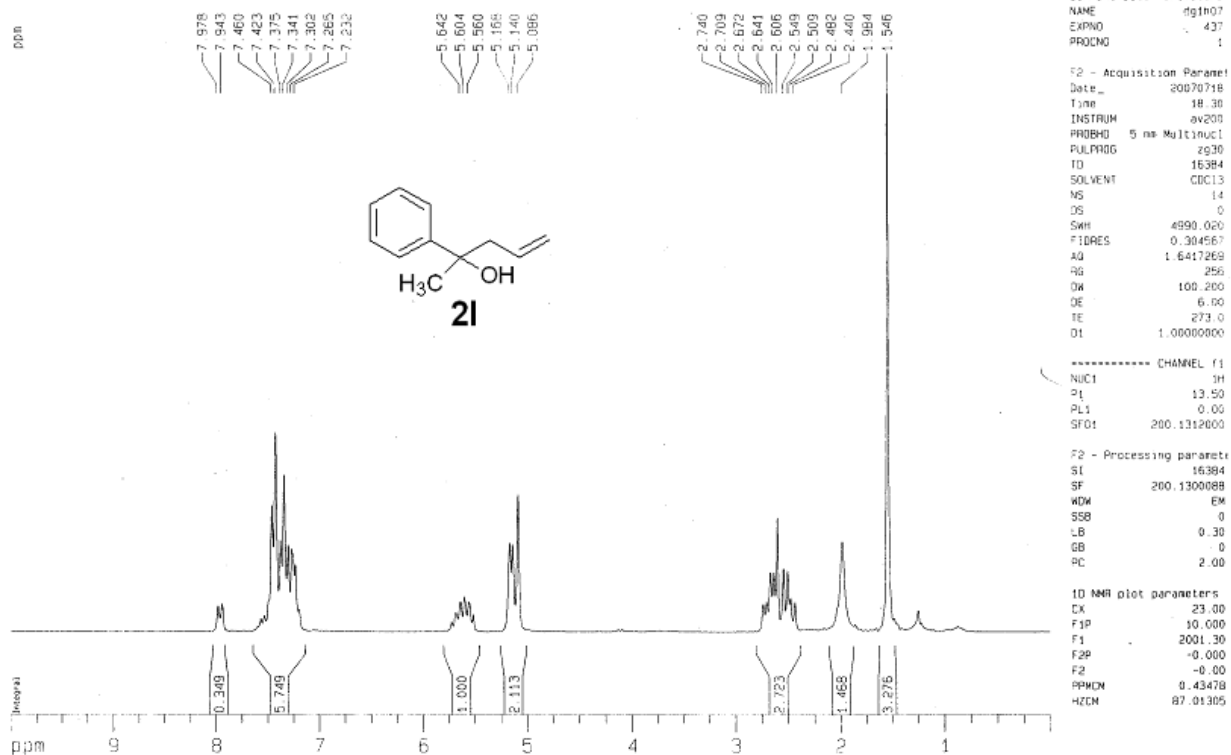


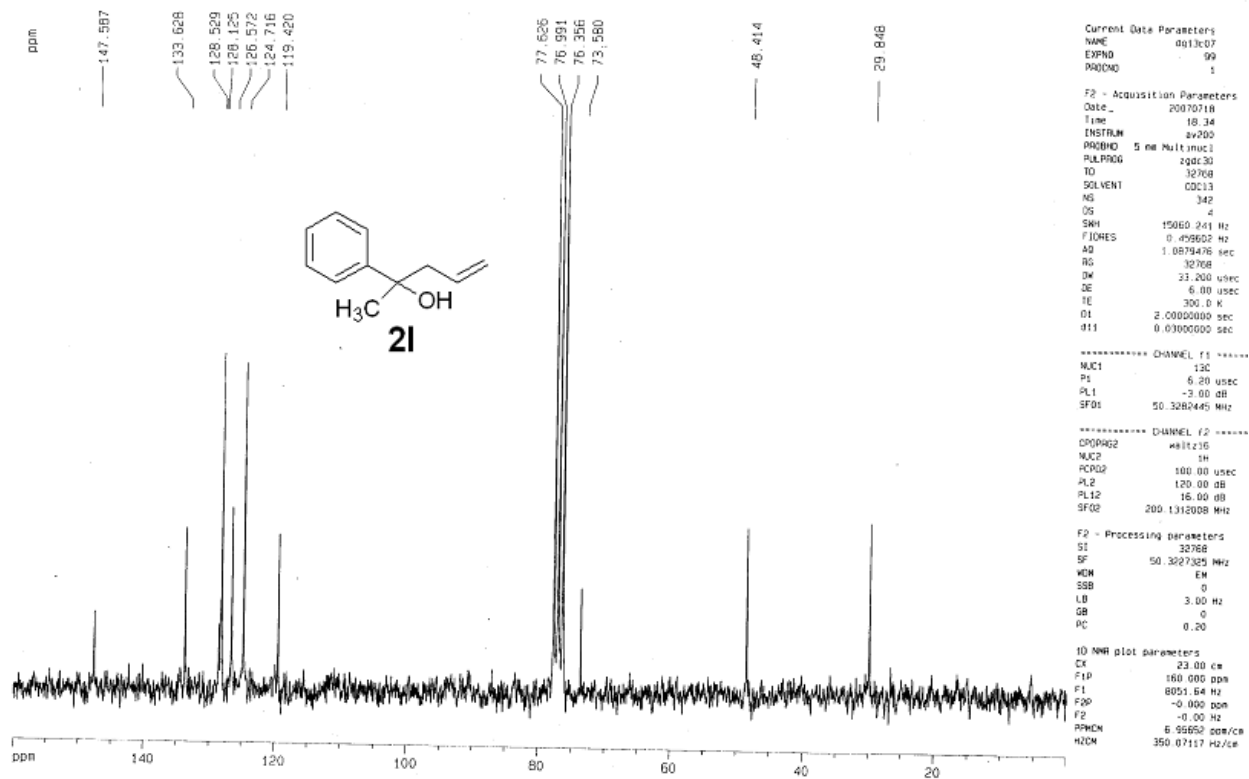


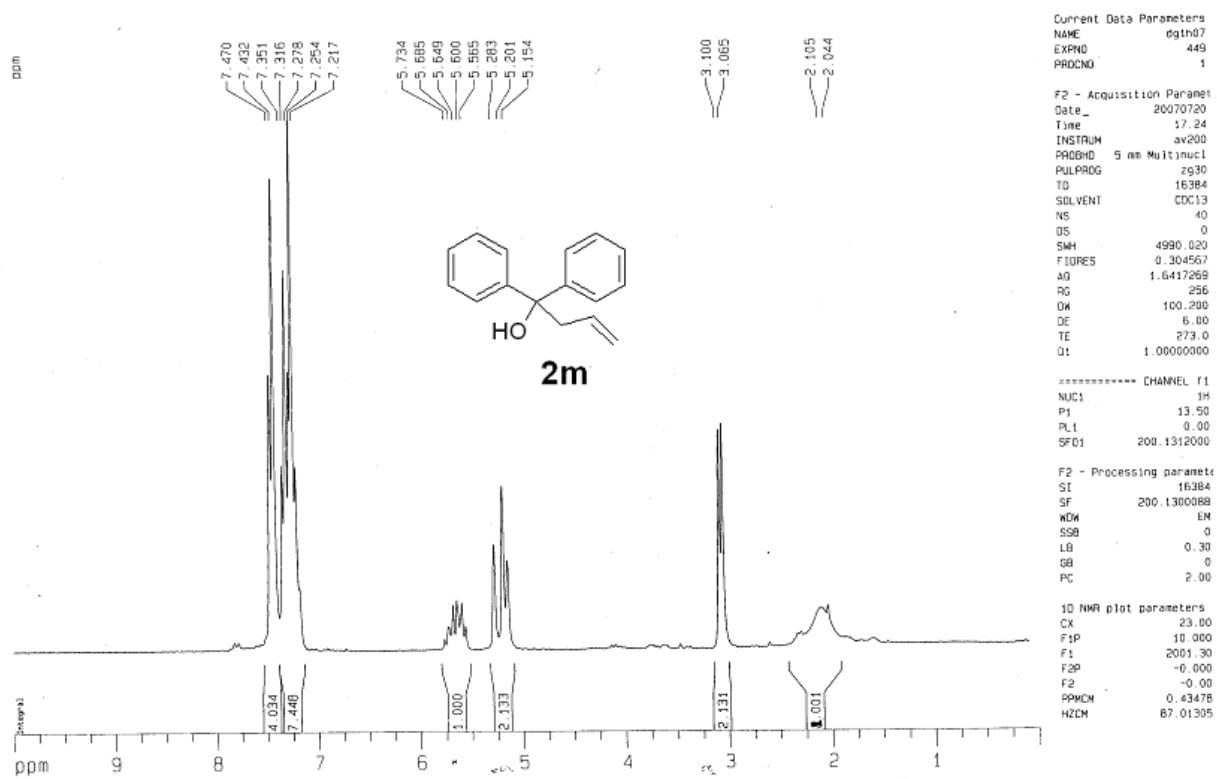


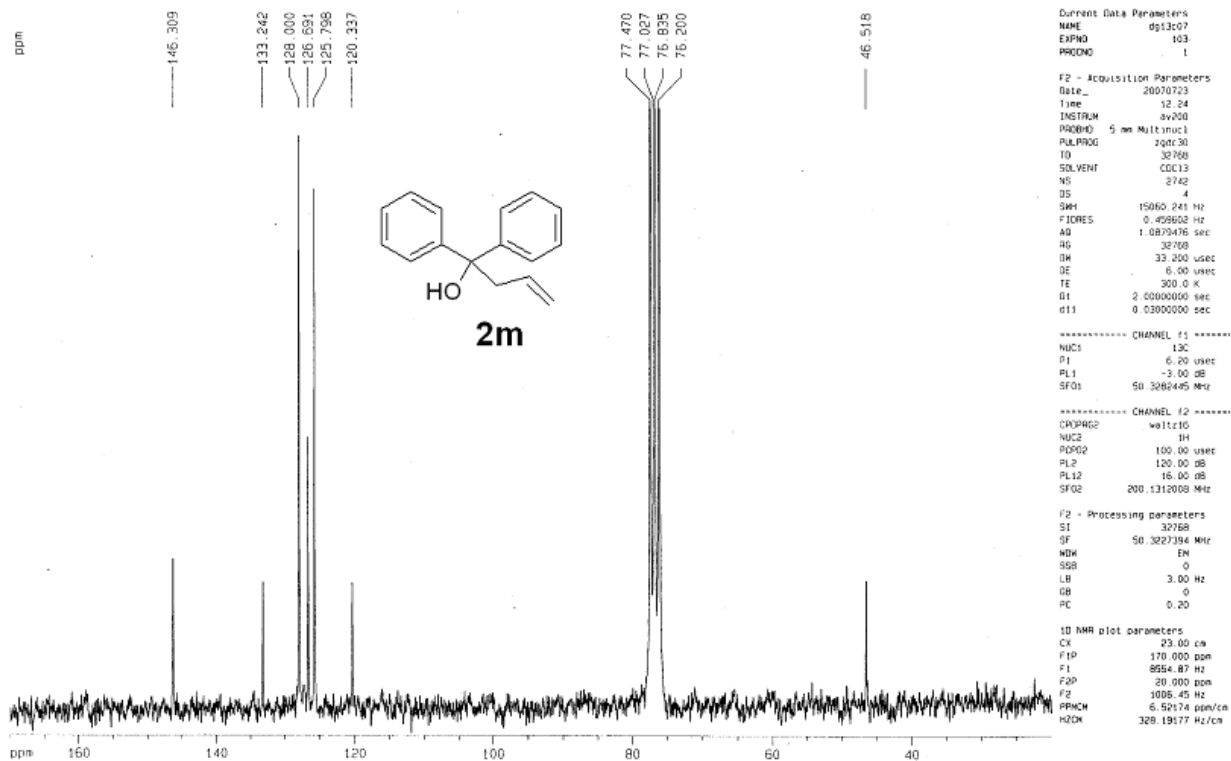


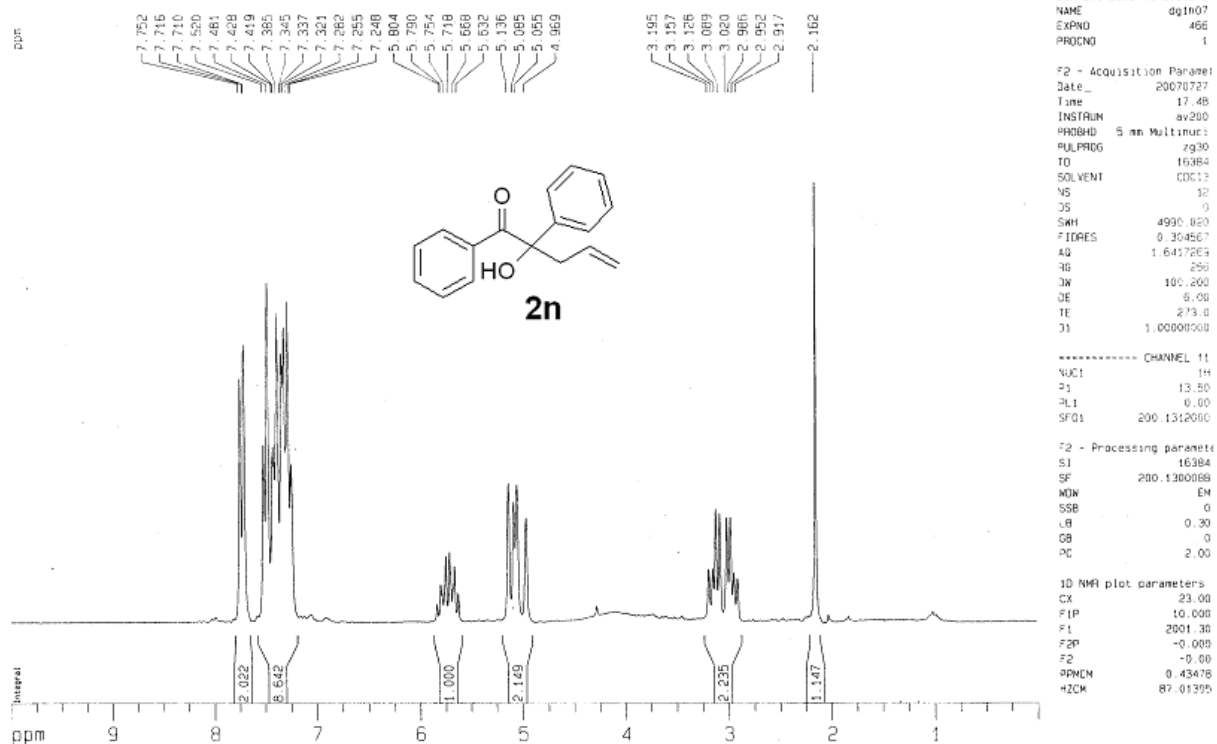
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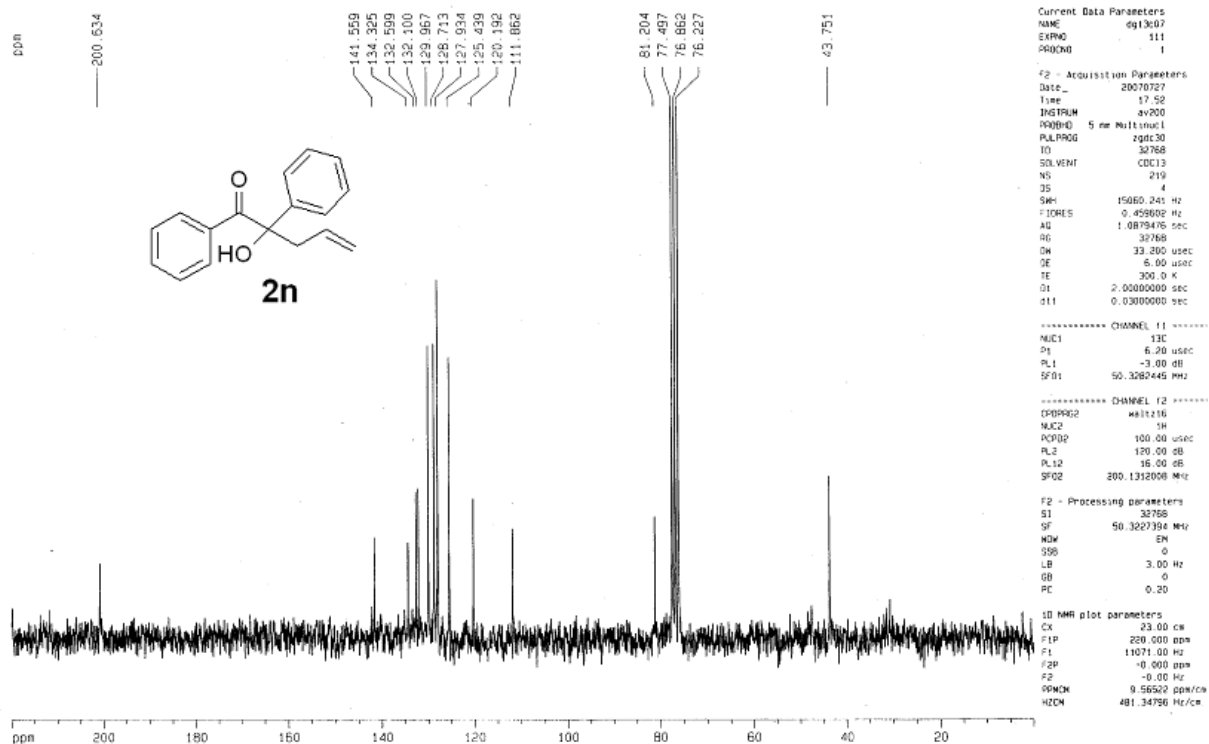


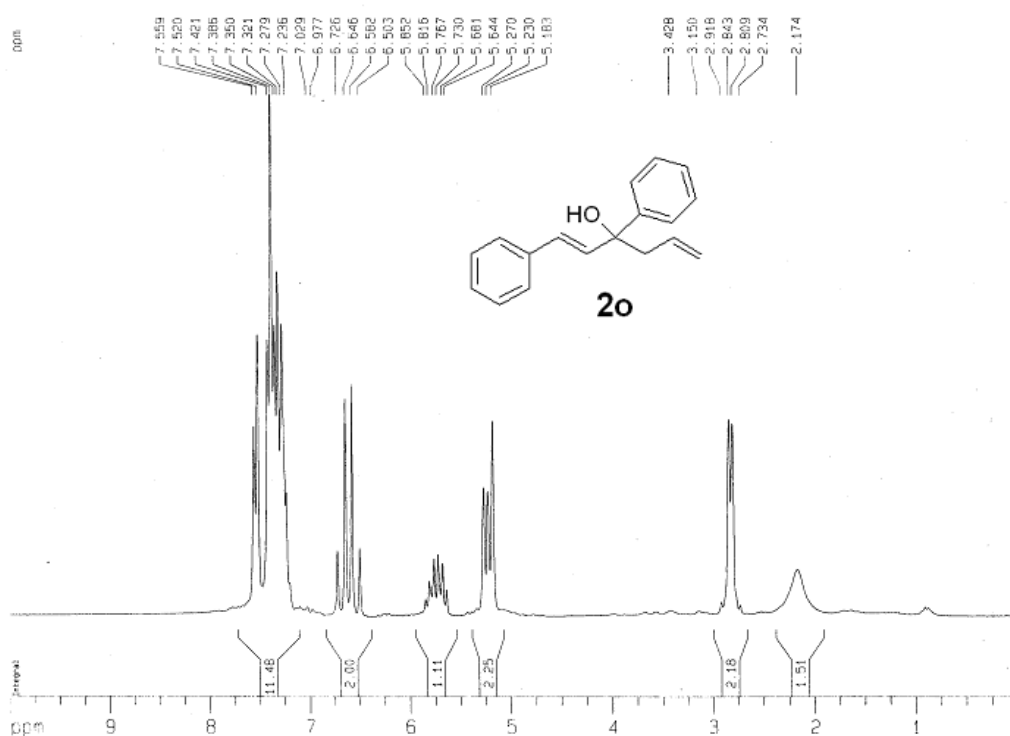












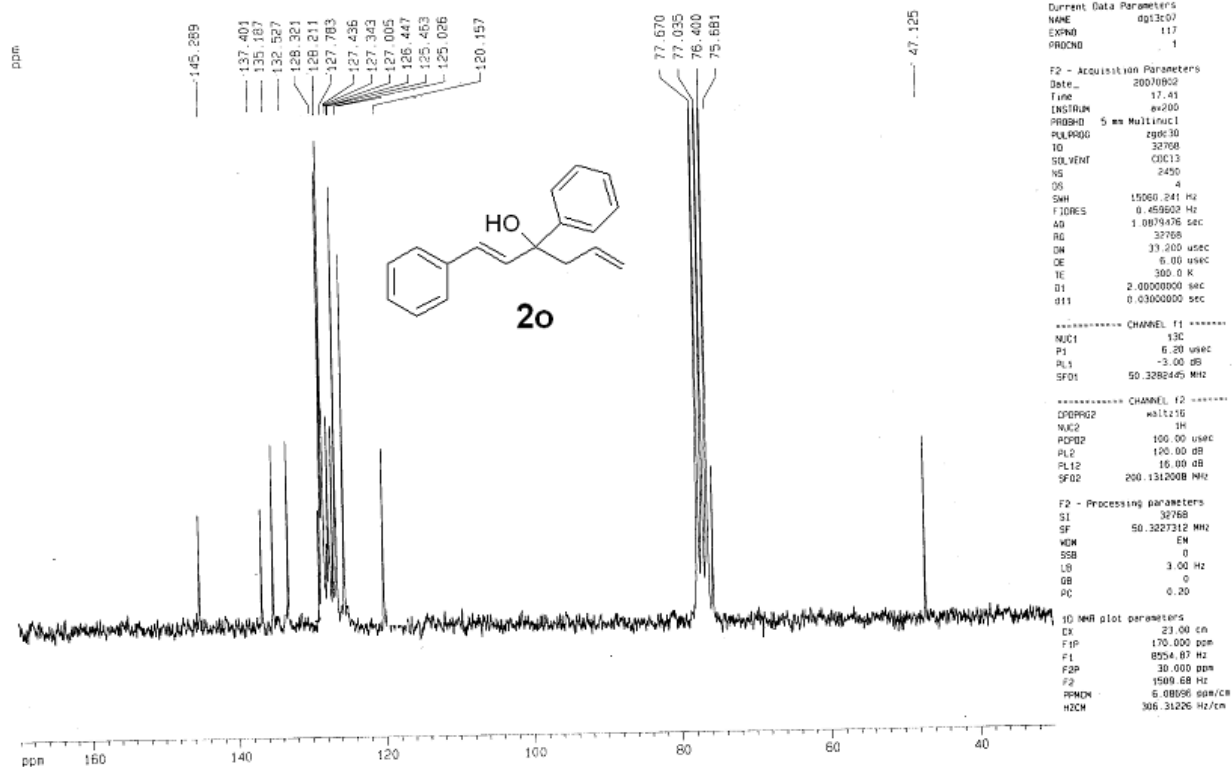
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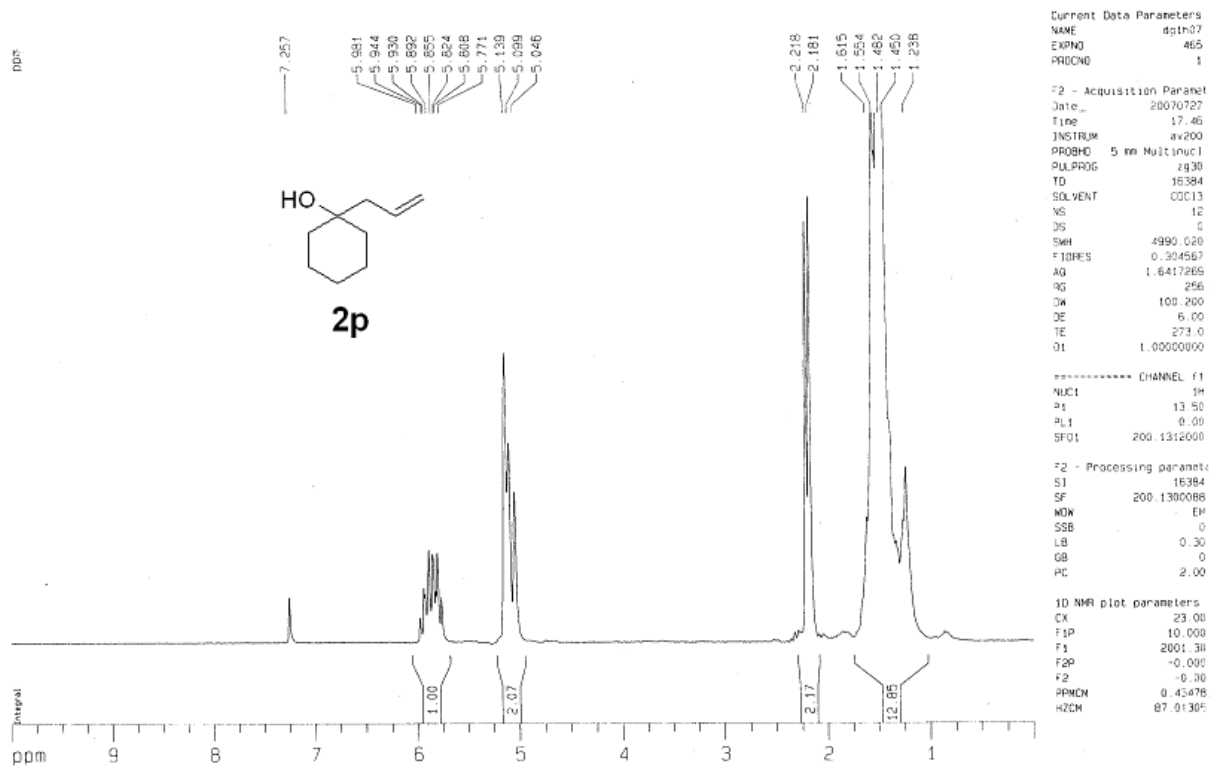
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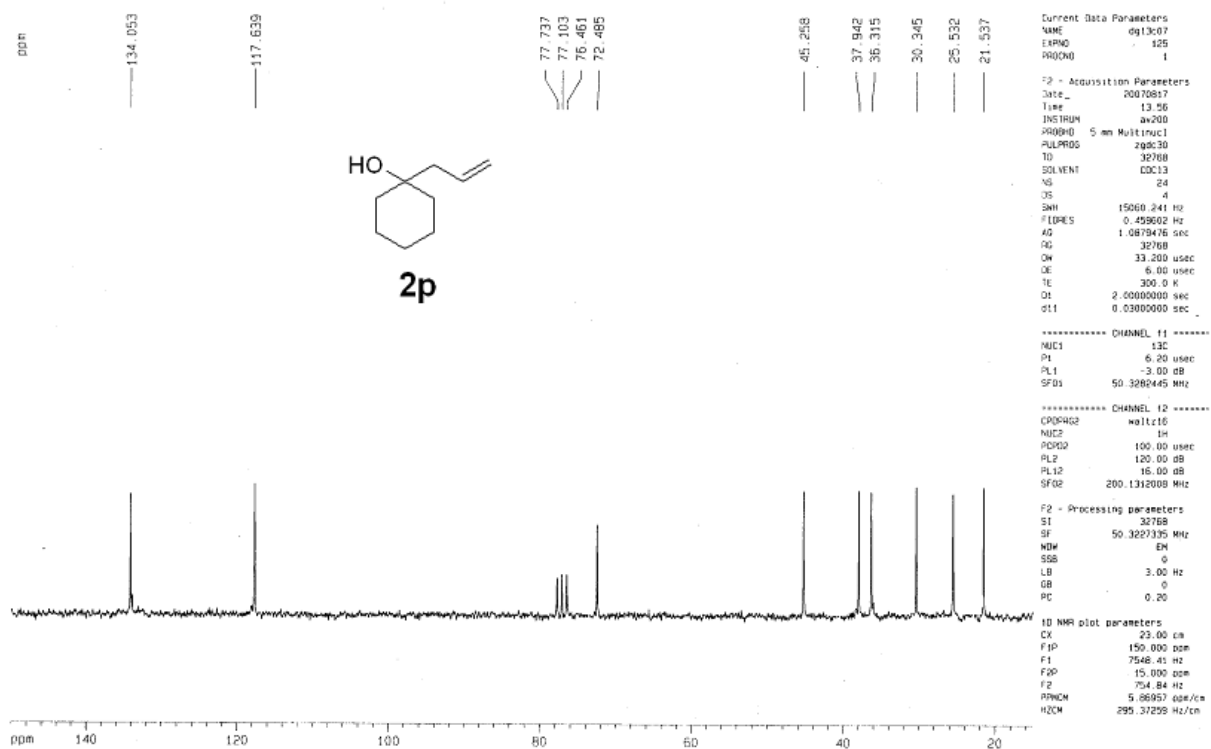
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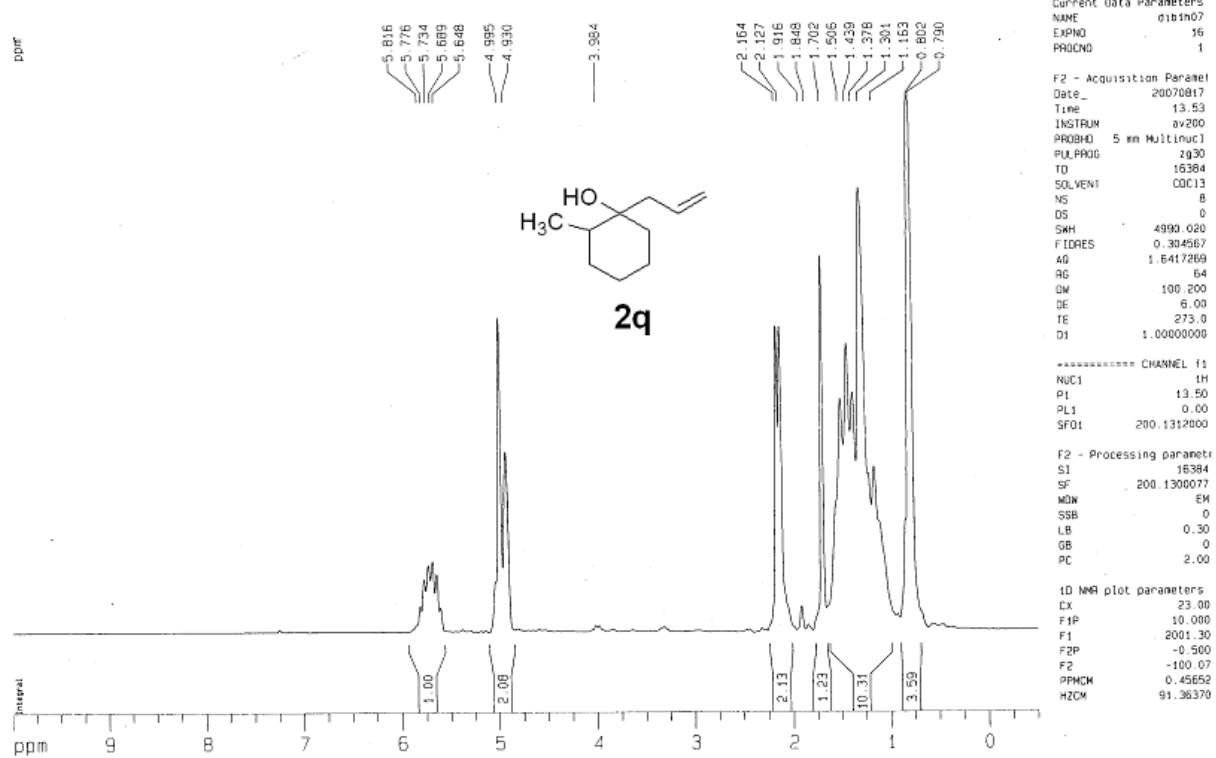
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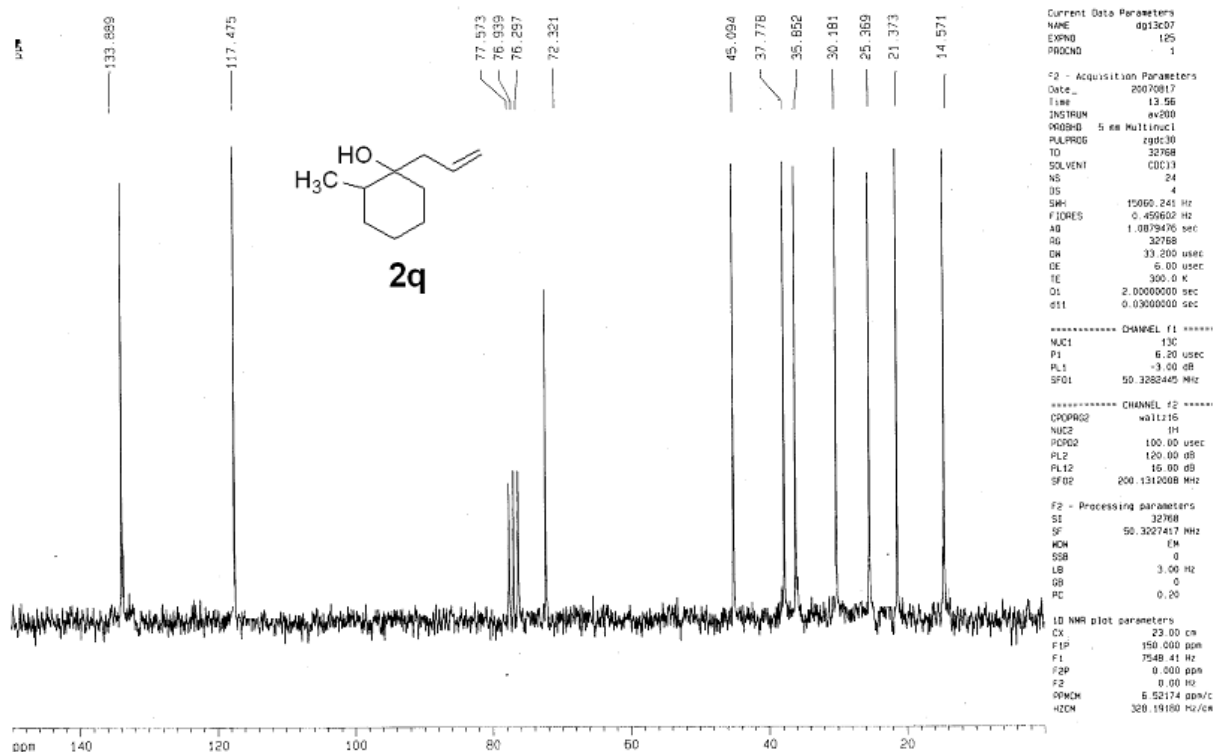
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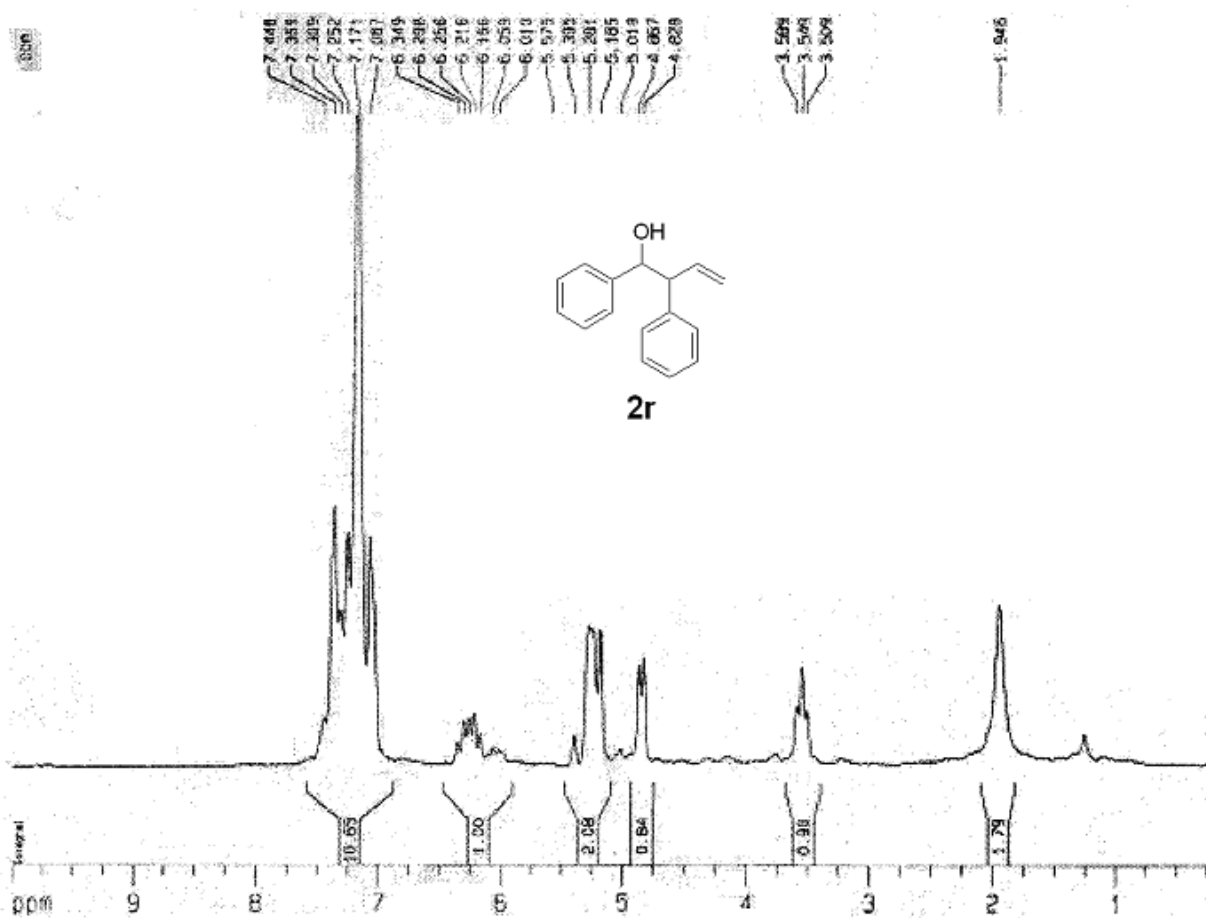


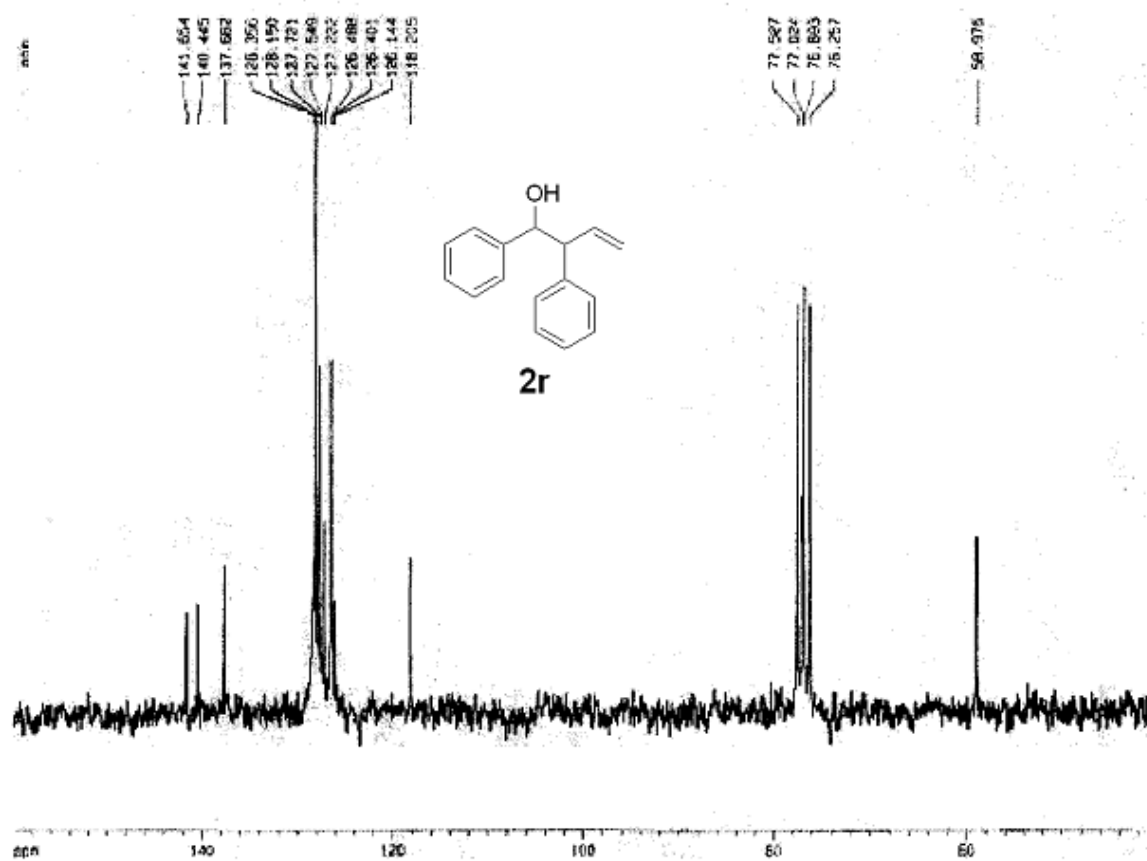












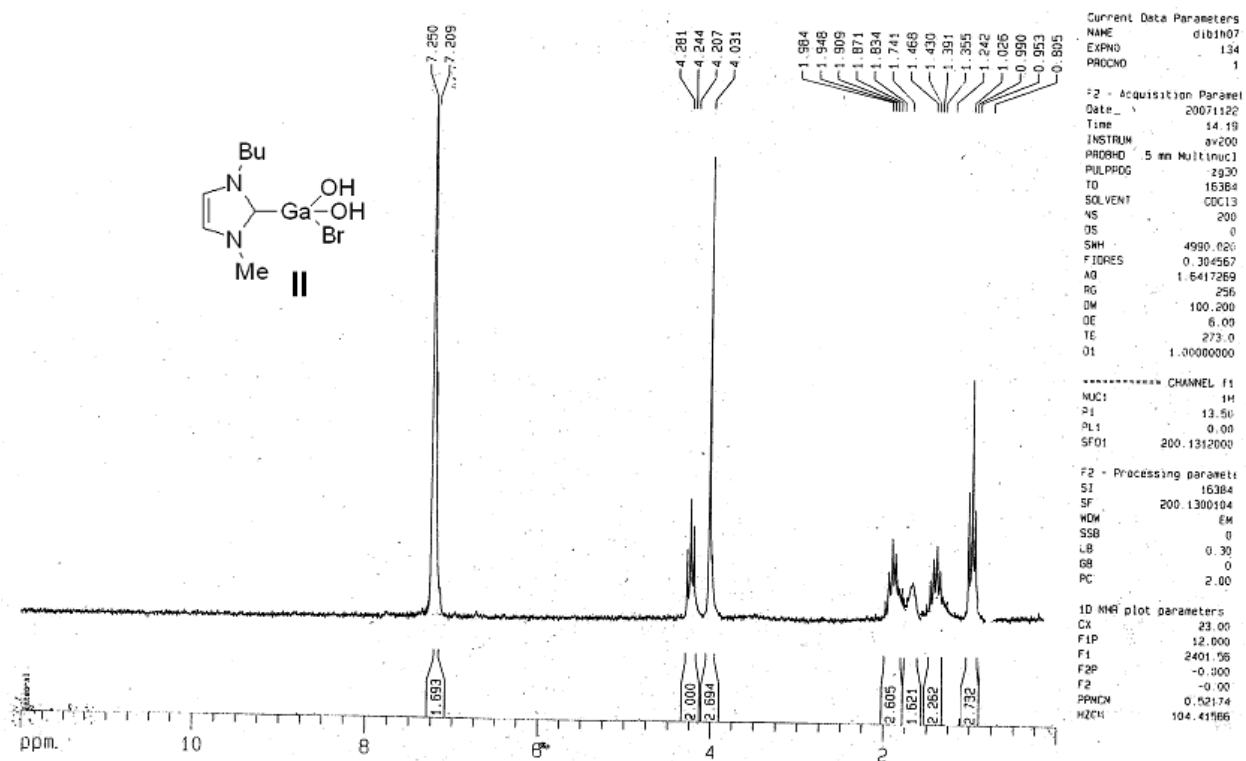


Figure S1. ¹H NMR spectrum of **II**, recorded in CDCl₃.

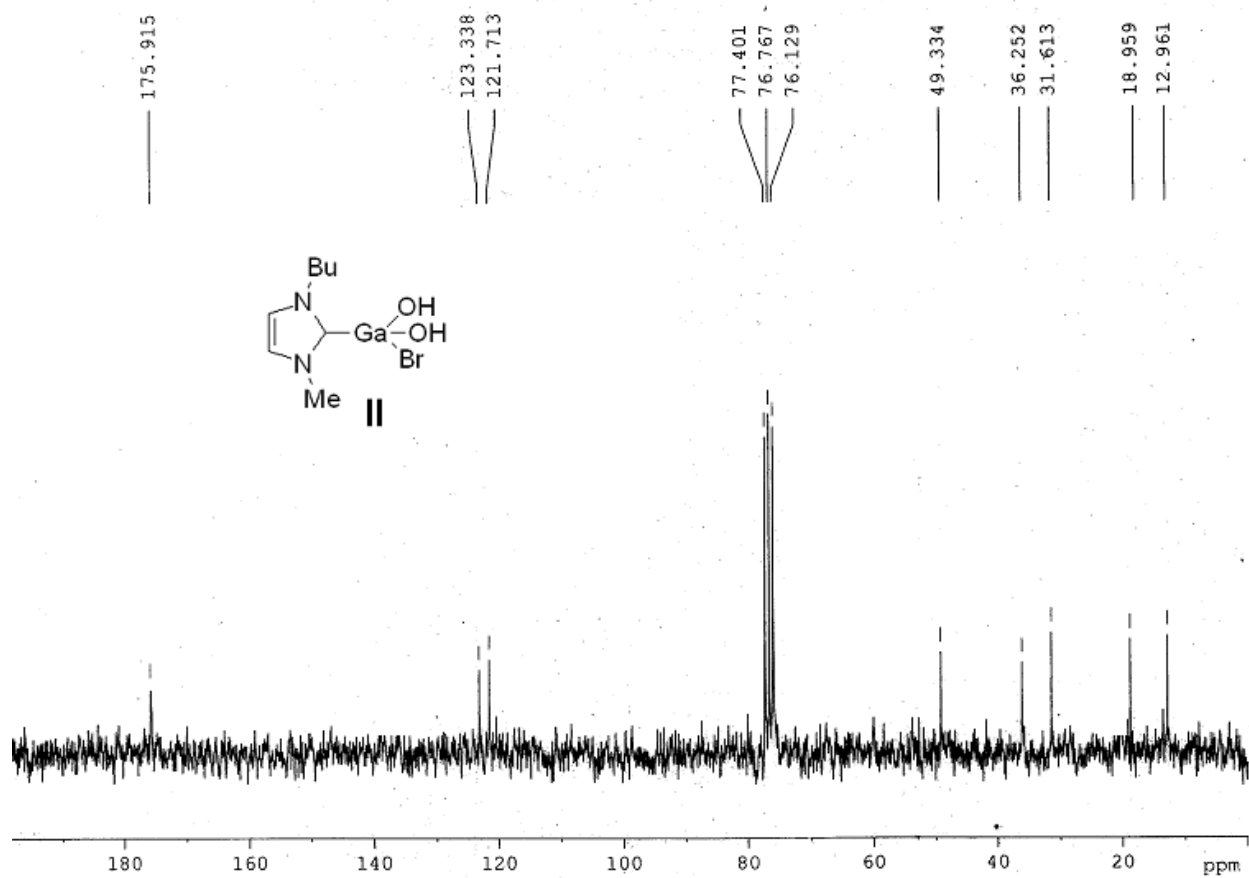


Figure S2. ^1H NMR spectrum of **II**, recorded in CDCl_3 .

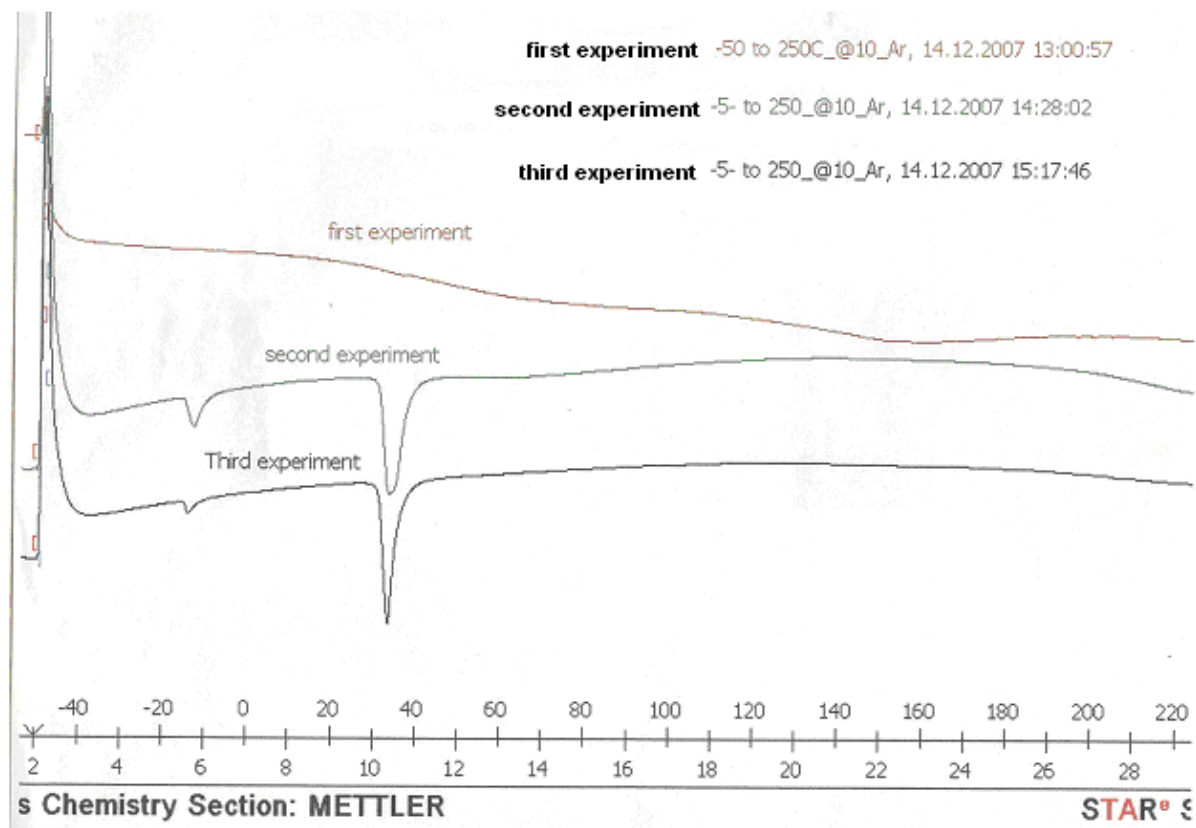


Figure S3. Results of the DSC experiments with **II**. ; this clearly shows that the decomposition of **II** produces Ga metal.

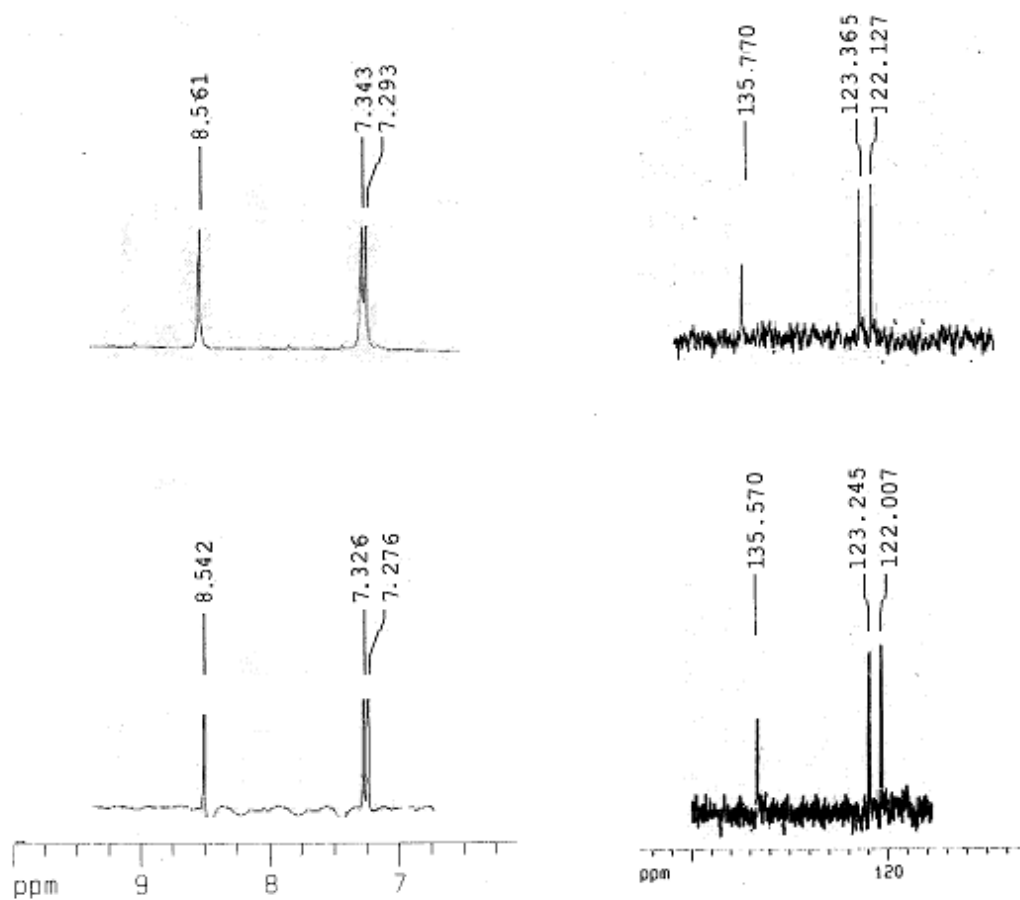


Figure S4. A partial view of the typical ^1H NMR and ^{13}C NMR spectrum of [bmim][Br] compared with those of the reaction mixture of [bmim]Br and Ga after stirring for 30 min. The spectra, recorded in D_2O , show upfield shifts of the imidazole ring protons as well as carbons.

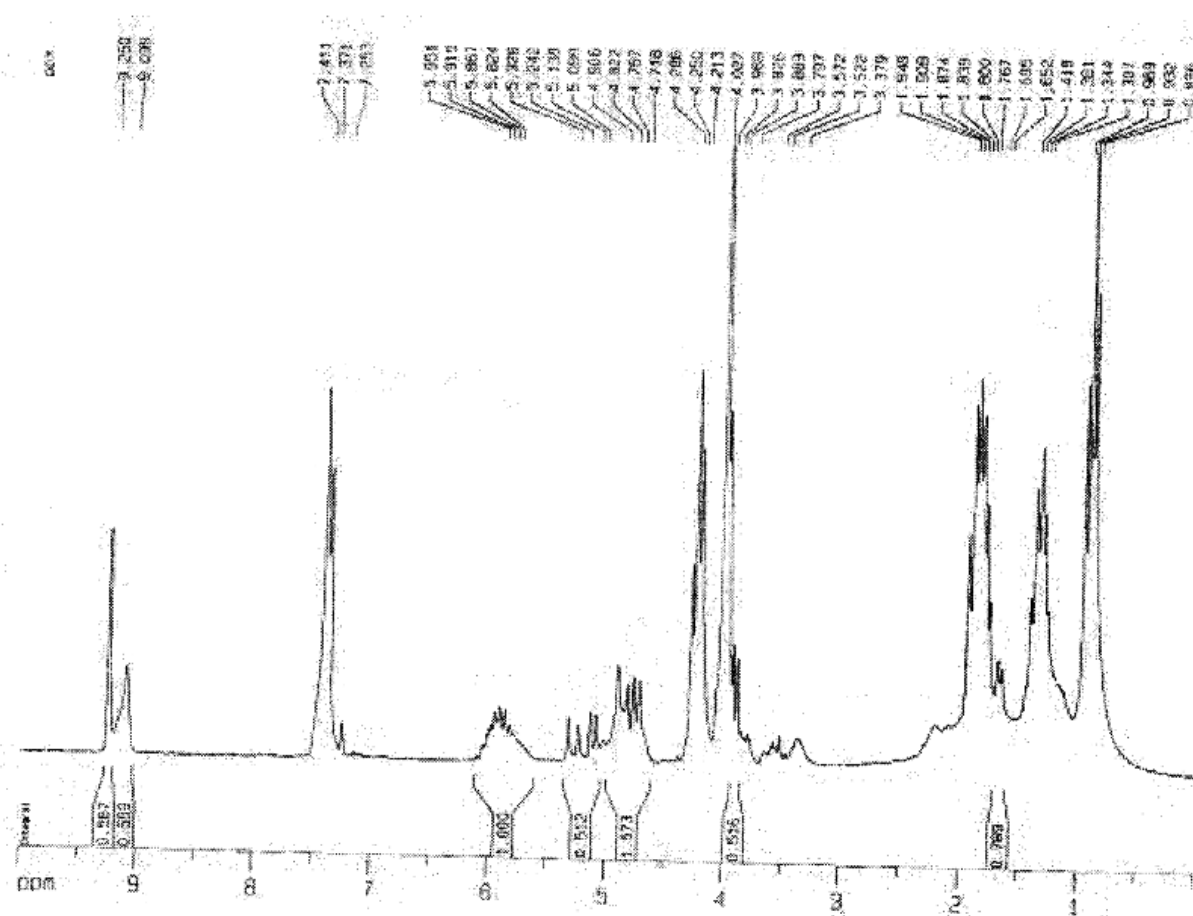


Figure S5. A typical ^1H NMR spectrum of the reaction between Ga and allyl bromide in [bmim][Br], recorded in CDCl_3 after 4 h of stirring. This shows the formation of $(\text{H}_2\text{C}=\text{CHCH}_2)_2\text{GaBr}$ (**I**) species.

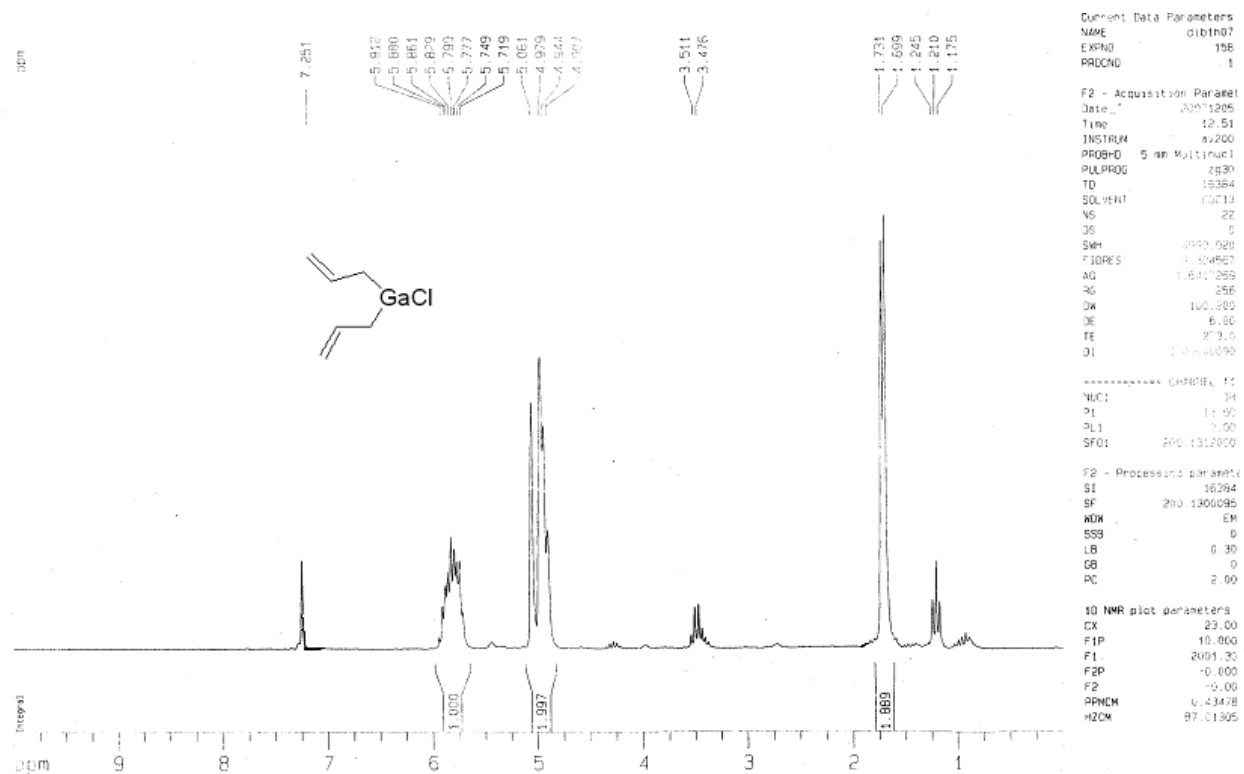


Figure S6. A typical ^1H NMR spectrum of the diallylGallium chloride species, produced in the reaction between GaCl_3 (1 mmol) and allyllithium (2 mmol) in diethylether, recorded in CDCl_3 .

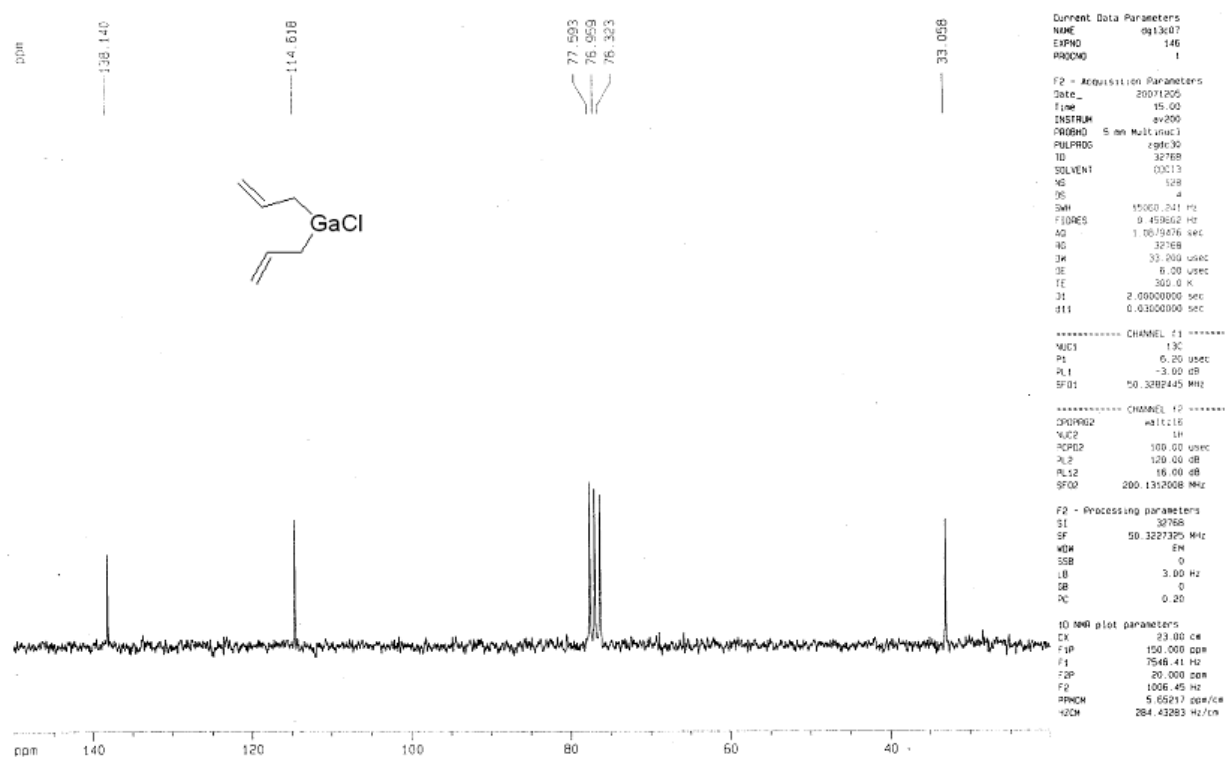


Figure S7. A typical ^{13}C NMR spectrum of the diallylgallium chloride species, produced in the reaction between GaCl_3 (1 mmol) and allyllithium (2 mmol) in diethylether, recorded in CDCl_3 .