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# APPENDICES

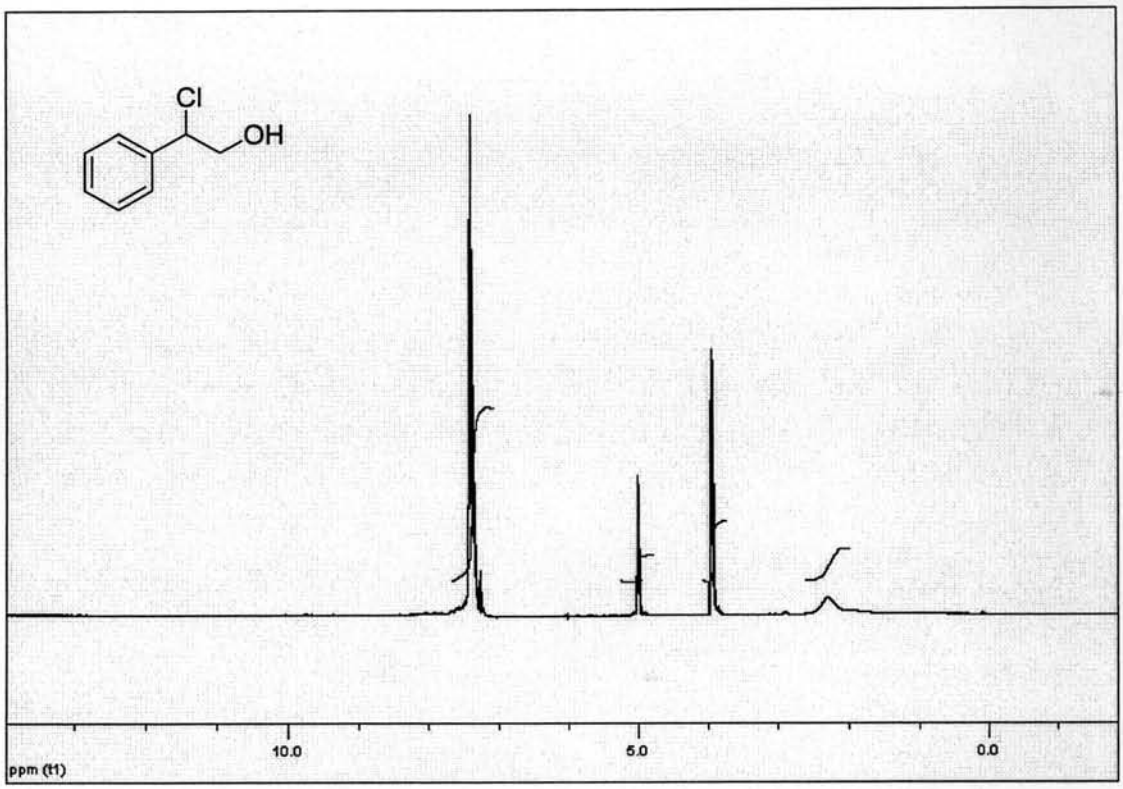


**Figure A1** The $^{1}$H-NMR spectrum of 2-chloro-2-phenylethanol (**3a**)

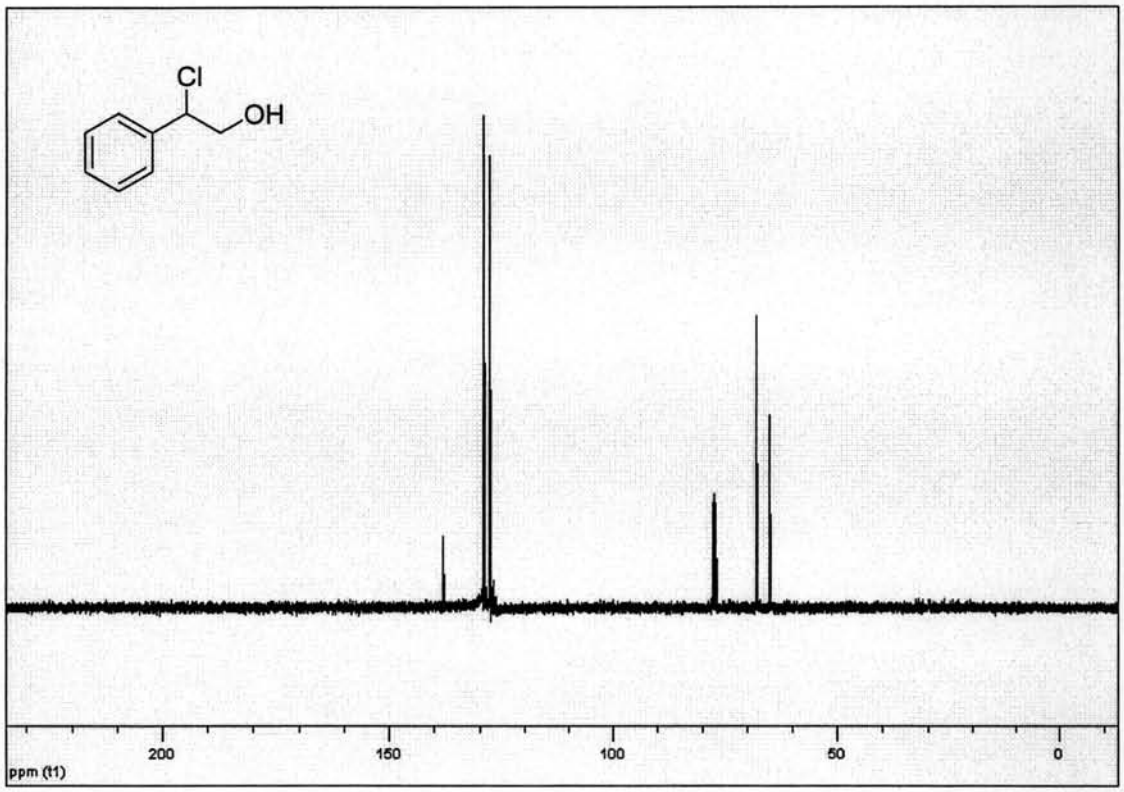


**Figure A2** The $^{13}$C-NMR spectrum of 2-chloro-2-phenylethanol (**3a**)

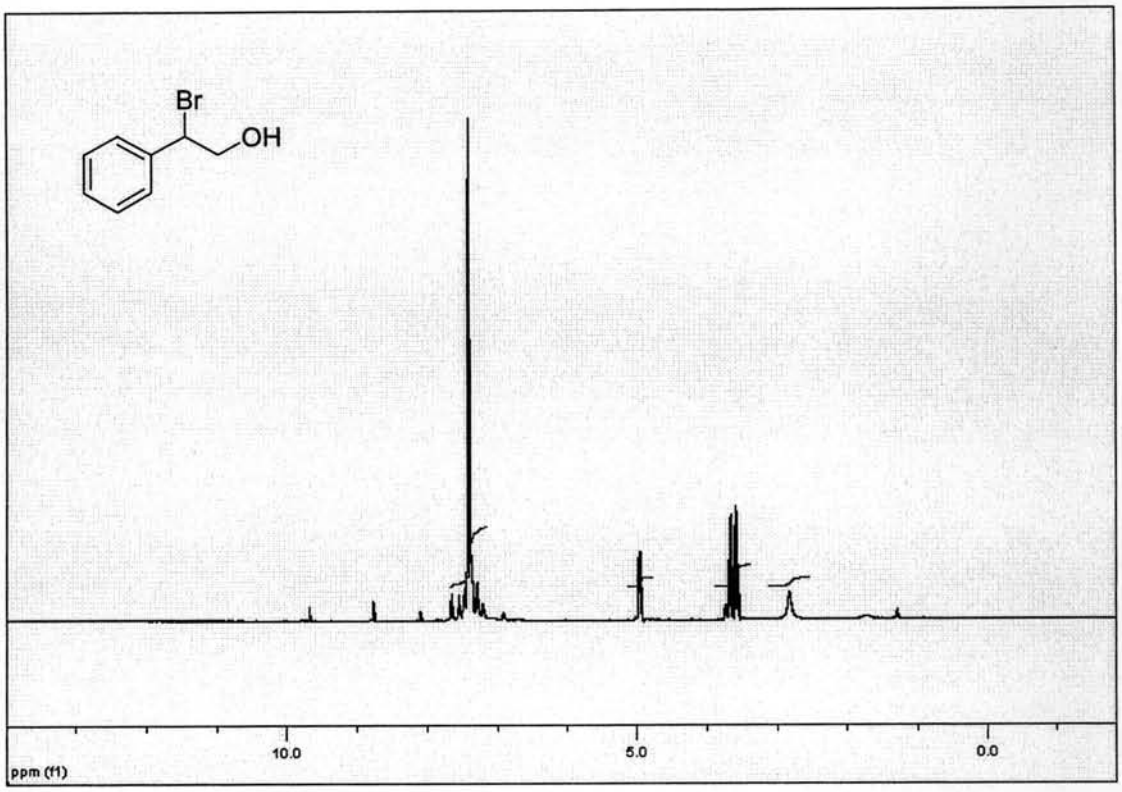


**Figure A3** The $^{1}$H-NMR spectrum of 2-bromo-2-phenylethanol (**3b**)

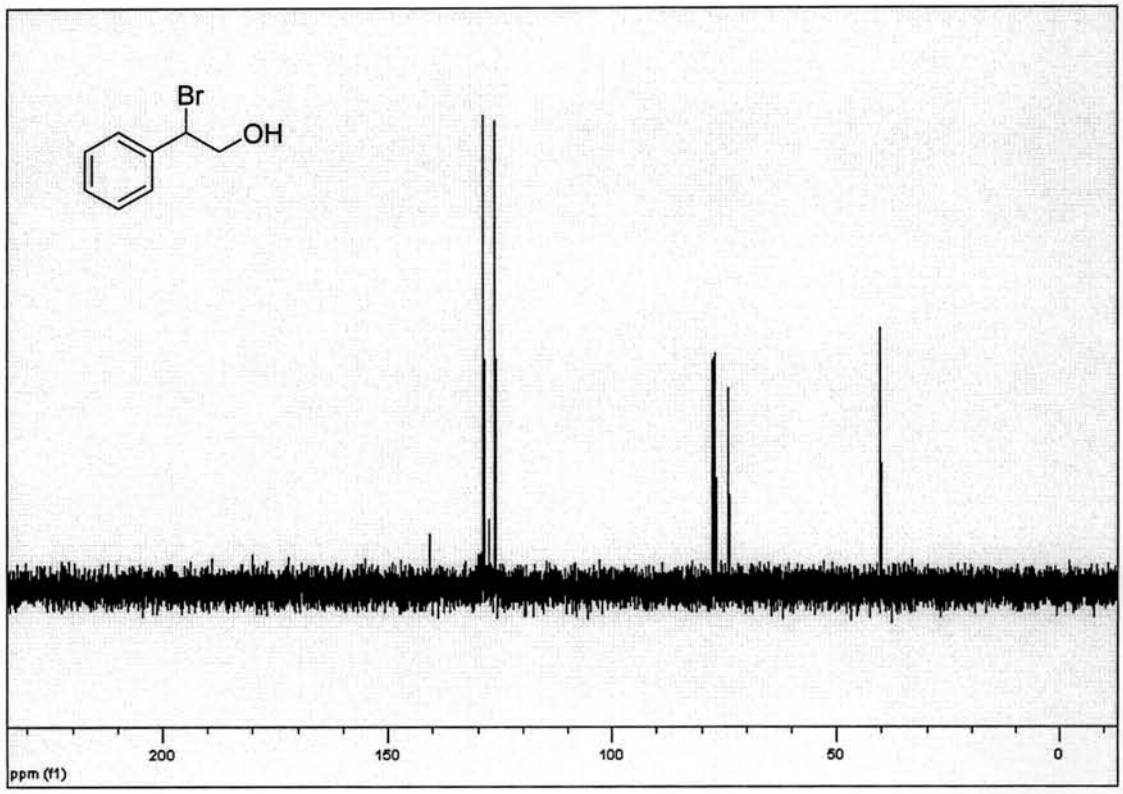


**Figure A4** The $^{13}$C-NMR spectrum of 2-bromo-2-phenylethanol (**3b**)

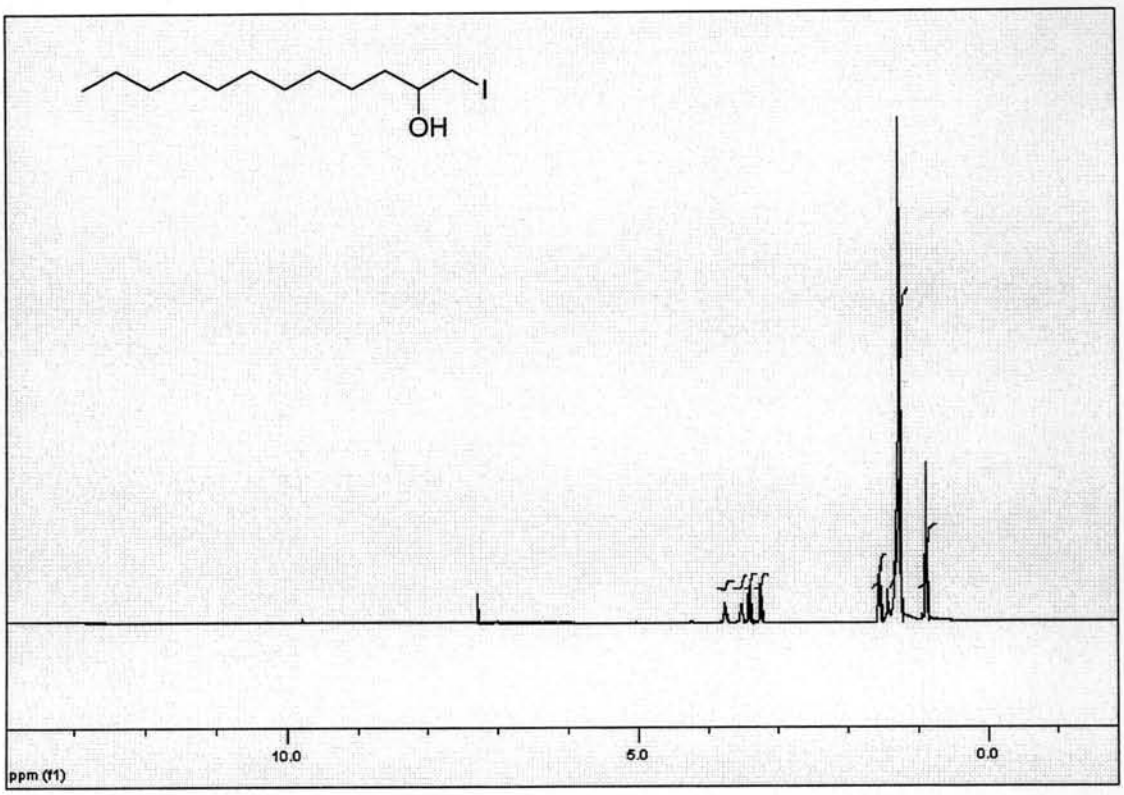


**Figure A5** The $^{1}$H-NMR spectrum of 1-iodododecan-2-ol (**41**)

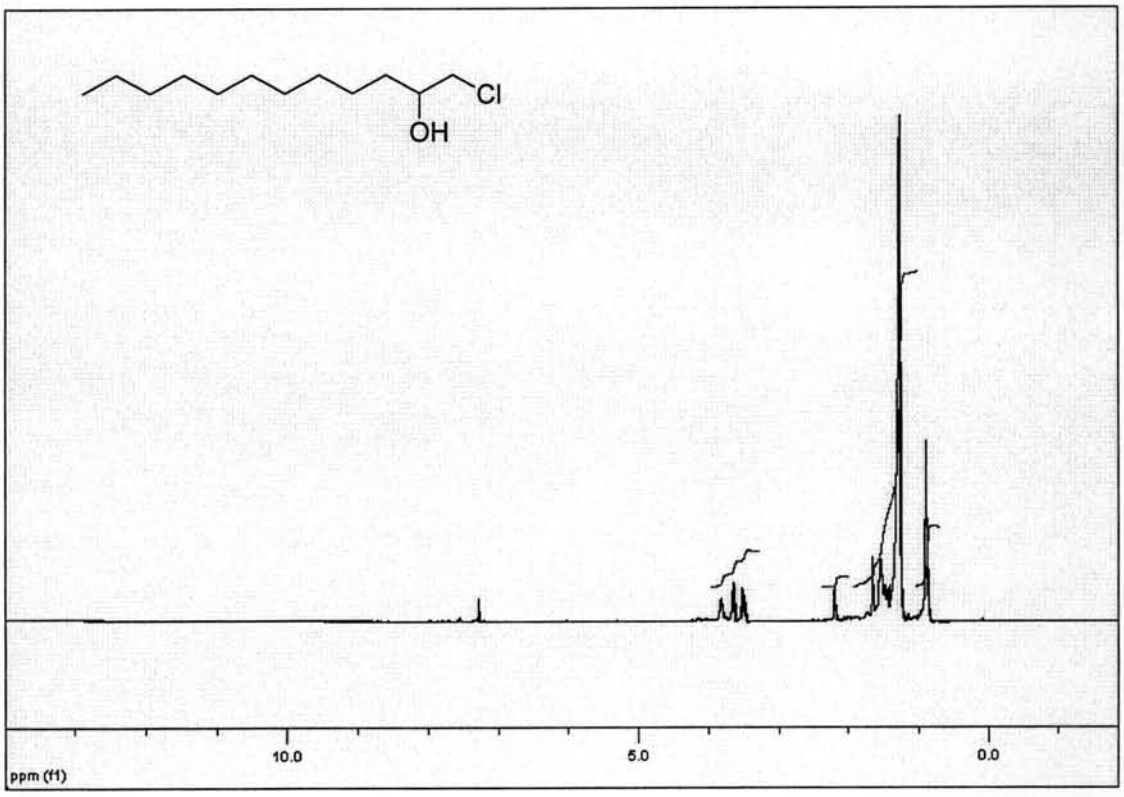


**Figure A6** The $^{1}$H-NMR spectrum of 1-chlorododecan-2-ol (**39**)

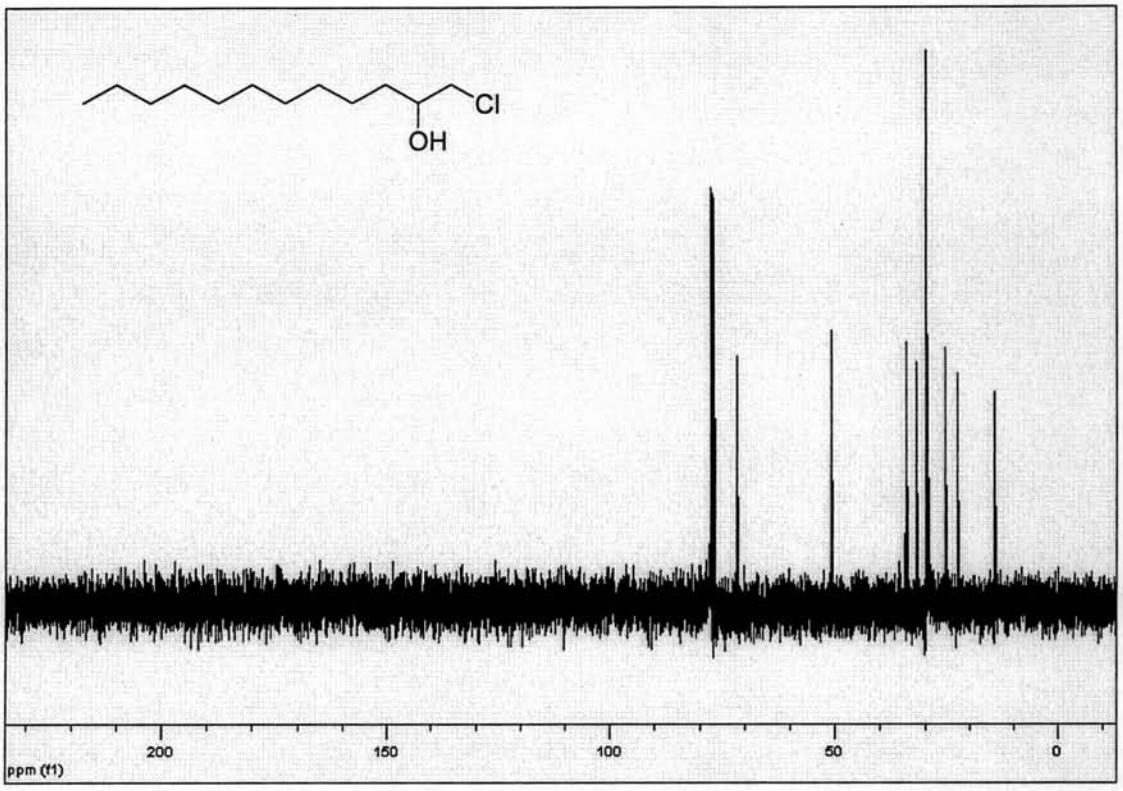


**Figure A7** The $^{13}$C-NMR spectrum of 1-chlorododecan-2-ol (**39**)

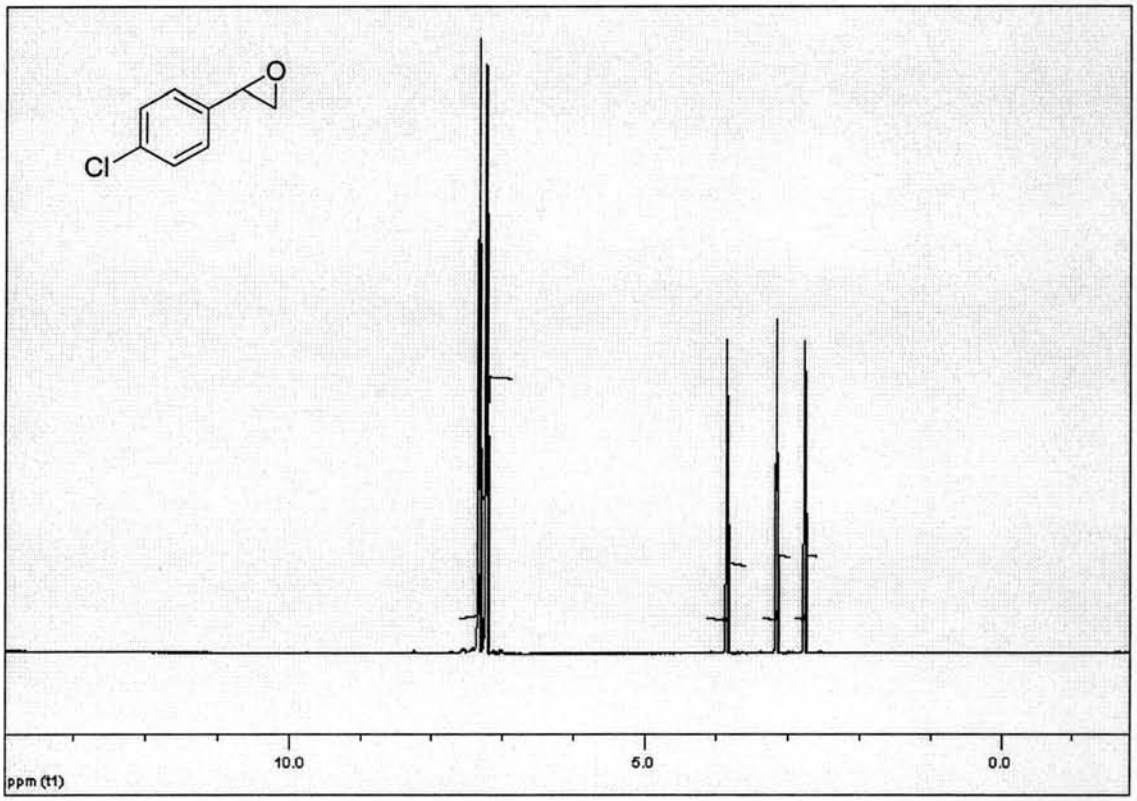


**Figure A8** The $^{1}$H-NMR spectrum of 4-chlorostyrene oxide (**5**)

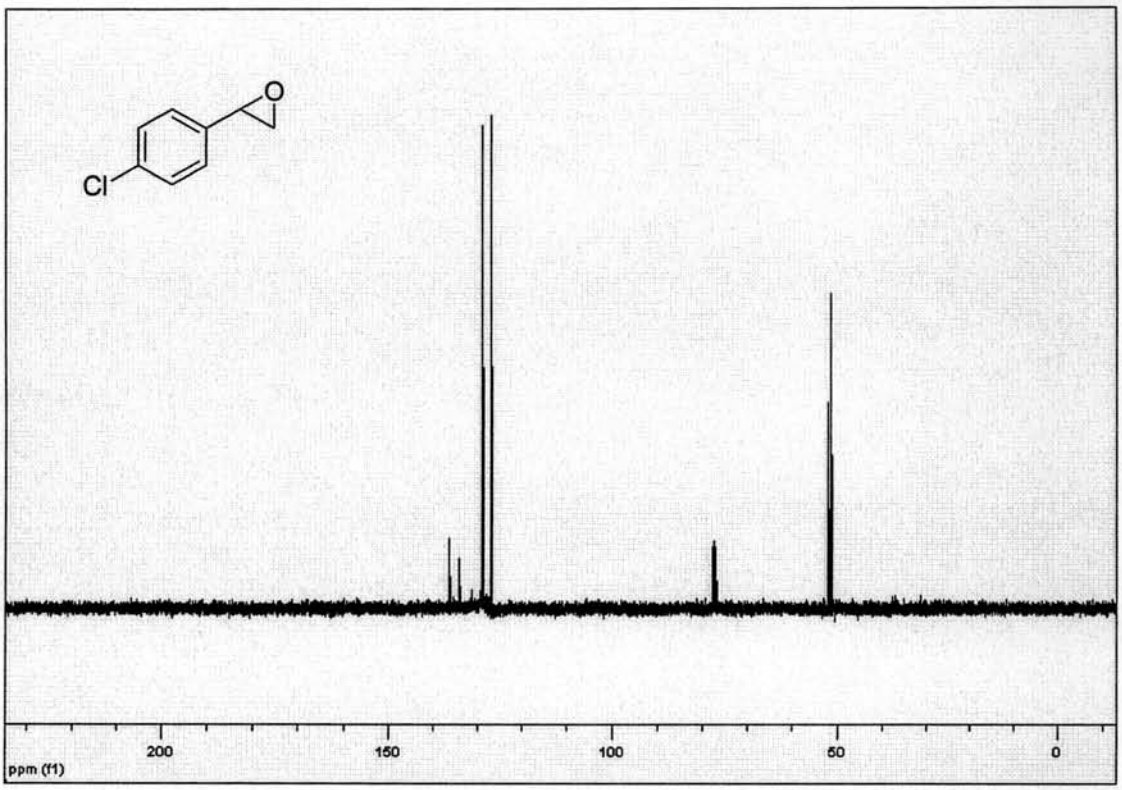


**Figure A9** The $^{13}$C-NMR spectrum of 4-chlorostyrene oxide (**5**)

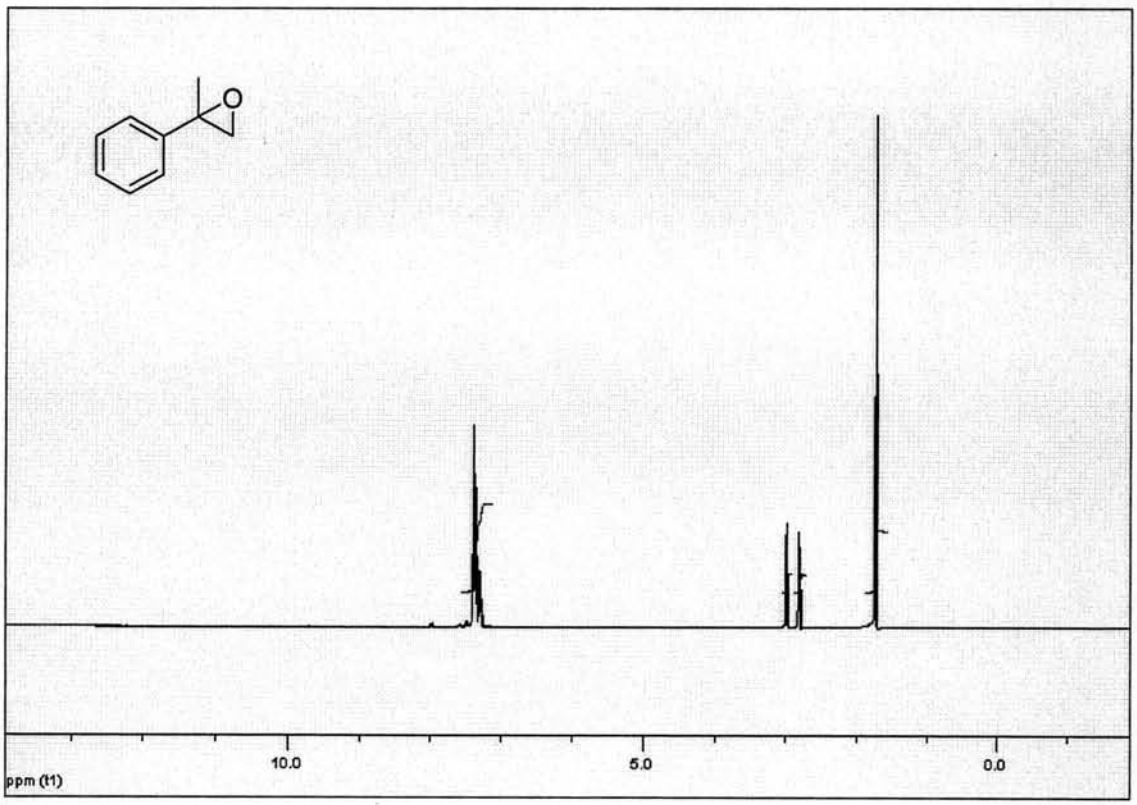


**Figure A10** The $^{1}$H-NMR spectrum of α-methylstyrene oxide (**7**)

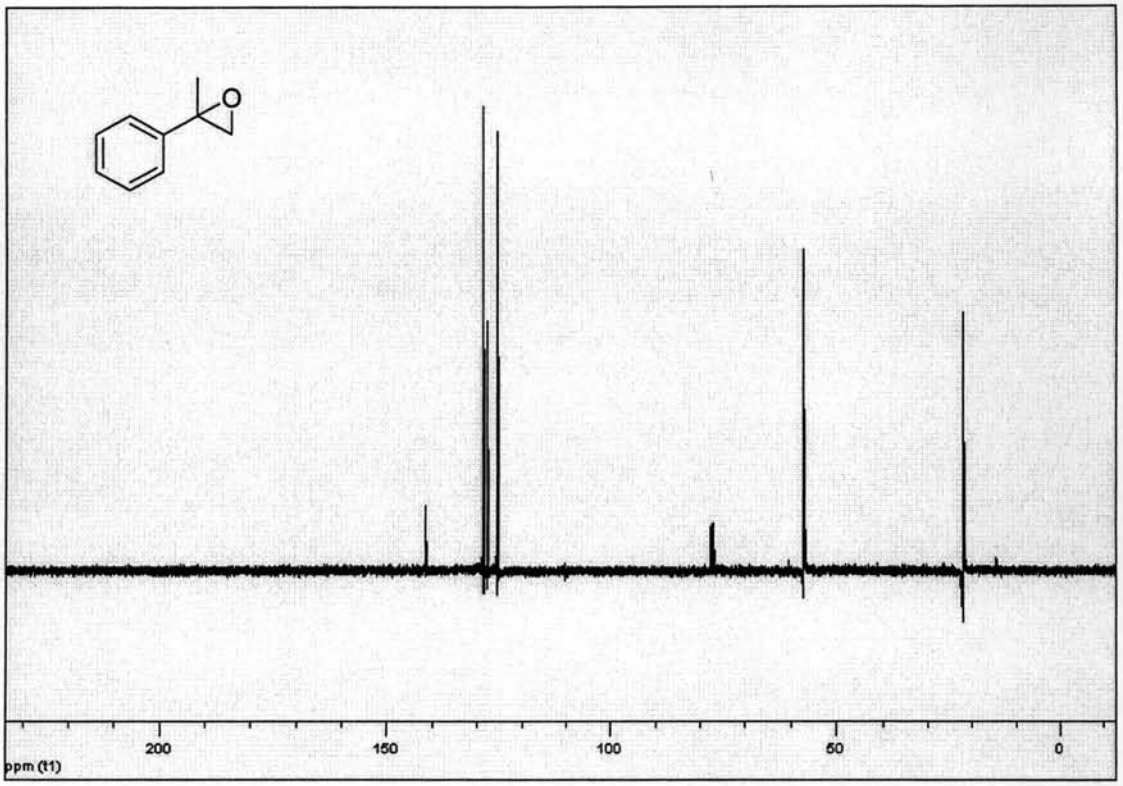


**Figure A11** The $^{13}$C-NMR spectrum of α-methylstyrene oxide (**7**)

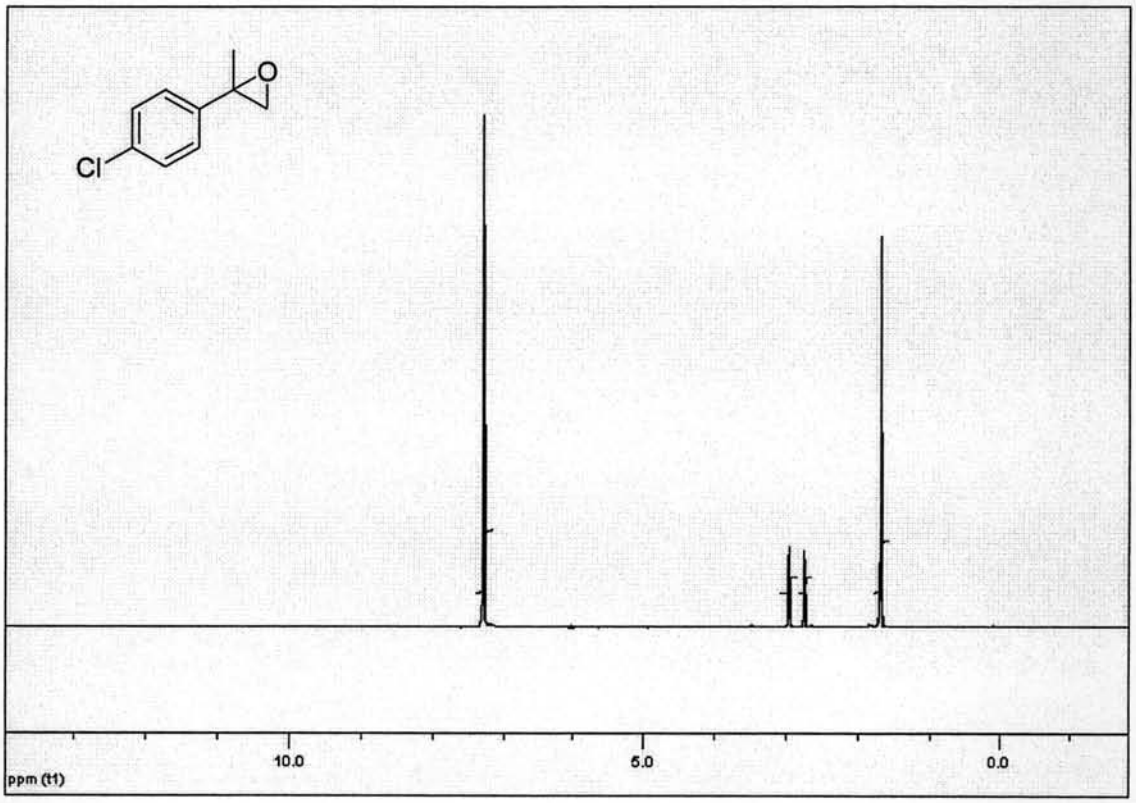


**Figure A12** The $^{1}$H-NMR spectrum of 4-chloro-α-methylstyrene oxide (**9**)

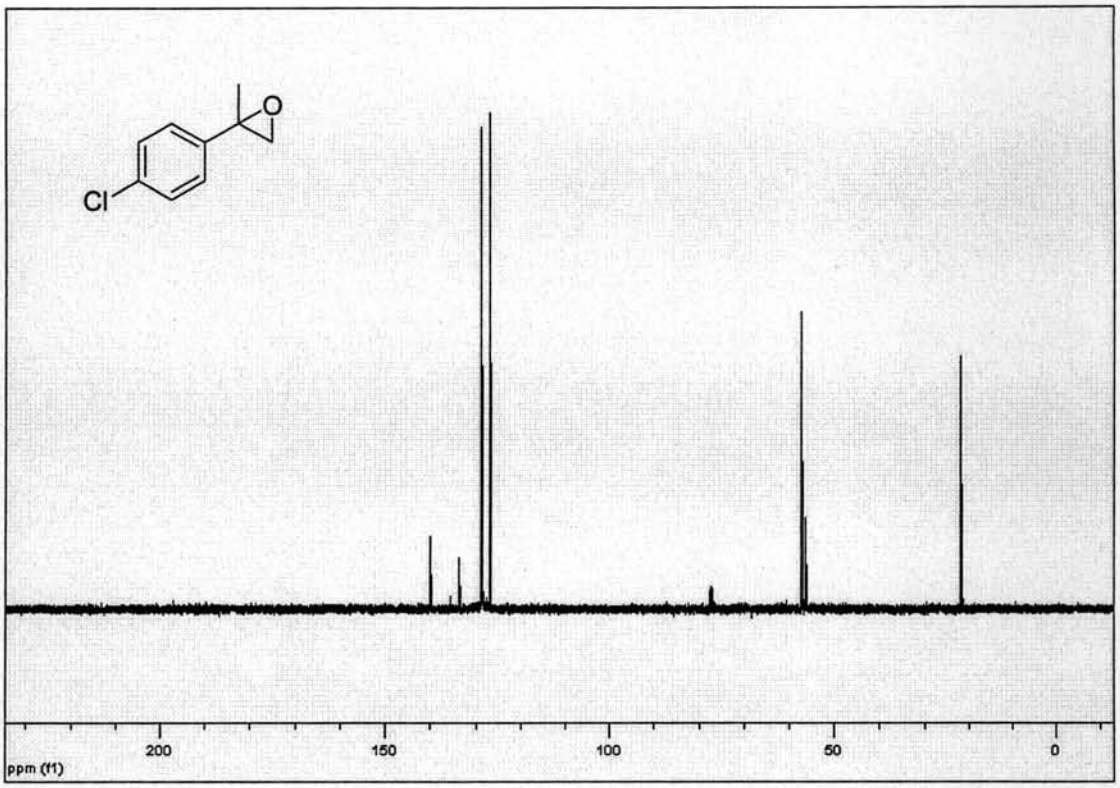


**Figure A13** The $^{13}$C-NMR spectrum of 4-chloro-α-methylstyrene oxide (**9**)

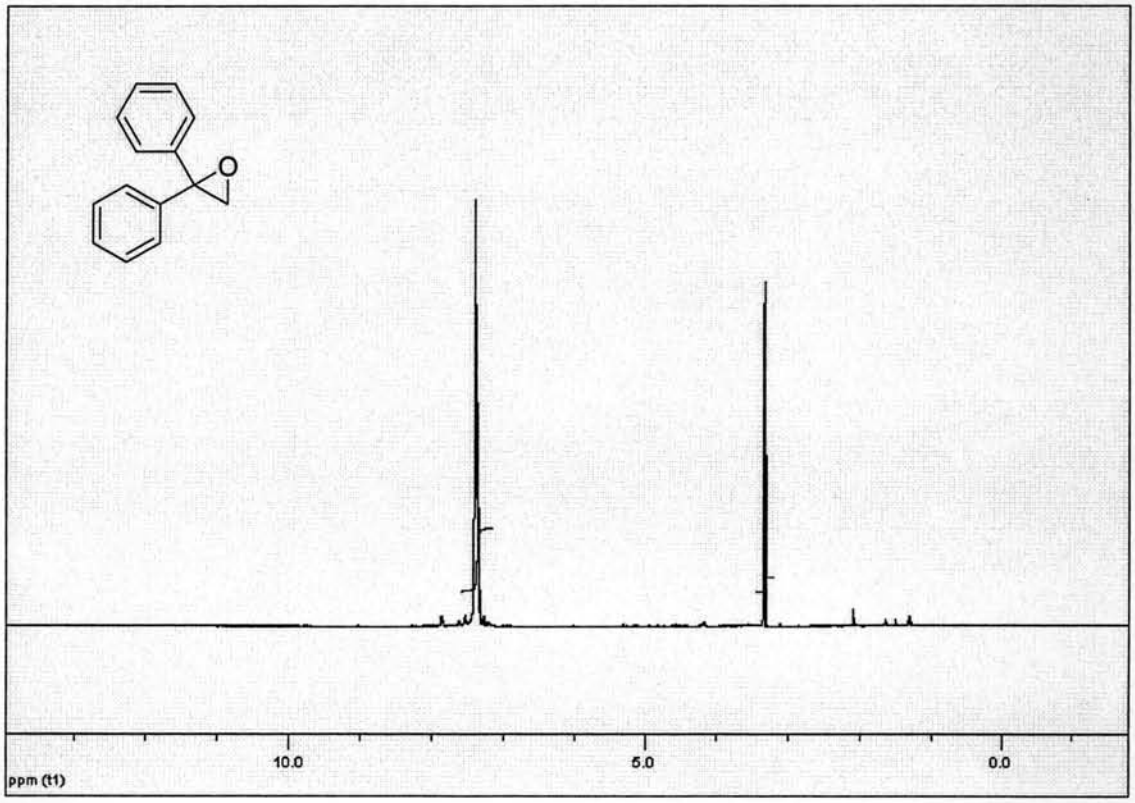


**Figure A14** The $^{1}$H-NMR spectrum of 1,1-diphenylethylene oxide (**11**)

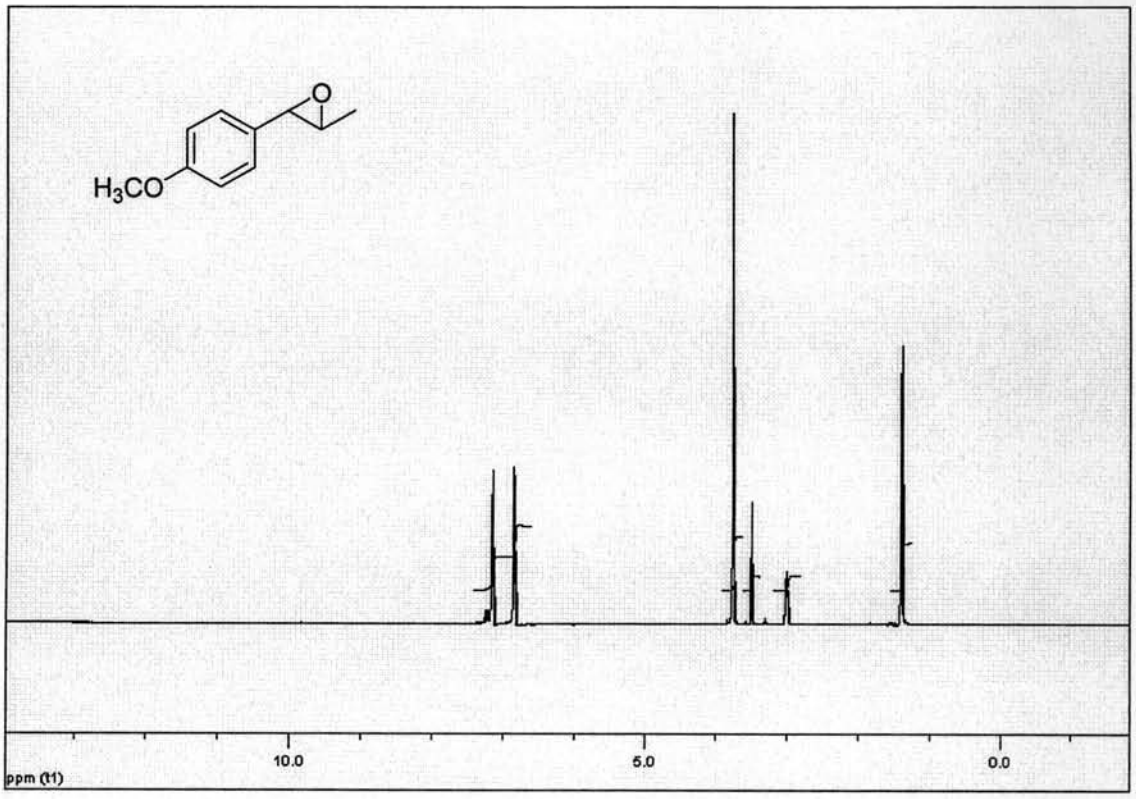


**Figure A15** The $^{1}$H-NMR spectrum of anethole oxide (**14**)

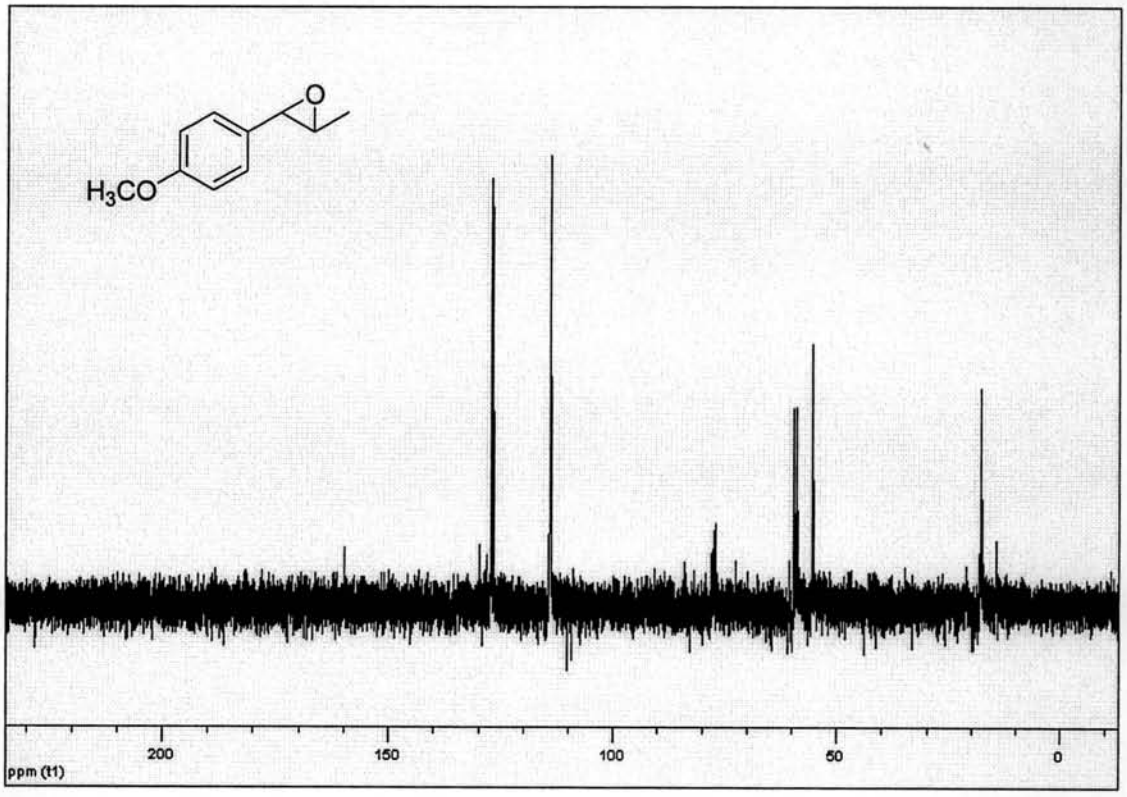


**Figure A16** The $^{13}$C-NMR spectrum of anethole oxide (**14**)

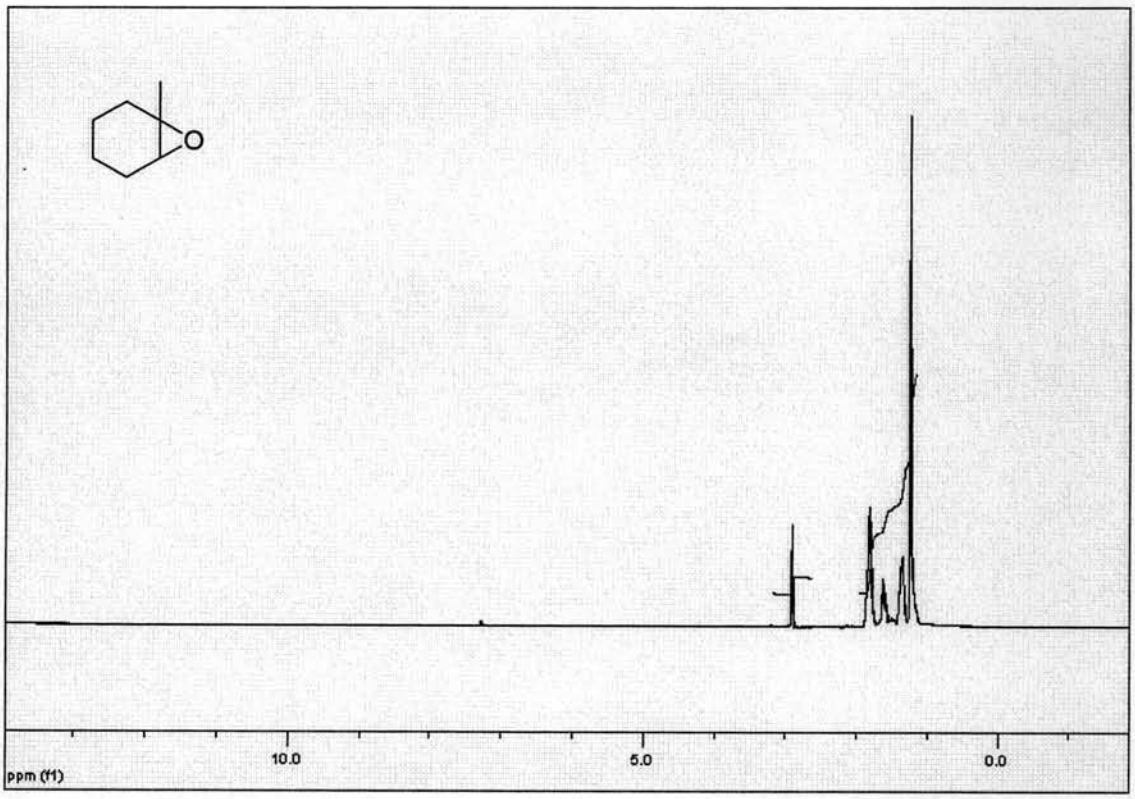


**Figure A17** The $^{1}$H-NMR spectrum of methyl-cyclohexene oxide (**25**)

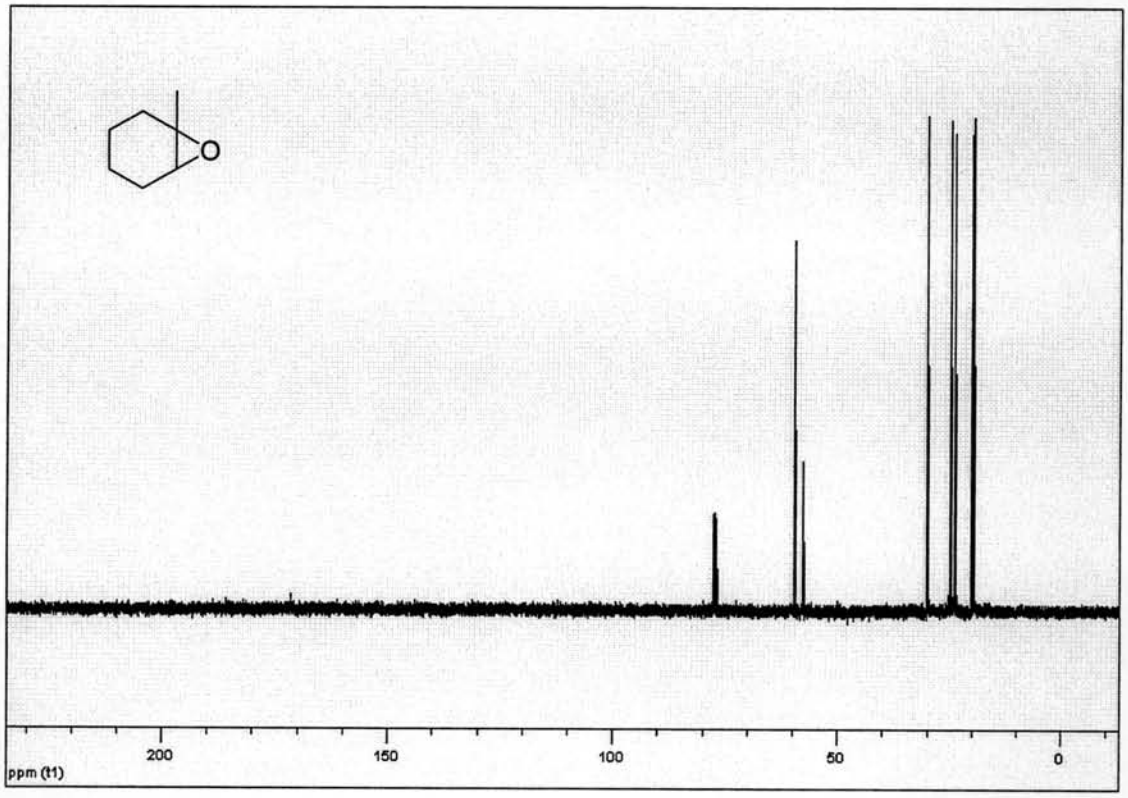


**Figure A18** The $^{13}$C-NMR spectrum of methyl-cyclohexene oxide (**25**)

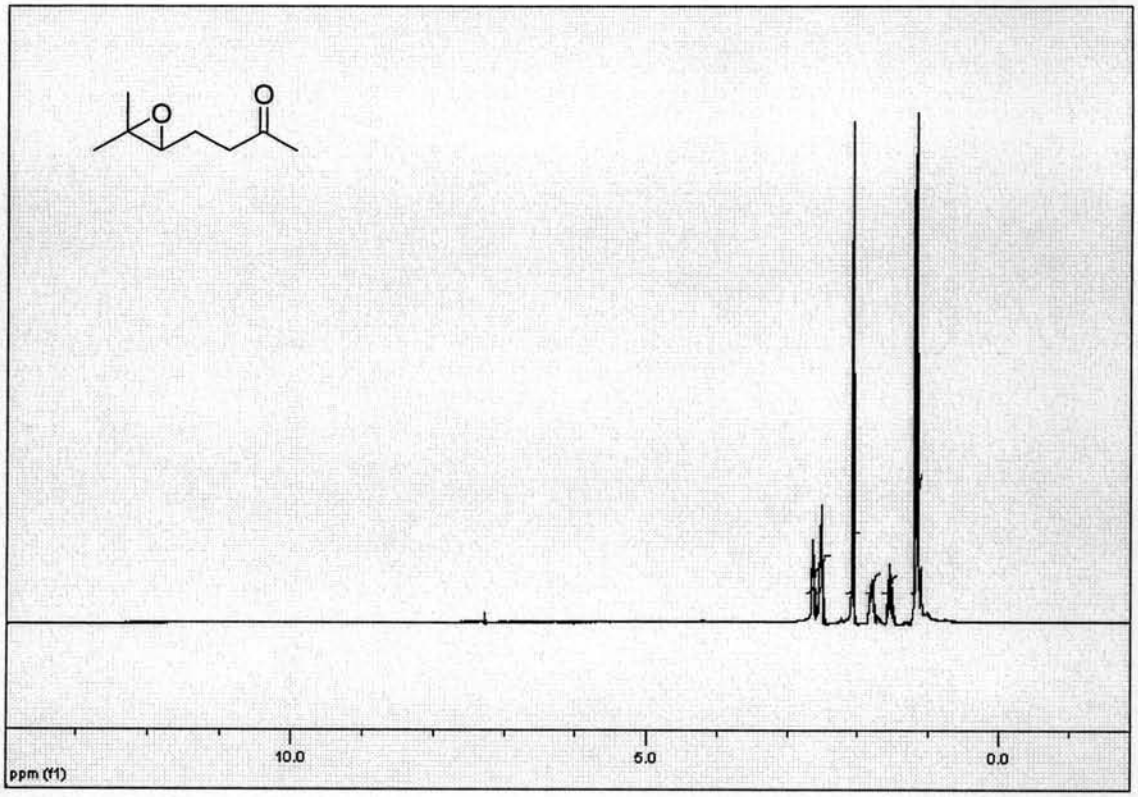


**Figure A19** The $^{1}$H-NMR spectrum of 4-(3,3-dimethyloxiran-2-yl)butan-2-one (**37**)

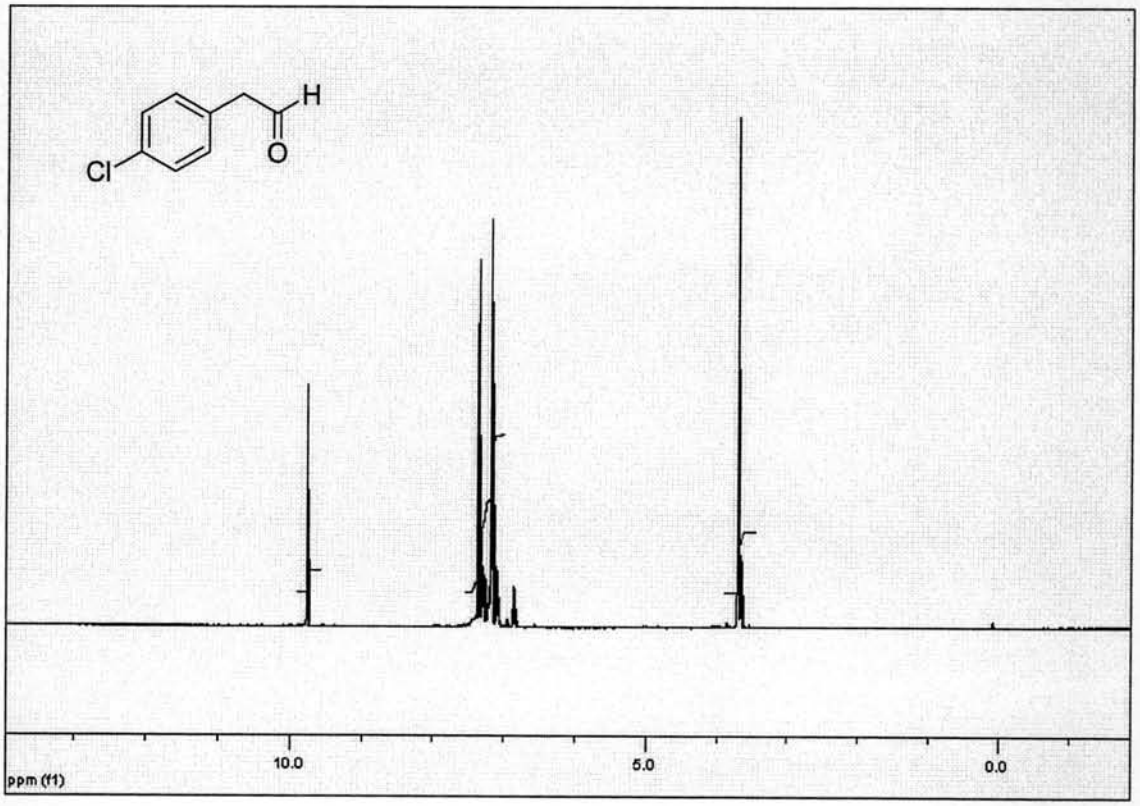


**Figure A20** The $^{1}$H-NMR spectrum of 4-chlorophenylacetaldehyde (**6**)

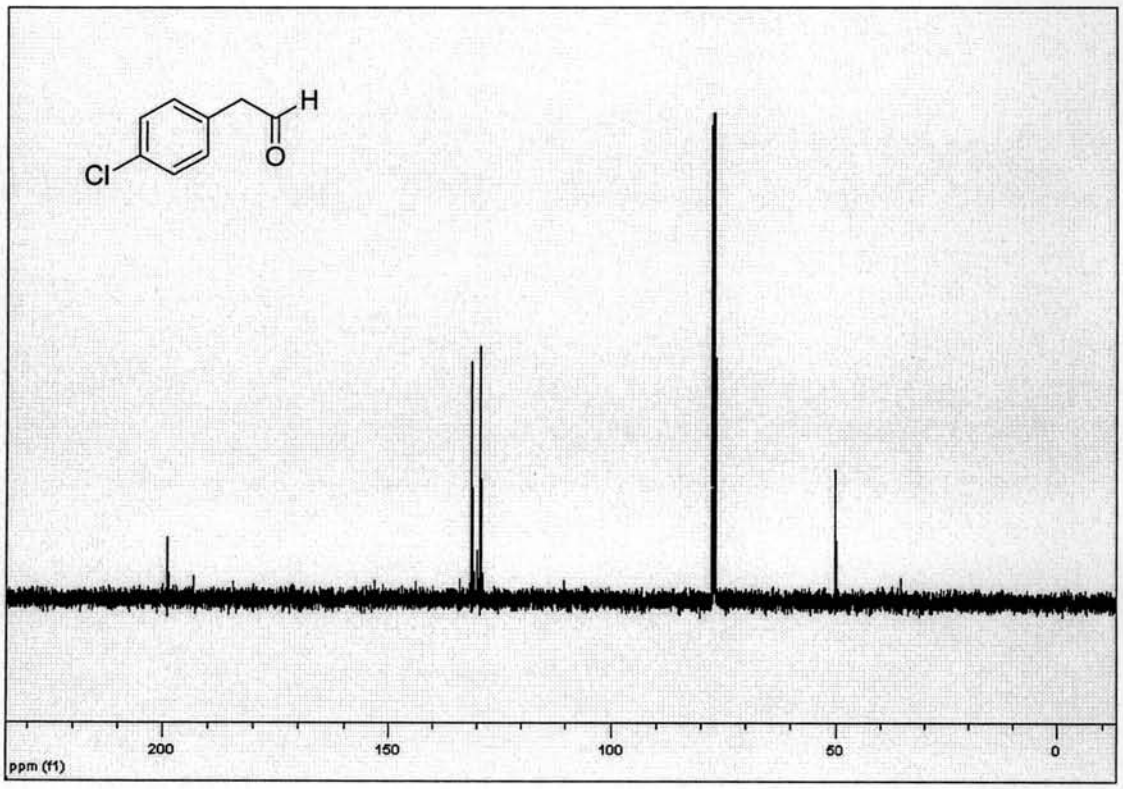


**Figure A21** The $^{13}$C-NMR spectrum of 4-chlorophenylacetaldehyde (**6**)

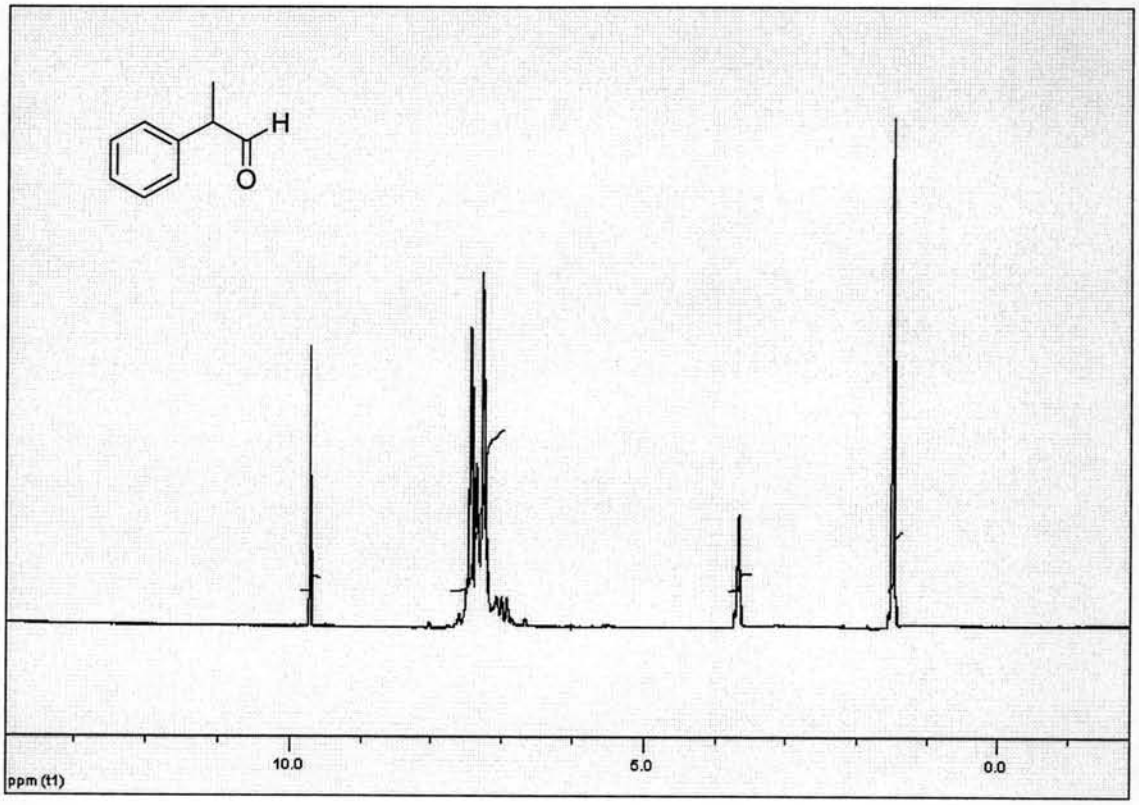


**Figure A22** The $^{1}$H-NMR spectrum of hydratropaldehyde (**8**)

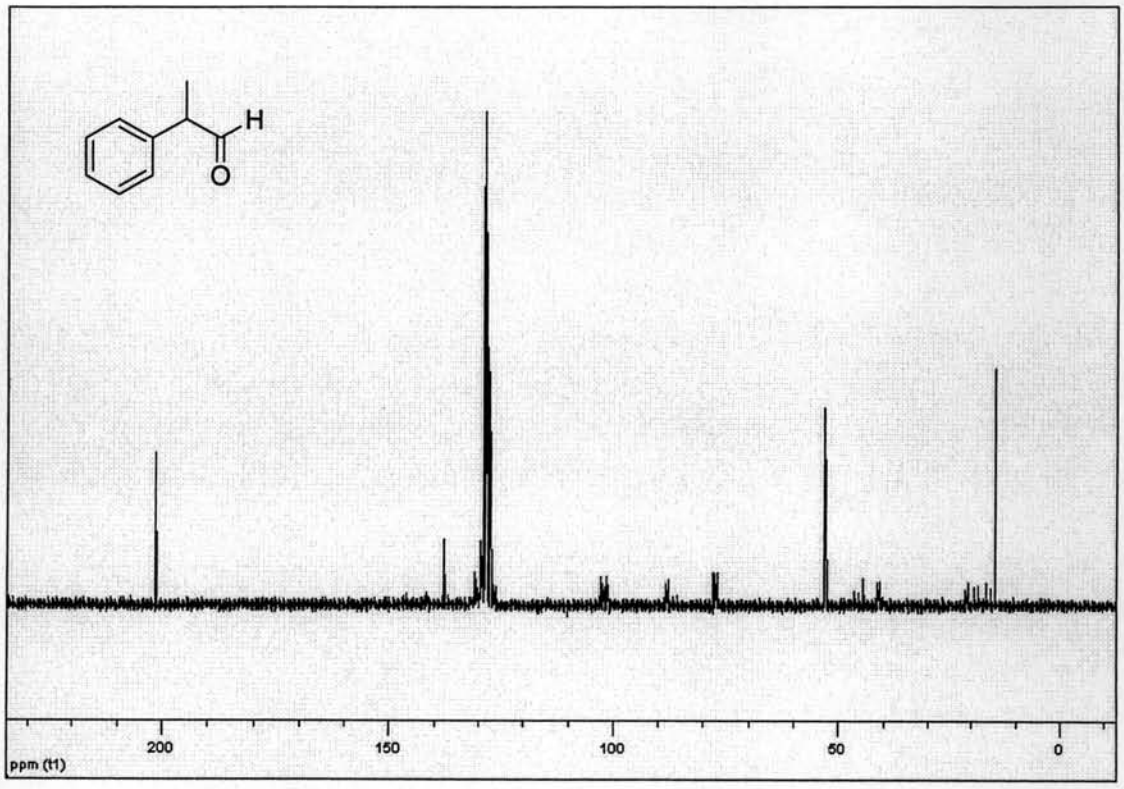


**Figure A23** The $^{13}$C-NMR spectrum of hydratropaldehyde (**8**)

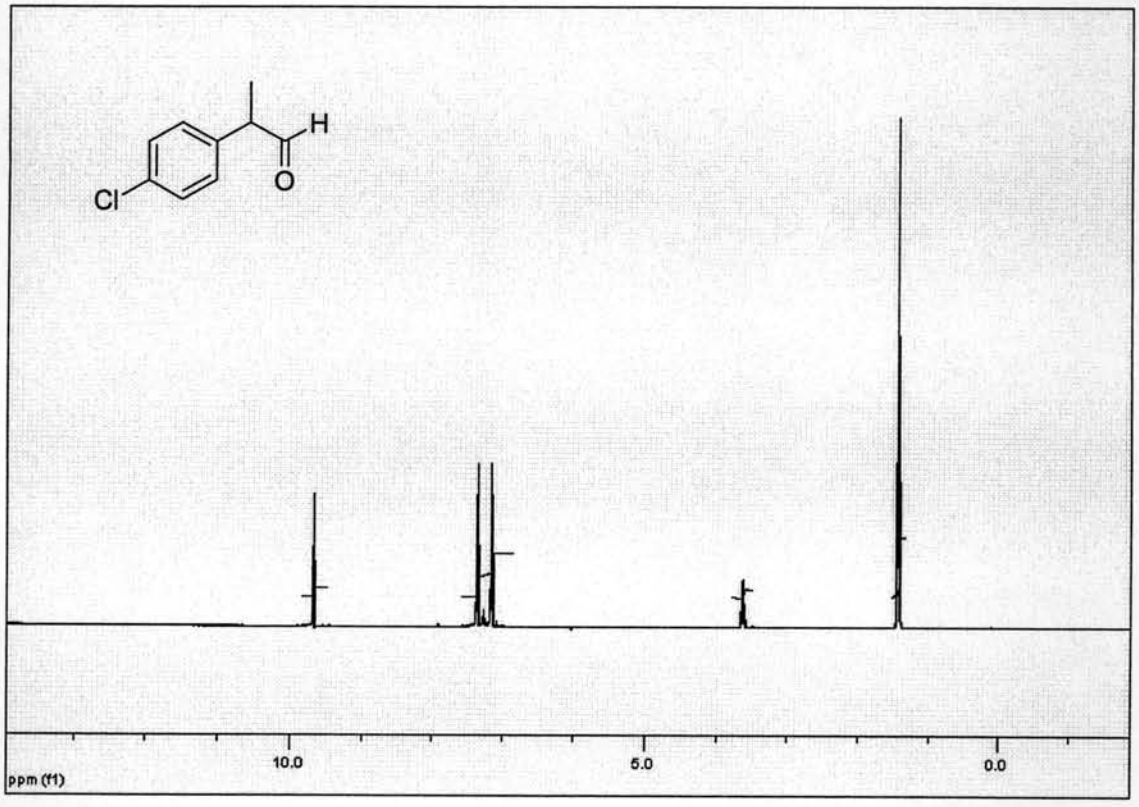


**Figure A24** The $^{1}$H-NMR spectrum of 4-chloro-α-hydratropaldehyde (**10**)

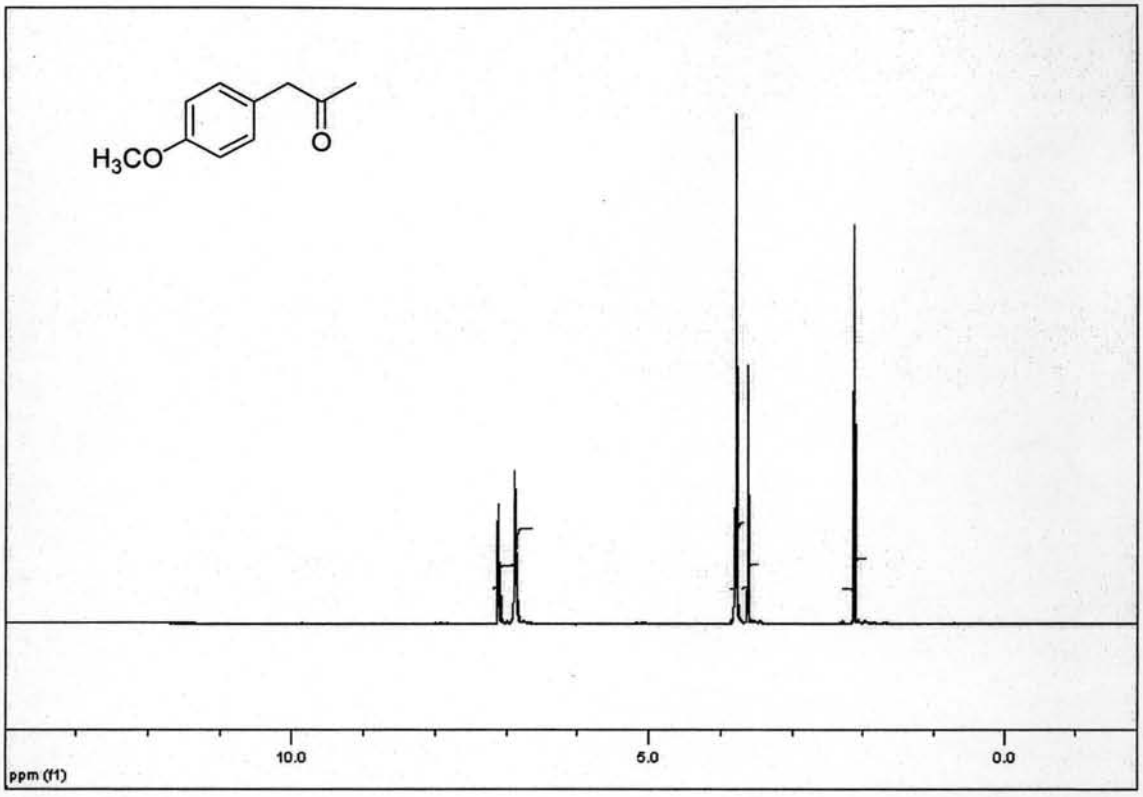


**Figure A25** The $^{1}$H-NMR spectrum of (4-methoxyphenyl)acetone (**15**)

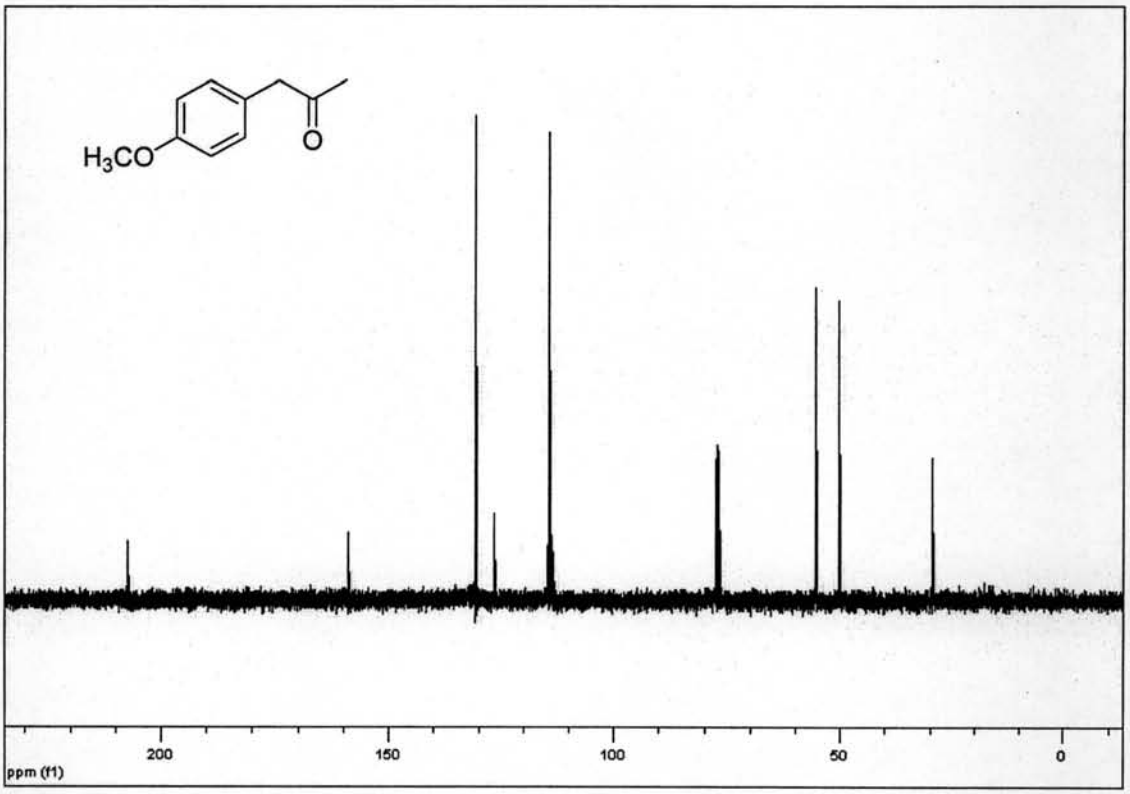


**Figure A26** The $^{13}$C-NMR spectrum of (4-methoxyphenyl)acetone (**15**)

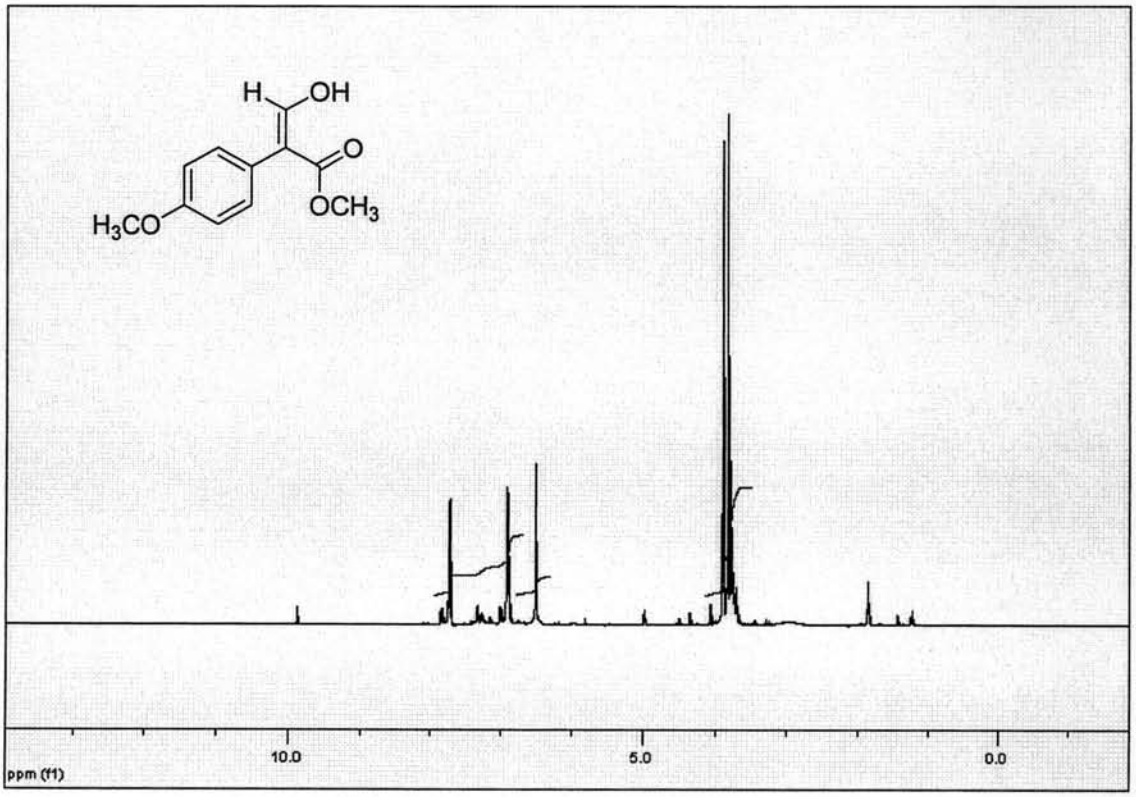


**Figure A27** The $^{1}$H-NMR spectrum of Methyl-3-hydroxy-2-(4-methoxyphenyl)acrylate (**17**)

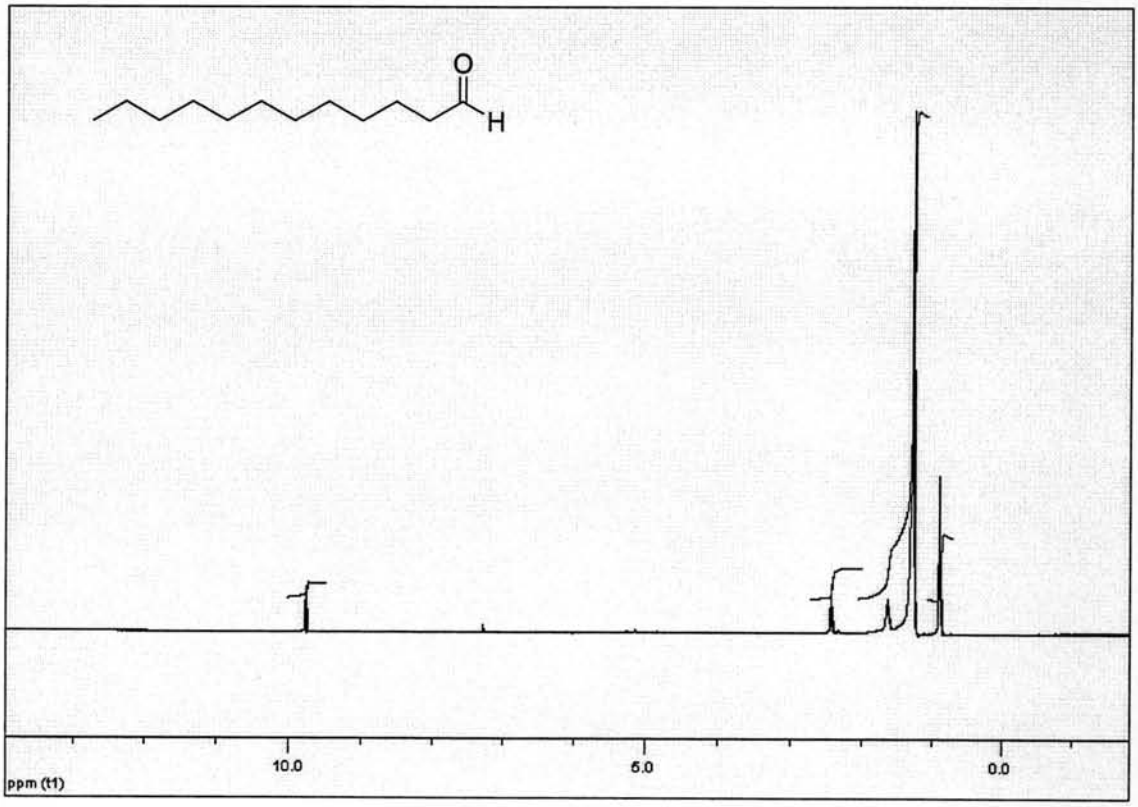


**Figure A28** The $^{1}$H-NMR spectrum of laurinaldehyde (**19**)

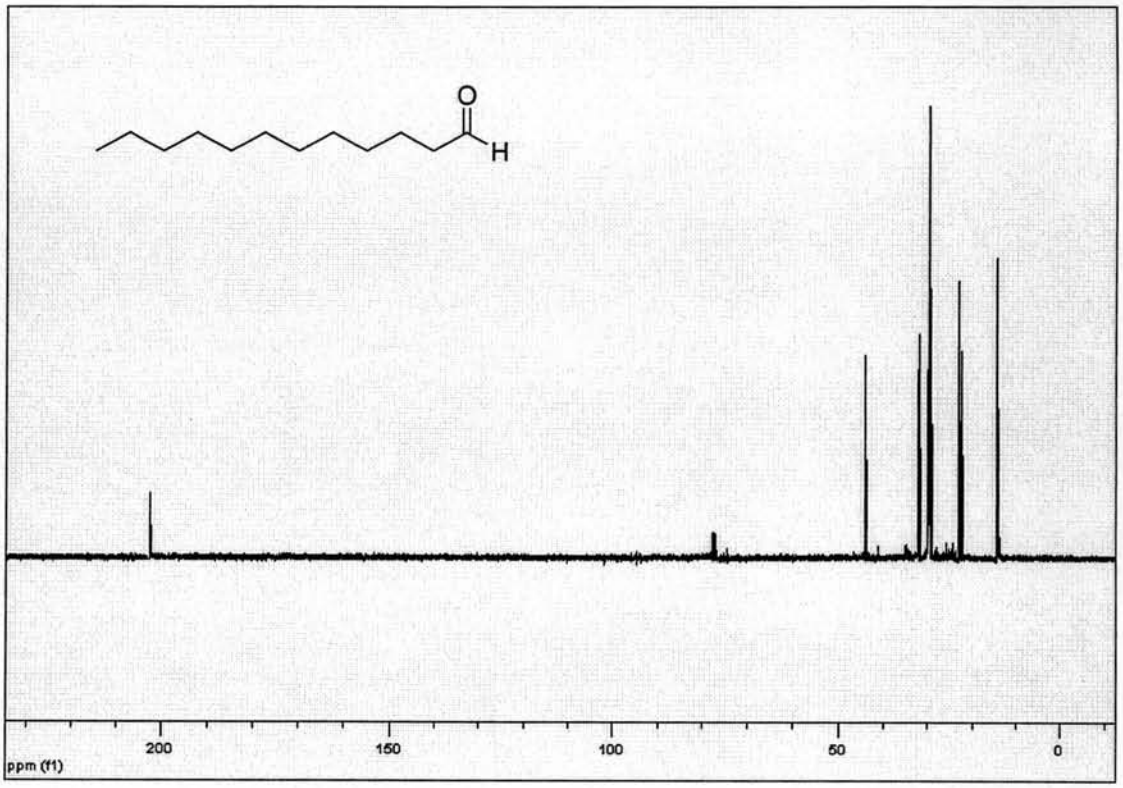


**Figure A29** The $^{13}$C-NMR spectrum of laurinaldehyde (**19**)

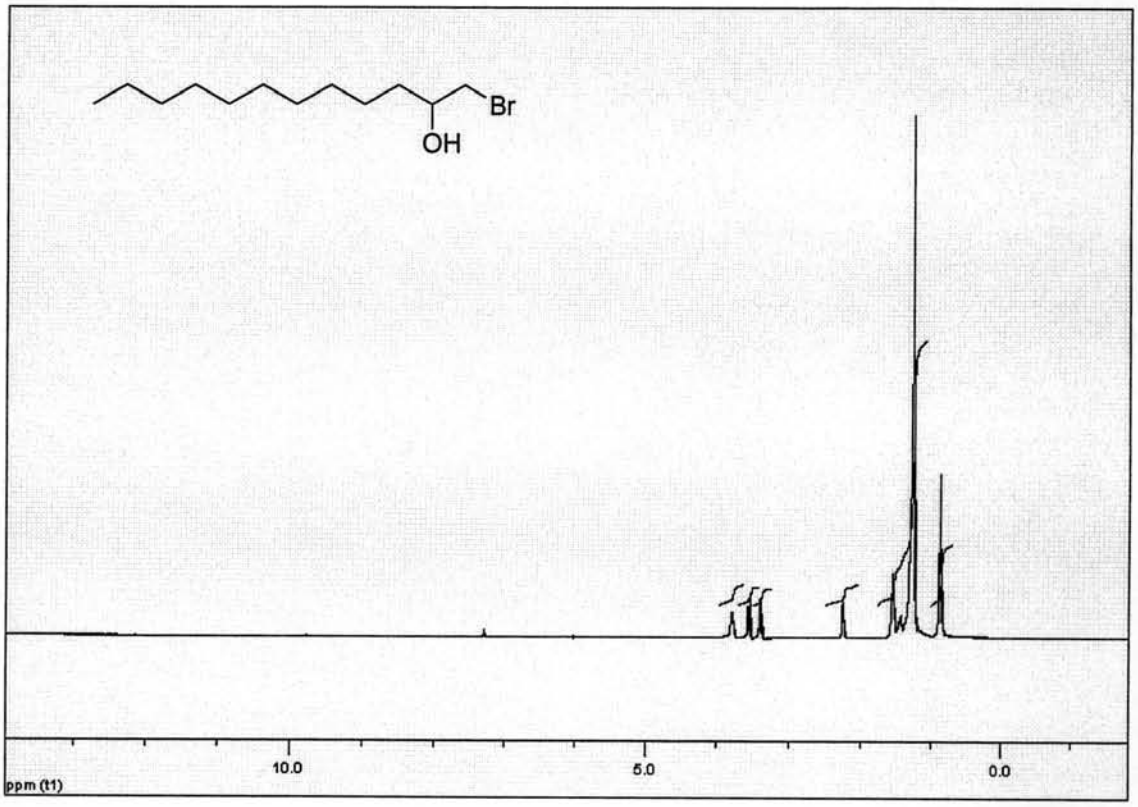


**Figure A30** The $^{1}$H-NMR spectrum of 1-bromododecan-2-ol (**20**)

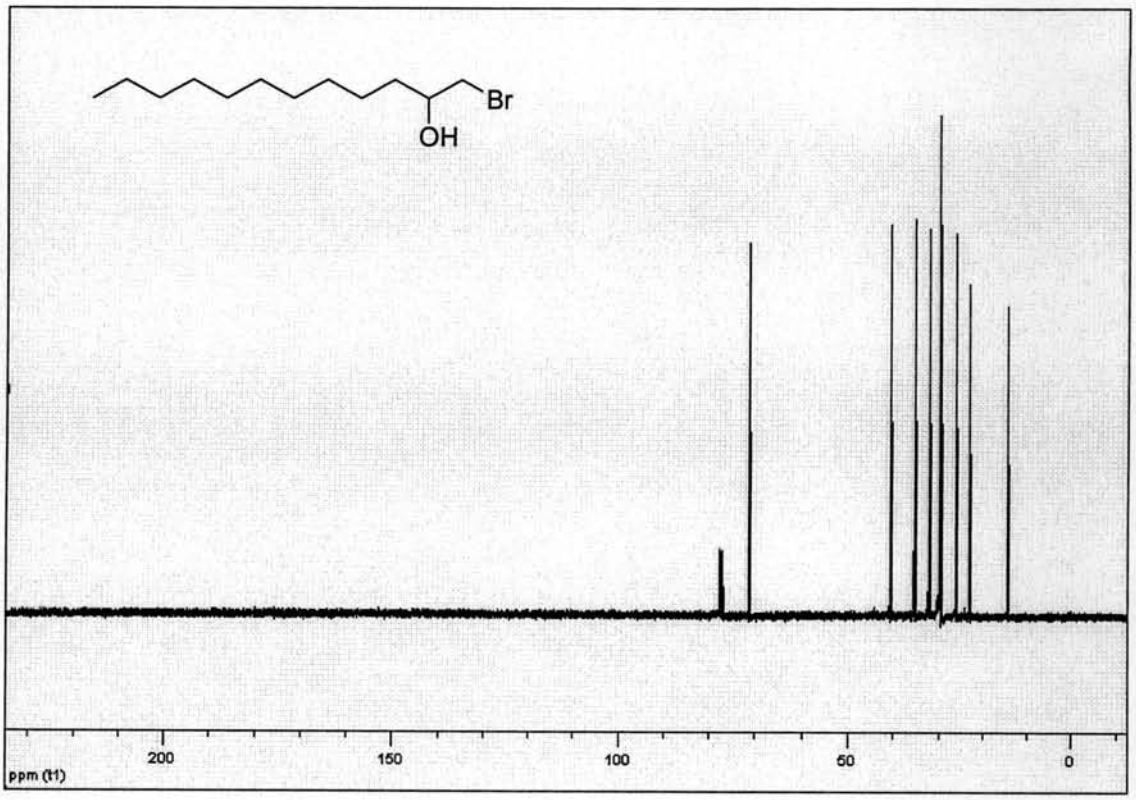


**Figure A31** The $^{13}$C-NMR spectrum of 1-bromododecan-2-ol (**20**)

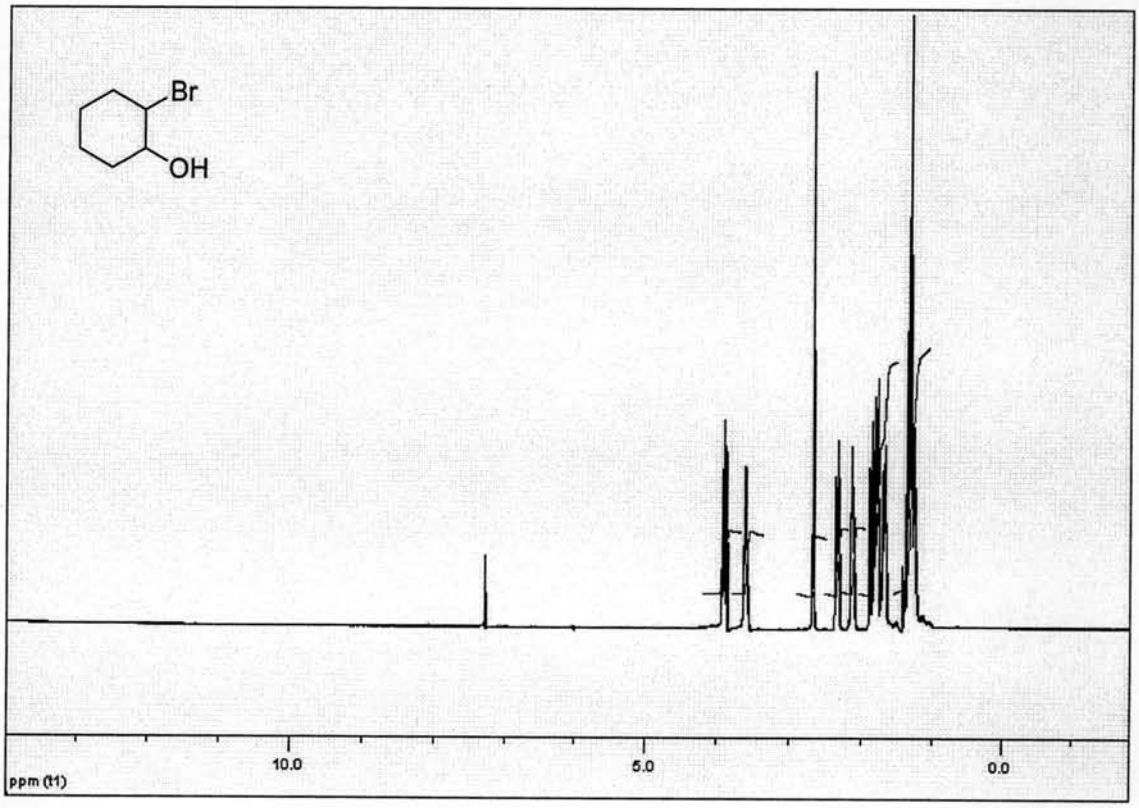


**Figure A32** The $^{1}$H-NMR spectrum of 2-bromocyclohexanol (**24**)

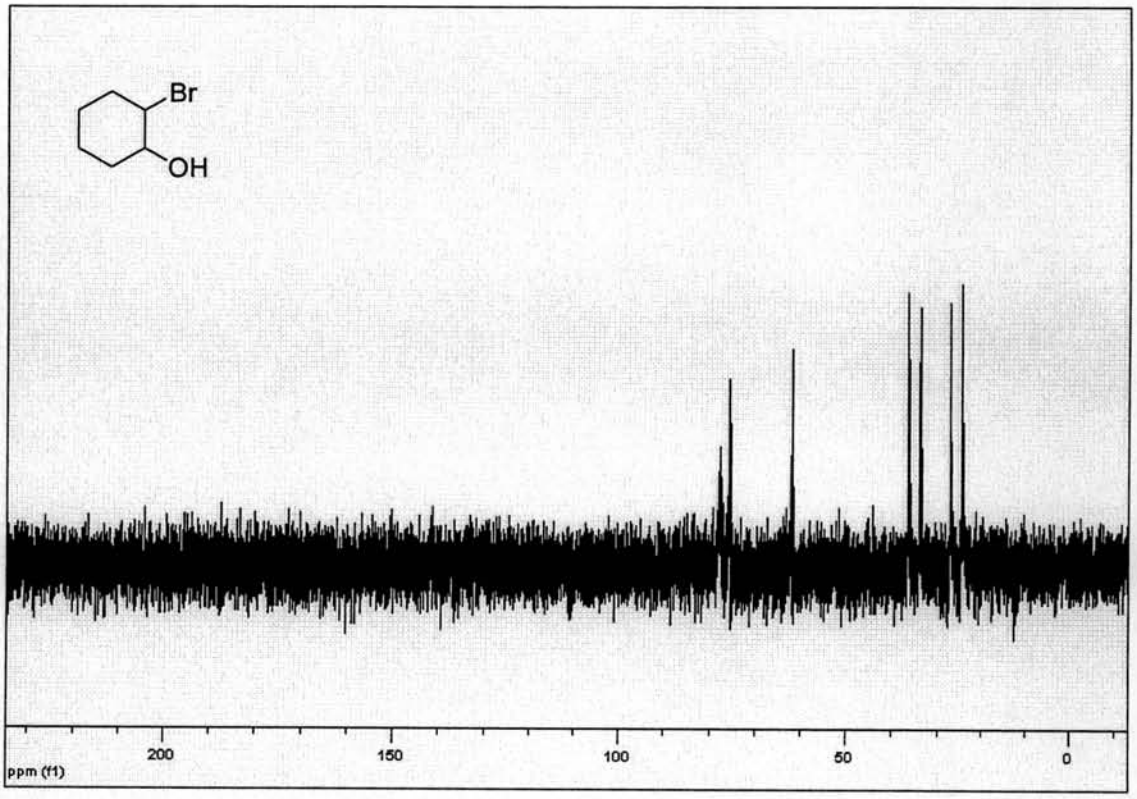


**Figure A33** The $^{13}$C-NMR spectrum of 2-bromocyclohexanol (**24**)

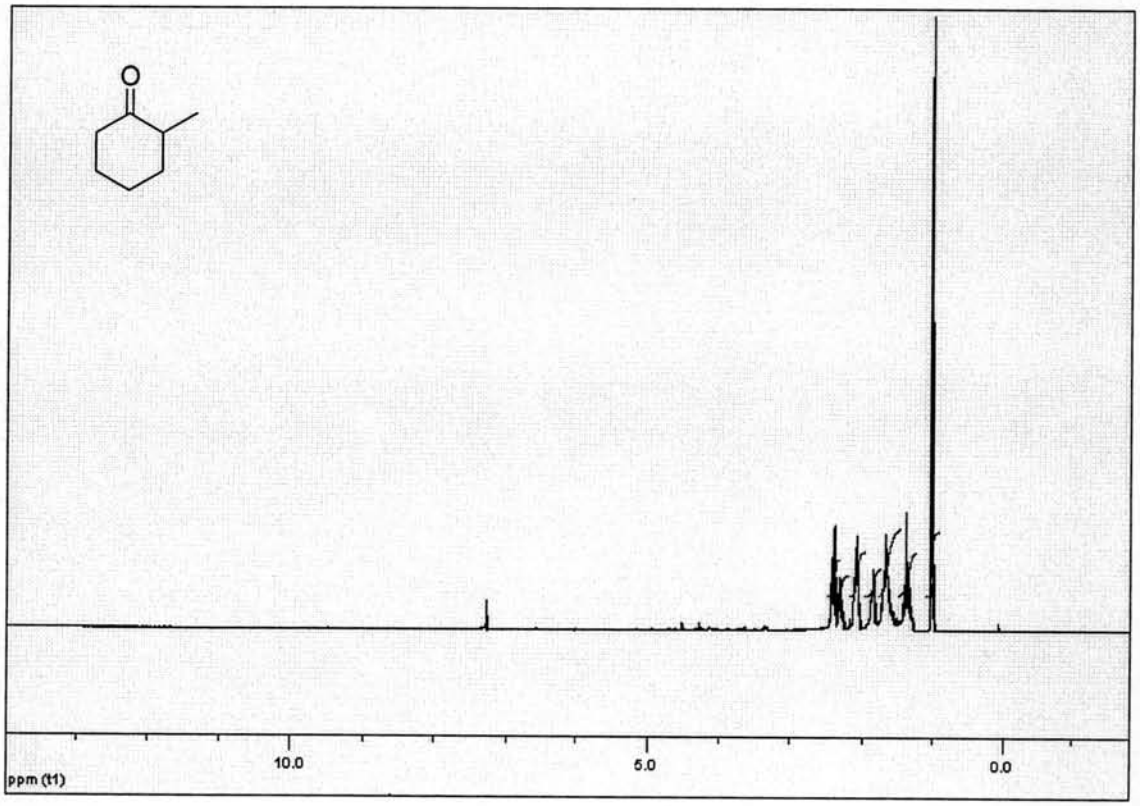


**Figure A34** The $^{1}$H-NMR spectrum of 2-methyl-1-cyclohexanone (**26**)

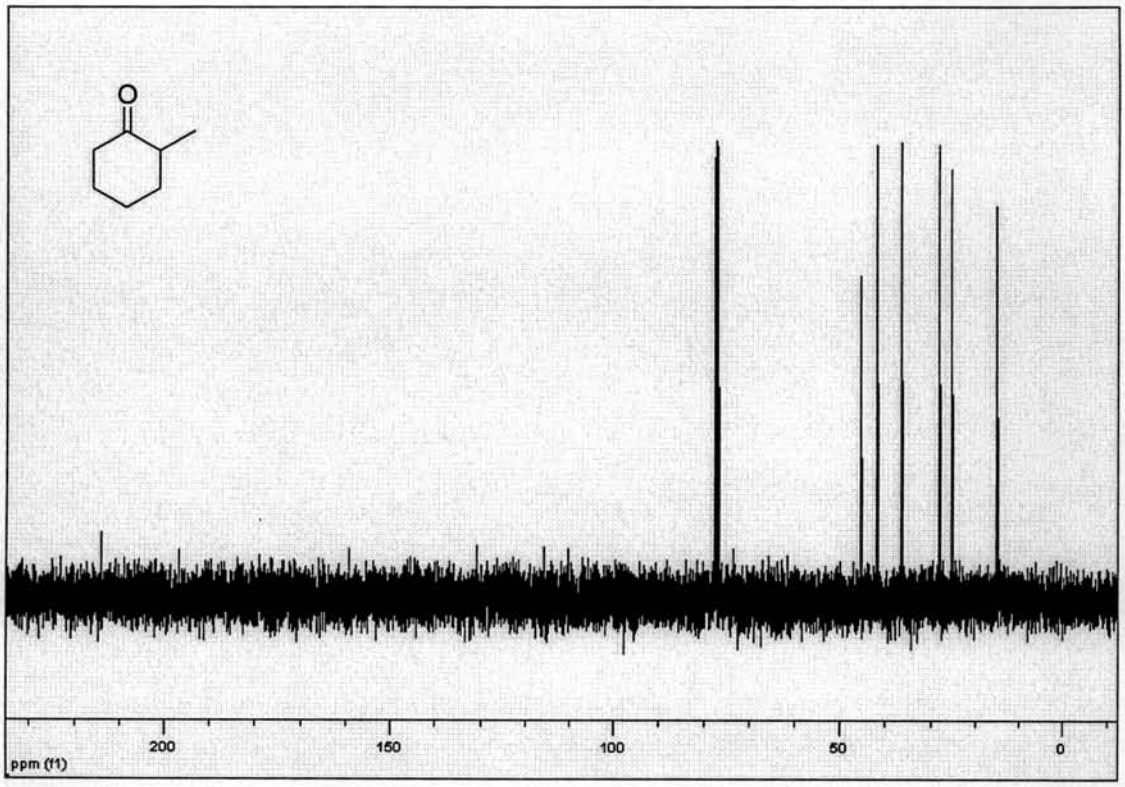


**Figure A35** The $^{13}$C-NMR spectrum of 2-methyl-1-cyclohexanone (**26**)

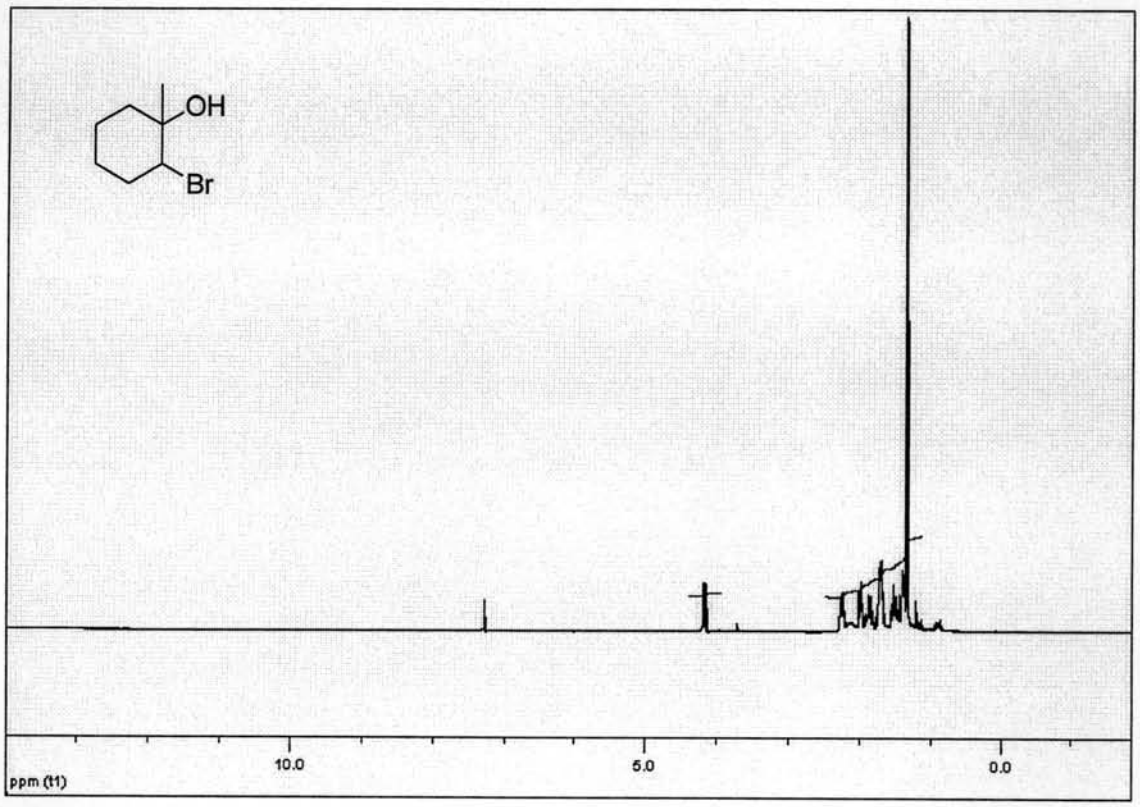


**Figure A36** The $^{1}$H-NMR spectrum of 2-bromo-2-methylcyclohexanol (**27**)

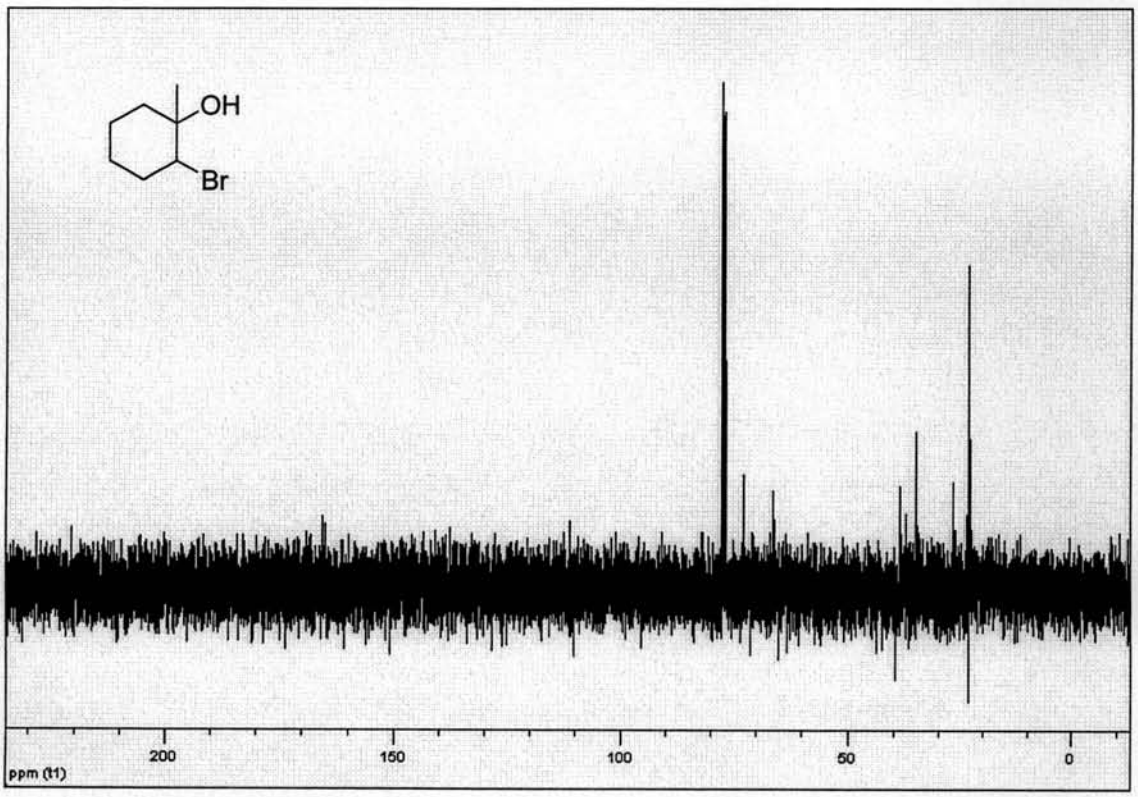


**Figure A37** The $^{13}$C-NMR spectrum of 2-bromo-2-methylcyclohexanol (**27**)

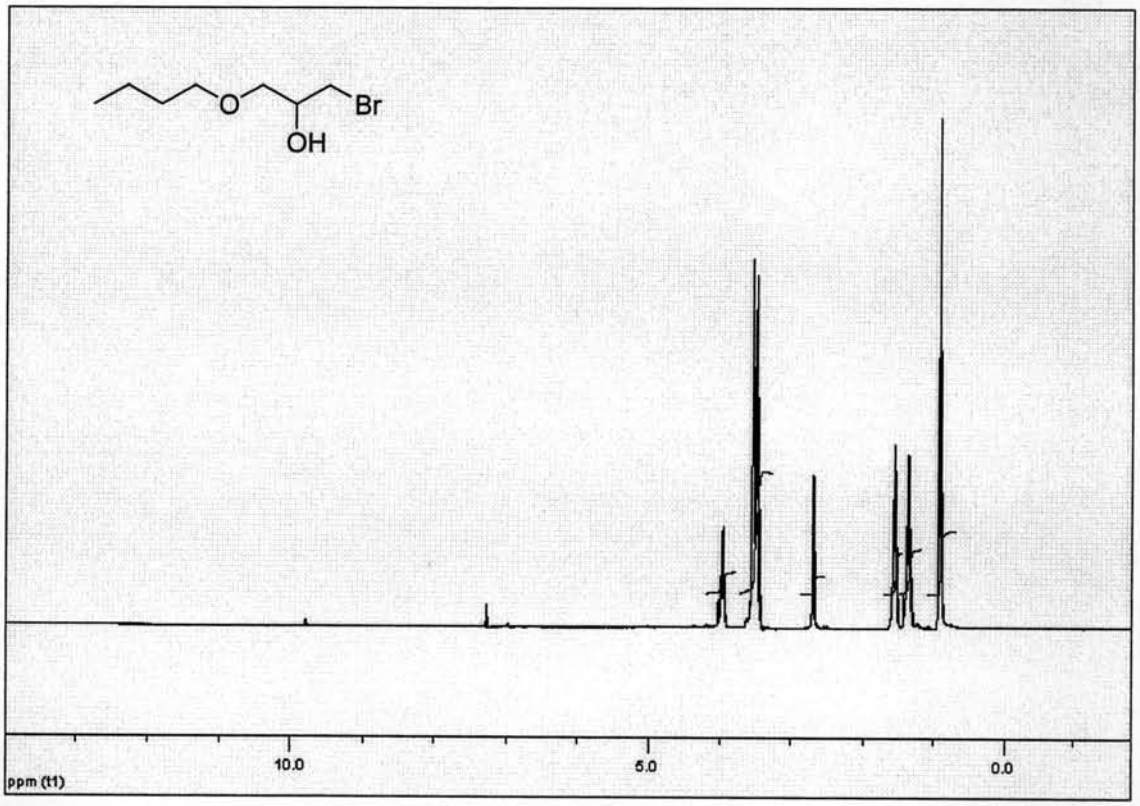


**Figure A38** The $^{1}$H-NMR spectrum of 1-bromo-3-butoxypropan-2-ol (**30**)

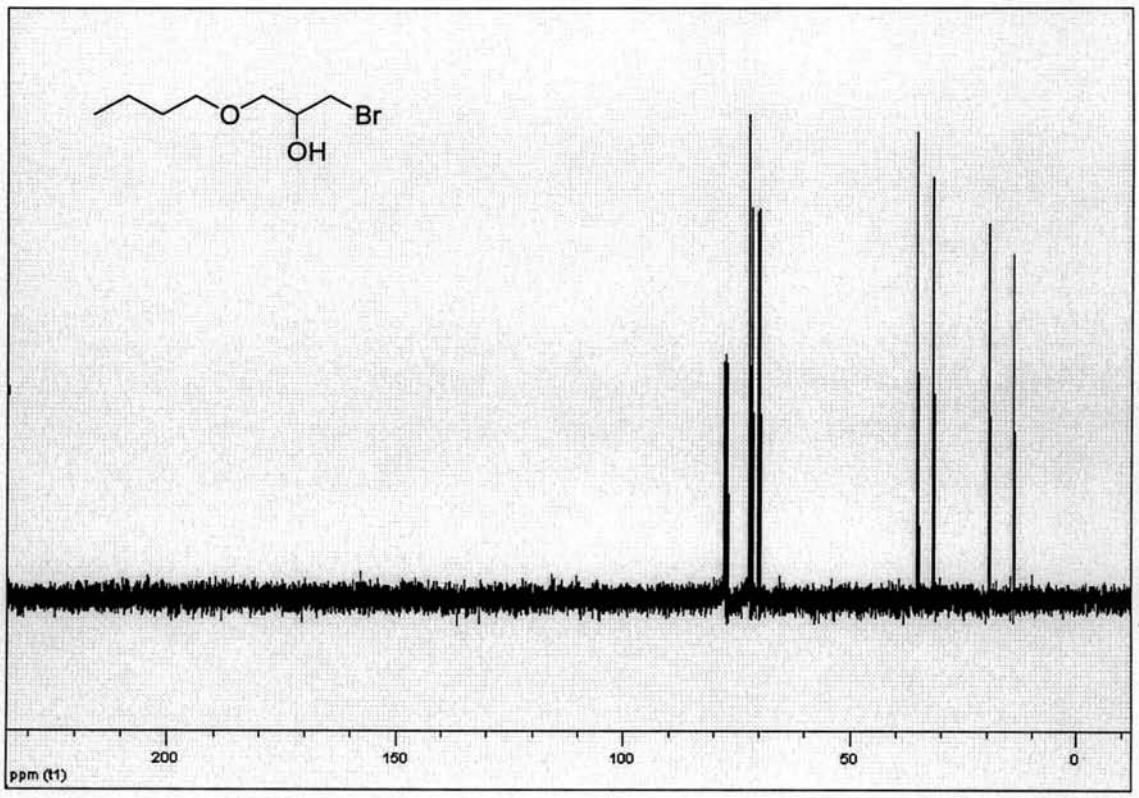


**Figure A39** The $^{13}$C-NMR spectrum of 1-bromo-3-butoxypropan-2-ol (**30**)

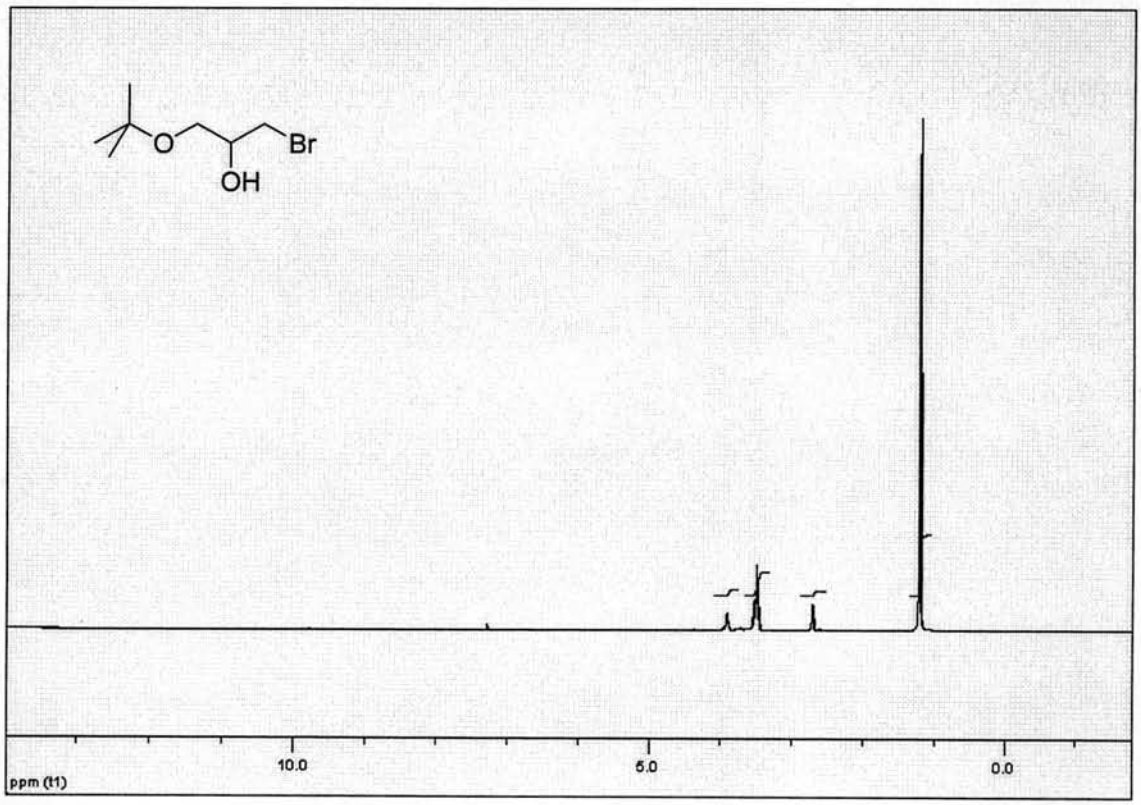


**Figure A40** The $^{1}$H-NMR spectrum of 1-bromo-3-*tert*-butoxypropan-2-ol (**32**)

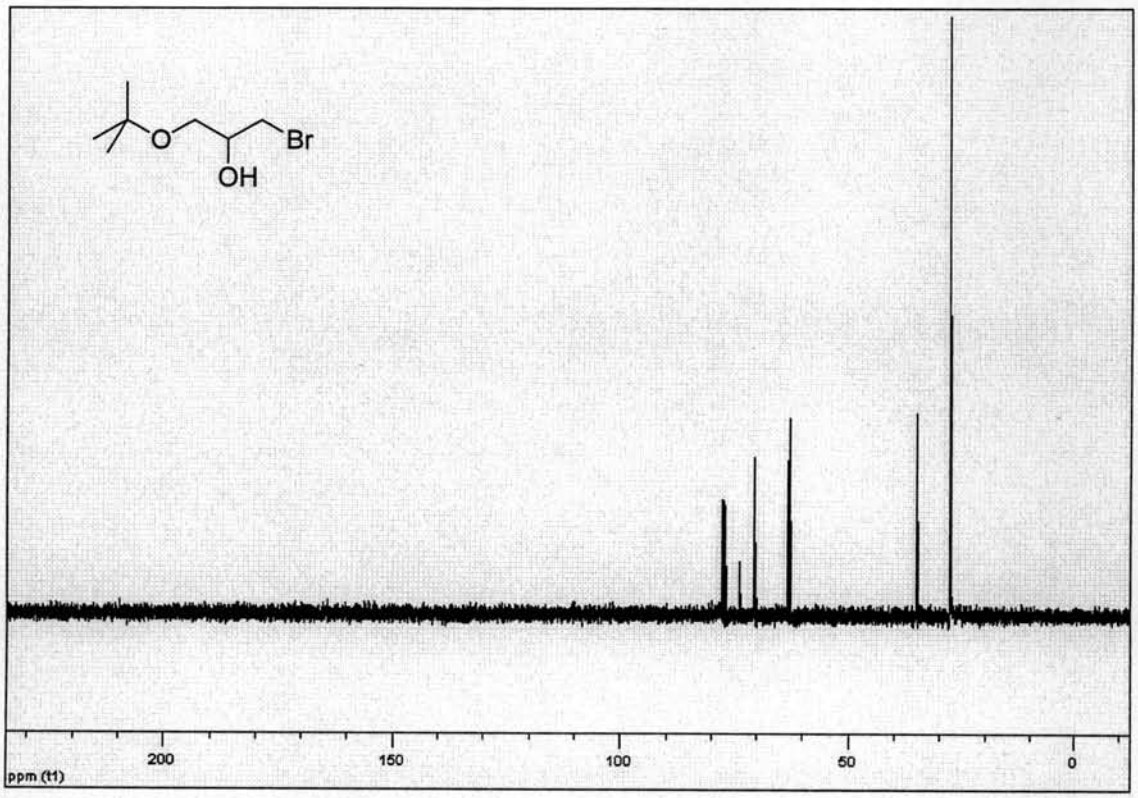


**Figure A41** The $^{13}$C-NMR spectrum of 1-bromo-3-*tert*-butoxypropan-2-ol (**32**)

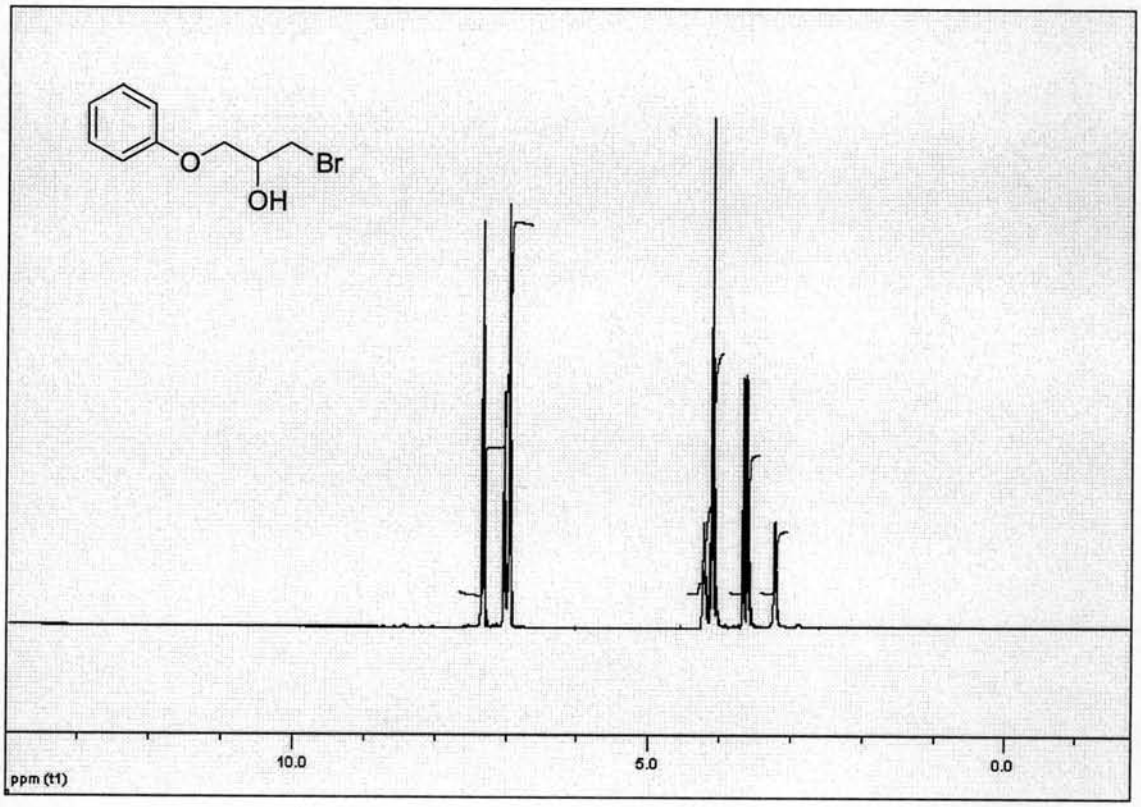


**Figure A42** The $^{1}$H-NMR spectrum of 1-bromo-3-phenoxypropan-2-ol (**34**)

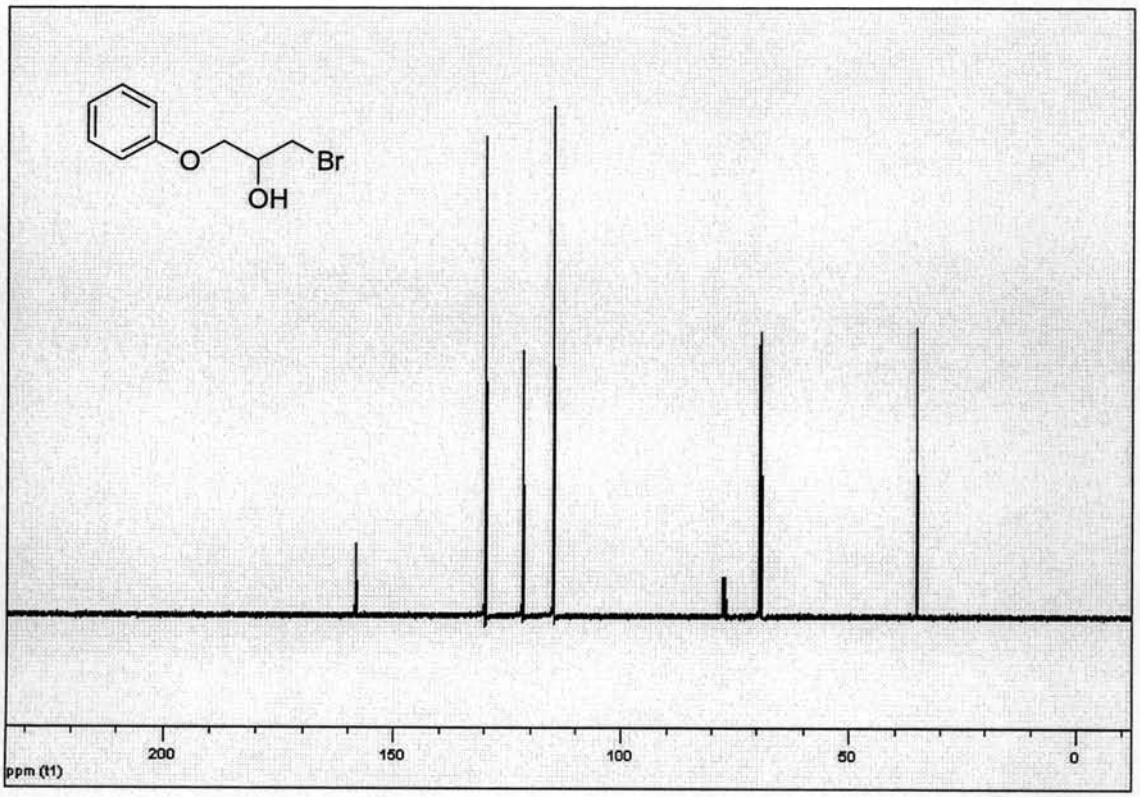


**Figure A43** The $^{13}$C-NMR spectrum of 1-bromo-3-phenoxypropan-2-ol (**34**)

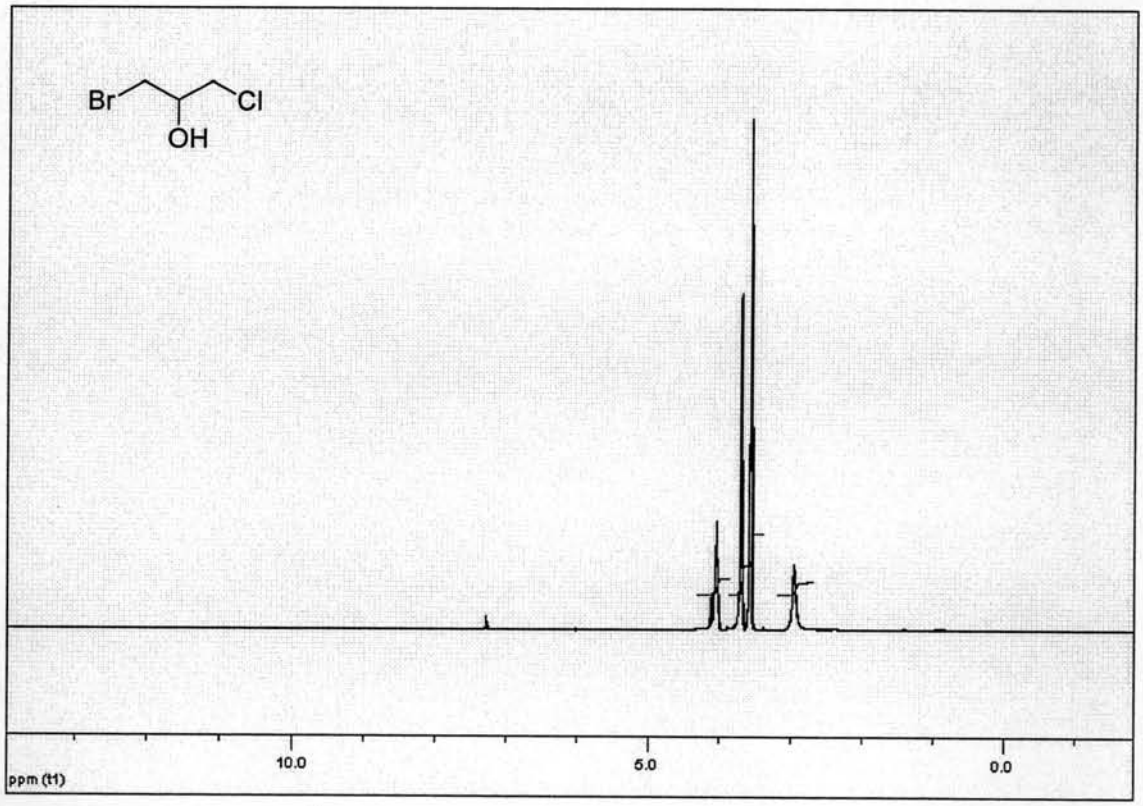


**Figure A44** The $^{1}$H-NMR spectrum of 1-bromo-3-chloropropan-2-ol (**36**)

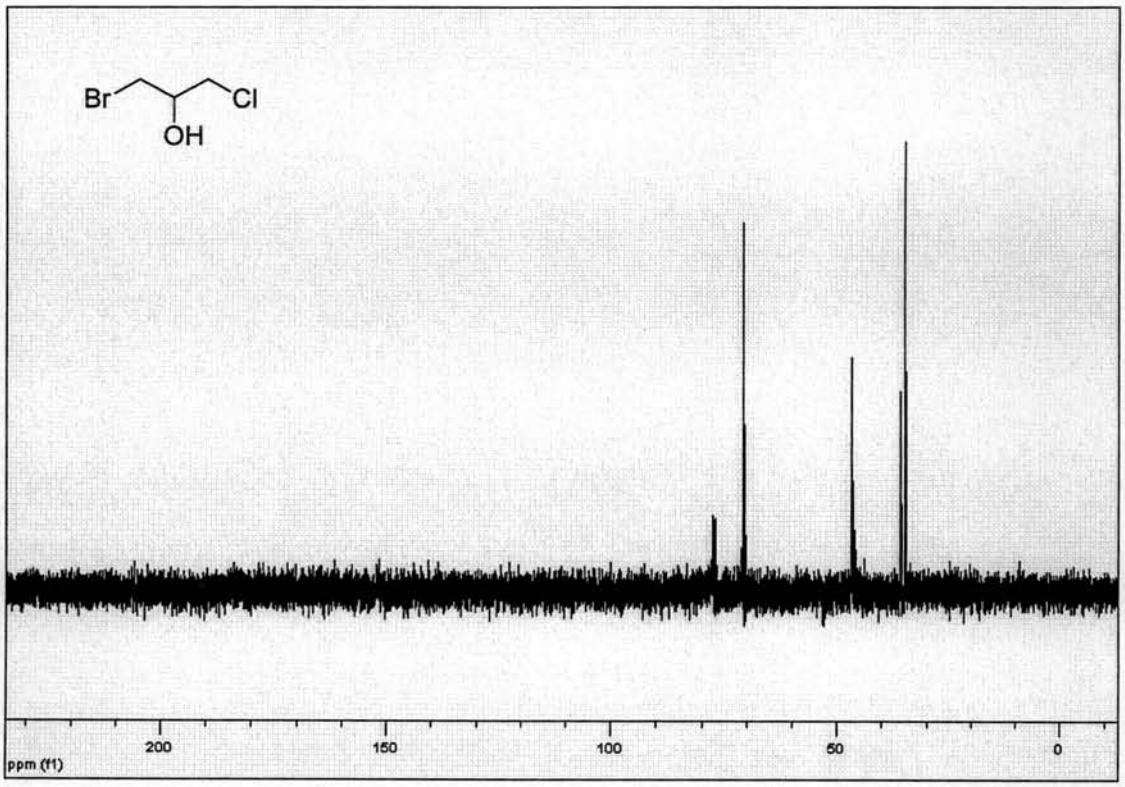


**Figure A45** The $^{13}$C-NMR spectrum of 1-bromo-3-chloropropan-2-ol (**36**)

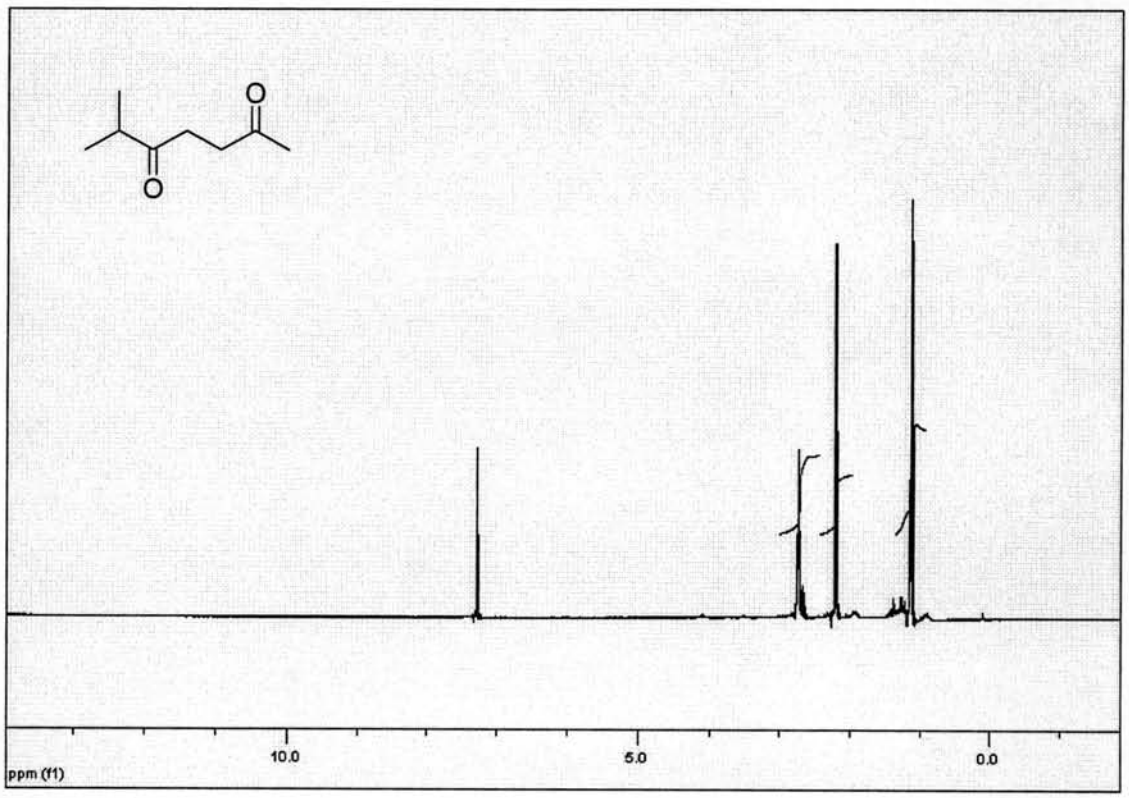


**Figure A46** The $^{1}$H-NMR spectrum of 6-methylheptane-2,5-dione (**38**)

# VITA

Miss Arunee Soponrattanapokin was born on Nov 6, 1981 in Narathiwat, Thailand. She graduated with Bachelor's Degree in Chemistry from Faculty of Science, Mahidol University in 2003. She continued her study in Petrochemistry and Polymer Science Program, Faculty of Science, Chulalongkorn University in 2004 and completed in 2007.

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