

Supporting Information of

**4-Dodecylbenzenesulfonic acid (DBSA) Promoted Solvent-free Diversity-Oriented Synthesis of Primary Carbamates, S-Thiocarbamates and Ureas**

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<b>Figure S198.</b> $^{13}\text{C}$ -NMR spectra of 1-(4-(Dimethylamino)phenyl)urea in $\text{DMSO-}d_6$	(S119)
<b>Figure S199.</b> $^1\text{H}$ -NMR spectra of 1-(4-(Dimethylamino)phenyl)urea in $\text{DMSO-}d_6$	(S119)
<b>Figure S200.</b> MS of 1-(4-(Dimethylamino)phenyl)urea	(S120)
<b>Figure S201.</b> FT-IR spectra of 1-Butylurea in KBr	(S120)
<b>Figure S202.</b> $^{13}\text{C}$ -NMR spectra of 1-Butylurea in $\text{DMSO-}d_6$	(S121)
<b>Figure S203.</b> $^1\text{H}$ -NMR spectra of 1-Butylurea in $\text{DMSO-}d_6$	(S121)
<b>Figure S204.</b> MS of 1-Butylurea	(S122)
<b>Figure S205.</b> FT-IR spectra of 1,1-Dimethylurea in KBr	(S122)
<b>Figure S206.</b> $^{13}\text{C}$ -NMR spectra of 1,1-Dimethylurea in $\text{DMSO-}d_6$	(S123)
<b>Figure S207.</b> $^1\text{H}$ -NMR spectra of 1,1-Dimethylurea in $\text{DMSO-}d_6$	(S123)
<b>Figure S208.</b> MS of 1,1-Dimethylurea	(S124)
<b>Figure S209.</b> FT-IR spectra of 1-Benzylurea in KBr	(S124)
<b>Figure S210.</b> $^{13}\text{C}$ -NMR spectra of 1-Benzylurea in $\text{DMSO-}d_6$	(S125)
<b>Figure S211.</b> $^1\text{H}$ -NMR spectra of 1-Benzylurea in $\text{DMSO-}d_6$	(S125)
<b>Figure S212.</b> MS of 1-Benzylurea	(S126)

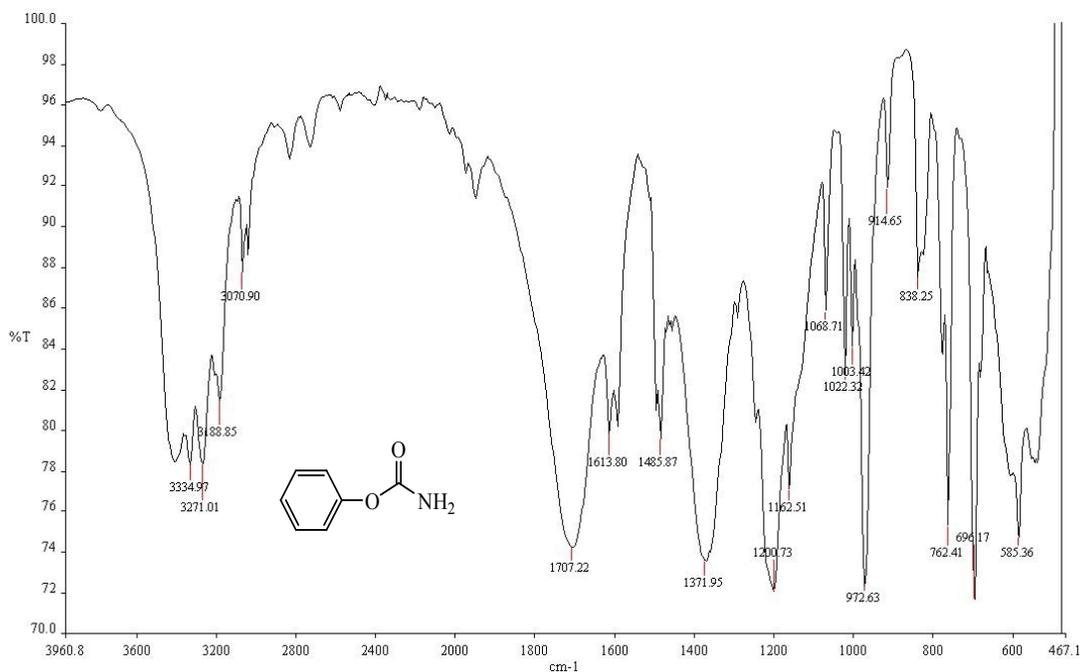
## 1. Experimental

### 1.1 General experimental methods

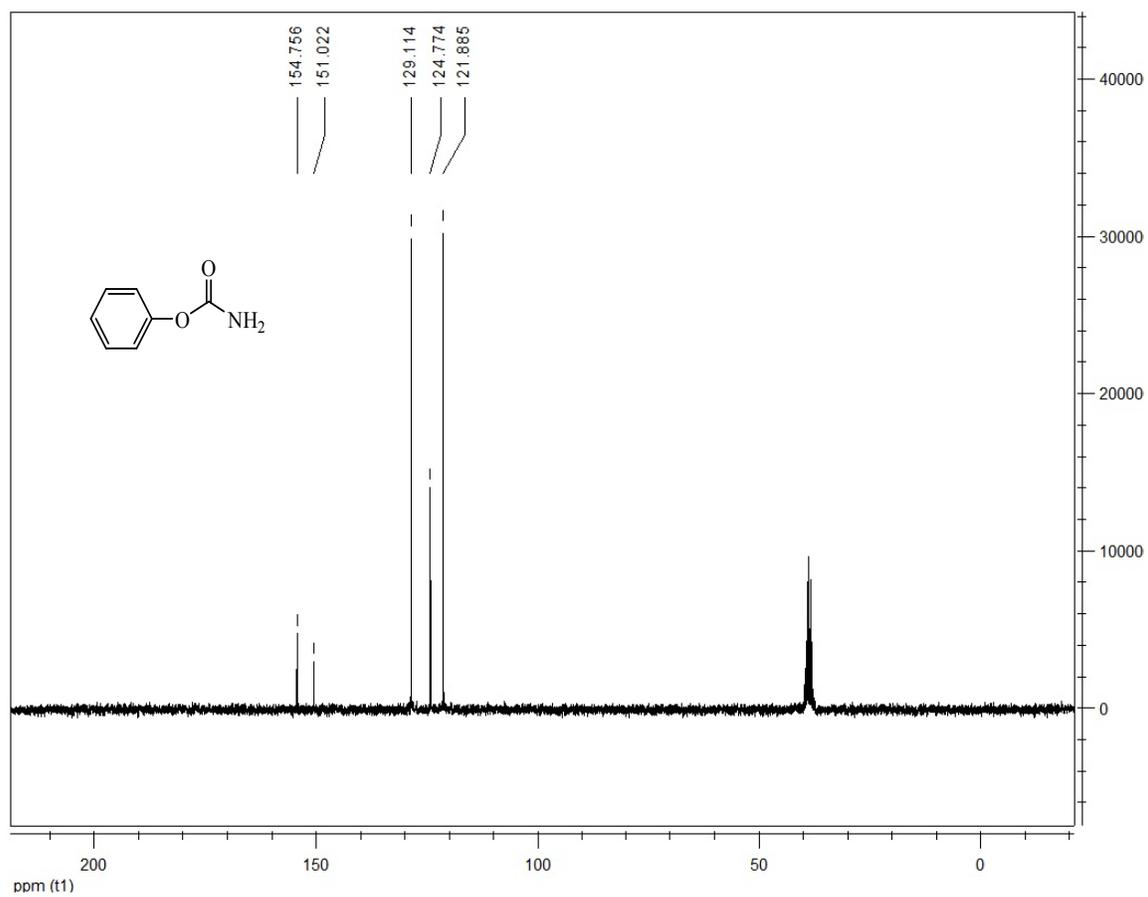
$^1\text{H}$  and  $^{13}\text{C}$  NMR spectra were recorded by BRUKER AVANCE DRX250 (250 MHz). The IR spectra were obtained on a Shimadzu FT-IR 8300. Mass spectra were analyzed by Shimadzu GC-MS QP 1000 EX. Elemental analysis was performed using Thermofinigan Flash EA-1112 CHNSO rapid elemental analyzer. Melting points were recorded by Electrothermal 9100 and the Gallenkamp melting point apparatus and were uncorrected.

### 1.2 Chemicals

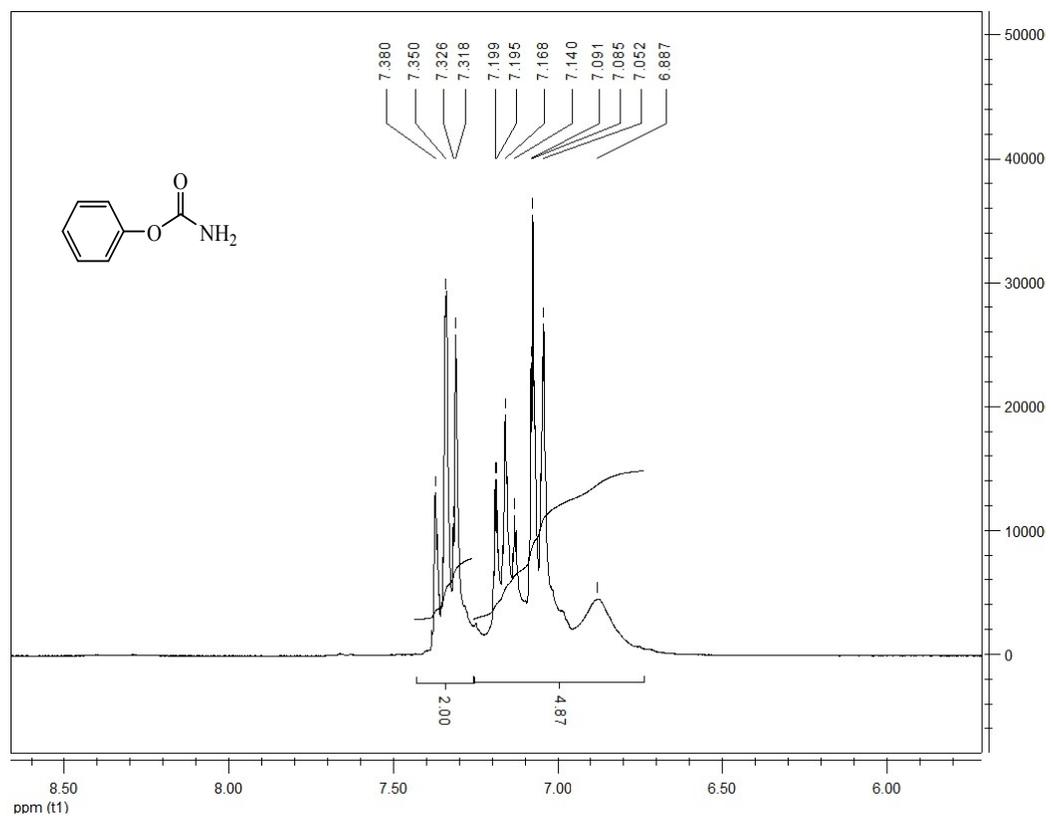
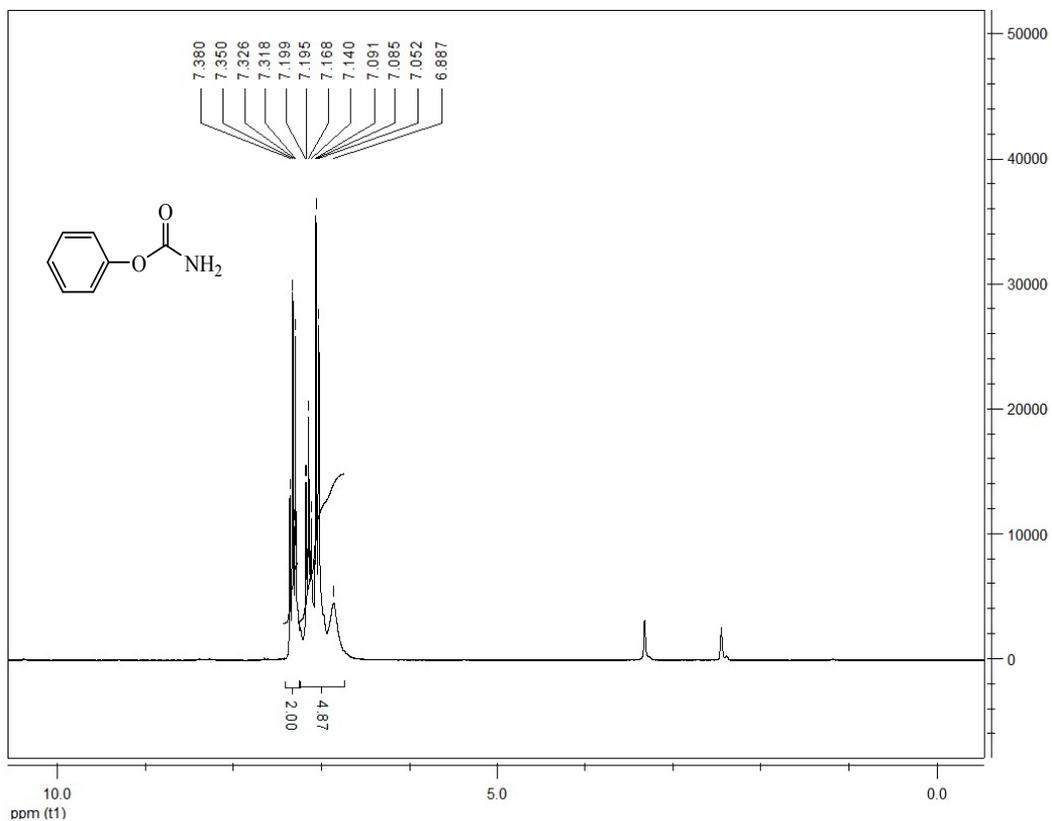
All starting materials and solvents were purified with appropriate purification techniques before use. Primary carbamates, *S*-thiocarbamates and ureas were prepared according to literature.



**Figure S1.** FT-IR spectra of Phenyl carbamate in KBr



**Figure S2.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Phenyl carbamate in  $\text{DMSO-}d_6$



**Figure S3.**  $^1\text{H-NMR}$  spectra (250 MHz) of Phenyl carbamate in  $\text{DMSO-}d_6$

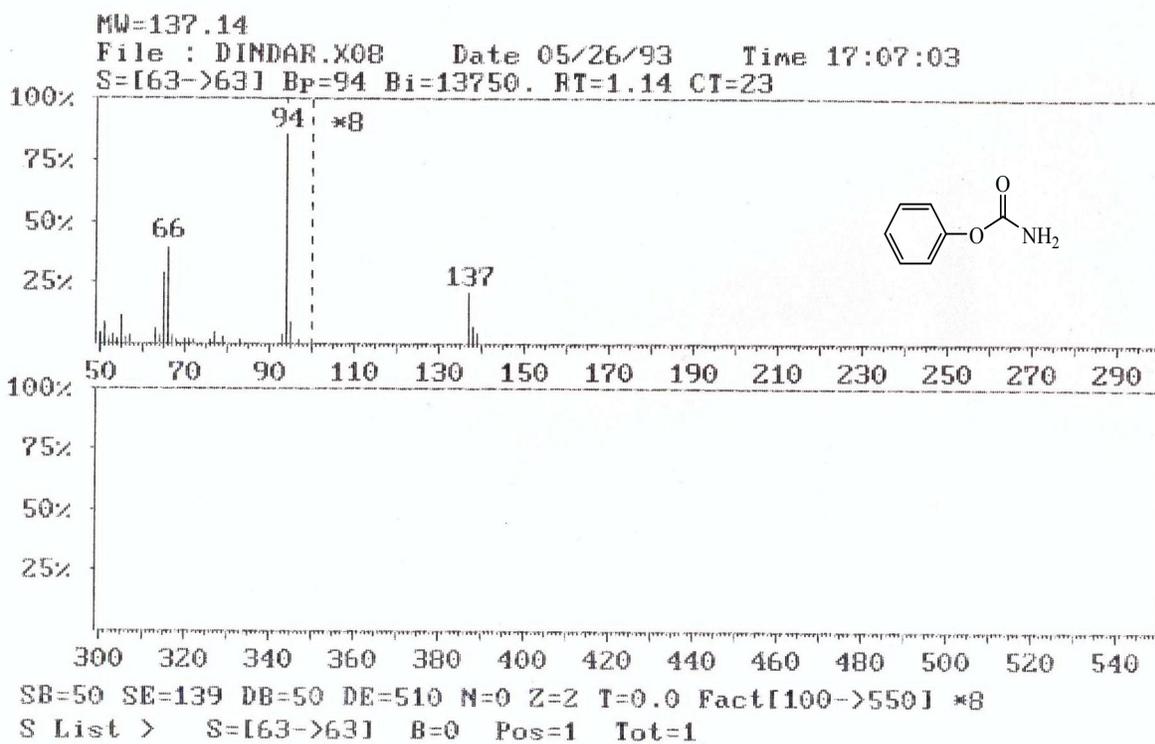


Figure S4. MS of Phenyl carbamate

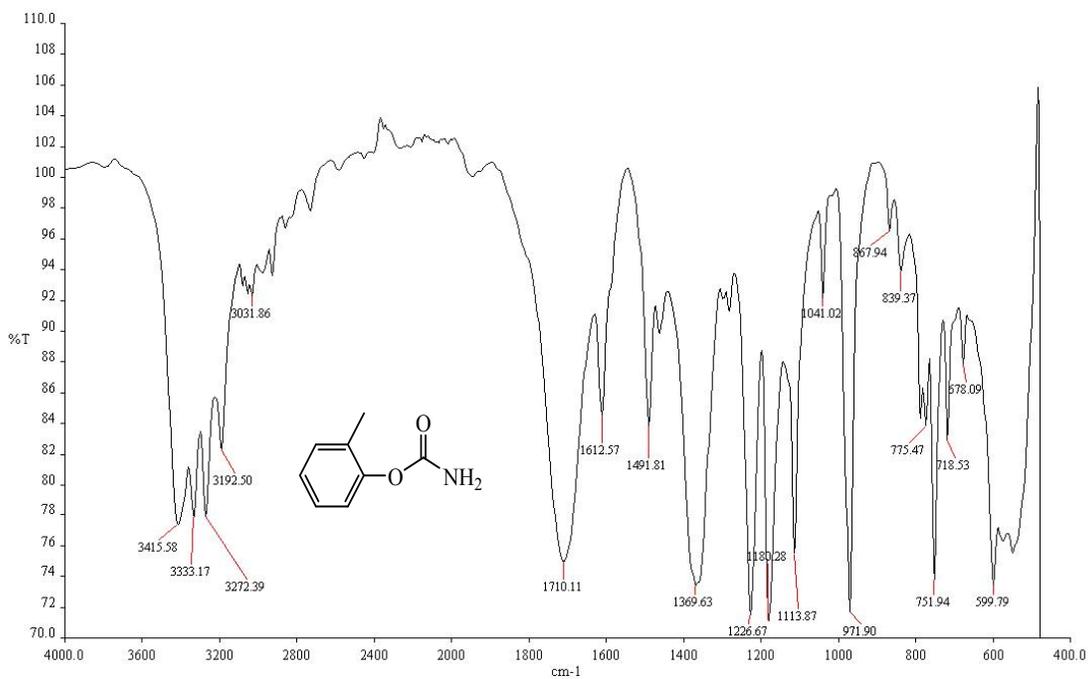
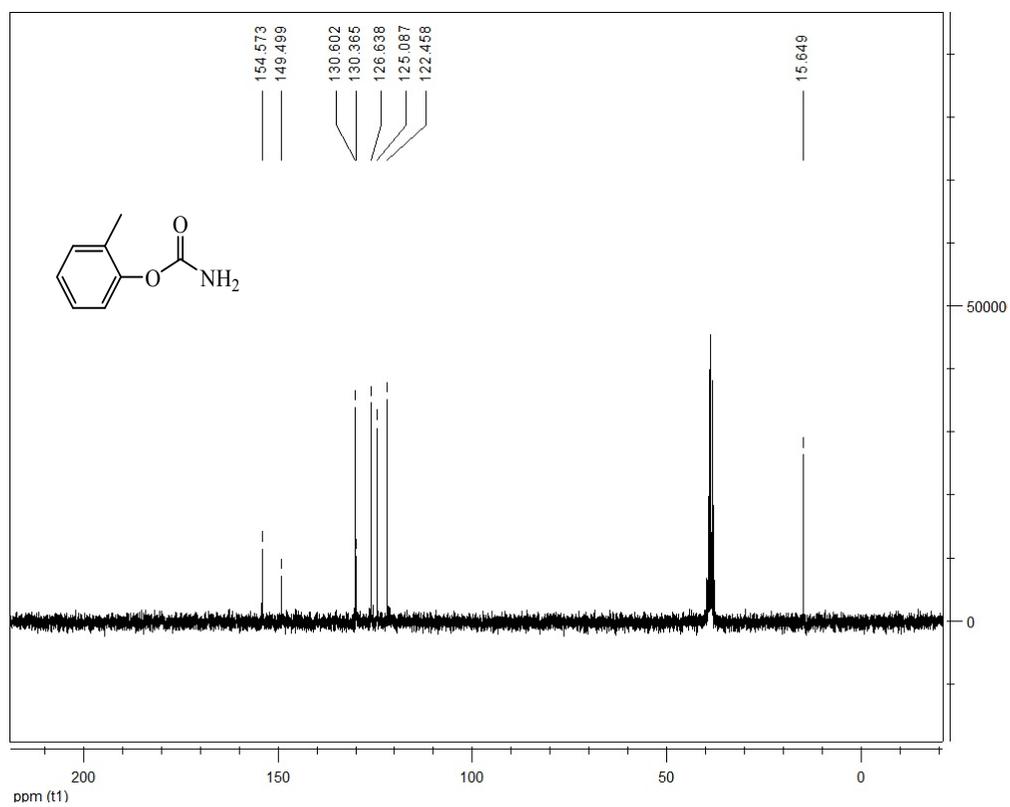
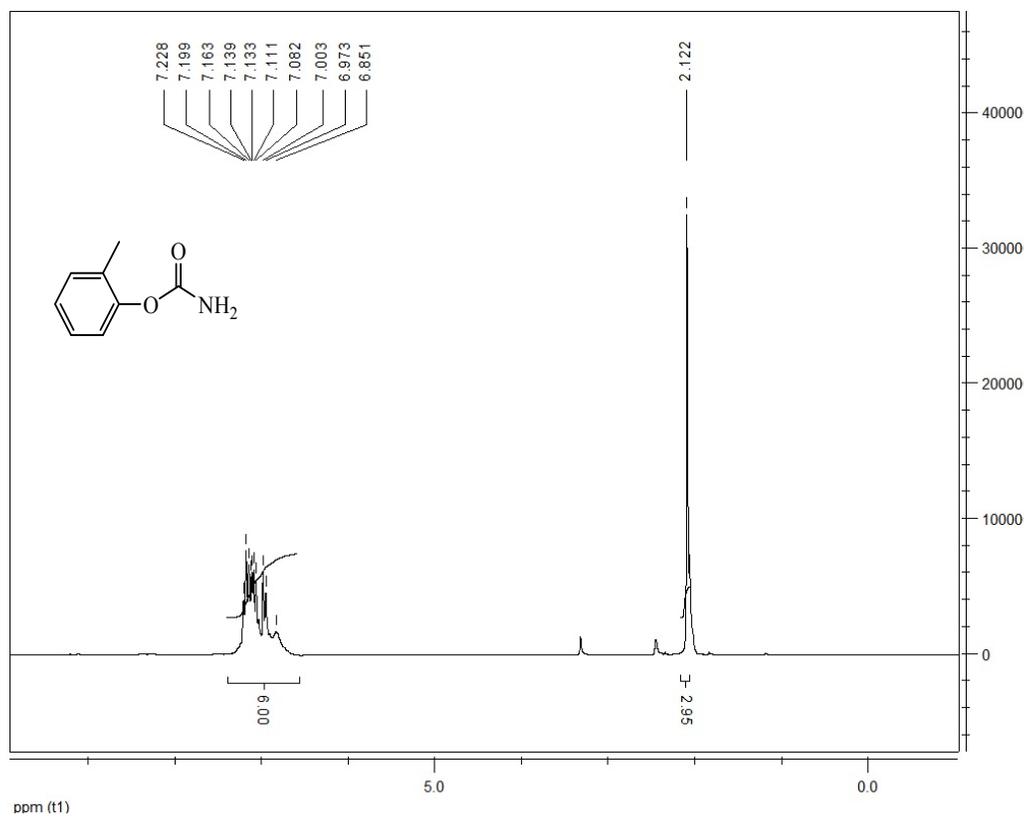


Figure S5. FT-IR spectra of 2-Methylphenyl carbamate in KBr



**Figure S6.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2-Methylphenyl carbamate in  $\text{DMSO-}d_6$



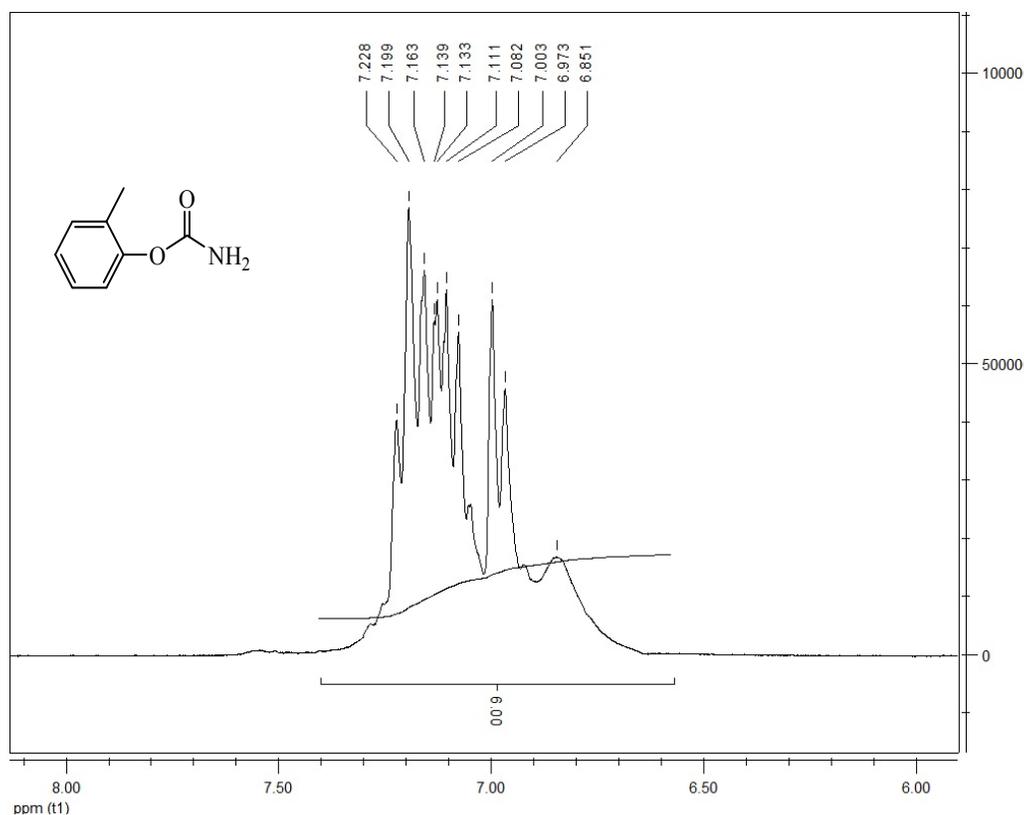


Figure S7. <sup>1</sup>H-NMR spectra (250 MHz) of 2-Methylphenyl carbamate in DMSO-*d*<sub>6</sub>

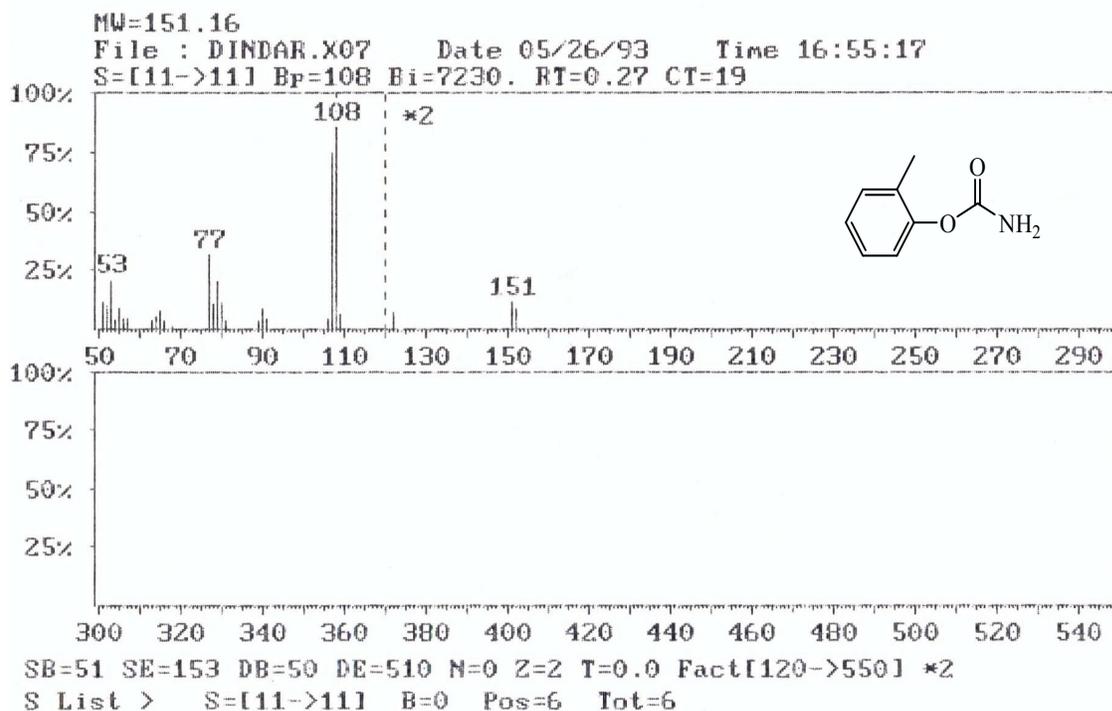
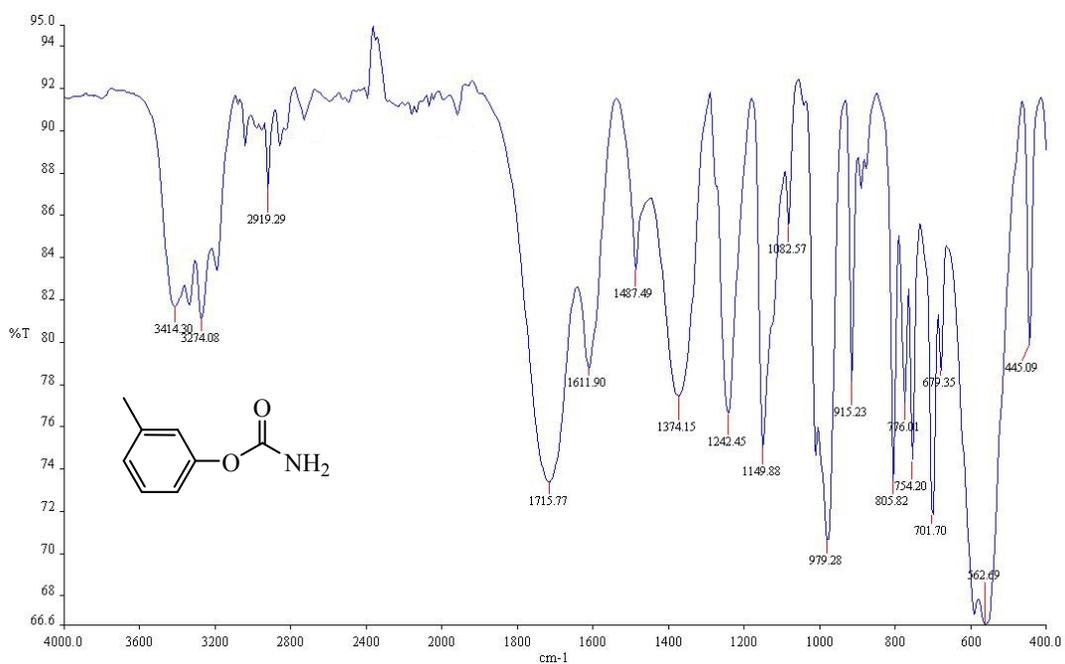
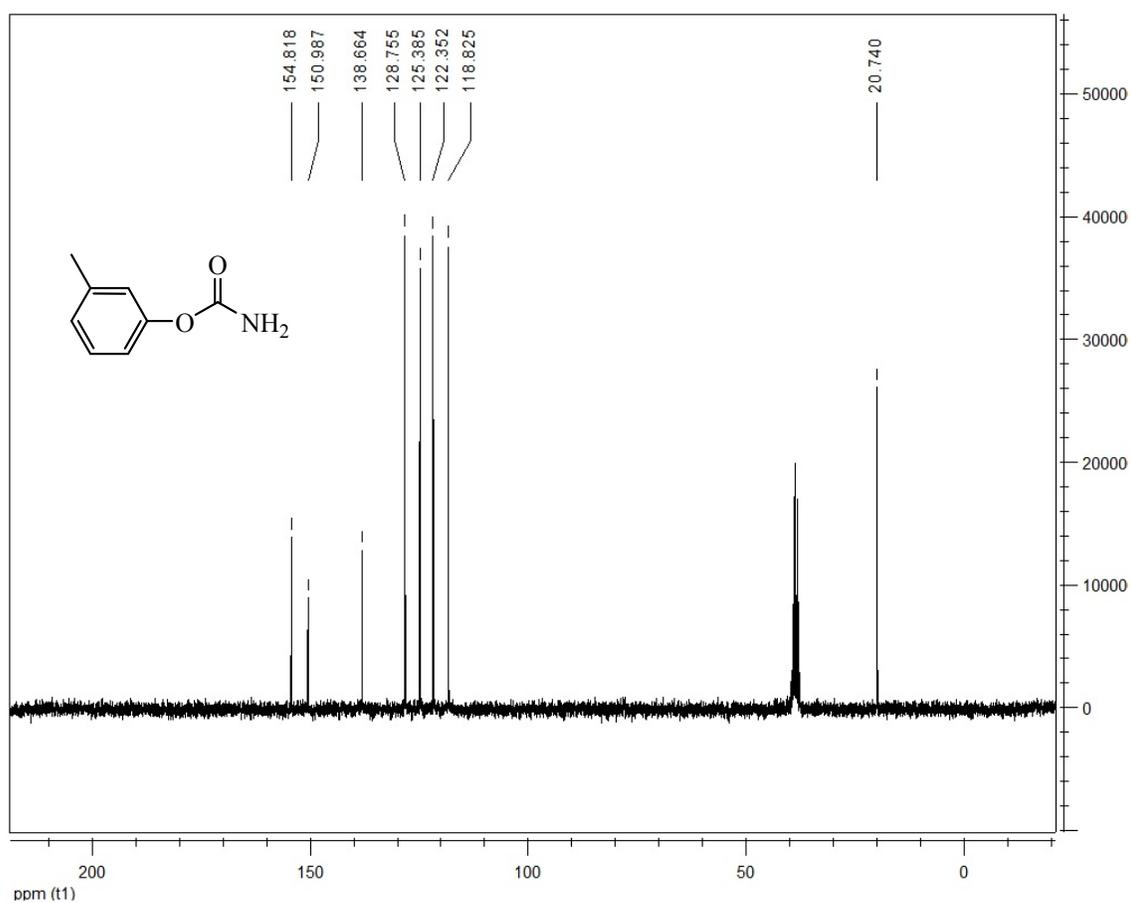


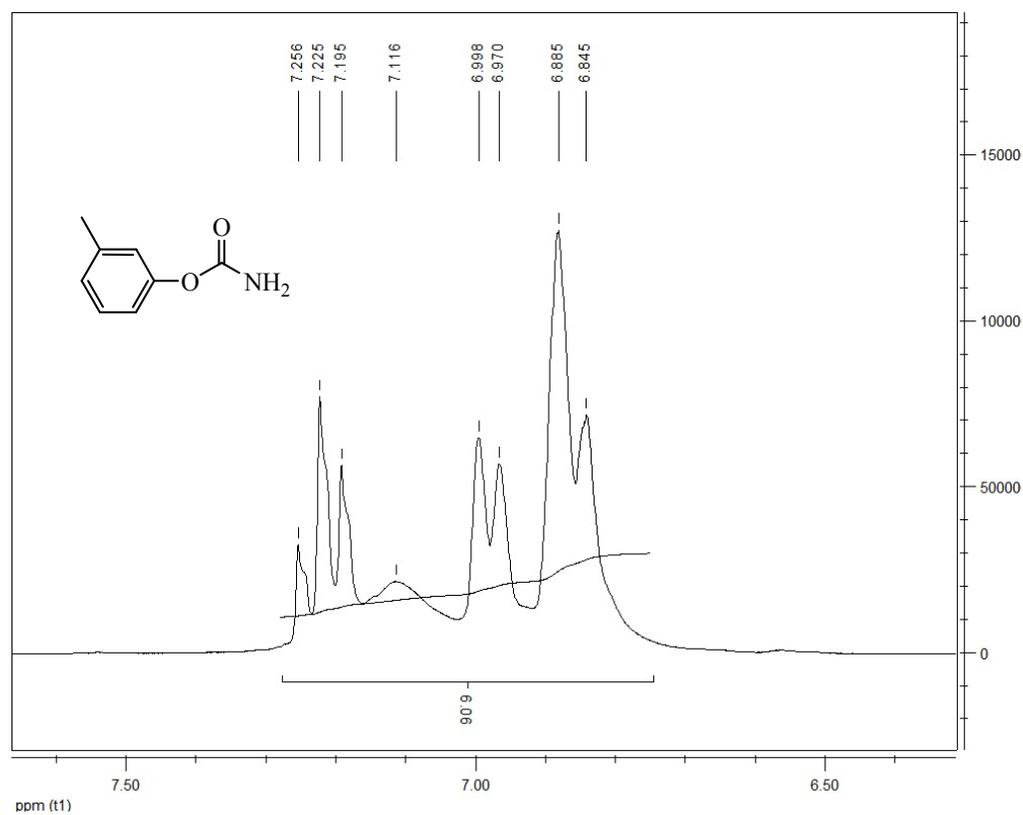
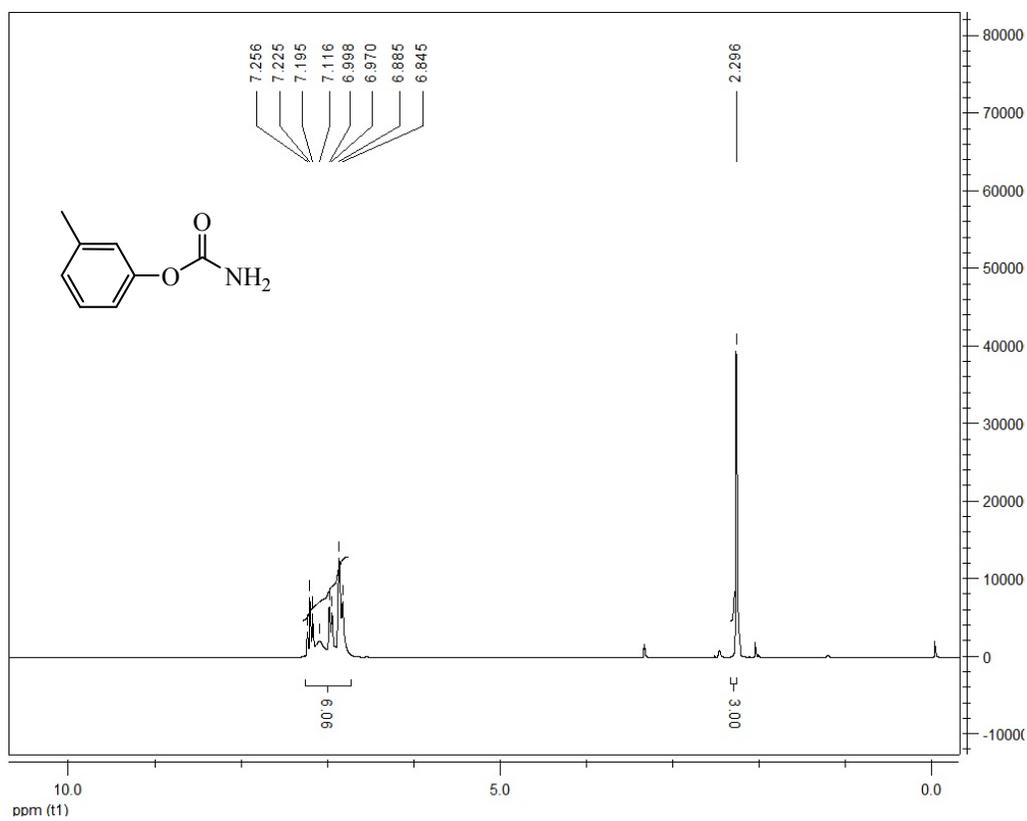
Figure S8. MS of 2-Methylphenyl carbamate



**Figure S9.** FT-IR spectra of 3-Methylphenyl carbamate in KBr



**Figure S10.** <sup>13</sup>C-NMR spectra (63 MHz) of 3-Methylphenyl carbamate in DMSO-*d*<sub>6</sub>



**Figure S11.**  $^1\text{H-NMR}$  spectra (250 MHz) of 3-Methylphenyl carbamate in  $\text{DMSO-}d_6$

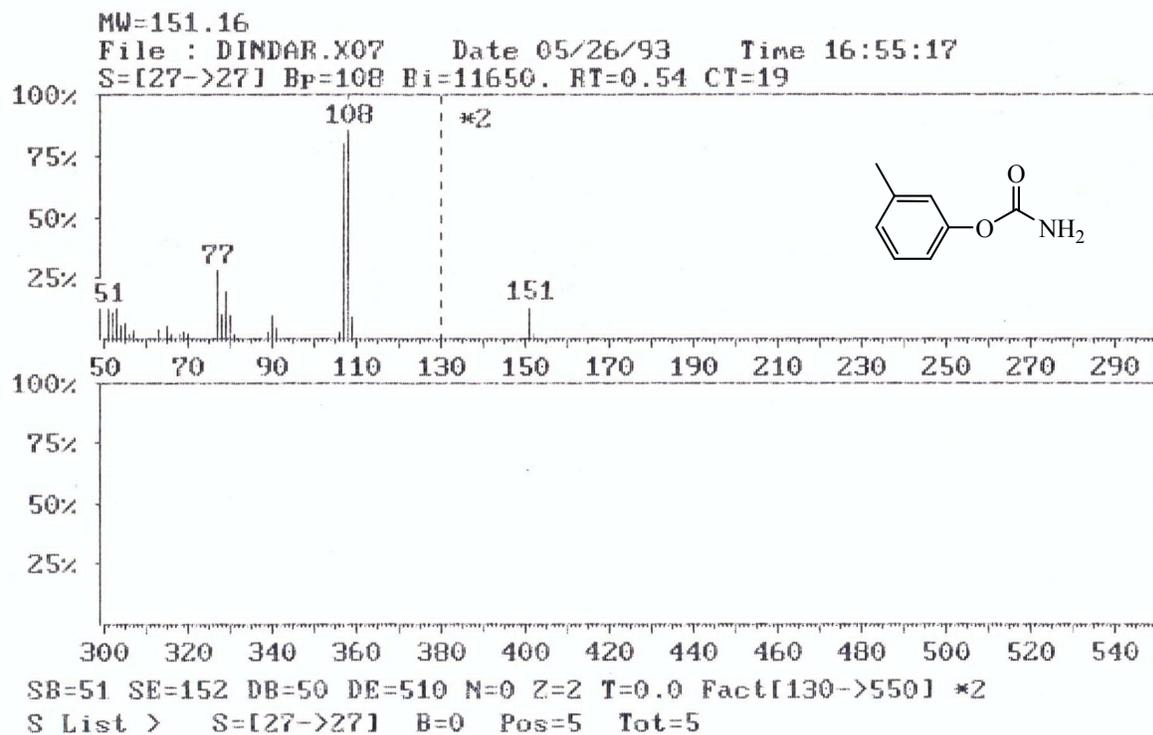


Figure S12. MS of 3-Methylphenyl carbamate

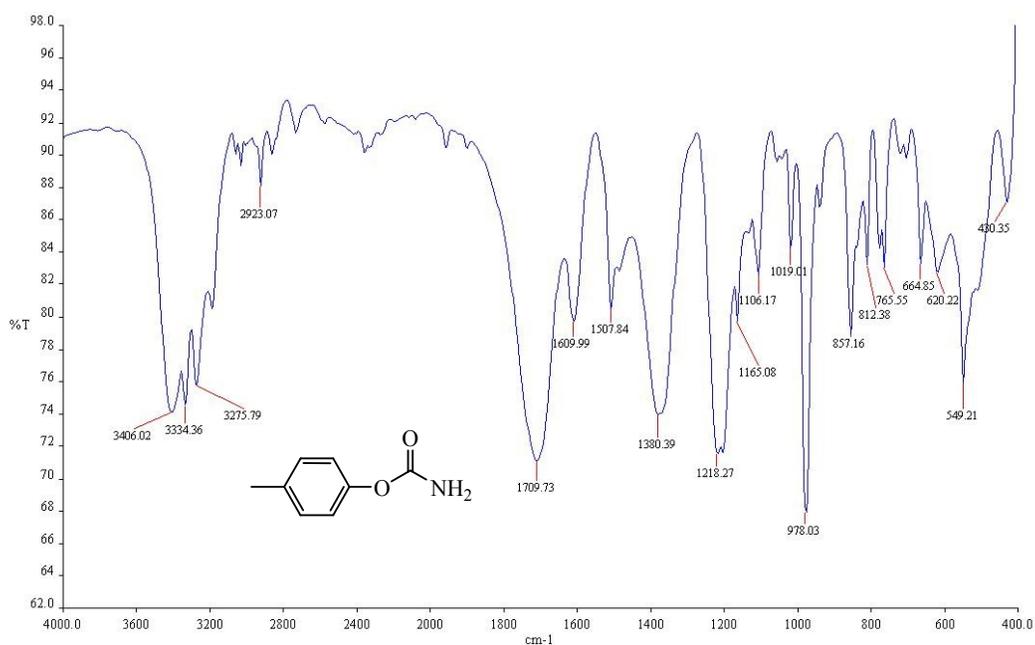
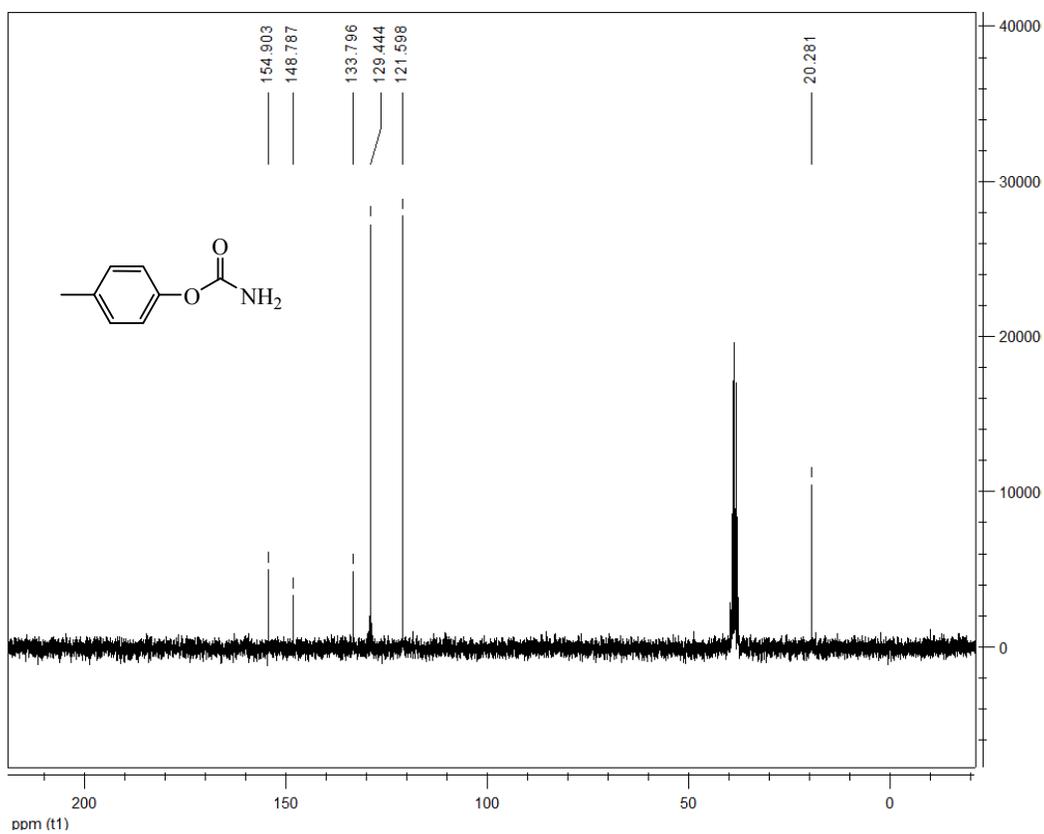
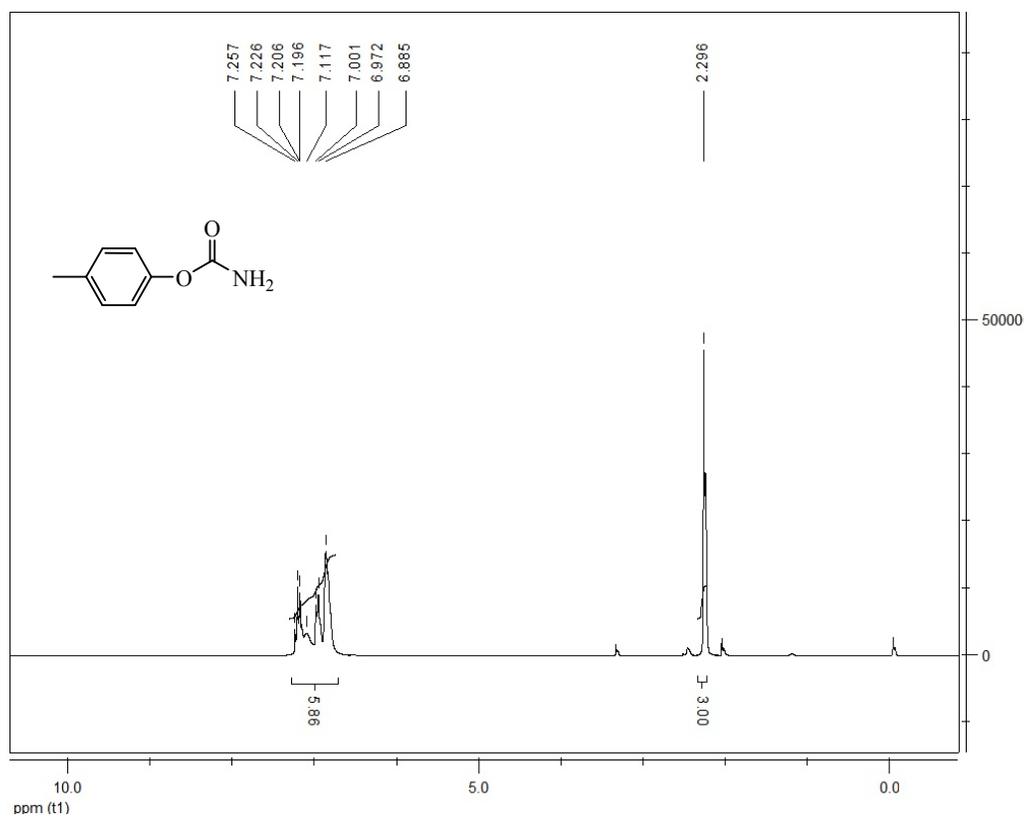
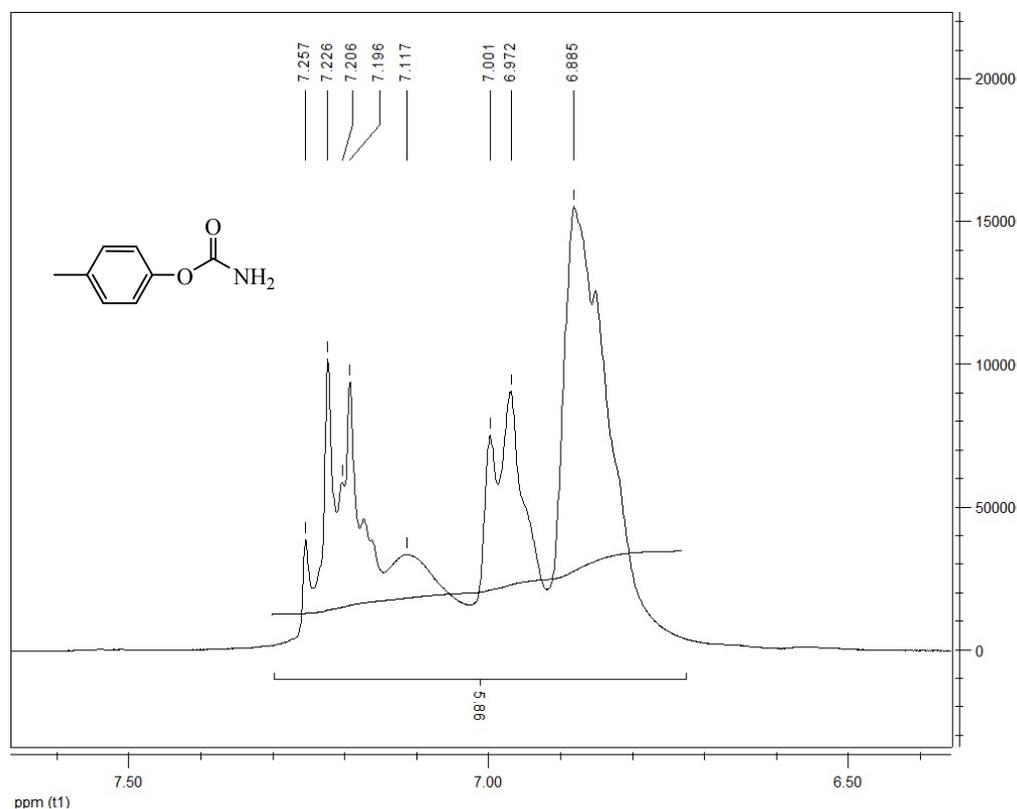


Figure S13. FT-IR spectra of 4-Methylphenyl carbamate in KBr

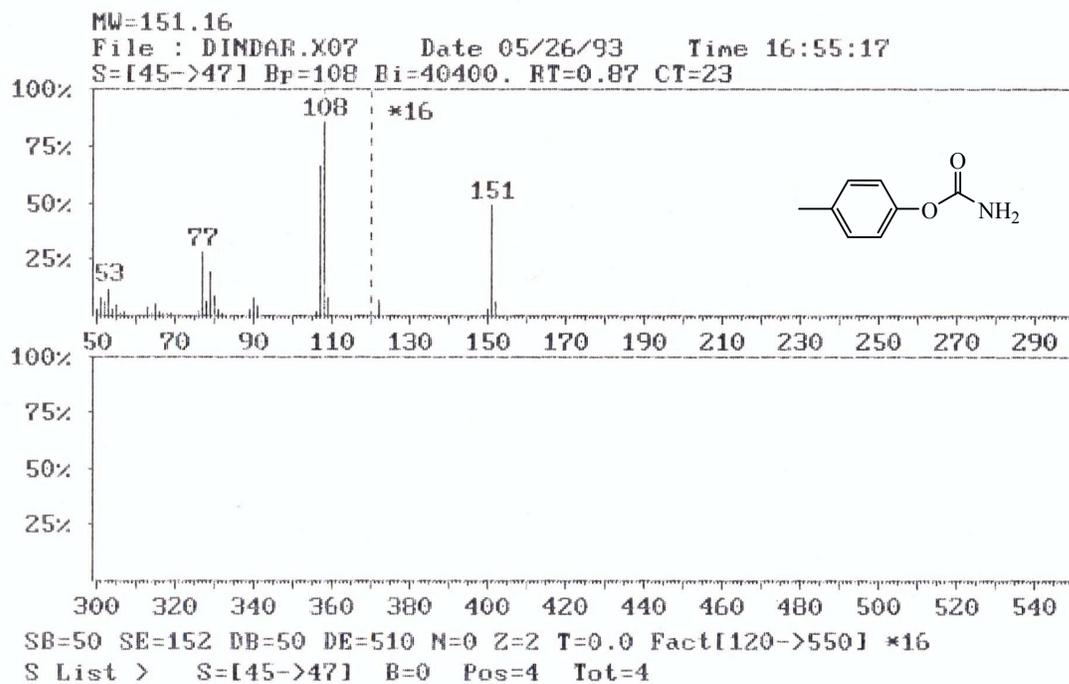


**Figure S14.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Methylphenyl carbamate in  $\text{DMSO-}d_6$

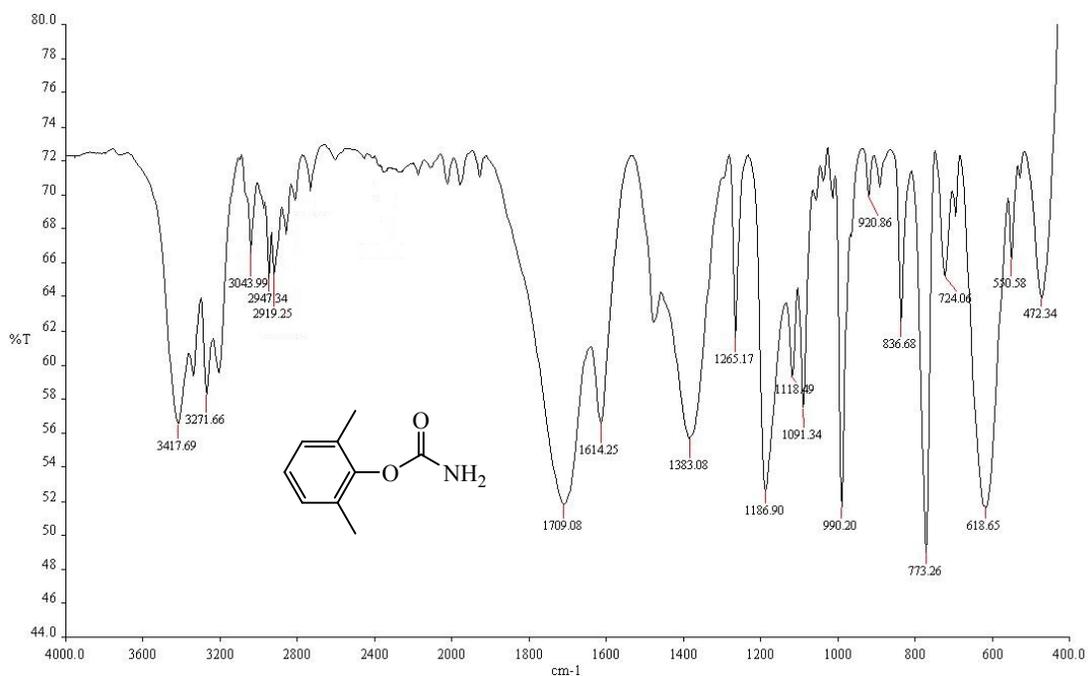




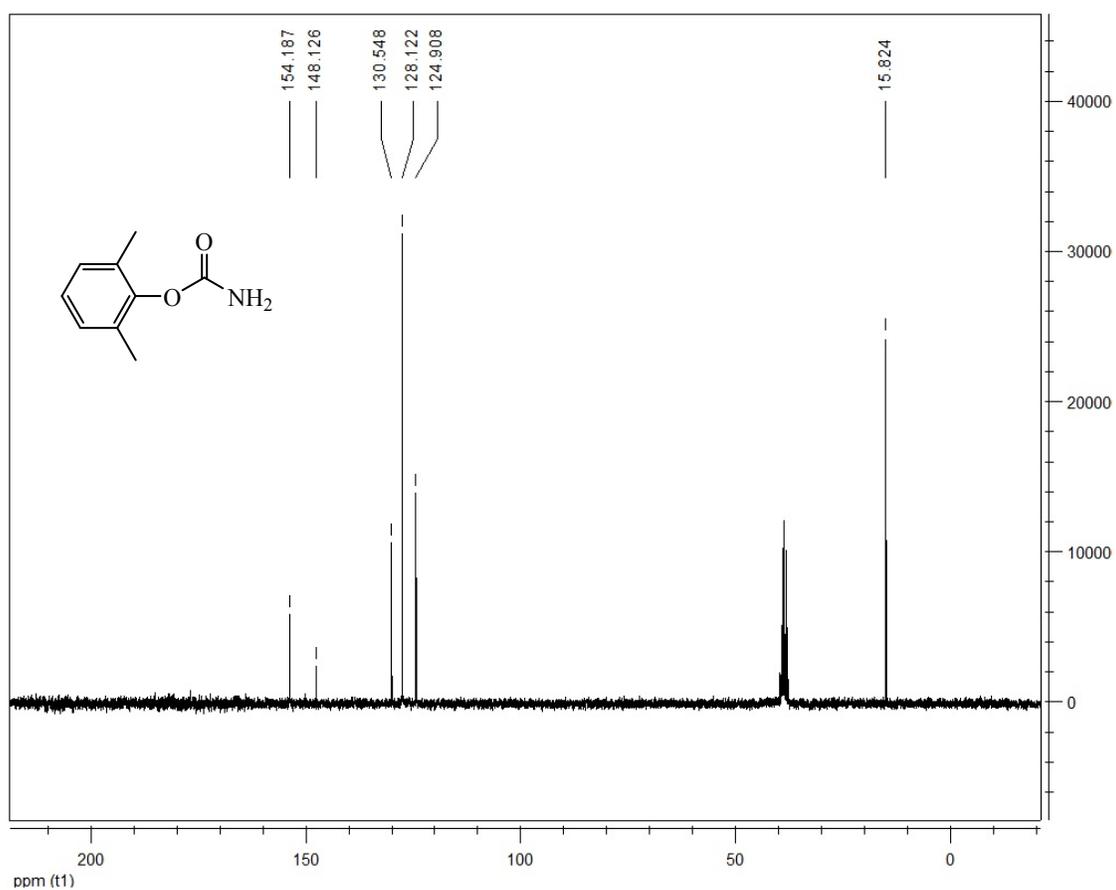
**Figure S15.**  $^1\text{H-NMR}$  spectra (250 MHz) of 4-Methylphenyl carbamate in  $\text{DMSO-}d_6$



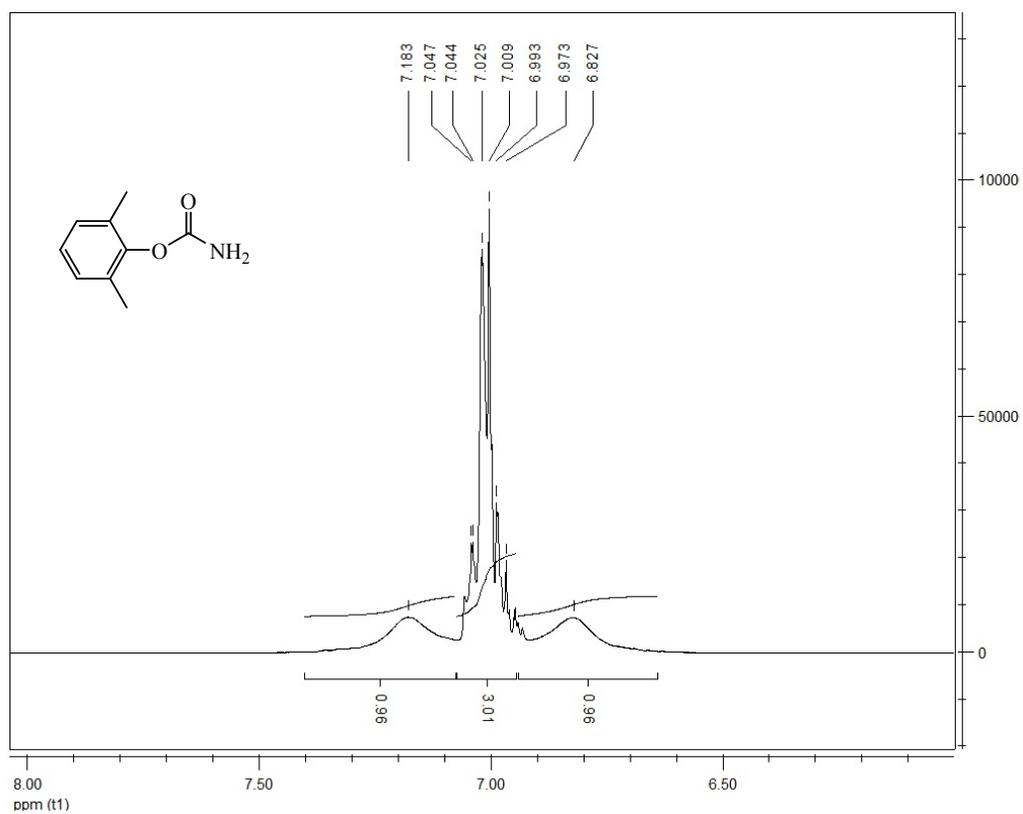
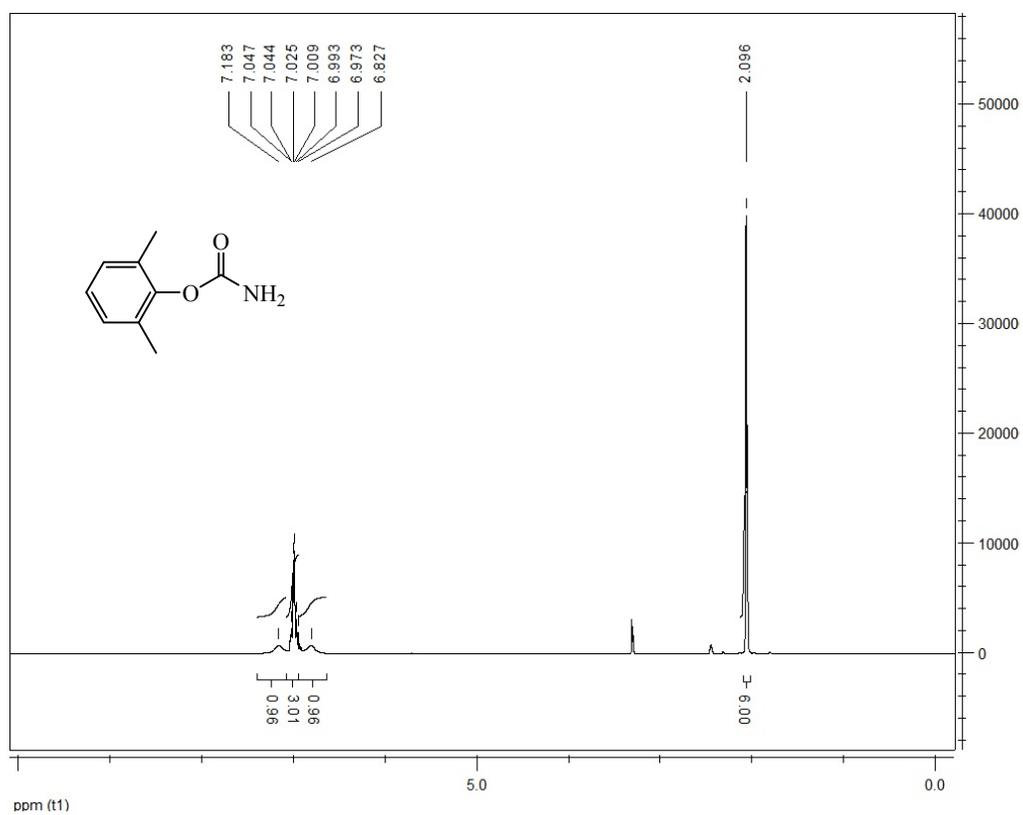
**Figure S16.** MS of 4-Methylphenyl carbamate



**Figure S17.** FT-IR spectra of 2,6-Dimethylphenyl carbamate in KBr



**Figure S18.** <sup>13</sup>C-NMR spectra (63 MHz) of 2,6-Dimethylphenyl carbamate in DMSO-*d*<sub>6</sub>



**Figure S19.**  $^1\text{H-NMR}$  spectra (250 MHz) of 2,6-Dimethylphenyl carbamate in  $\text{DMSO-}d_6$

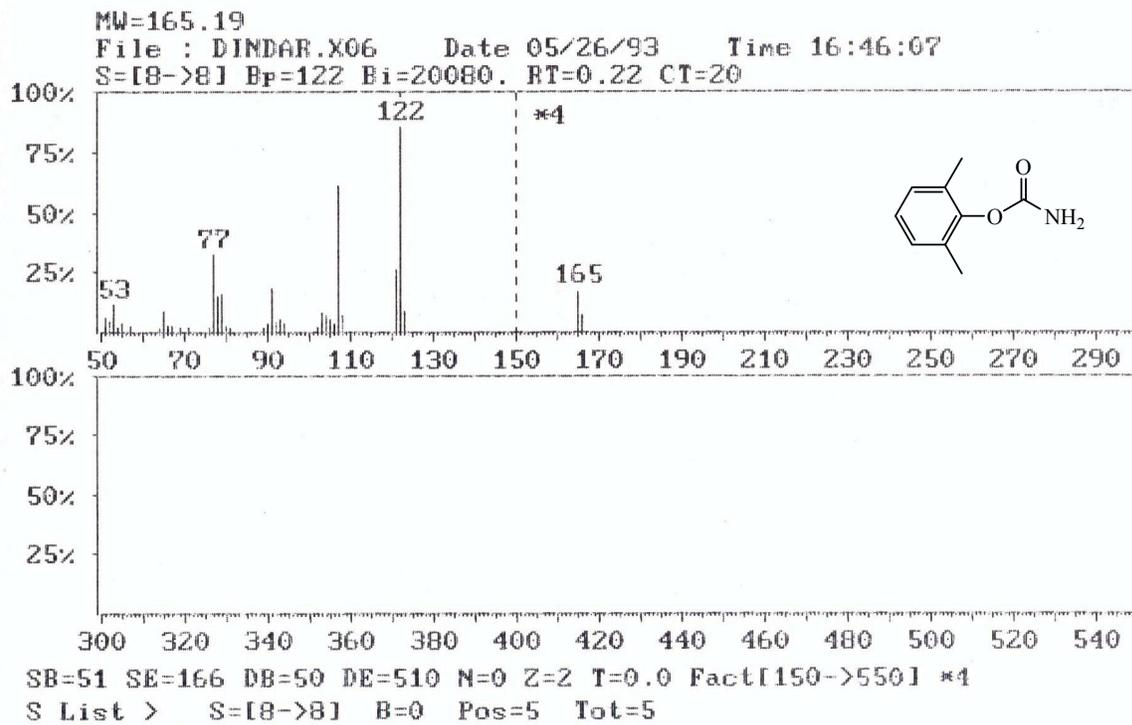


Figure S20. MS of 2,6-Dimethylphenyl carbamate

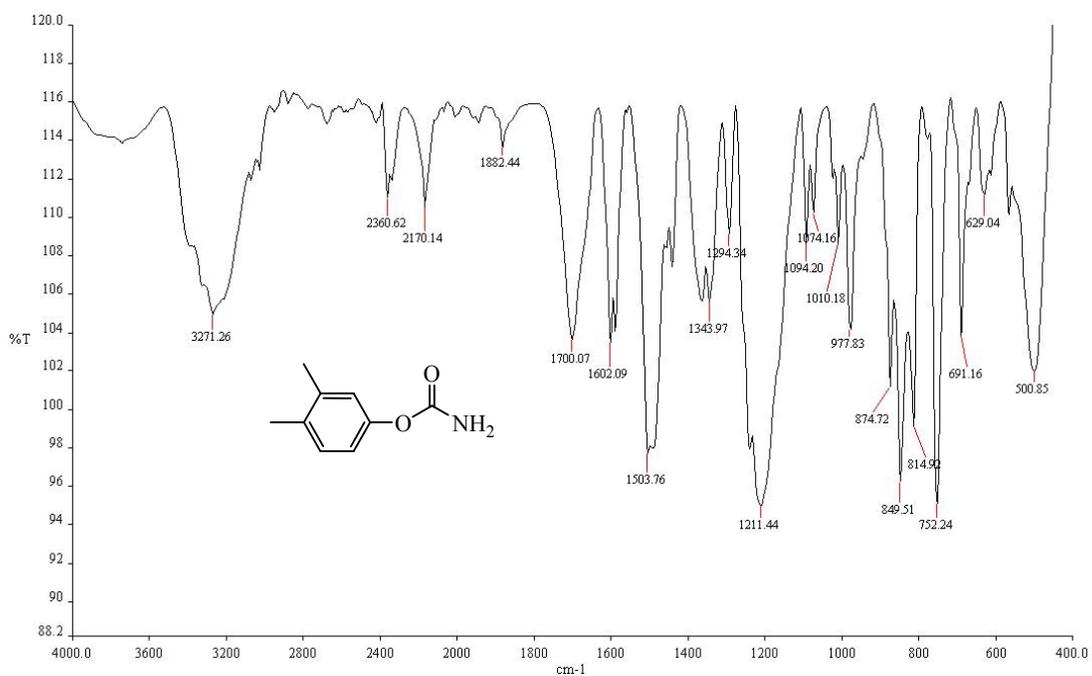
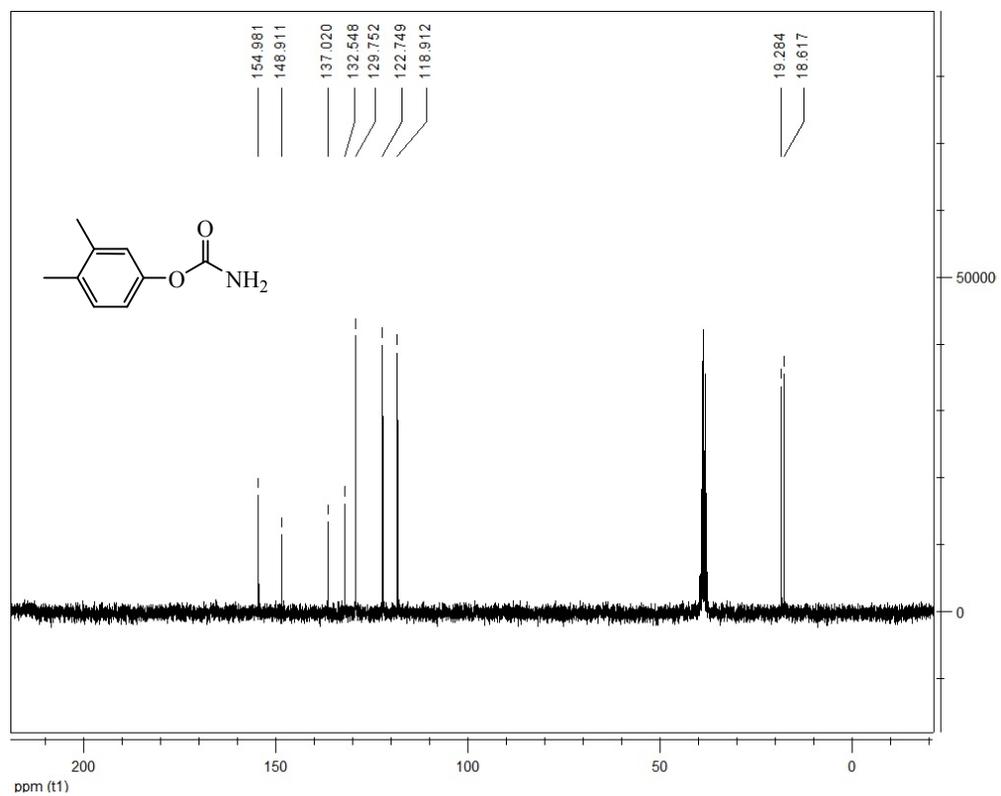
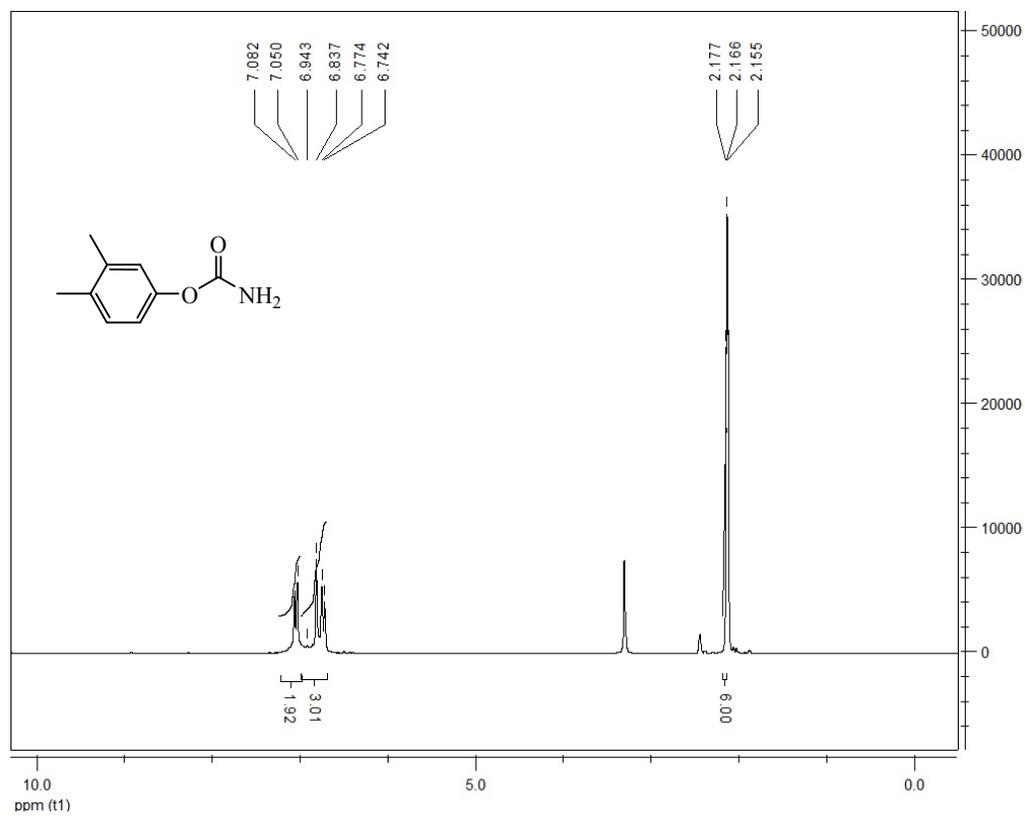


Figure S21. FT-IR spectra of 3,4-Dimethylphenyl carbamate in KBr



**Figure S22.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 3,4-Dimethylphenyl carbamate in  $\text{DMSO-}d_6$



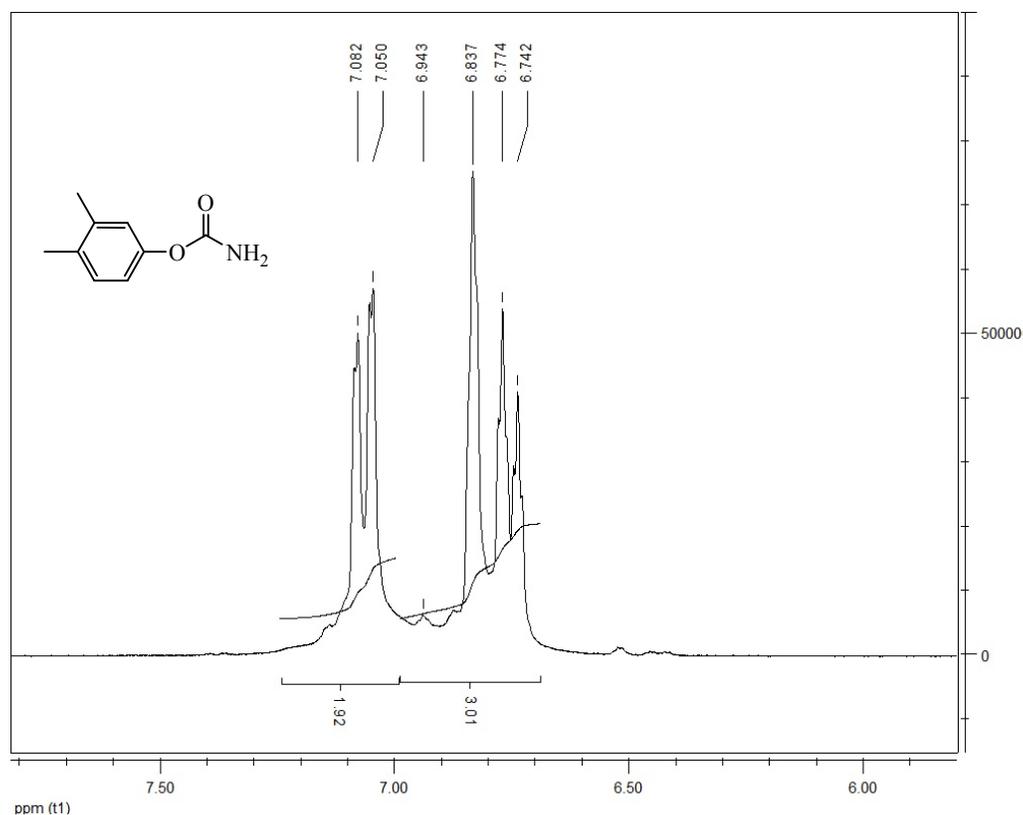


Figure S23.  $^1\text{H-NMR}$  spectra (250 MHz) of 3,4-Dimethylphenyl carbamate in  $\text{DMSO-}d_6$

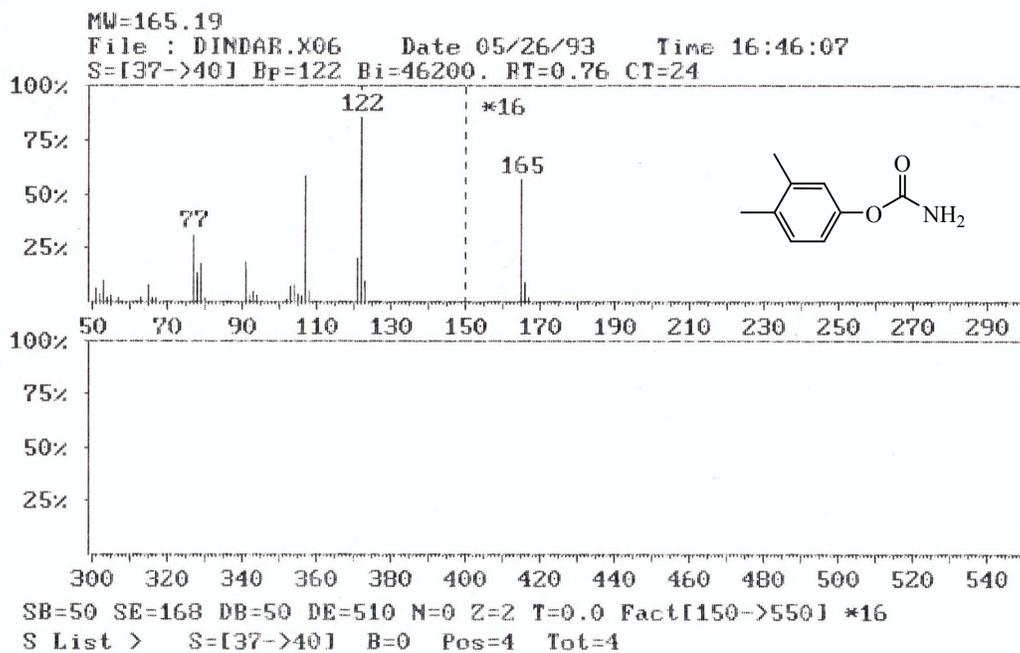
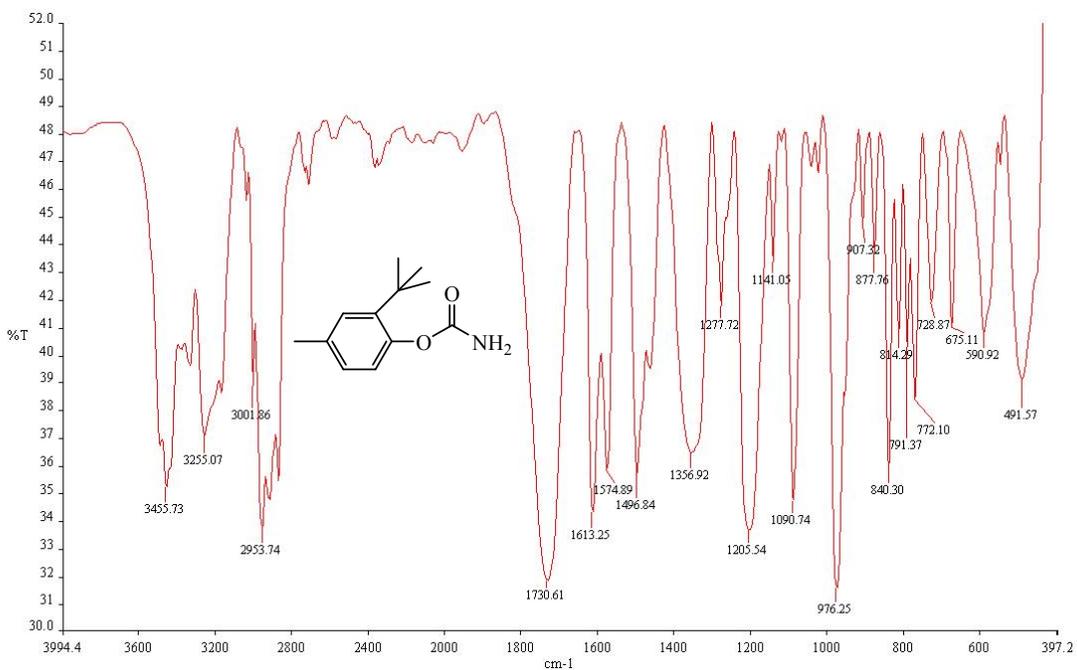
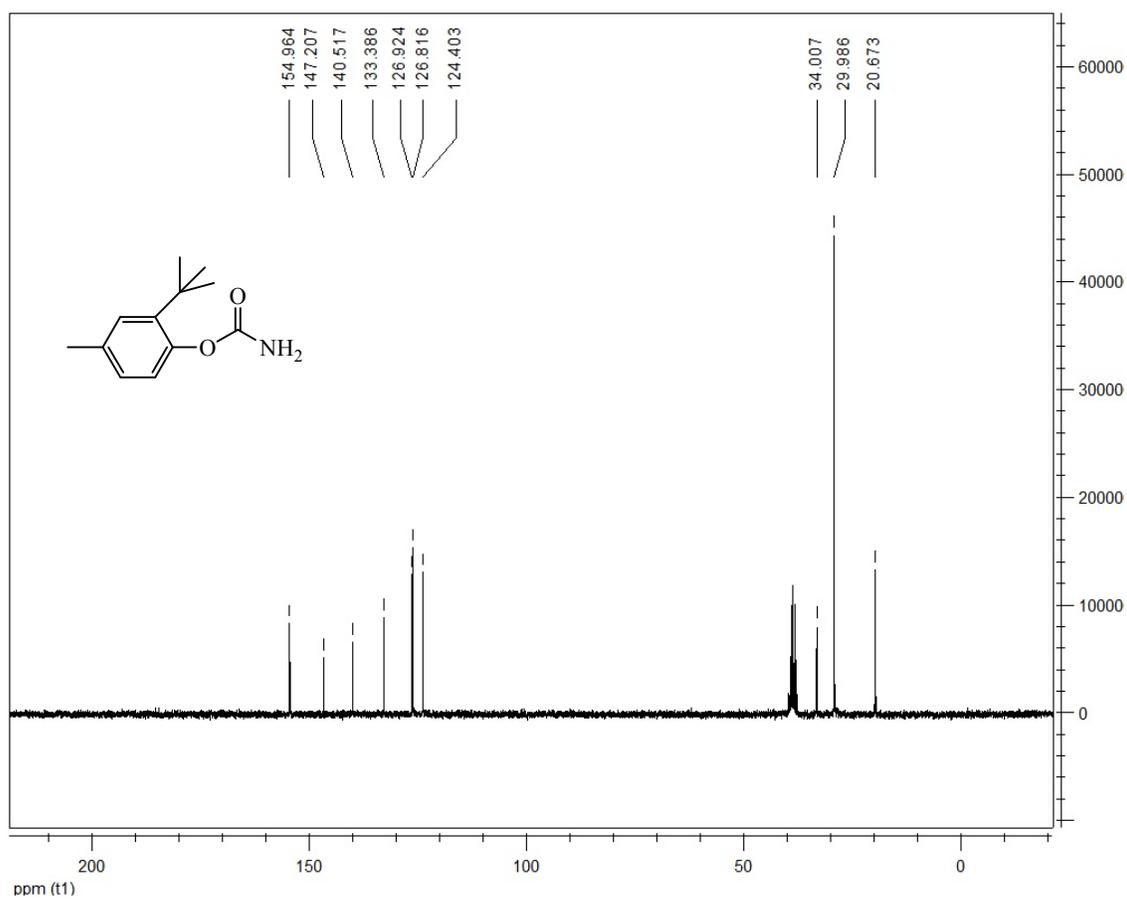


Figure S24. MS of 3,4-Dimethylphenyl carbamate



**Figure S25.** FT-IR spectra of 2-*tert*-Butyl-4-methylphenyl carbamate in KBr



**Figure S26.** <sup>13</sup>C-NMR spectra (63 MHz) of 2-*tert*-Butyl-4-methylphenyl carbamate in DMSO-*d*<sub>6</sub>

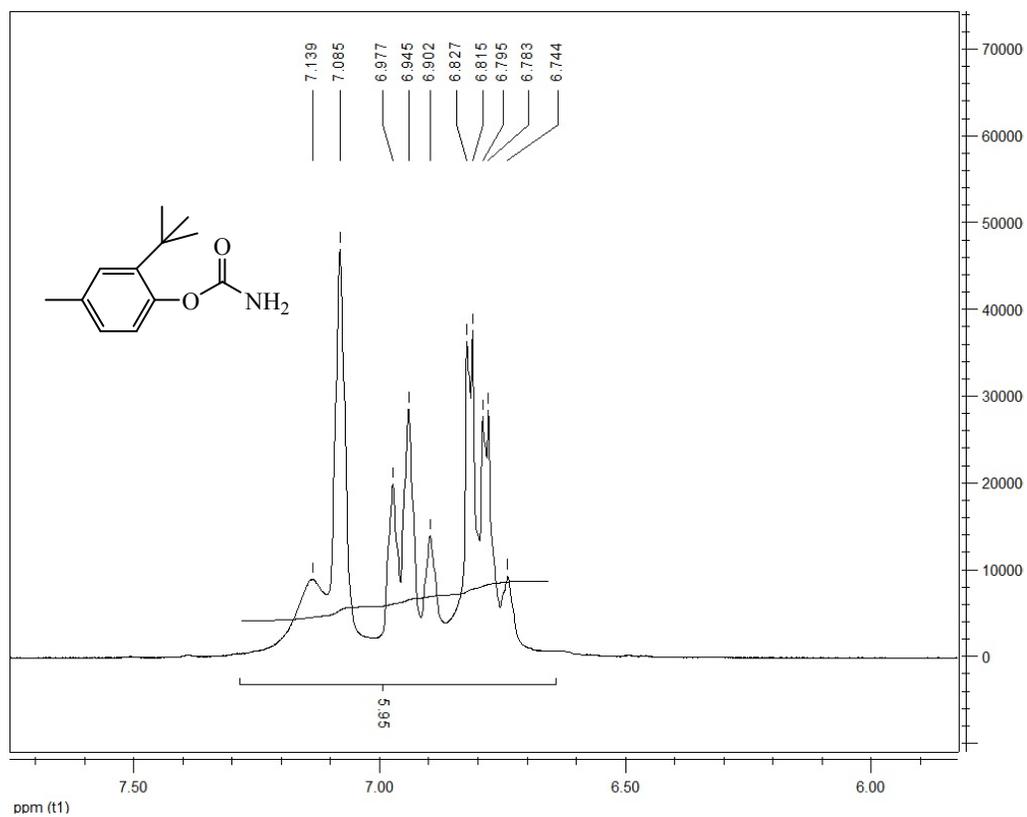
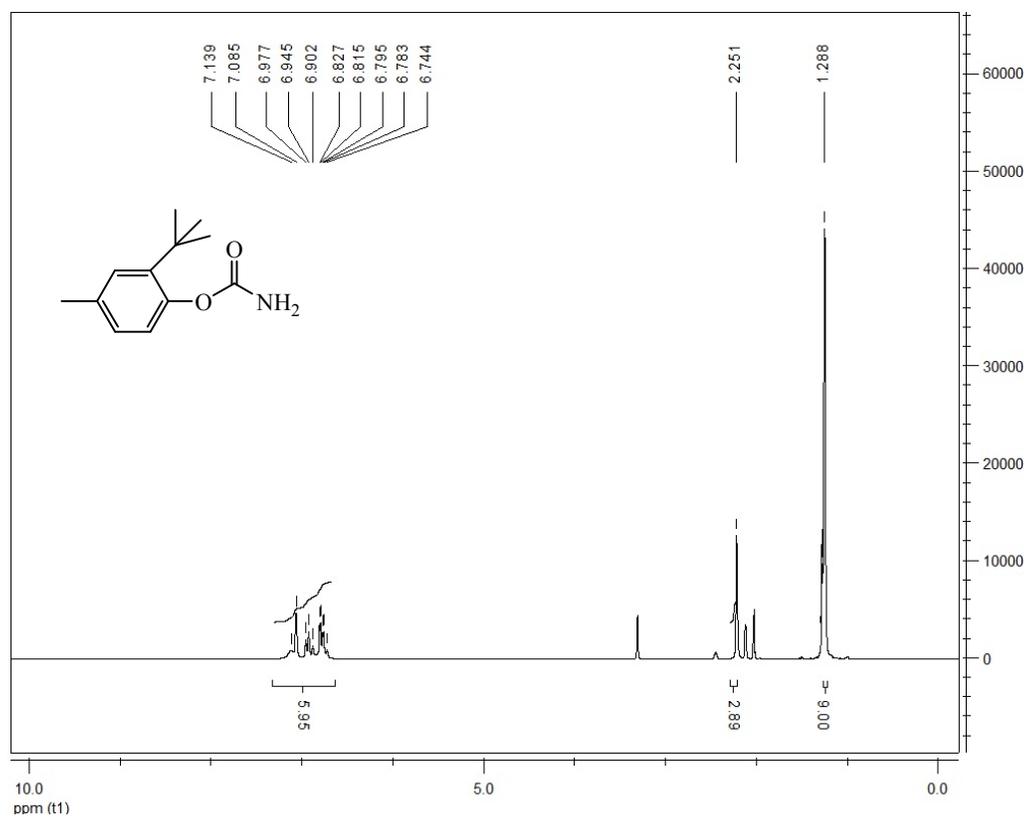


Figure S27.  $^1\text{H-NMR}$  spectra (250 MHz) of 2-*tert*-Butyl-4-methylphenyl carbamate in  $\text{DMSO-}d_6$

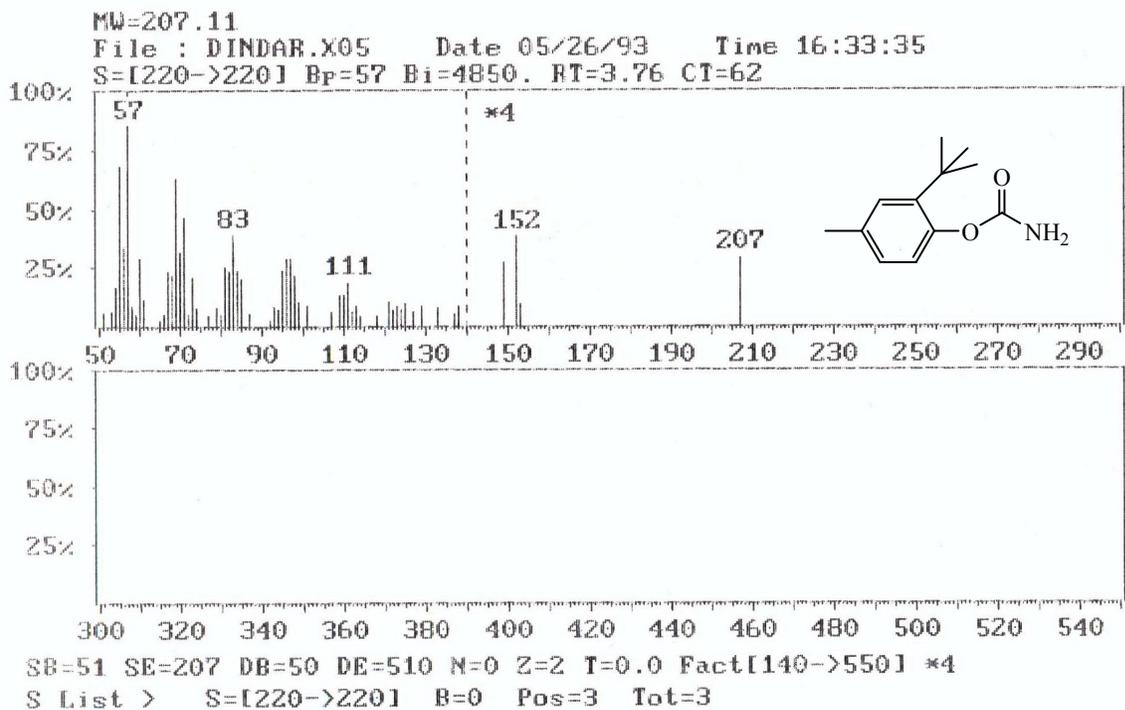


Figure S28. MS of 2-*tert*-Butyl-4-methylphenyl carbamate

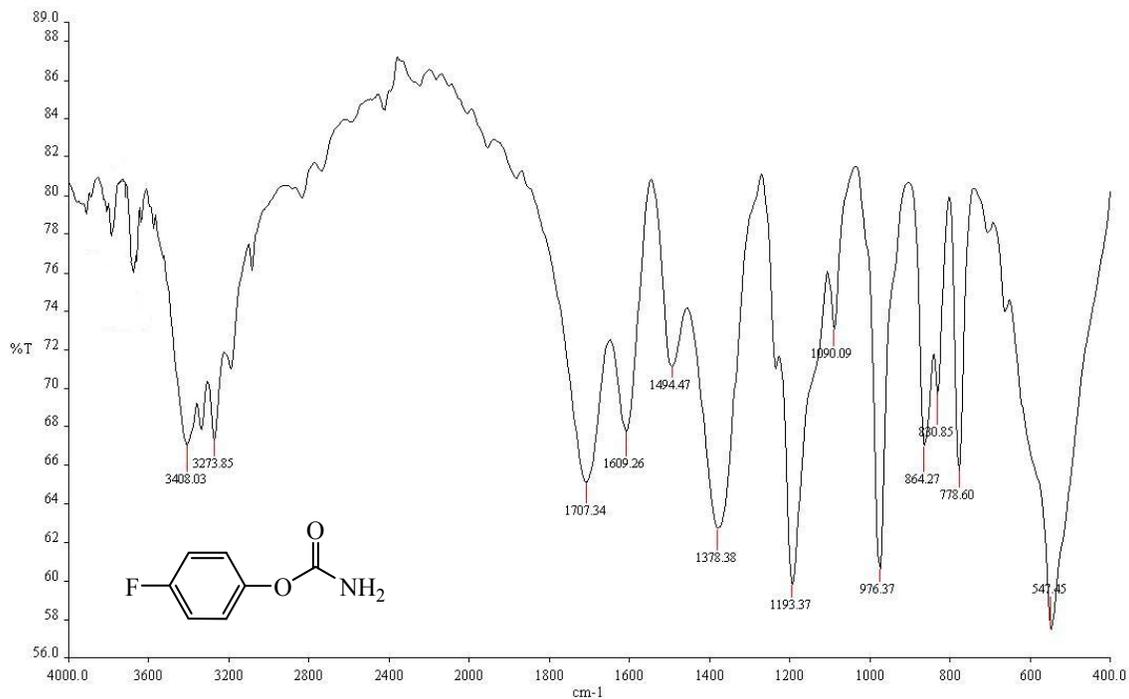
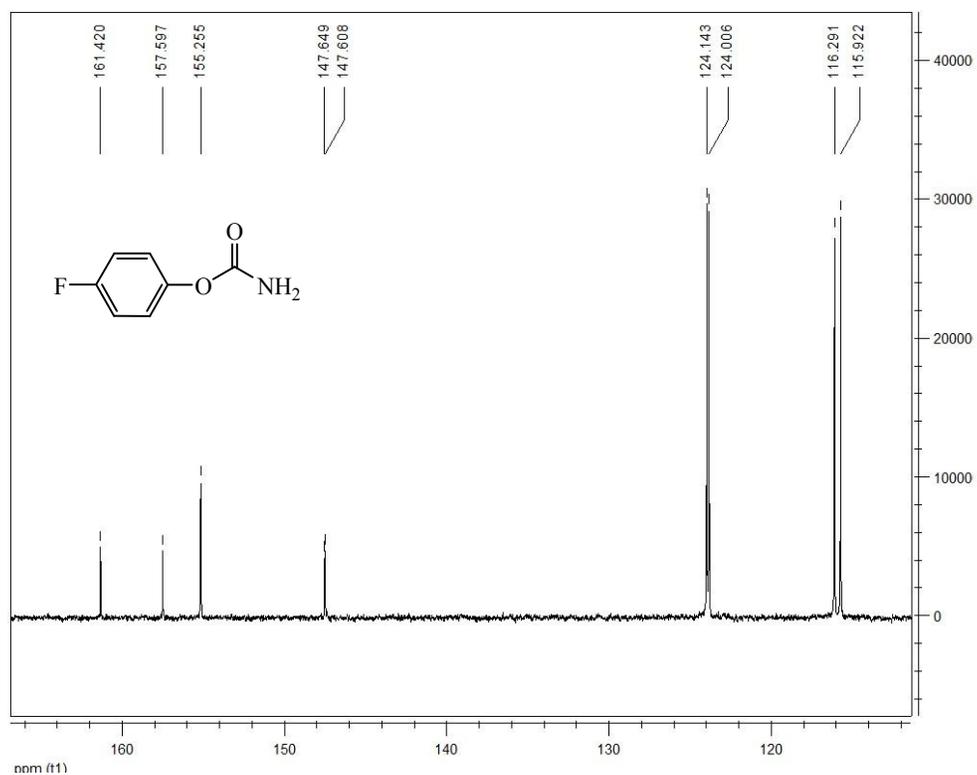
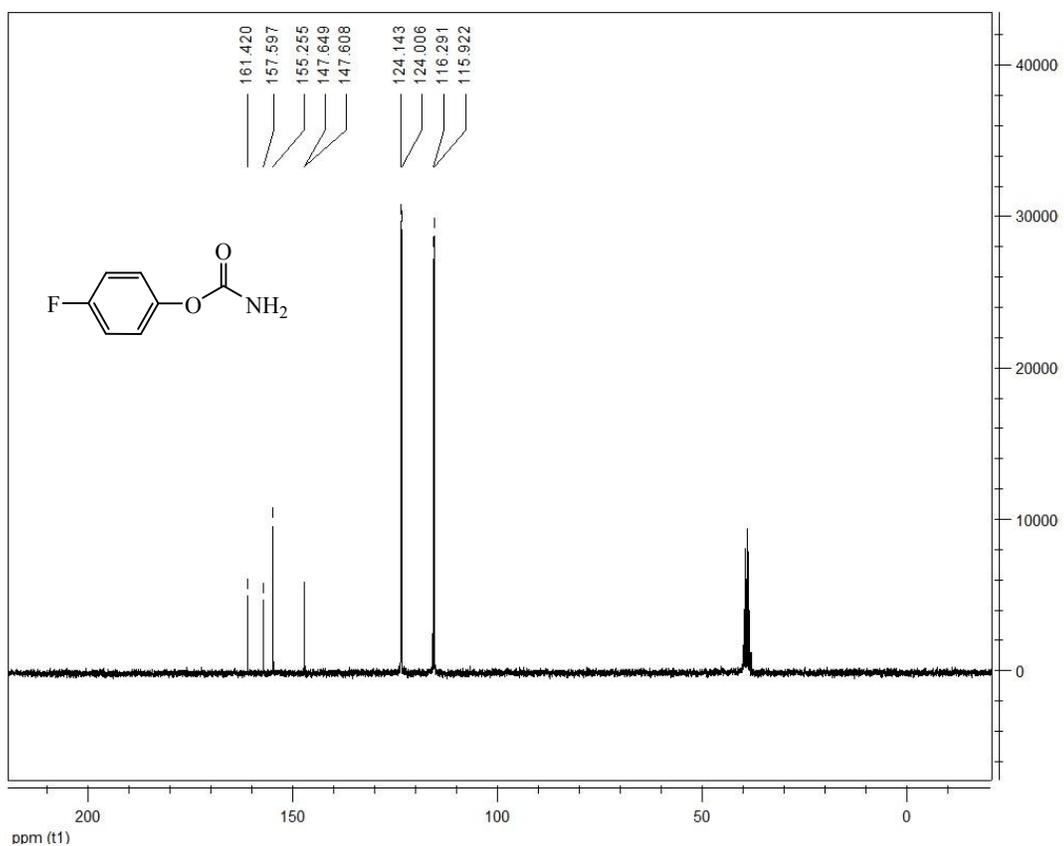
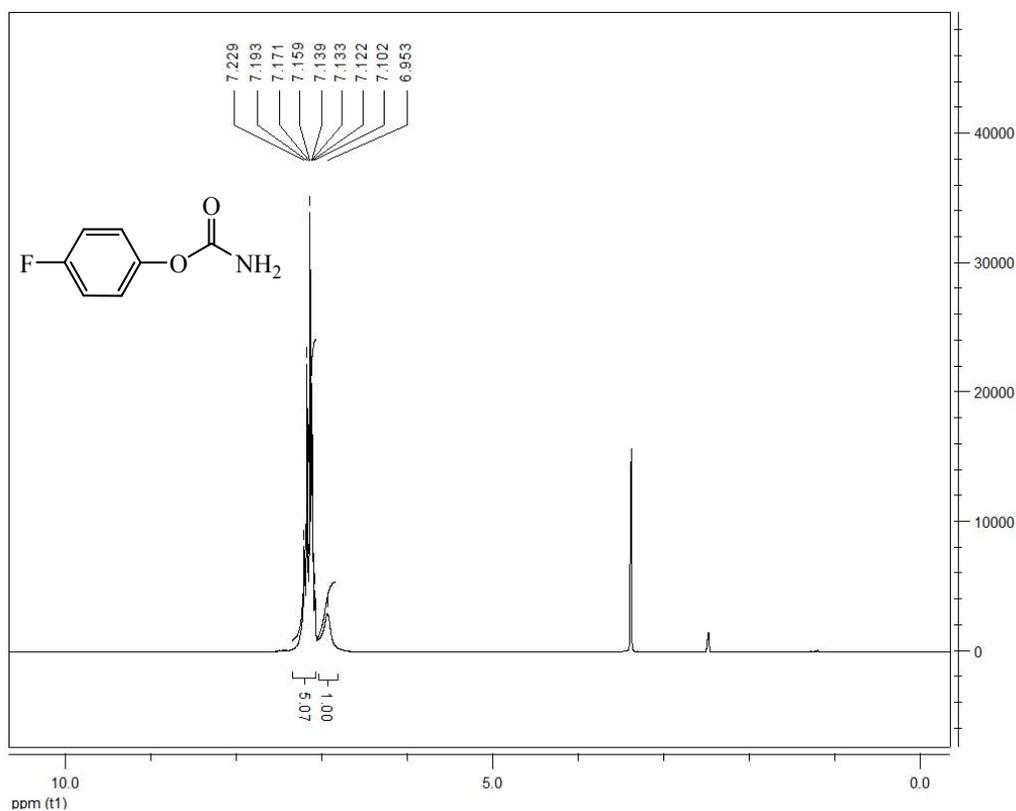


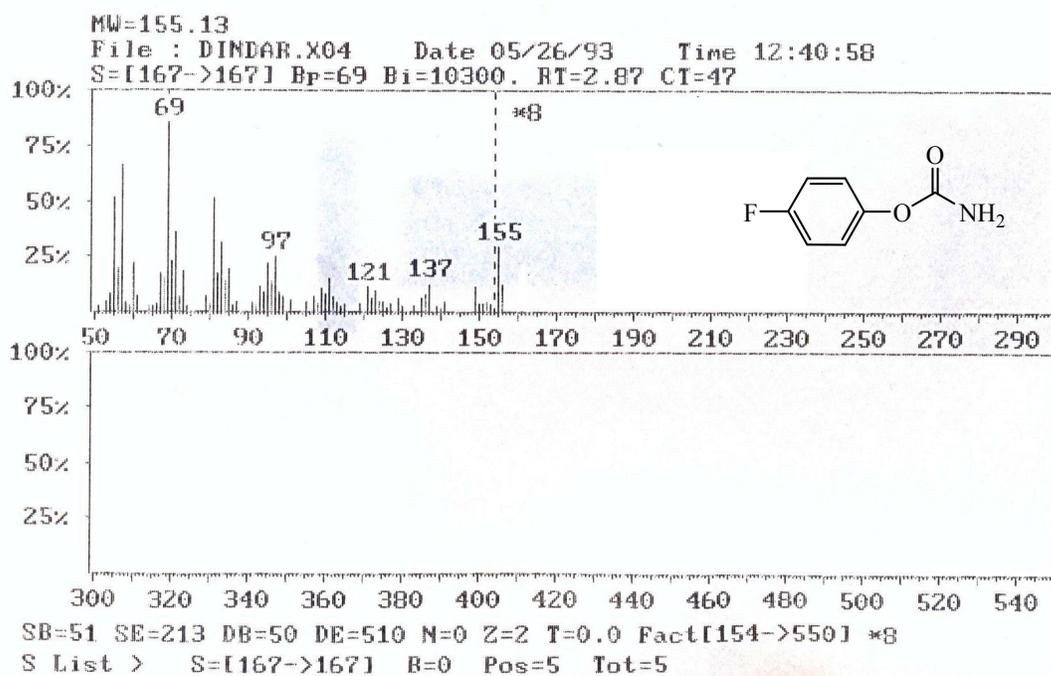
Figure S29. FT-IR spectra of 4-Fluorophenyl carbamate in KBr



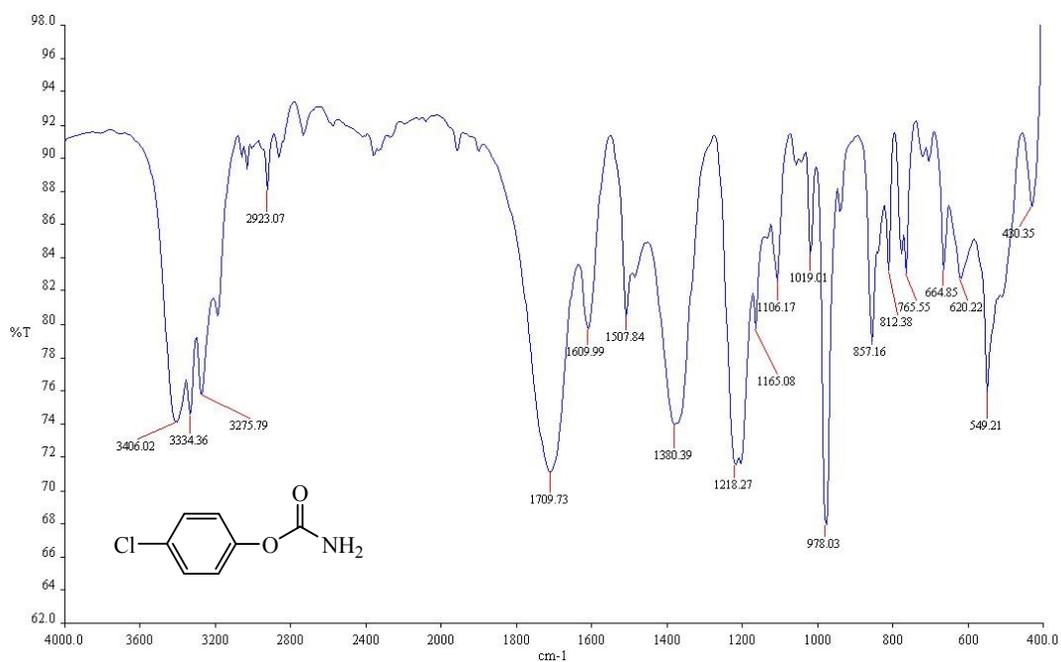
**Figure S30.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Fluorophenyl carbamate in  $\text{DMSO-}d_6$



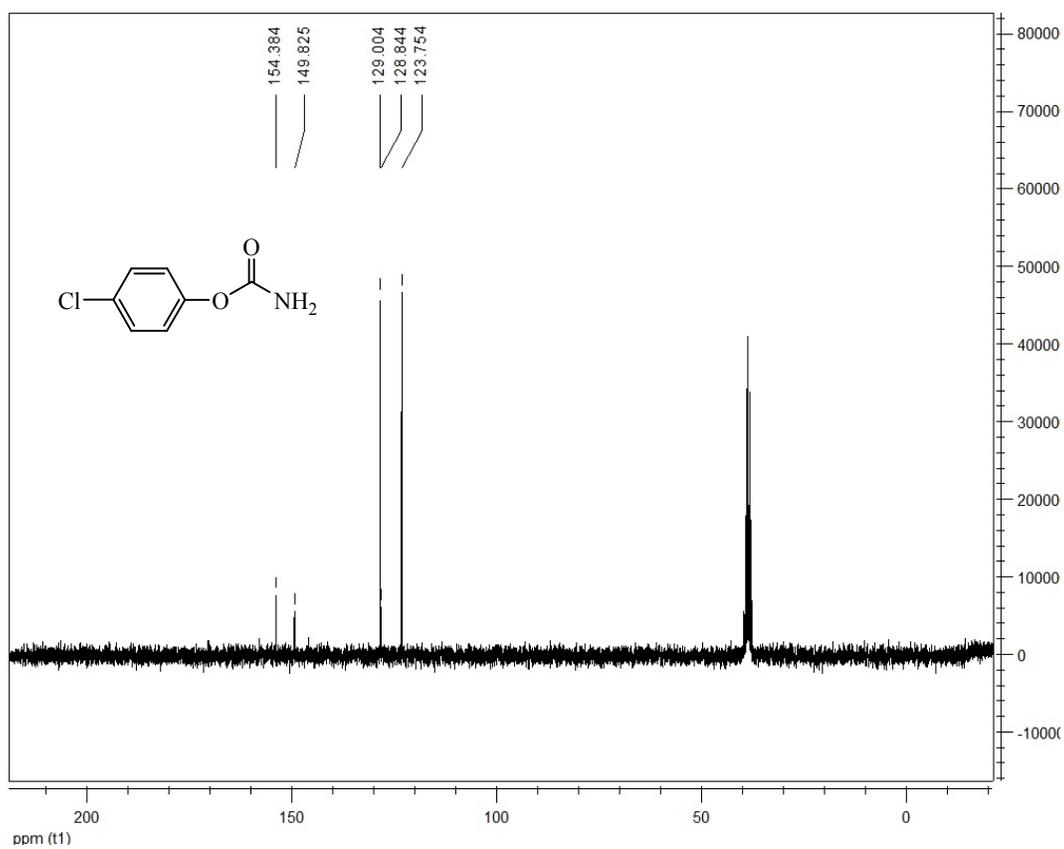
**Figure S31.**  $^1\text{H-NMR}$  spectra (250 MHz) of 4-Fluorophenyl carbamate in  $\text{DMSO-}d_6$



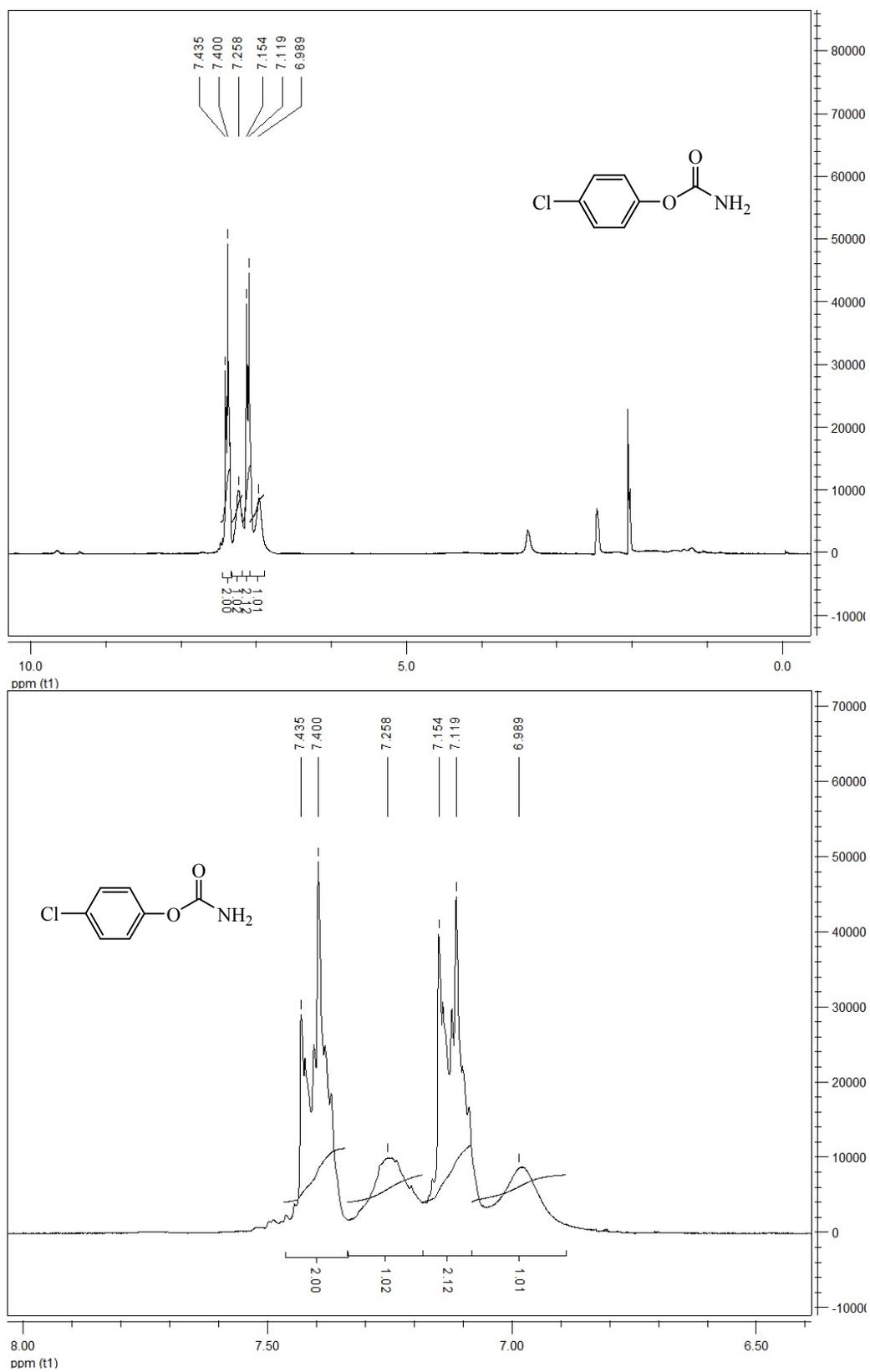
**Figure S32.** MS of 4-Fluorophenyl carbamate



**Figure S33.** FT-IR spectra of 4-Chlorophenyl carbamate in KBr



**Figure S34.** <sup>13</sup>C-NMR spectra (63 MHz) of 4-Chlorophenyl carbamate in DMSO-*d*<sub>6</sub>



**Figure S35.**  $^1\text{H-NMR}$  spectra (250 MHz) of 4-Chlorophenyl carbamate in  $\text{DMSO-}d_6$

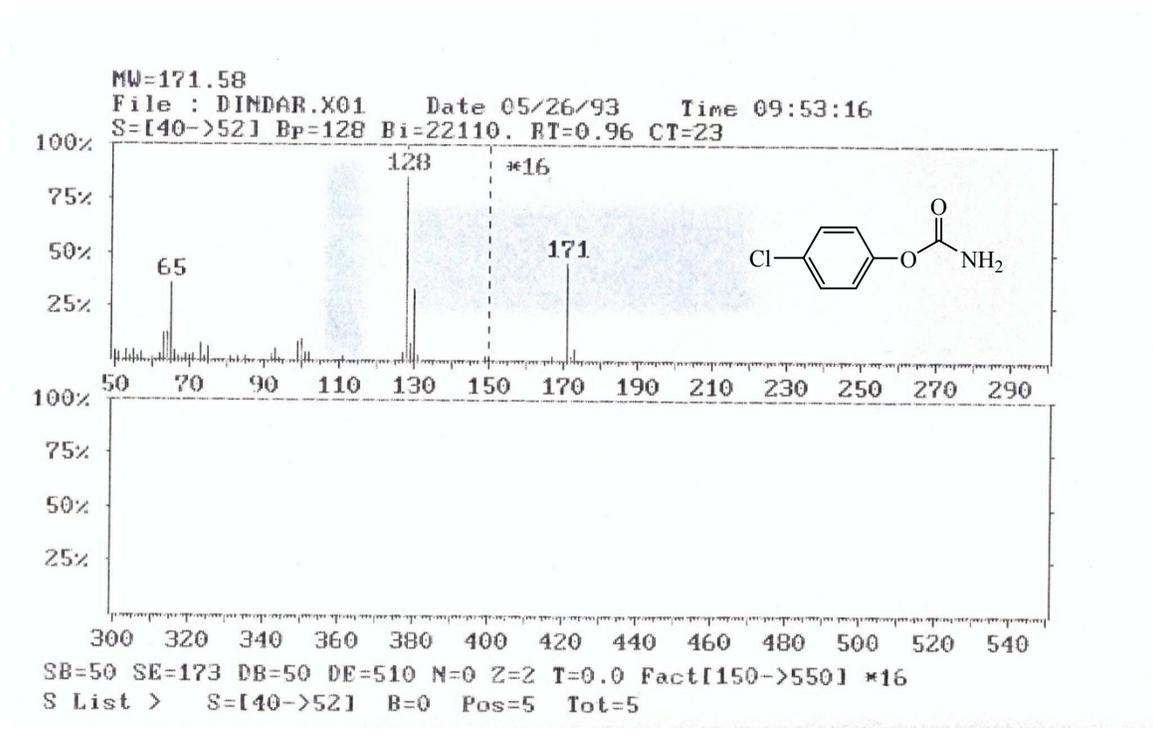


Figure S36. MS of 4-Chlorophenyl carbamate

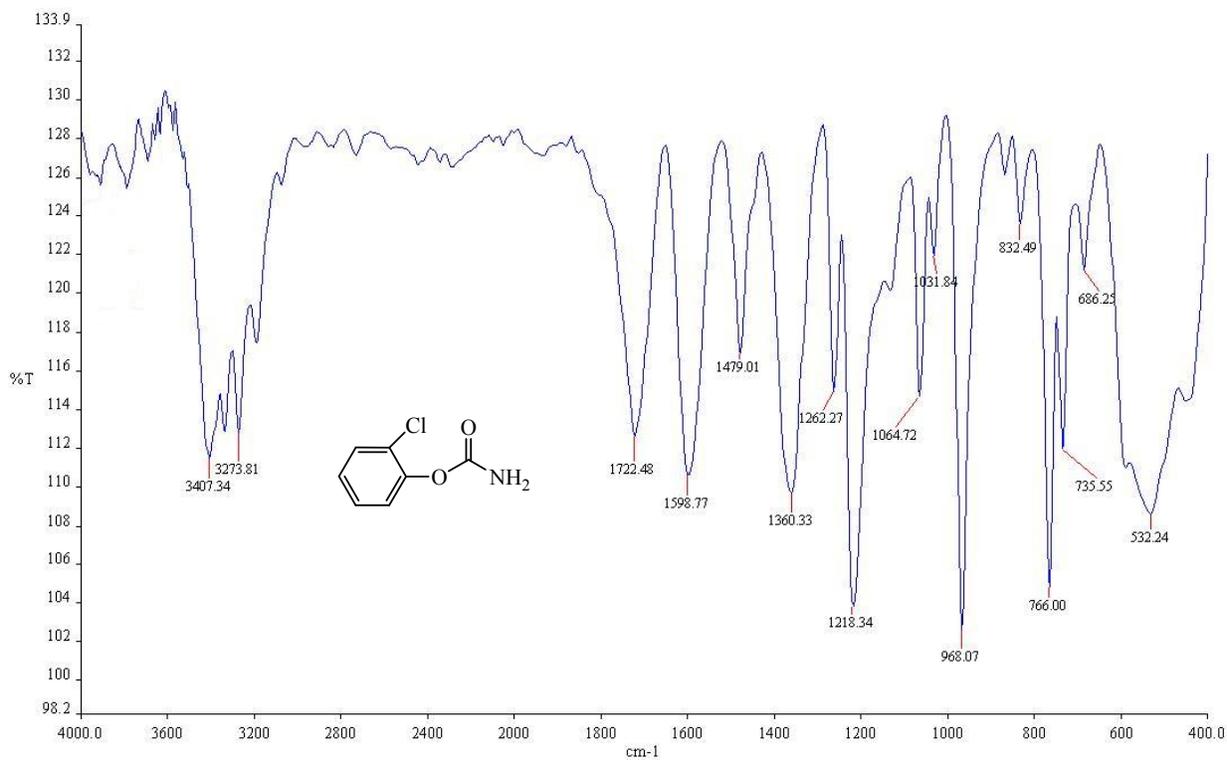
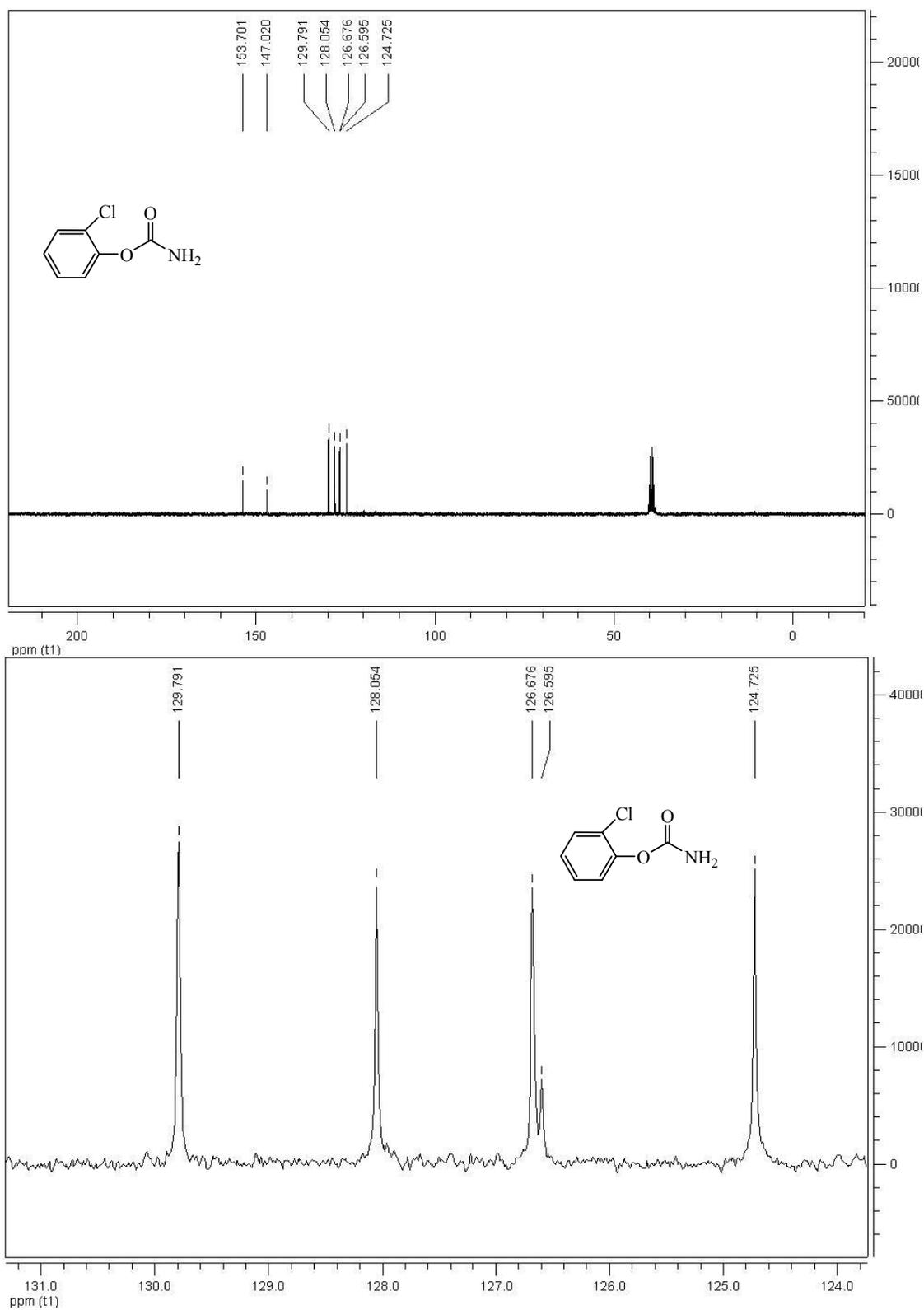
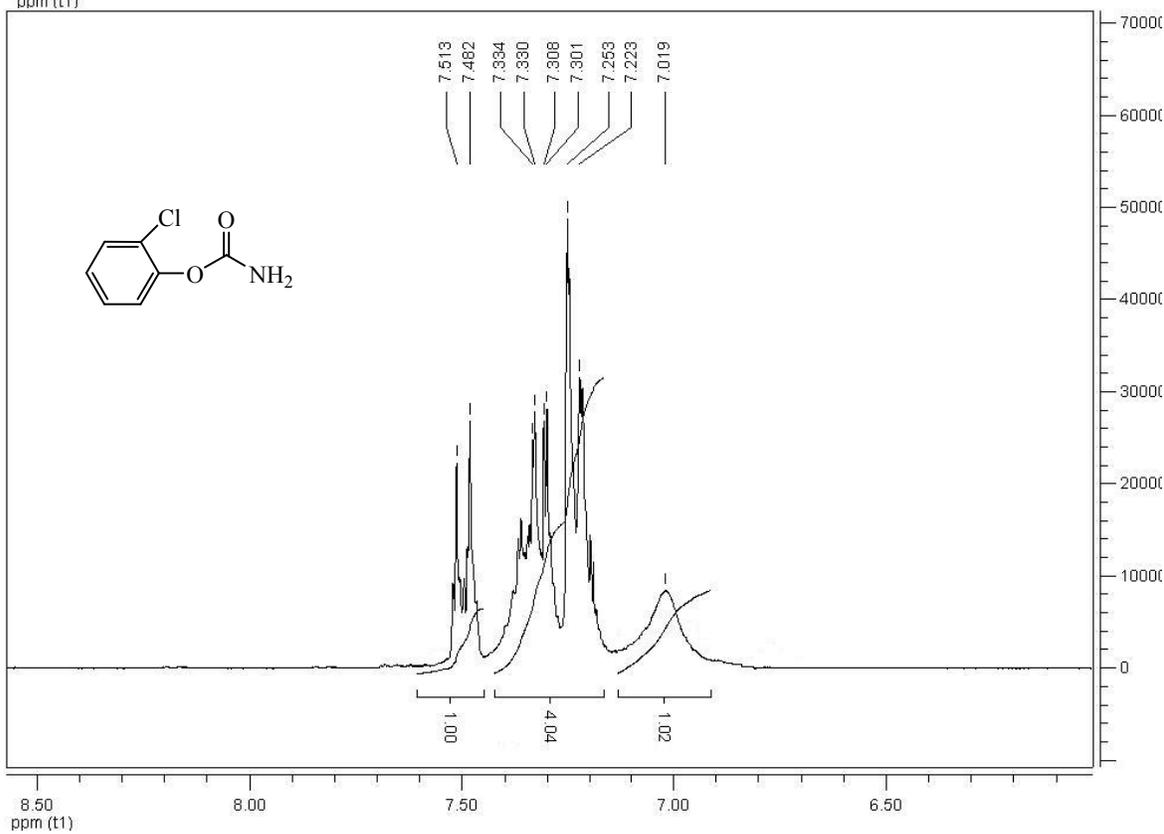
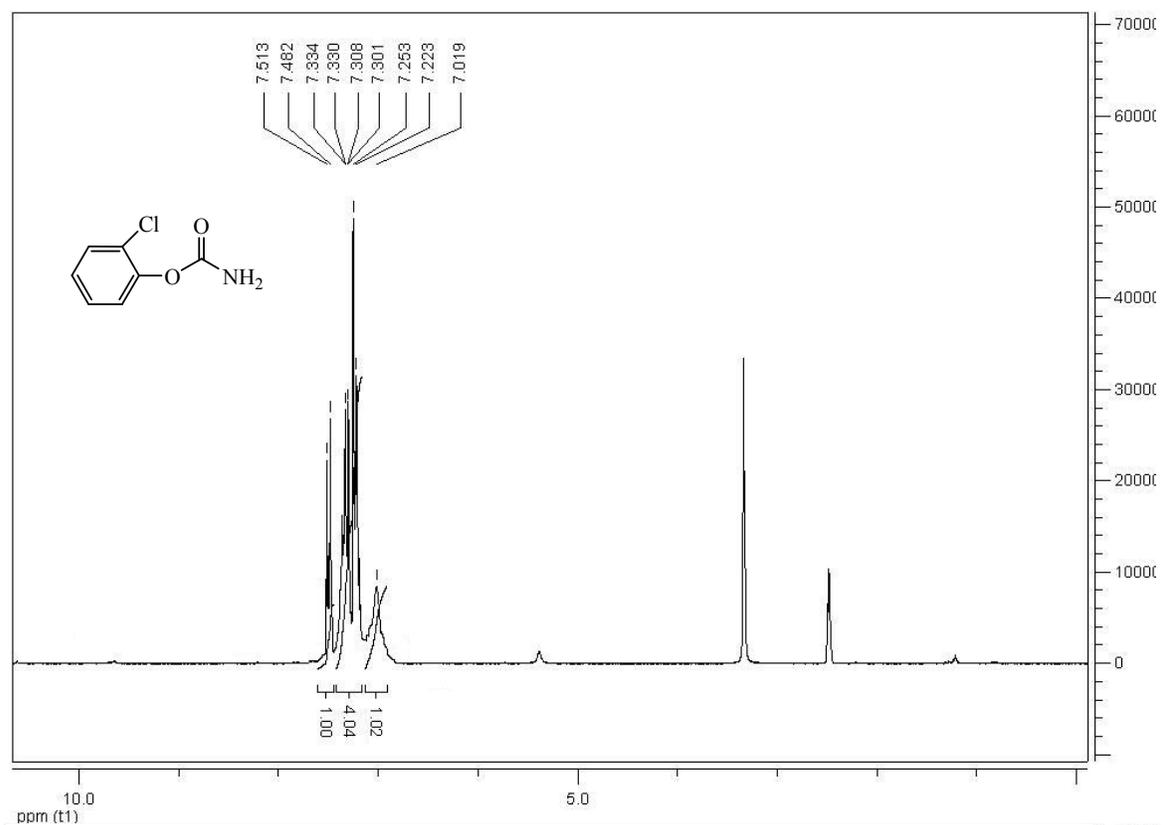


Figure S37. FT-IR spectra of 2-Chlorophenyl carbamate in KBr



**Figure S38.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2-Chlorophenyl carbamate in  $\text{DMSO-}d_6$



**Figure S39.**  $^1\text{H-NMR}$  spectra (250 MHz) of 2-Chlorophenyl carbamate in  $\text{DMSO-}d_6$

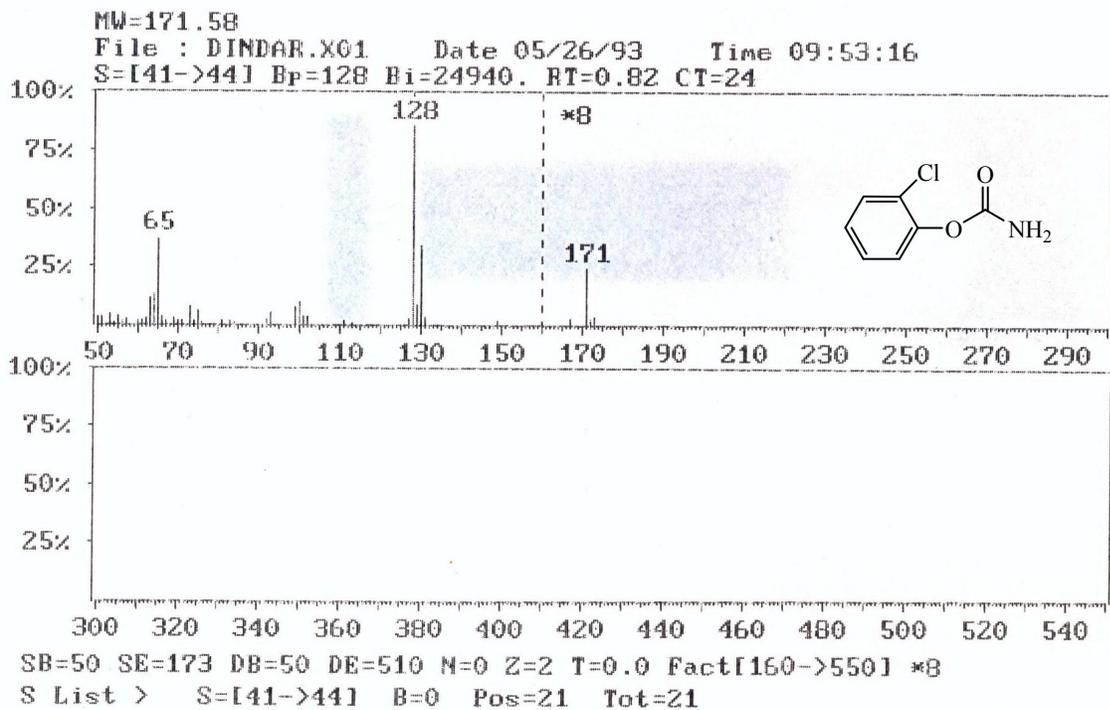


Figure S40. MS of 2-Chlorophenyl carbamate

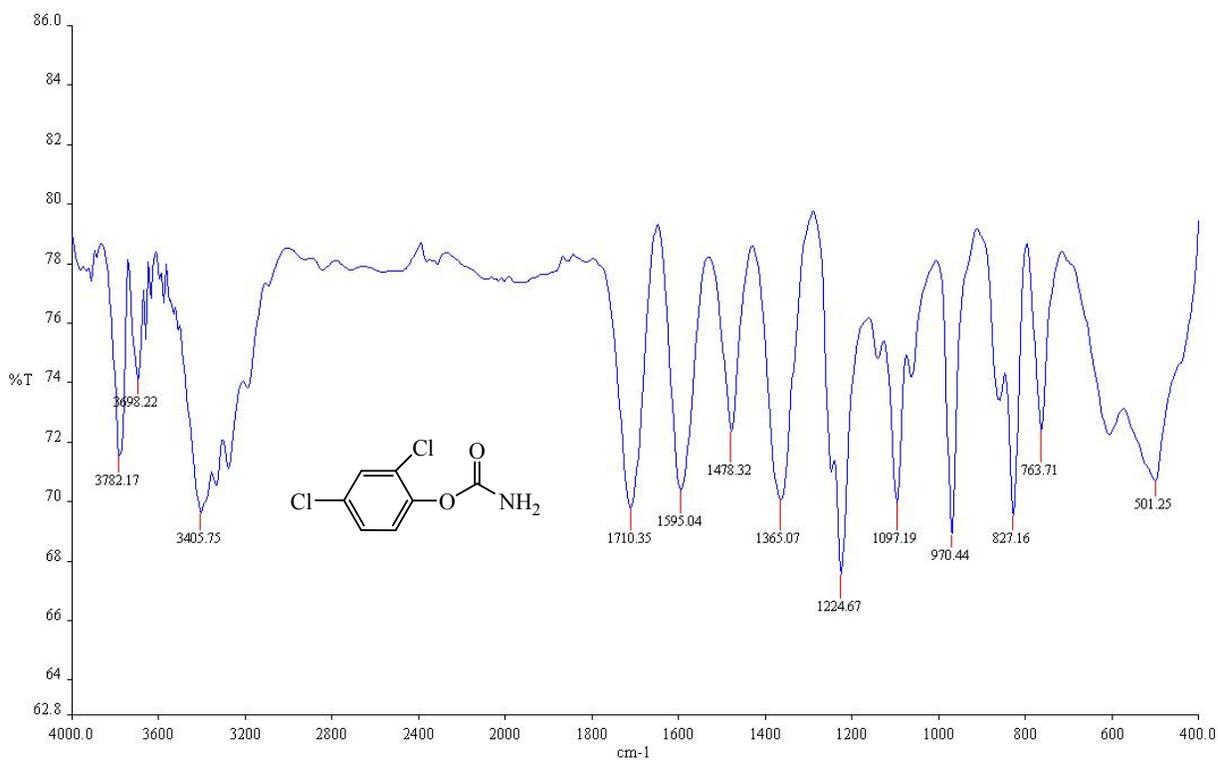
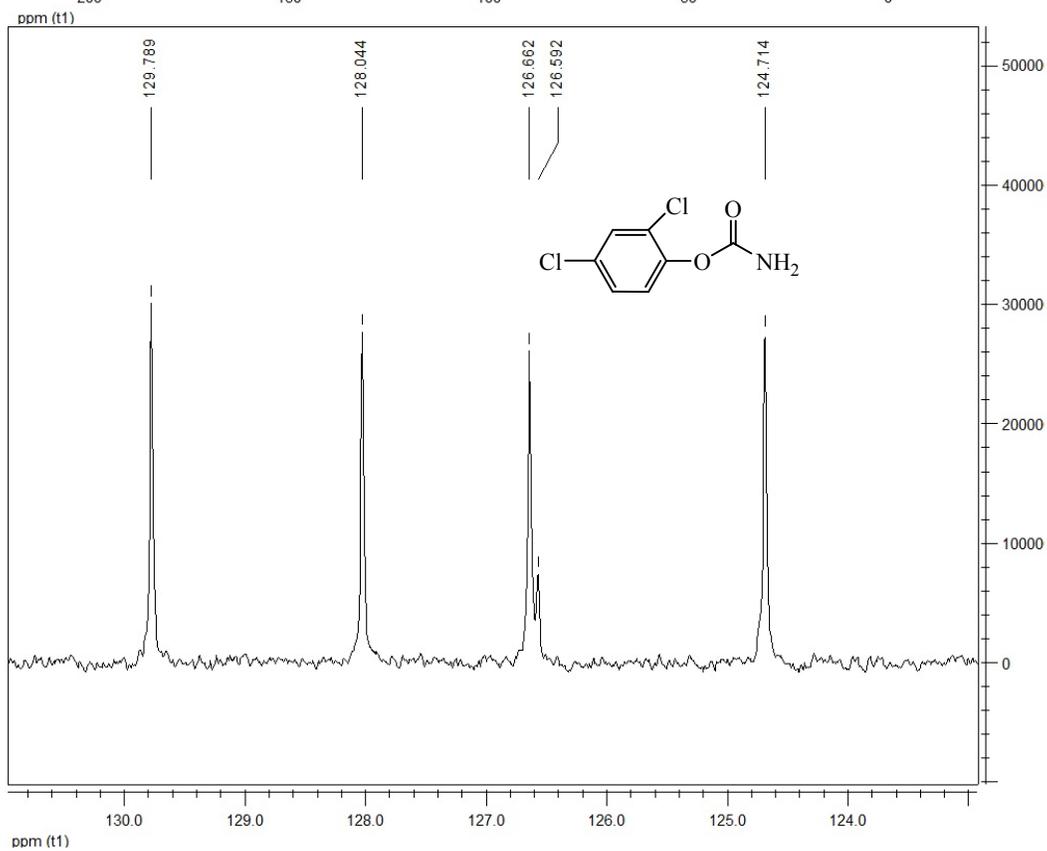
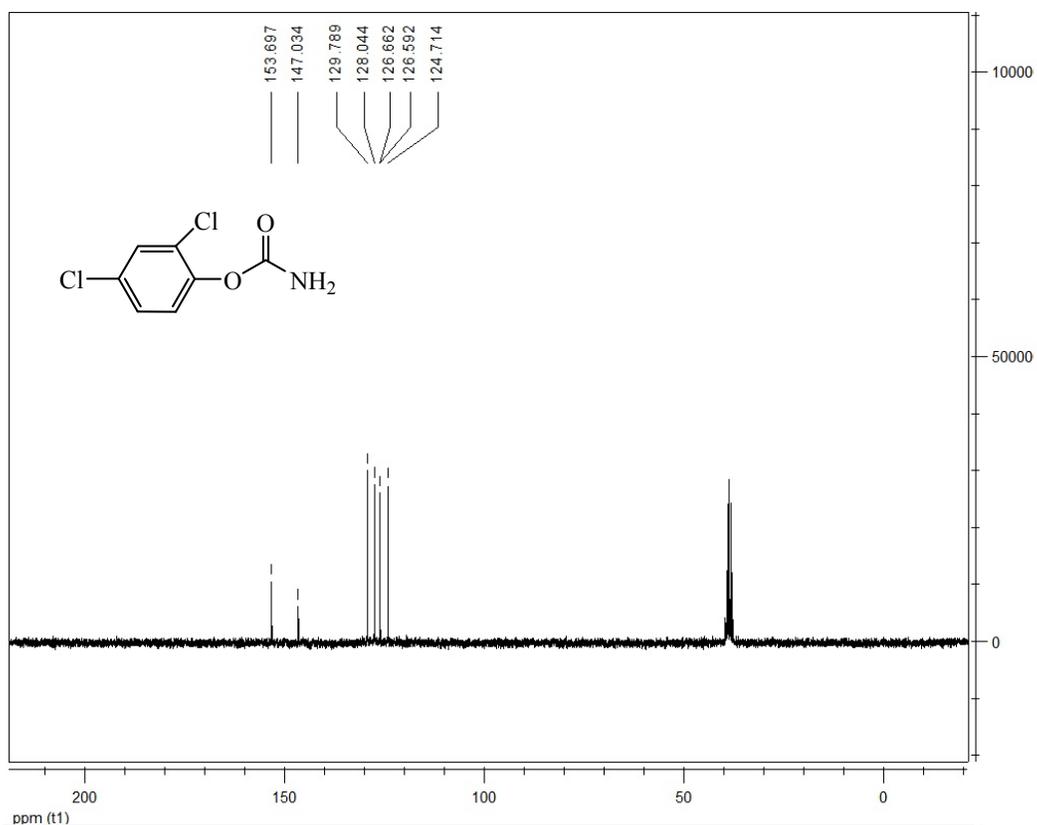
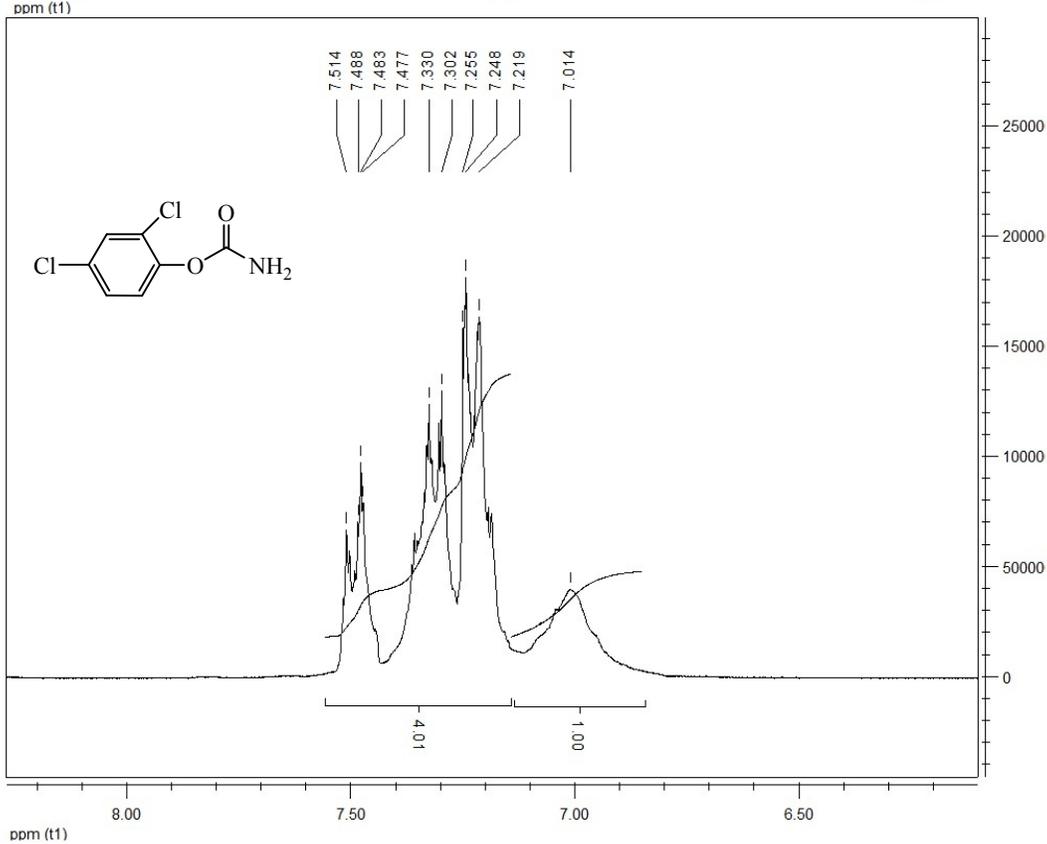
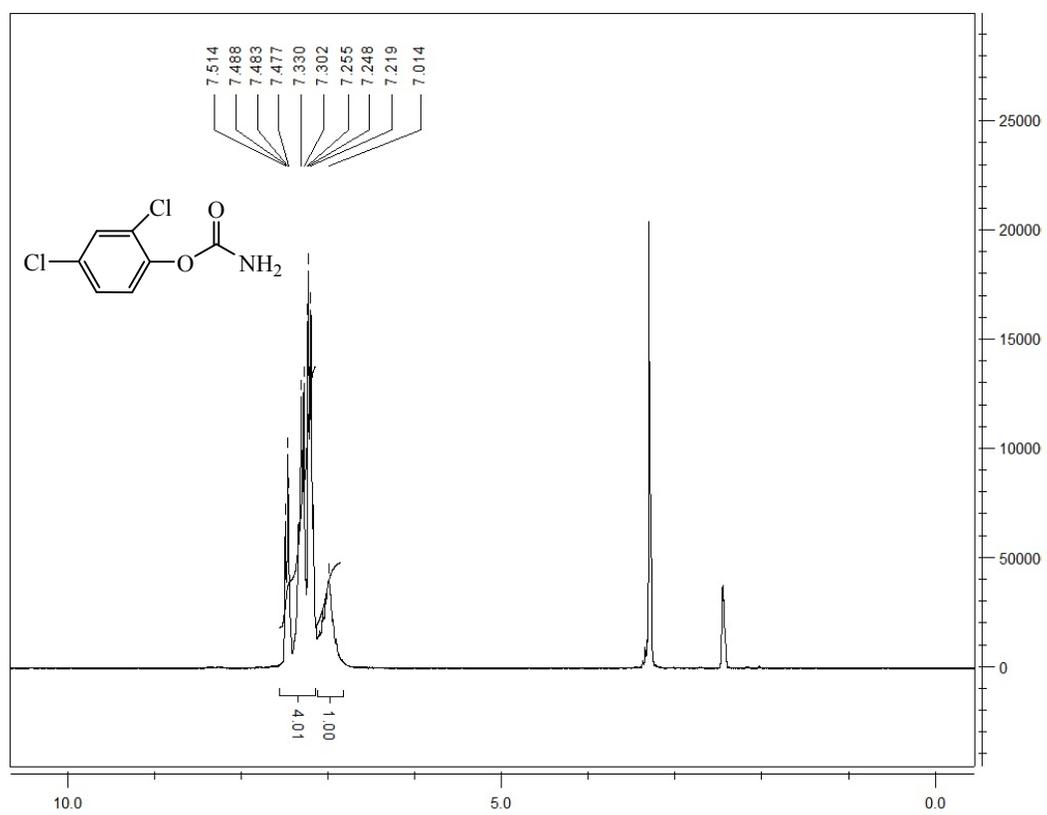


Figure S41. FT-IR spectra of 2,4-Dichlorophenyl carbamate in KBr



**Figure S42.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2,4-Dichlorophenyl carbamate in  $\text{DMSO-}d_6$



**Figure S43.**  $^1\text{H-NMR}$  spectra (250 MHz) of 2,4-Dichlorophenyl carbamate in  $\text{DMSO-}d_6$

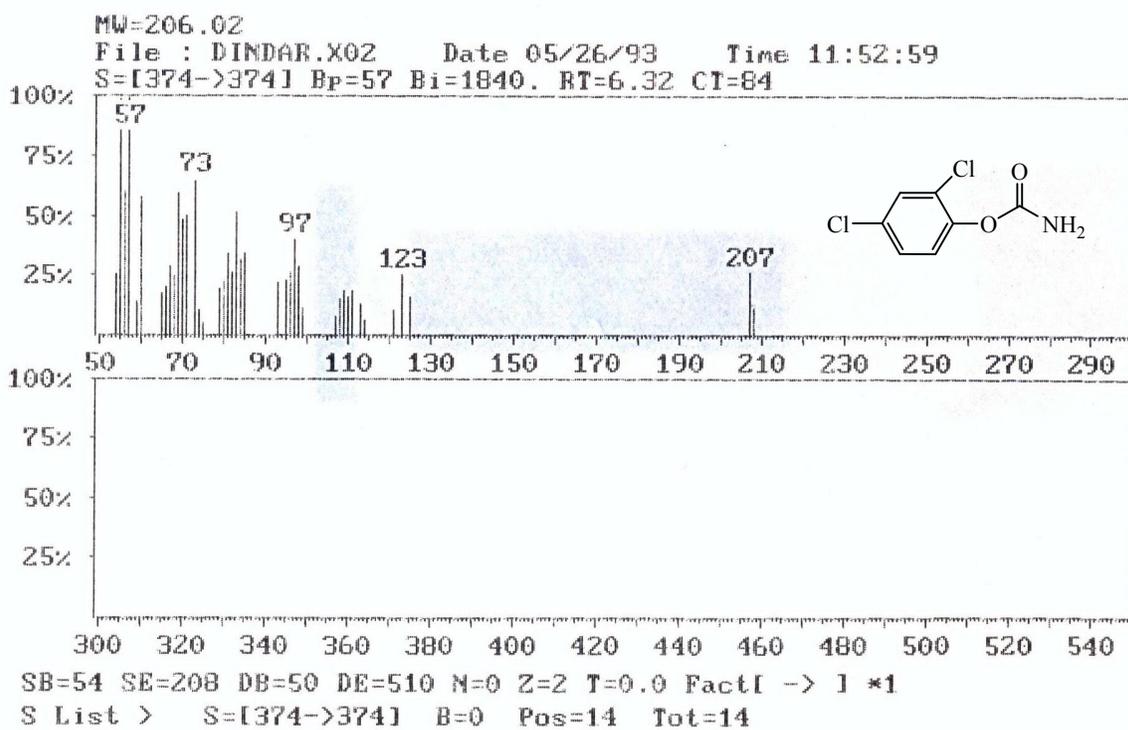


Figure S44. MS of 2,4-Dichlorophenyl carbamate

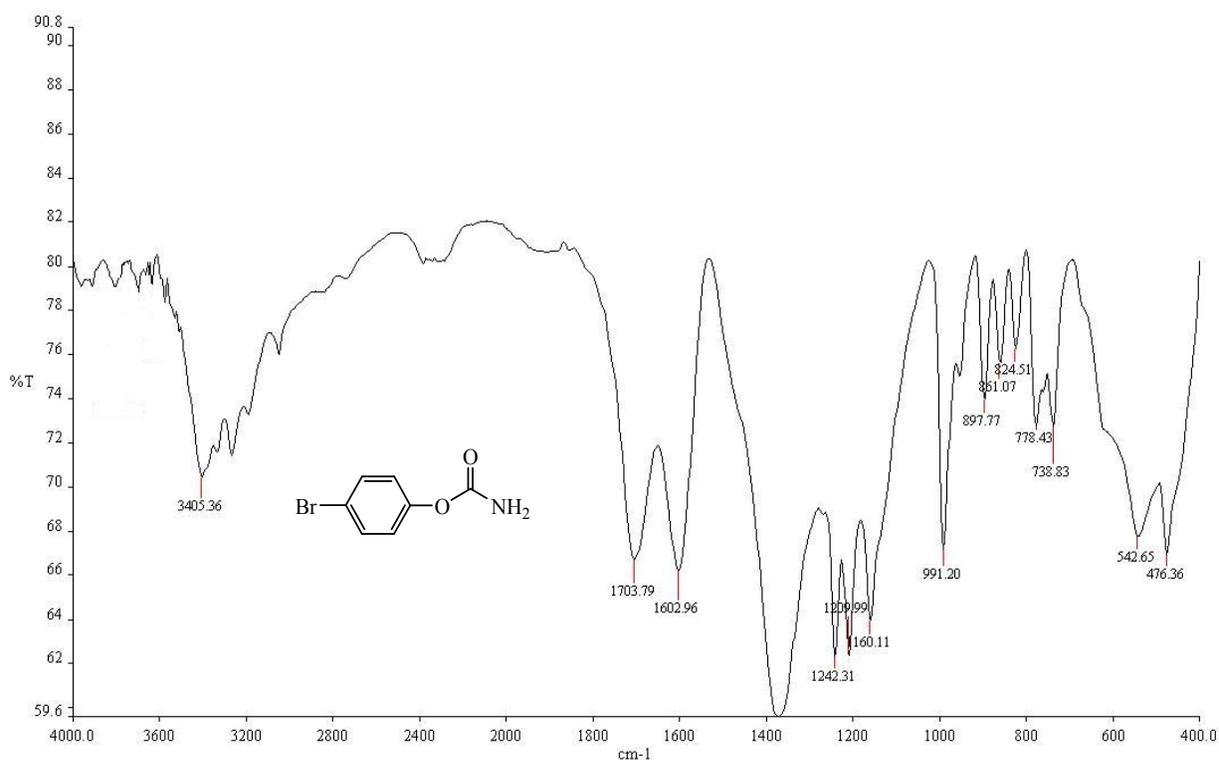
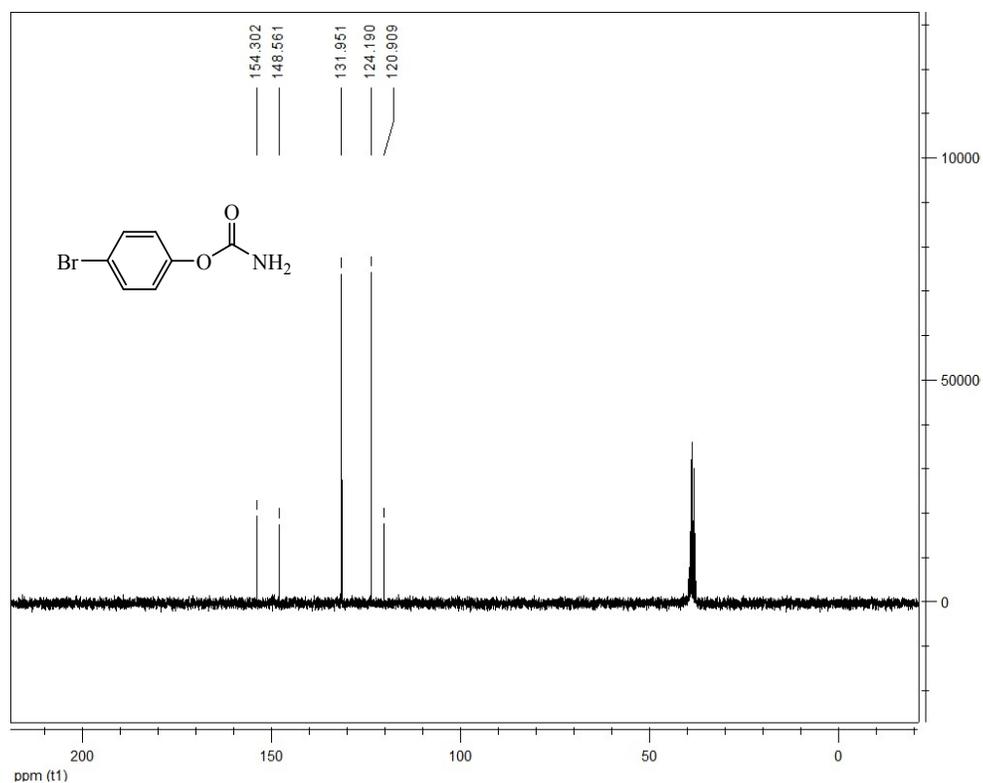
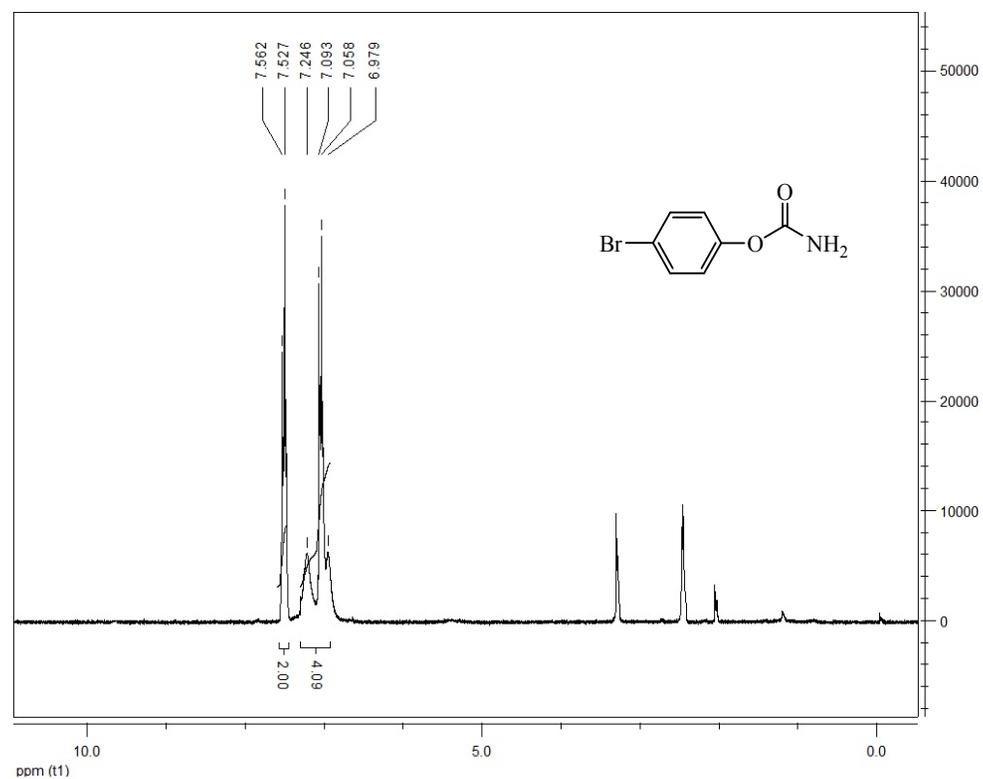


Figure S45. FT-IR spectra of 4-Bromophenyl carbamate in KBr



**Figure S46.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Bromophenyl carbamate in  $\text{DMSO-}d_6$



**Figure S47.**  $^1\text{H}$ -NMR spectra (250 MHz) of 4-Bromophenyl carbamate in  $\text{DMSO-}d_6$

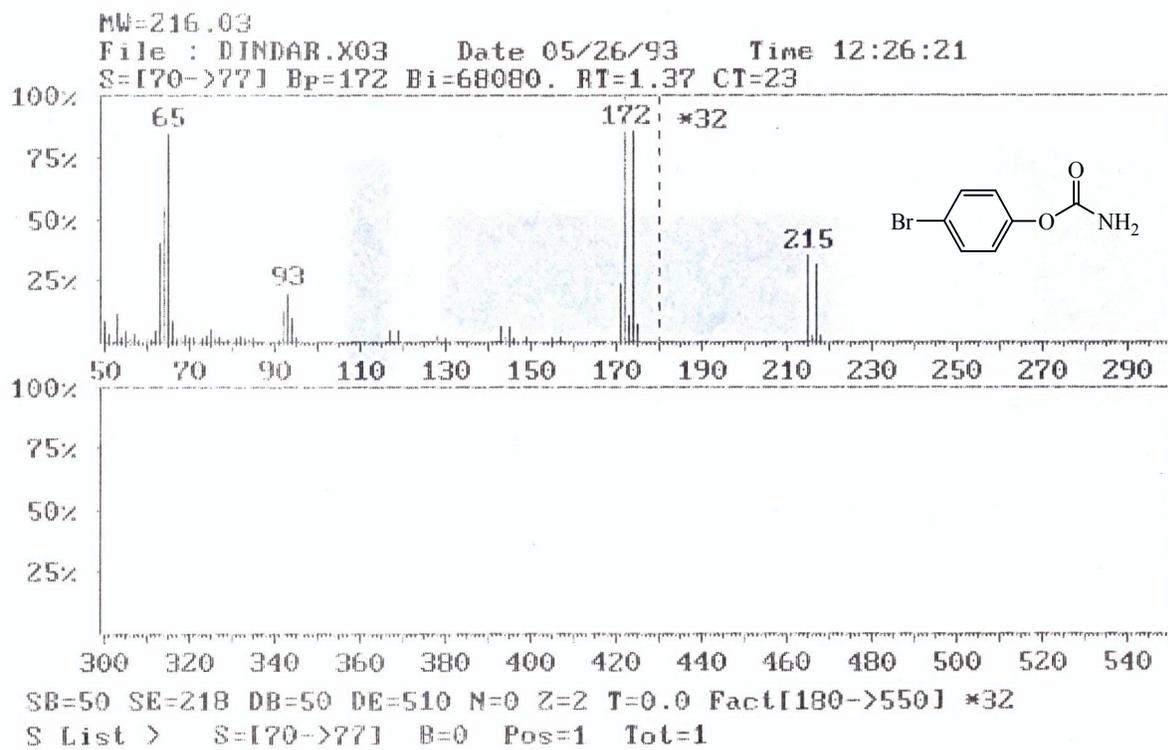


Figure S48. MS of 4-Bromophenyl carbamate

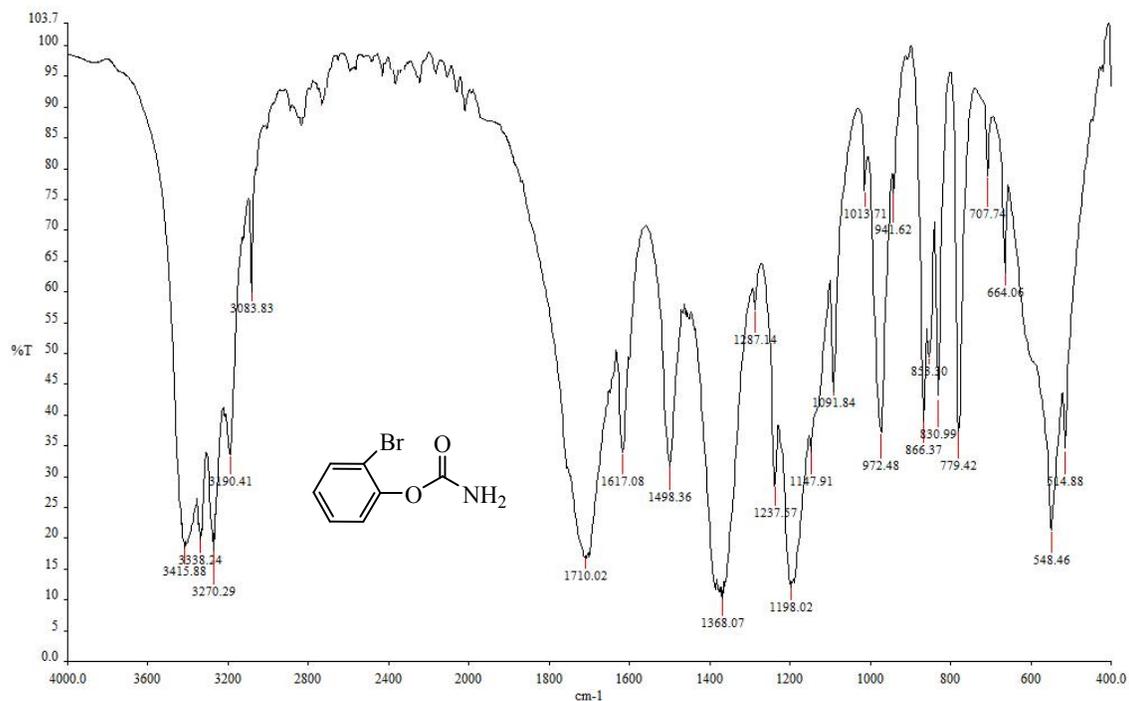
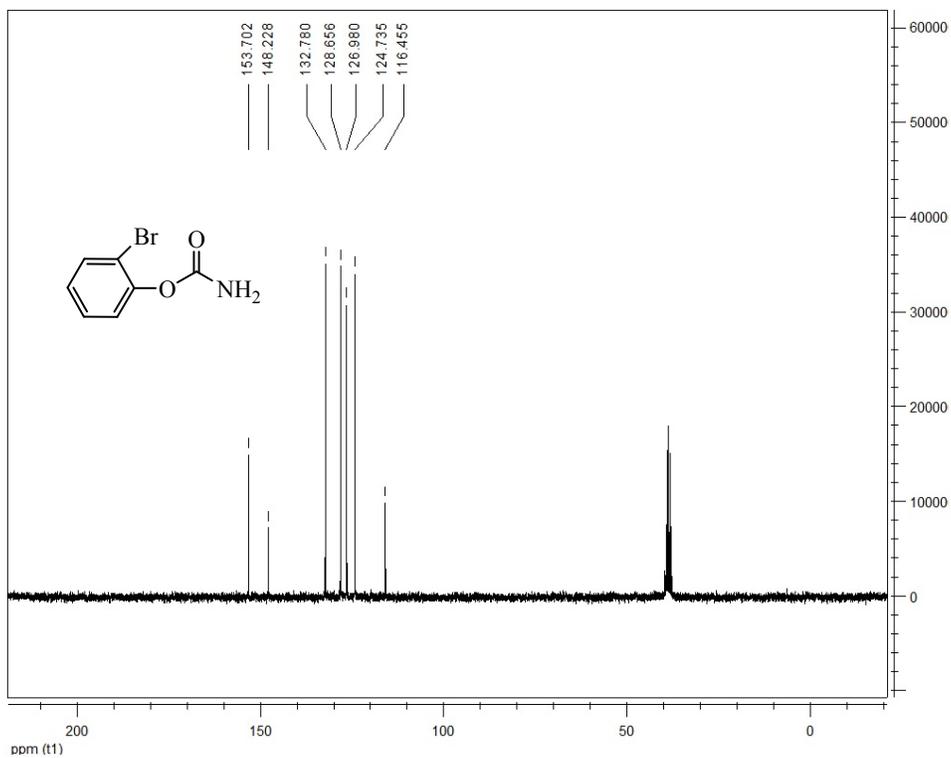
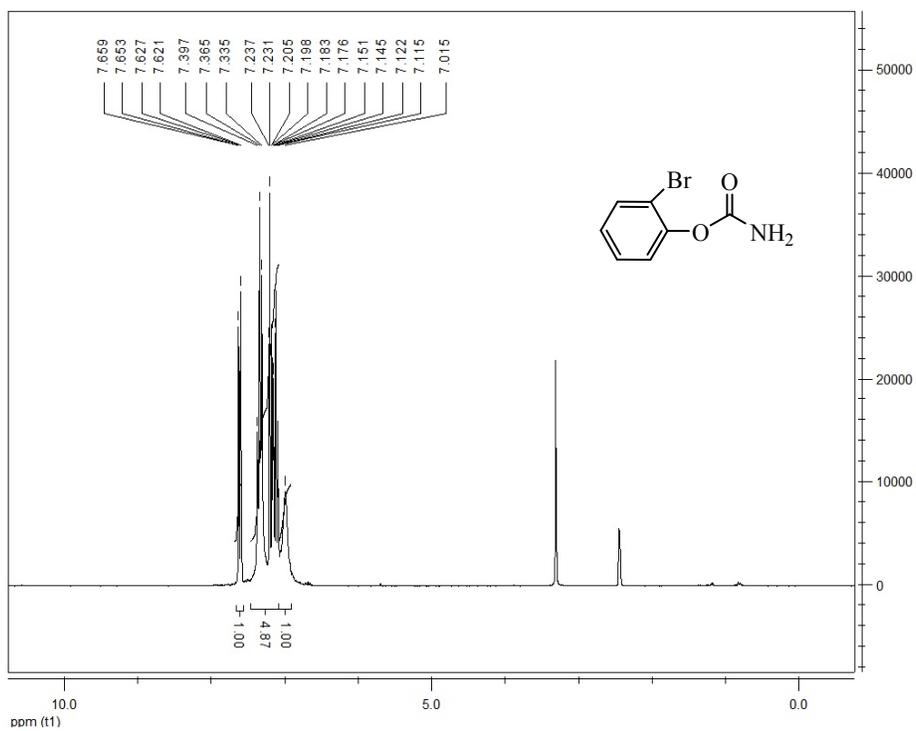


Figure S49. FT-IR spectra of 2-Bromophenyl carbamate in KBr



**Figure S50.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2-Bromophenyl carbamate in  $\text{DMSO-}d_6$



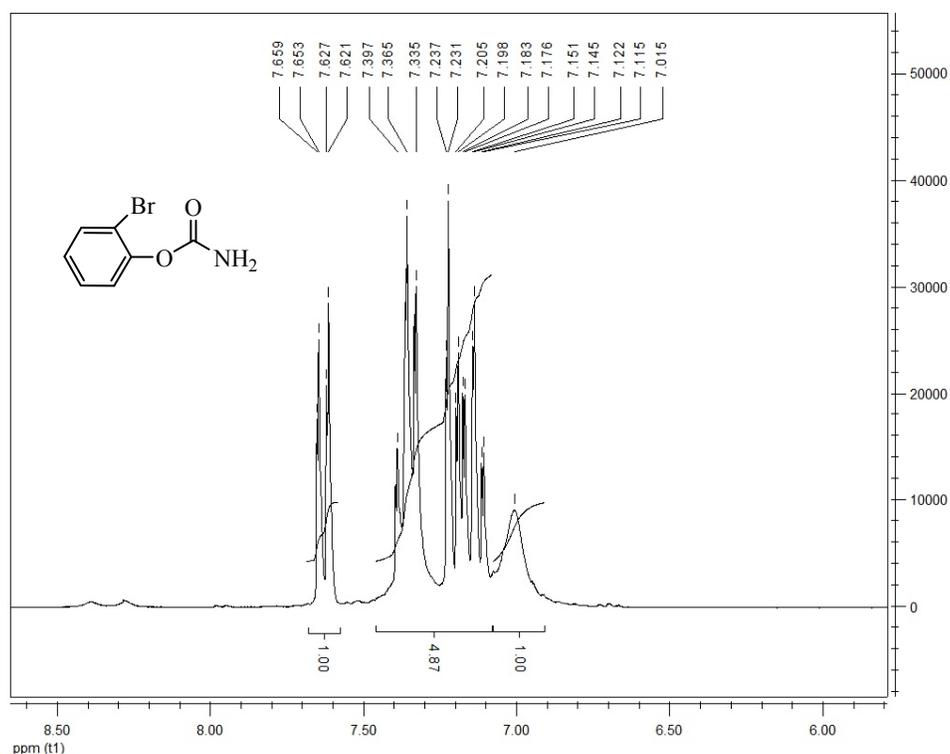


Figure S51. <sup>1</sup>H-NMR spectra (250 MHz) of 2-Bromophenyl carbamate in DMSO-*d*<sub>6</sub>

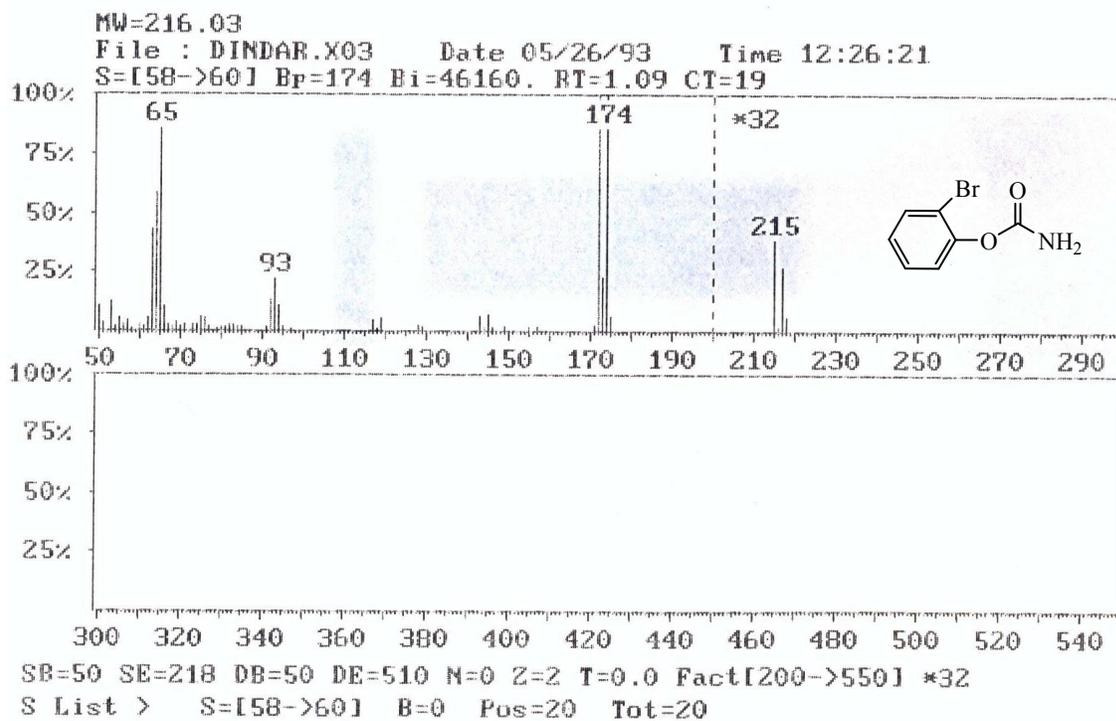
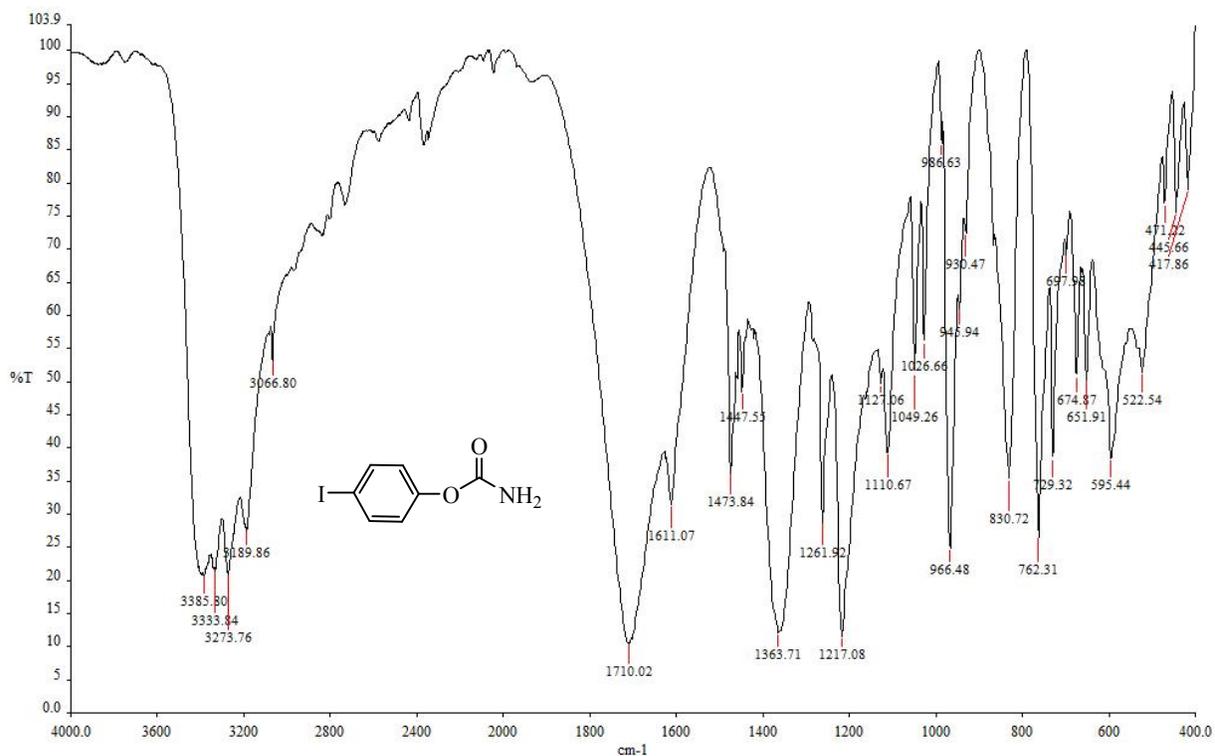
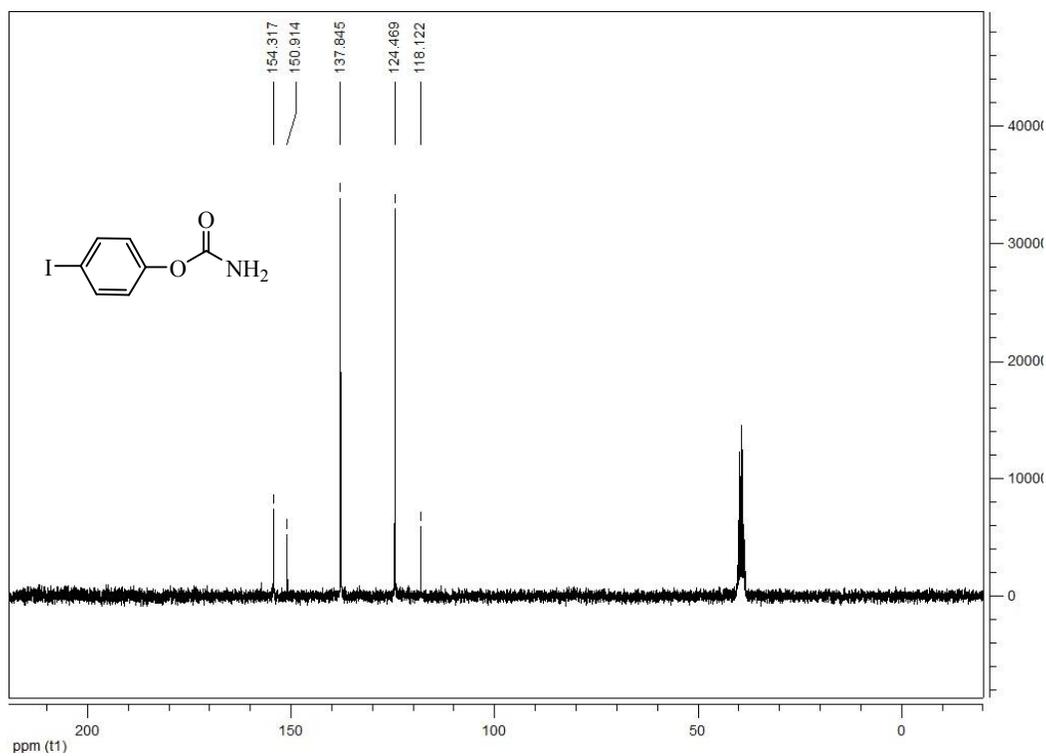


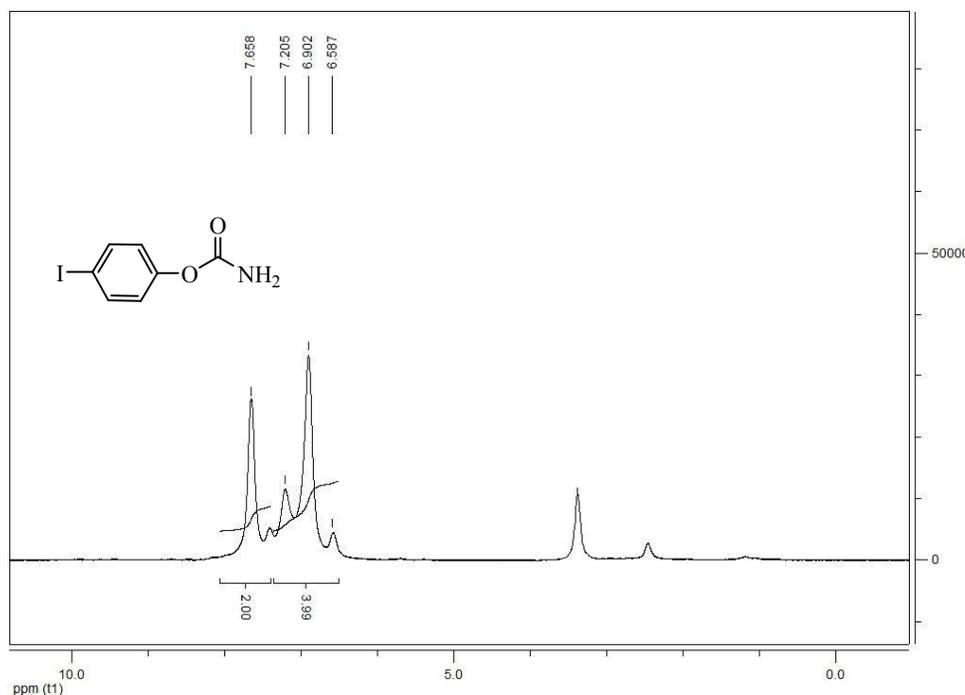
Figure S52. MS of 2-Bromophenyl carbamate



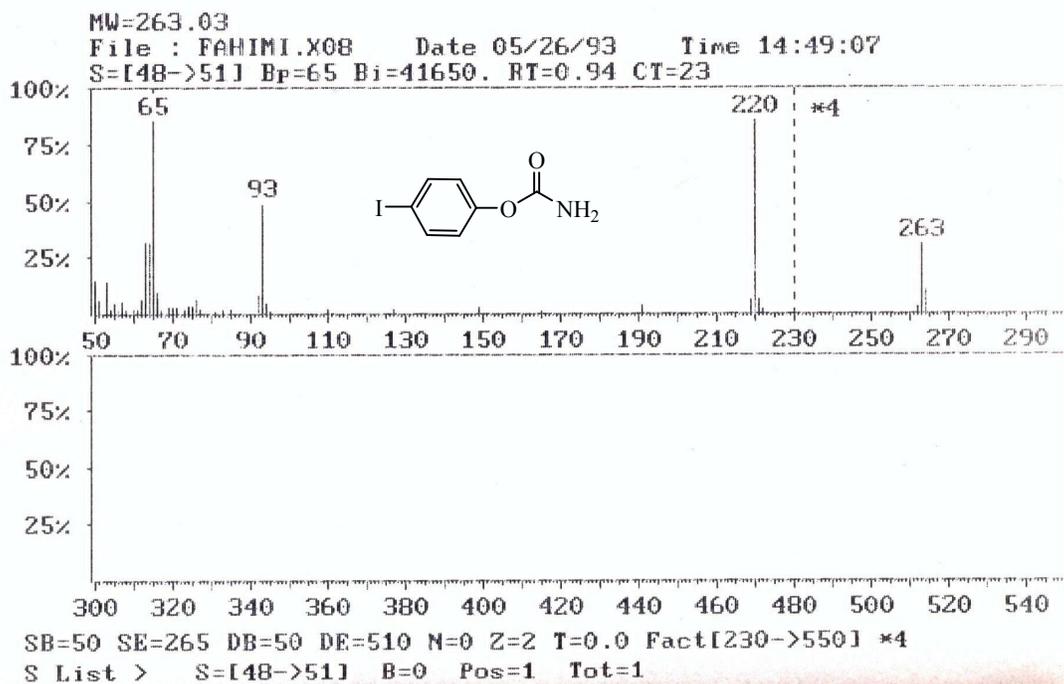
**Figure S53.** FT-IR spectra of 4-Iodophenyl carbamate in KBr



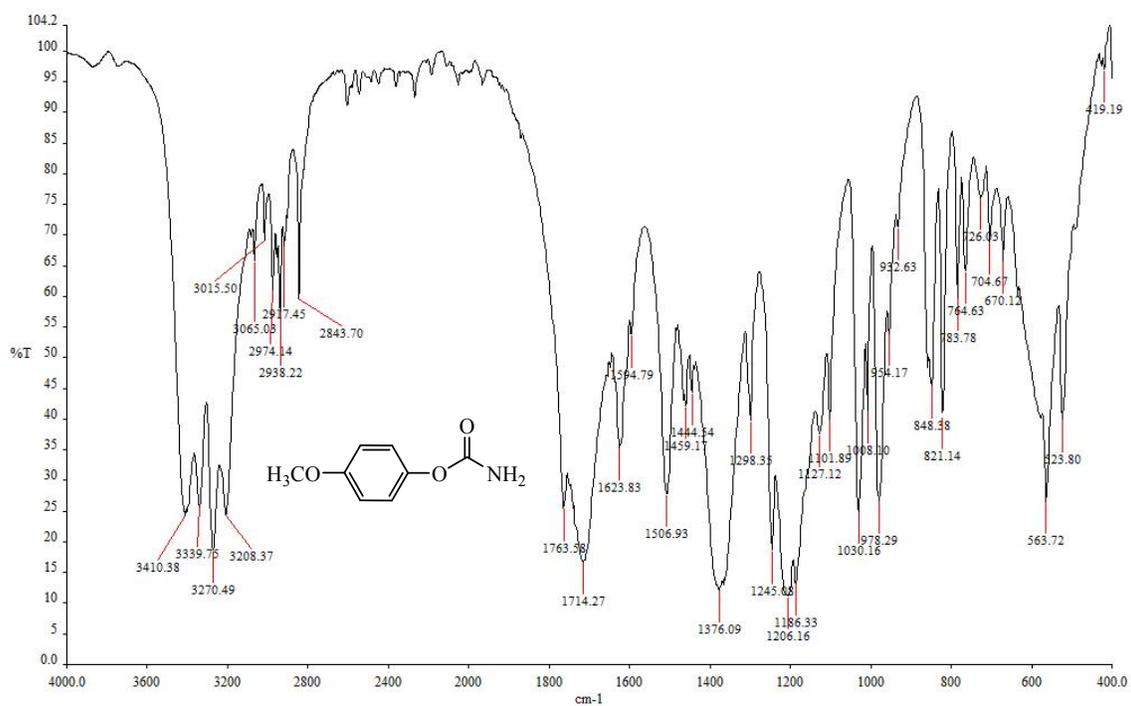
**Figure S54.** <sup>13</sup>C-NMR spectra (63 MHz) of 4-Iodophenyl carbamate in DMSO-*d*<sub>6</sub>



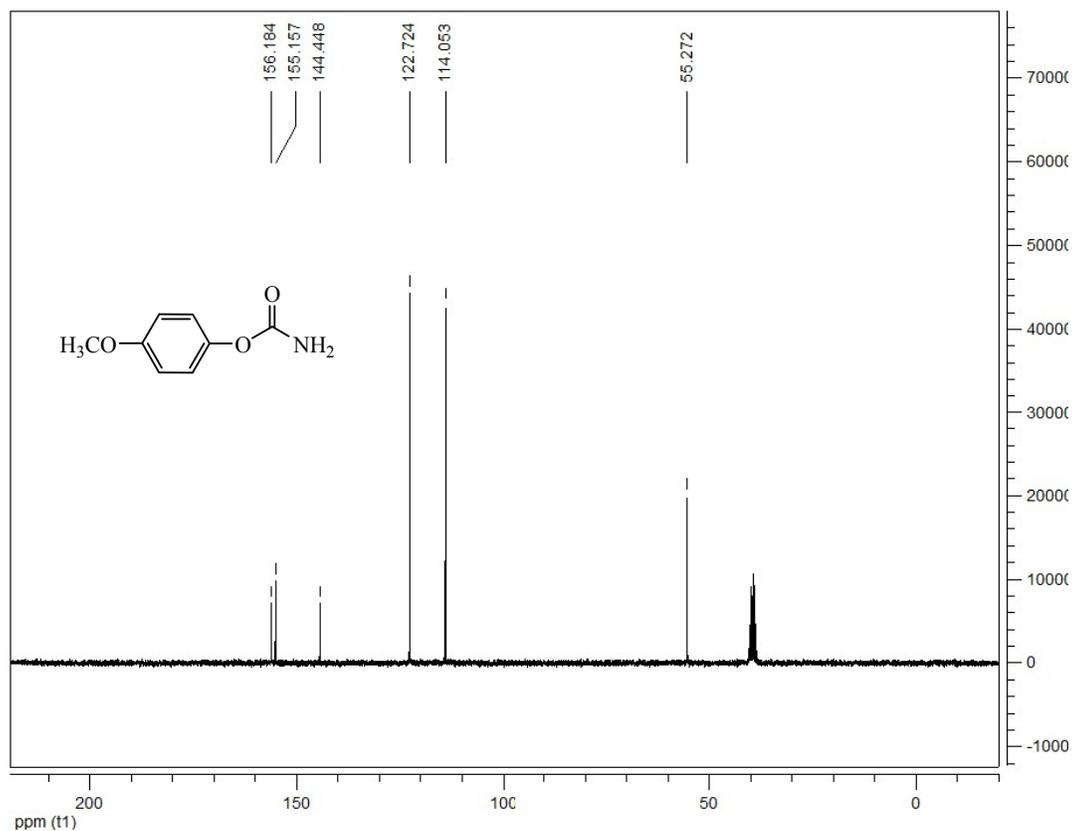
**Figure S55.**  $^1\text{H-NMR}$  spectra (250 MHz) of 4-Iodophenyl carbamate in  $\text{DMSO-}d_6$



**Figure S56.** MS of 4-Iodophenyl carbamate



**Figure S57.** FT-IR spectra of 4-Methoxyphenyl carbamate in KBr



**Figure S58.** <sup>13</sup>C-NMR spectra (63 MHz) of 4-Methoxyphenyl carbamate in DMSO-*d*<sub>6</sub>

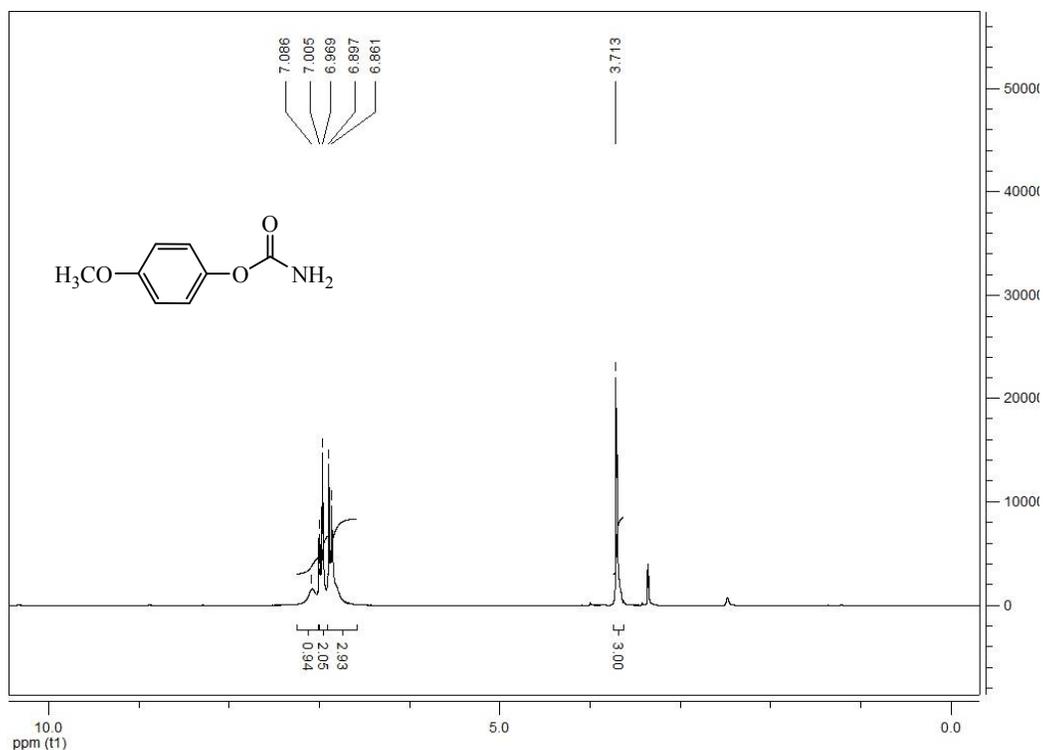


Figure S59. <sup>1</sup>H-NMR spectra (250 MHz) of 4-Methoxyphenyl carbamate in DMSO-*d*<sub>6</sub>

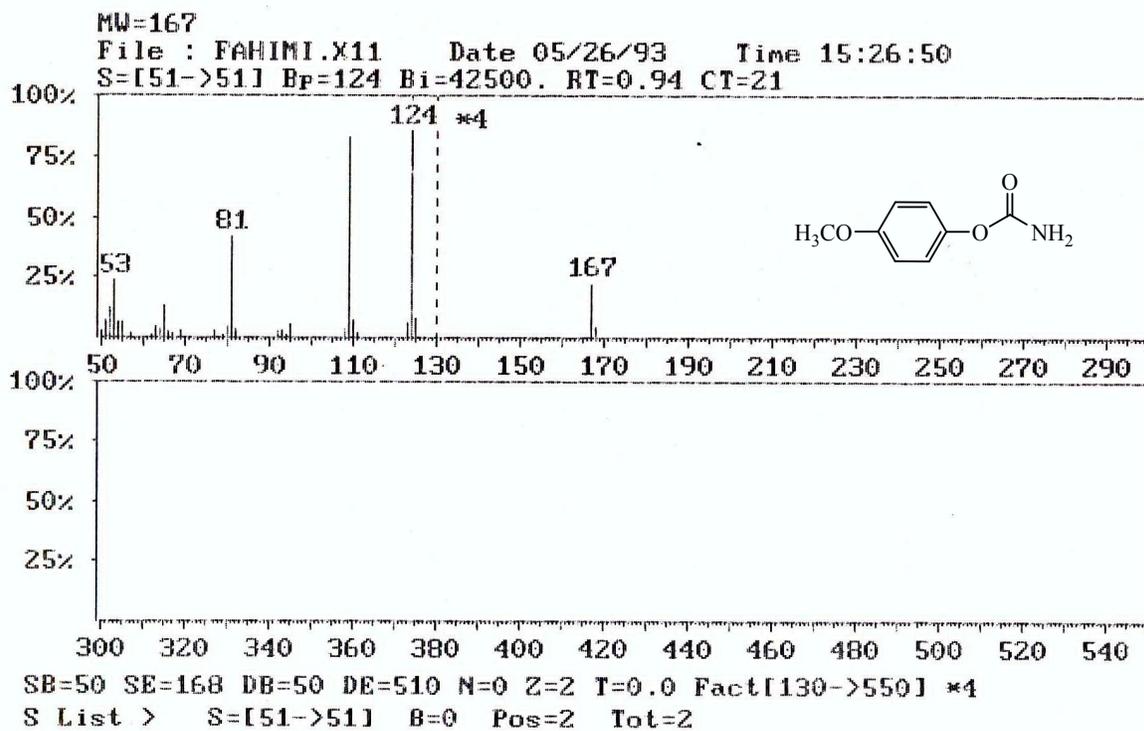
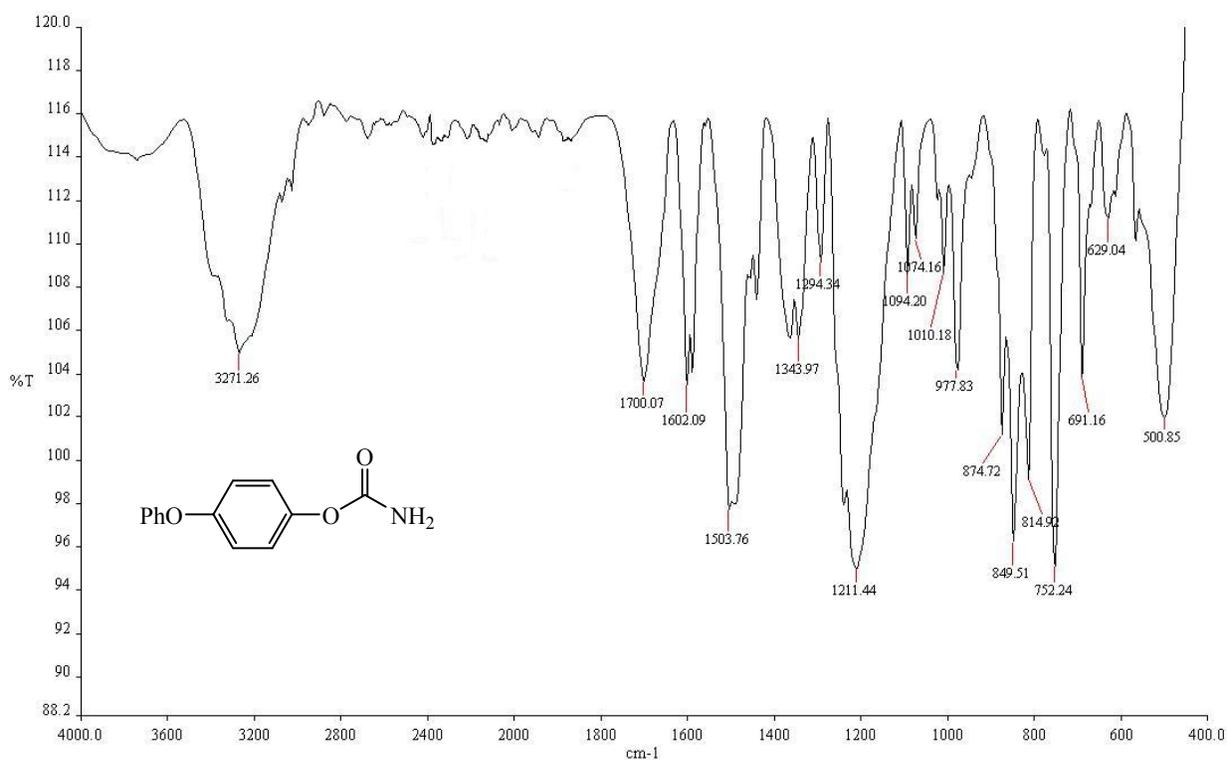
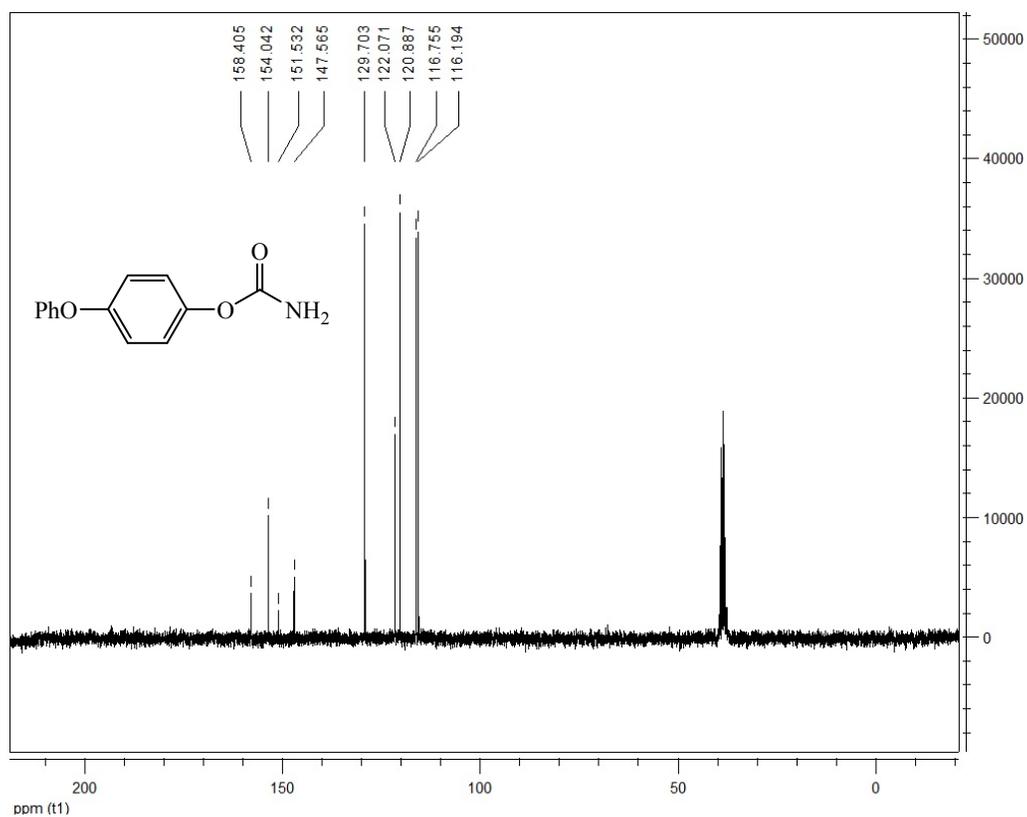


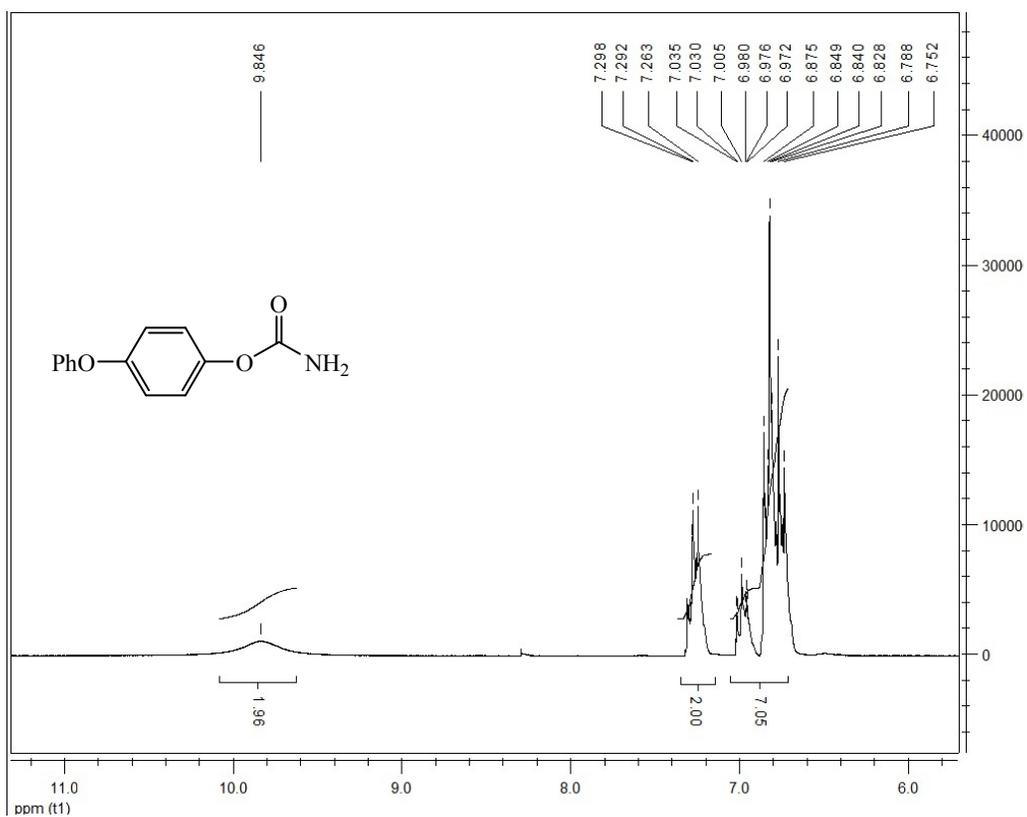
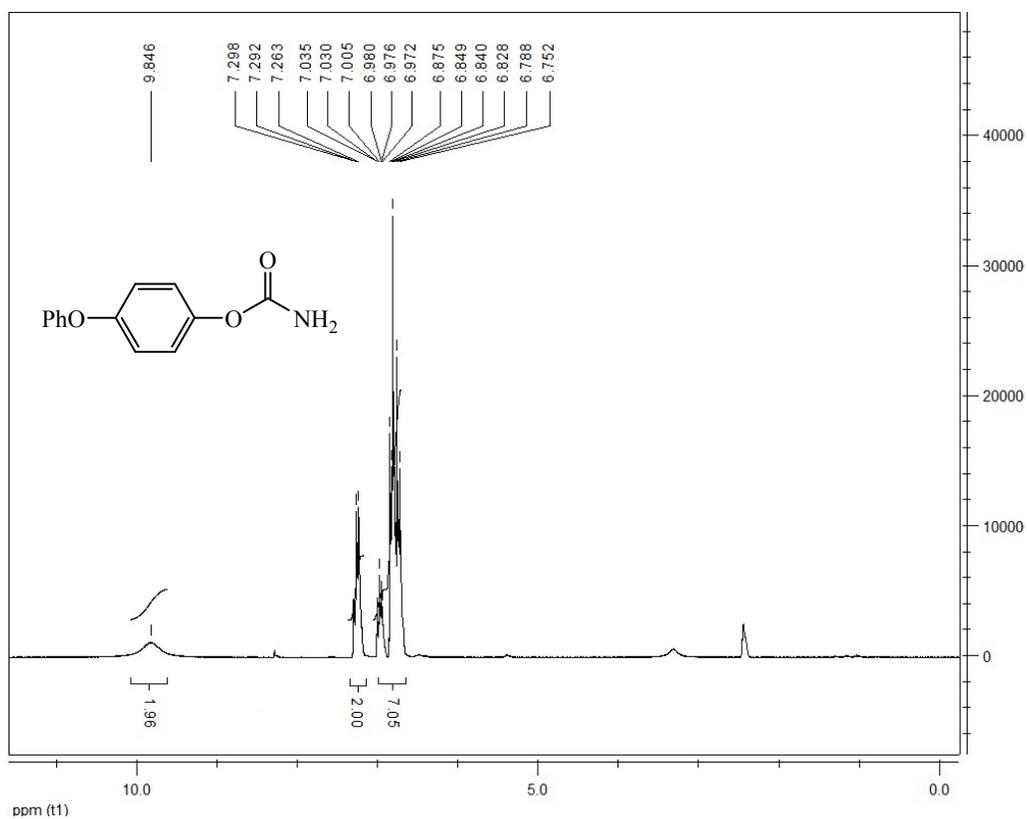
Figure S60. MS of 4-Methoxyphenyl carbamate



**Figure S61.** FT-IR spectra of *O*-4-Phenoxyphenyl carbamate in KBr



**Figure S62.** <sup>13</sup>C-NMR spectra (63 MHz) of *O*-4-Phenoxyphenyl carbamate in DMSO-*d*<sub>6</sub>



**Figure S63.**  $^1\text{H-NMR}$  spectra (250 MHz) of *O*-4-Phenoxyphenyl carbamate in  $\text{DMSO-}d_6$

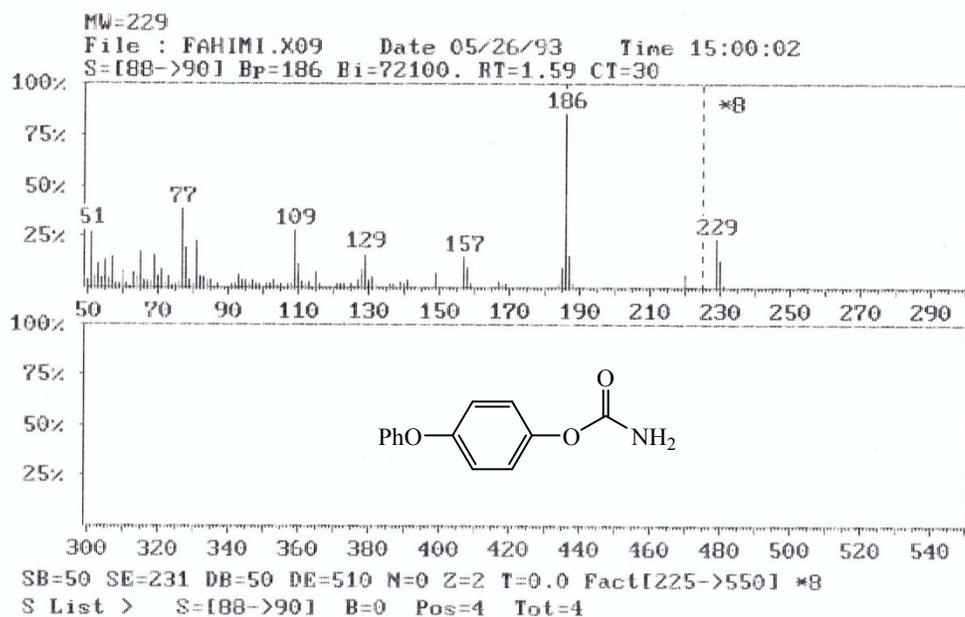


Figure S64. MS of *O*-4-Phenoxyphenyl carbamate

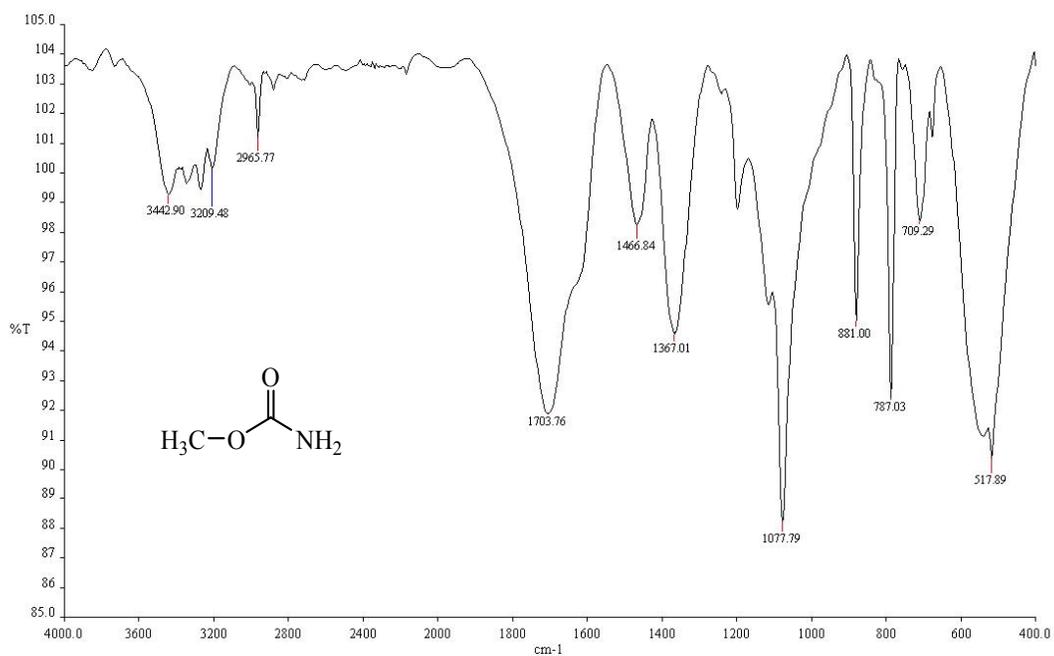
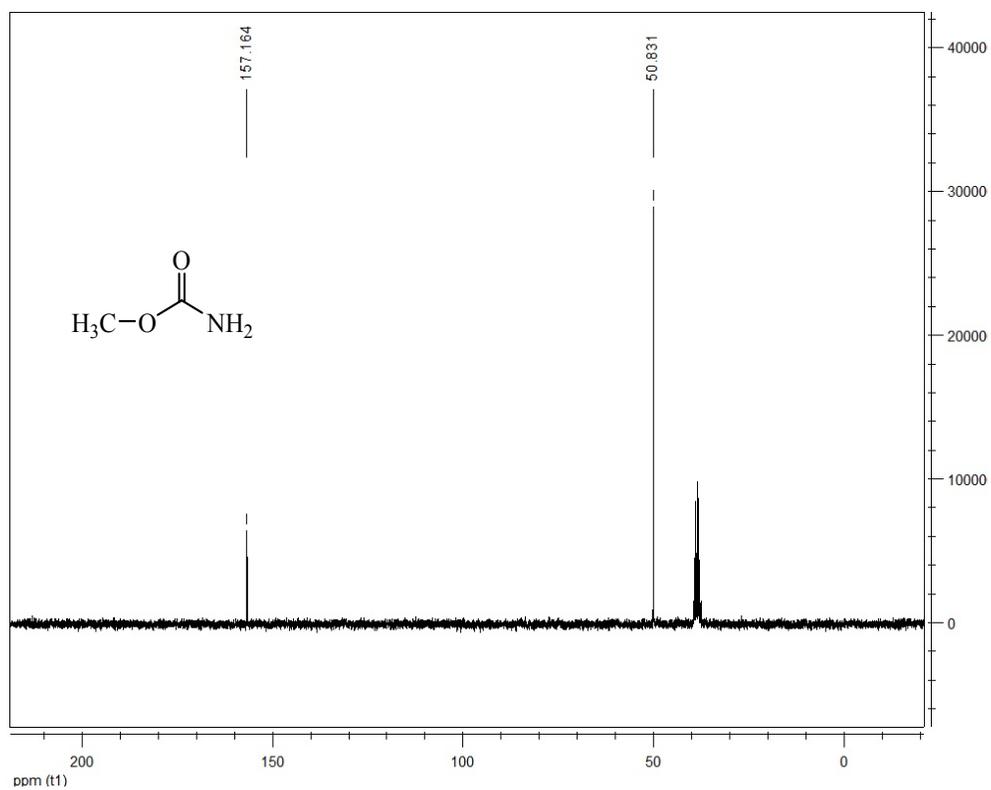
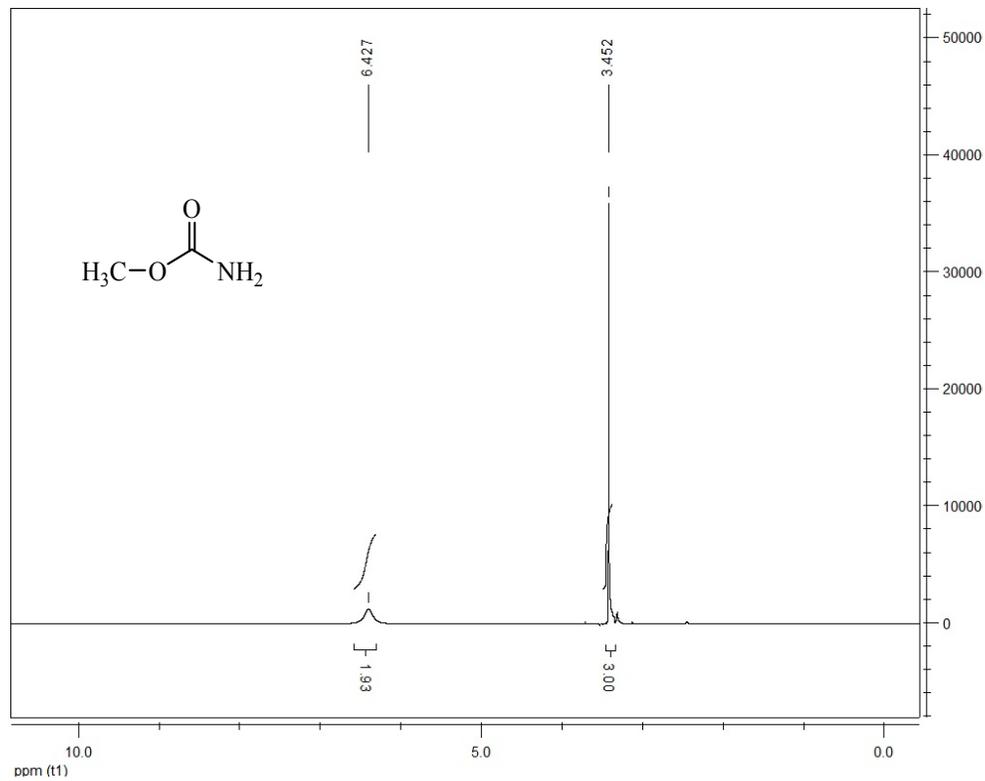


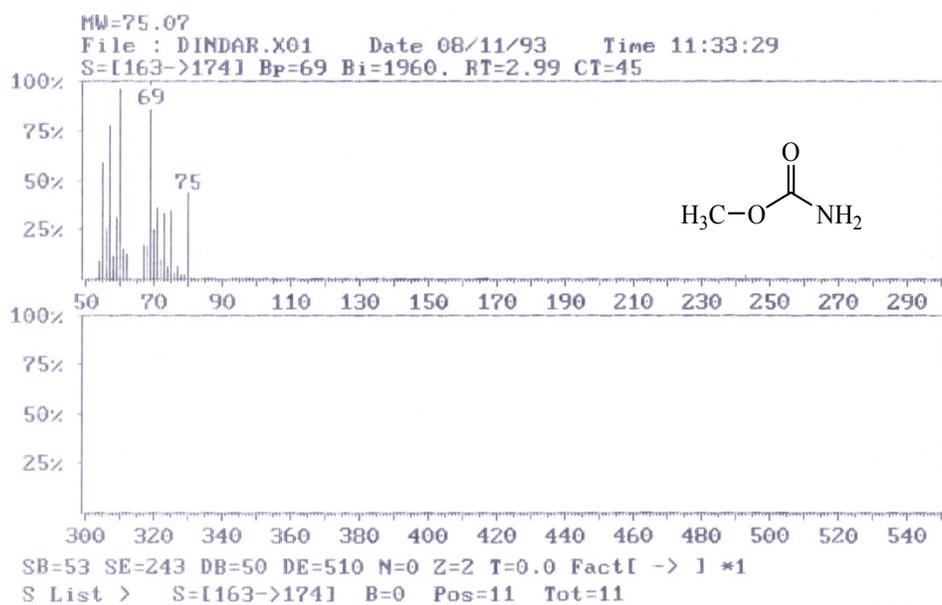
Figure S65. FT-IR spectra of Methyl carbamate in KBr



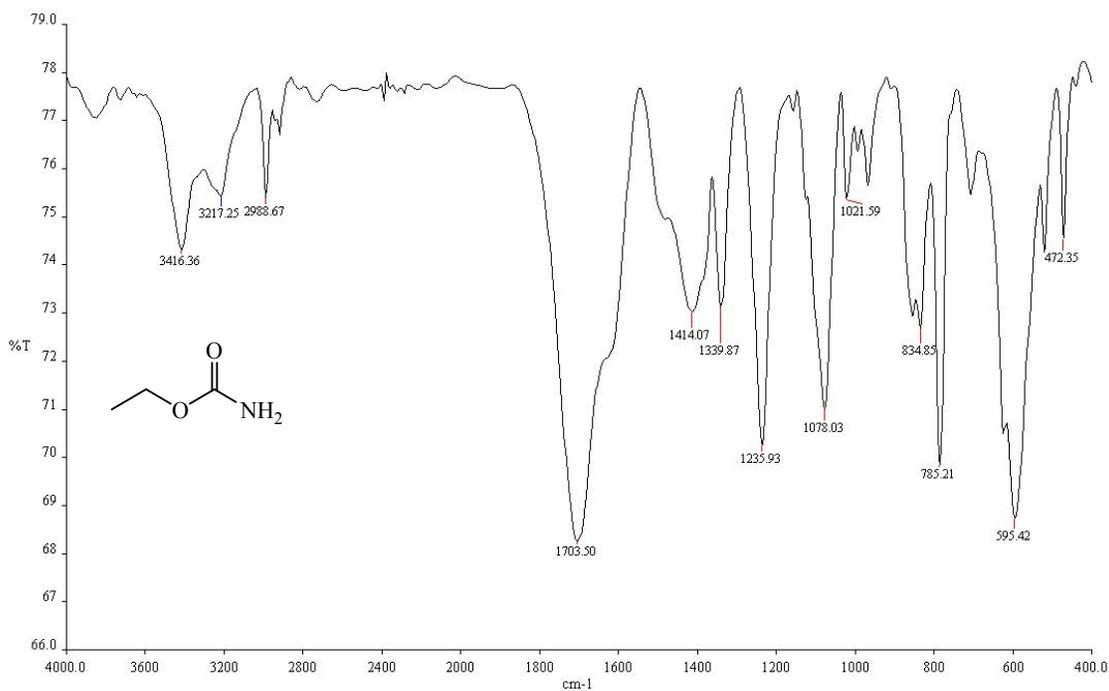
**Figure S66.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Methyl carbamate in  $\text{DMSO-}d_6$



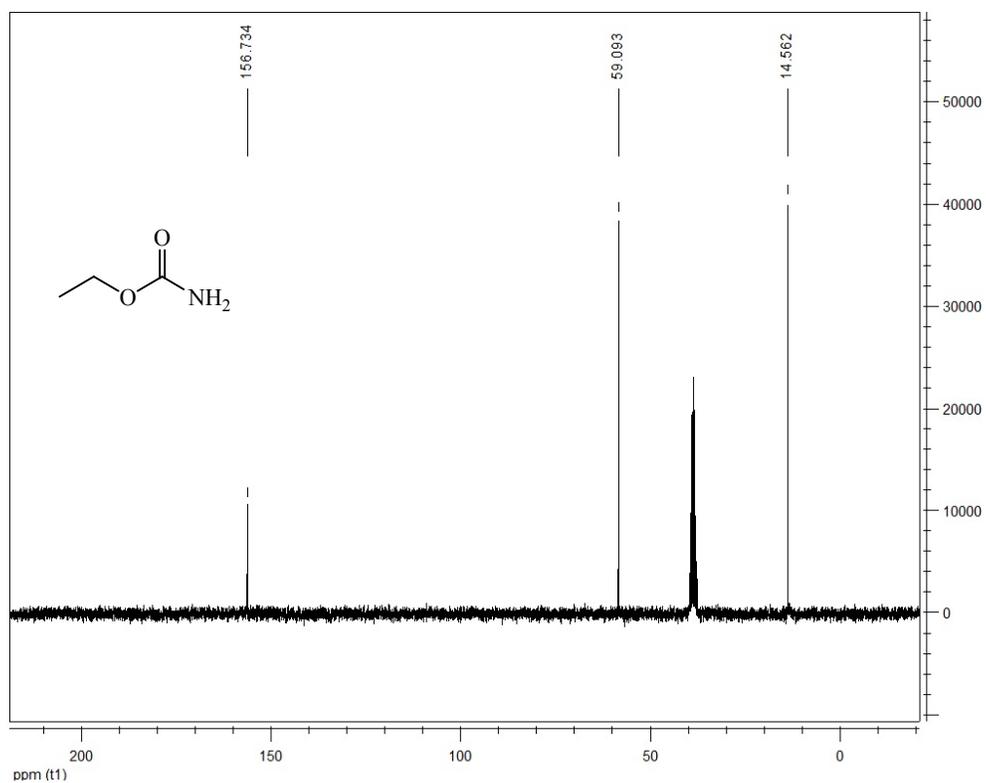
**Figure S67.**  $^1\text{H}$ -NMR spectra (250 MHz) of Methyl carbamate in  $\text{DMSO-}d_6$



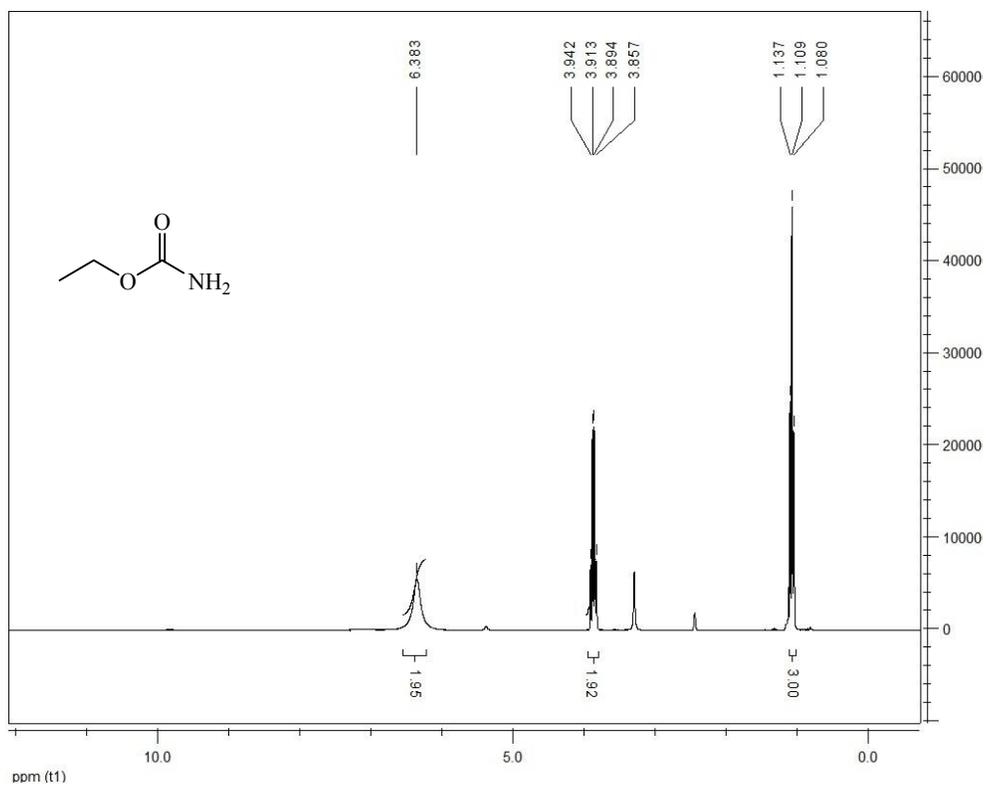
**Figure S68.** MS of Methyl carbamate



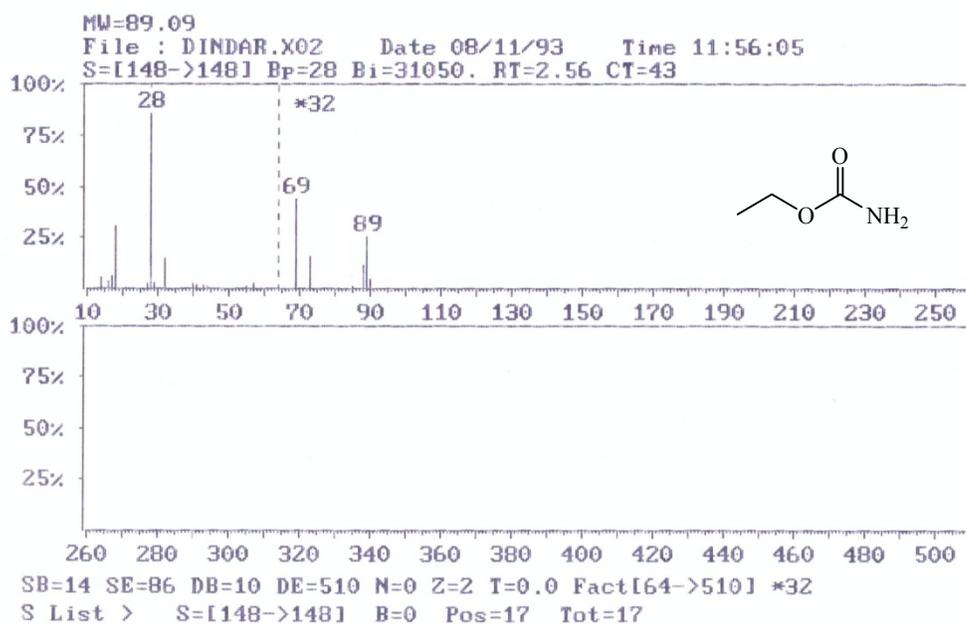
**Figure S69.** FT-IR spectra of Ethyl carbamate in KBr



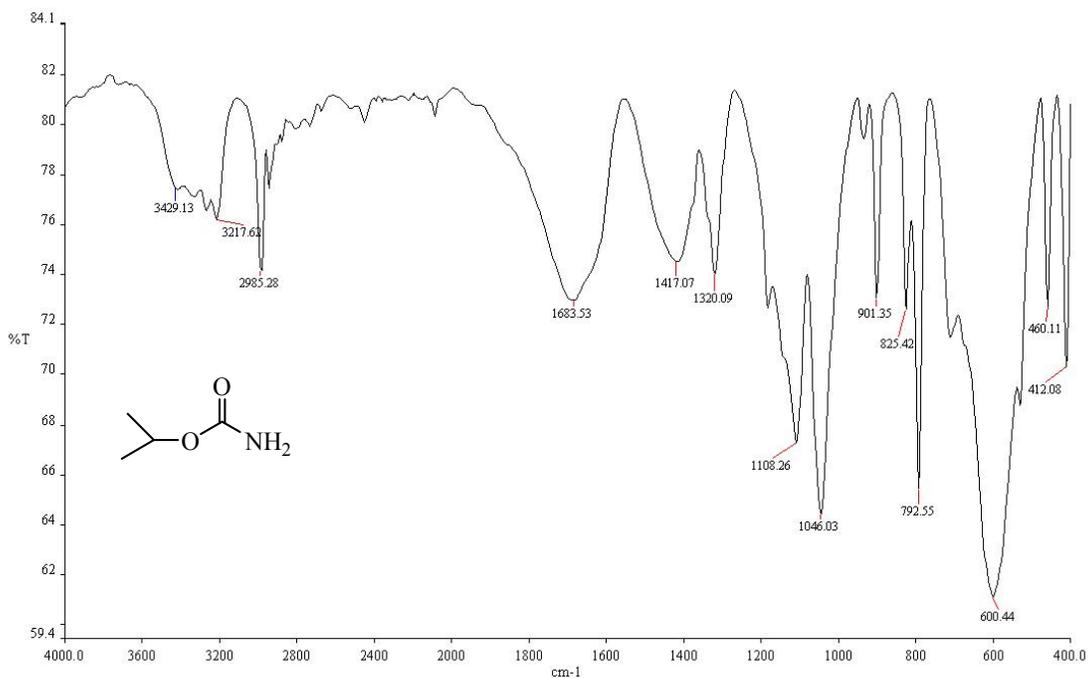
**Figure S70.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Ethyl carbamate in  $\text{DMSO-}d_6$



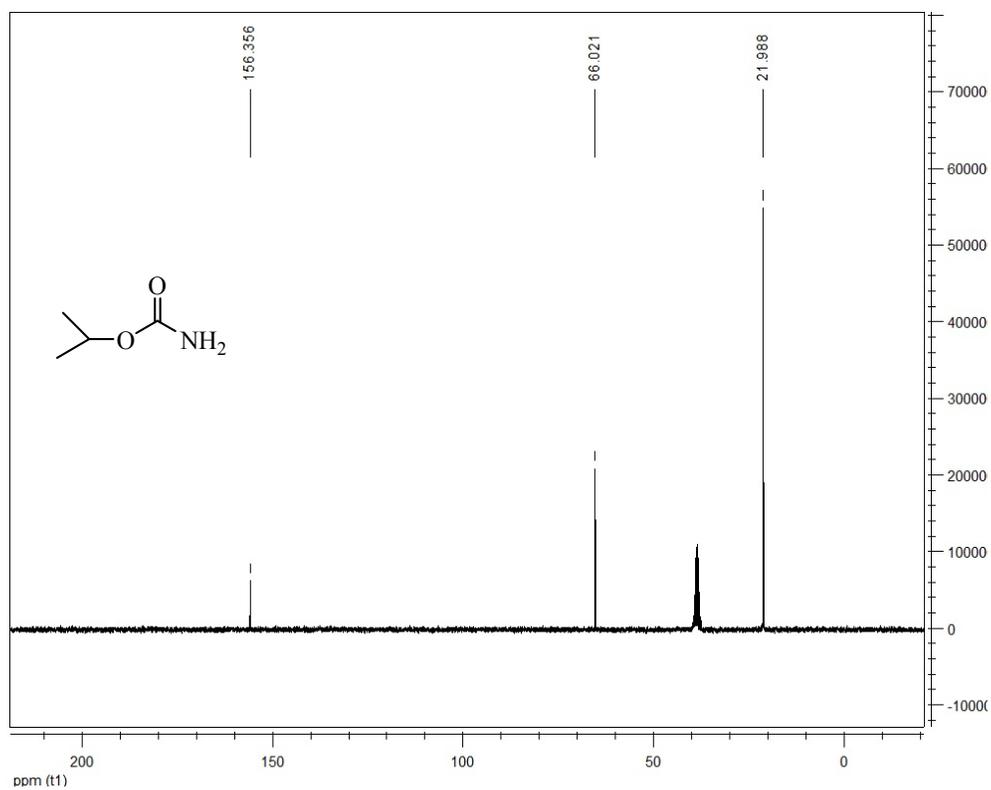
**Figure S71.**  $^1\text{H}$ -NMR spectra (250 MHz) of Ethyl carbamate in  $\text{DMSO-}d_6$



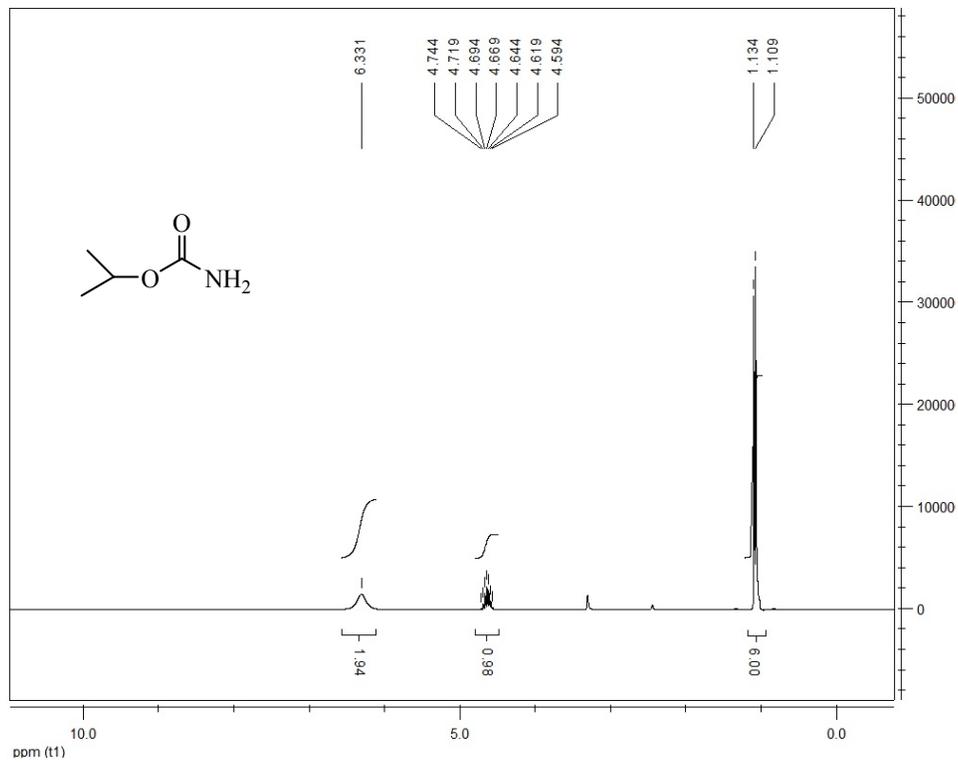
**Figure S72. MS of Ethyl carbamate**



**Figure S73. FT-IR spectra of 2-Propyl carbamate in KBr**



**Figure S74.** <sup>13</sup>C-NMR spectra (63 MHz) of 2-Propyl carbamate in DMSO-*d*<sub>6</sub>



**Figure S75.** <sup>1</sup>H-NMR spectra (250 MHz) of 2-Propyl carbamate in DMSO-*d*<sub>6</sub>

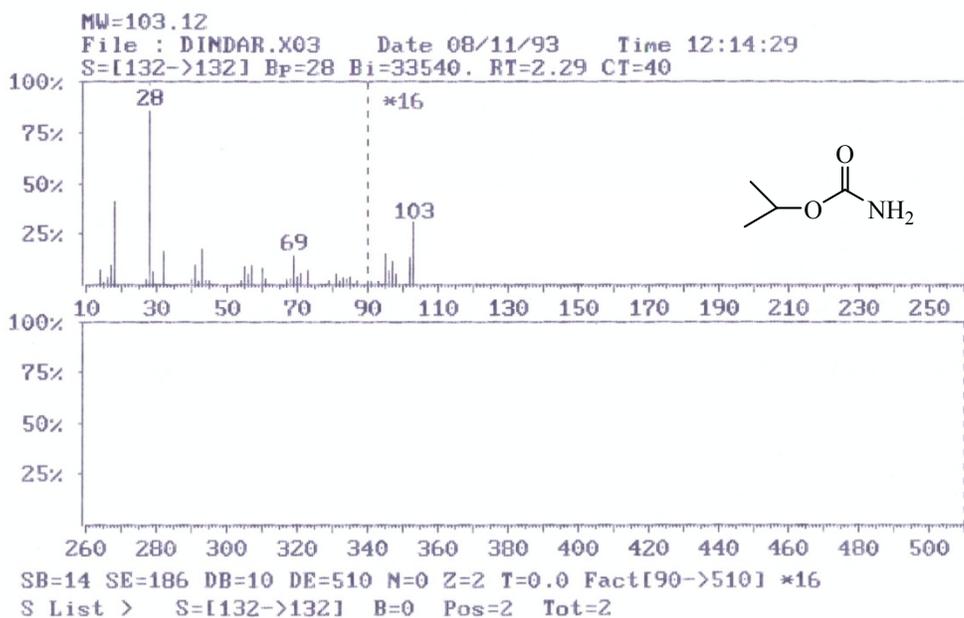


Figure S76. MS of 2-Propyl carbamate

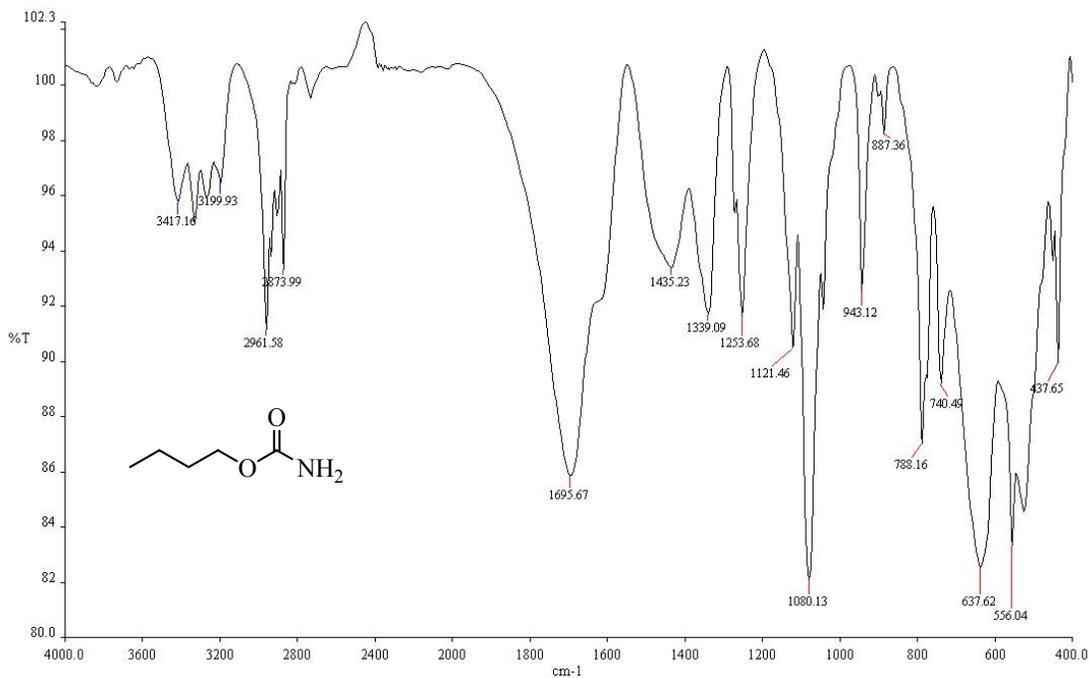
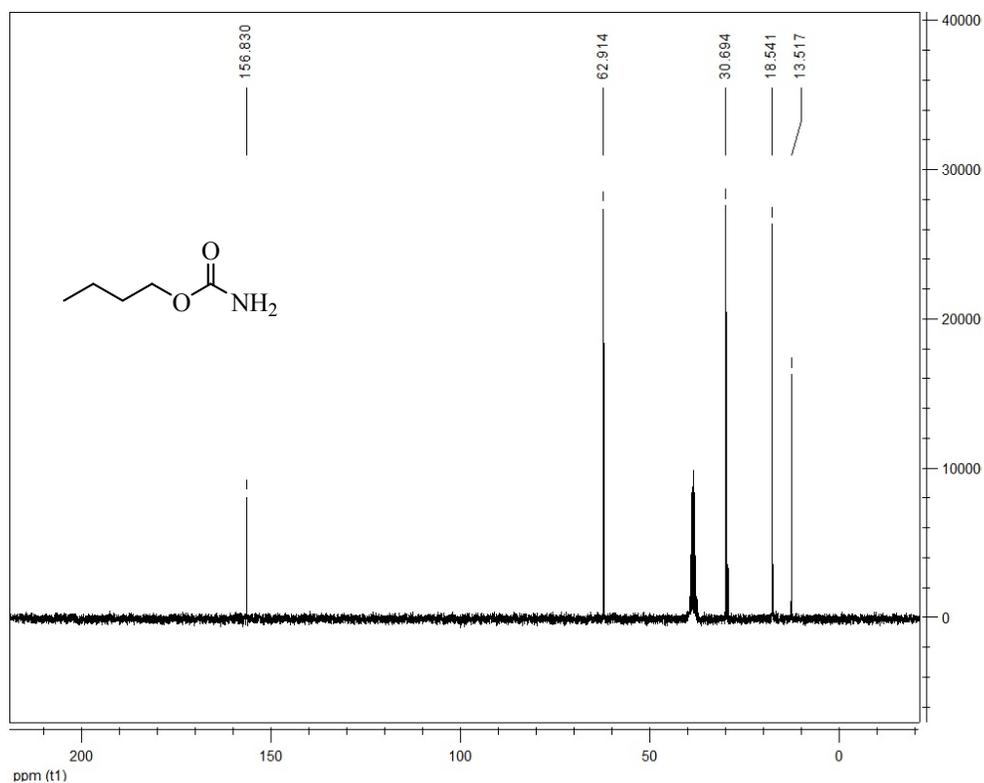
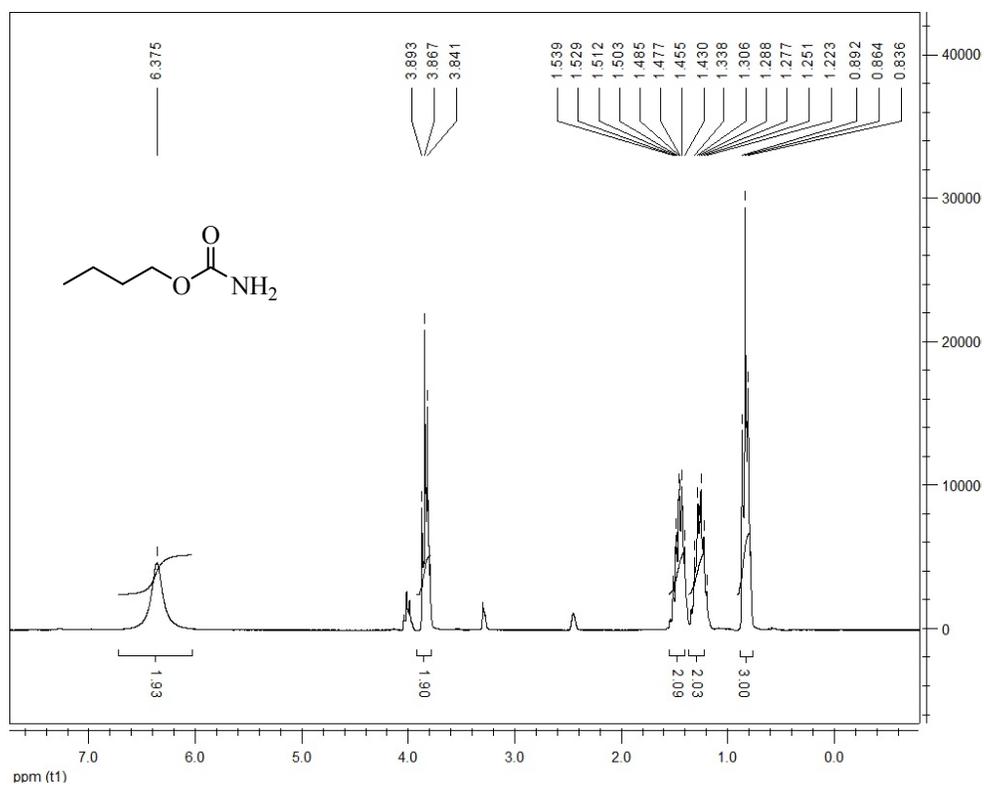


Figure S77. FT-IR spectra of 1-Butyl carbamate in KBr



**Figure S78.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Butyl carbamate in  $\text{DMSO-}d_6$



**Figure S79.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Butyl carbamate in  $\text{DMSO-}d_6$

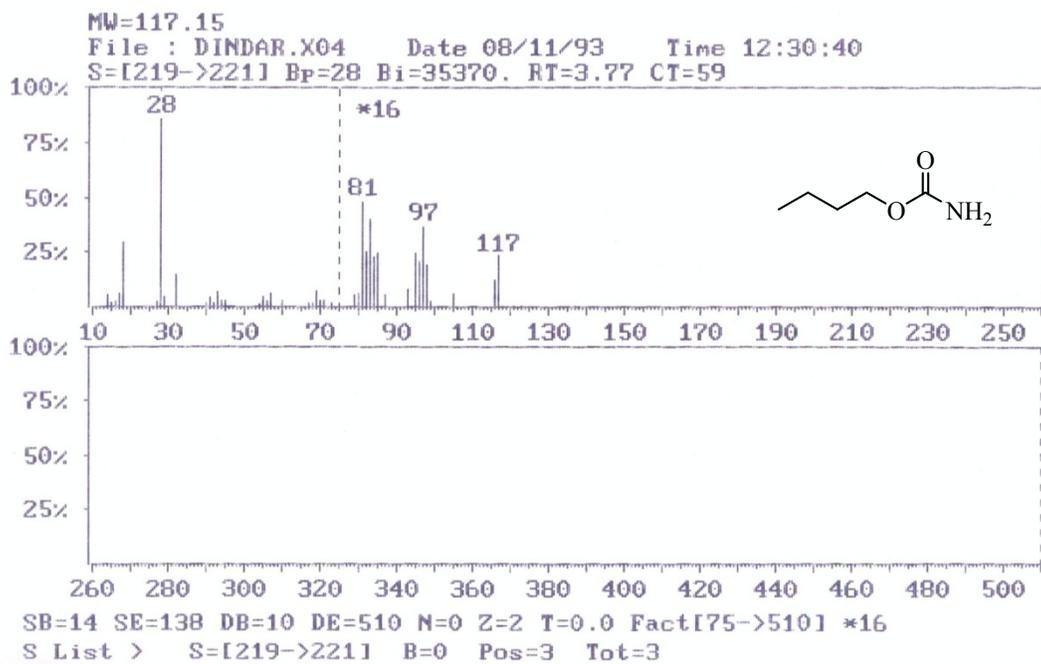


Figure S80. MS of 1-Butyl carbamate

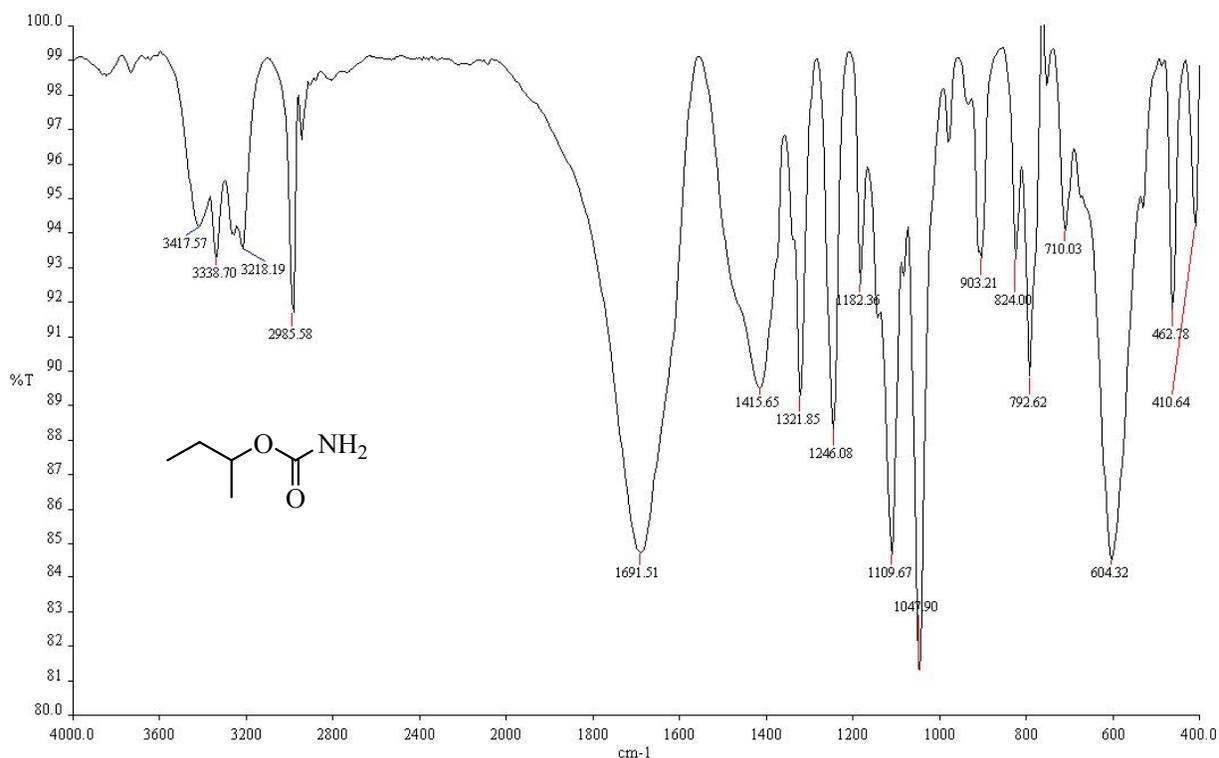
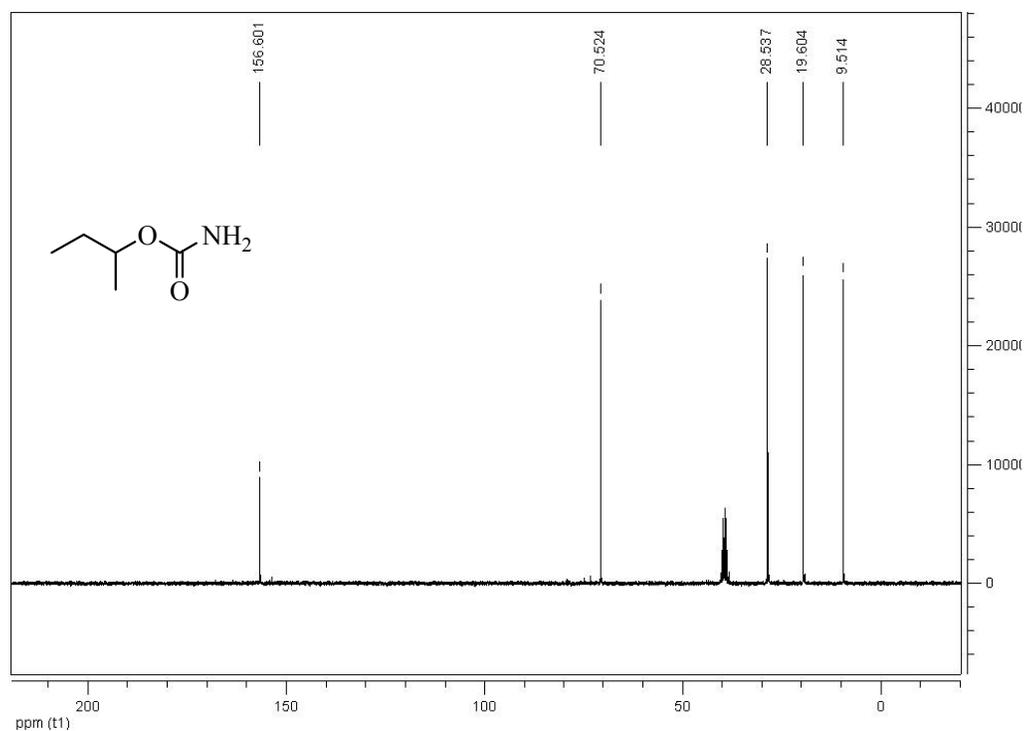
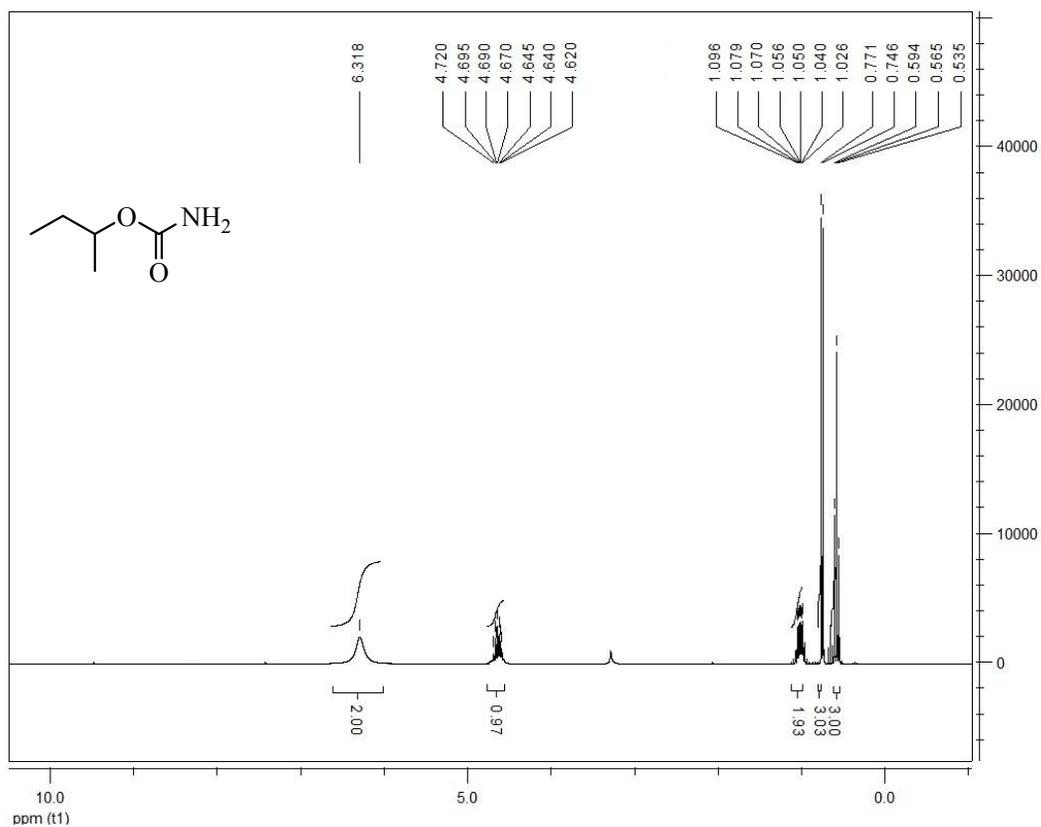


Figure S81. FT-IR spectra of 2-Butyl carbamate in KBr



**Figure S82.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2-Butyl carbamate in  $\text{DMSO-}d_6$



**Figure S83.**  $^1\text{H}$ -NMR spectra (250 MHz) of 2-Butyl carbamate in  $\text{DMSO-}d_6$

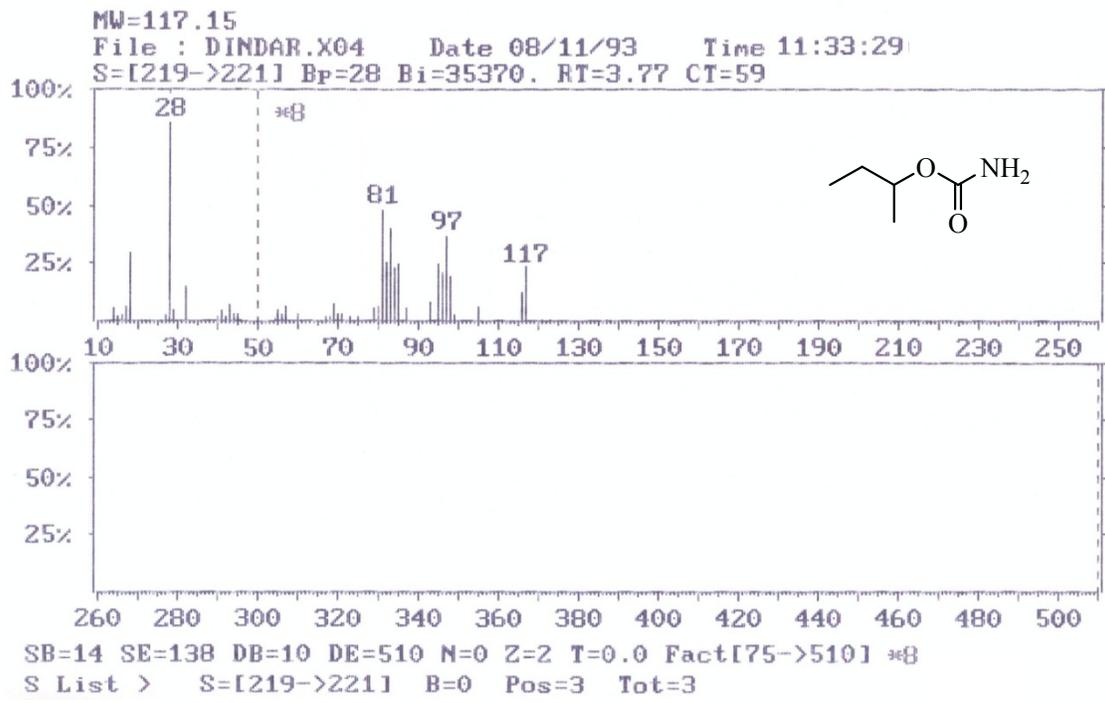
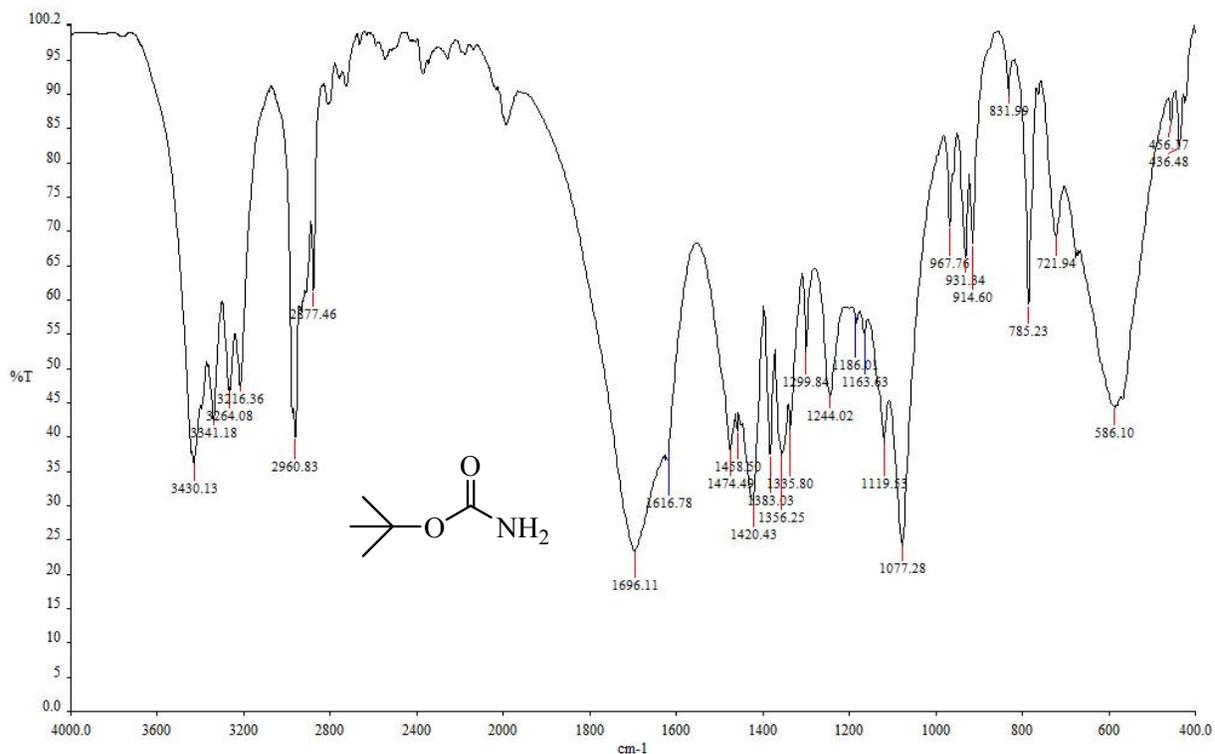
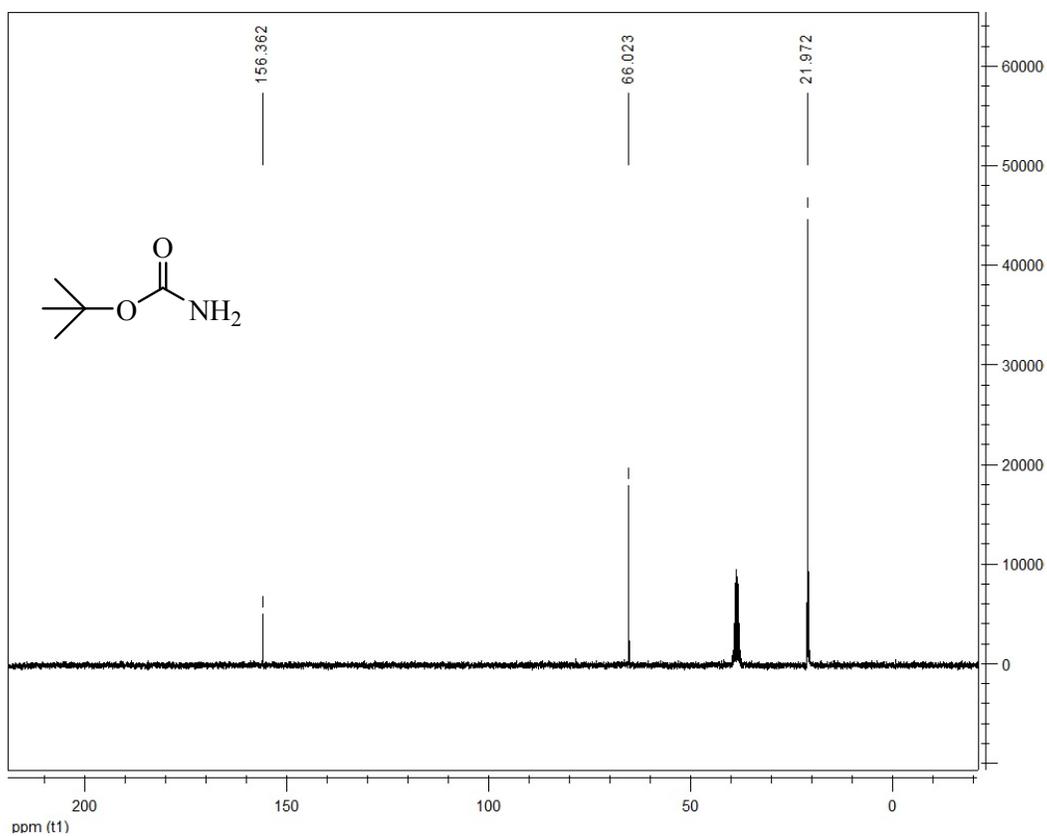
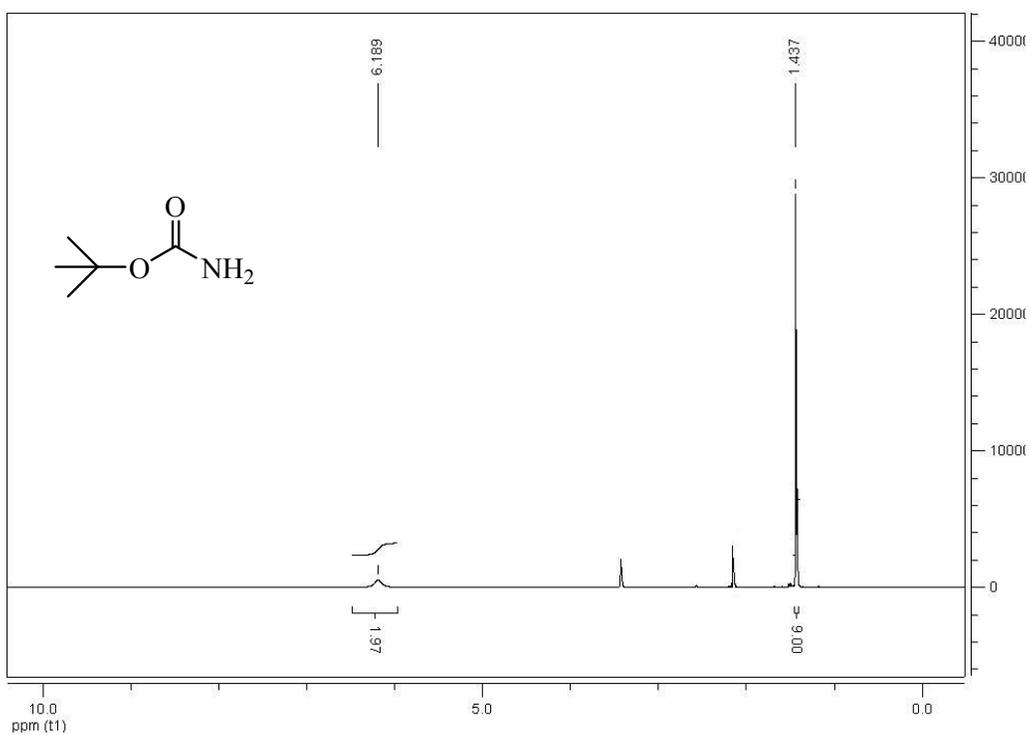


Figure S84. MS of 2-Butyl carbamate





**Figure S86.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of *tert*-Butyl carbamate in  $\text{DMSO-}d_6$



**Figure S87.**  $^1\text{H}$ -NMR spectra (250 MHz) of *tert*-Butyl carbamate in  $\text{DMSO-}d_6$

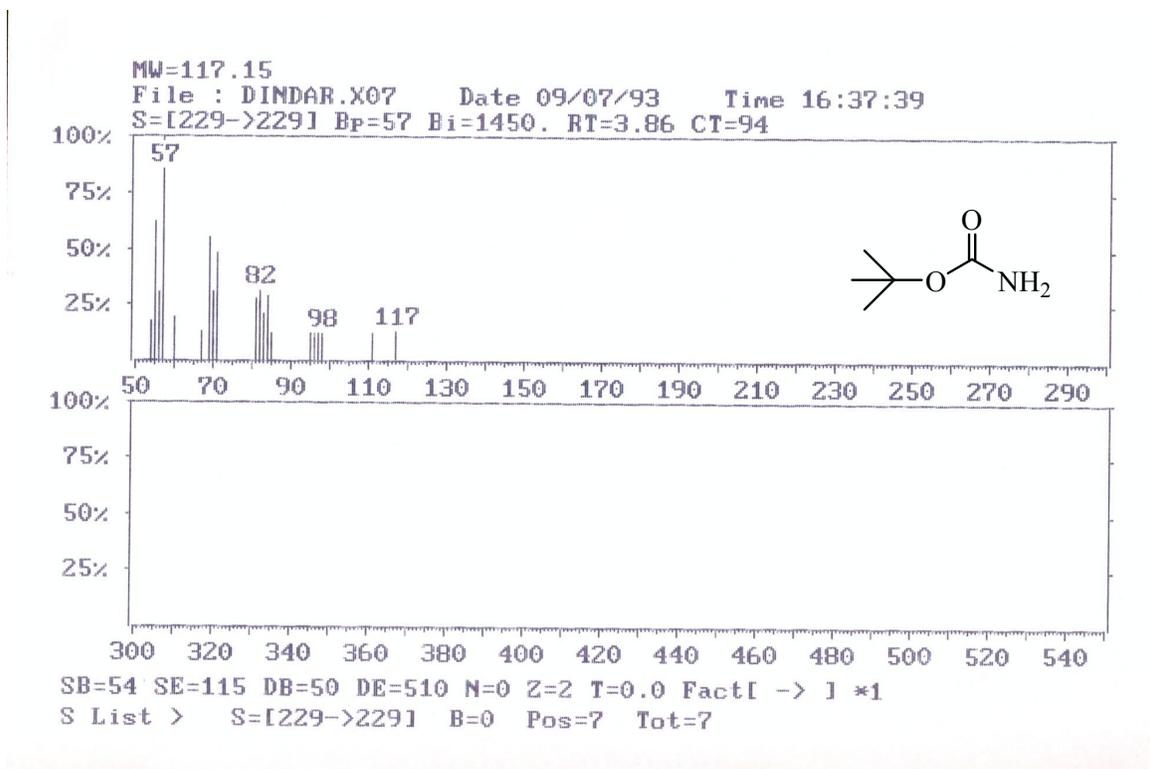


Figure S88. MS of *tert*-Butyl carbamate

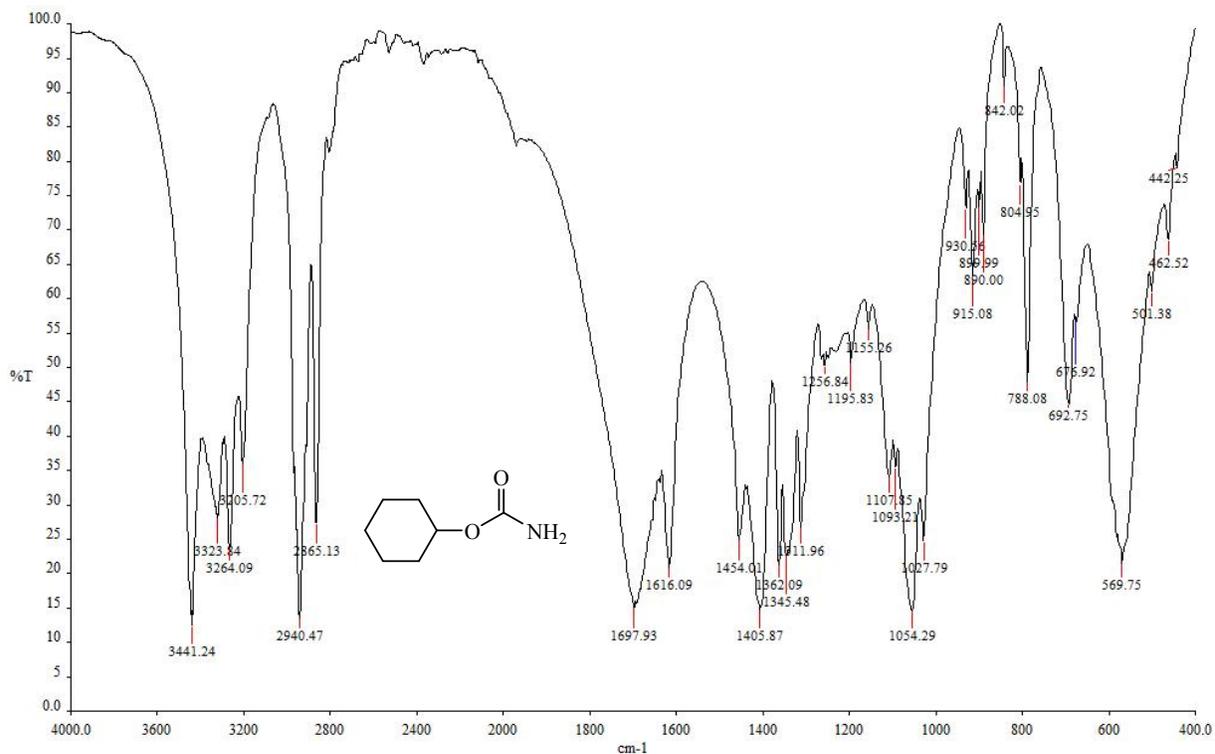
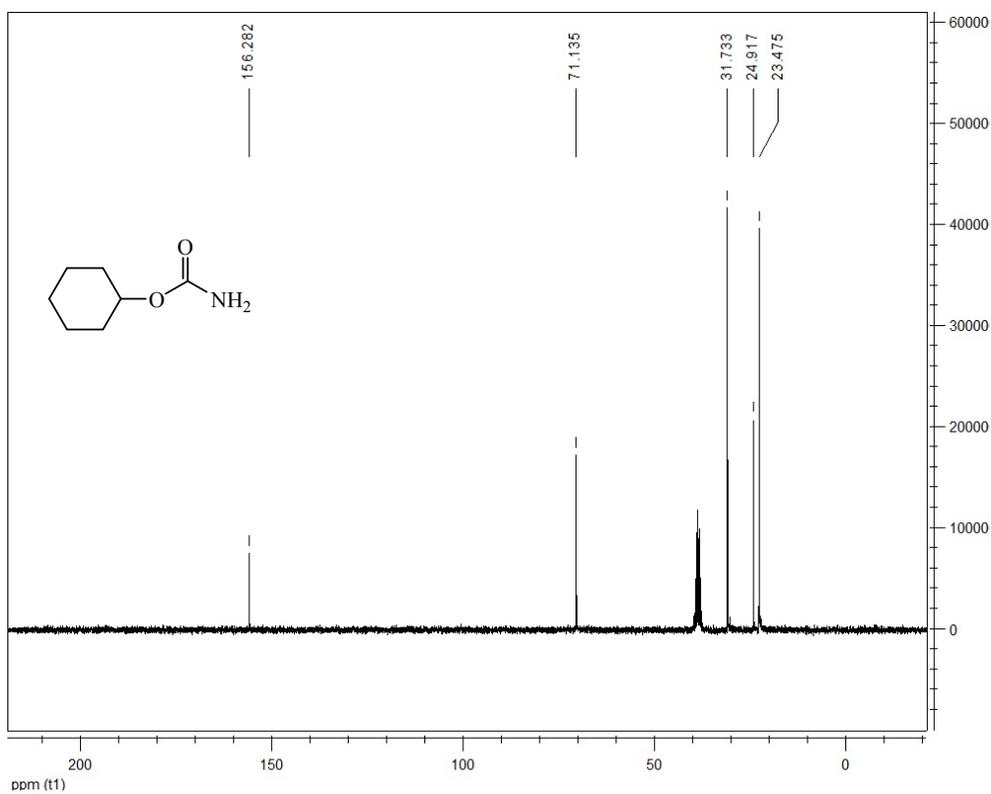
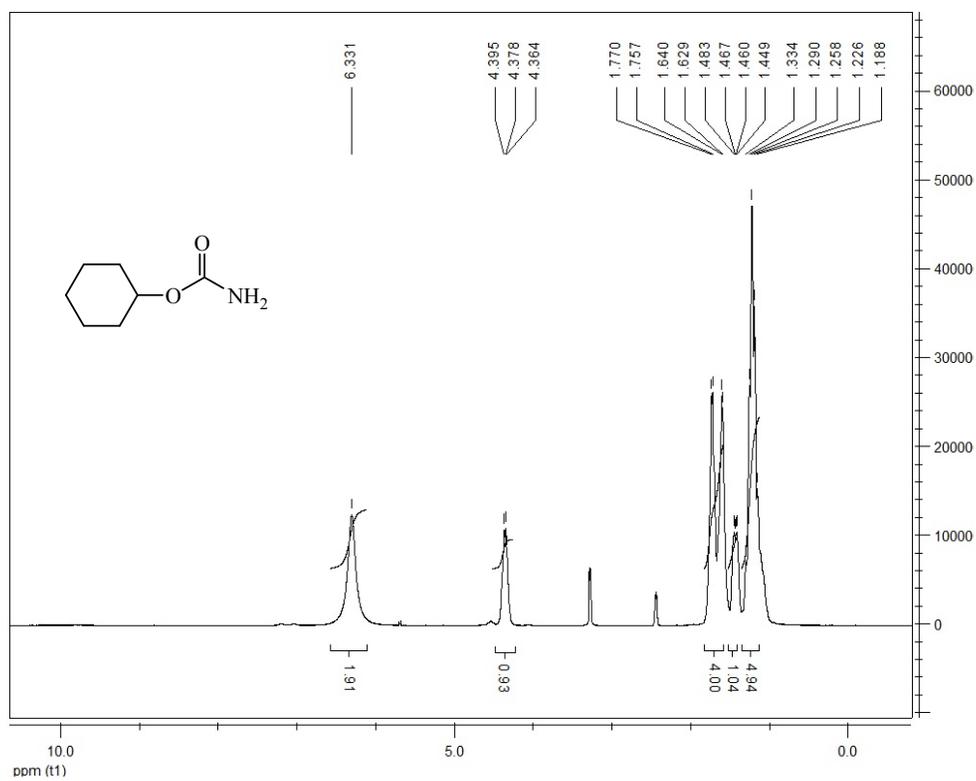


Figure S89. FT-IR spectra of Cyclohexyl carbamate in KBr



**Figure S90.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Cyclohexyl carbamate in  $\text{DMSO-}d_6$



**Figure S91.**  $^1\text{H}$ -NMR spectra (250 MHz) of Cyclohexyl carbamate in  $\text{DMSO-}d_6$

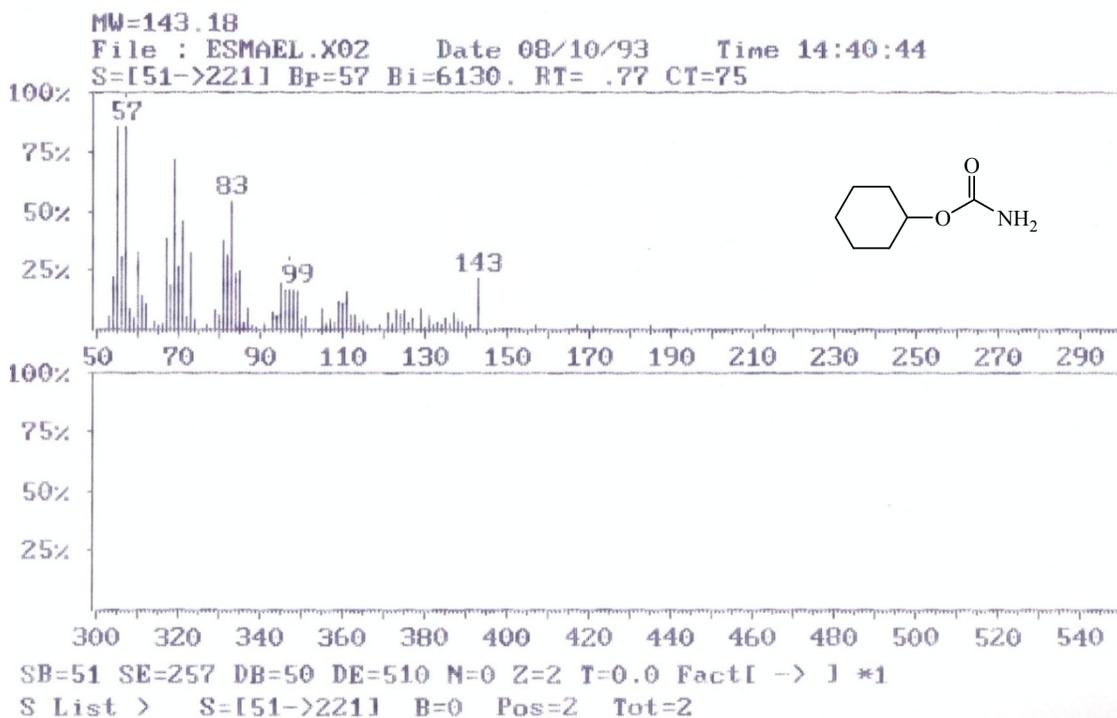


Figure S92. MS of Cyclohexyl carbamate

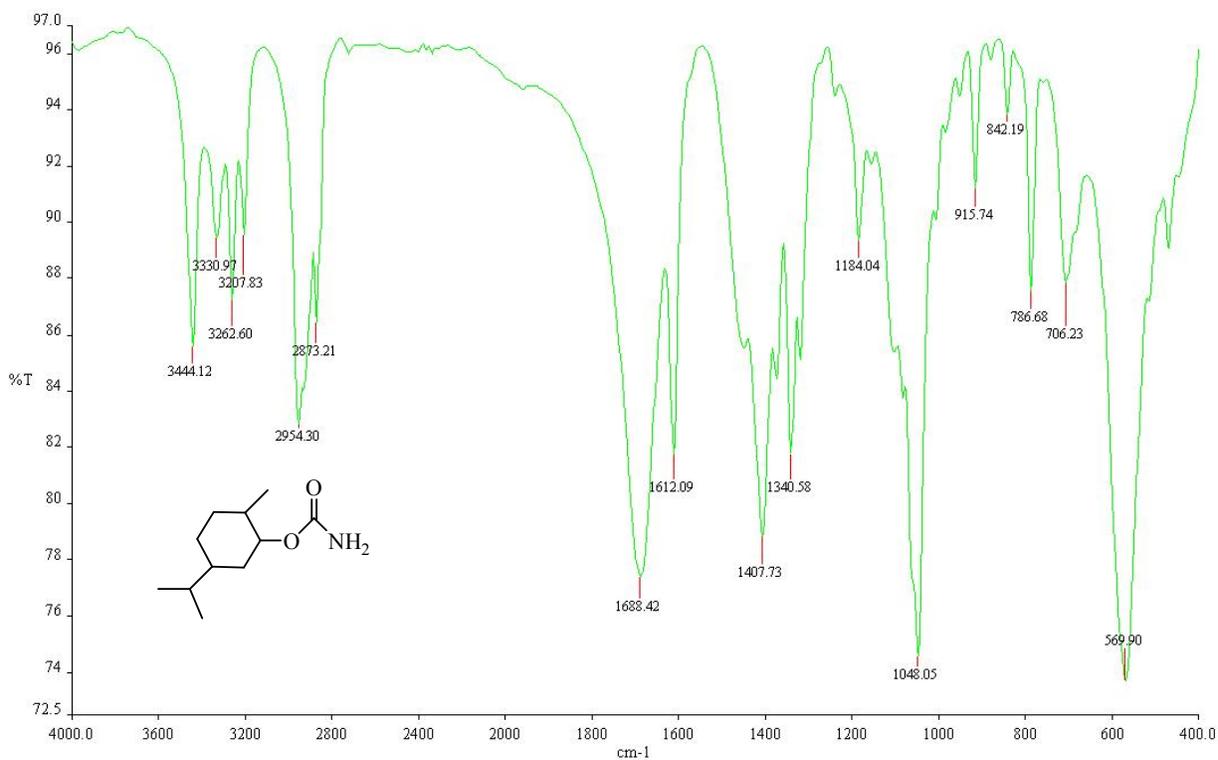
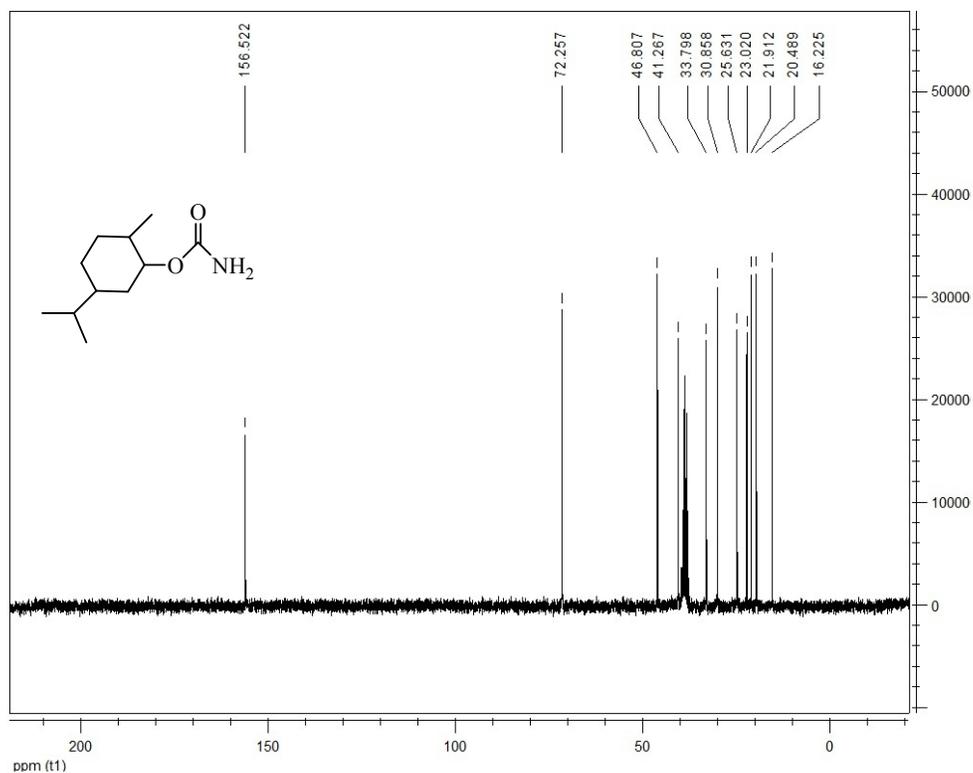
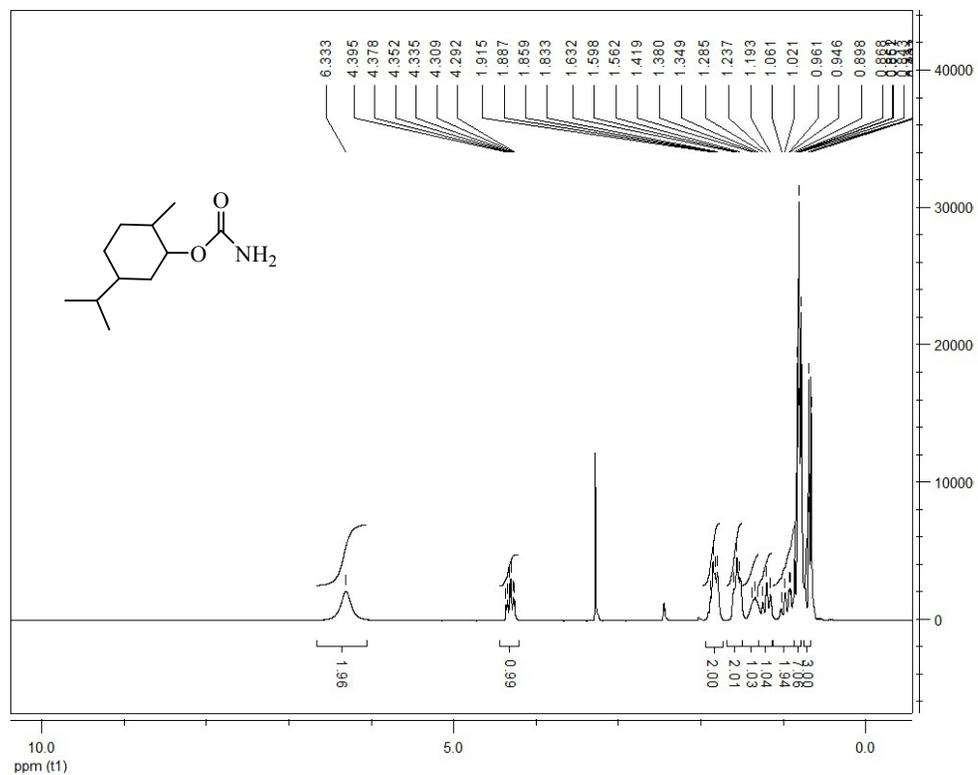


Figure S93. FT-IR spectra of (-)Menthyl carbamate in KBr



**Figure S94.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of (-)-Menthyl carbamate in  $\text{DMSO-}d_6$



**Figure S95.**  $^1\text{H}$ -NMR spectra (250 MHz) of (-)-Menthyl carbamate in  $\text{DMSO-}d_6$

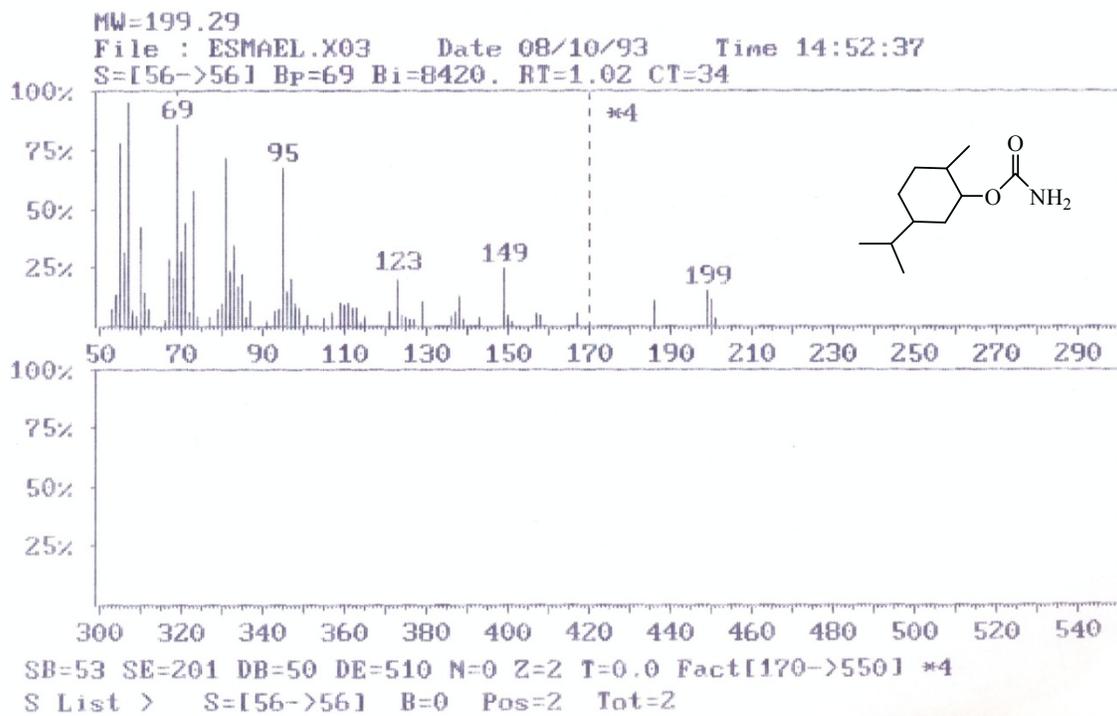


Figure S96. MS of (-)Menthyl carbamate

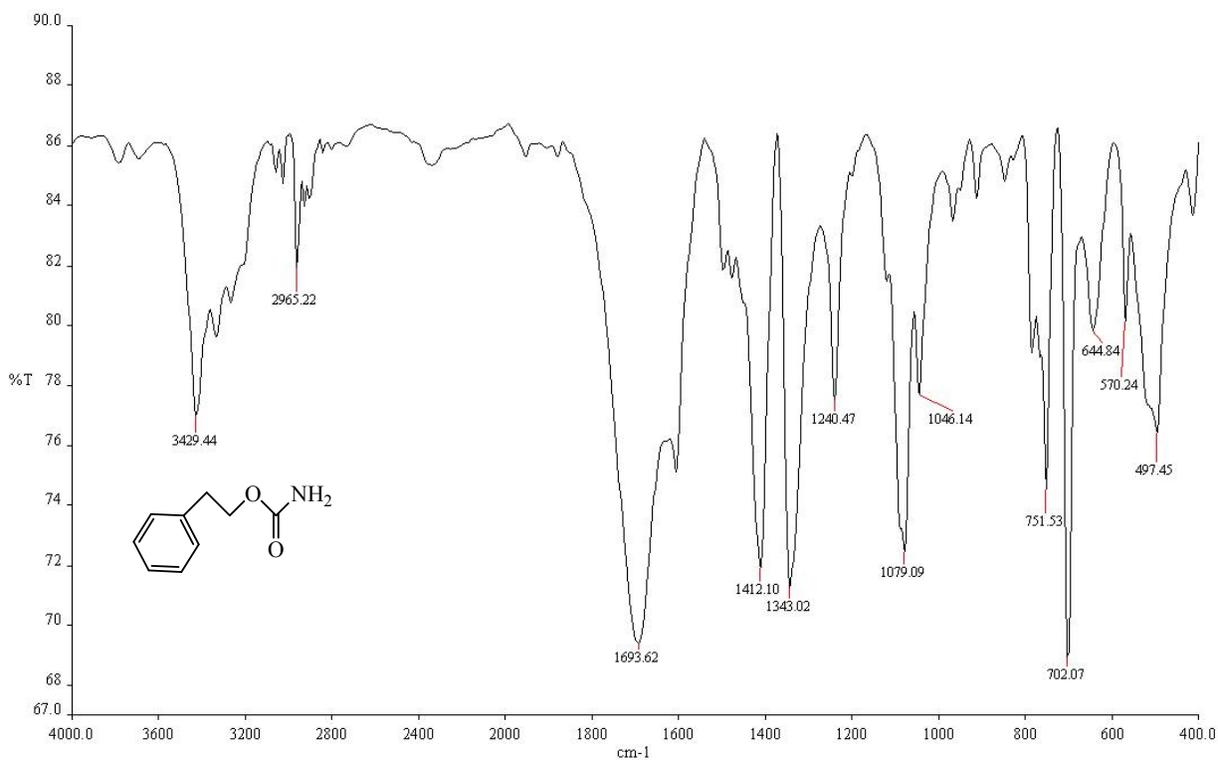


Figure S97. FT-IR spectra of 2-Phenethyl carbamate in KBr

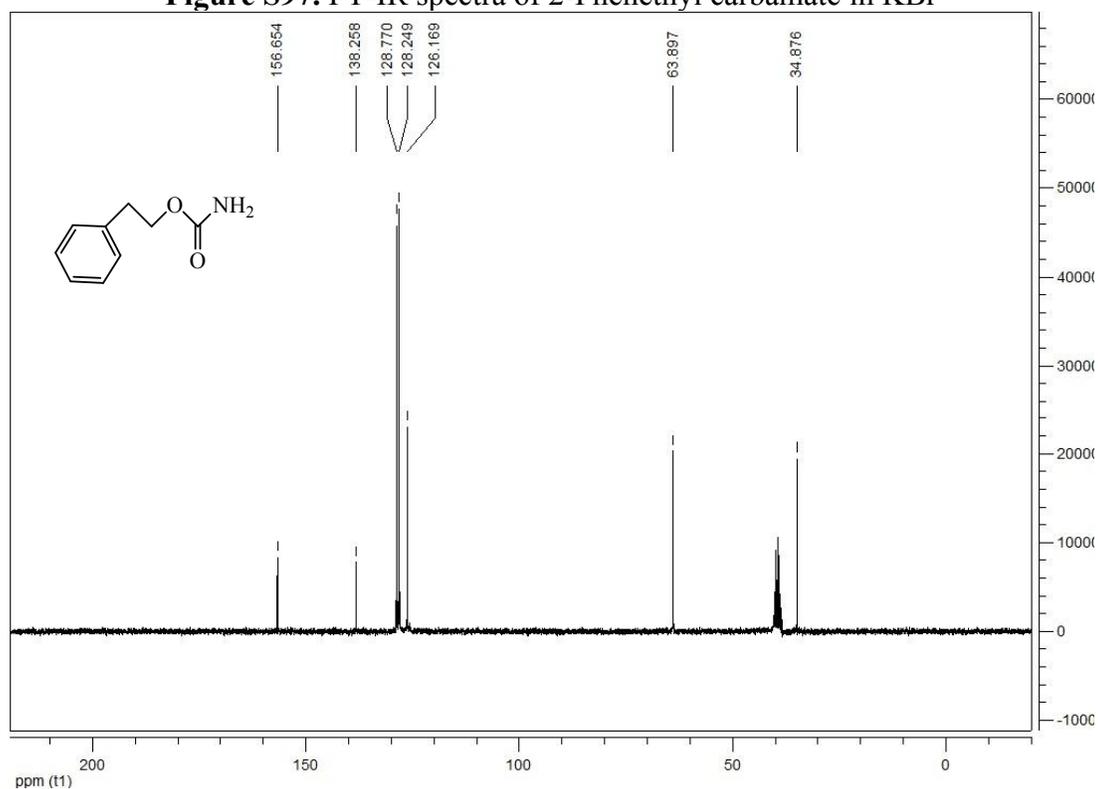
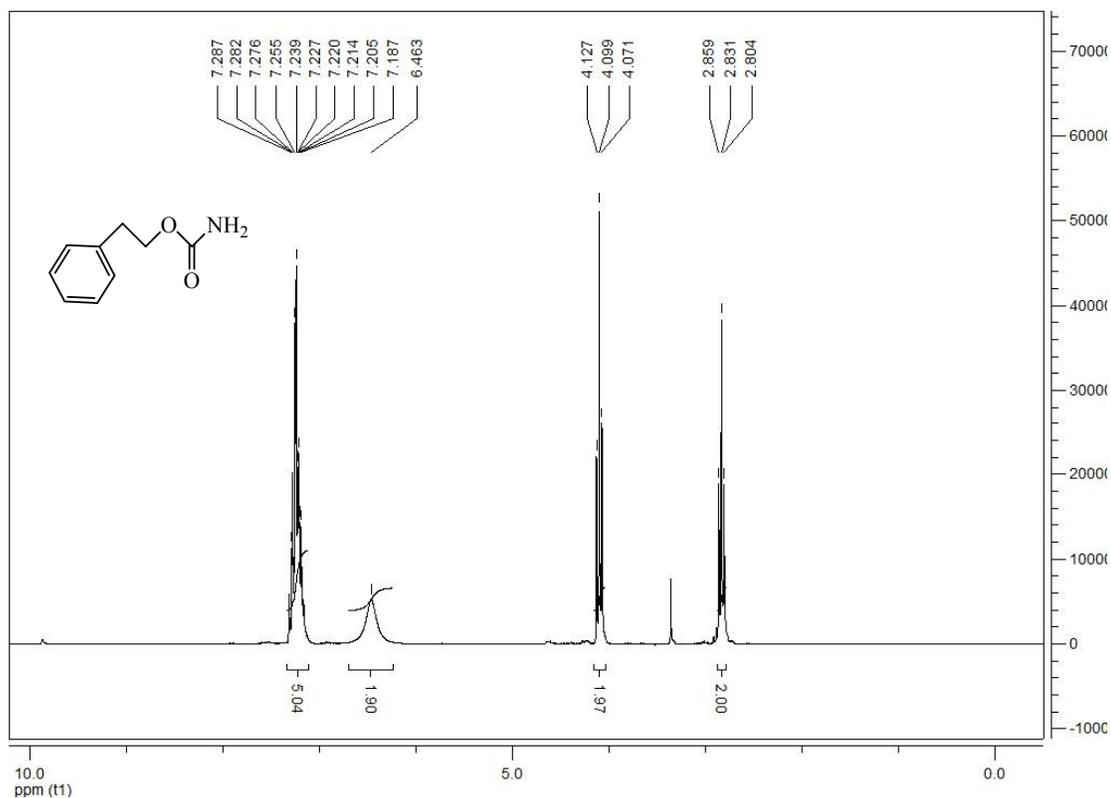
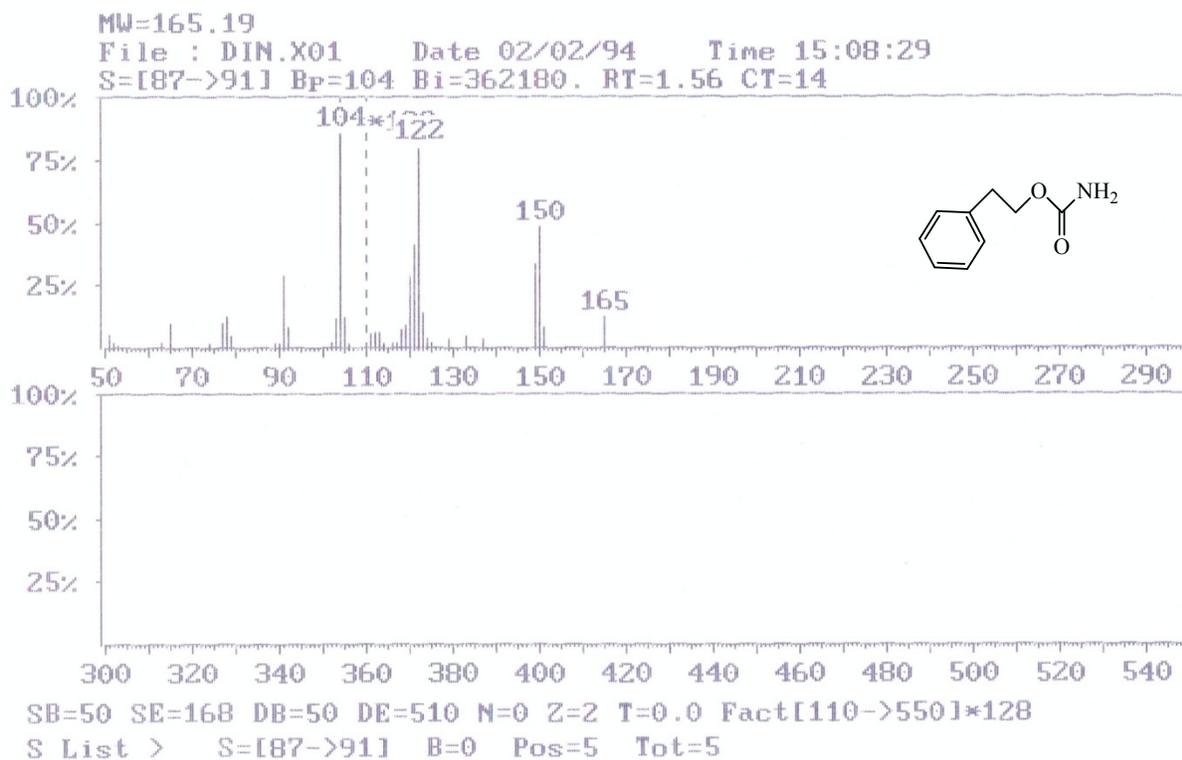


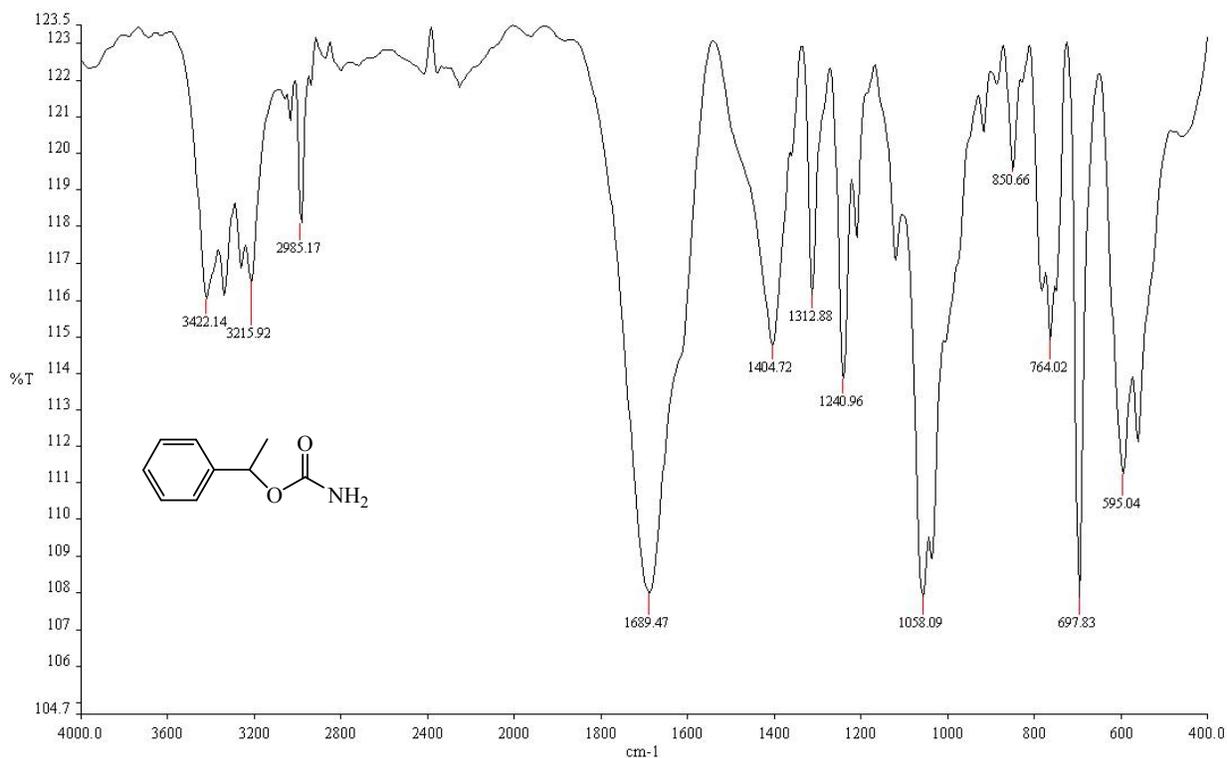
Figure S98. <sup>13</sup>C-NMR spectra (63 MHz) of 2-Phenethyl carbamate in DMSO-*d*<sub>6</sub>



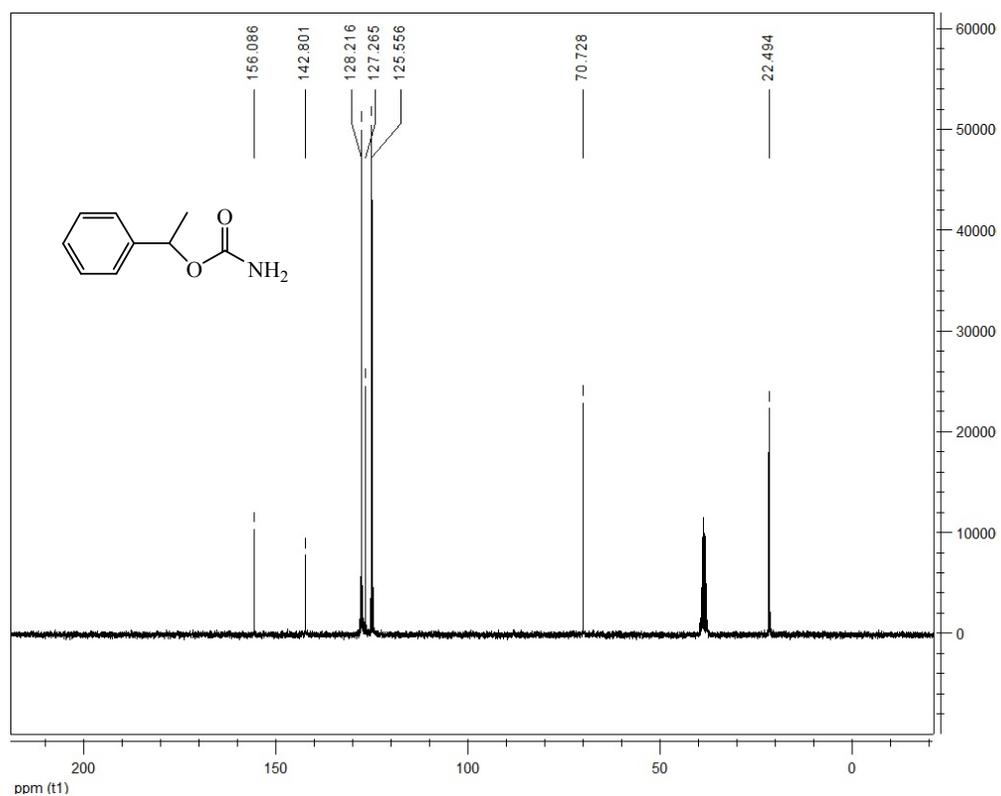
**Figure S99.**  $^1\text{H-NMR}$  spectra (250 MHz) of 2-Phenethyl carbamate in  $\text{DMSO-}d_6$



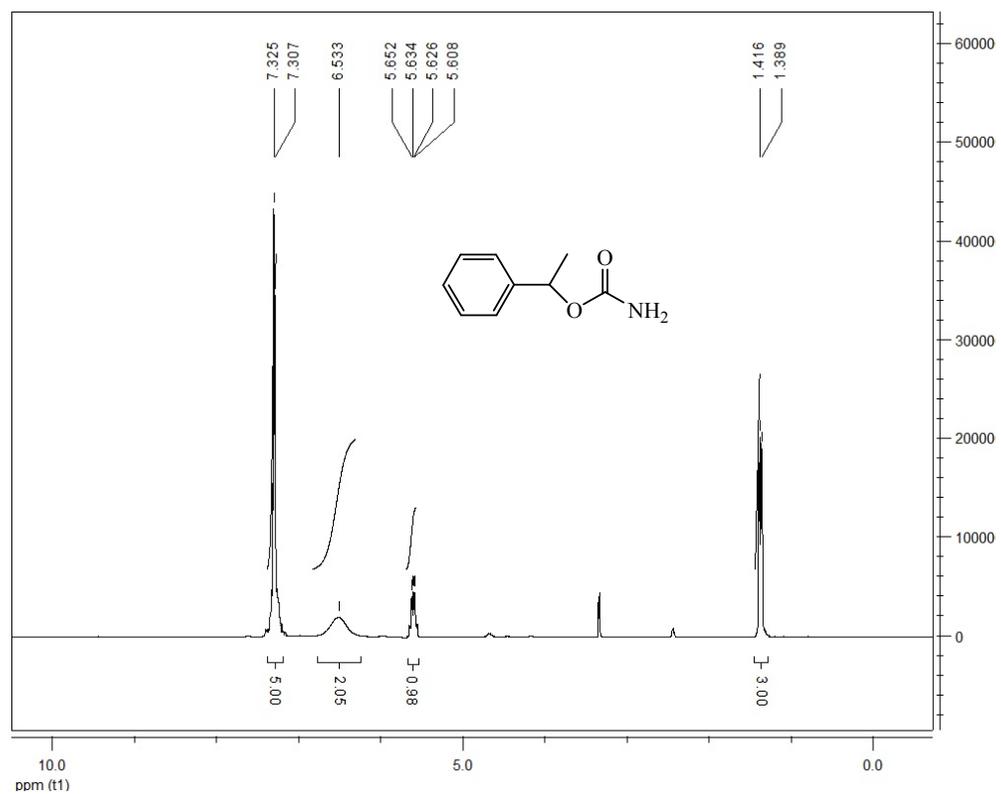
**Figure S100.** MS of 2-Phenethyl carbamate



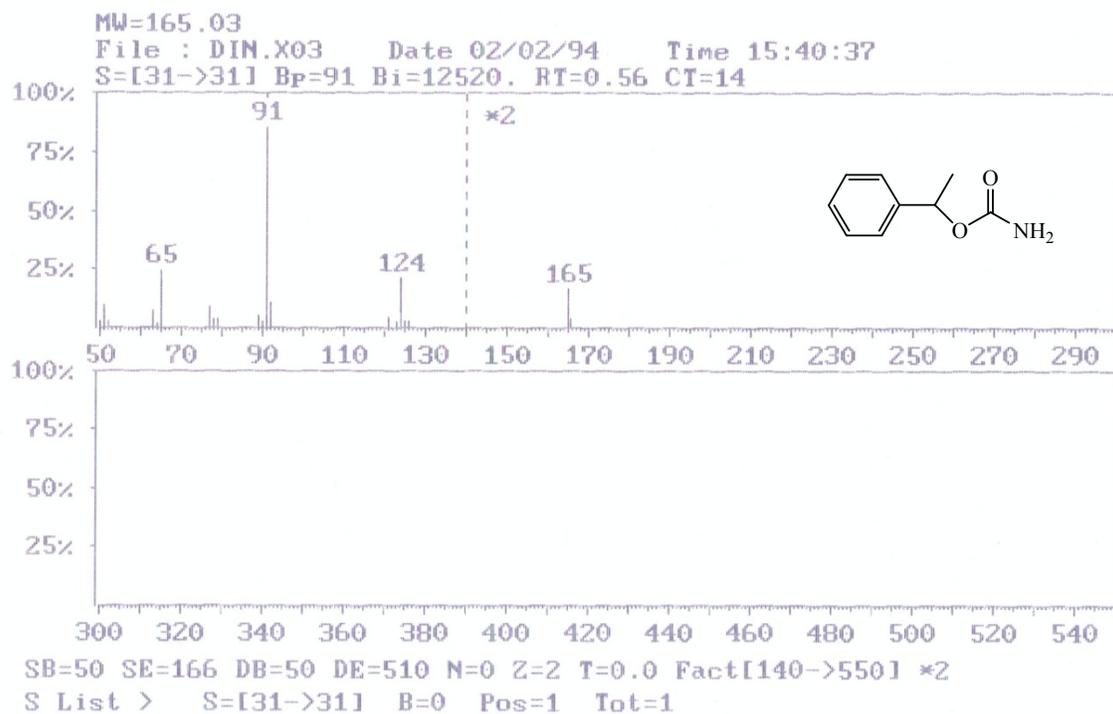
**Figure S101.** FT-IR spectra of 1-Phenethyl carbamate in KBr



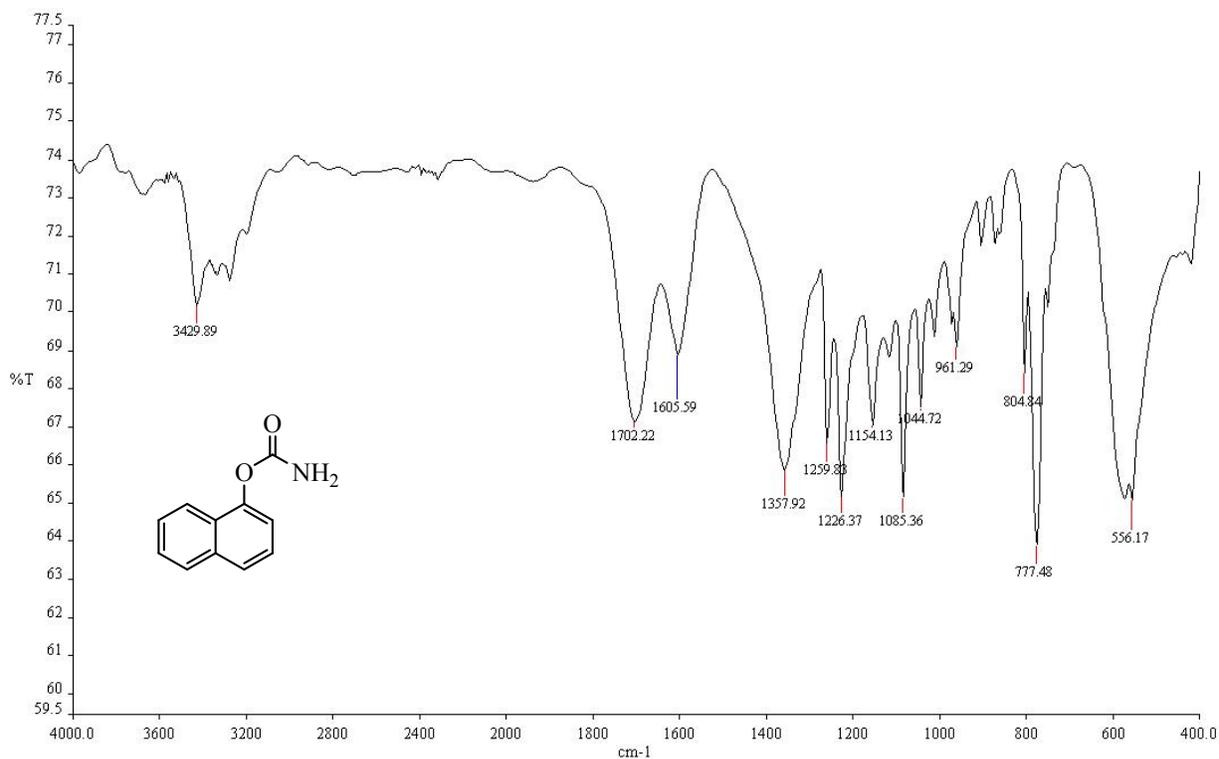
**Figure S102.** <sup>13</sup>C-NMR spectra (63 MHz) of 1-Phenethyl carbamate in DMSO-*d*<sub>6</sub>



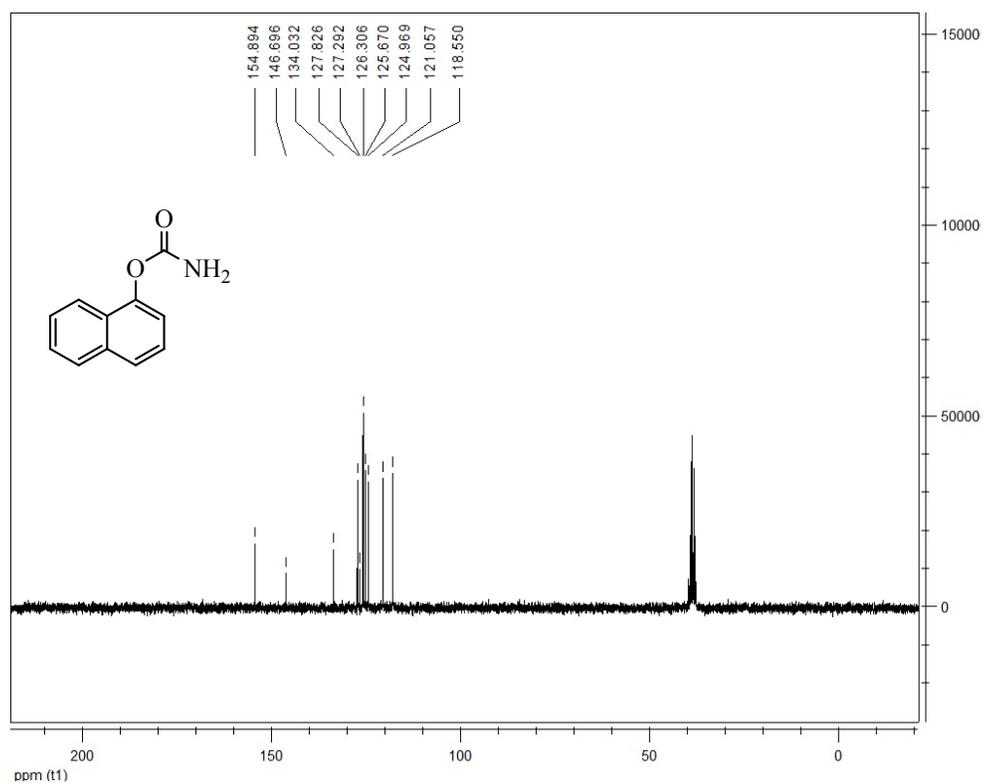
**Figure S103.**  $^1\text{H-NMR}$  spectra (250 MHz) of 1-Phenethyl carbamate in  $\text{DMSO-}d_6$



**Figure S104.** MS of 1-Phenethyl carbamate



**Figure S105.** FT-IR spectra of Naphthalen-1-yl carbamate in KBr



**Figure S106.** <sup>13</sup>C-NMR spectra (63 MHz) of Naphthalen-1-yl carbamate in DMSO-*d*<sub>6</sub>

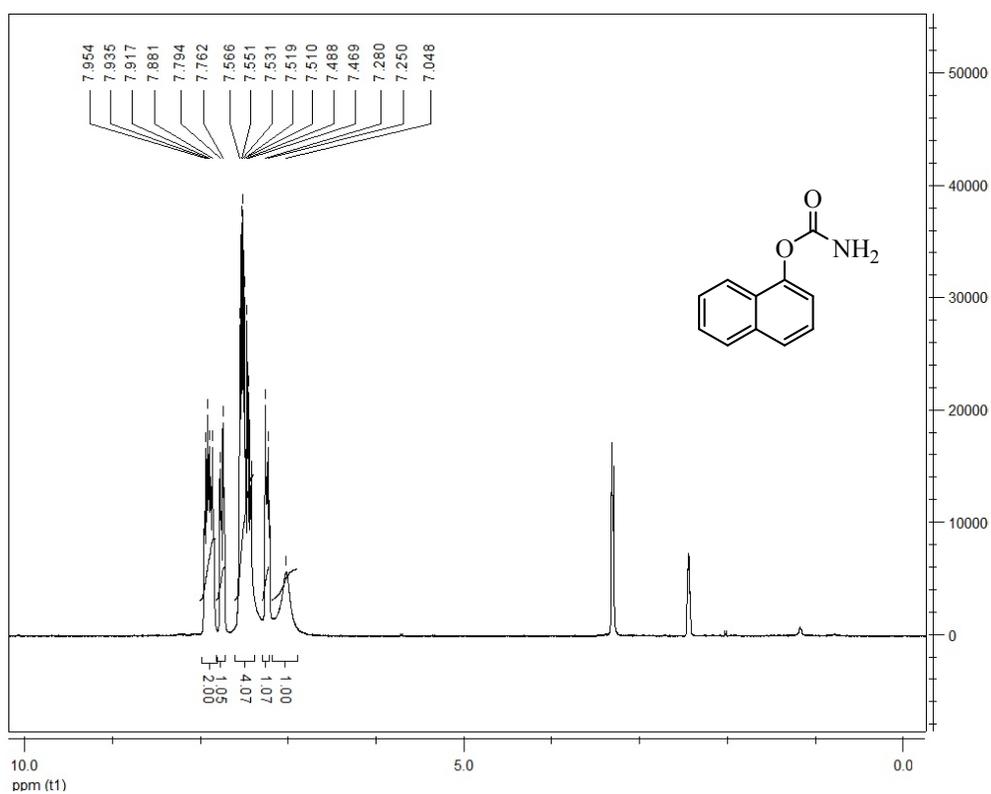


Figure S107. <sup>1</sup>H-NMR spectra (250 MHz) of Naphthalen-1-yl carbamate in DMSO-*d*<sub>6</sub>

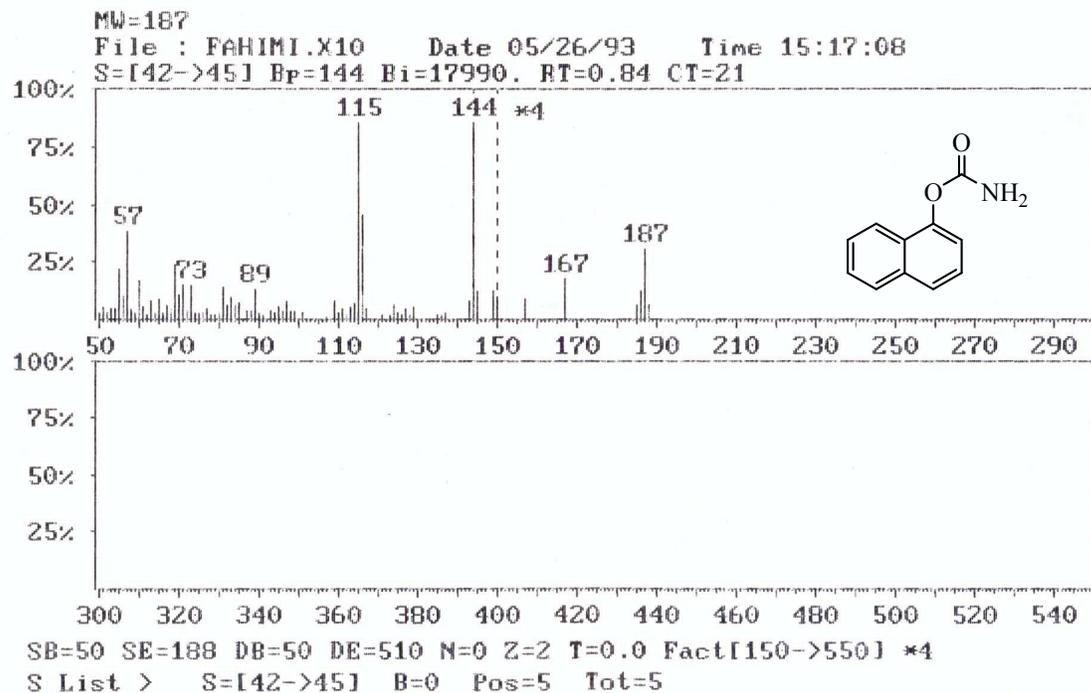
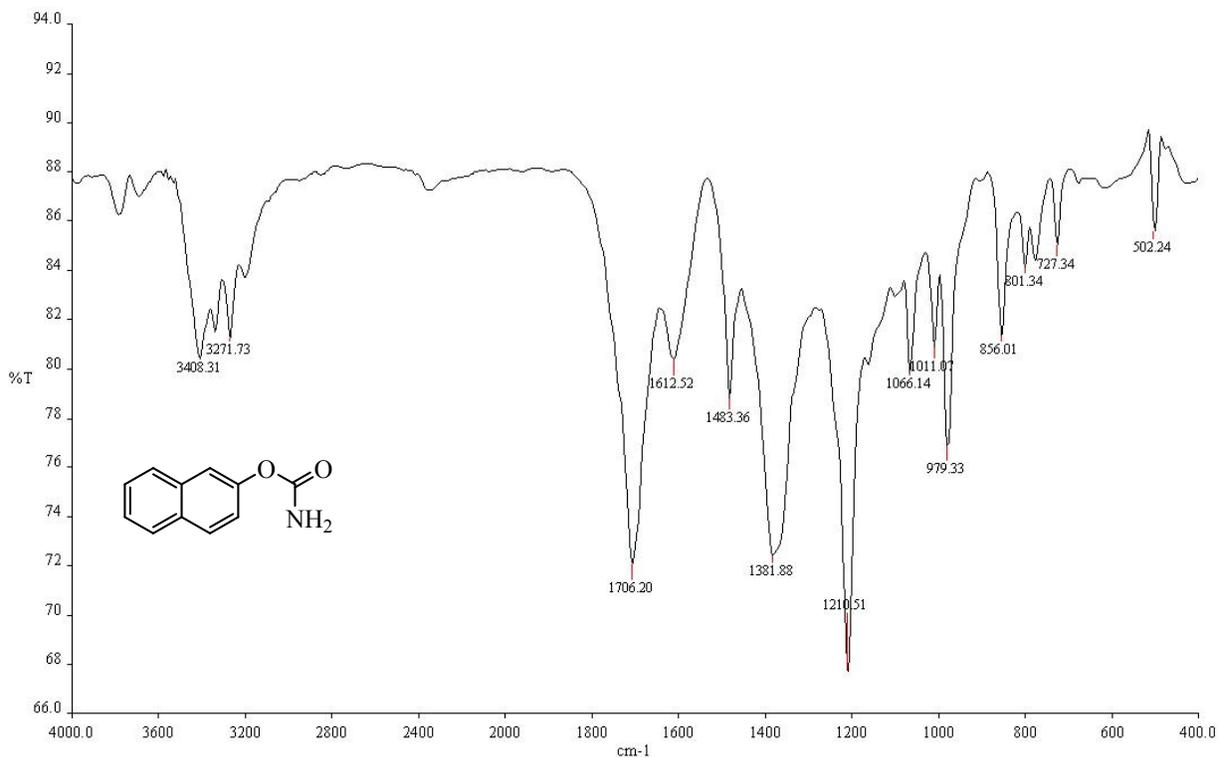
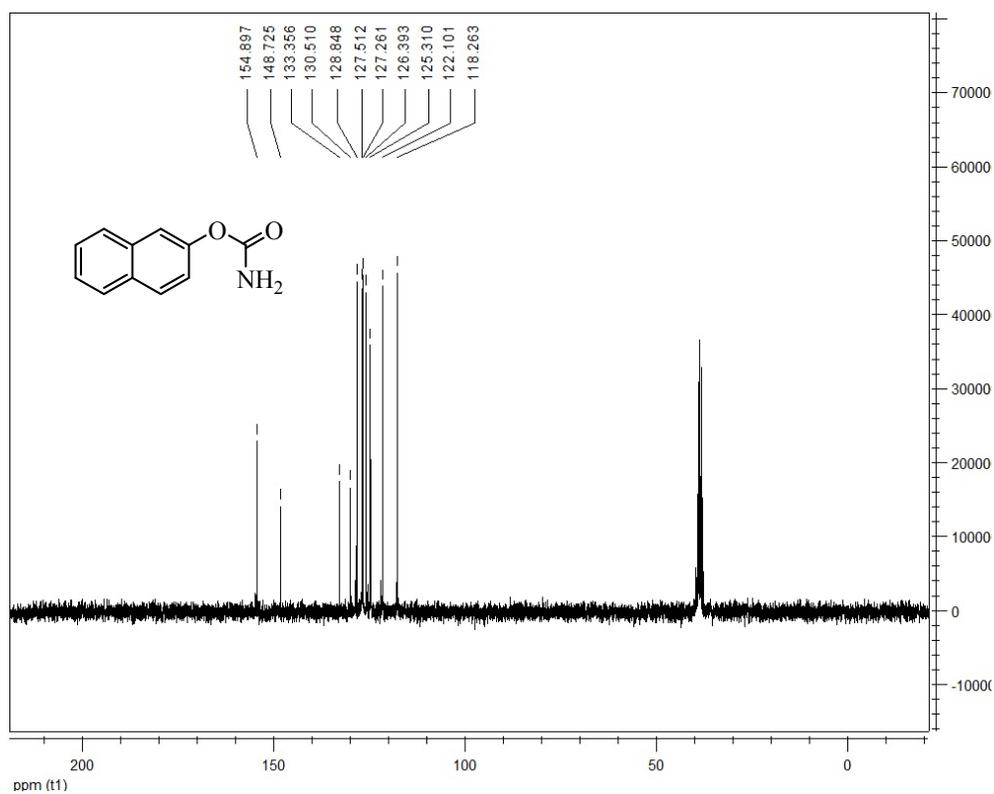


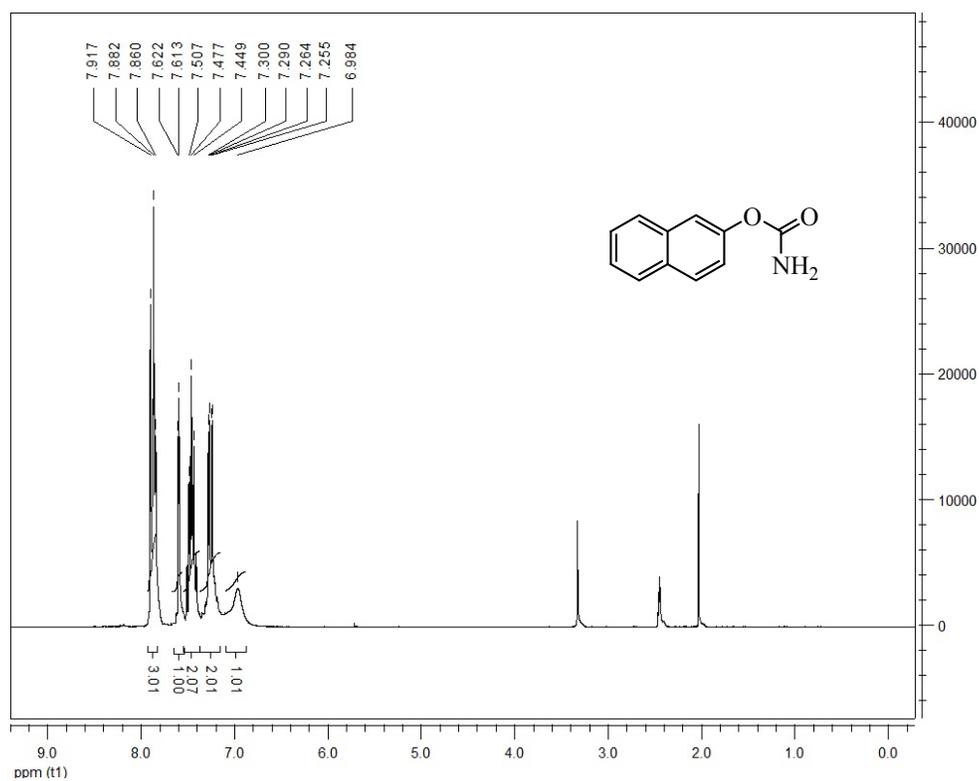
Figure S108. MS of Naphthalen-1-yl carbamate



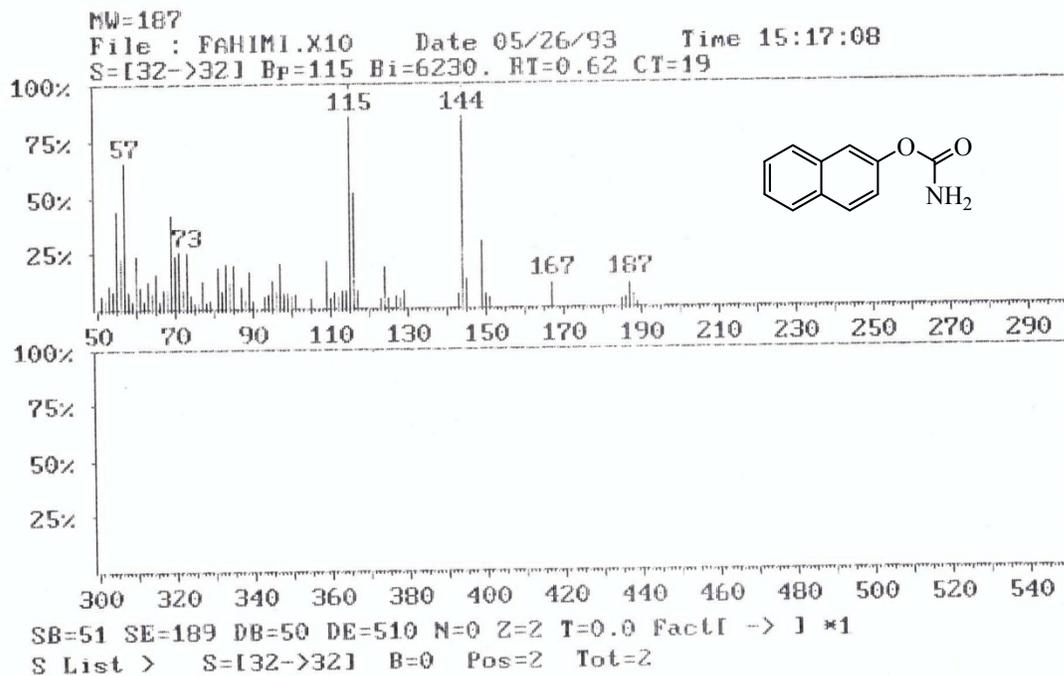
**Figure S109.** FT-IR spectra of Naphthalen-2-yl carbamate in KBr



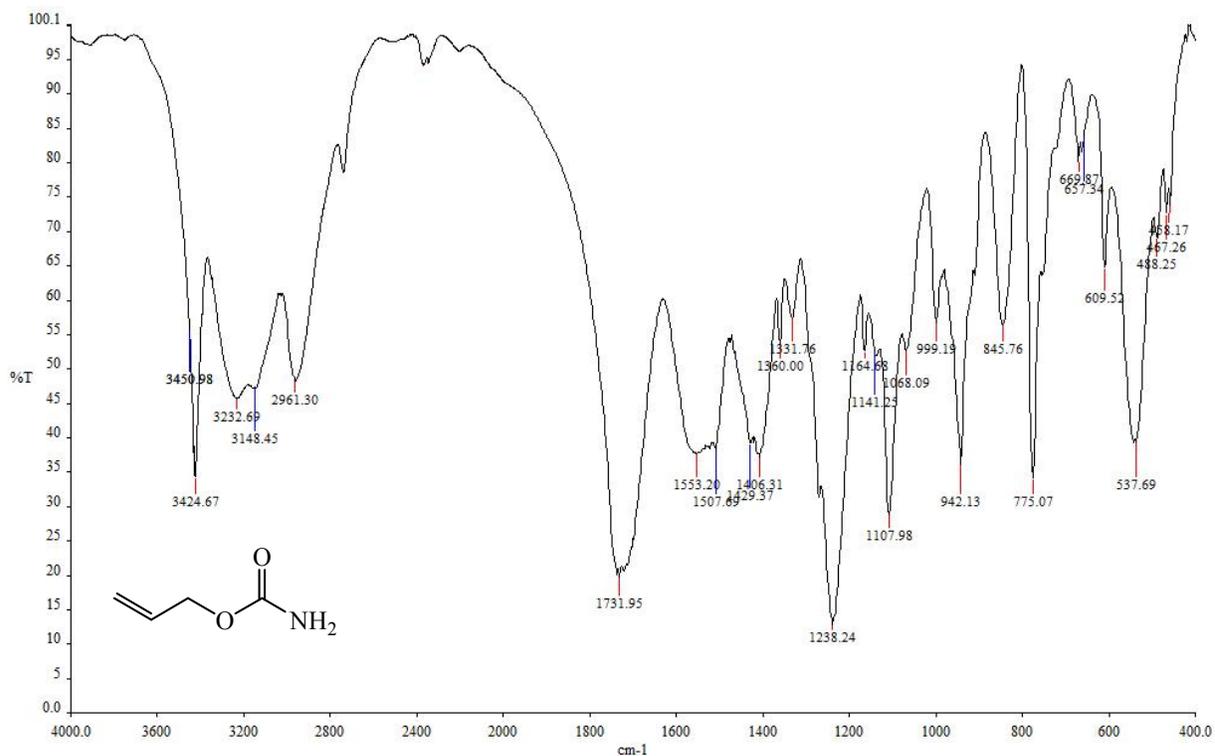
**Figure S110.** <sup>13</sup>C-NMR spectra (63 MHz) of Naphthalen-2-yl carbamate in DMSO-*d*<sub>6</sub>



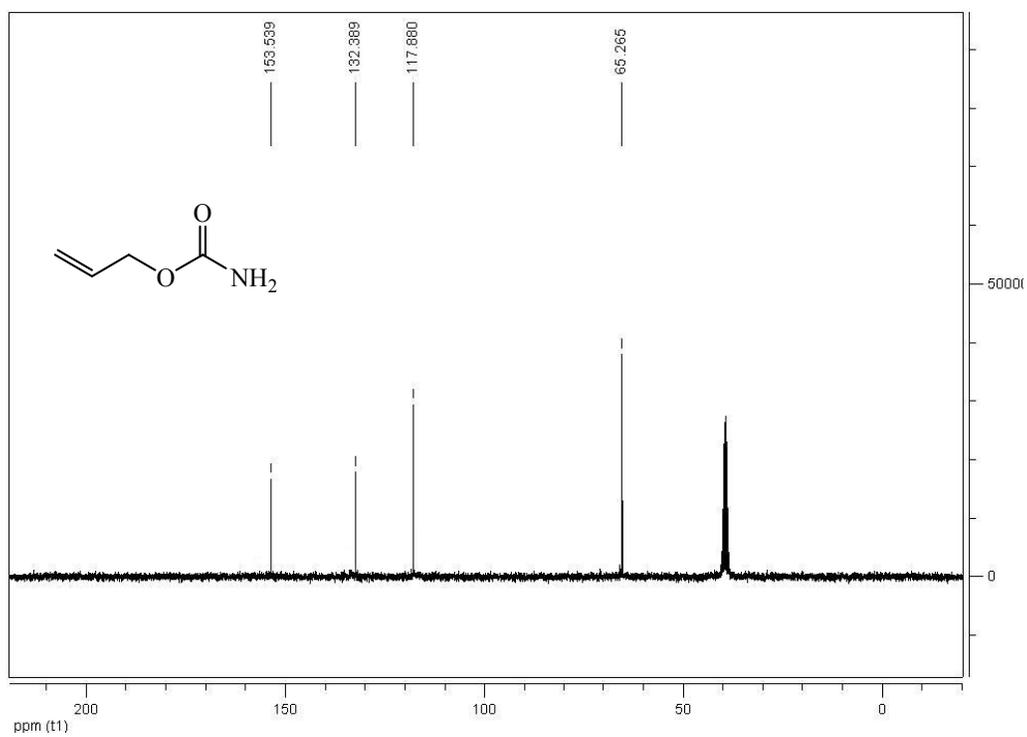
**Figure S111.**  $^1\text{H-NMR}$  spectra (250 MHz) of Naphthalen-2-yl carbamate in  $\text{DMSO-}d_6$



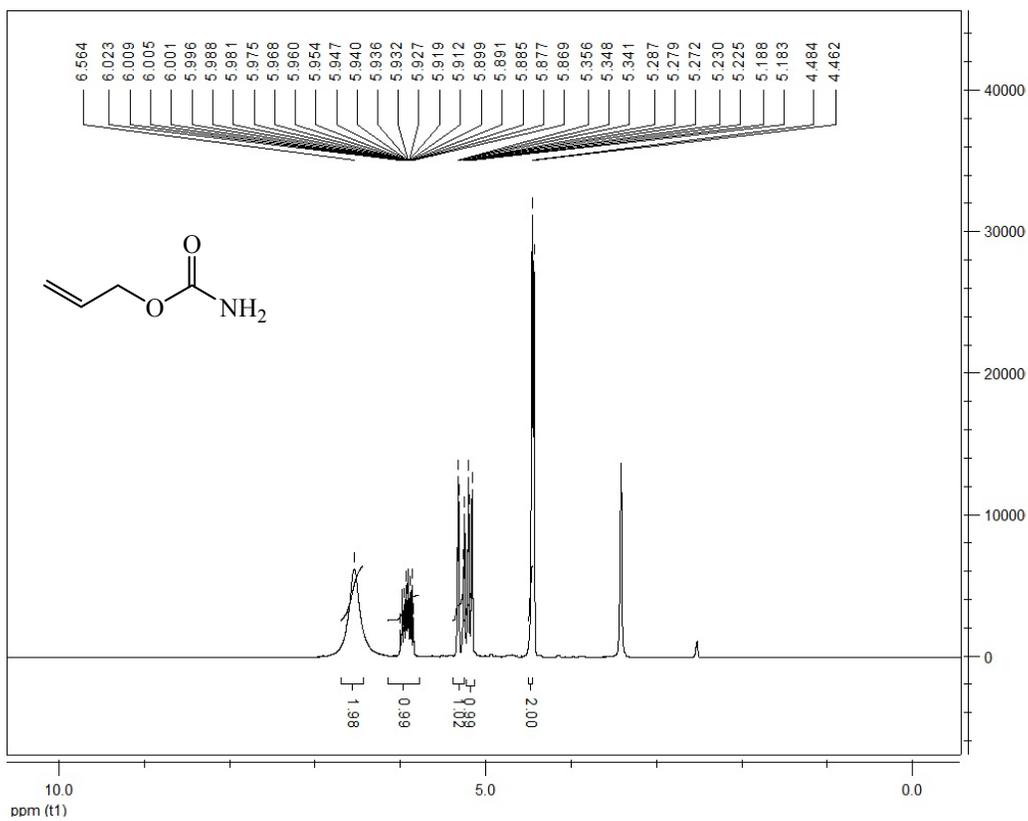
**Figure S112.** MS of Naphthalen-2-yl carbamate



**Figure S113.** FT-IR spectra of Allyl carbamate in KBr



**Figure S114.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Allyl carbamate in  $\text{DMSO-}d_6$



**Figure S115.**  $^1\text{H}$ -NMR spectra (250 MHz) of Allyl carbamate in  $\text{DMSO-}d_6$

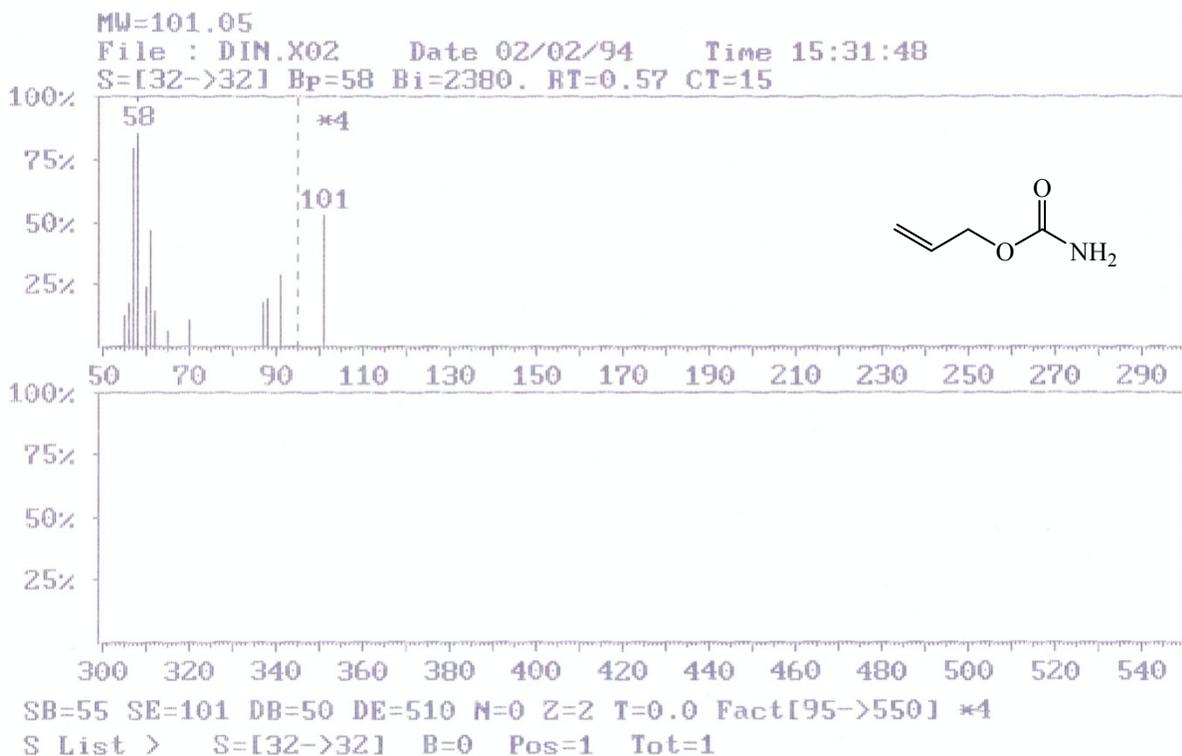


Figure S116. MS of Allyl carbamate

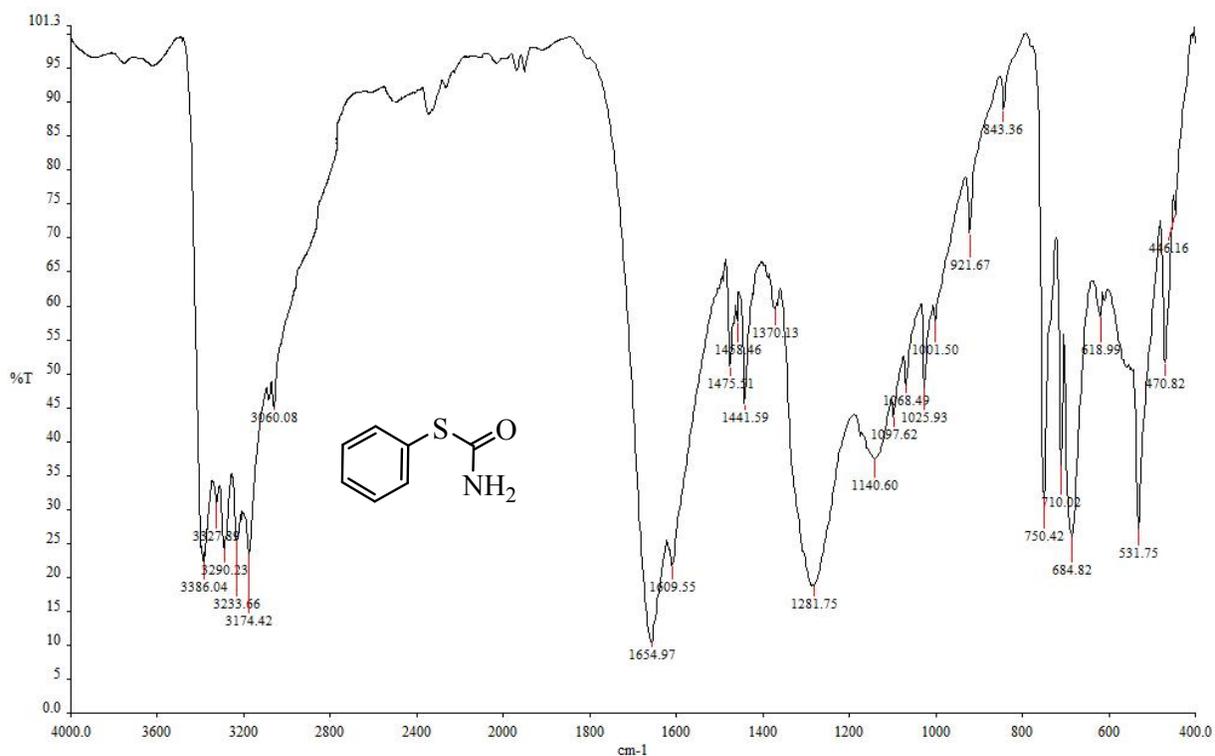
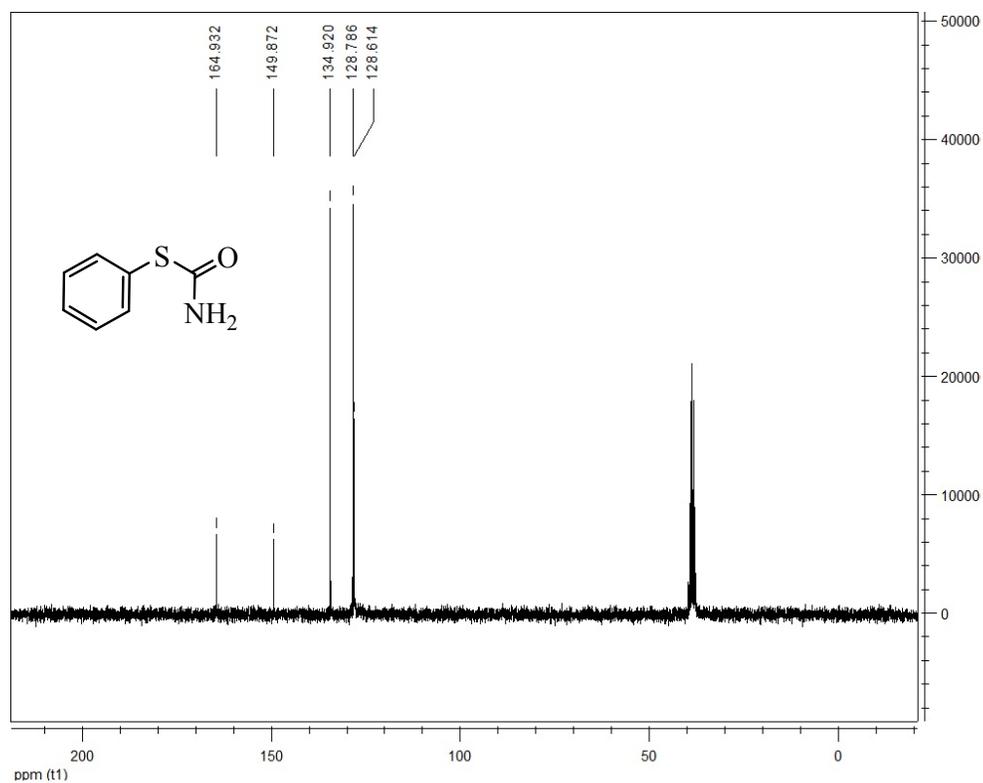
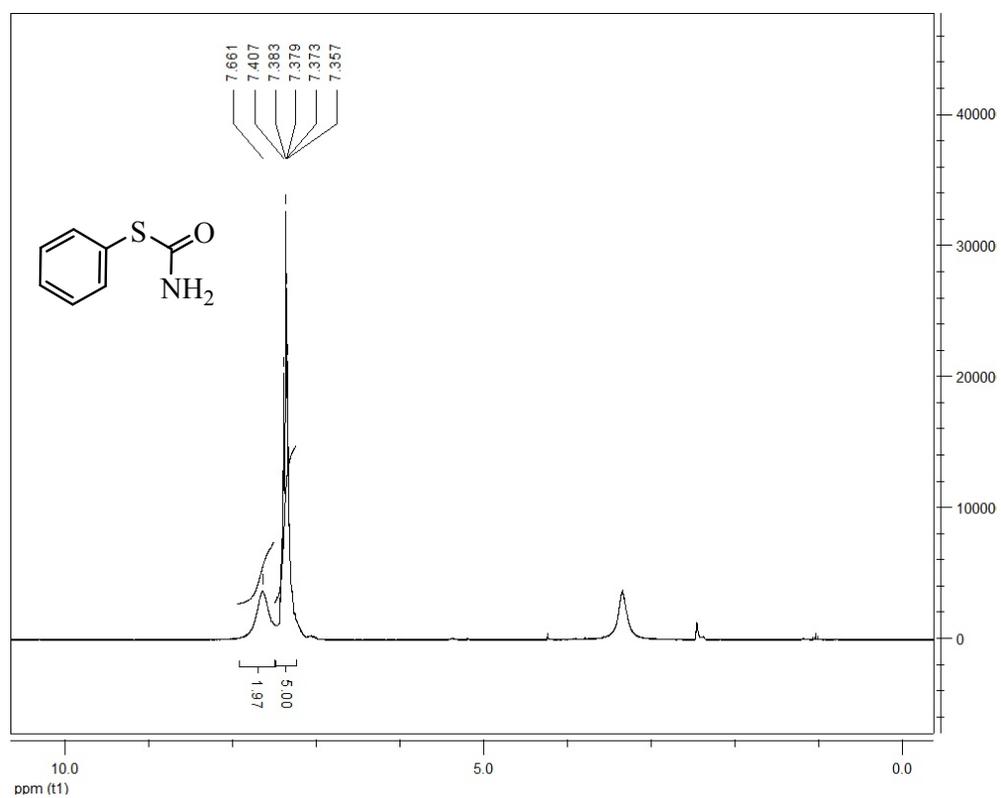


Figure S117. FT-IR spectra of Phenyl *S*-thiocarbamate in KBr



**Figure S118.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Phenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S119.**  $^1\text{H}$ -NMR spectra (250 MHz) of Phenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

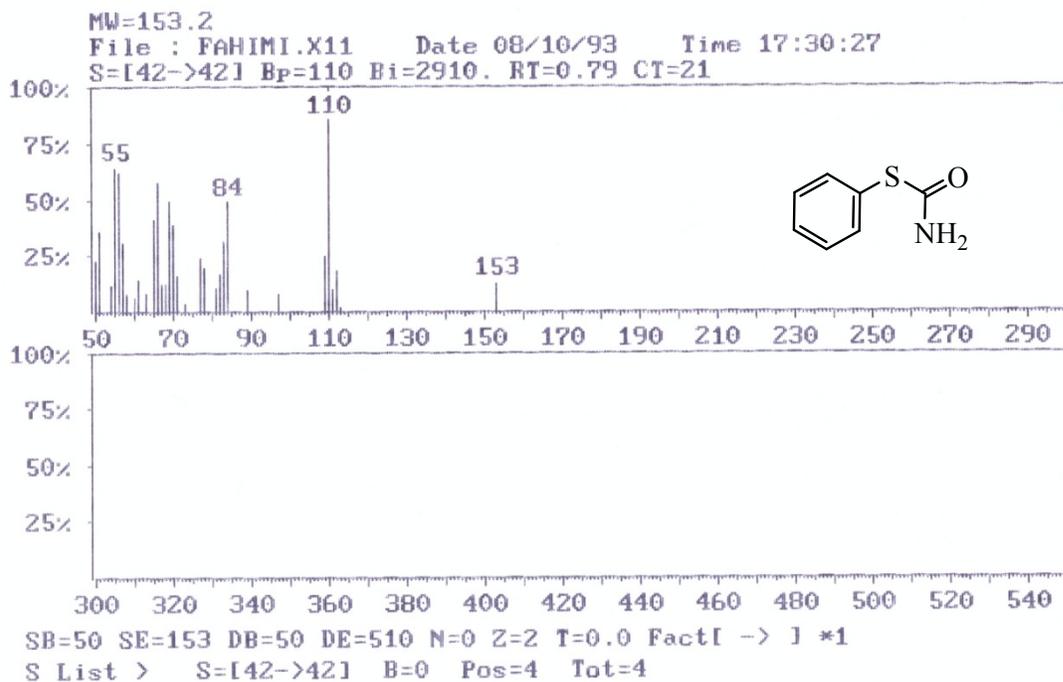


Figure S120. MS of Phenyl *S*-thiocarbamate

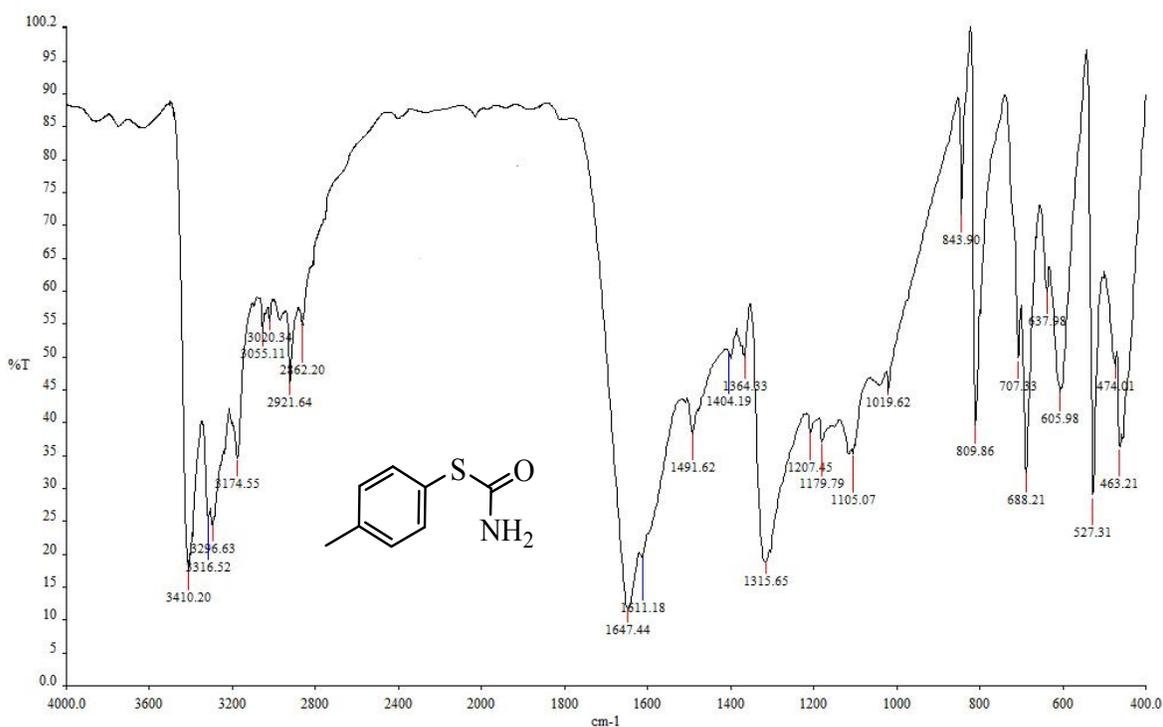
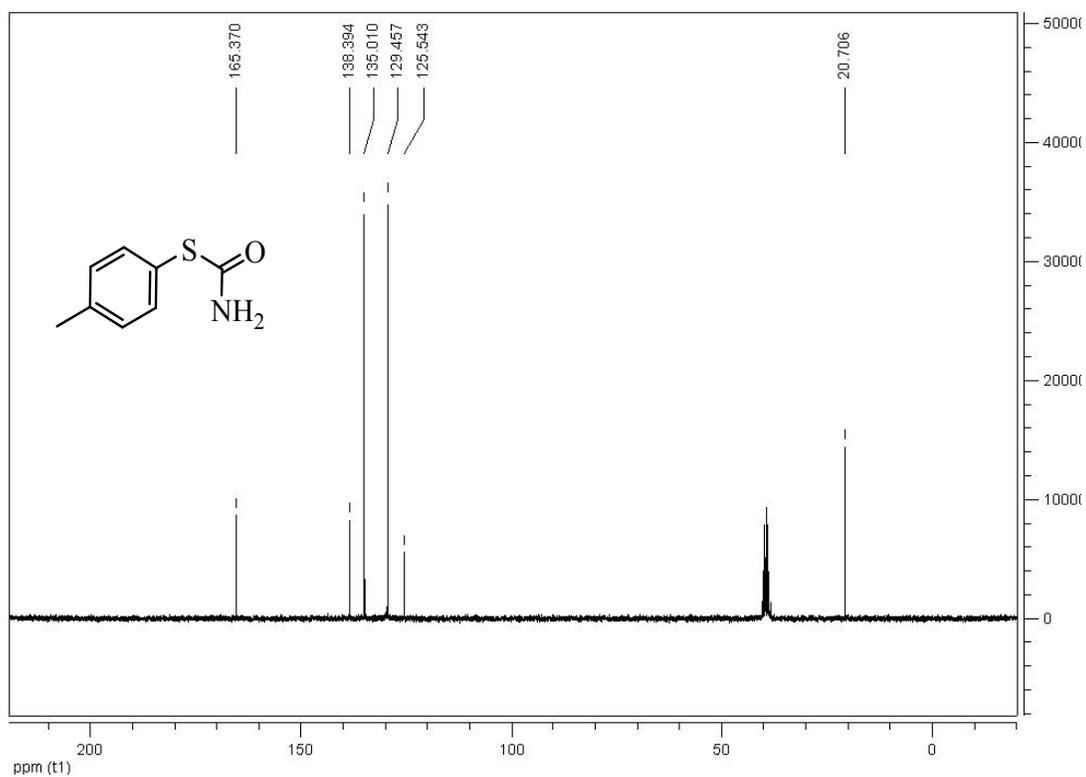
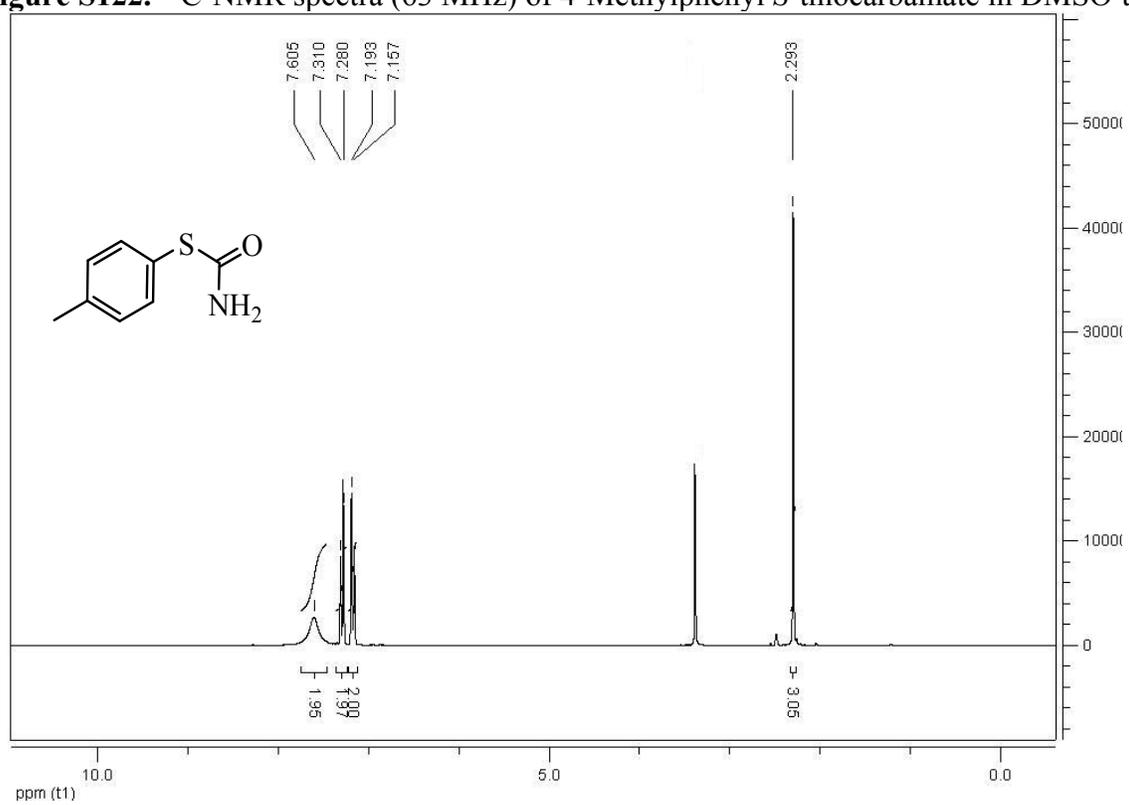


Figure S121. FT-IR spectra of 4-Methylphenyl *S*-thiocarbamate in KBr



**Figure S12.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Methylphenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S13.**  $^1\text{H}$ -NMR spectra (250 MHz) of 4-Methylphenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

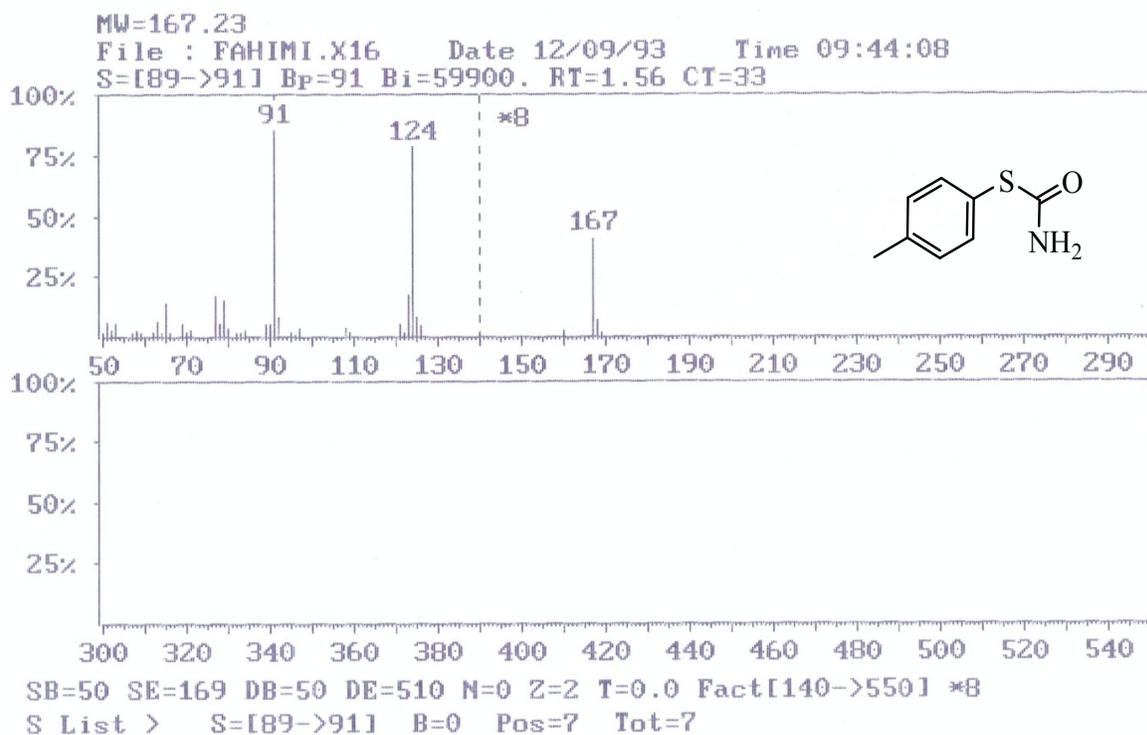


Figure S124. MS of 4-Methylphenyl *S*-thiocarbamate

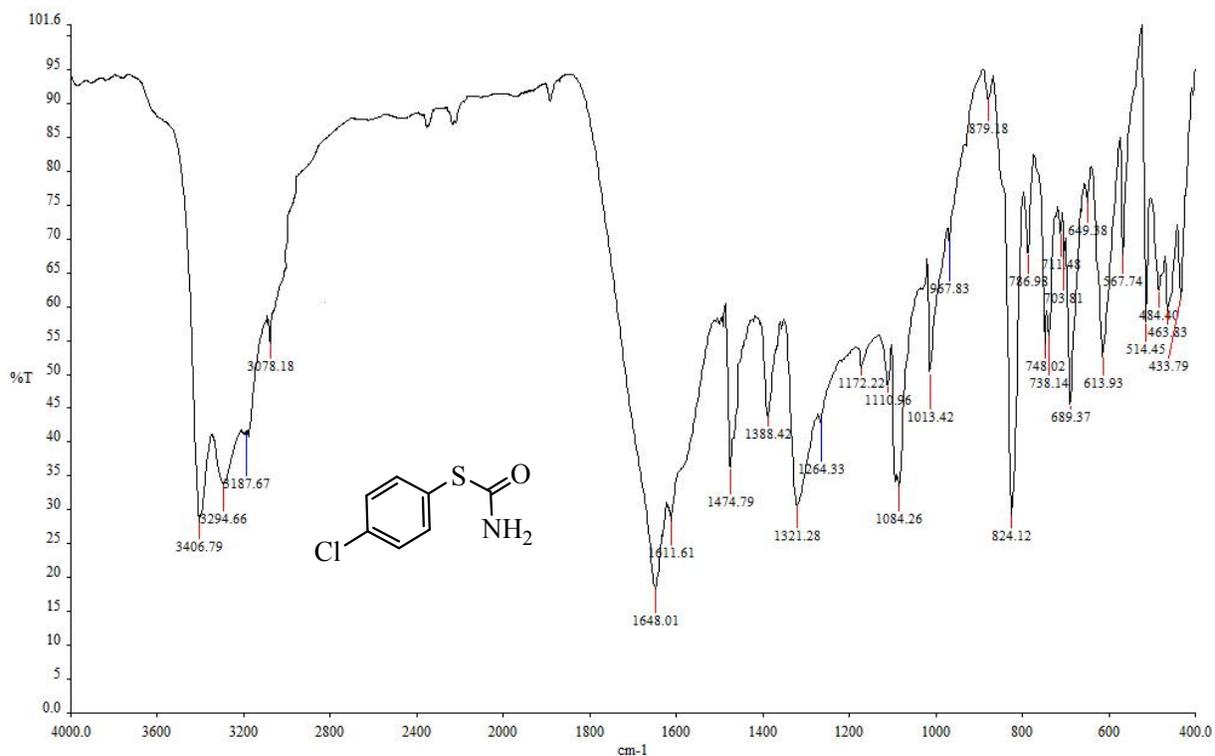
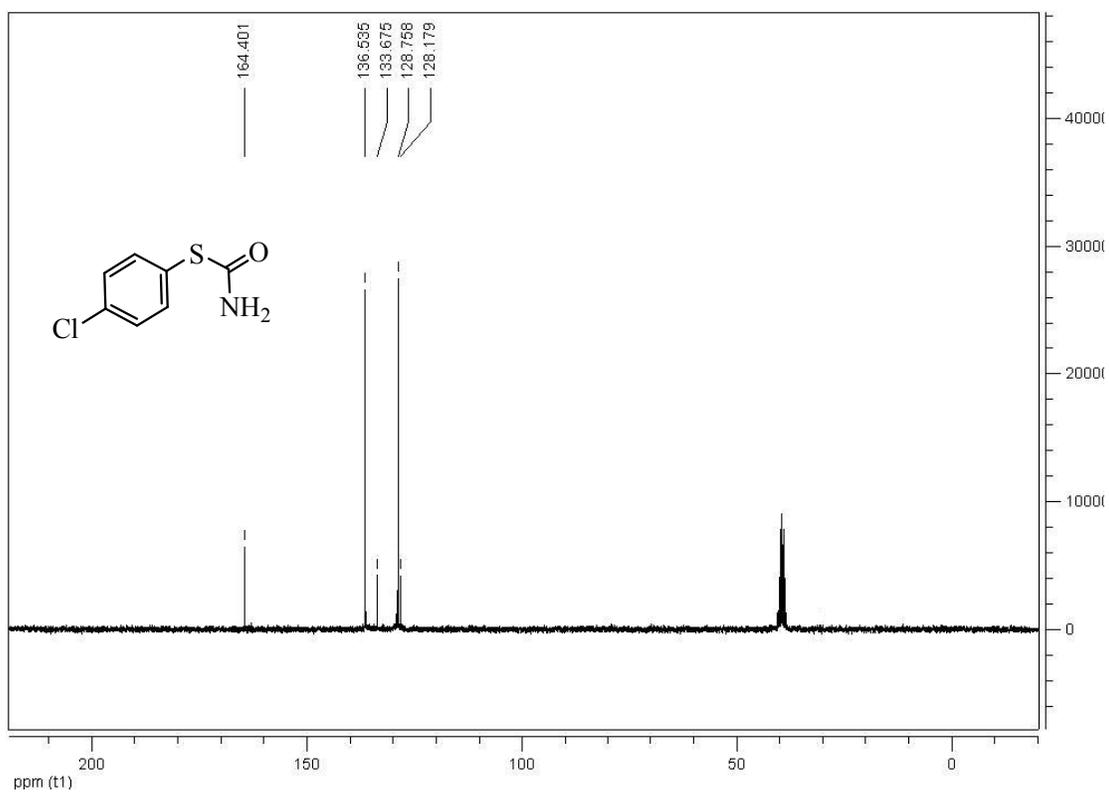
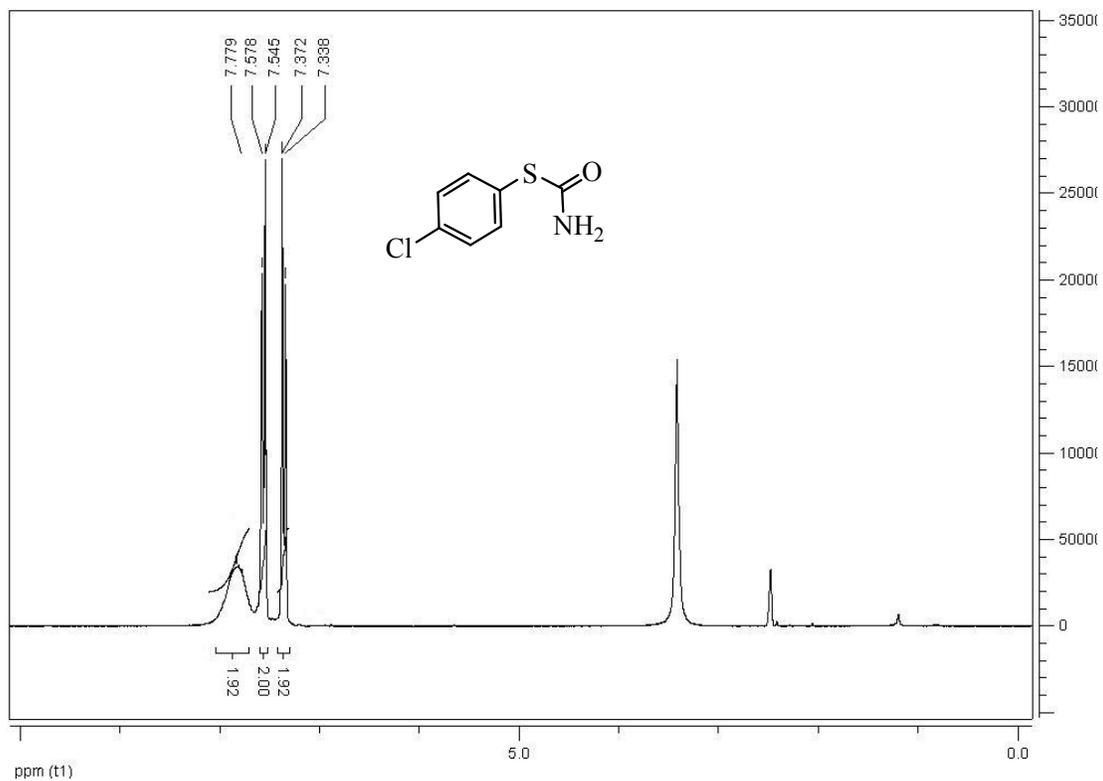


Figure S125. FT-IR spectra of 4-Chlorophenyl *S*-thiocarbamate in KBr



**Figure S126.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Chlorophenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S127.**  $^1\text{H}$ -NMR spectra (250 MHz) of 4-Chlorophenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

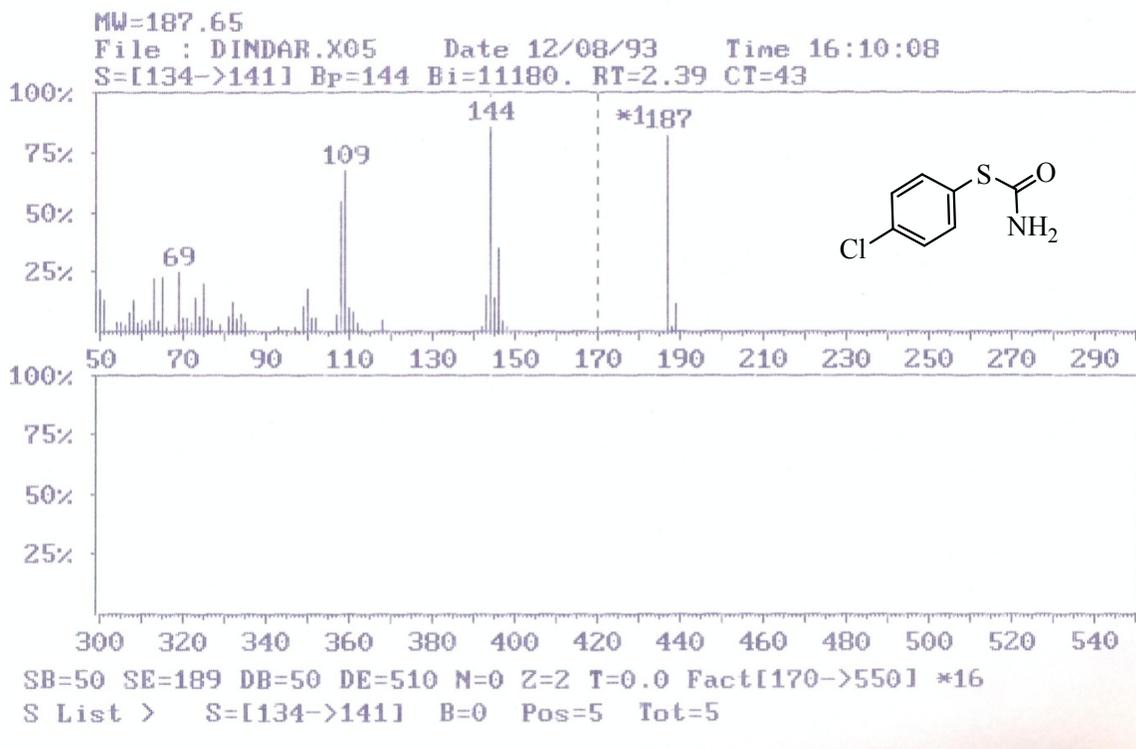


Figure S128. MS of 4-Chlorophenyl *S*-thiocarbamate

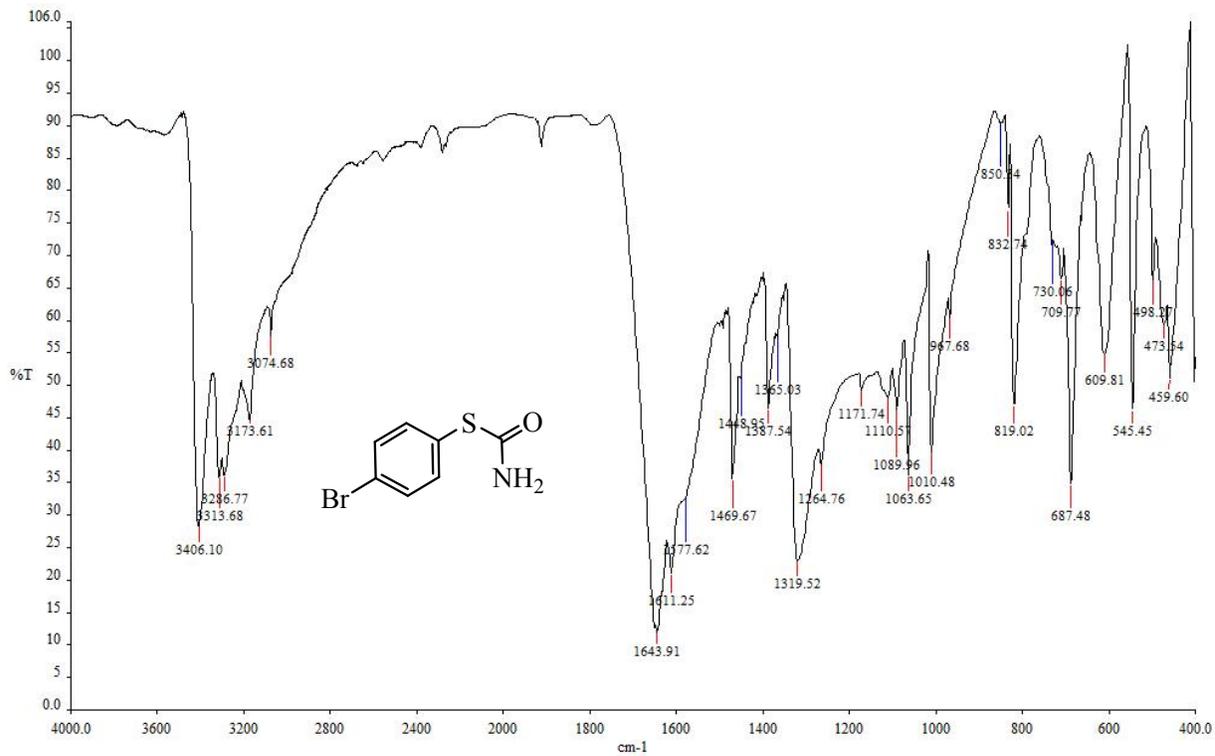
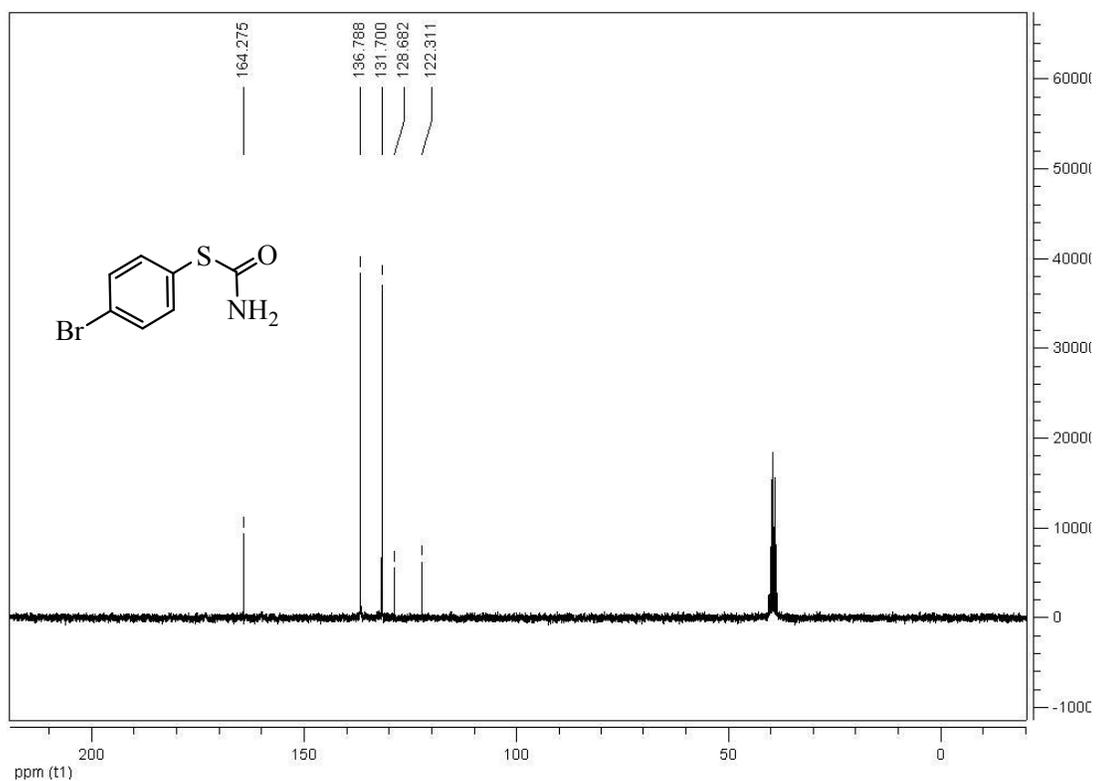
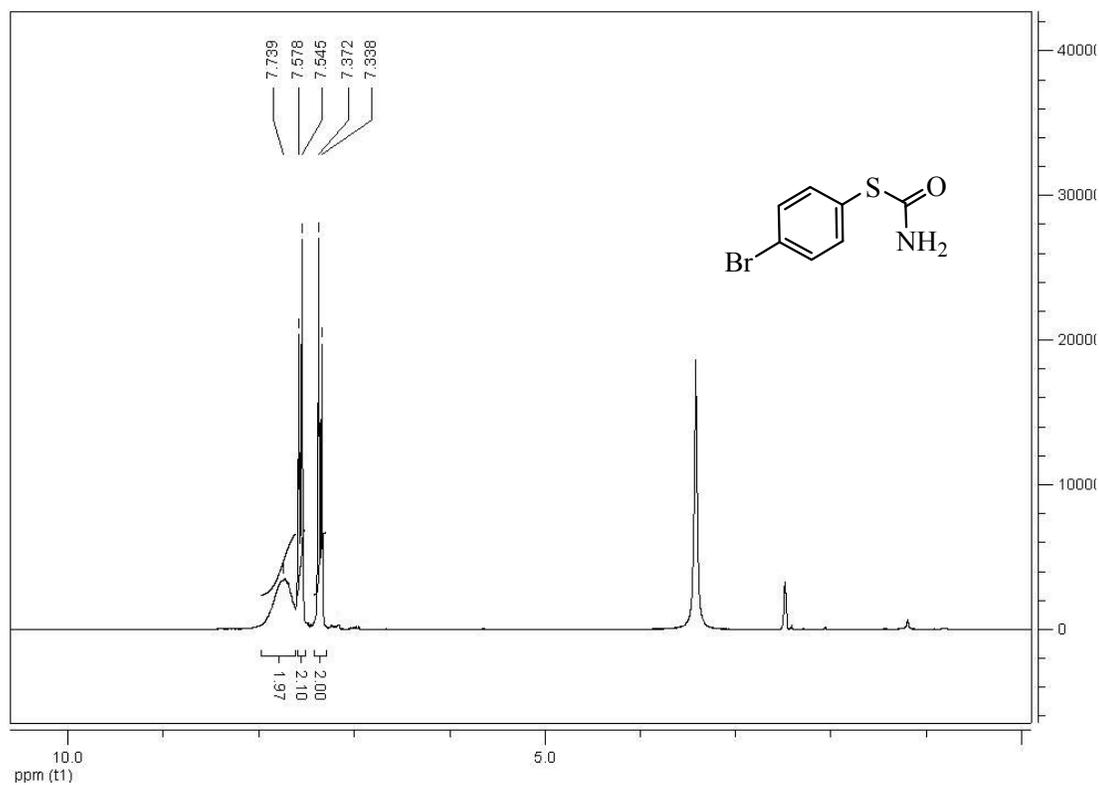


Figure S129. FT-IR spectra of 4-Bromophenyl *S*-thiocarbamate in KBr



**Figure S130.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Bromophenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S131.**  $^1\text{H}$ -NMR spectra (250 MHz) of 4-Bromophenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

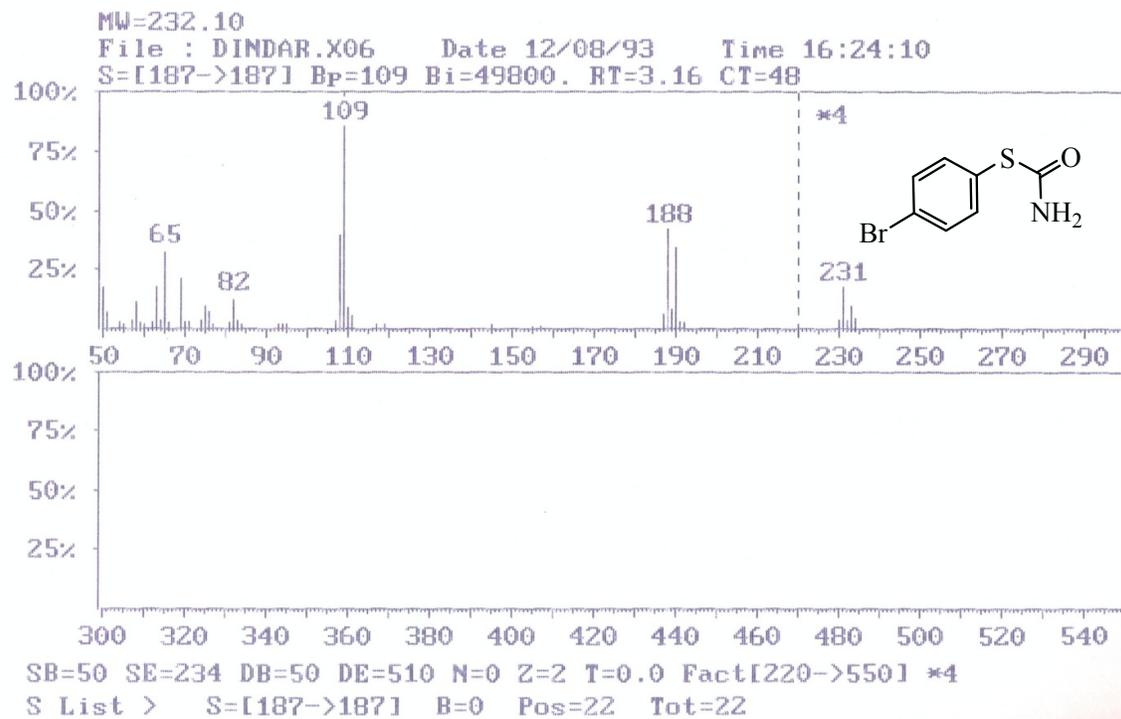


Figure S132. MS of 4-Bromophenyl *S*-thiocarbamate

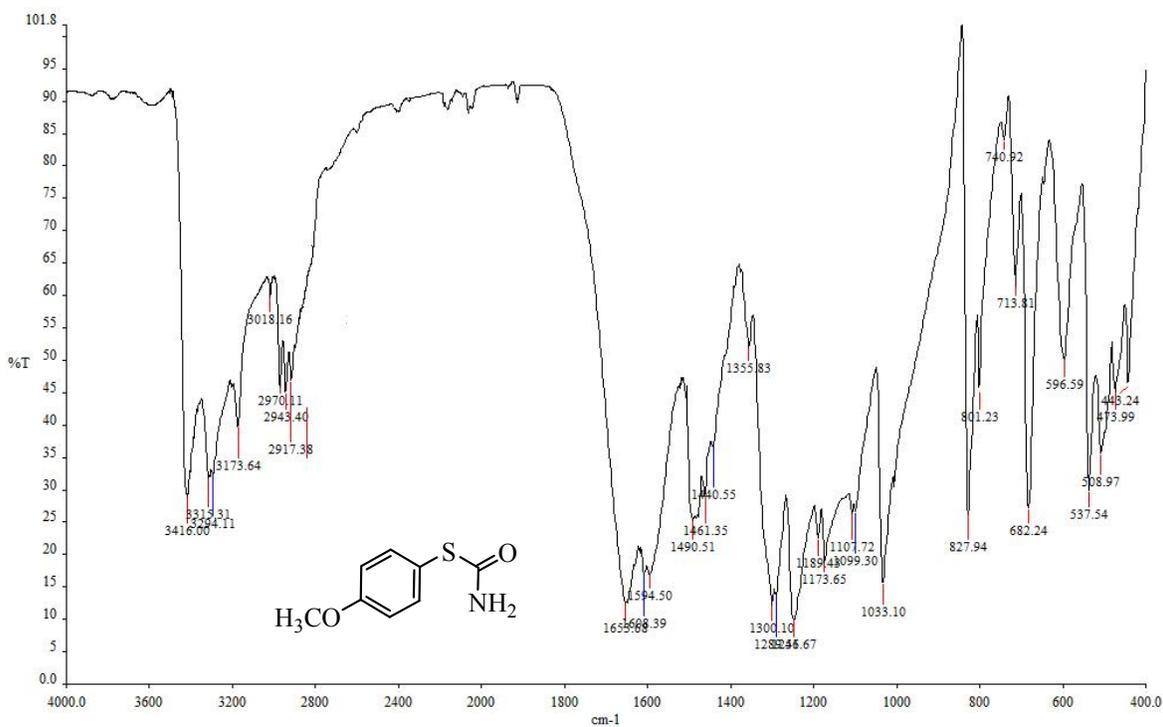
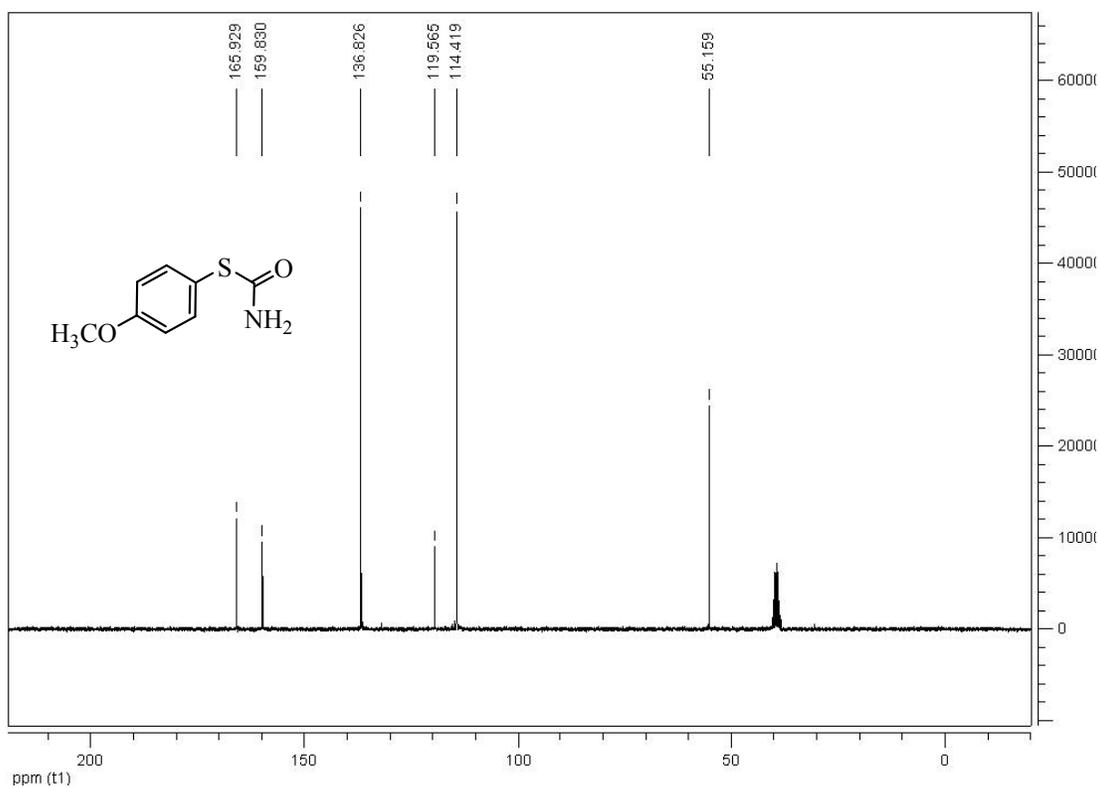
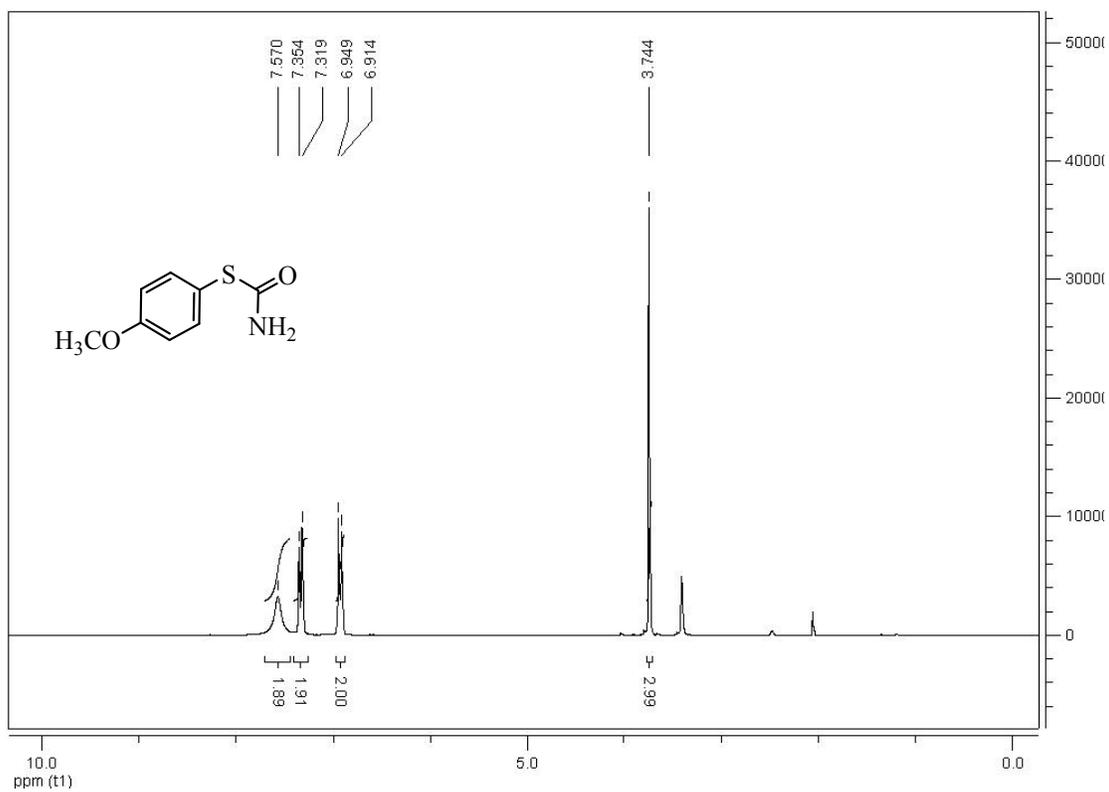


Figure S133. FT-IR spectra of 4-Methoxyphenyl *S*-thiocarbamate in KBr



**Figure S134.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 4-Methoxyphenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S135.**  $^1\text{H}$ -NMR spectra (250 MHz) of 4-Methoxyphenyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

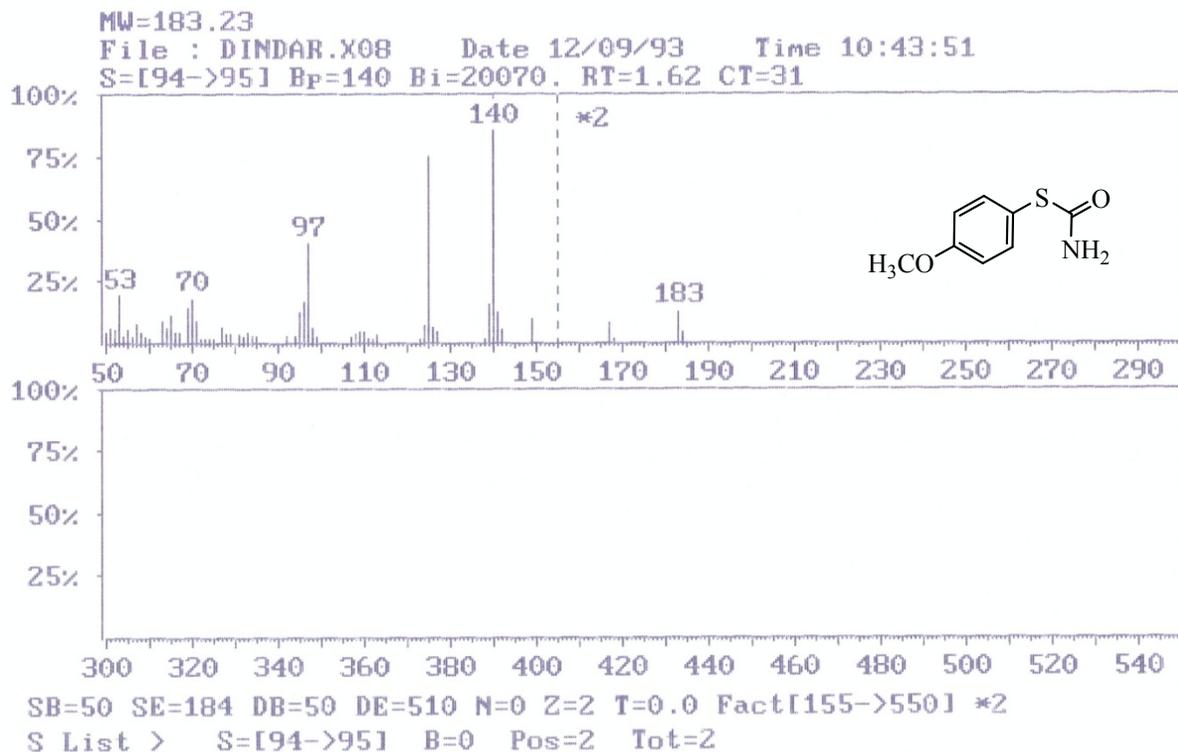


Figure S136. MS of 4-Methoxyphenyl *S*-thiocarbamate

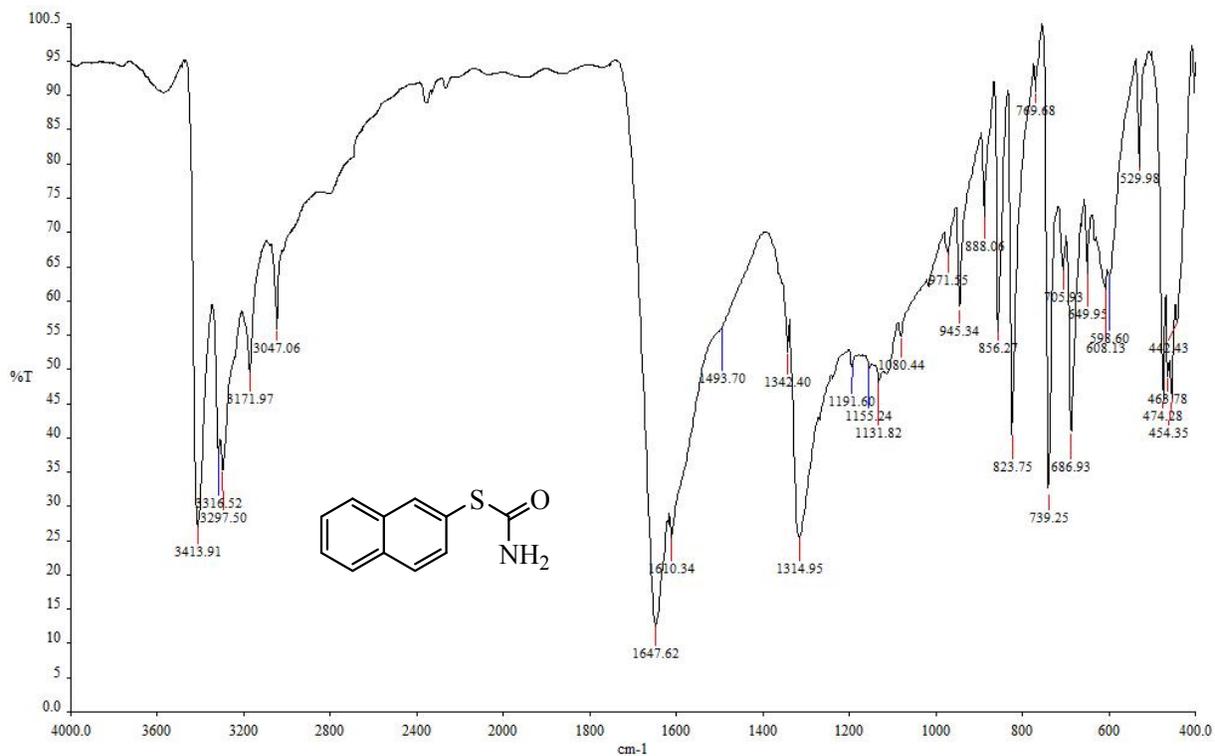
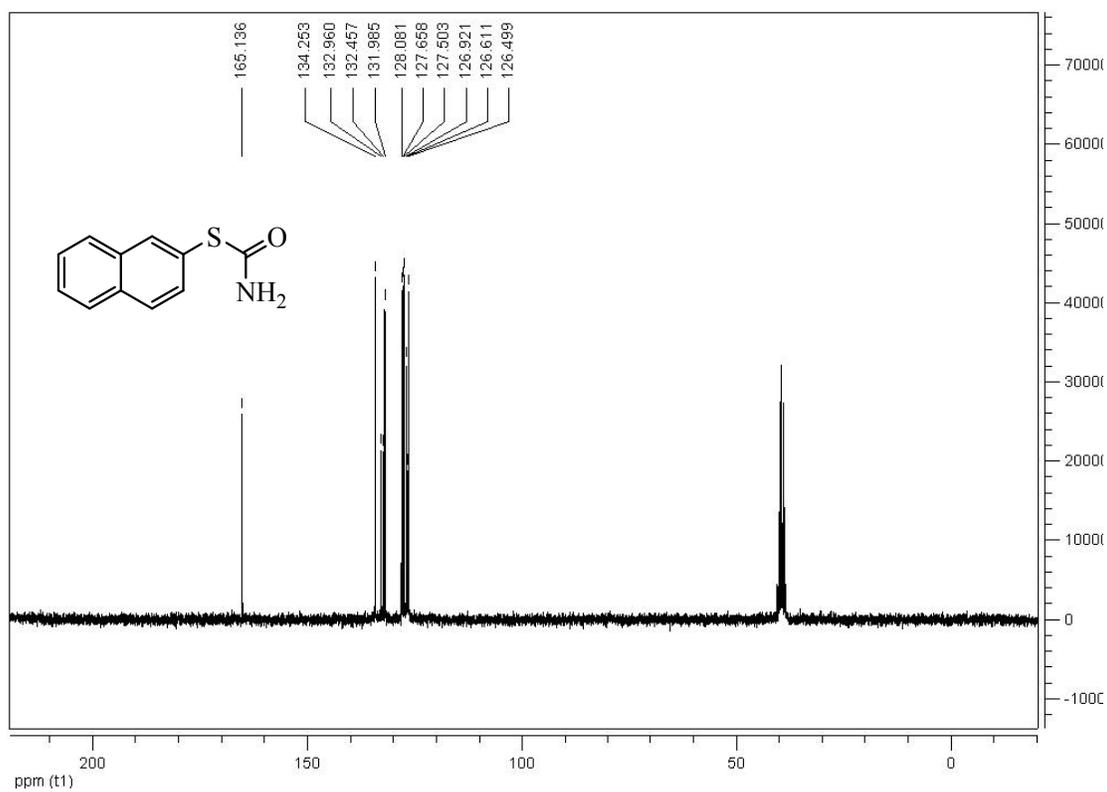
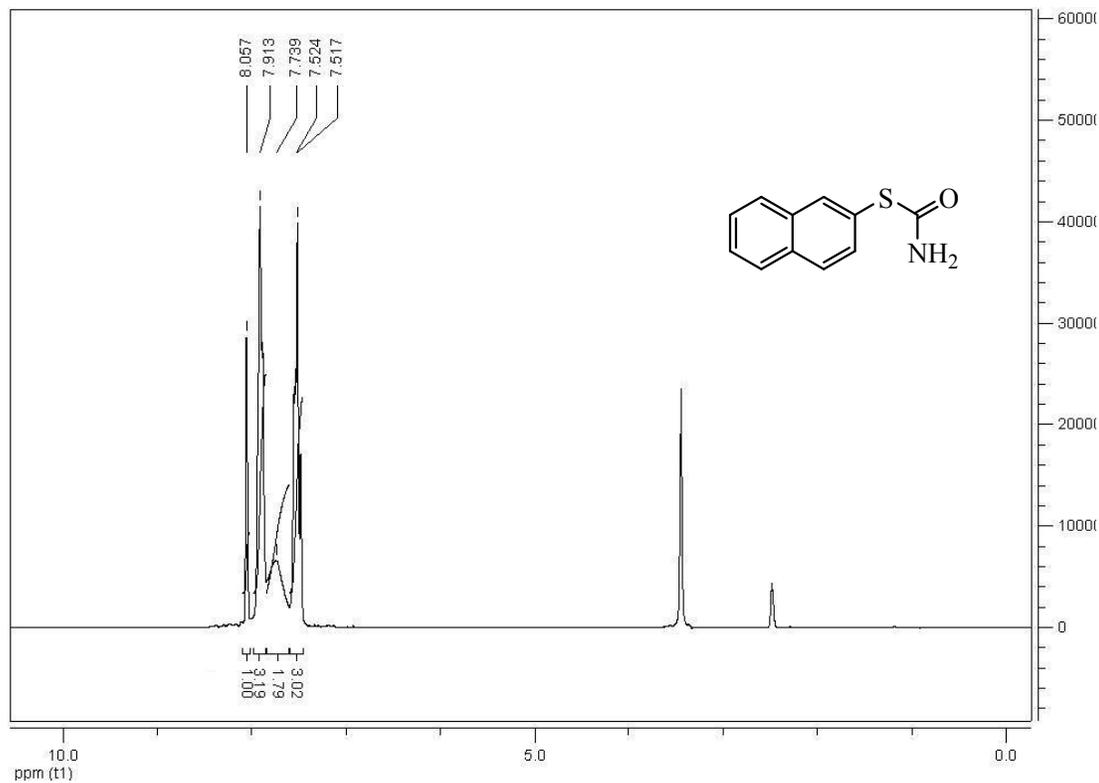


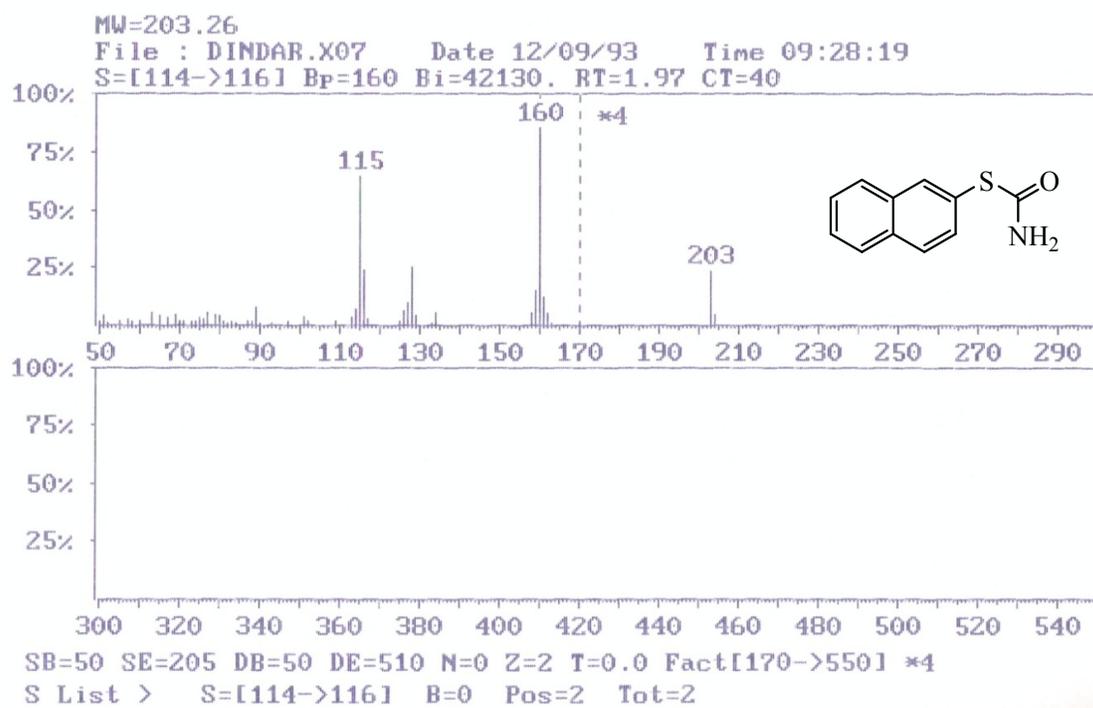
Figure S137. FT-IR spectra of Naphthalen-2-yl *S*-thiocarbamate in KBr



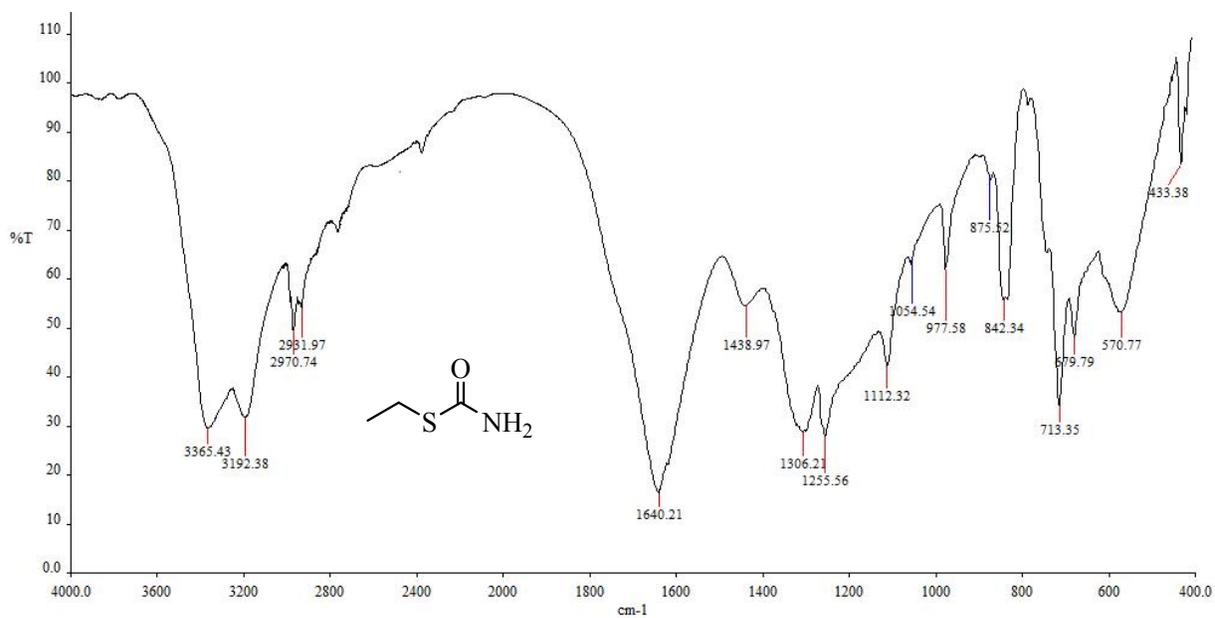
**Figure S138.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Naphthalen-2-yl *S*-thiocarbamate in  $\text{DMSO-}d_6$



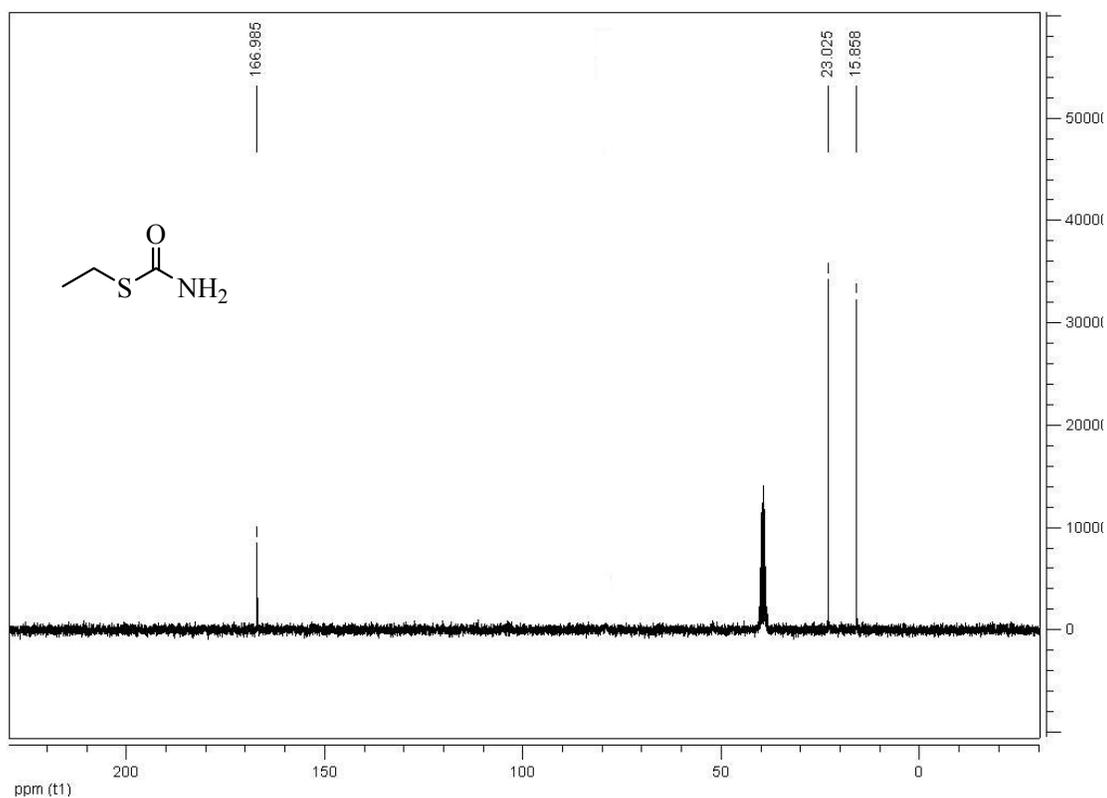
**Figure S139.**  $^1\text{H}$ -NMR spectra (250 MHz) of Naphthalen-2-yl *S*-thiocarbamate in  $\text{DMSO-}d_6$



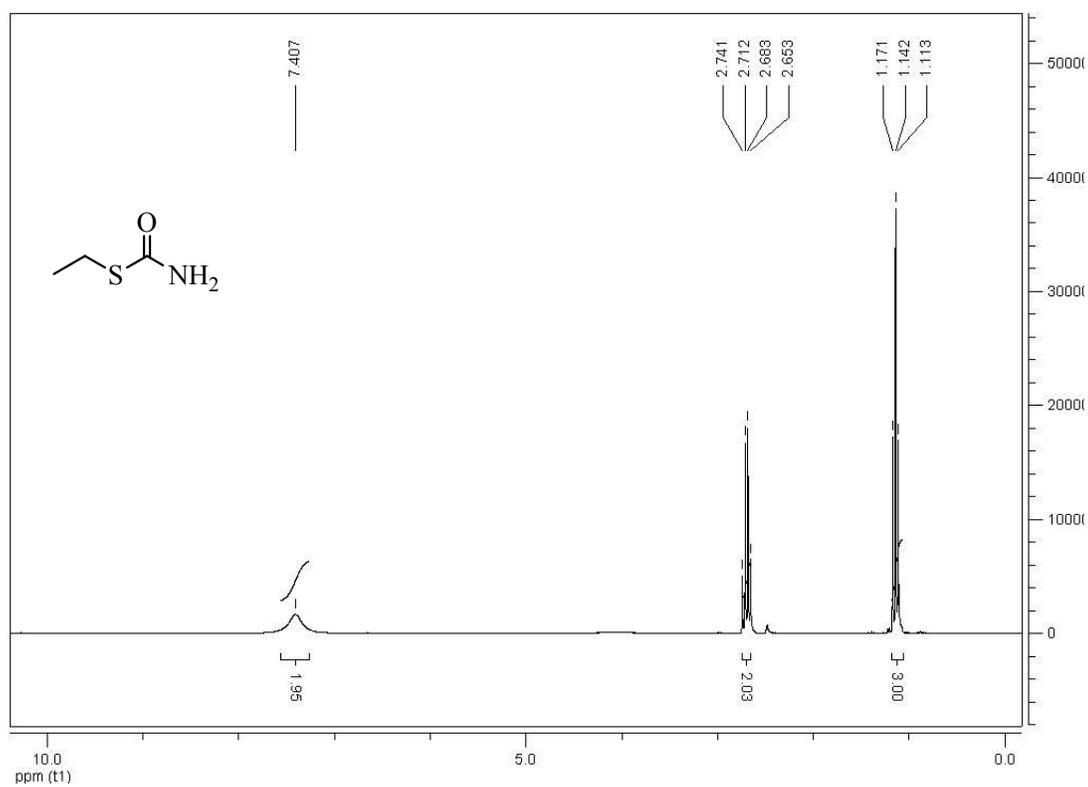
**Figure S140.** MS of Naphthalen-2-yl *S*-thiocarbamate



**Figure S141.** FT-IR spectra of Ethyl *S*-thiocarbamate in KBr



**Figure S142.** <sup>13</sup>C-NMR spectra (63 MHz) of Ethyl *S*-thiocarbamate in DMSO-*d*<sub>6</sub>



**Figure S143.** <sup>1</sup>H-NMR spectra (250 MHz) of Ethyl *S*-thiocarbamate in DMSO-*d*<sub>6</sub>

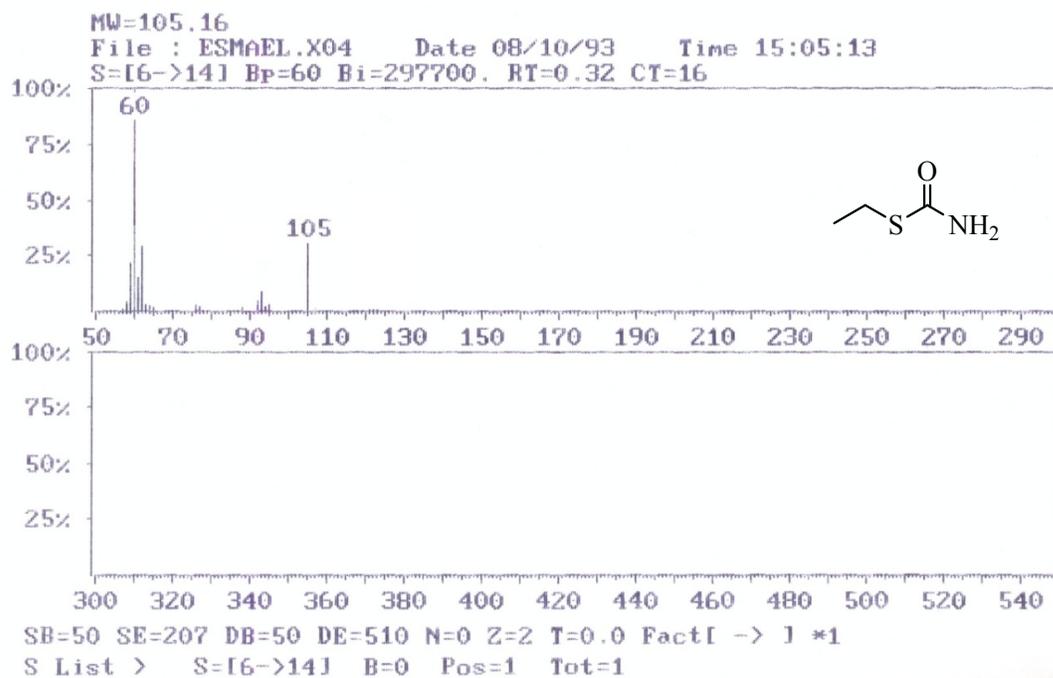


Figure S144. MS of Ethyl *S*-thiocarbamate

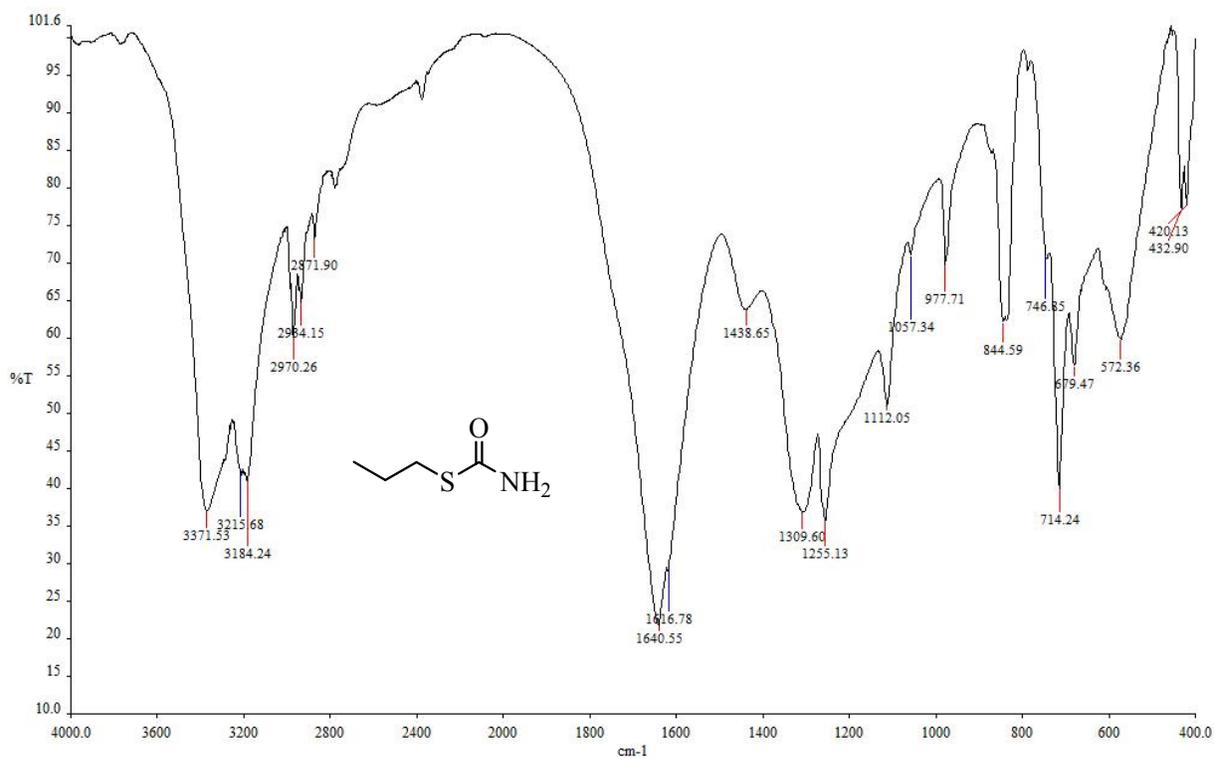
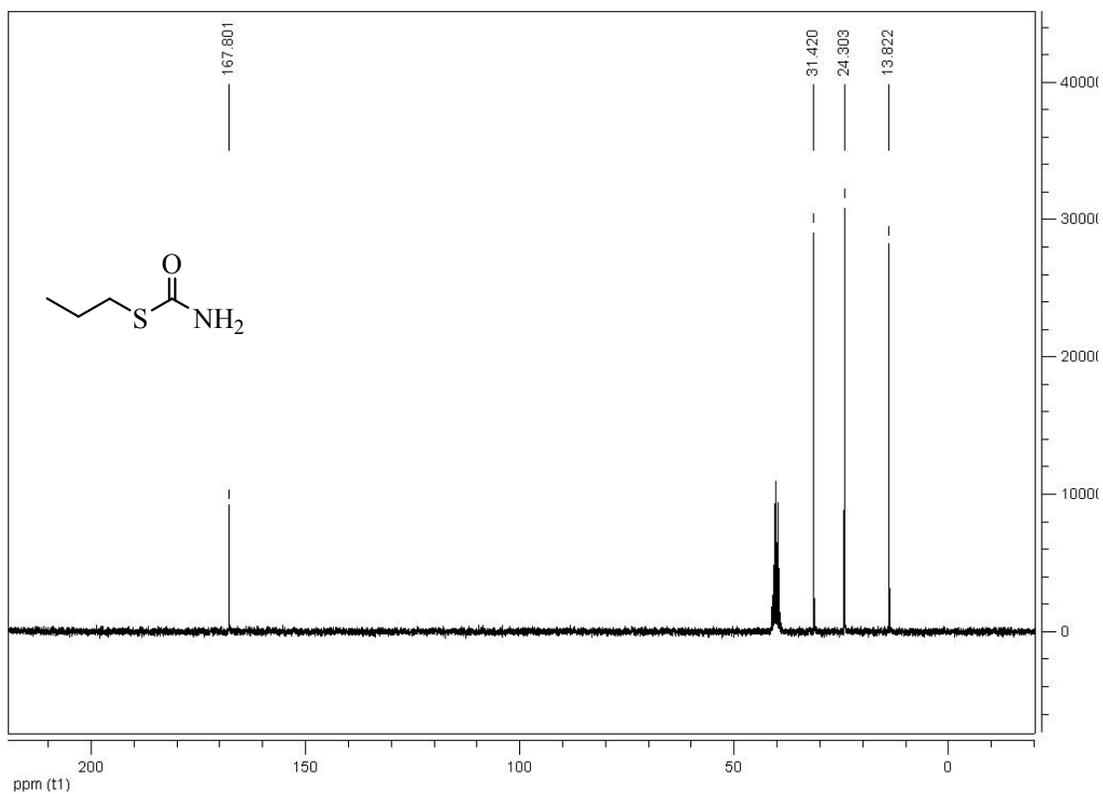
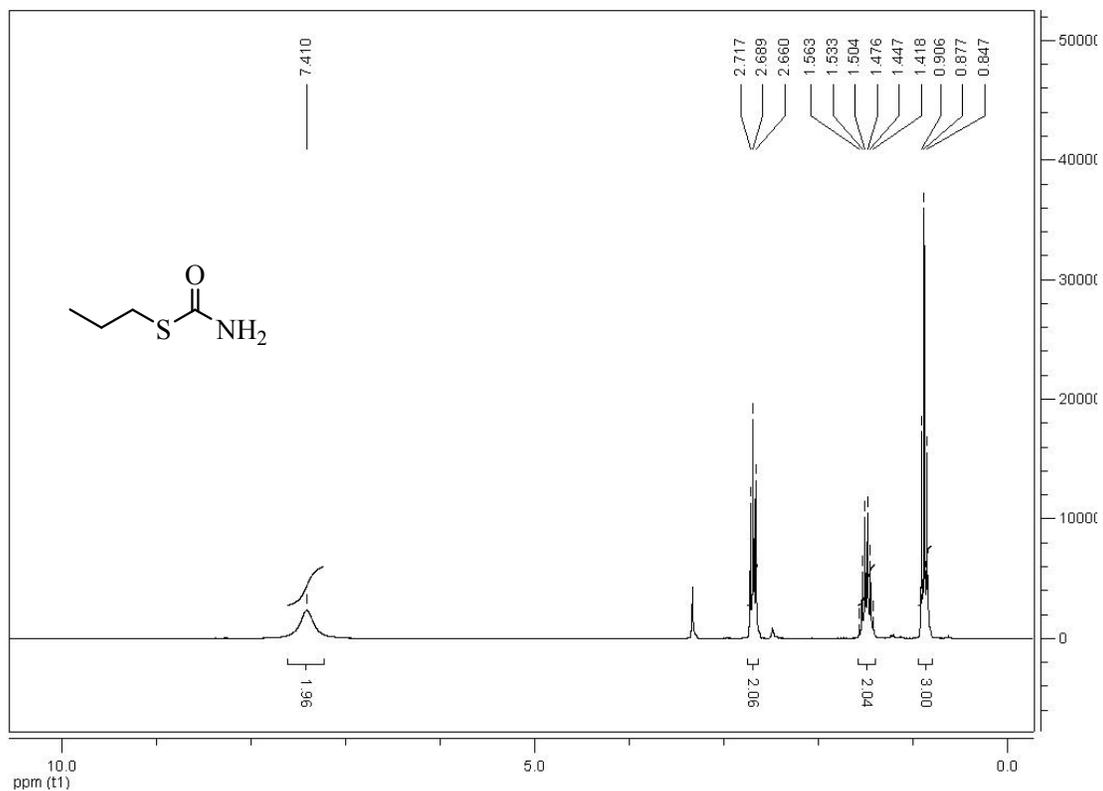


Figure S145. FT-IR spectra of Propyl *S*-thiocarbamate in KBr



**Figure S146.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Propyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S147.**  $^1\text{H}$ -NMR spectra (250 MHz) of Propyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

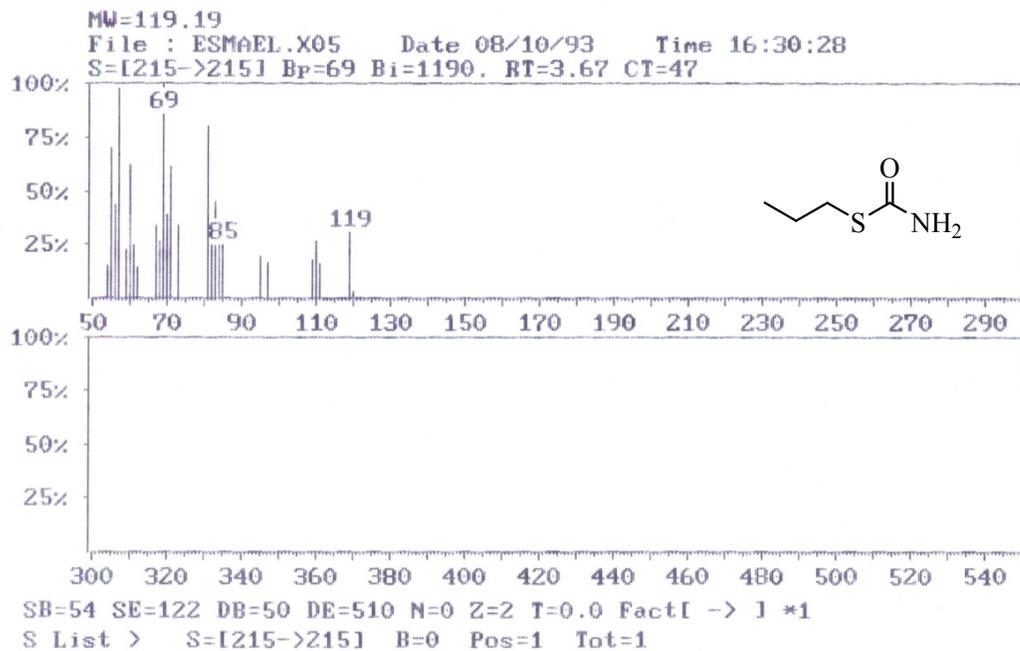


Figure S148. MS of Propyl *S*-thiocarbamate

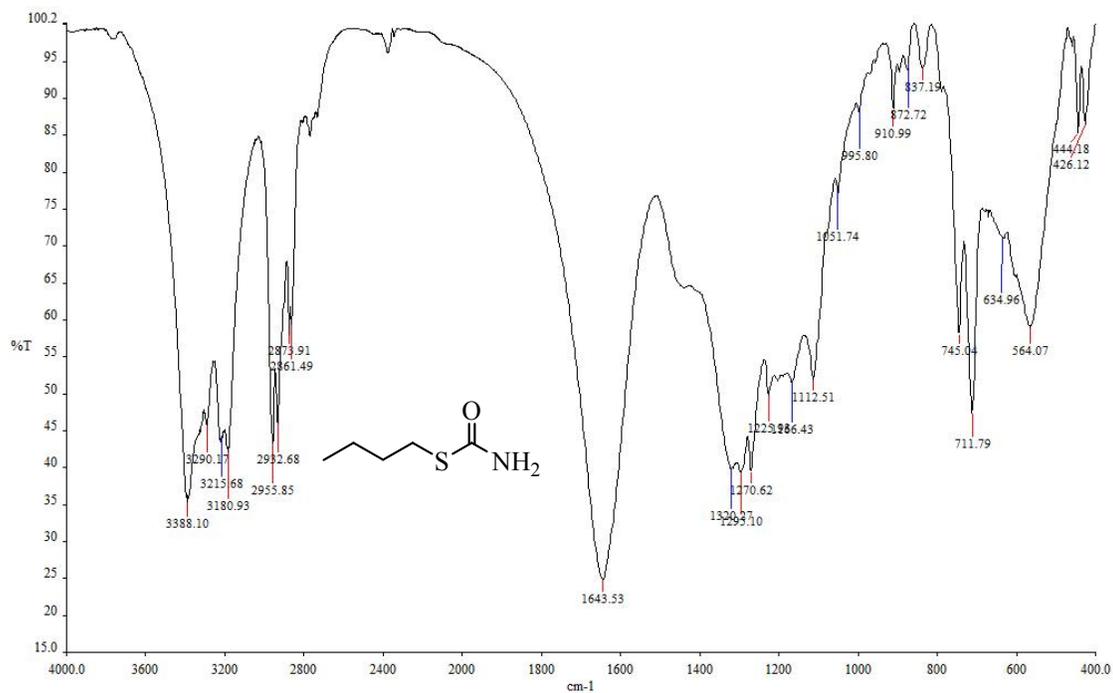
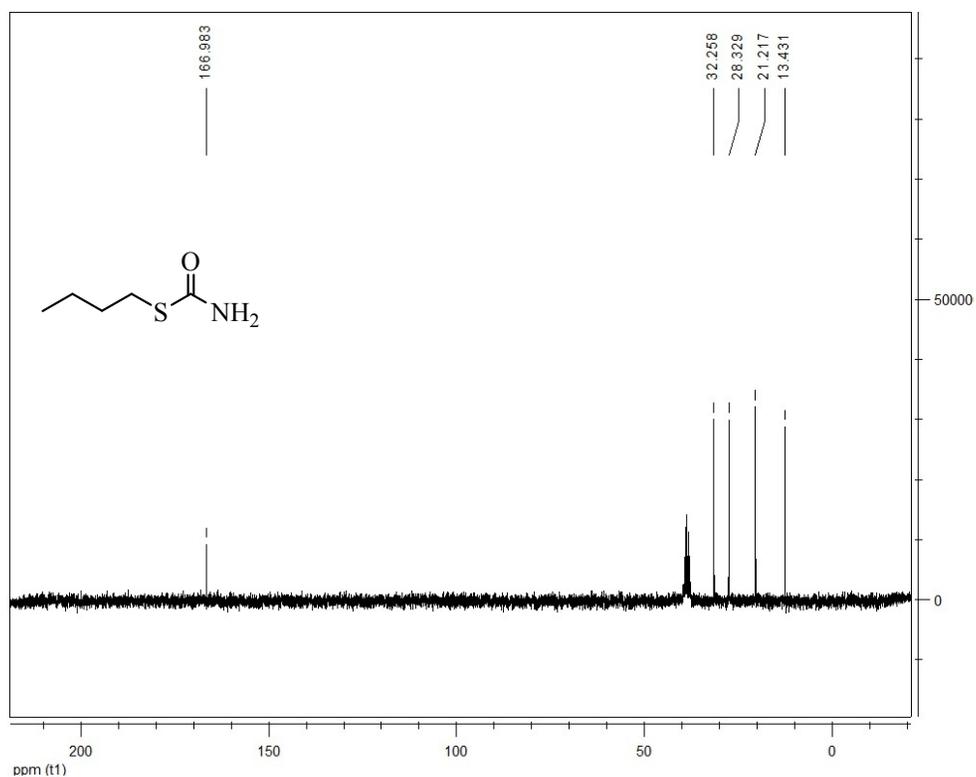
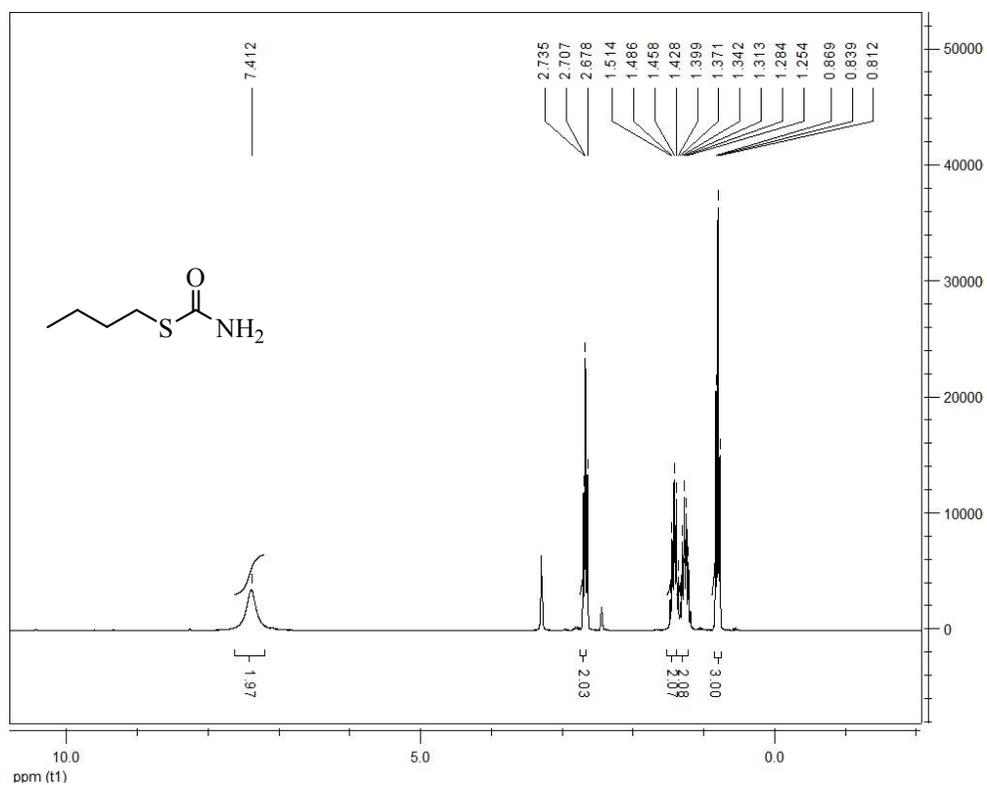


Figure S149. FT-IR spectra of 1-Butyl *S*-thiocarbamate in KBr



**Figure S150.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Butyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S151.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Butyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

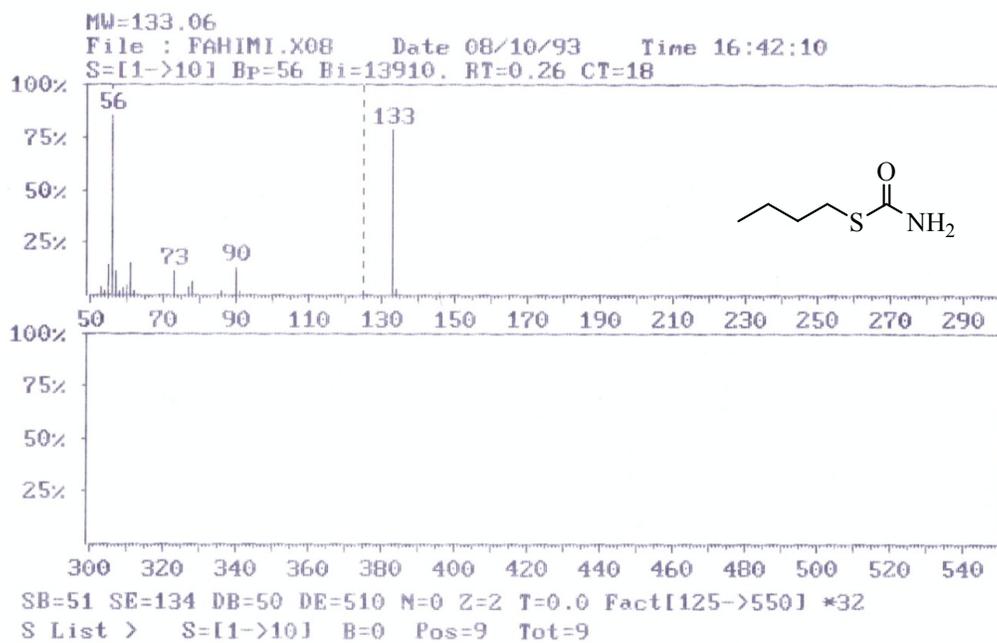


Figure S152. MS of 1-Butyl *S*-thiocarbamate

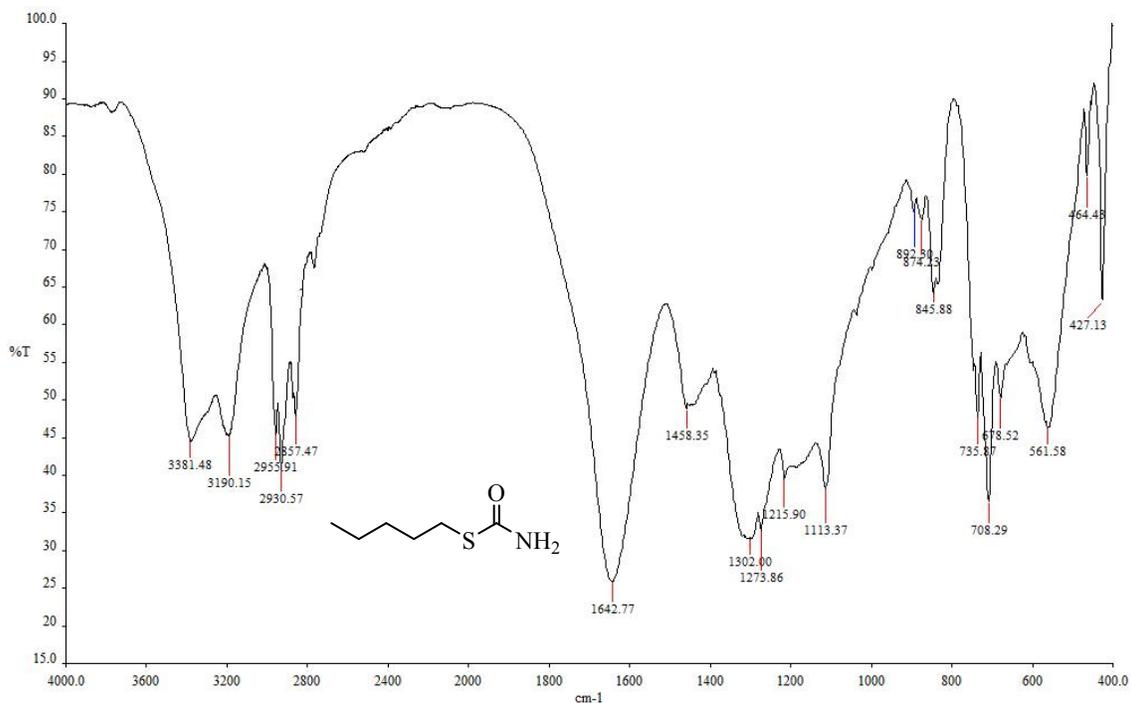
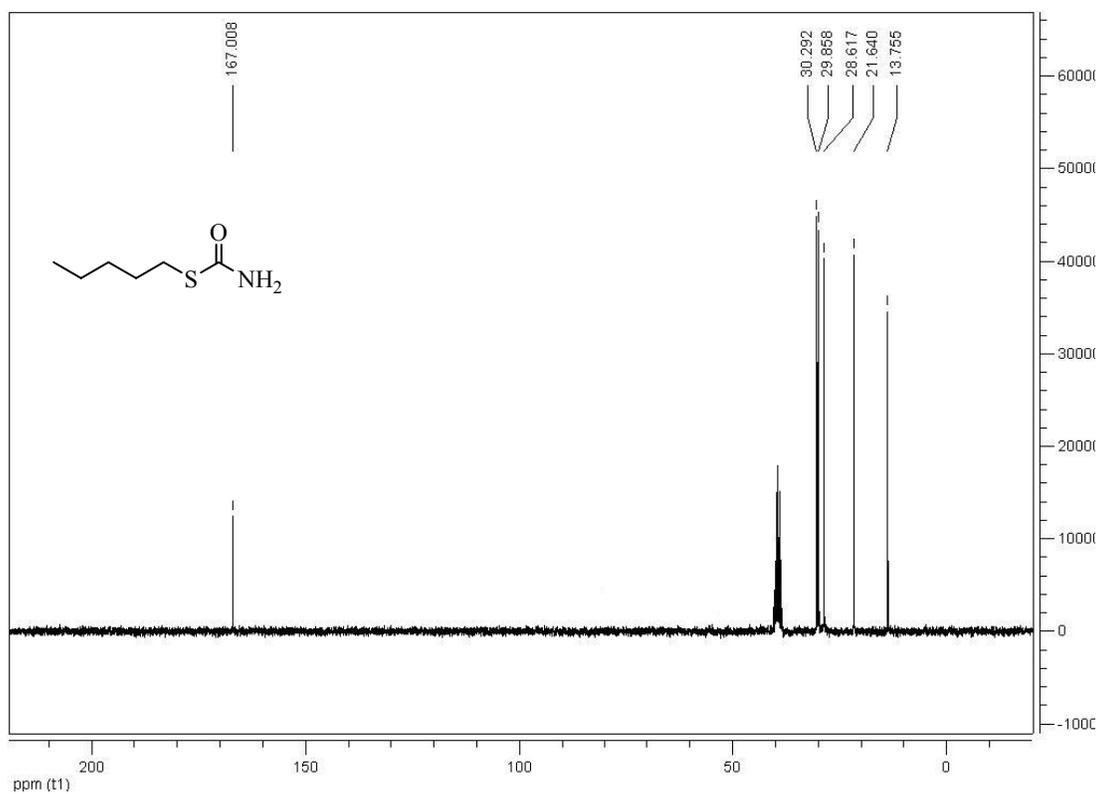
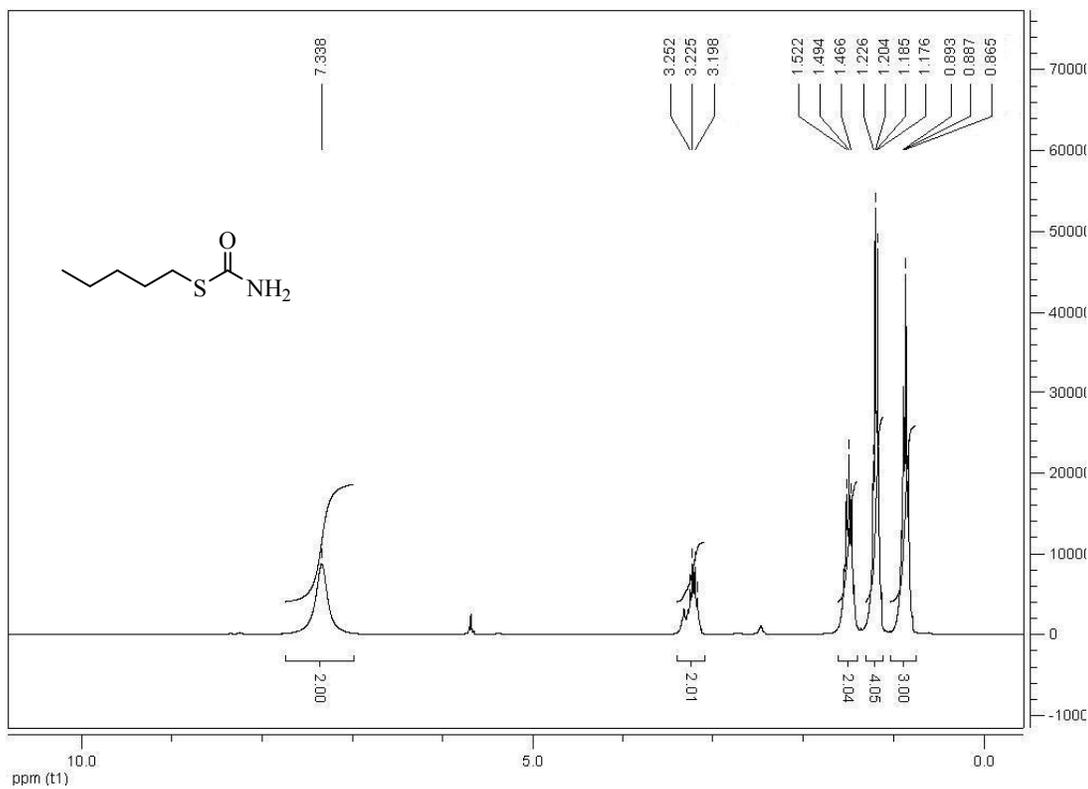


Figure S153. FT-IR spectra of 1-Pentyl *S*-thiocarbamate in KBr



**Figure S154.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Pentyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S155.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Pentyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

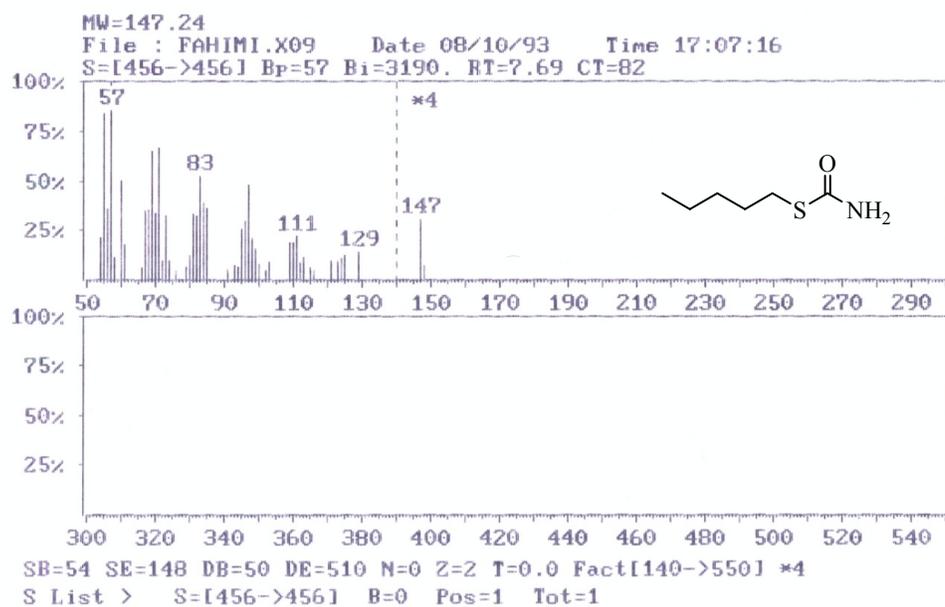


Figure S160. MS of 1-Pentyl *S*-thiocarbamate

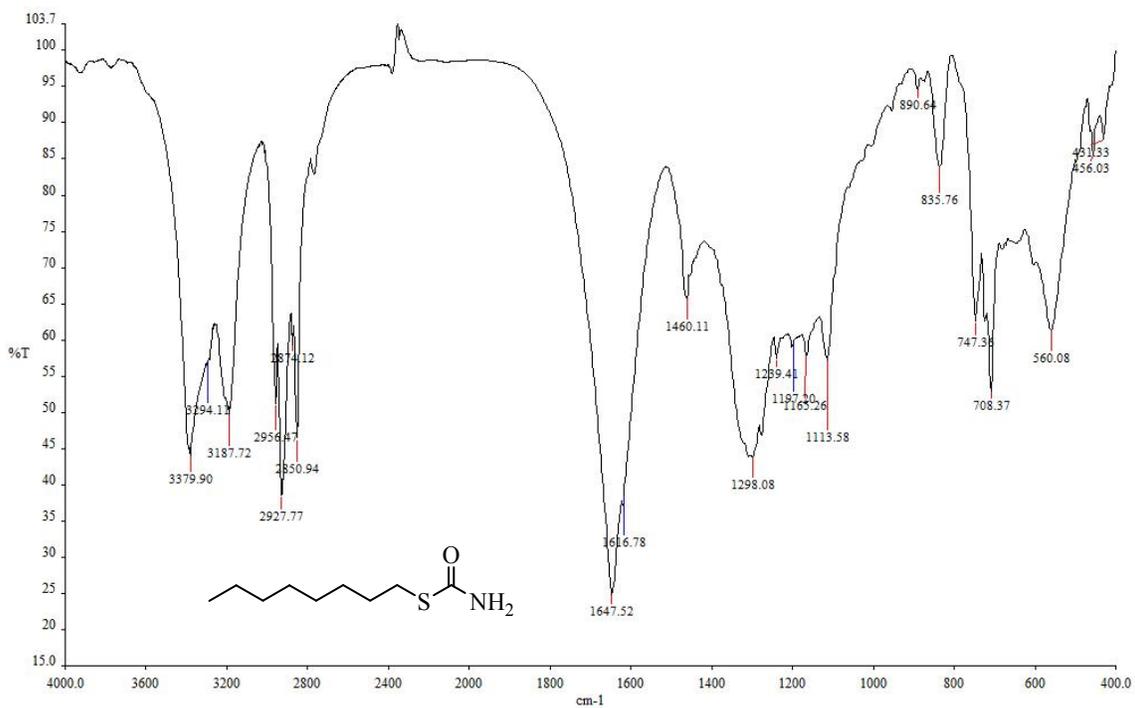
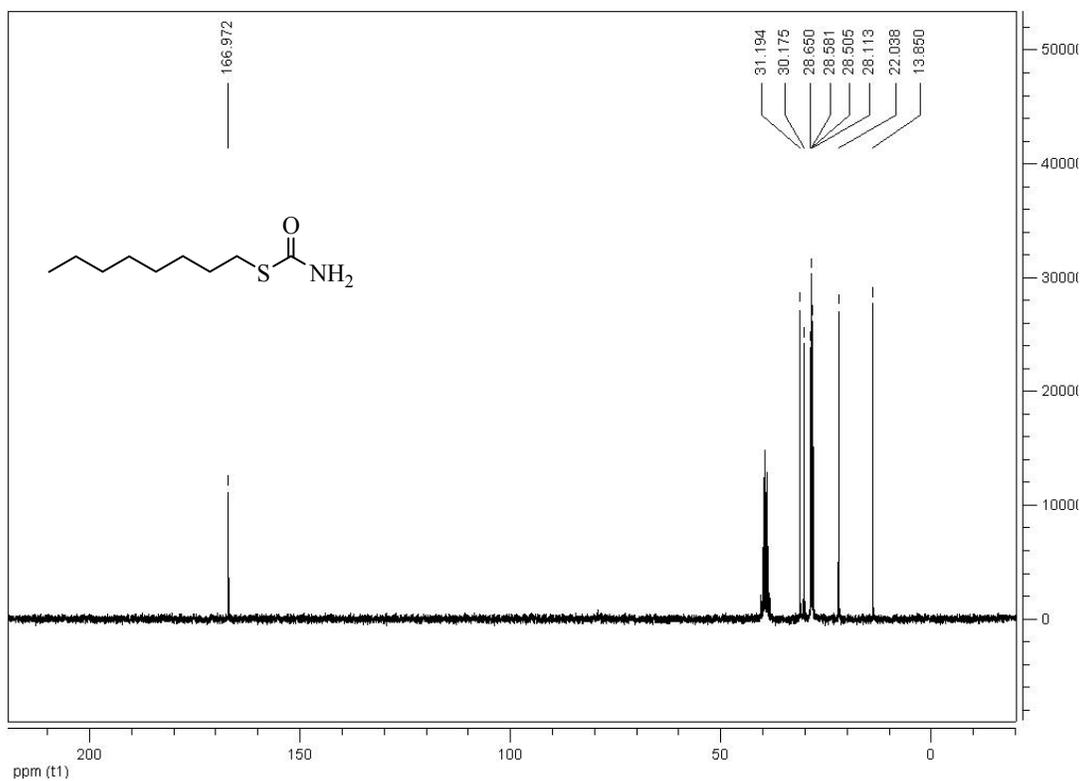
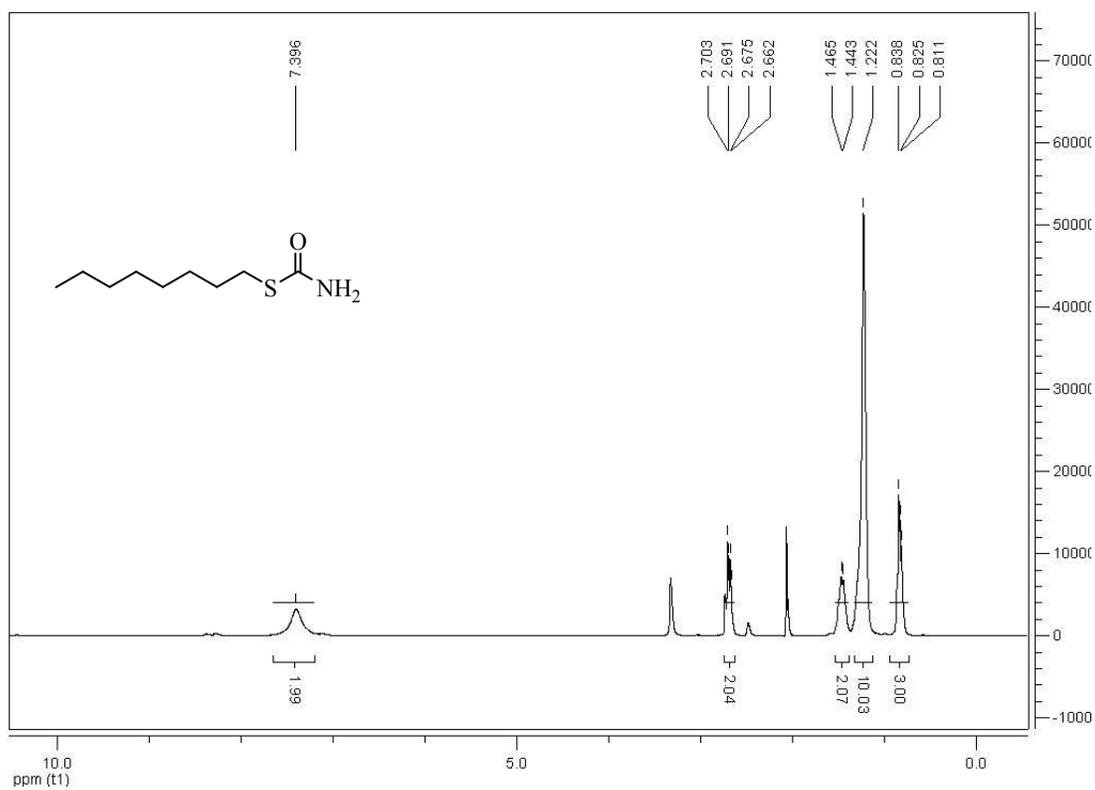


Figure S161. FT-IR spectra of 1-Octyl *S*-thiocarbamate in KBr



**Figure S162.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Octyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S163.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Octyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

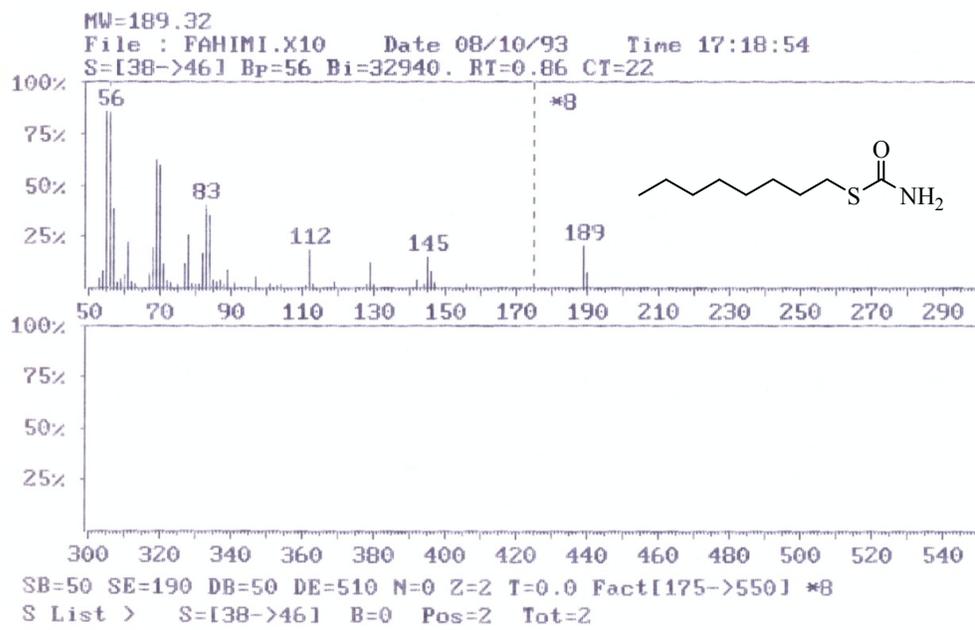


Figure S164. MS of 1-Octyl S-thiocarbamate

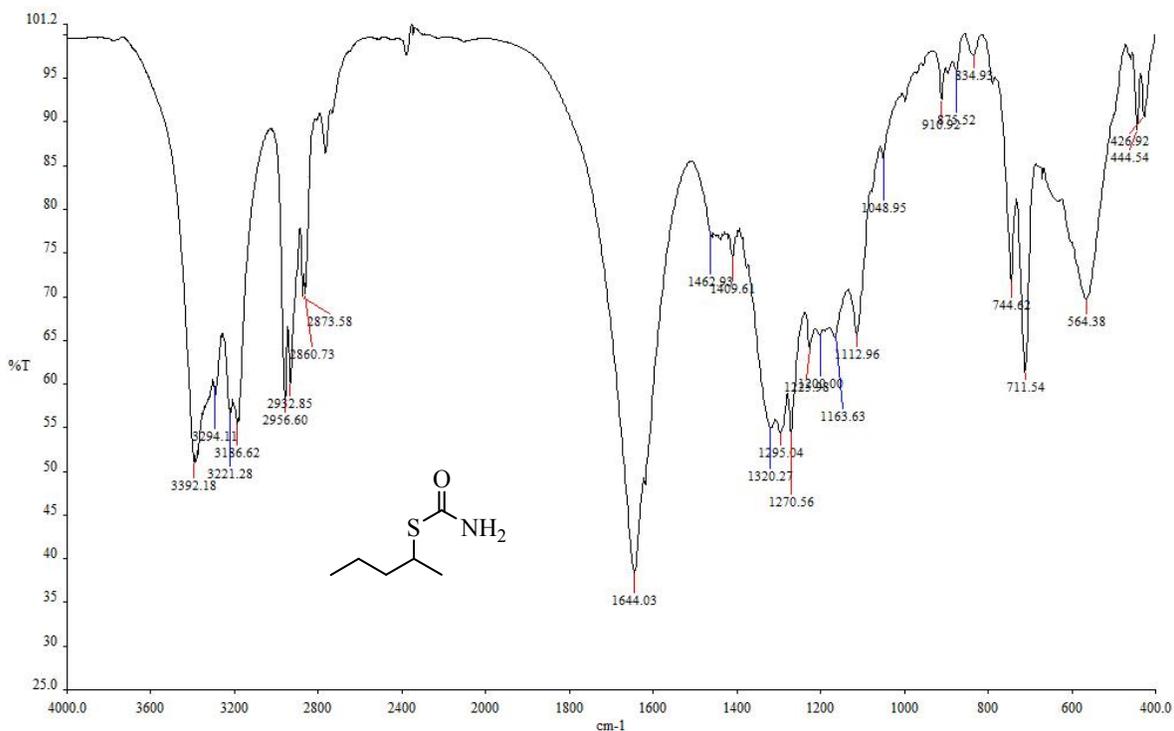
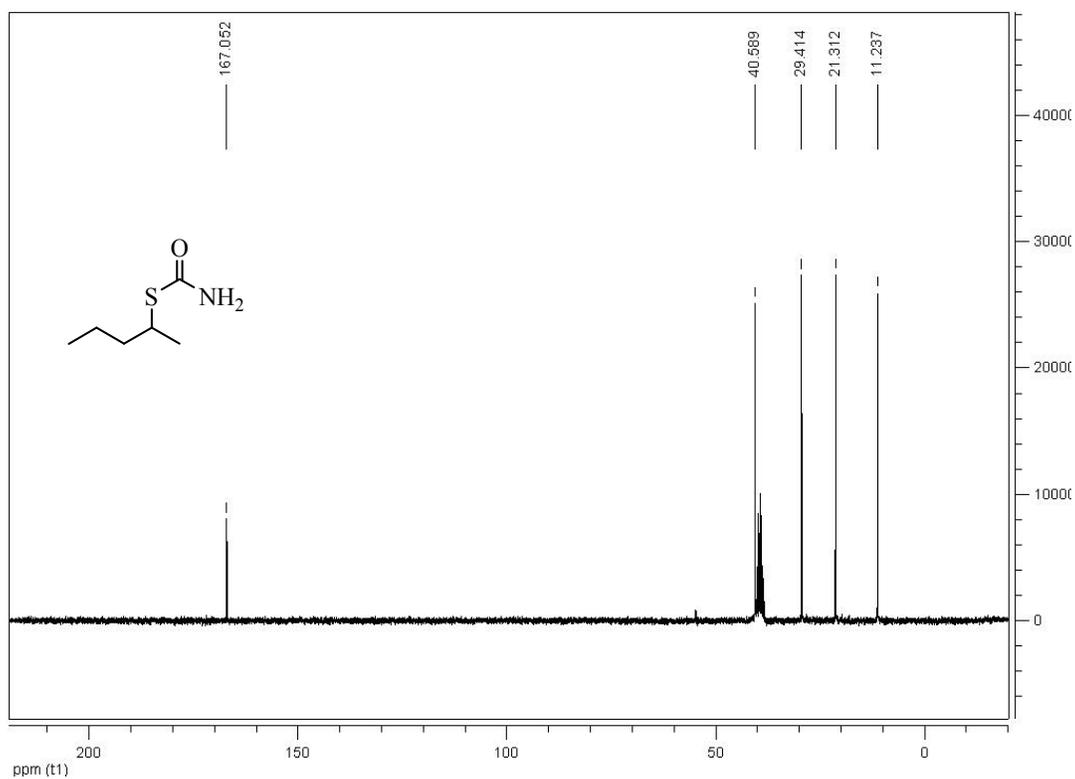
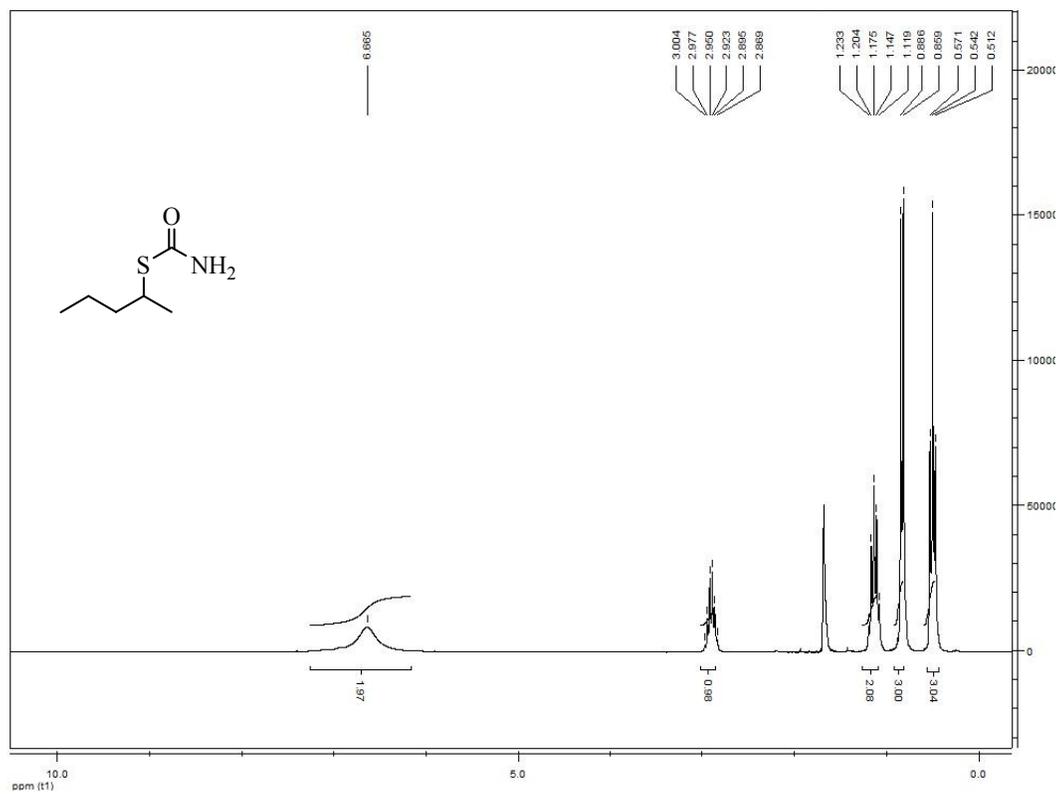


Figure S165. FT-IR spectra of 2-Butyl S-thiocarbamate in KBr



**Figure S166.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 2-Butyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S167.**  $^1\text{H}$ -NMR spectra (250 MHz) of 2-Butyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

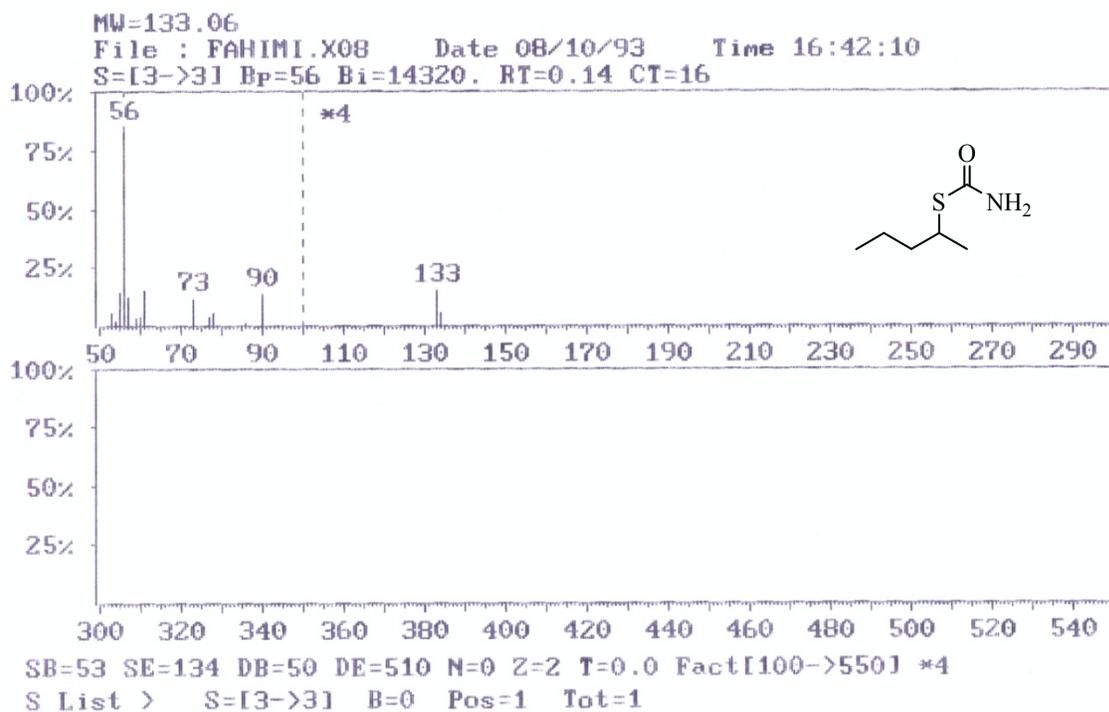


Figure S168. MS of 2-Butyl *S*-thiocarbamate

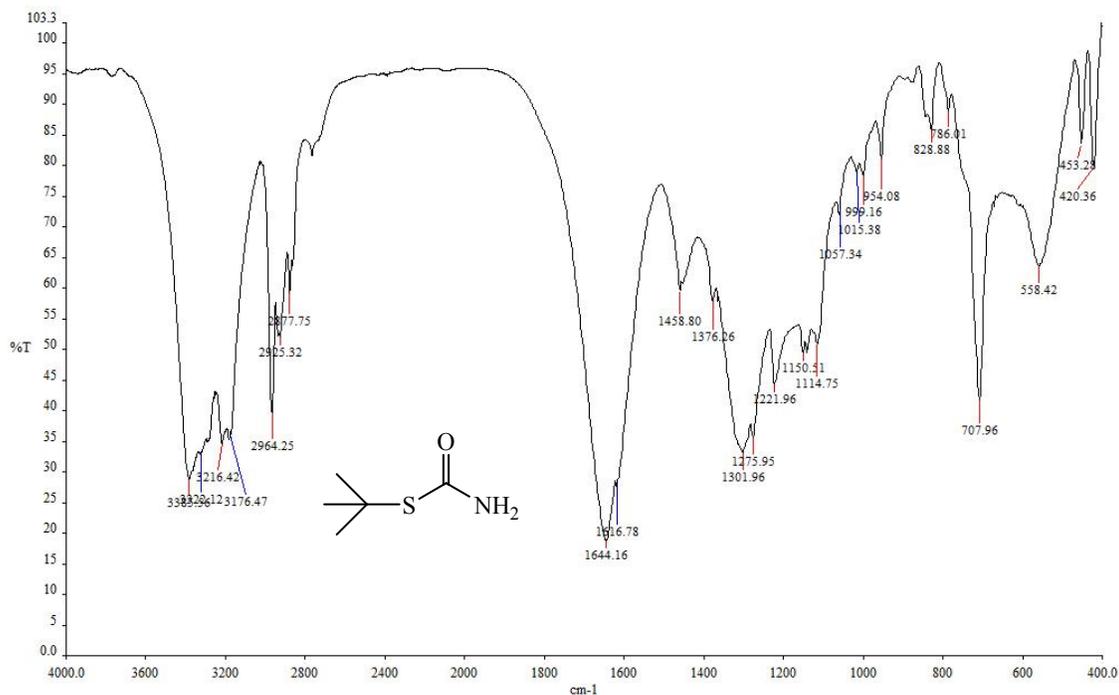
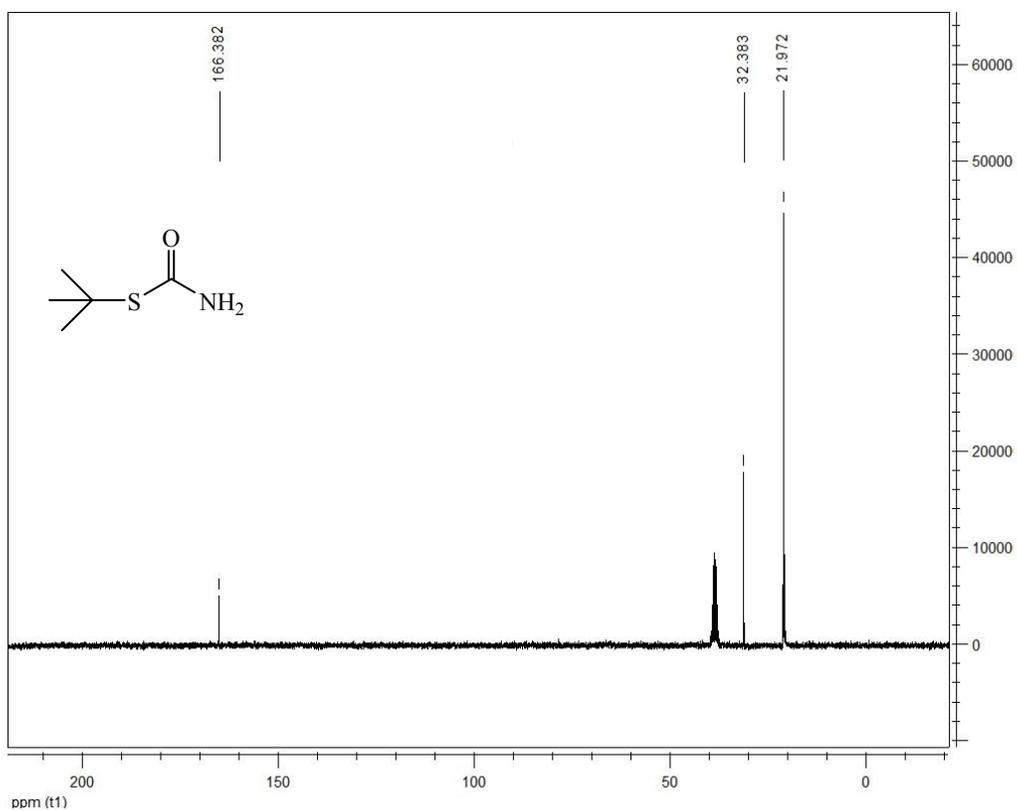
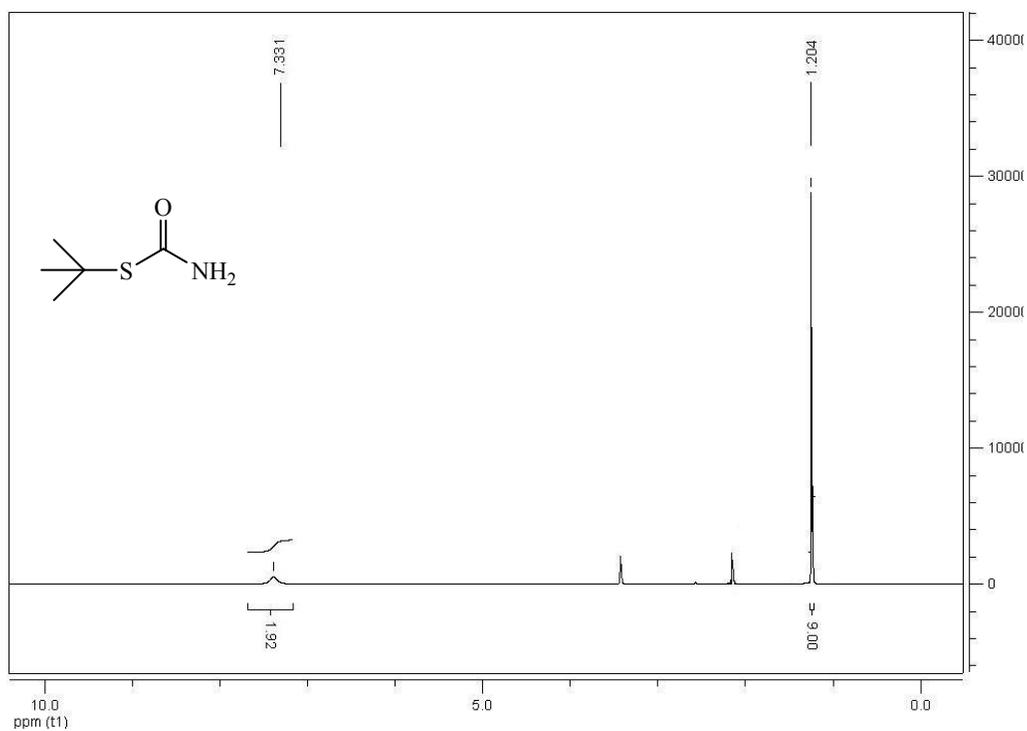


Figure S169. FT-IR spectra of *tert*-Butyl *S*-thiocarbamate in KBr



**Figure S170.** <sup>13</sup>C-NMR spectra (63 MHz) of *tert*-Butyl *S*-thiocarbamate in DMSO-*d*<sub>6</sub>



**Figure S171.** <sup>1</sup>H-NMR spectra (250 MHz) of *tert*-Butyl *S*-thiocarbamate in DMSO-*d*<sub>6</sub>

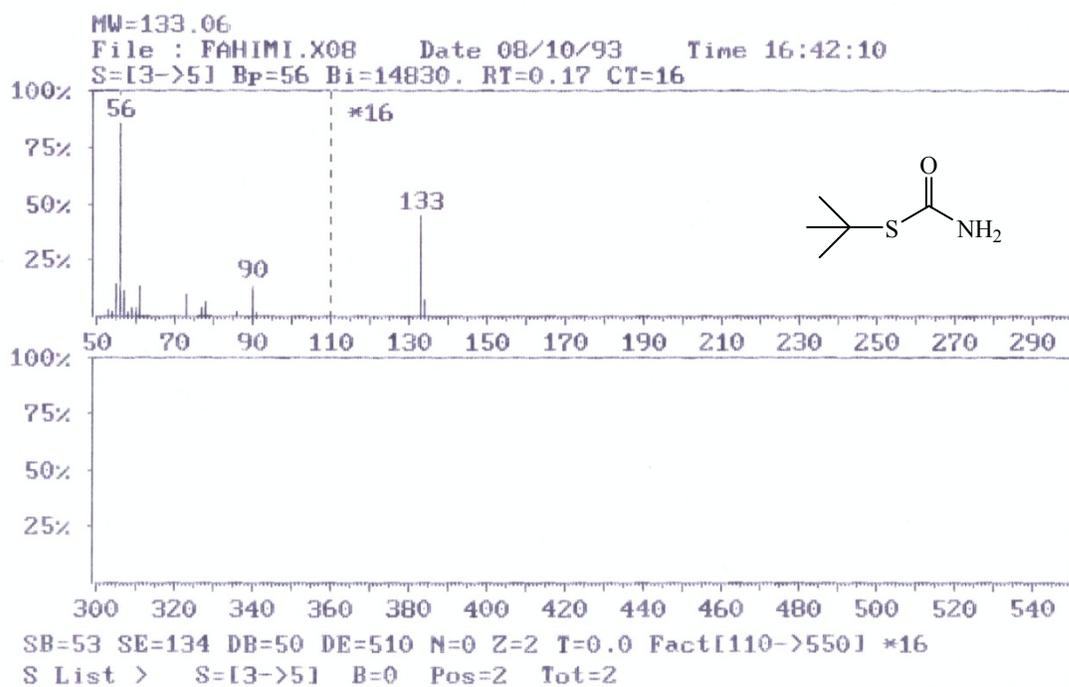


Figure S172. MS of *tert*-Butyl *S*-thiocarbamate

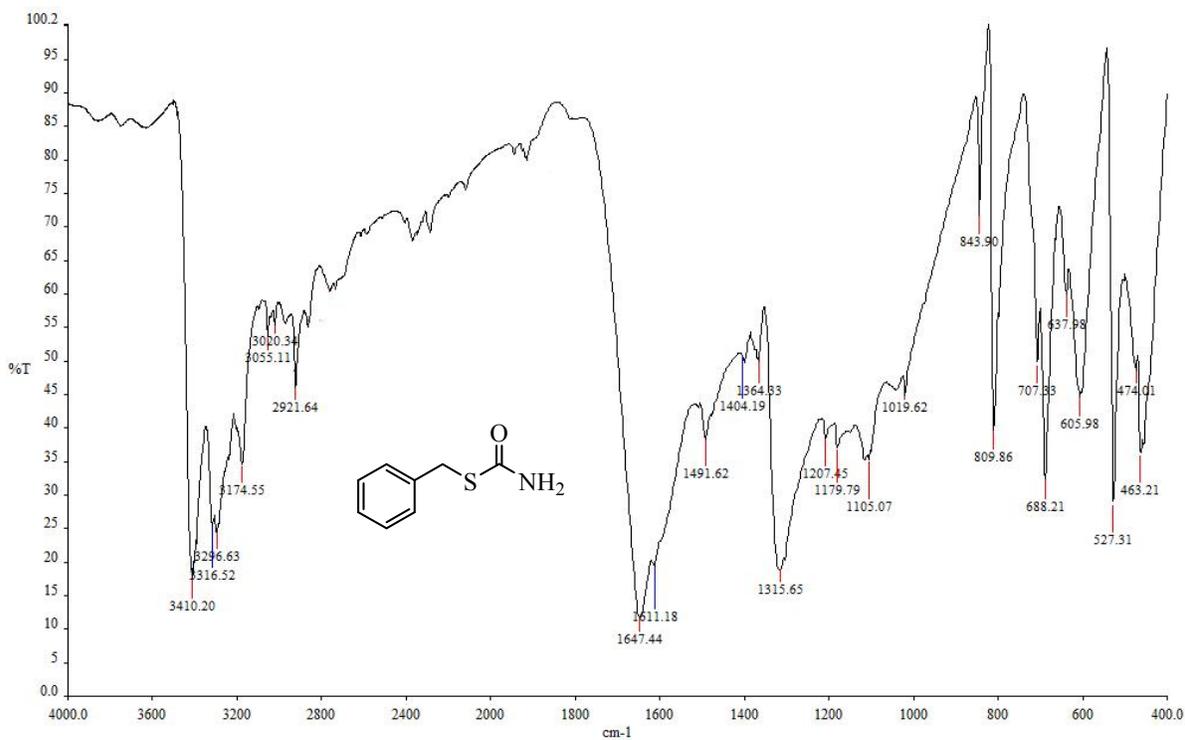
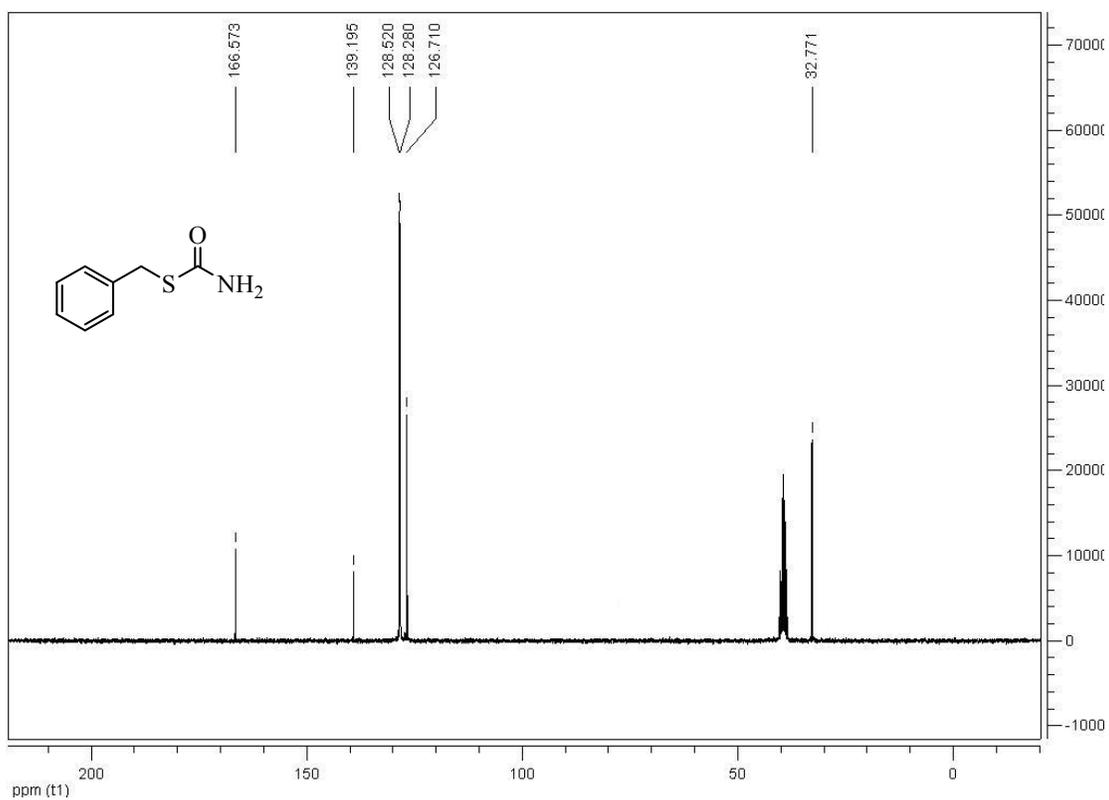
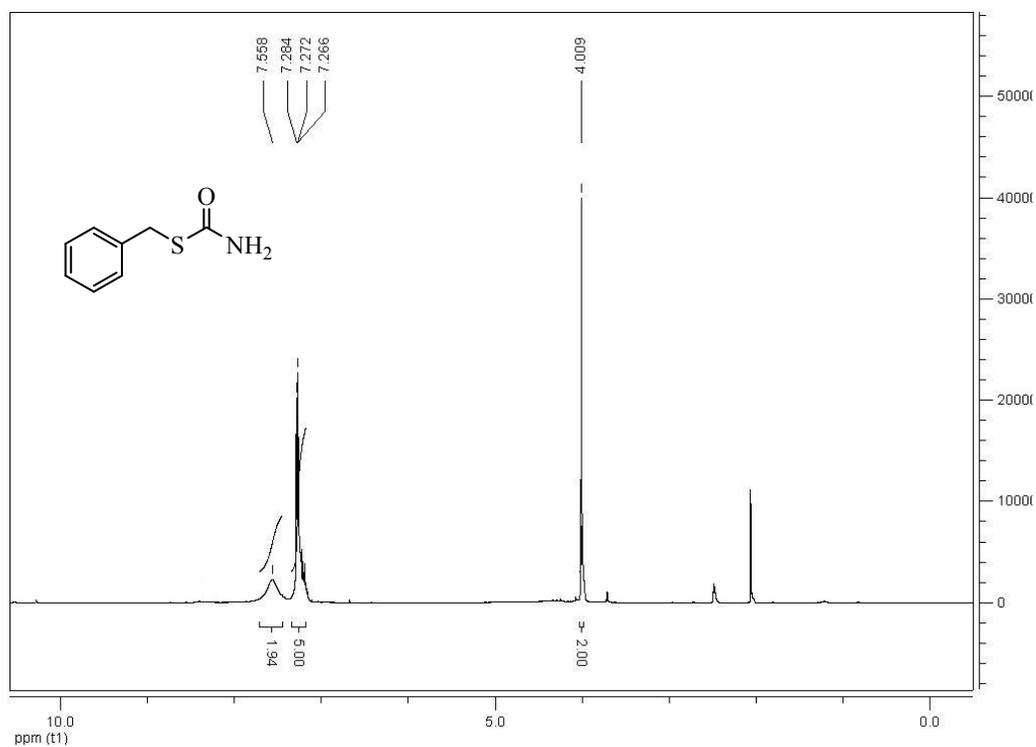


Figure S173. FT-IR spectra of Benzyl *S*-thiocarbamate in KBr



**Figure S174.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of Benzyl *S*-thiocarbamate in  $\text{DMSO-}d_6$



**Figure S175.**  $^1\text{H}$ -NMR spectra (250 MHz) of Benzyl *S*-thiocarbamate in  $\text{DMSO-}d_6$

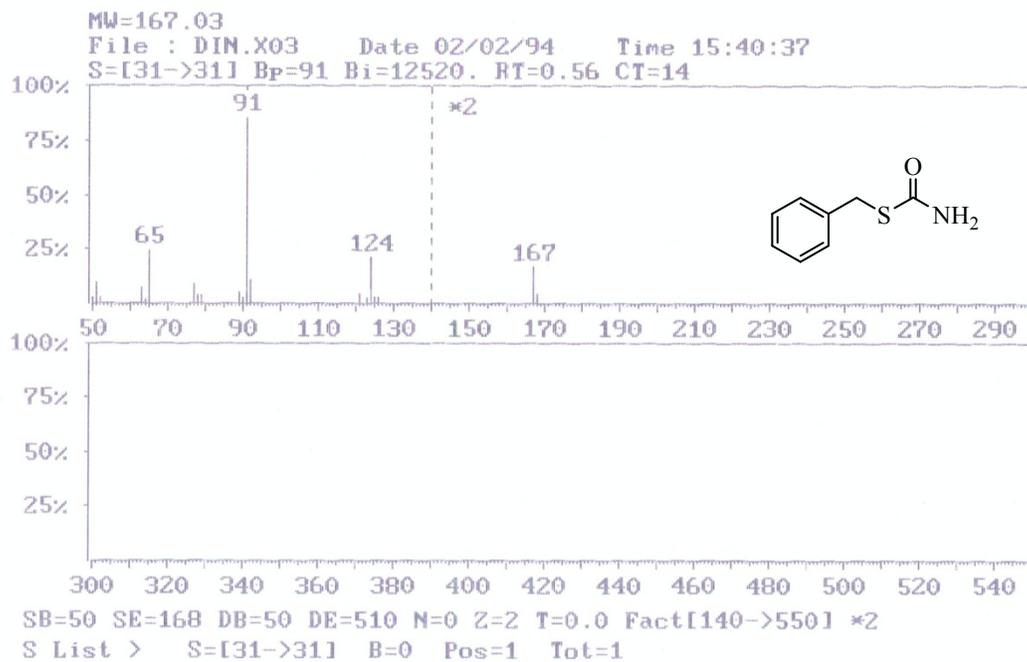


Figure S176. MS of Benzyl S-thiocarbamate

t

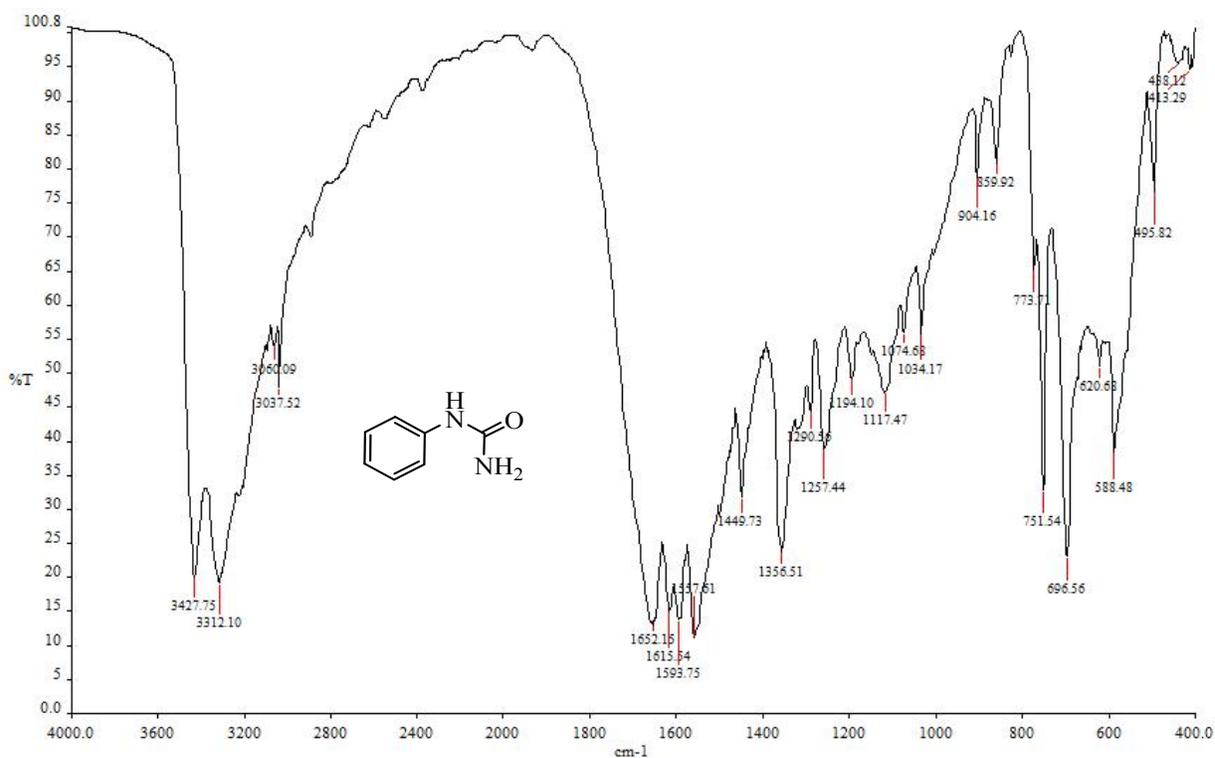
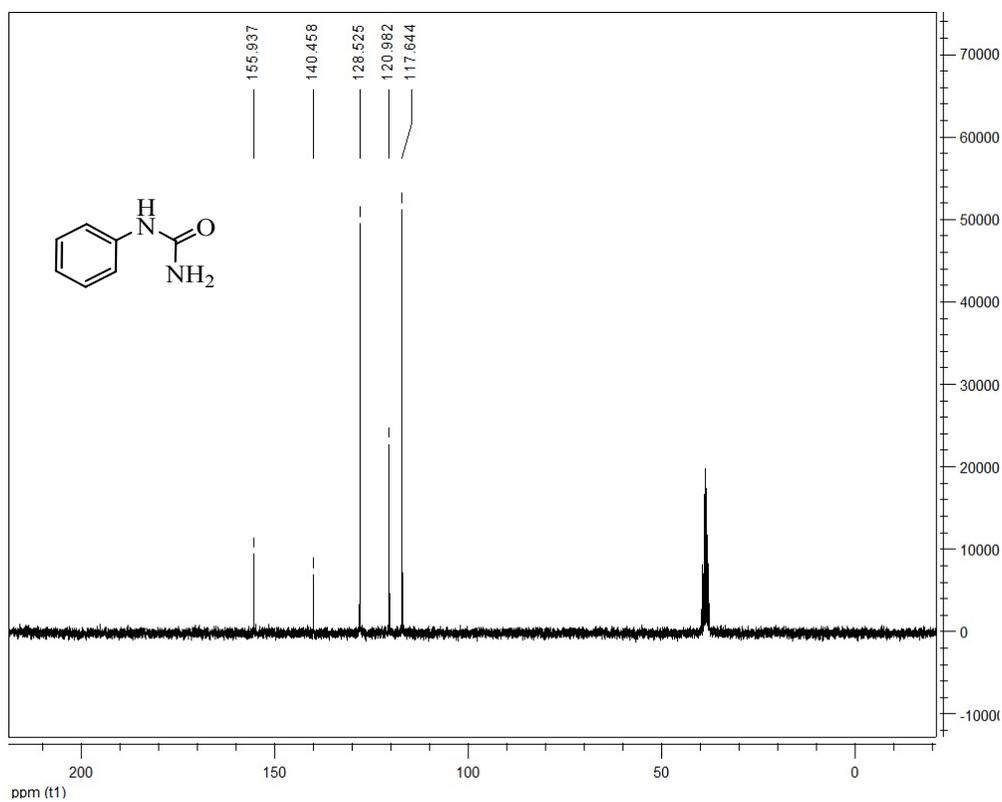
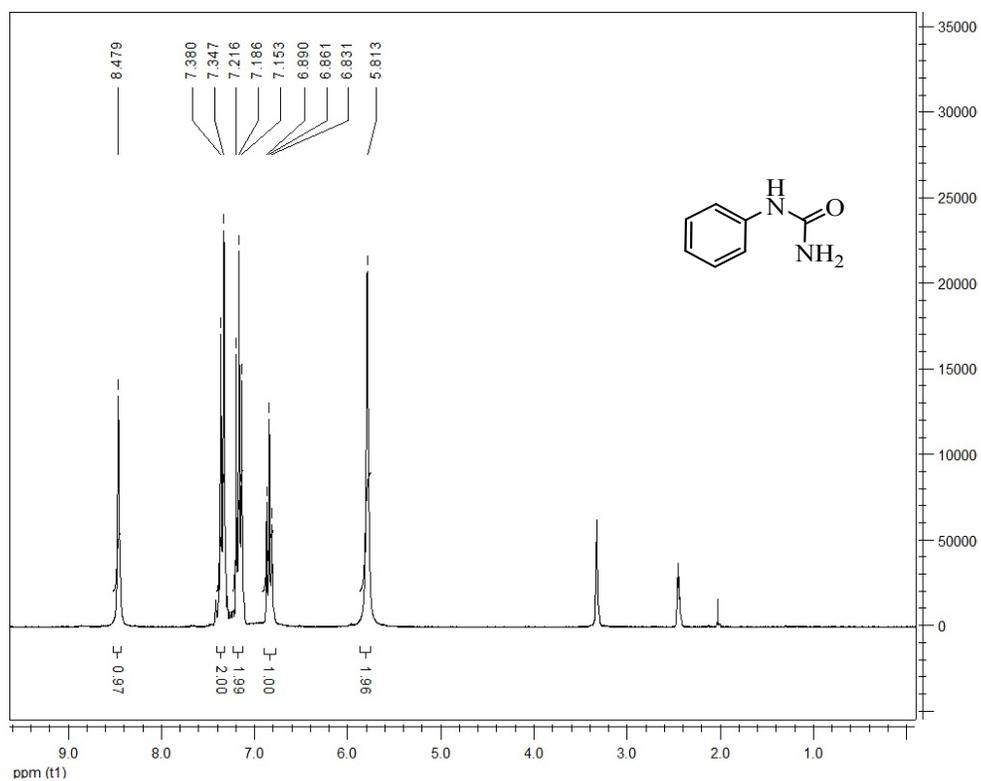


Figure S177. FT-IR spectra of 1-Phenylurea in KBr



**Figure S178.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Phenylurea in  $\text{DMSO-}d_6$



**Figure S179.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Phenylurea in  $\text{DMSO-}d_6$

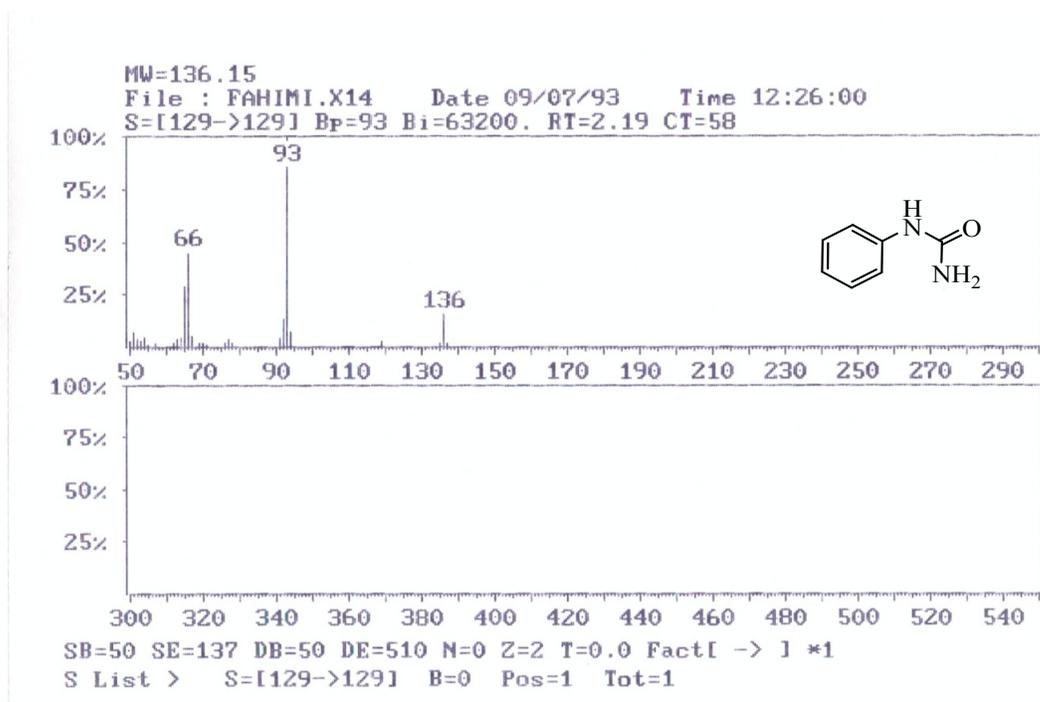


Figure S180. MS of 1-Phenylurea

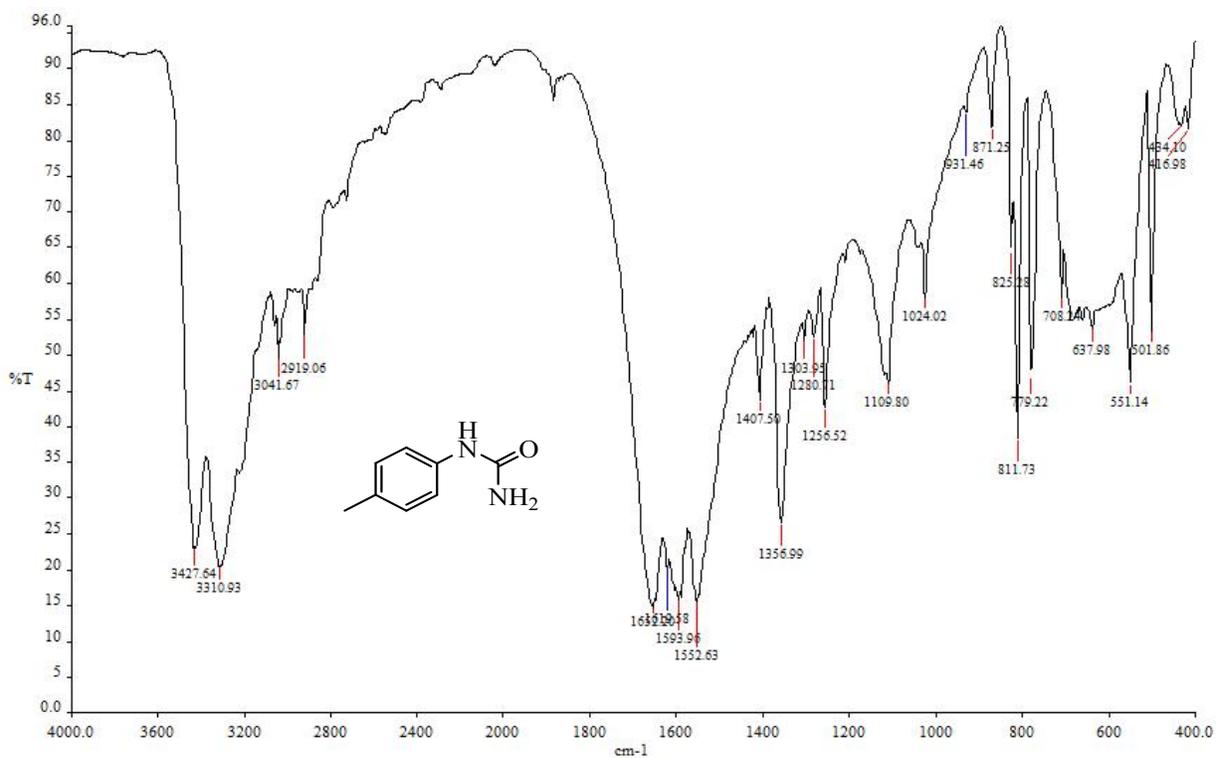
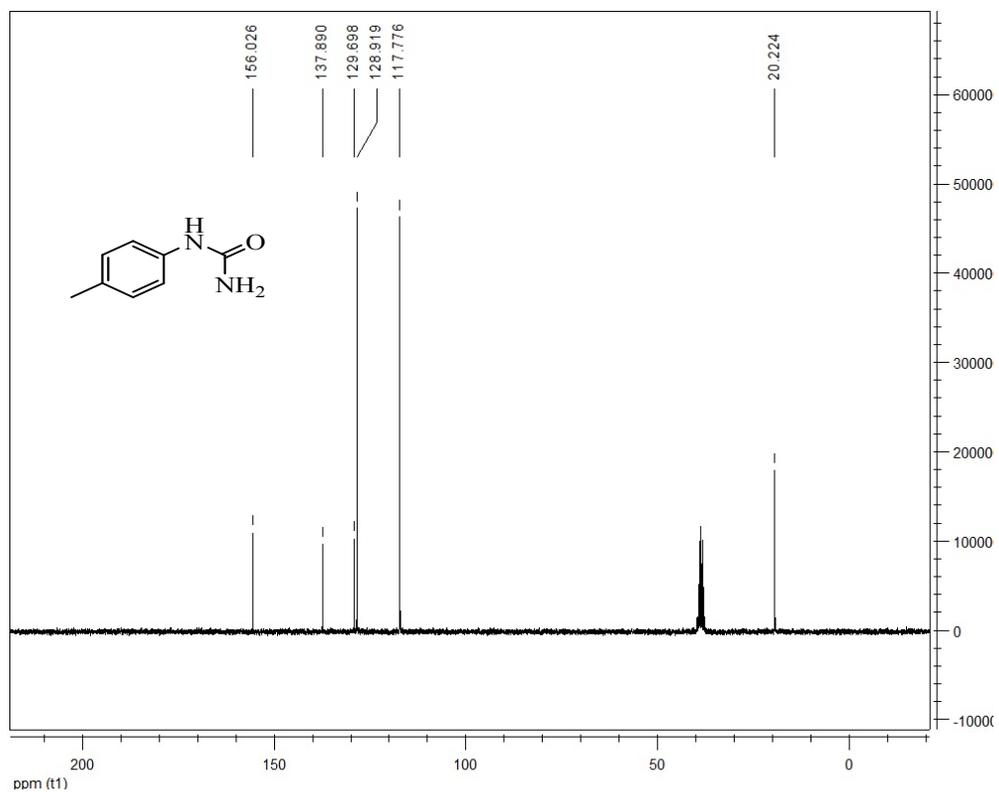
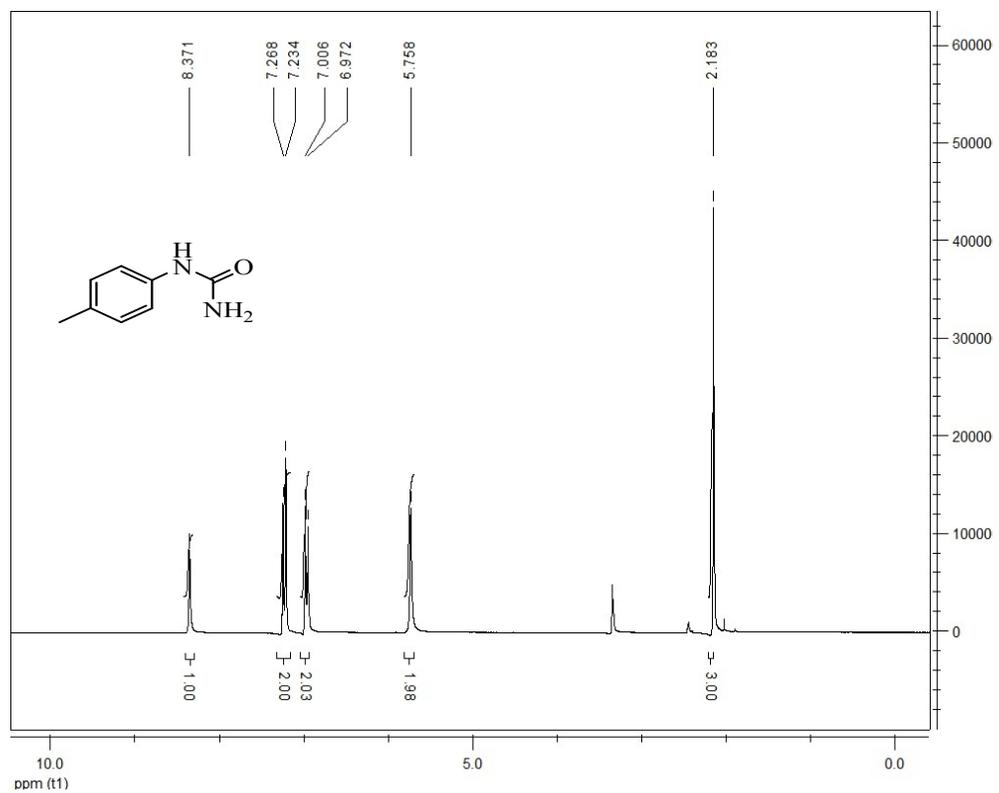


Figure S181. FT-IR spectra of 1-(4-Methylphenyl)urea in KBr



**Figure S182.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-(4-Methylphenyl)urea in  $\text{DMSO-}d_6$



**Figure S183.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-(4-Methylphenyl)urea in  $\text{DMSO-}d_6$

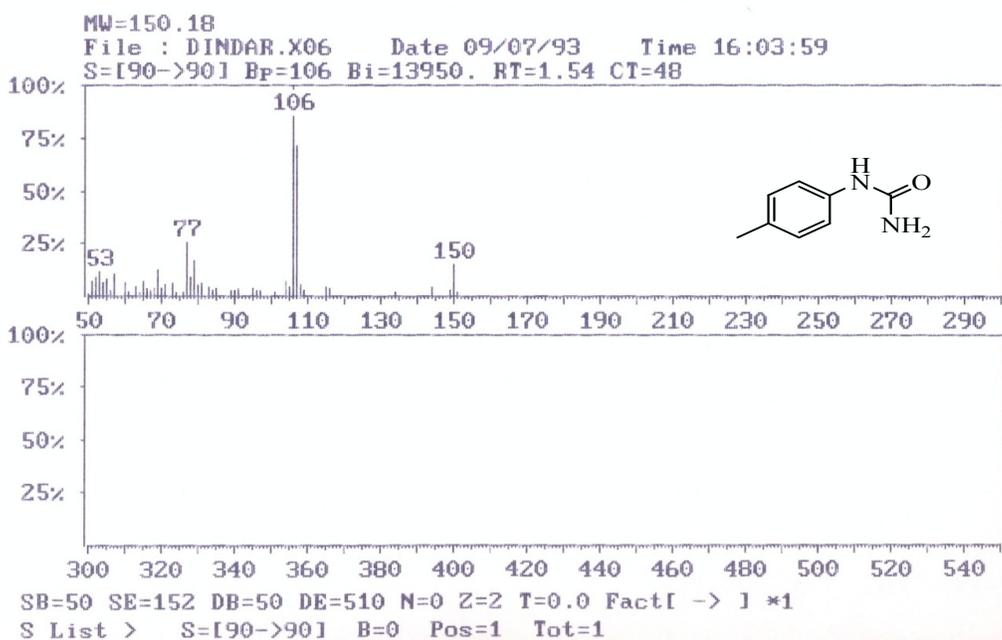


Figure S184. MS of 1-(4-Methylphenyl)urea

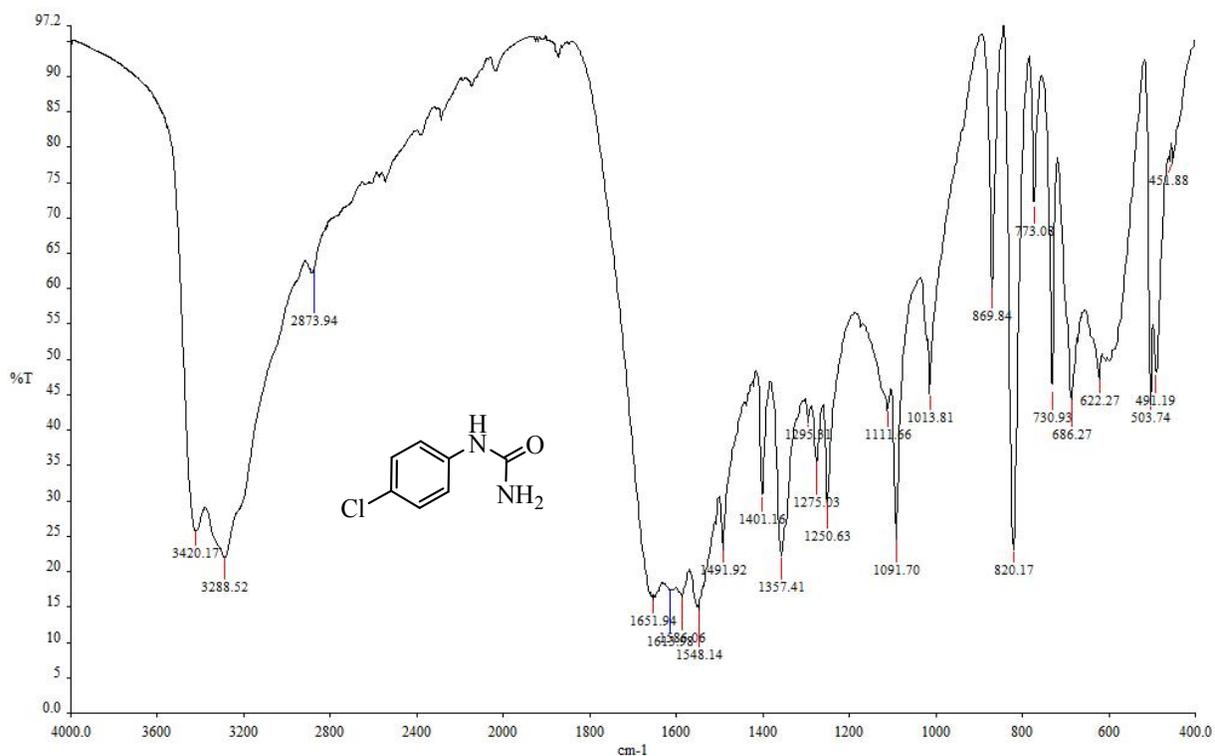
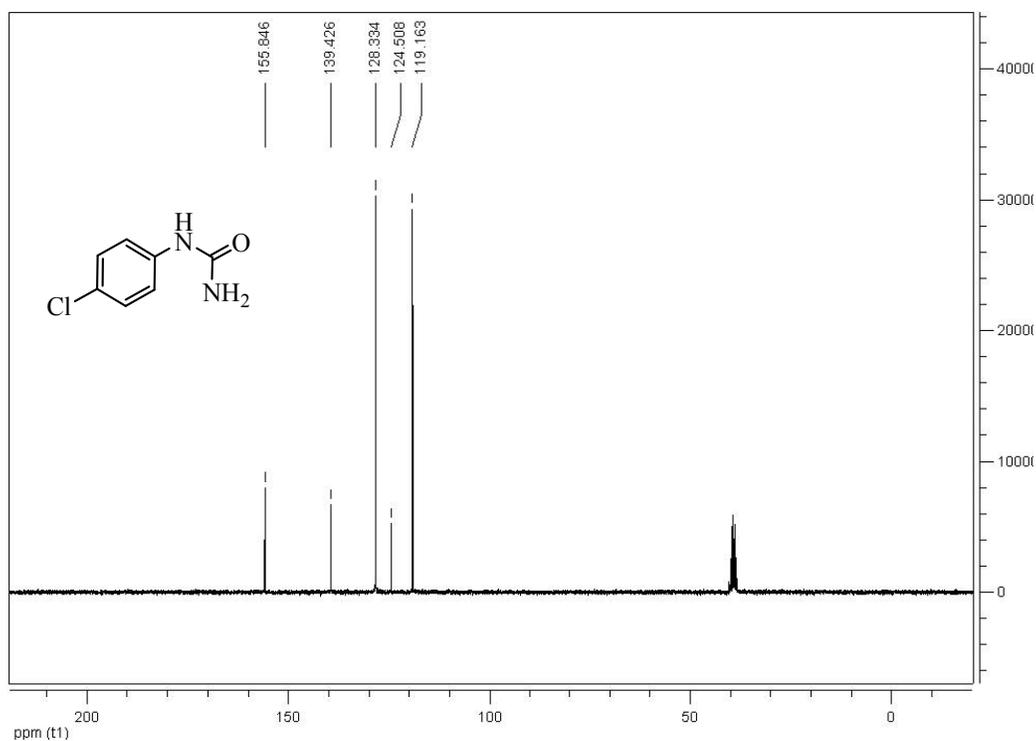
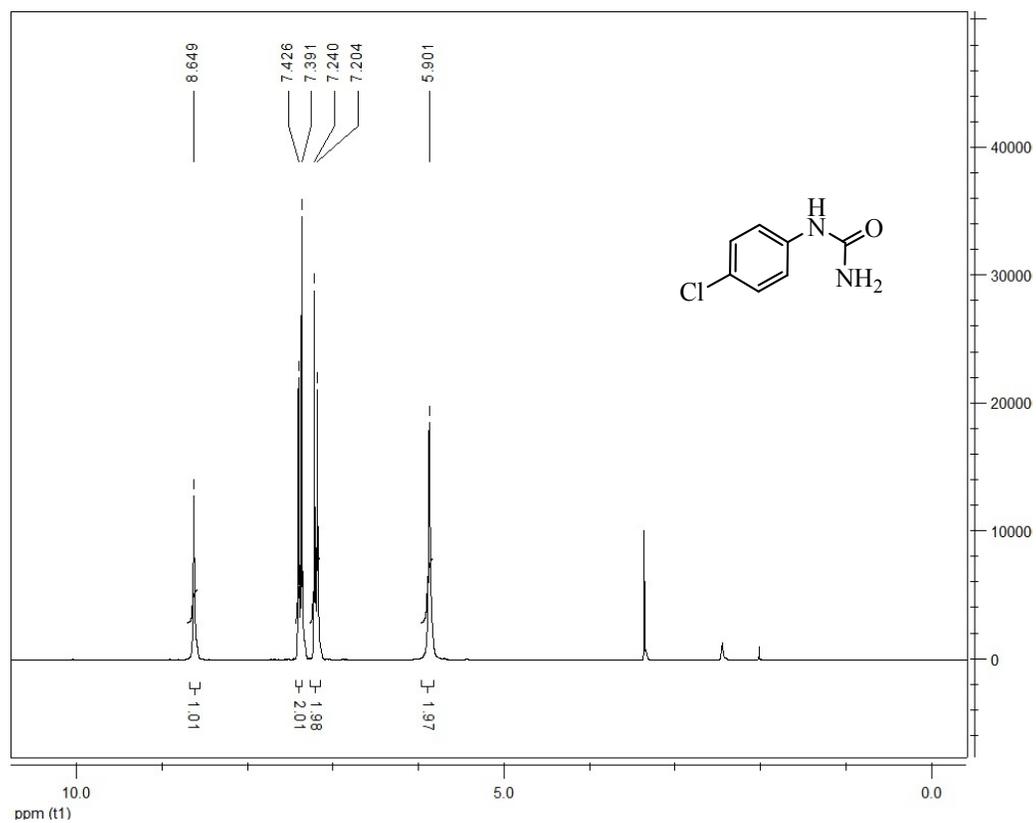


Figure S185. FT-IR spectra of 1-(4-Chlorophenyl)urea in KBr



**Figure S186.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-(4-Chlorophenyl)urea in  $\text{DMSO-}d_6$



**Figure S187.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-(4-Chlorophenyl)urea in  $\text{DMSO-}d_6$

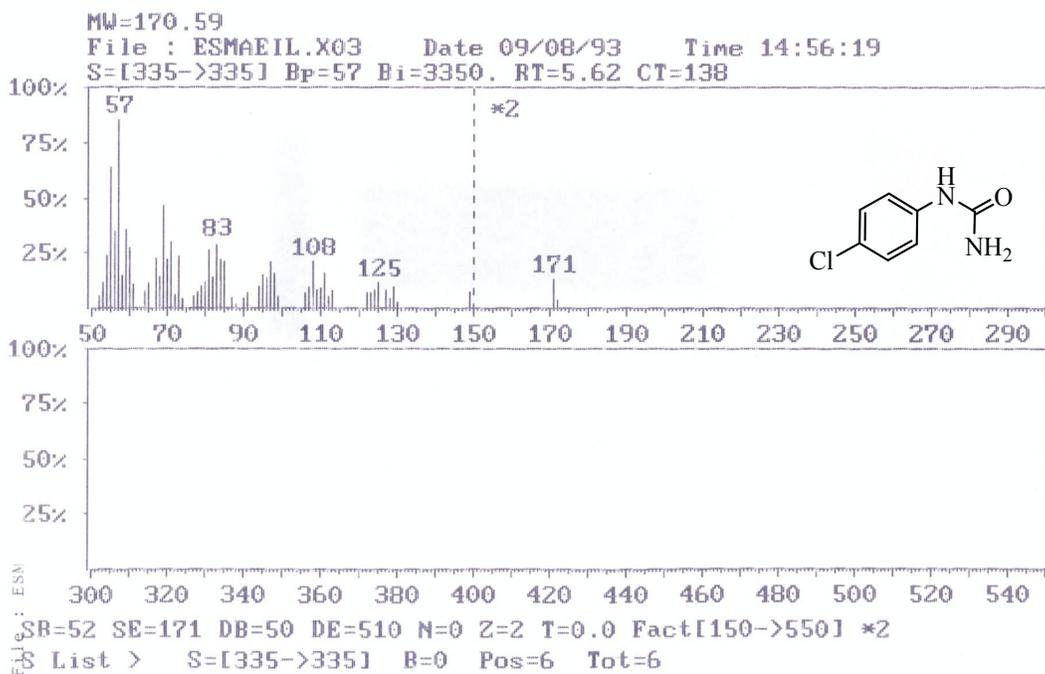


Figure S188. MS of 1-(4-Chlorophenyl)urea

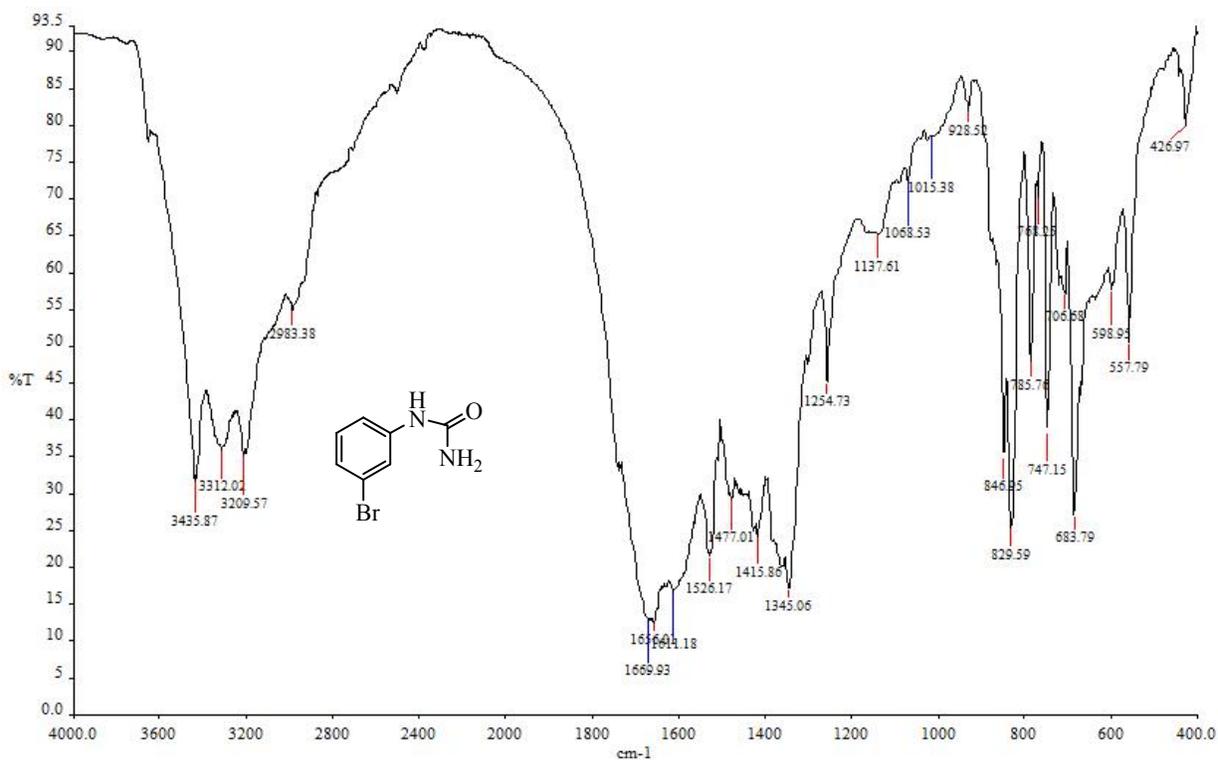
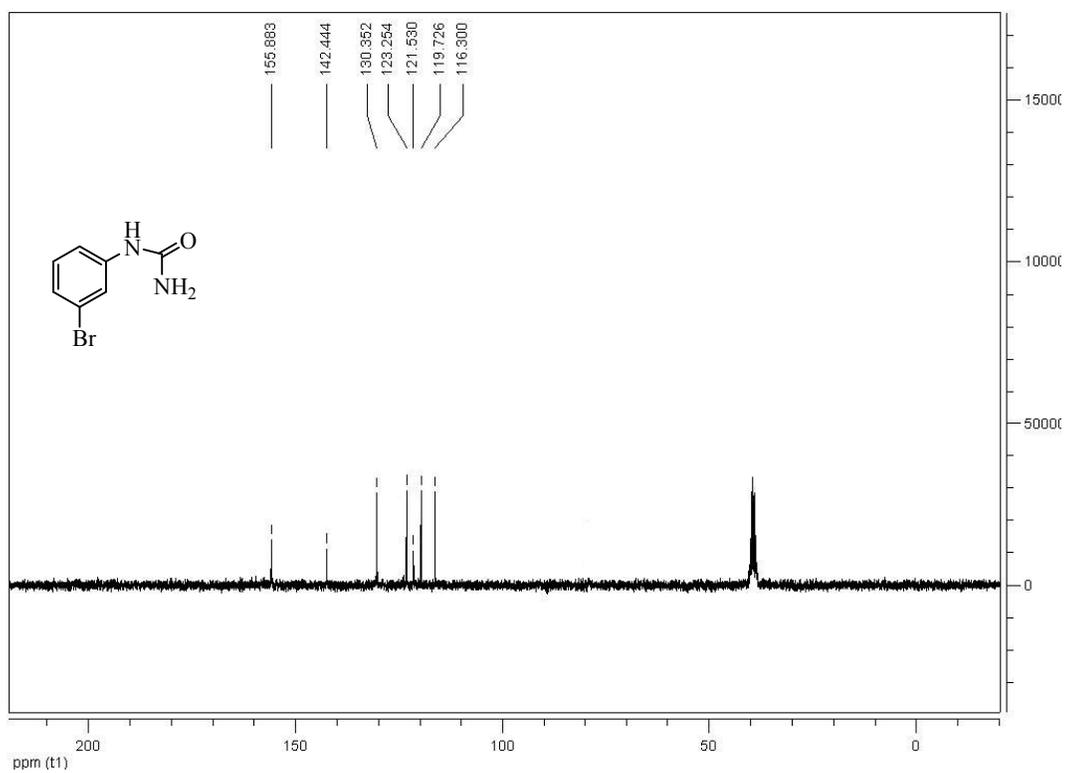
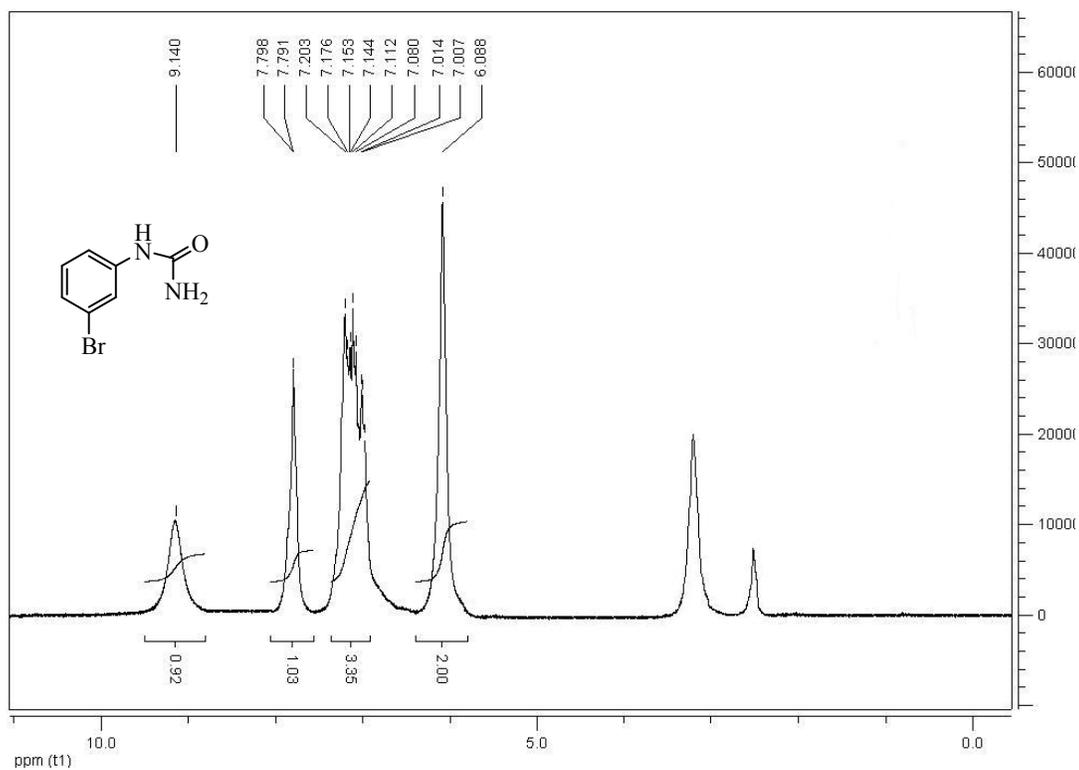


Figure S189. FT-IR spectra of 1-(3-Bromophenyl)urea in KBr



**Figure S190.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-(3-Bromophenyl)urea in  $\text{DMSO-}d_6$



**Figure S191.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-(3-Bromophenyl)urea in  $\text{DMSO-}d_6$

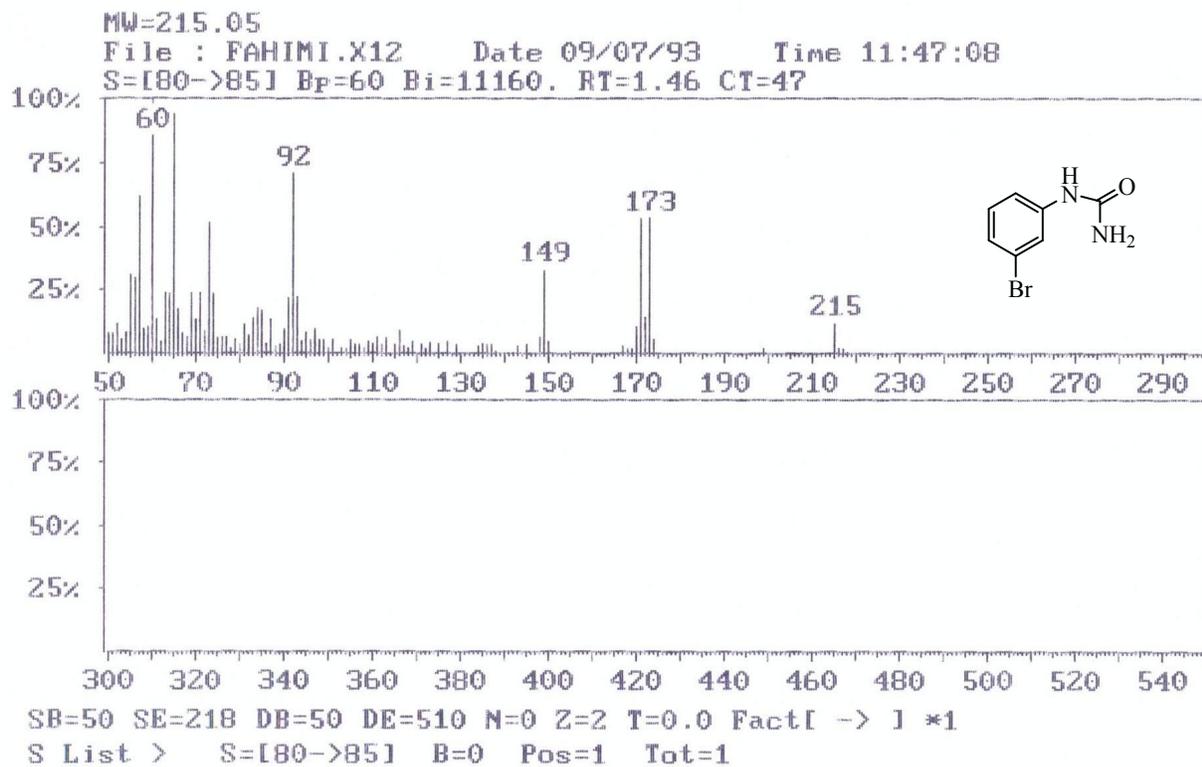


Figure S192. MS of 1-(3-Bromophenyl)urea

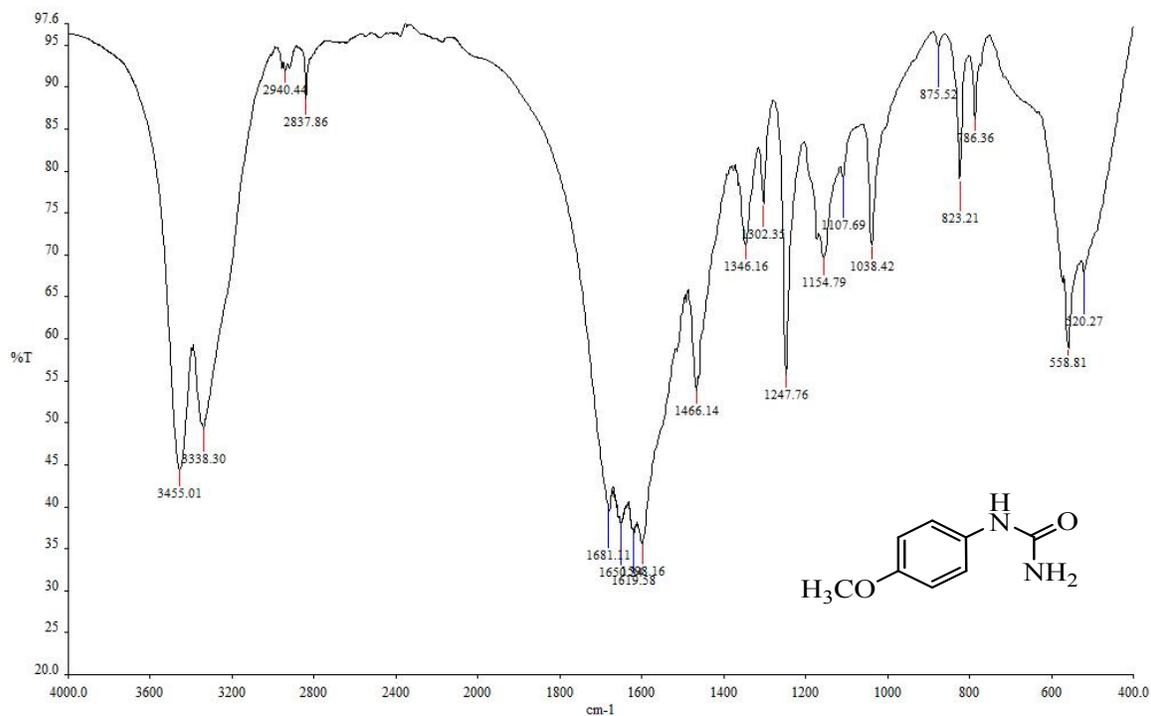
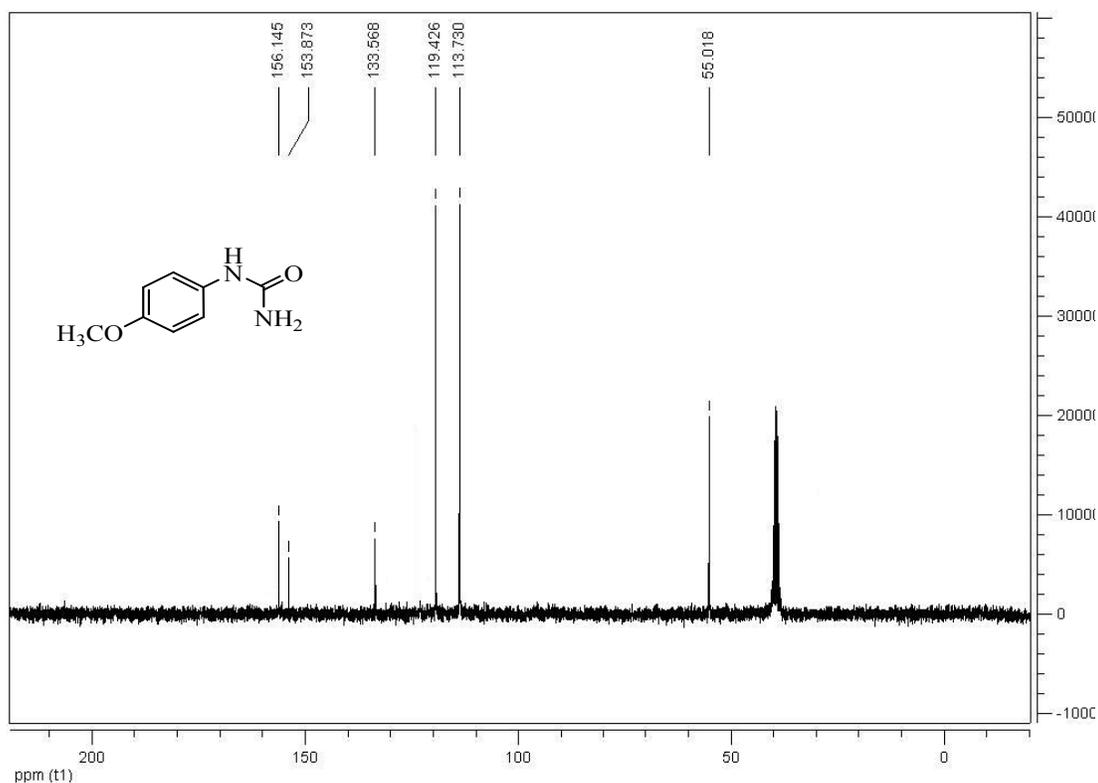
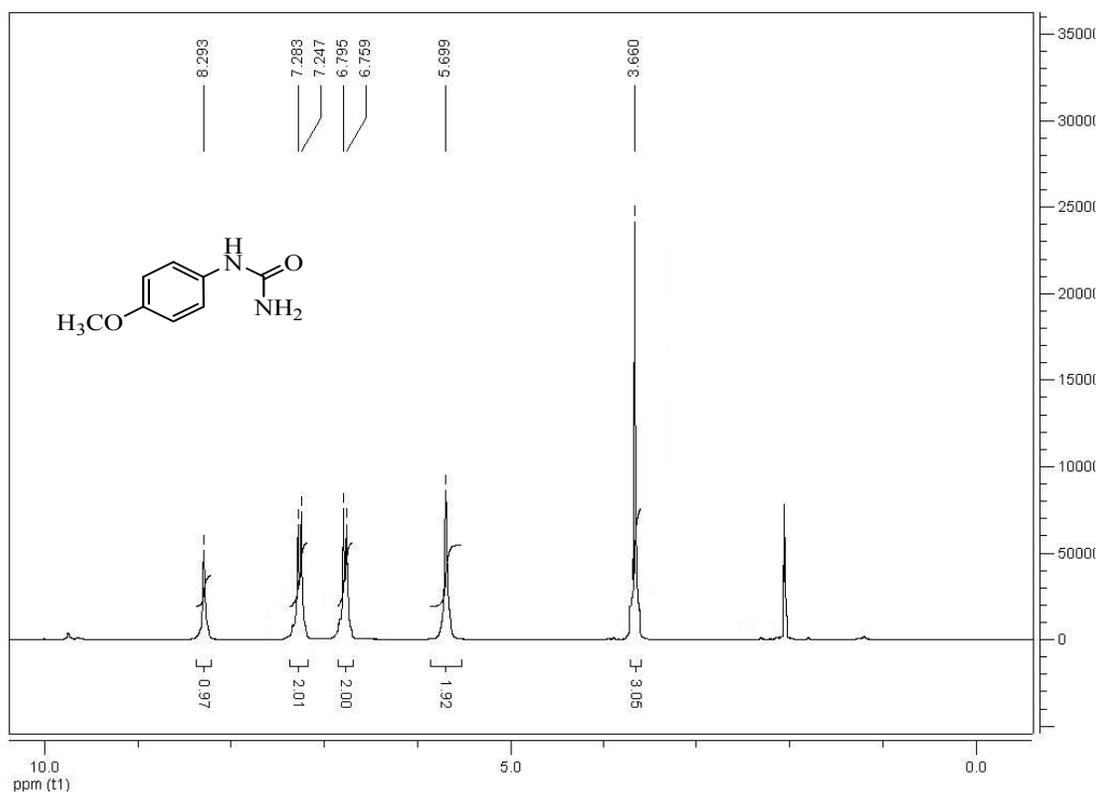


Figure S193. FT-IR spectra of 1-(4-Methoxyphenyl)urea in KBr



**Figure S194.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-(4-Methoxyphenyl)urea in  $\text{DMSO-}d_6$



**Figure S195.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-(4-Methoxyphenyl)urea in  $\text{DMSO-}d_6$

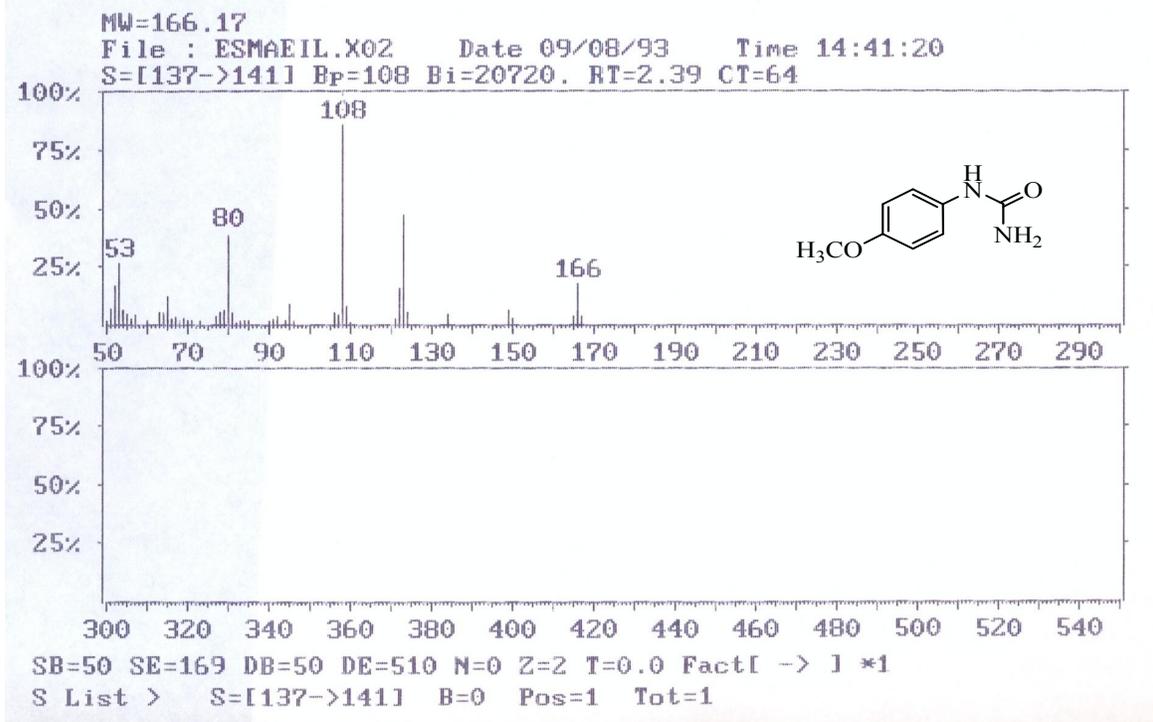


Figure S196. MS of 1-(4-Methoxyphenyl)urea

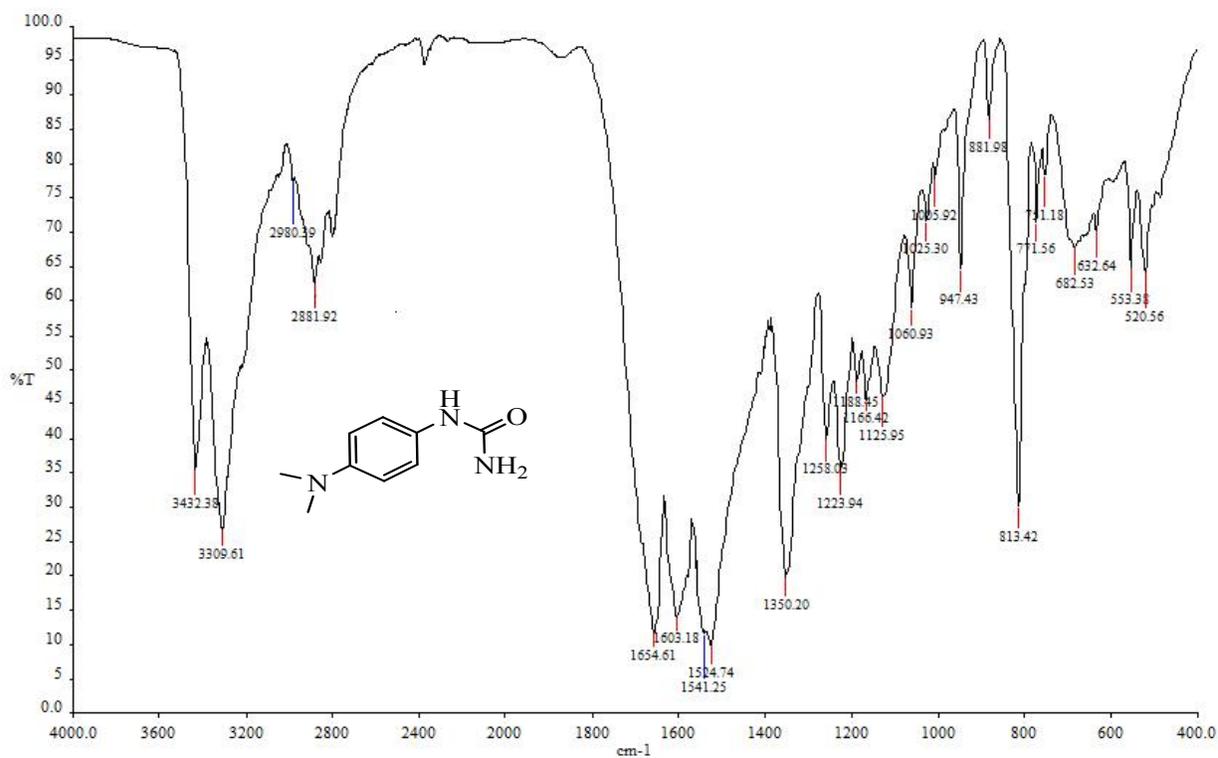
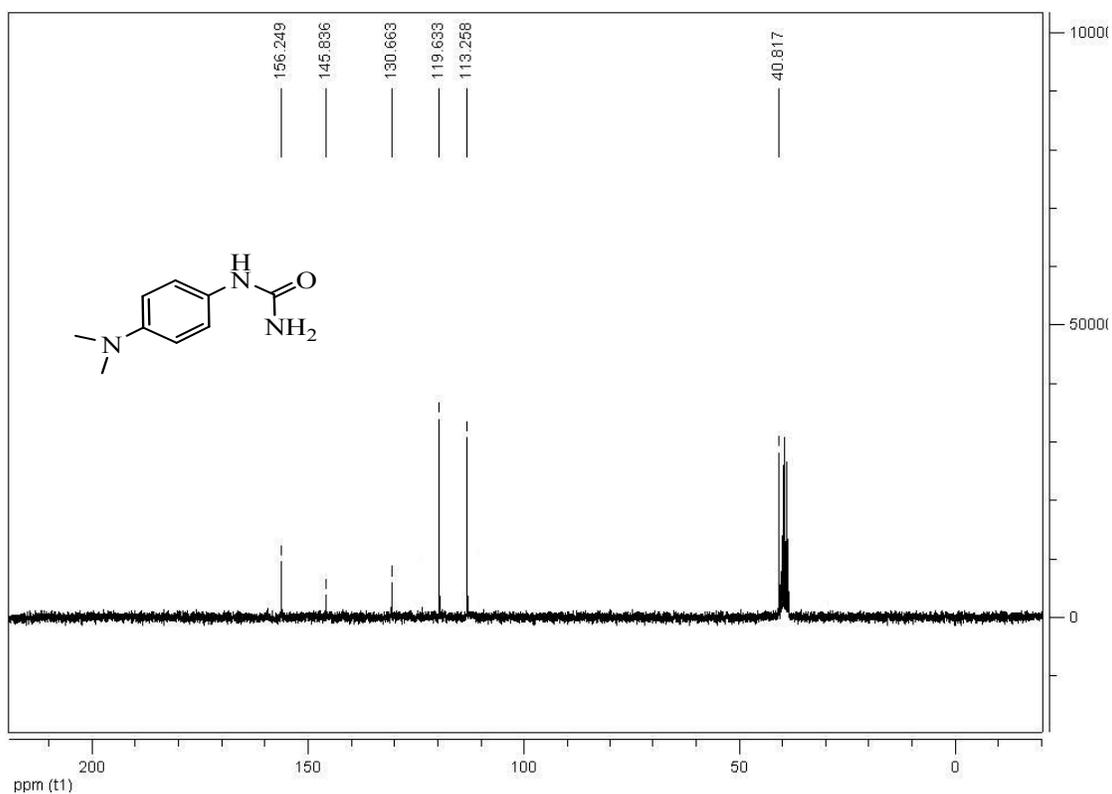
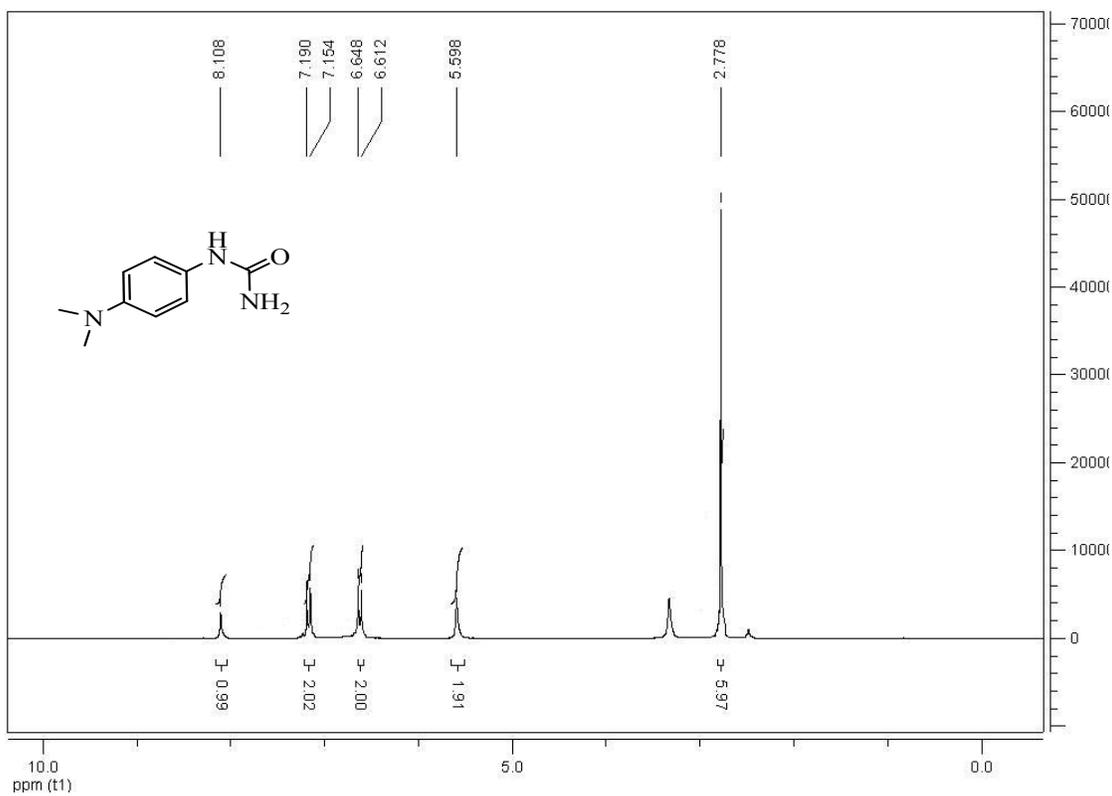


Figure S197. FT-IR spectra of 1-(4-(Dimethylamino)phenyl)urea in KBr



**Figure S198.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-(4-(Dimethylamino)phenyl)urea in  $\text{DMSO-}d_6$



**Figure S199.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-(4-(Dimethylamino)phenyl)urea in  $\text{DMSO-}d_6$

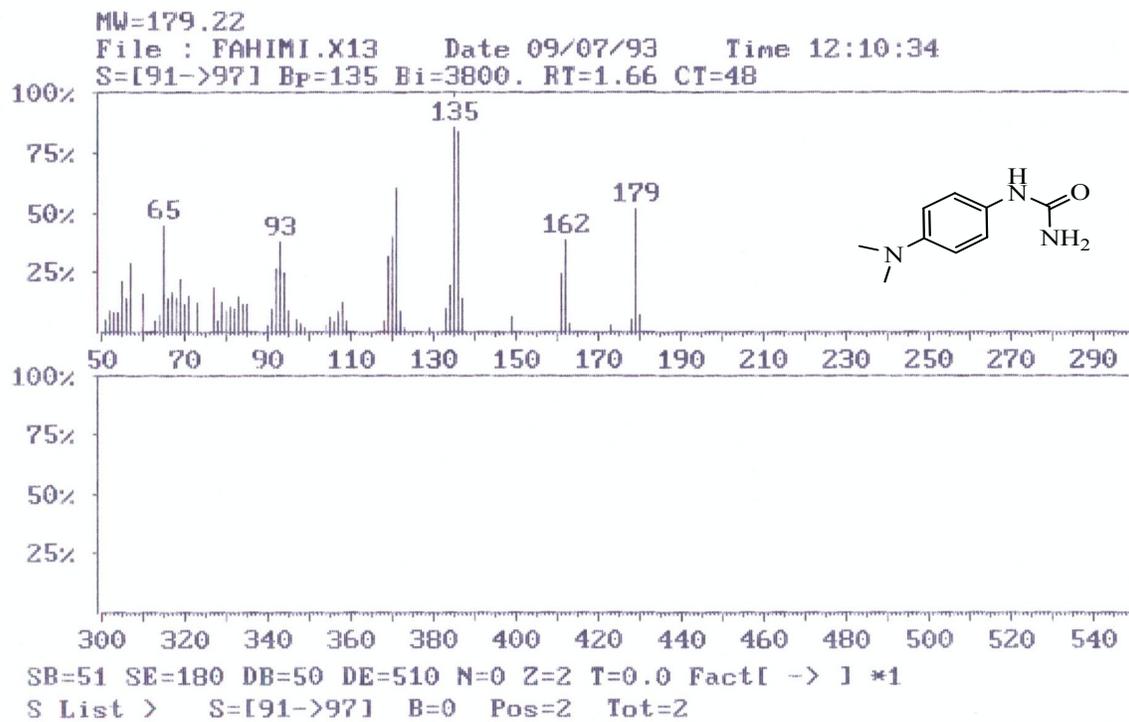


Figure S200. MS of 1-(4-(Dimethylamino)phenyl)urea

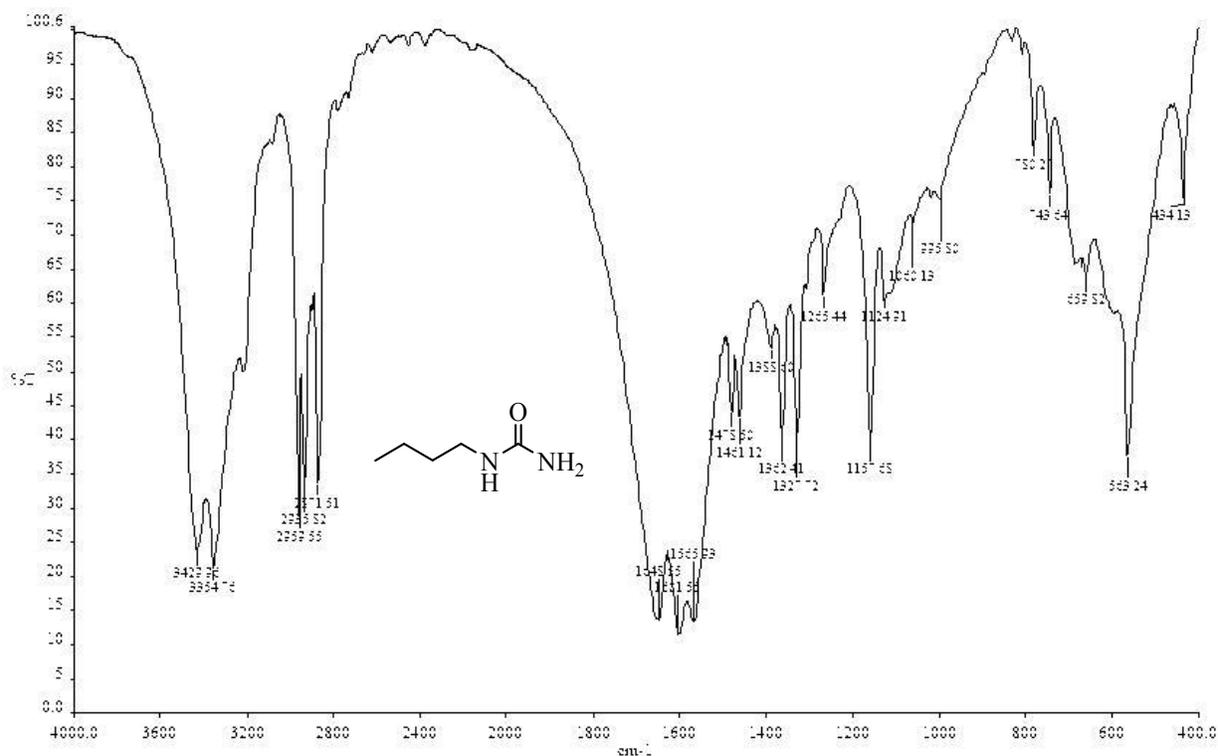
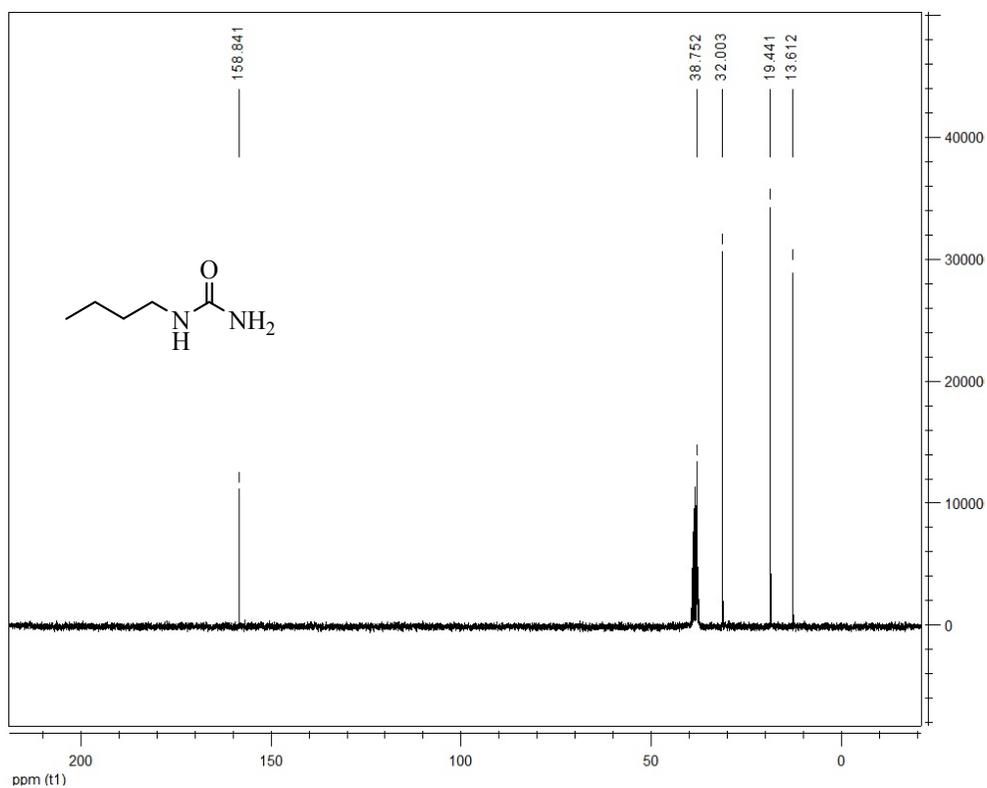
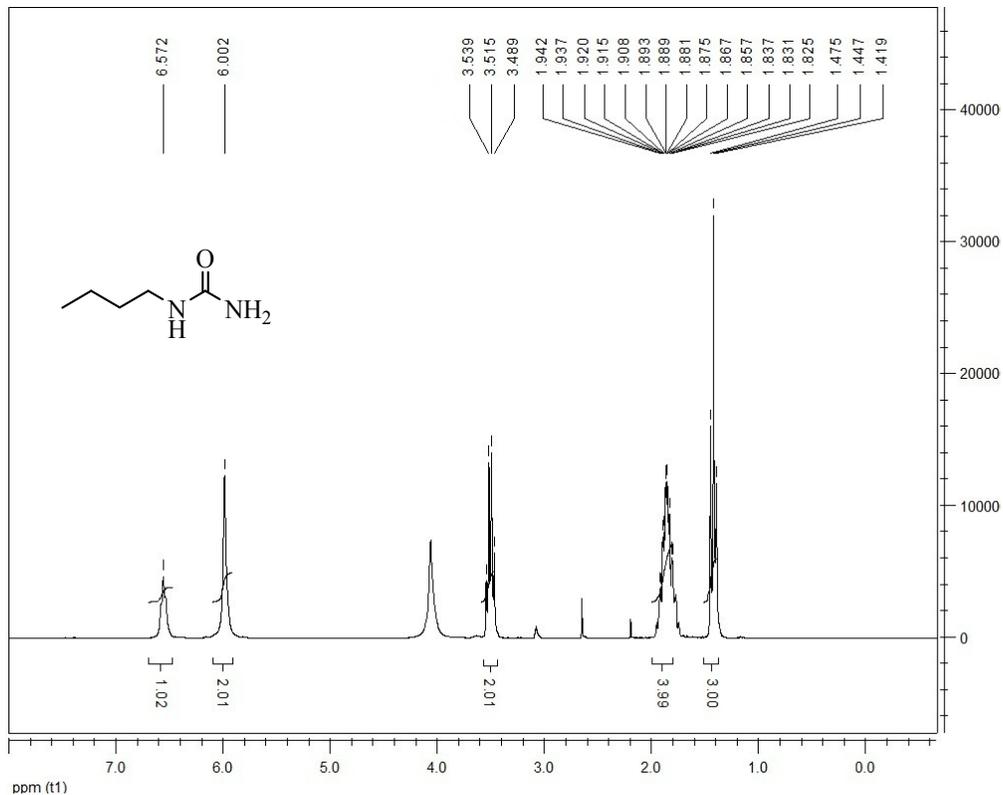


Figure S201. FT-IR spectra of 1-Butylurea in KBr



**Figure S202.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Butylurea in  $\text{DMSO-}d_6$



**Figure S203.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Butylurea in  $\text{DMSO-}d_6$

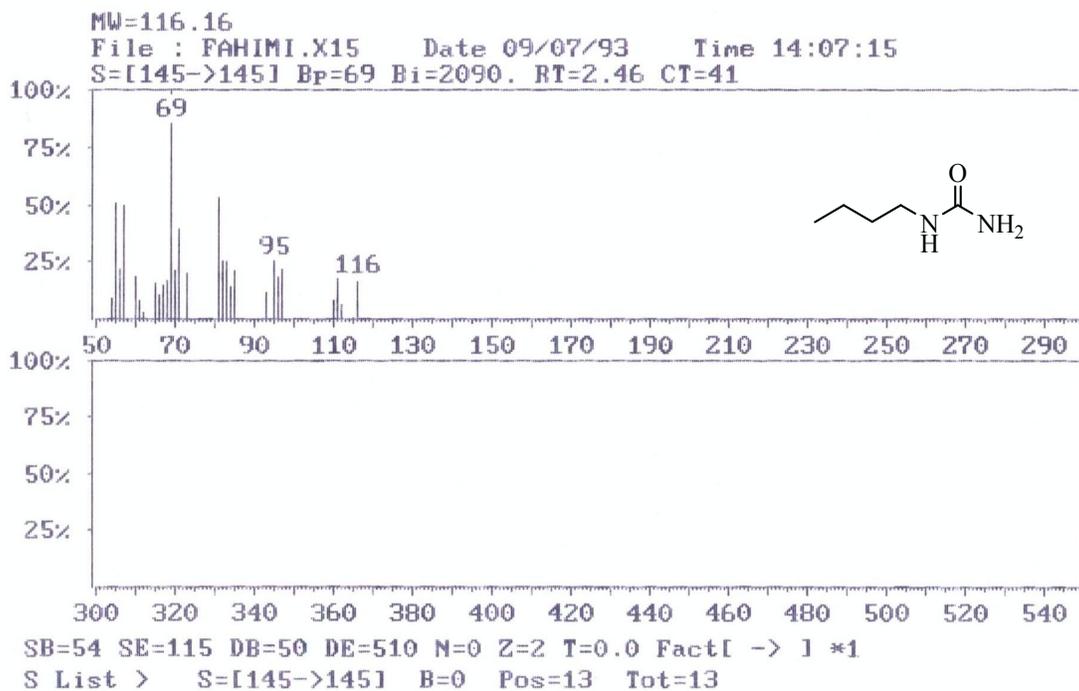


Figure S204. MS of 1-Butylurea

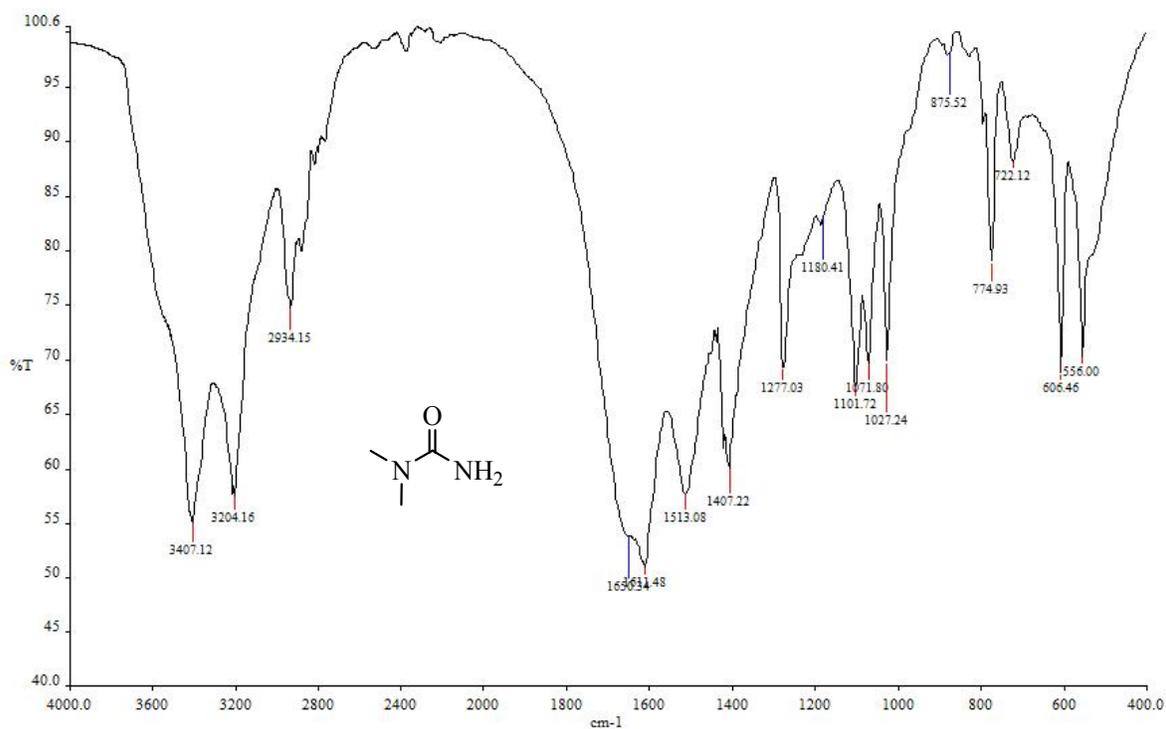
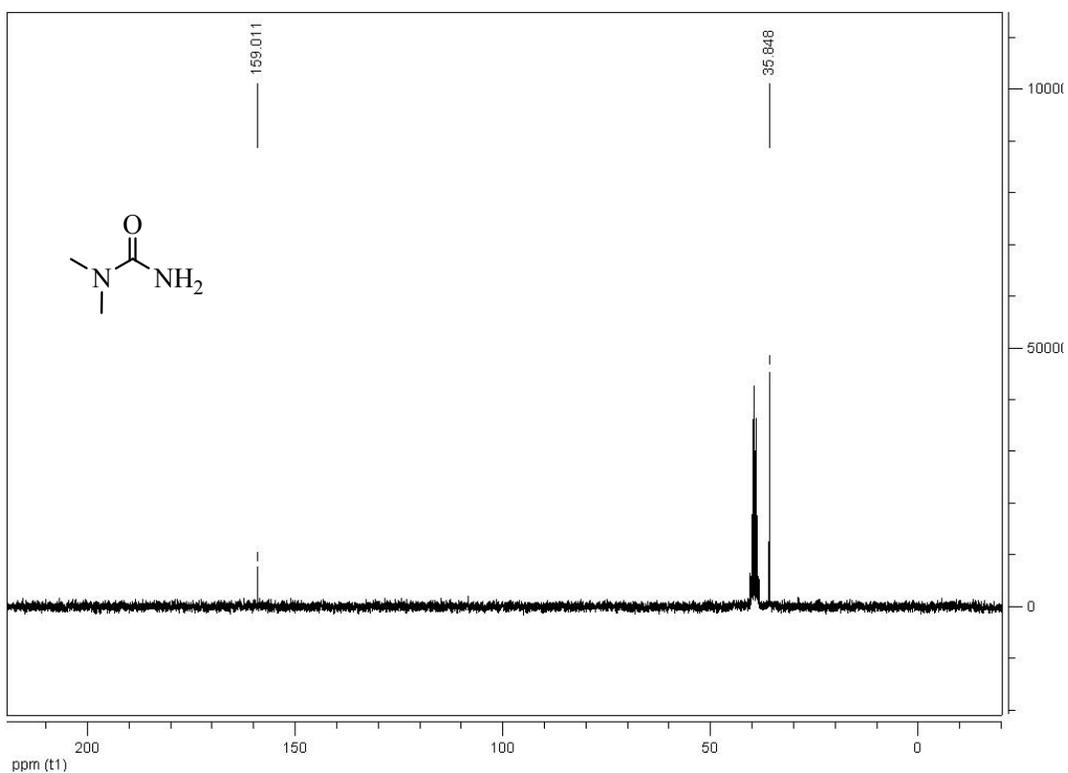
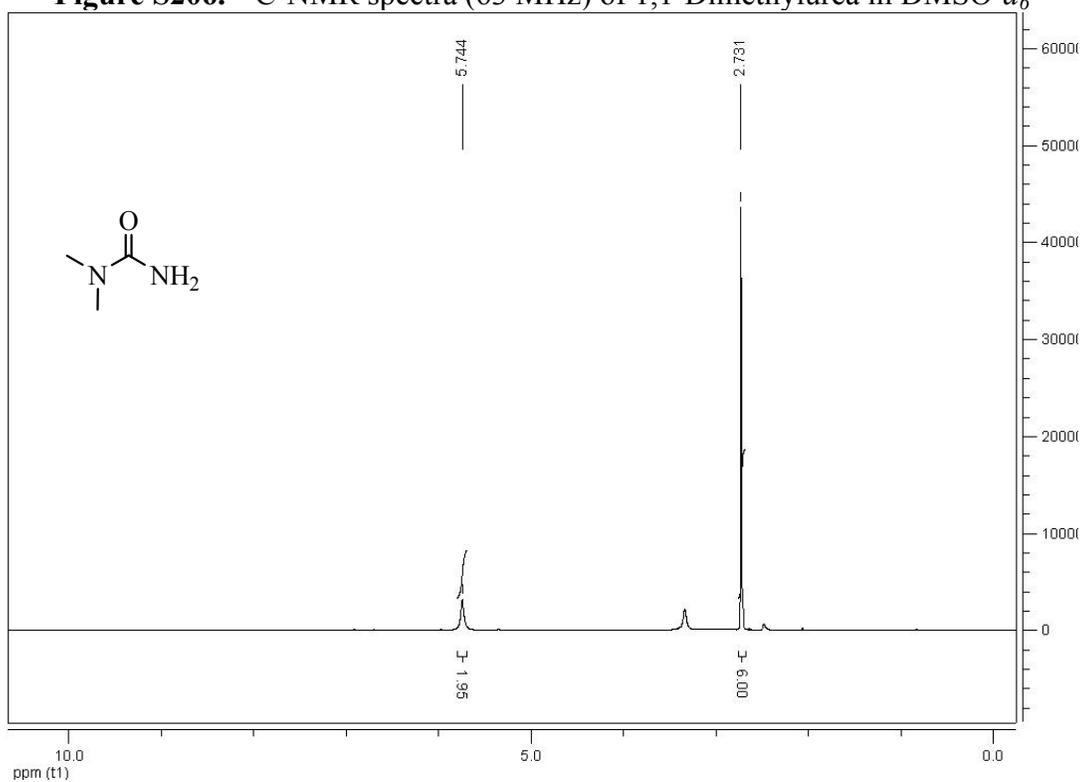


Figure S205. FT-IR spectra of 1,1-Dimethylurea in KBr



**Figure S206.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1,1-Dimethylurea in  $\text{DMSO-}d_6$



**Figure S207.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1,1-Dimethylurea in  $\text{DMSO-}d_6$ .

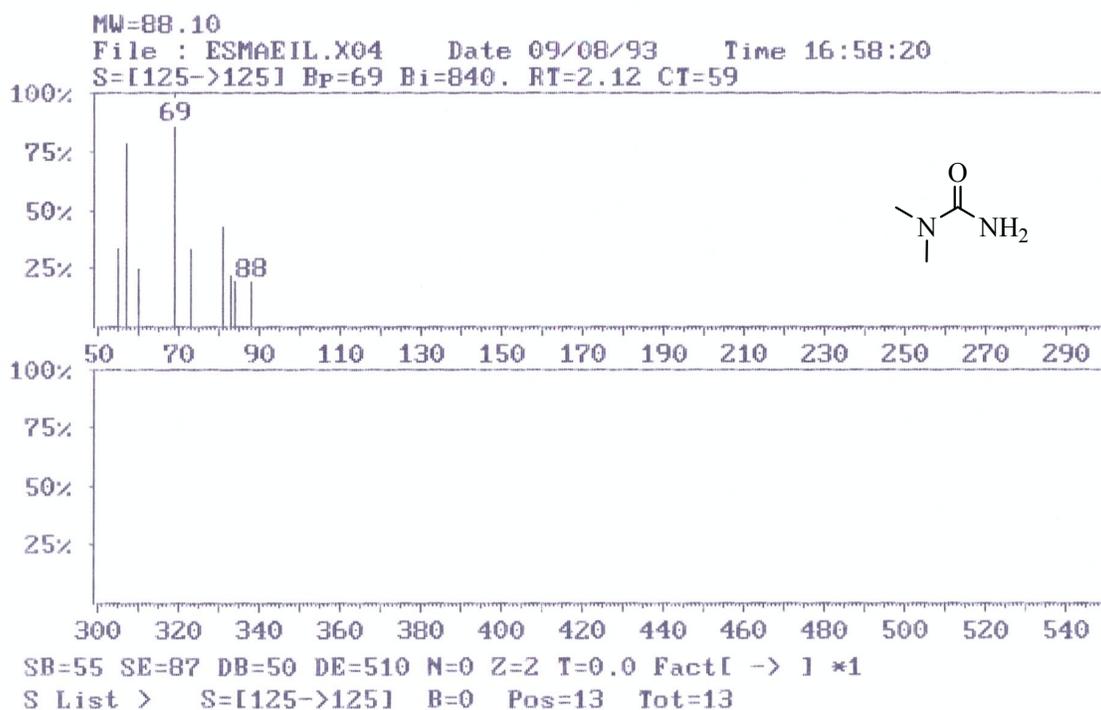


Figure S208. MS of 1,1-Dimethylurea

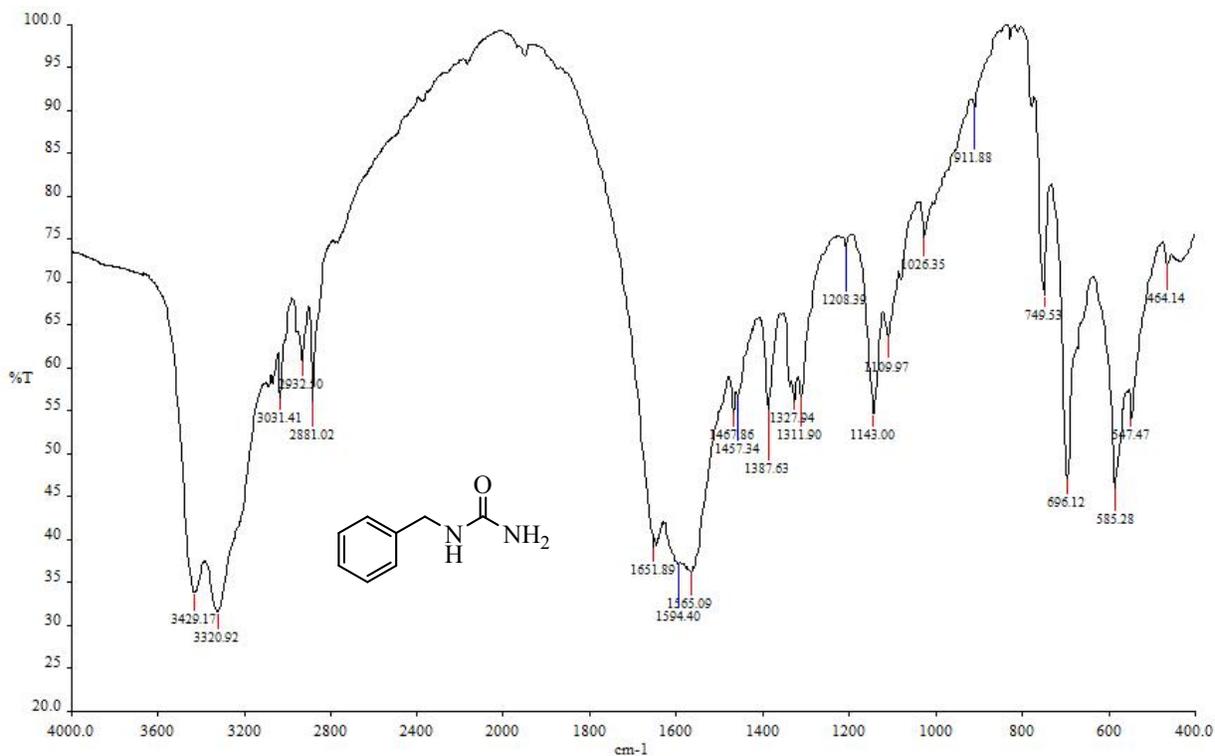
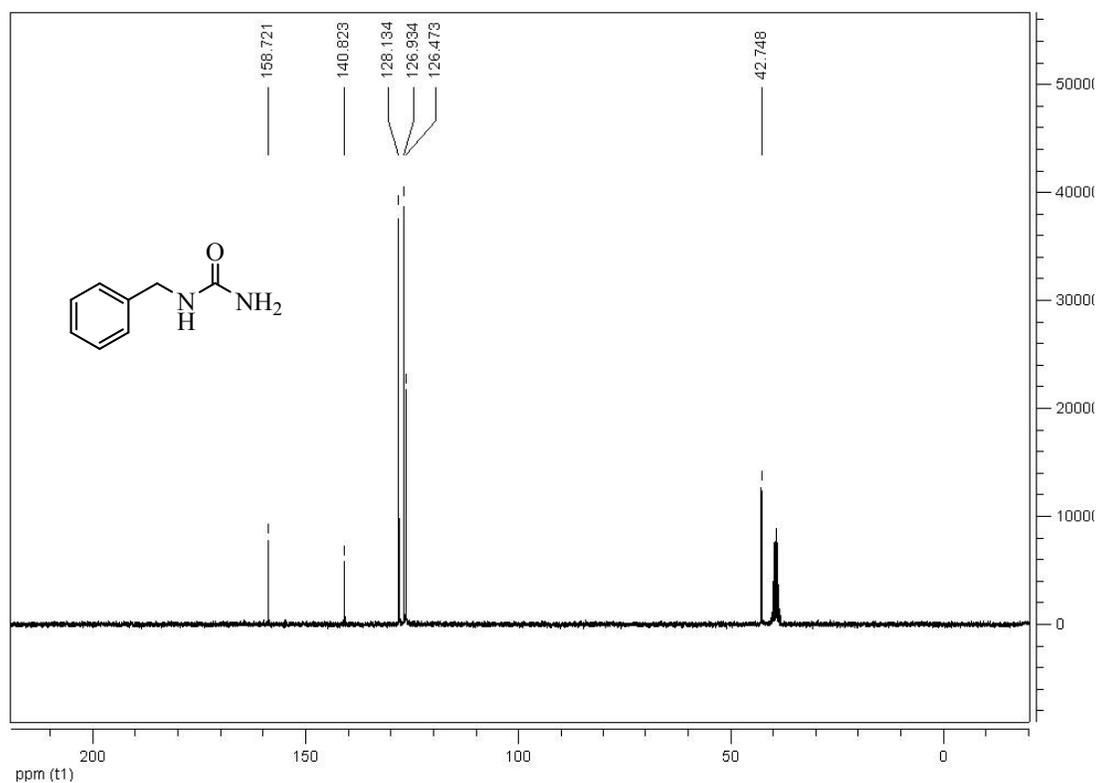
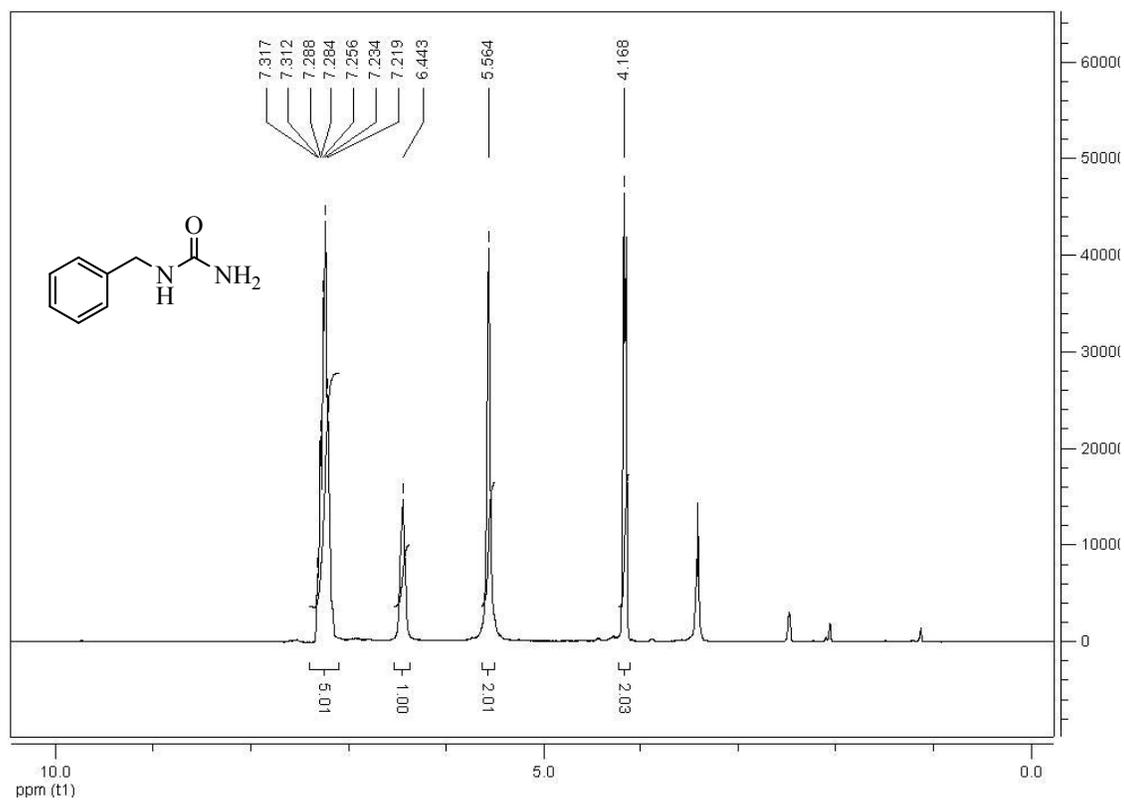


Figure S209. FT-IR spectra of 1-Benzylurea in KBr



**Figure S210.**  $^{13}\text{C}$ -NMR spectra (63 MHz) of 1-Benzylurea in  $\text{DMSO-}d_6$



**Figure S211.**  $^1\text{H}$ -NMR spectra (250 MHz) of 1-Benzylurea in  $\text{DMSO-}d_6$

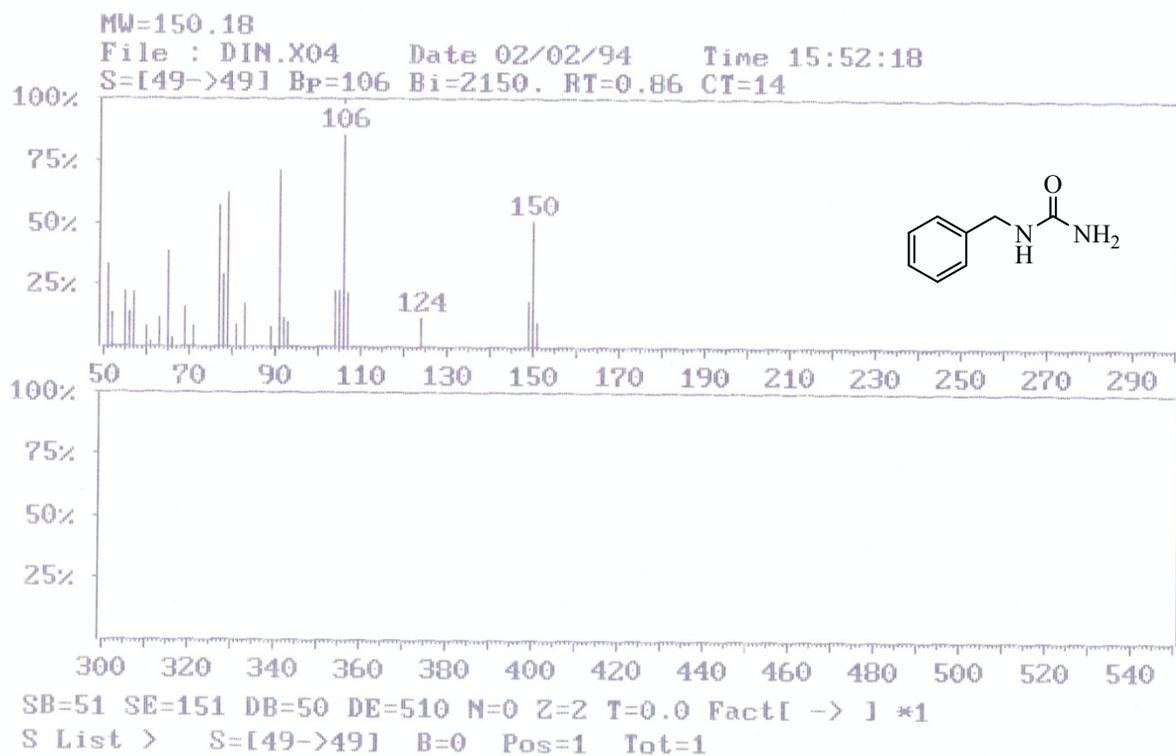


Figure S212. MS of 1-Benzylurea