Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Synthesis of active tin: an efficient reagent for allylation reaction of carbonyl compounds

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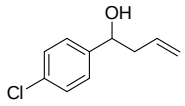
Electronic Supplementary Information

Spectral data and spectra of Products (Homoallyl alcohols):

All the data of products match with the data from reported literatures.[1-5]

1. **1-(4-chlorophenyl)-but-3-en-1-ol**[1]

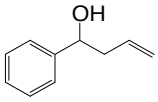


^{1}H NMR (400 MHz, $CDCl_3$): δ 7.27-7.32 (m, 4H), 5.72-5.82 (m, 1H), 5.13-5.17 (m, 2H), 4.71 (td, *J* = 6.2, 1.6 Hz, 1H), 2.41-2.51 (m, 2H), 2.19 (brs, 1H).

^{13}C NMR (100 MHz, $CDCl_3$): δ 142.2, 133.9, 133.0, 128.4, 127.1, 118.7, 72.5, 43.8

MS (ESI) (*m*/*z*) 183 ($M + H^+$).

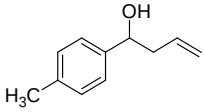
2. **1-phenyl-but-3-en-1-ol**[1-3,5]



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.26-7.35 (m, 5H), 5.75-5.85 (m, 1H), 5.11-5.17 (m, 2H), 4.70 (t, *J* = 6.4 Hz, 1H), 2.82 (s, 1H), 2.50 (t, *J* = 6.8 Hz, 2H)

^{13}C NMR (100 MHz, $CDCl_3$): δ 144.1, 134.7, 128.6, 127.7, 126.0, 118.4, 73.5, 43.9

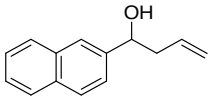
3. **1-(4-methylphenyl)--but-3-en-1-ol**[1,3]



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.25 (d, *J* = 8.0 Hz, 2H), 7.17 (d, *J* = 7.6 Hz, 2H), 5.76-5.86 (m, 1H), 5.12-5.18 (m, 2H), 4.69 (t, *J* = 6.4 Hz, 1H), 2.50 (t, *J* = 6.8 Hz, 2H), 2.36 (s, 3H), 2.22 (s, 1H)

^{13}C NMR (100 MHz, $CDCl_3$): δ 141.1, 137.3, 134.8, 129.2, 126.0, 118.4, 73.4, 43.9, 21.3

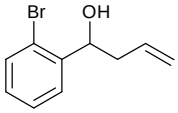
4. **1-(naphthalen-2-yl)-but-3-en-1-ol**[2]



^{1}H NMR (400 MHz, $CDCl_3$): δ 7.83-7.7.86 (m, 3H), 7.79 (s, 1H), 7.47-7.53 (m, 3H), 5.78-5.89 (m, 1H), 5.15-5.25 (m, 2H), 4.87 (t, *J* = 6.0 Hz, 1H), 2.55-2.64 (m, 2H), 2.50 (brs, 1H).

^{13}C NMR (100 MHz, $CDCl_3$): δ 141.5, 134.6, 133.5, 133.2, 133.2, 128.4, 128.2, 127.9, 126.4, 126.1, 124.8, 124.3, 118.9, 73.7, 43.9

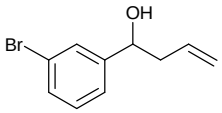
5. **1-(2-bromophenyl)but-3-en-1-ol**[6]



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.50-7.56 (m, 2H), 7.33 (t, *J* = 7.4 Hz, 1H), 7.10-7.14 (m, 1H), 5.82-5.93 (m, 1H), 5.16-5.21 (m, 2H), 5.09-5.12 (m, 1H), 2.60-2.66 (m, 1H), 2.26-2.39 (m, 2H)

^{13}C NMR (100 MHz, $CDCl_3$) δ 142.8, 134.4, 132.8, 128.9, 127.8, 127.4, 121.9, 118.8, 71.9, 42.2.

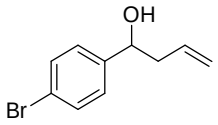
6. **1-(3-Bromophenyl)but-3-en-1-ol**[7]



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.52 (s, 1H), 7.39-7.41 (m, 1H), 7.19-7.28 (m, 2H), 5.73-5.83 (m, 1H), 5.15-5.19 (m, 2H), 4.70 (dd, *J* = 7.8, 5.0 Hz, 1H), 2.41-2.55 (m, 2H), 2.16 (brs. 1H)

^{13}C NMR (100 MHz, $CDCl_3$) δ 146.3, 134.0, 130.7, 130.1, 129.1, 124.5, 122.7, 119.1, 72.6, 43.9

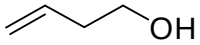
7. **1-(4-bromophenyl)-but-3-en-1-ol**[2,5]



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.46 (d, *J* = 8.4 Hz, 2H), 7.23 (d, *J* = 8.0 Hz, 2H), 5.72-5.82(m, 1H), 5.13-5.17 (m, 2H), 4.70 (td, *J* = 6.4, 2.8 Hz, 1H), 2.44-2.52 (m, 2H)

^{13}C NMR (100 MHz, $CDCl_3$) δ 143.1, 134.1, 131.8, 127.9, 121.5, 119.2, 72.9, 44.1

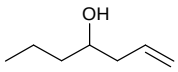
8. **But-3-en-1-ol**[4]



^{1}H NMR (300 MHz, $CDCl_3$) δ 5.70-5.87 (m, 1H), 5.10-5.19 (m, 2H), 3.68 (t, *J* = 9.3 Hz, 2H), 2.28-2.38 (m, 2H)

IR (KBr, cm^{-1}) 3395, 3070, 2923, 1607, 1440, 1048, 920

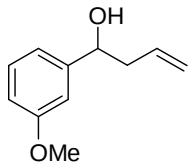
9. **Hept-1-en-4-ol**[8]



^{1}H NMR (400 MHz, $CDCl_3$) δ 5.78-5.88 (m, 1H), 5.11-5.18 (m, 2H), 3.64 (m, 1H) 2.28-2.38 (m, 1H), 2.08-2.19 (m, 1H), 1.29-1.53 (m, 4H), 0.93 (t, *J* = 6.9 Hz, 3H)

MS (ESI) (*m*/*z*) 115($M + H^+$).

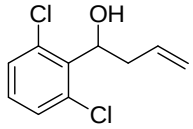
10. **1-(3-Methoxyphenyl)-3-buten-1-ol**[2,3]



^{1}H NMR (300 MHz, $CDCl_3$) δ 7.22-7.30 (m, 1H), 6.91-6.94 (m, 2H), 6.79-6.84 (m, 1H), 5.71-5.91 (m, 1H), 5.12-5.20 (m, 2H), 4.72(t, *J* = 9.6 Hz, 1H), 3.81 (s, 3H), 2.46-2.54 (m, 2H)

IR (KBr, cm^{-1}) 3386, 3080, 2938, 2836, 1634, 1599, 1488, 1457, 1432, 1152, 1263, 1030, 917, 784, 701

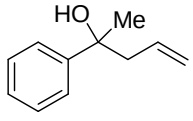
11. **1-(2,6-Dichlorophenyl)-but-3-en-1-ol**[5]



^{1}H NMR (300 MHz, $CDCl_3$) δ 7.29 (d, *J* = 7.8 Hz, 2H), 7.13 (t, *J* = 12 Hz, 1H), 5.74-6.00 (m, 1H), 5.43-5.55 (m, 1H), 5.06-5.17 (m, 2H), 2.78-2.91(m, 2H), 2.60-2.73 (m, 1H)

IR (KBr, cm^{-1}) 3575, 3422, 3077, 2977, 2923, 2852, 1640, 1562, 1434, 1184, 1084, 1044, 993, 918, 772

12. **2-phenyl-pent-4-en-2-ol**[1]



^{1}H NMR (300 MHz, $CDCl_3$) δ 7.23-7.47(m, 5H), 5.52-5.73(m, 1H), 5.09-5.52(m, 2H), 2.64-2.74(m, 1H), 2.44-2.55(m, 1H), 1.90 (brs, 1H), 1.55(s, 3H)

IR (KBr, cm^{-1}) 3445, 2923, 1637, 1219, 763

MS (ESI) (*m*/*z*) 163 ($M + H^+$).

References

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2. G.-l. Li and G. Zhao, *Org. Lett.*, 2006, **8**, 633.

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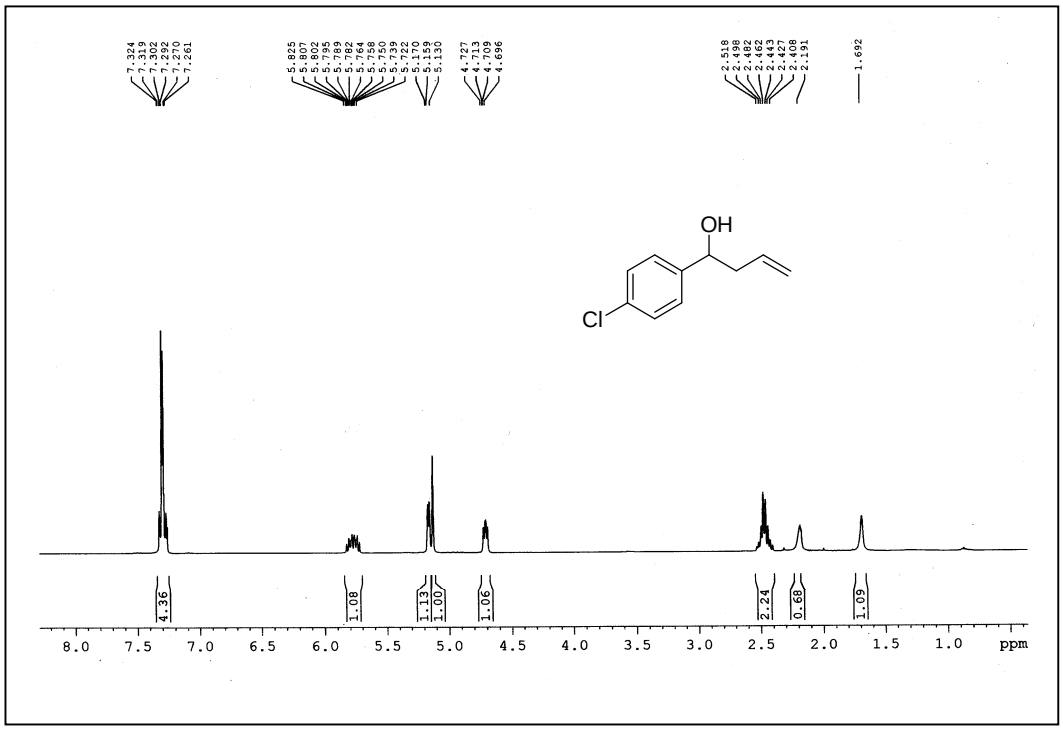
Eur. J. 2006, **12**, 6816 – 6828.

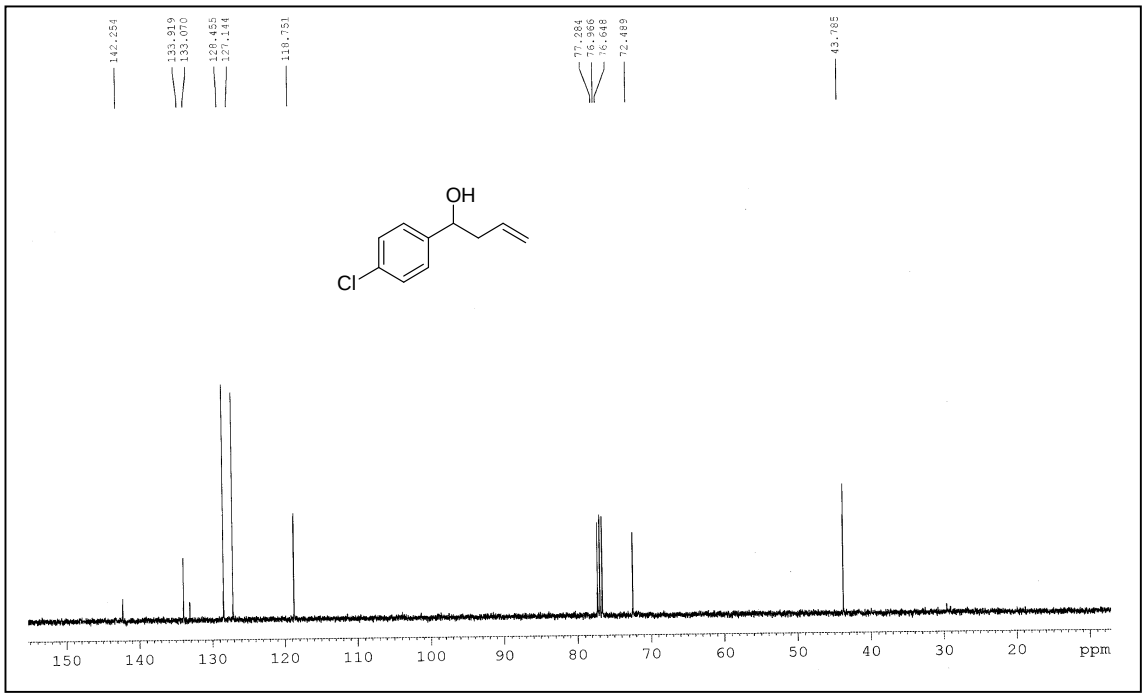
8. J. Neidhofer and S. Blechert, *Synthesis,* 2004, 3047.

SPECTRA:

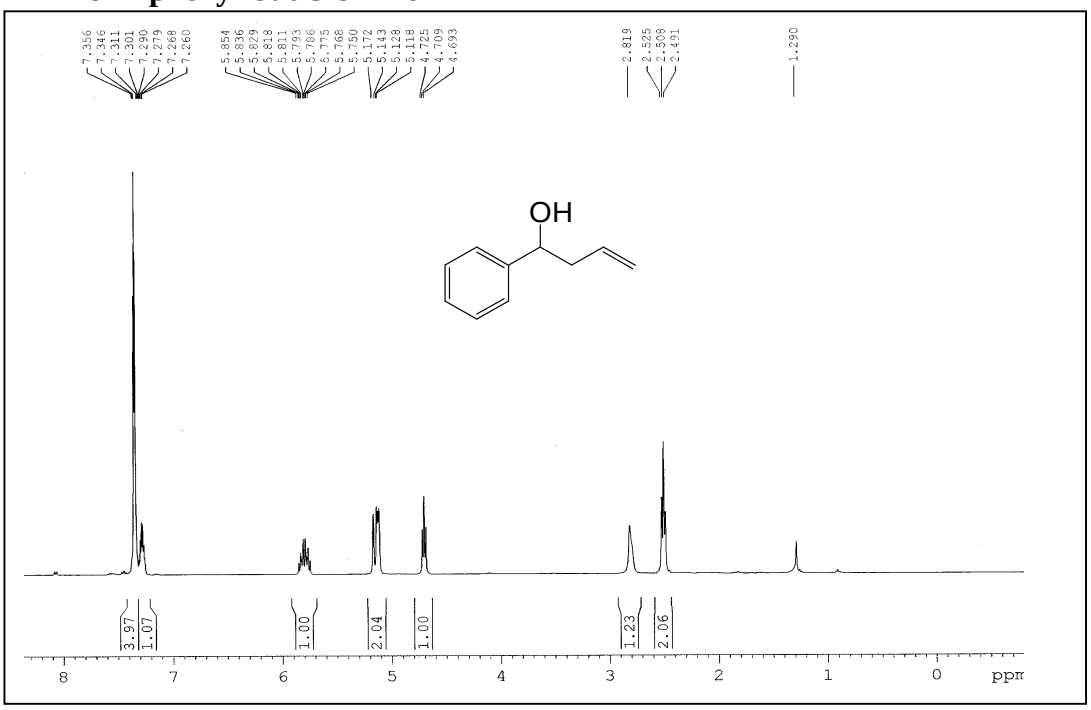
^{1}H NMR of 1-(4-chlorophenyl)-but-3-en-1-ol



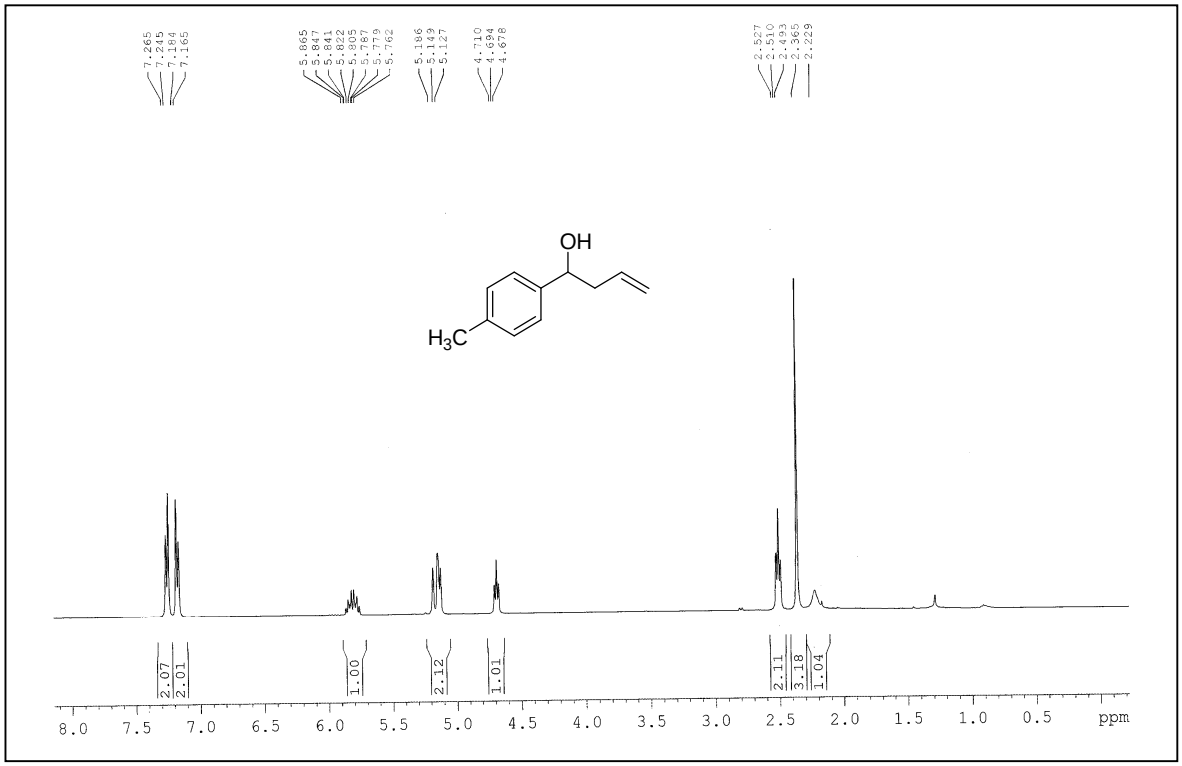
^{13}C NMR of 1-(4-chlorophenyl)-but-3-en-1-ol



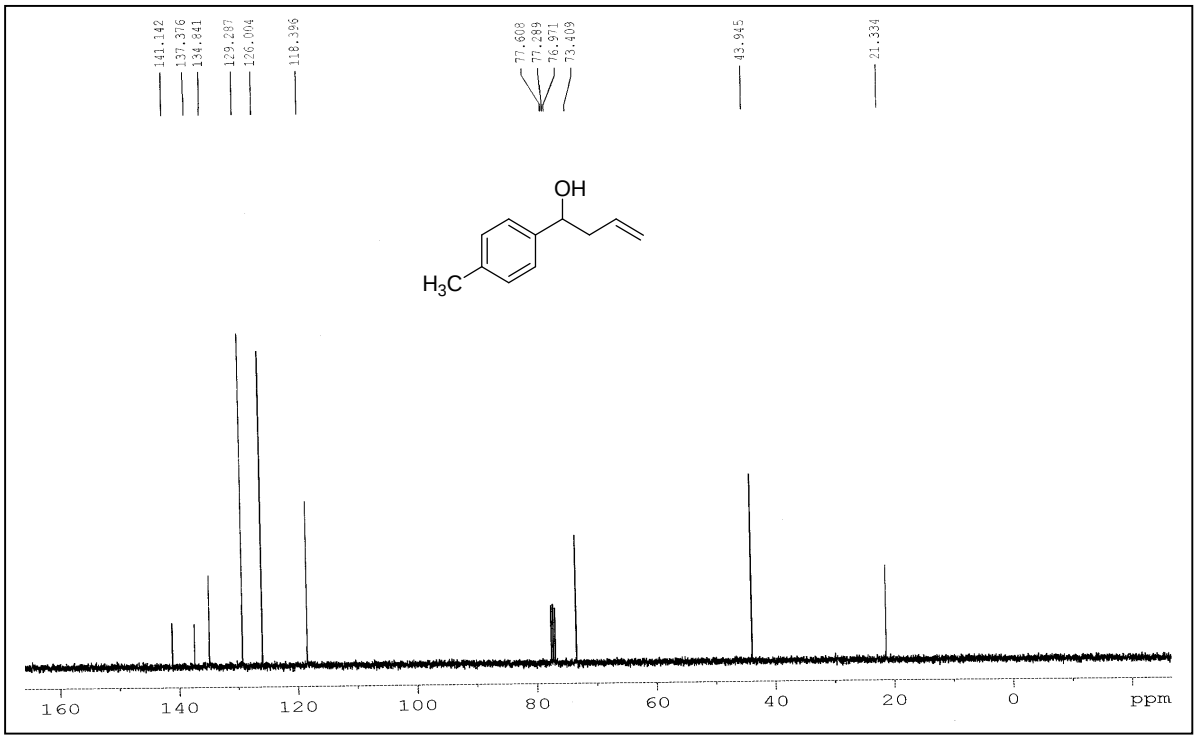
^{1}H NMR of 1-phenyl-but-3-en-1-ol



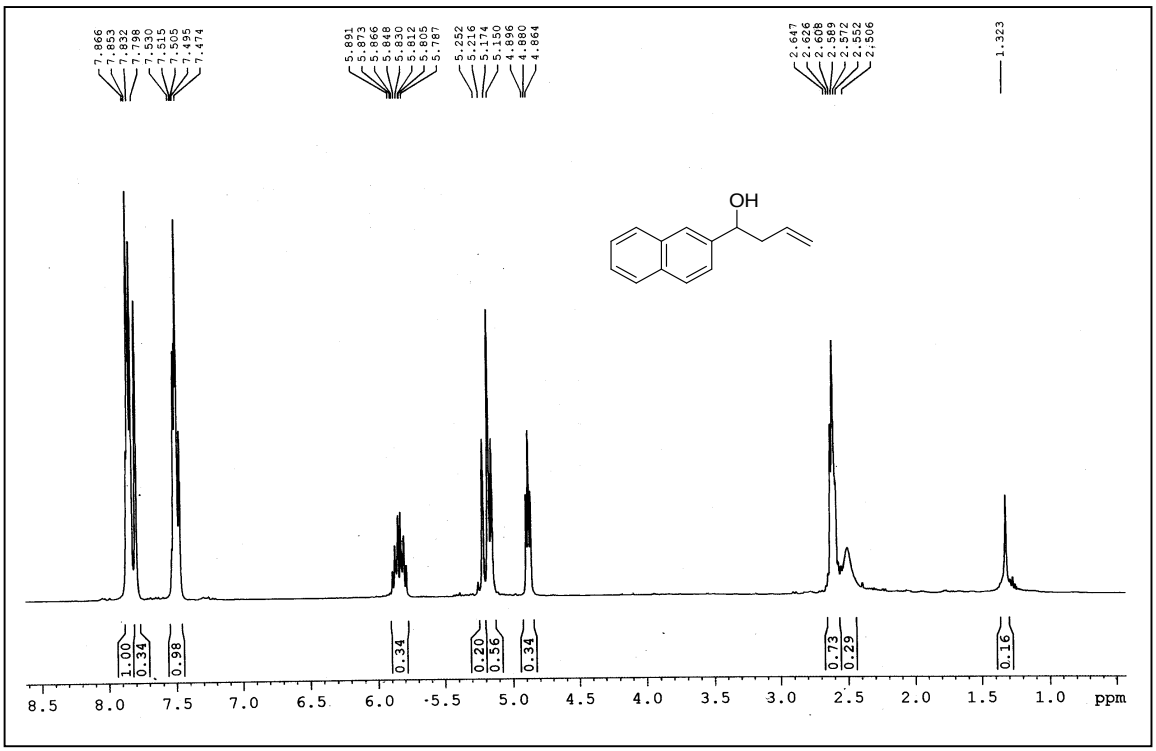
^{1}H NMR of 1-(4-methylphenyl)--but-3-en-1-ol



^{13}C NMR of 1-(4-methylphenyl)--but-3-en-1-ol



^{1}H NMR of 1-(naphthalen-2-yl)-but-3-en-1-ol



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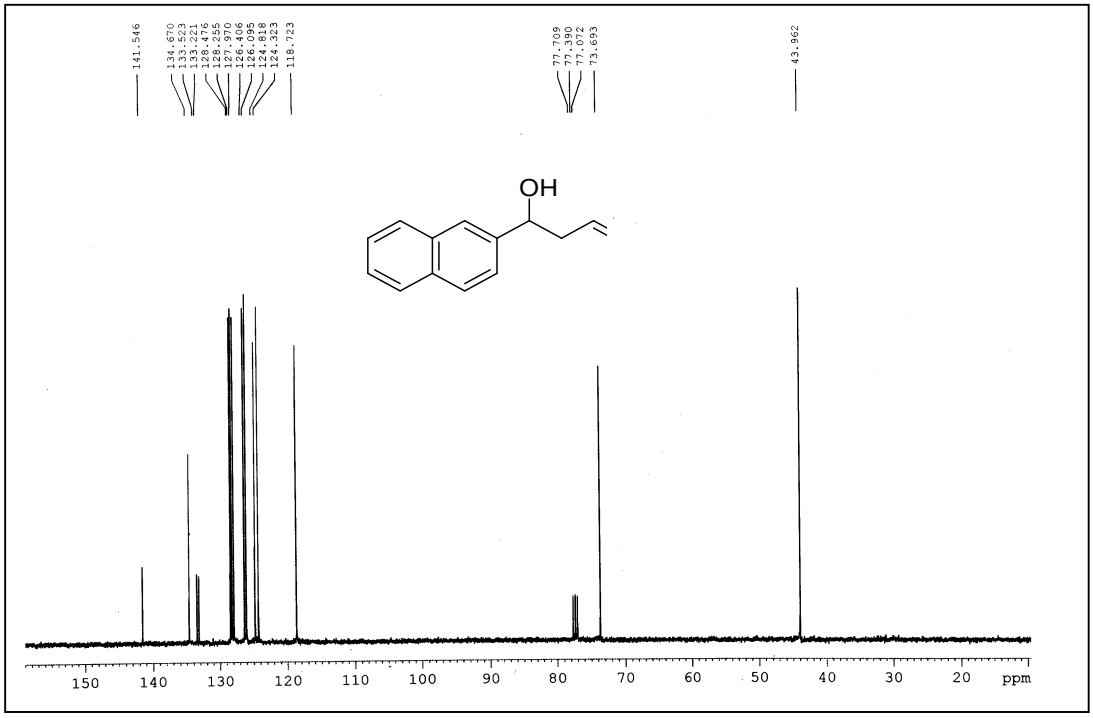
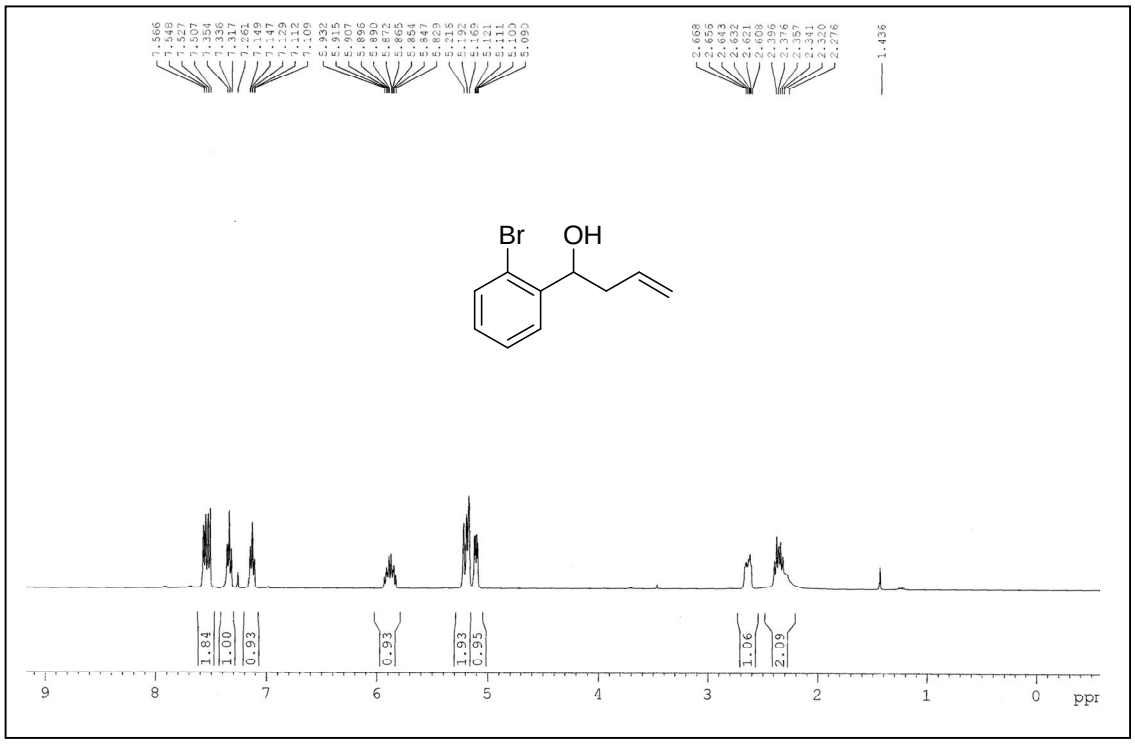


^{1}H NMR of 1-(2-bromophenyl)but-3-en-1-ol



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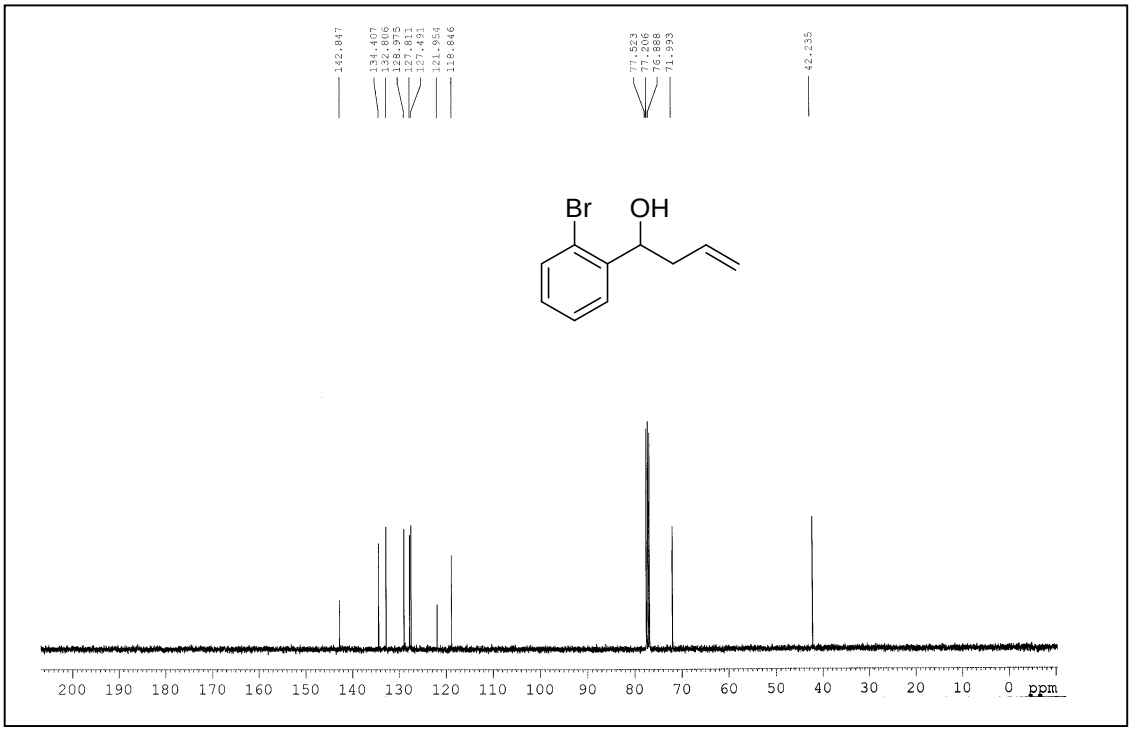
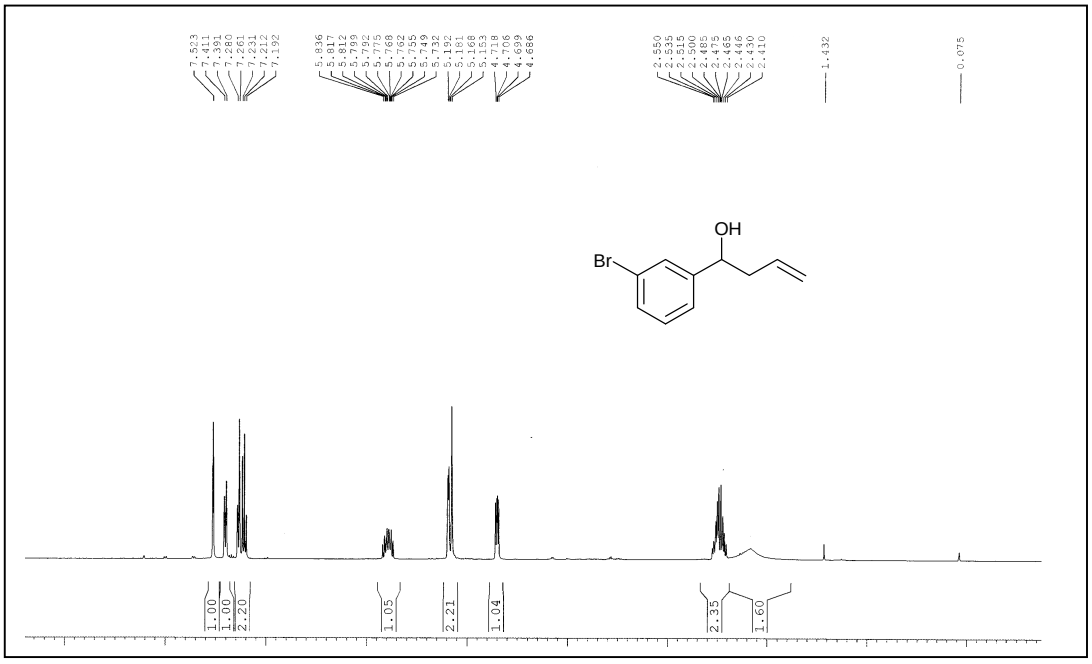


^{1}H NMR of 1-(3-Bromophenyl)but-3-en-1-ol



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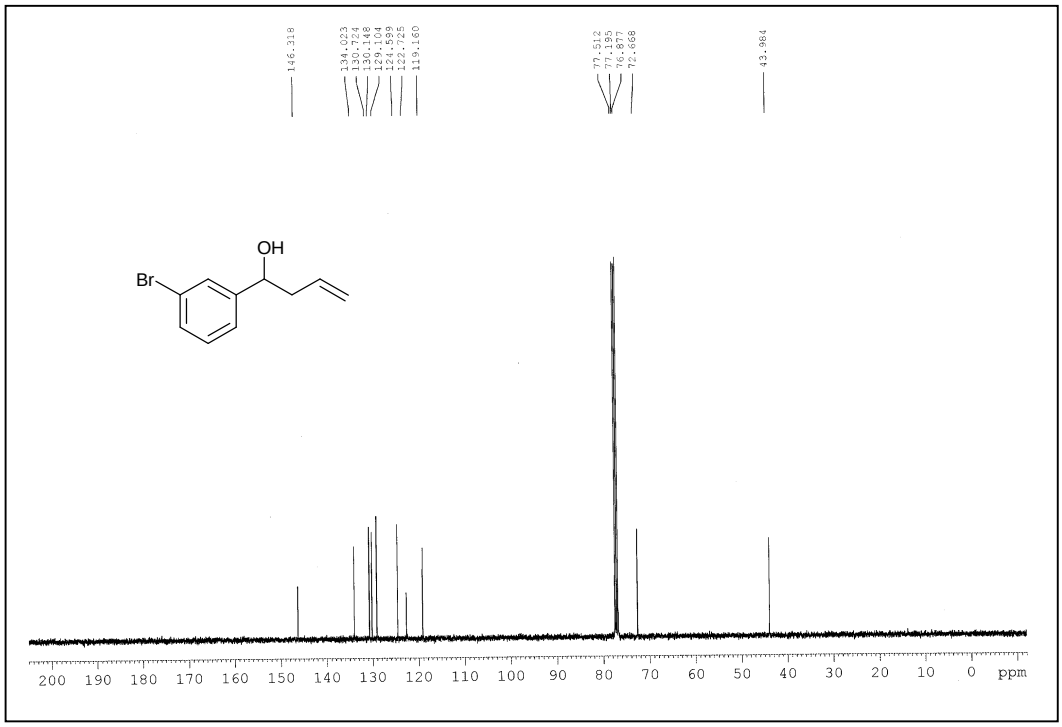
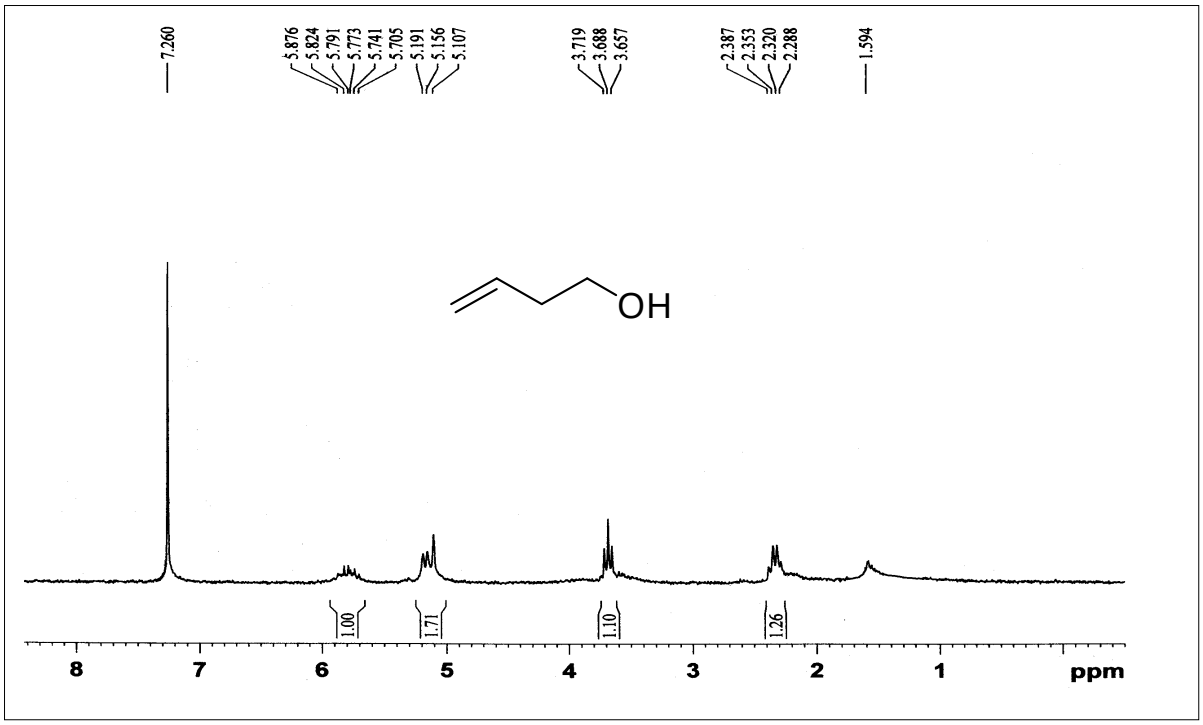
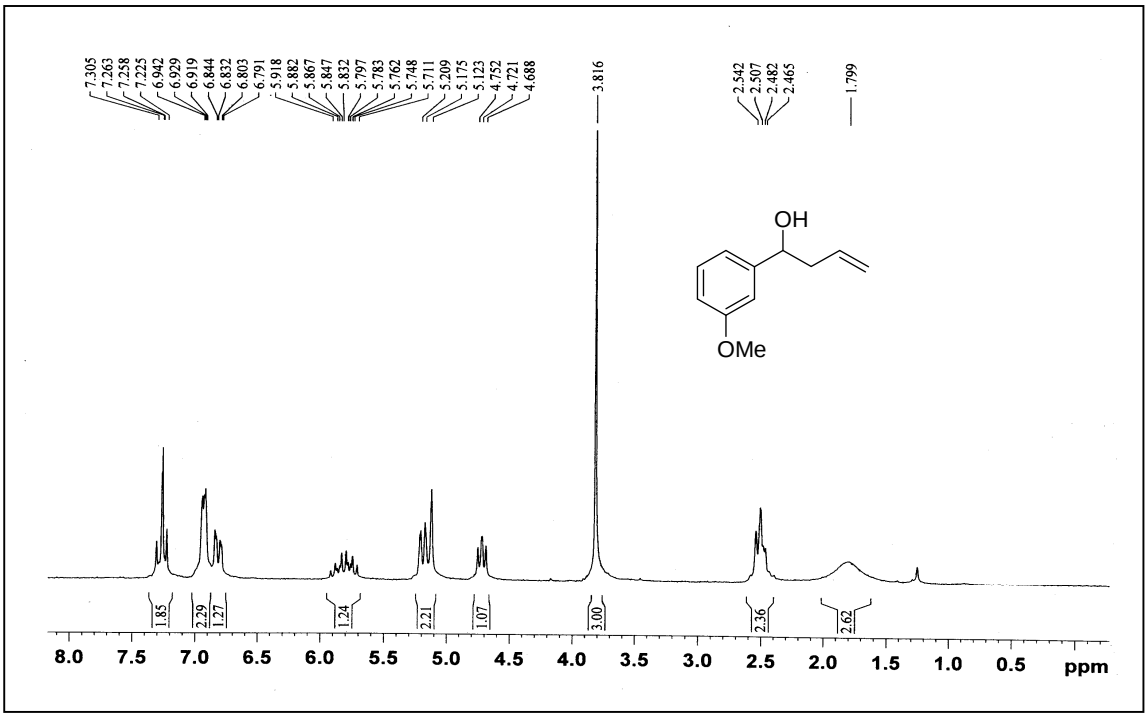


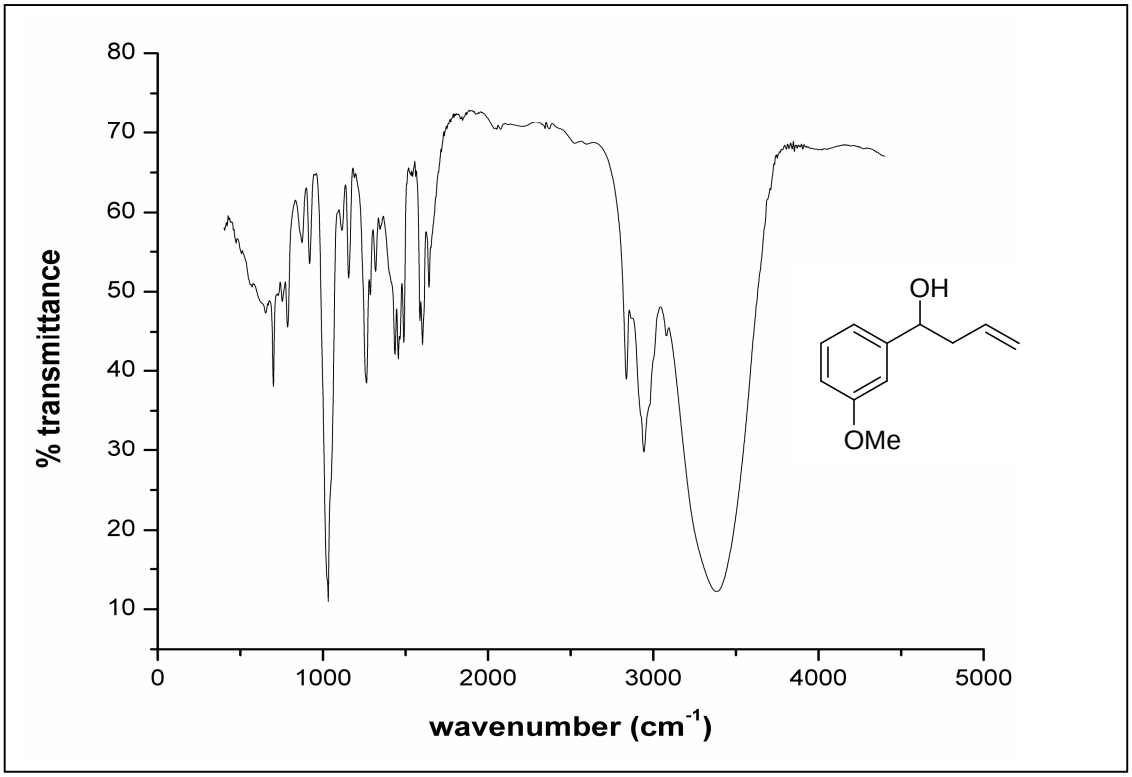
^{1}H NMR of But-3-en-1-ol



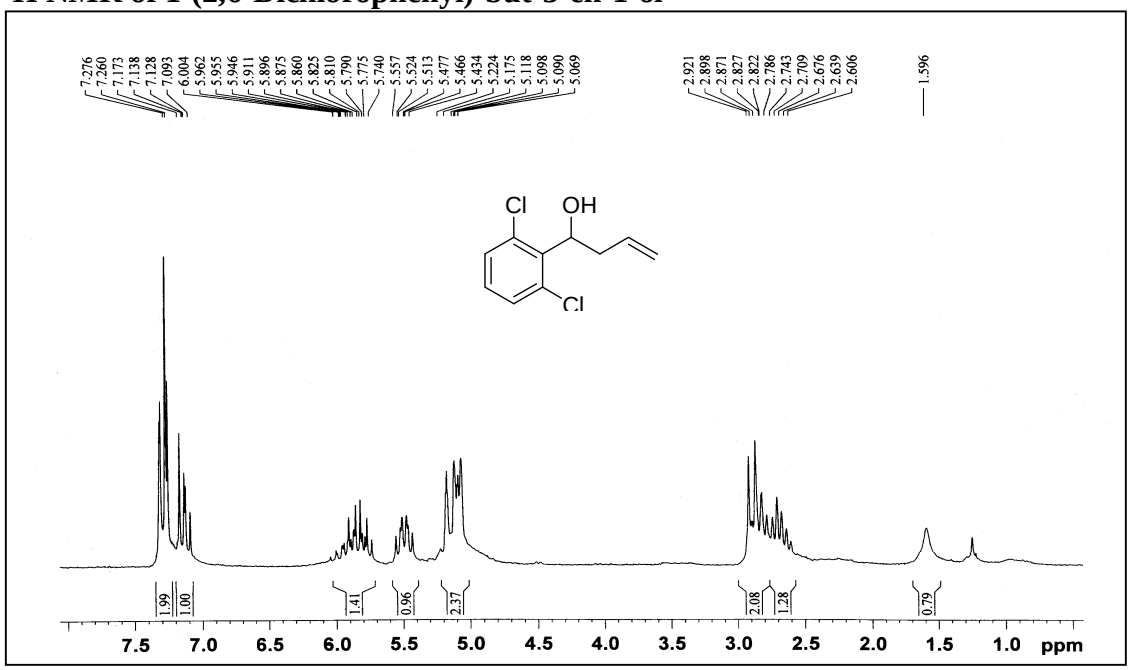
^{1}H NMR of 1-(3-Methoxyphenyl)-3-buten-1-ol



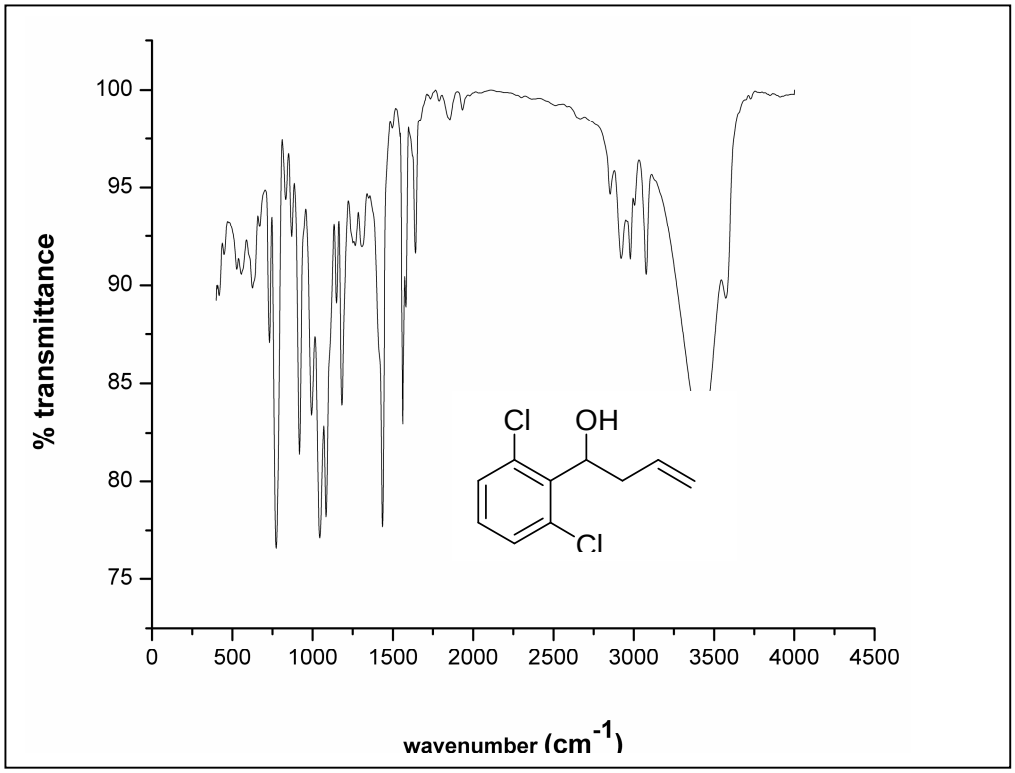
IR of 1-(3-Methoxyphenyl)-3-buten-1-ol



^{1}H NMR of 1-(2,6-Dichlorophenyl)-but-3-en-1-ol



IR of 1-(2,6-Dichlorophenyl)-but-3-en-1-ol



^{1}H NMR of 2-phenyl-pent-4-en-2-ol