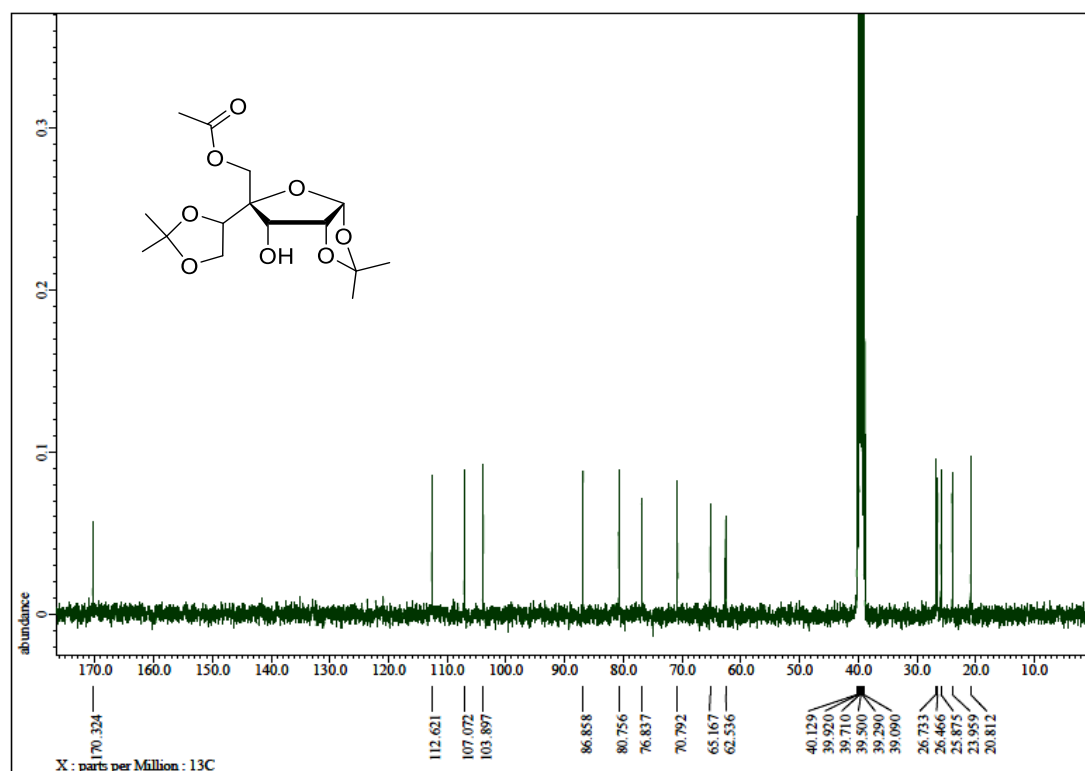
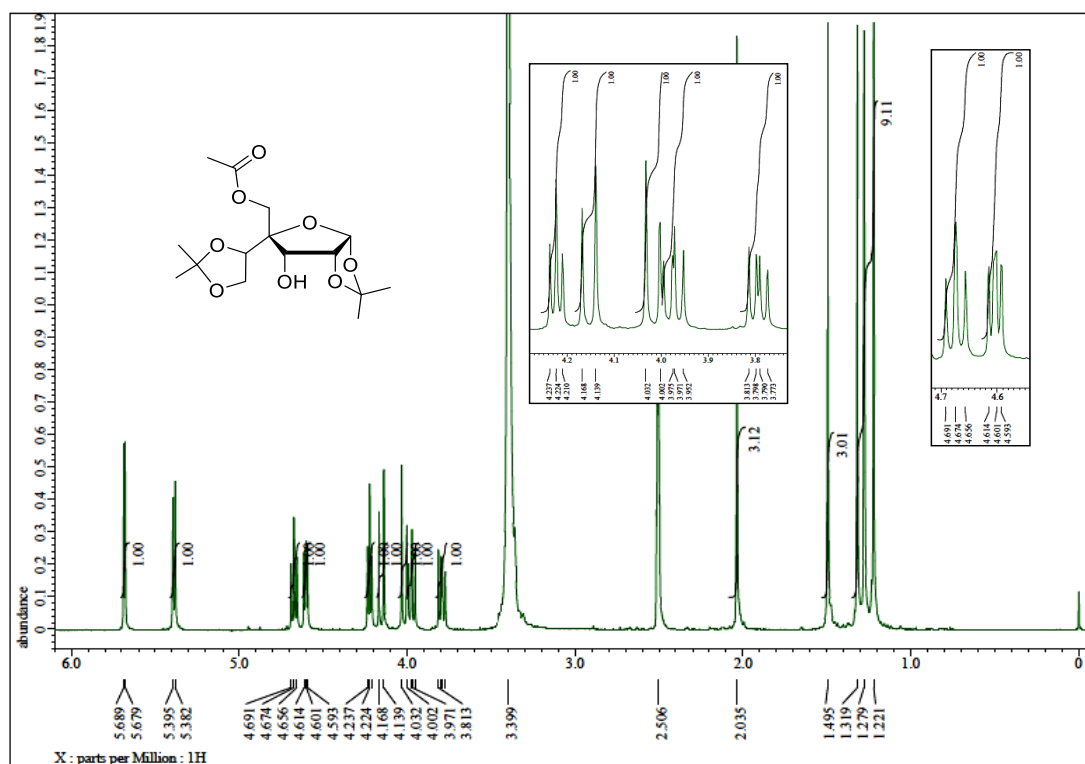


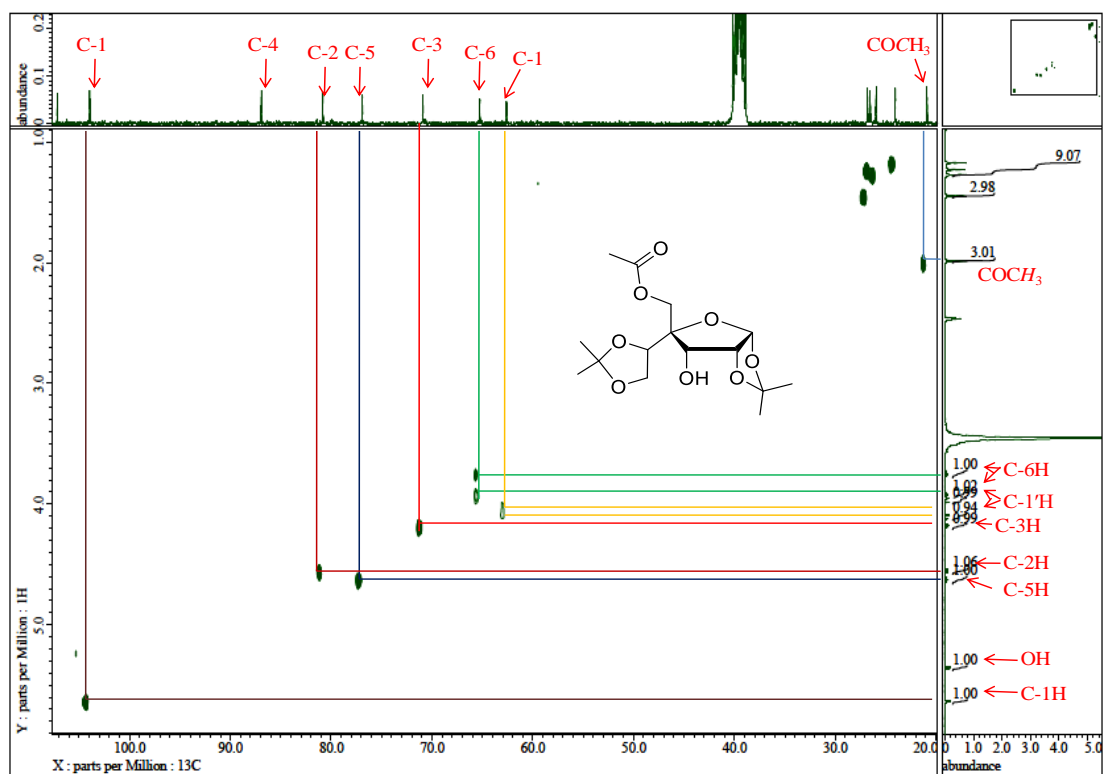
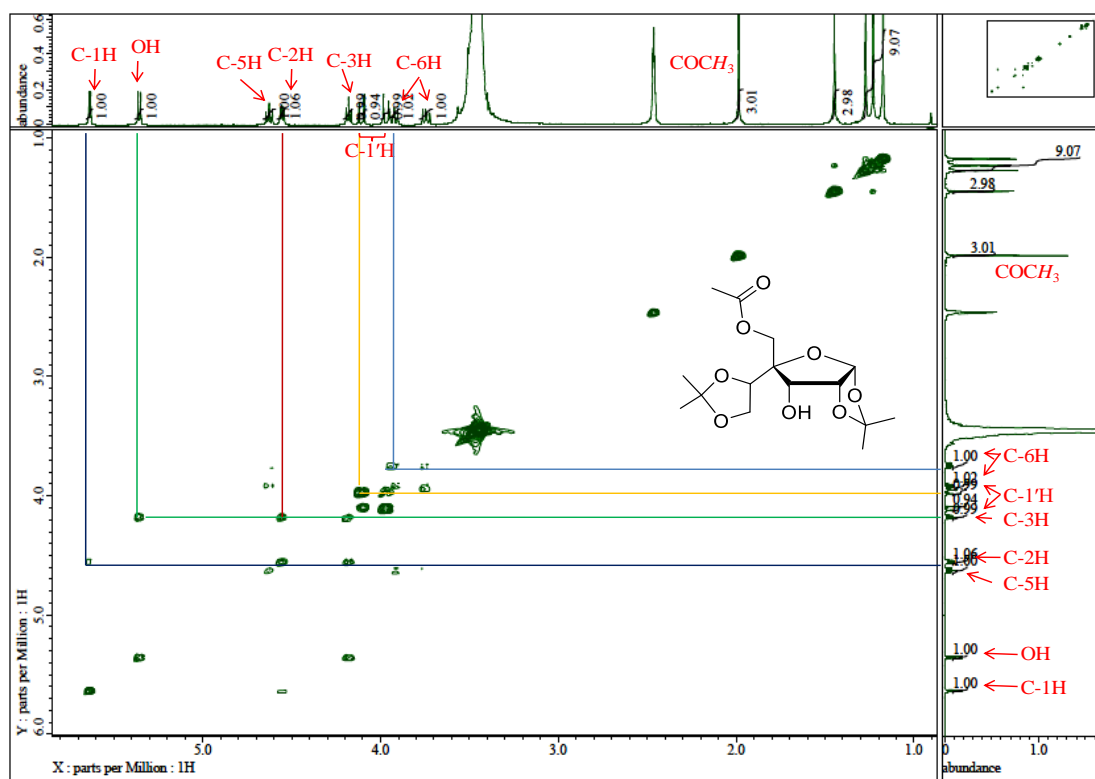
## Supporting Information

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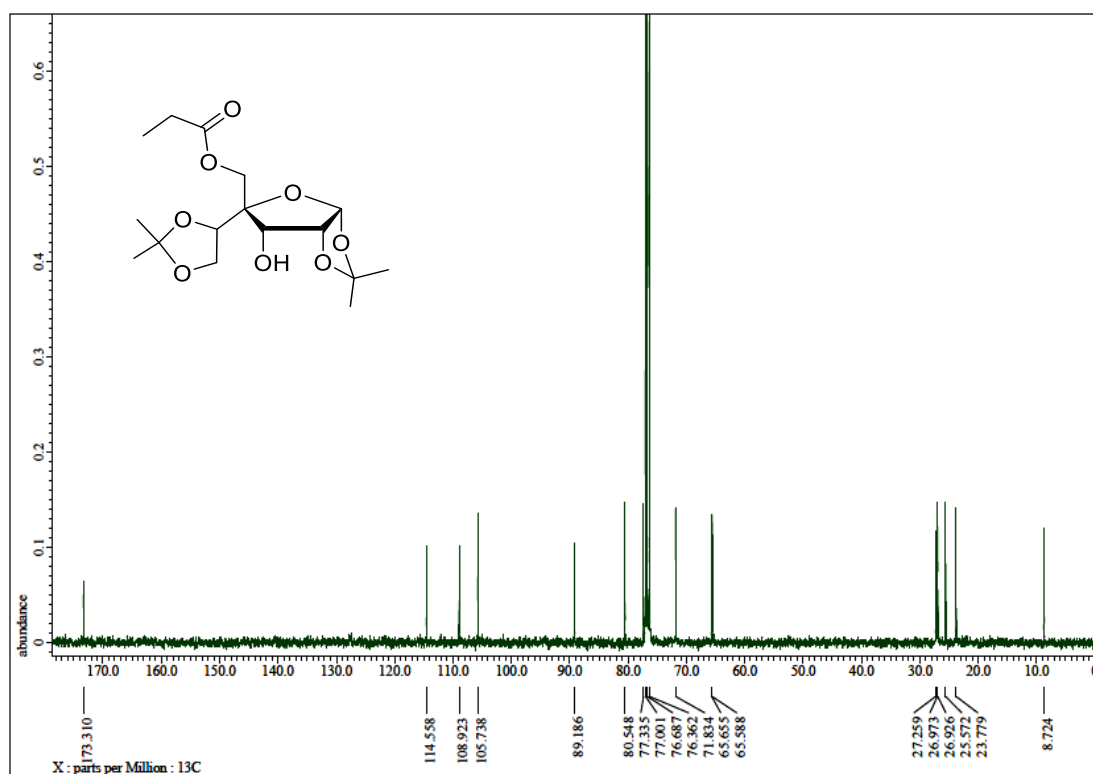
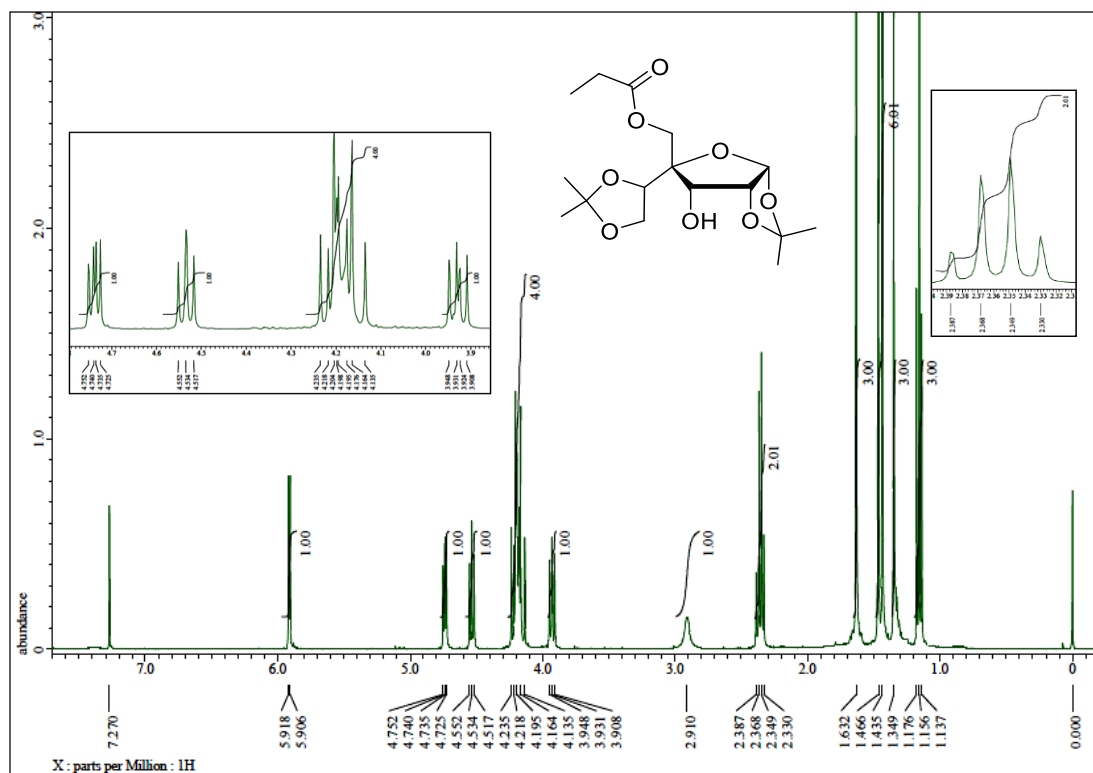
# <sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 8a (400 MHz and 100.6 MHz, DMSO-d<sub>6</sub>)



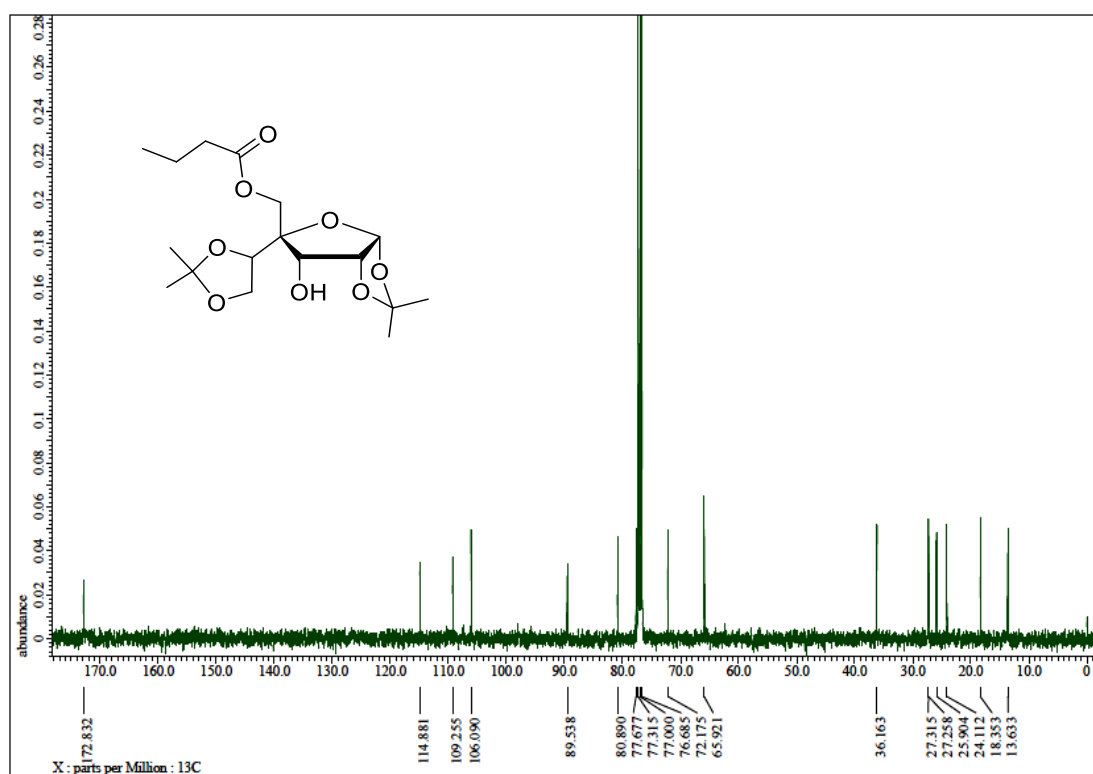
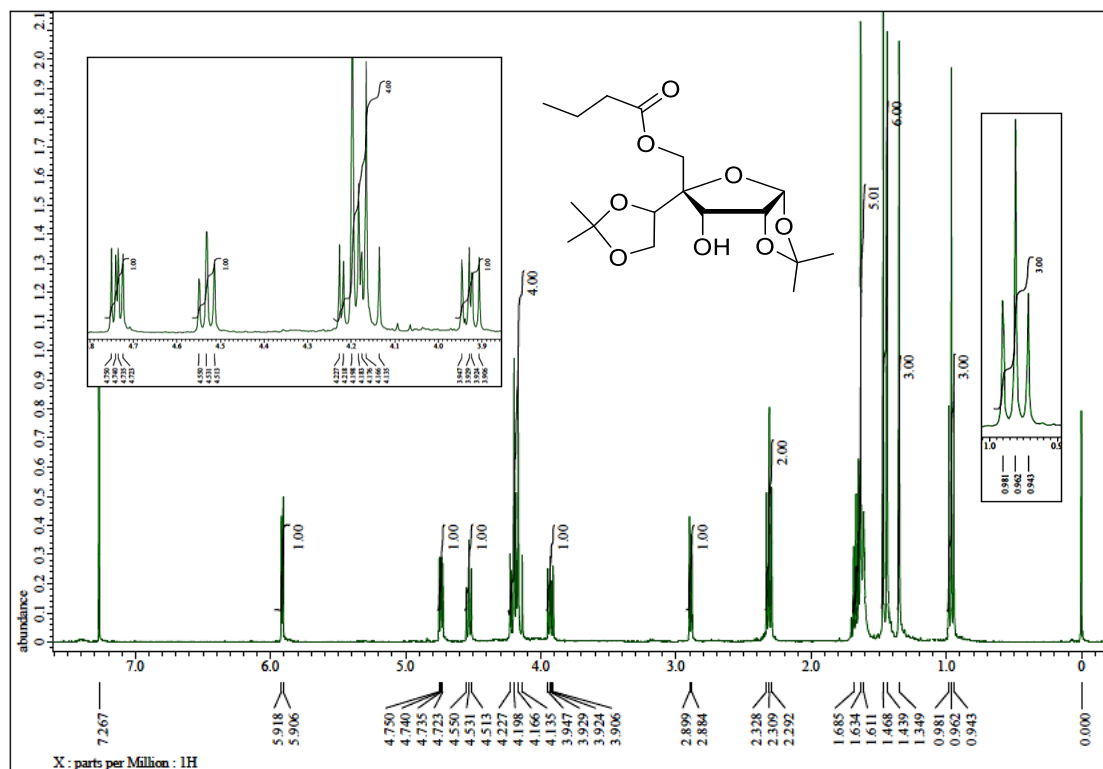
$^1\text{H}$ - $^1\text{H}$  COSY and  $^1\text{H}$ - $^{13}\text{C}$  HMQC NMR Spectra of compound 8a (400 MHz, DMSO- $d_6$ )



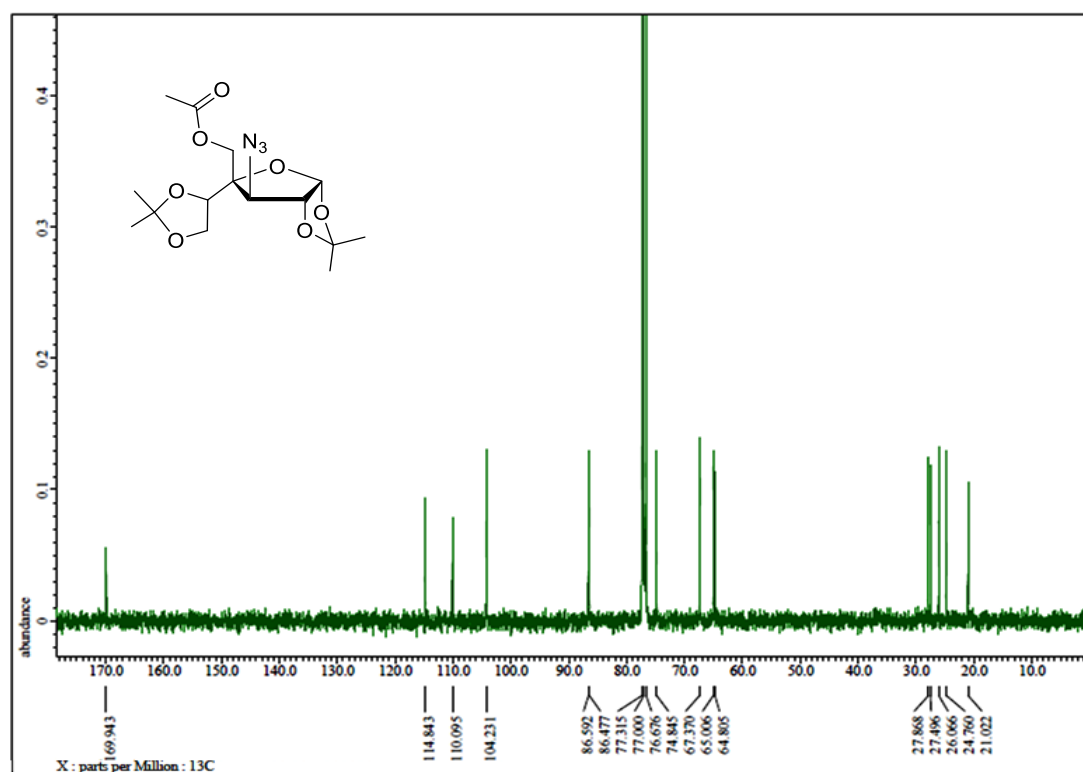
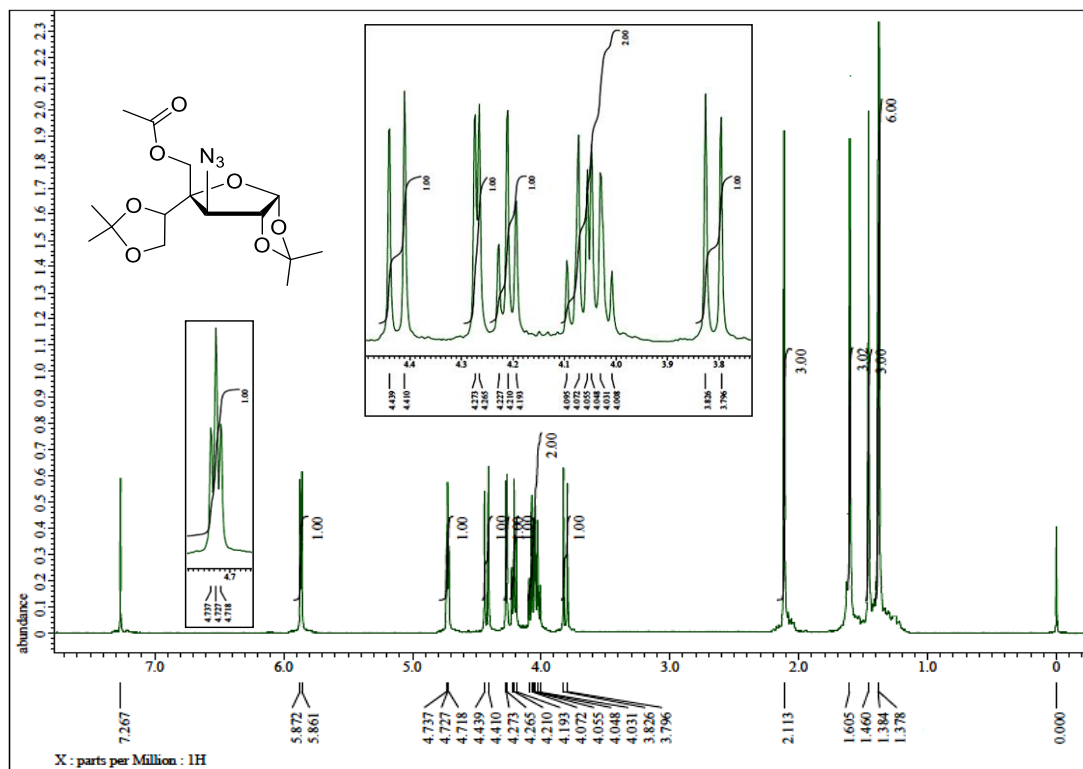
# <sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 8b (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)



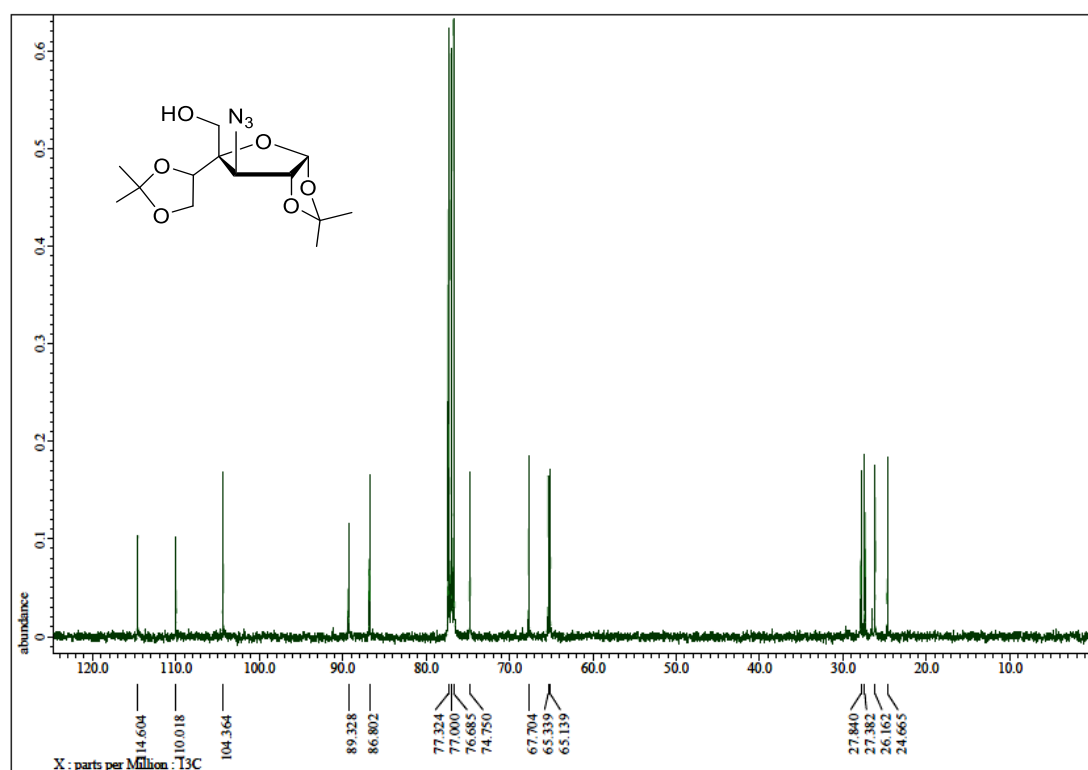
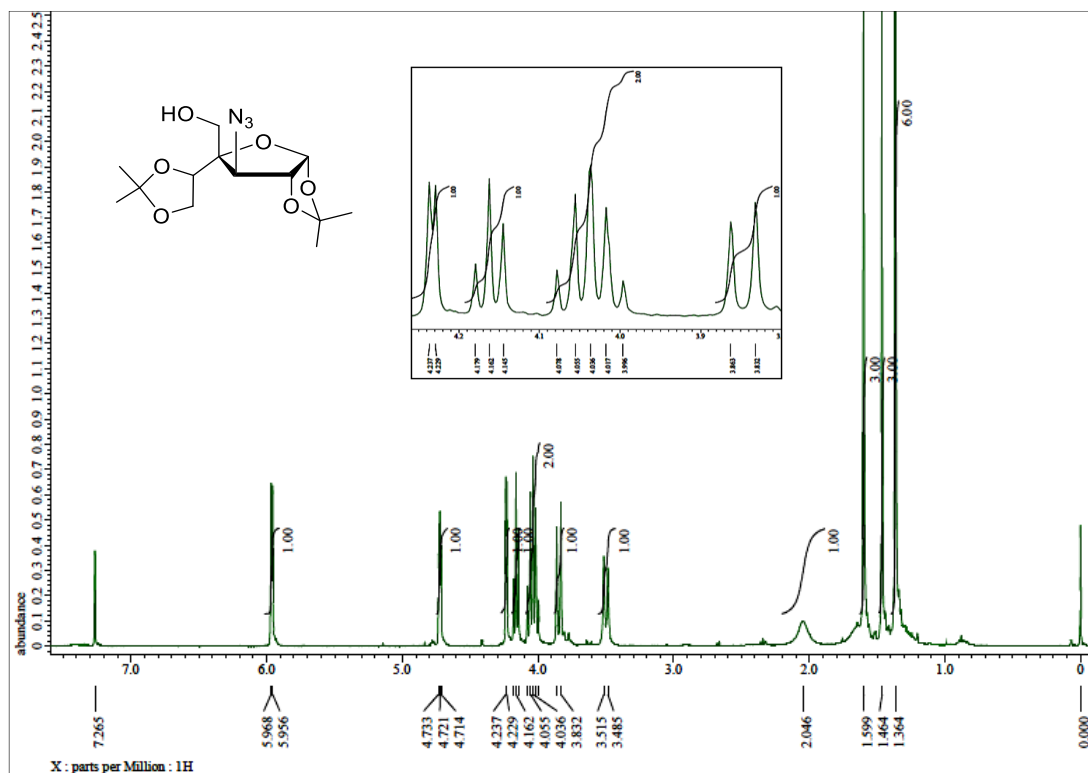
<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 8c (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)



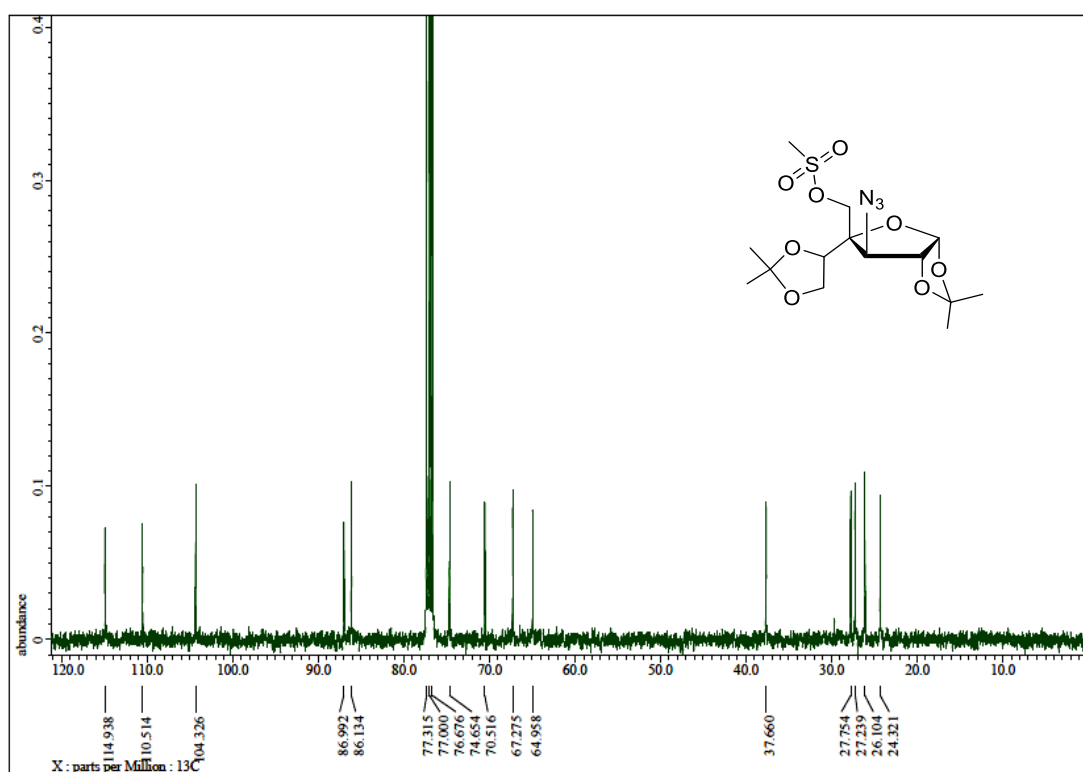
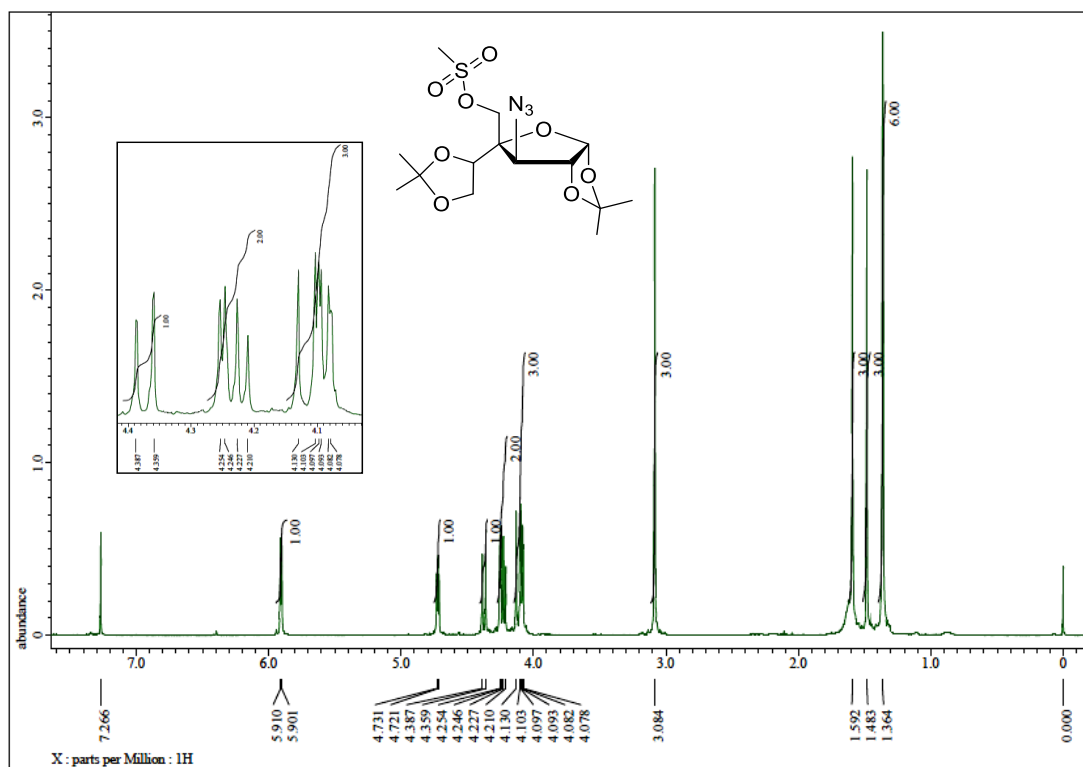
**$^1\text{H}$ - and  $^{13}\text{C}$  NMR Spectra of compound 9 (400 MHz and 100.6 MHz,  $\text{CDCl}_3$ )**



# <sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 10 (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)

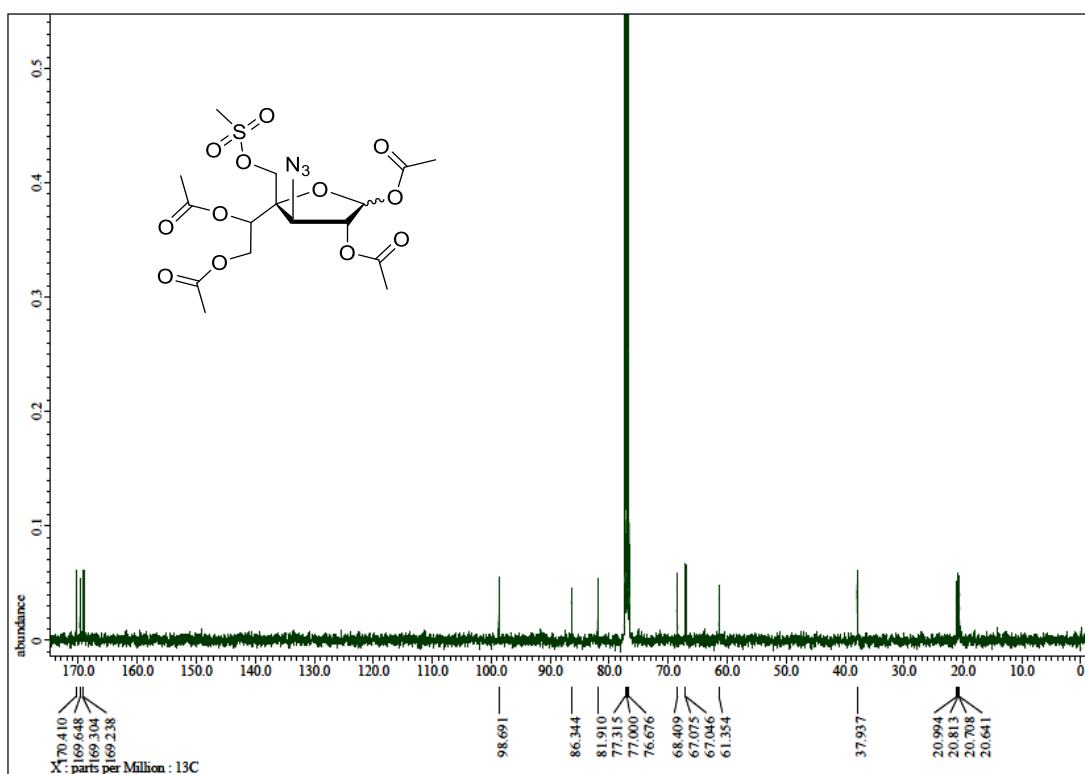
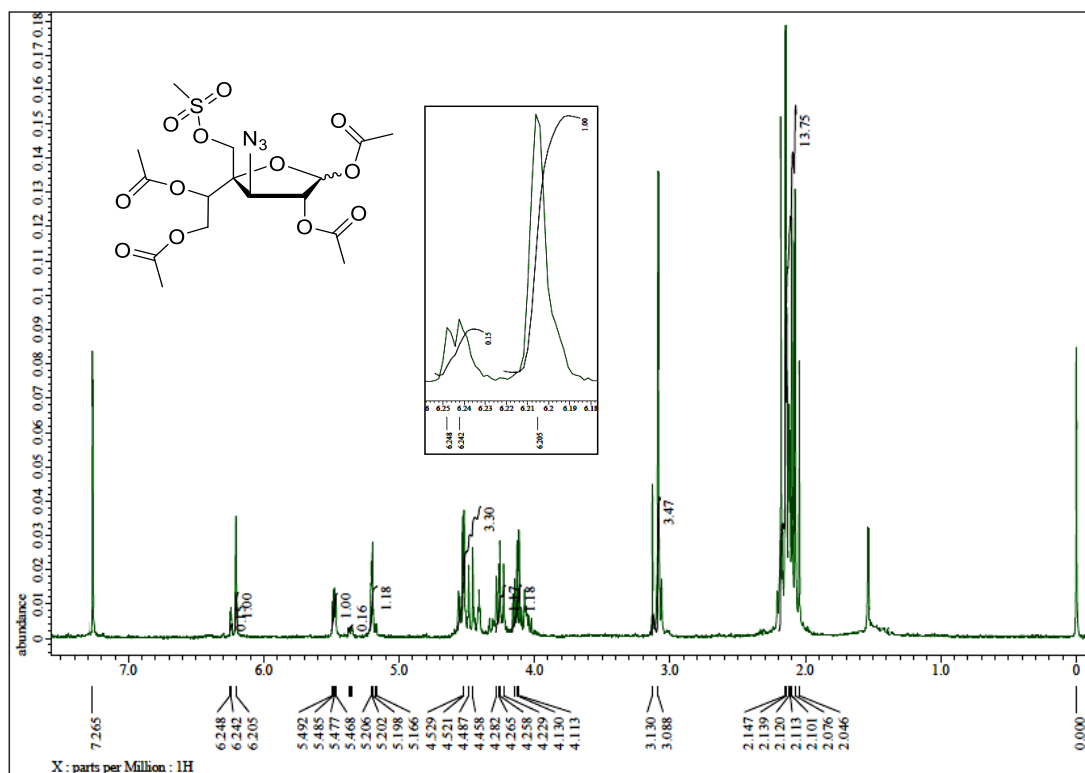


**$^1\text{H}$ - and  $^{13}\text{C}$  NMR Spectra of compound 11 (400 MHz and 100.6 MHz,  $\text{CDCl}_3$ )**

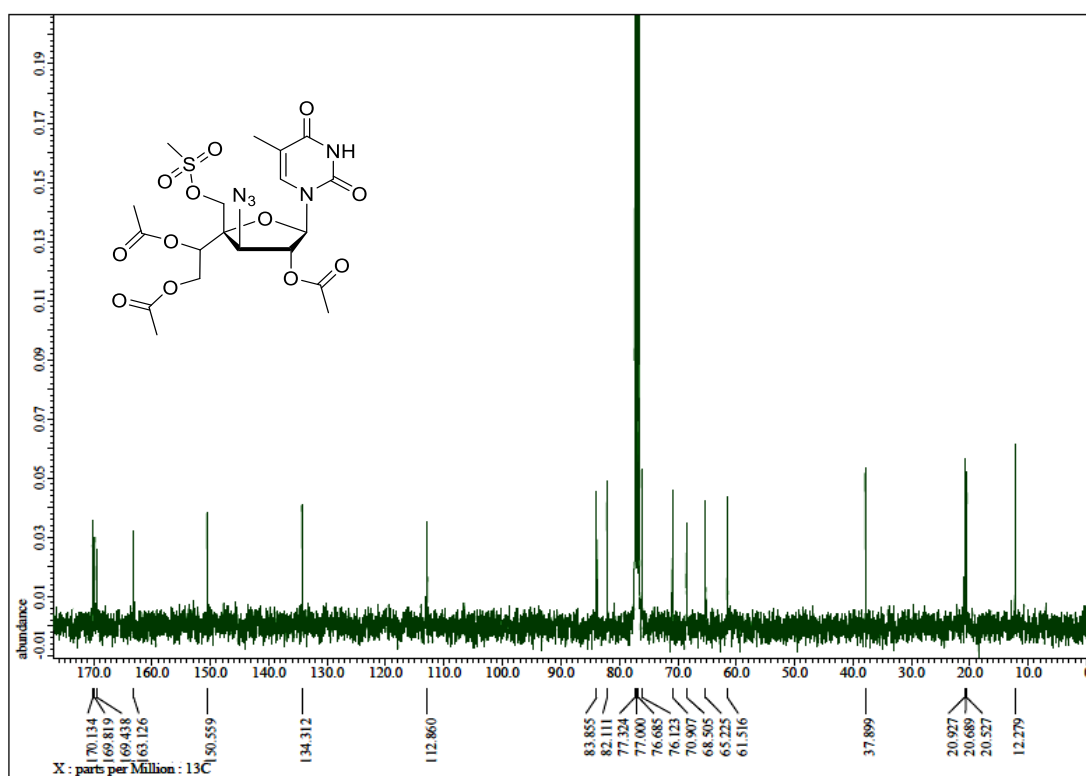
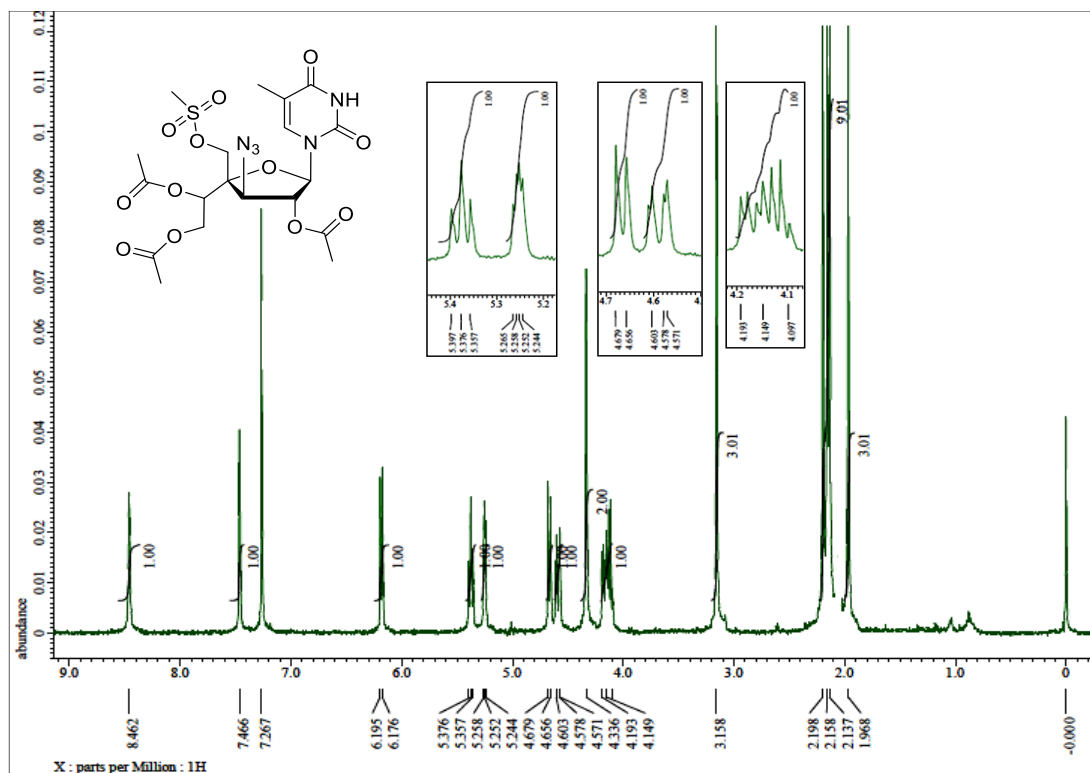




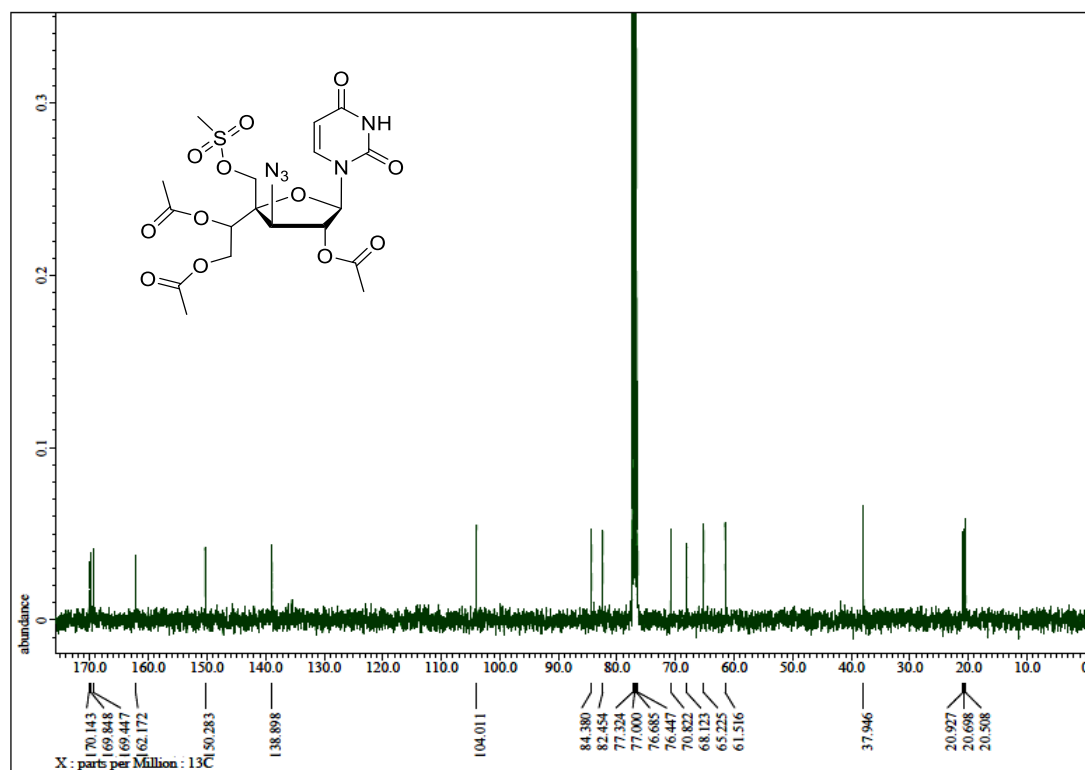
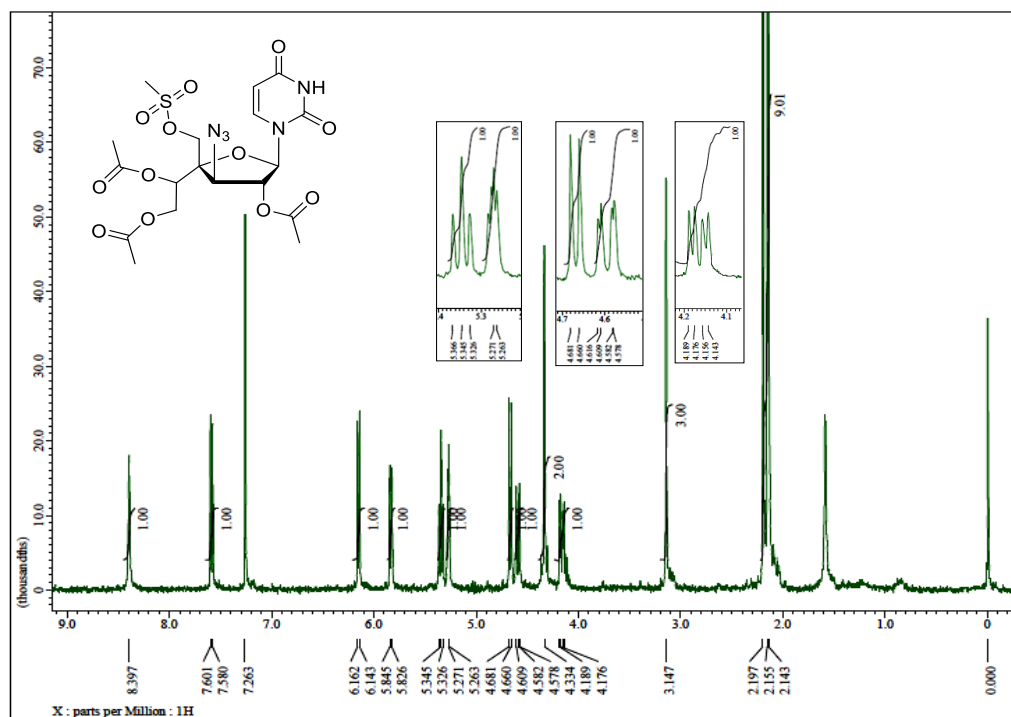
# <sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 12a-b (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)



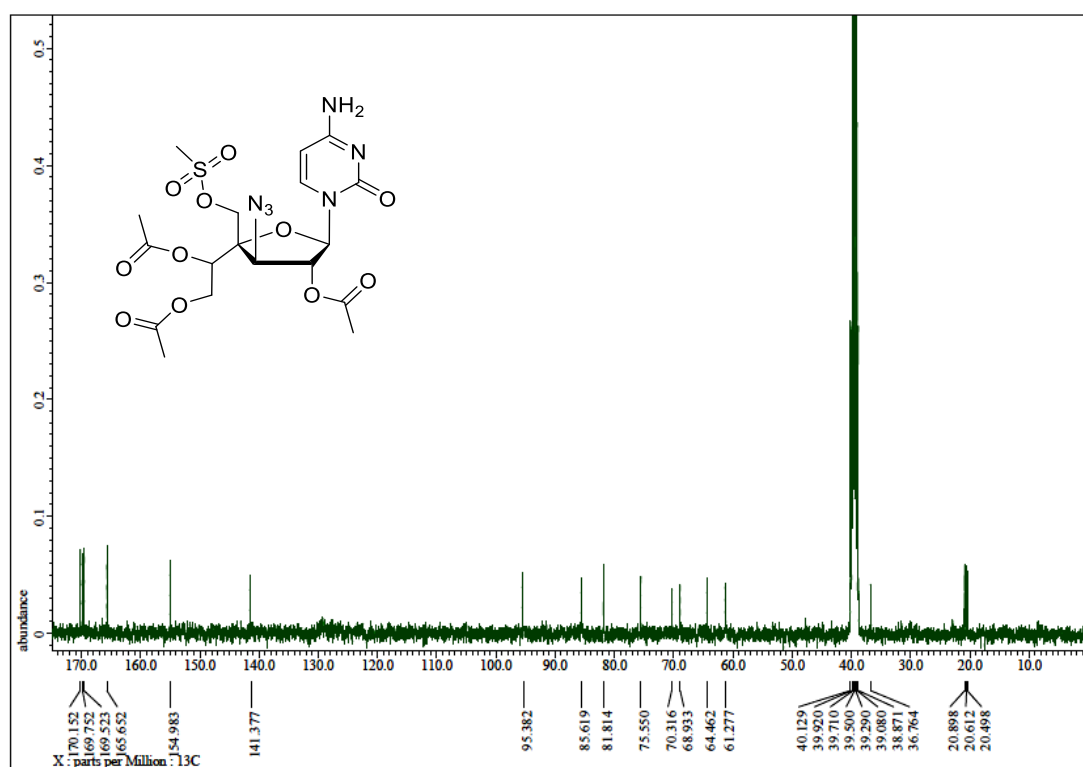
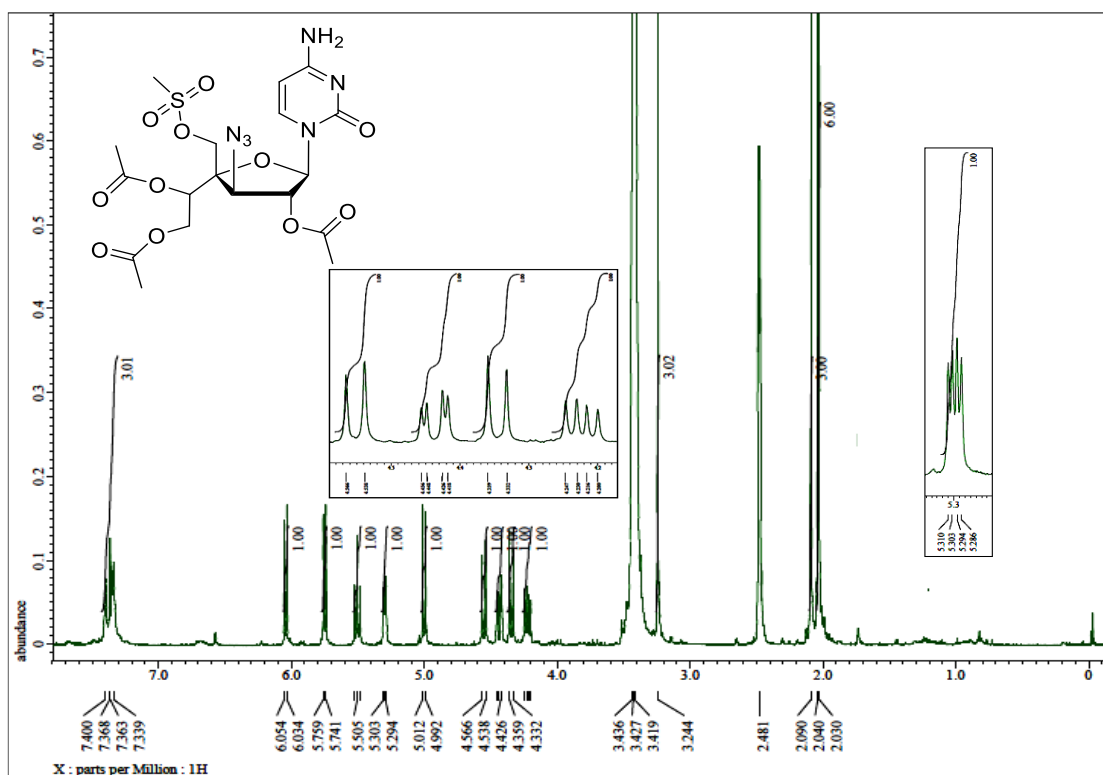
**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 13a (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)**



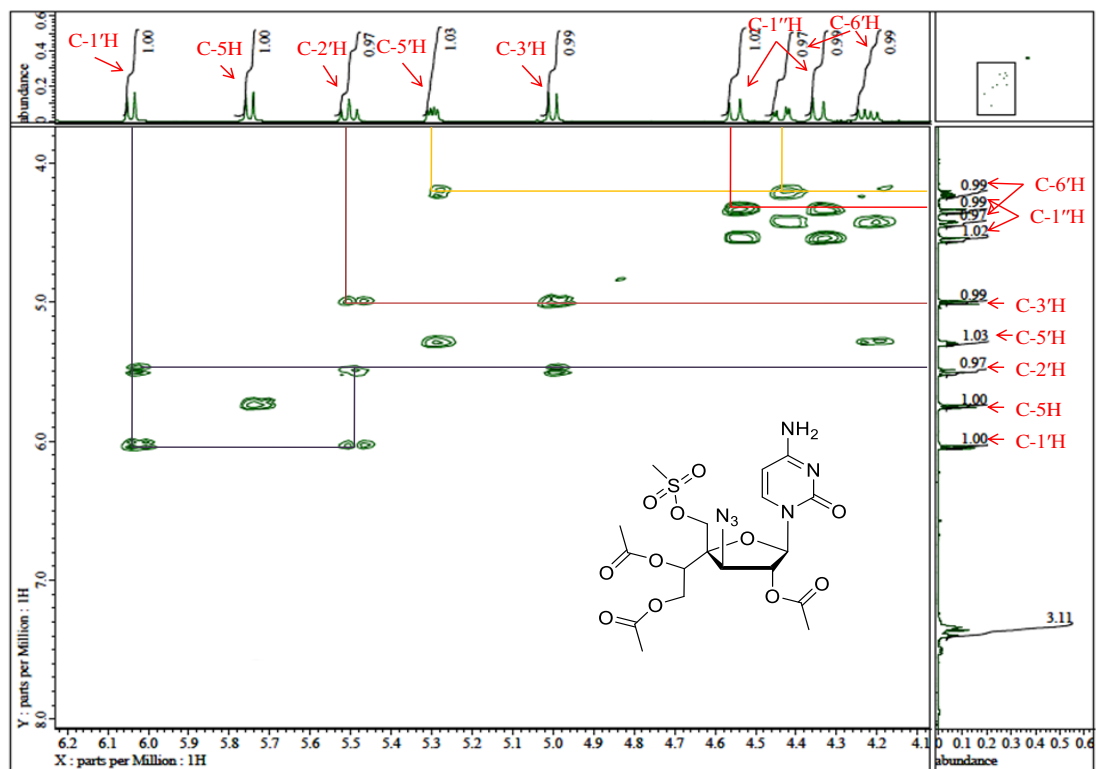
**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 13b (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)**



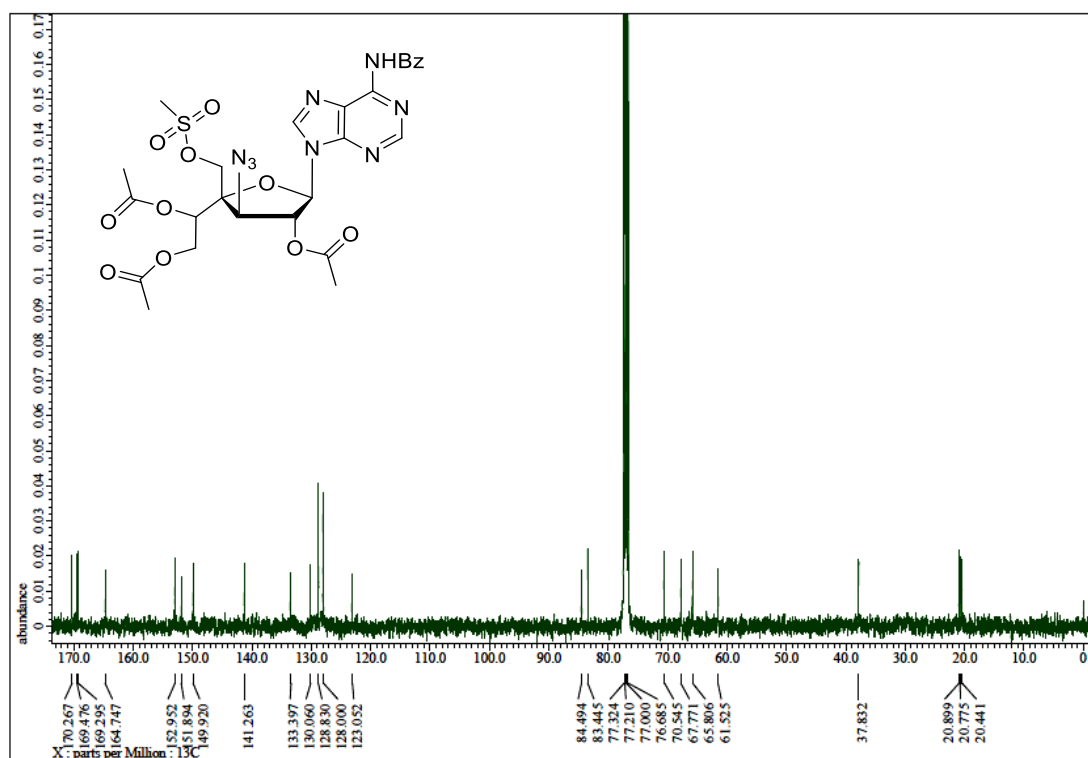
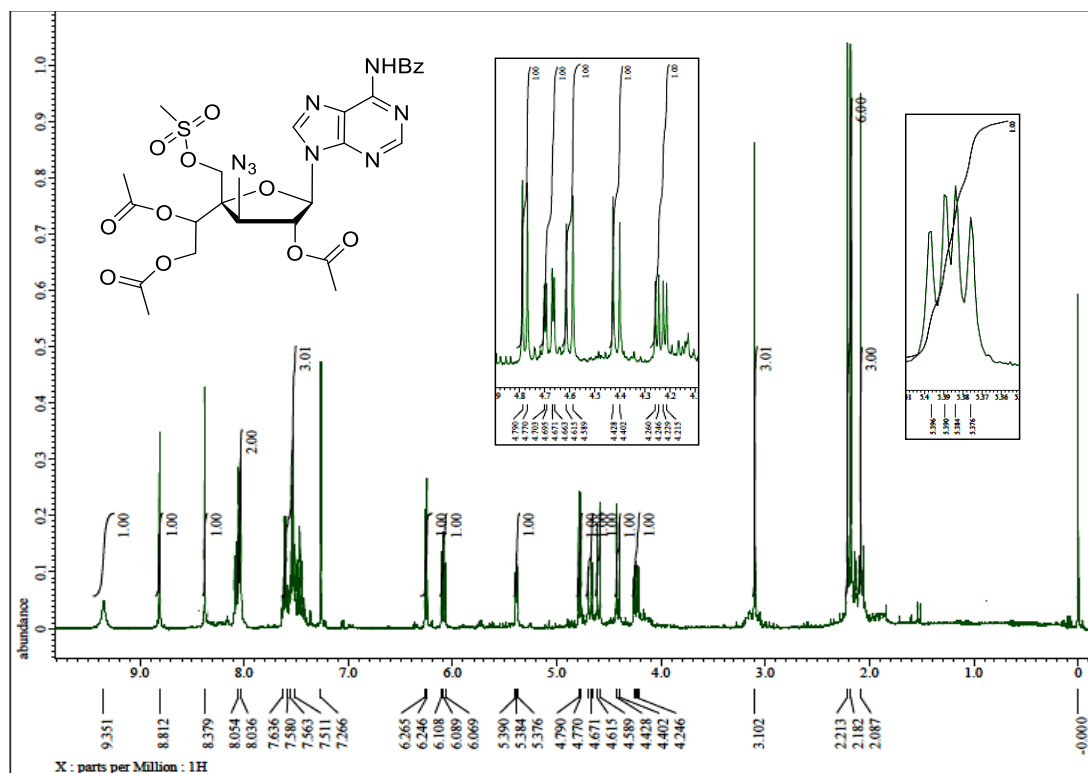
# $^1\text{H}$ - and $^{13}\text{C}$ NMR Spectra of compound 13c (400 MHz and 100.6 MHz, $\text{DMSO-}d_6$ )



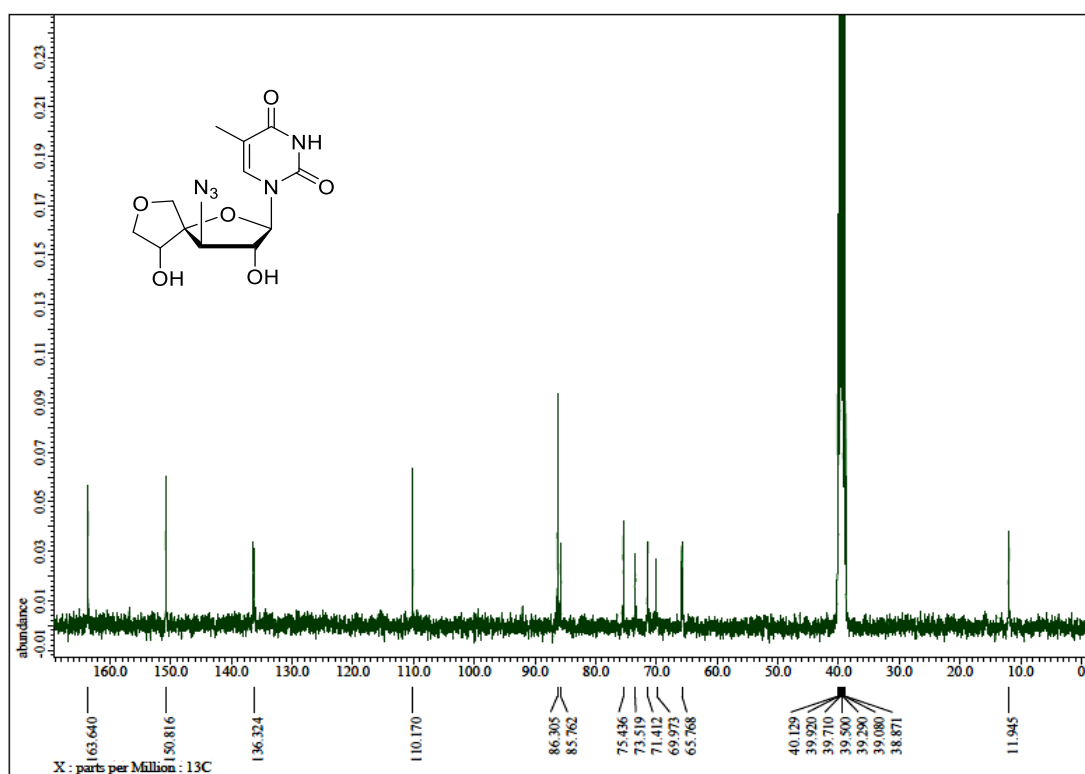
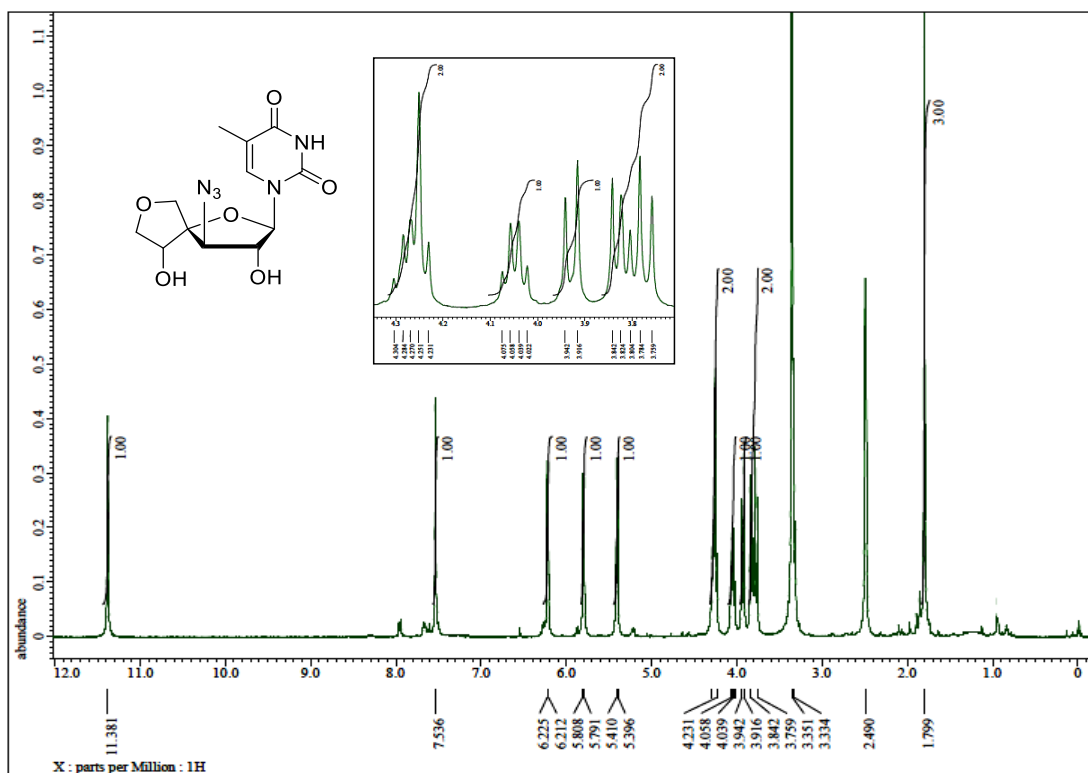
$^1\text{H}$ - $^{13}\text{C}$  HMQC NMR Spectrum of compound 13c (400 MHz,  $\text{DMSO-}d_6$ )



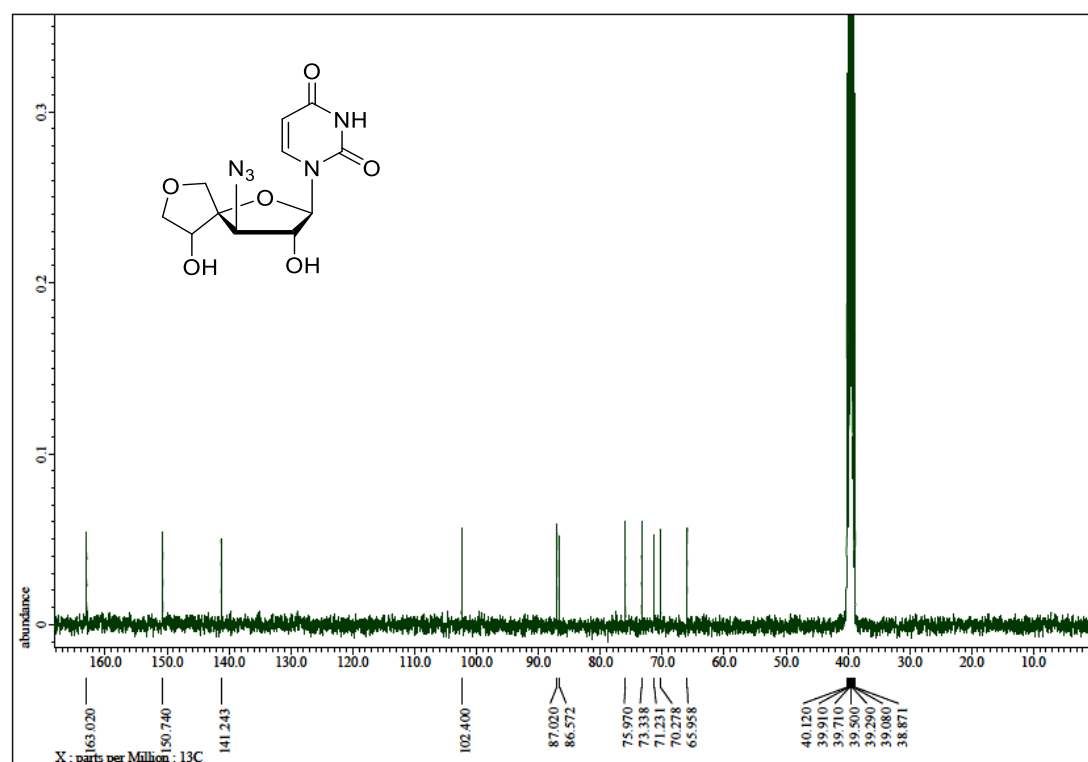
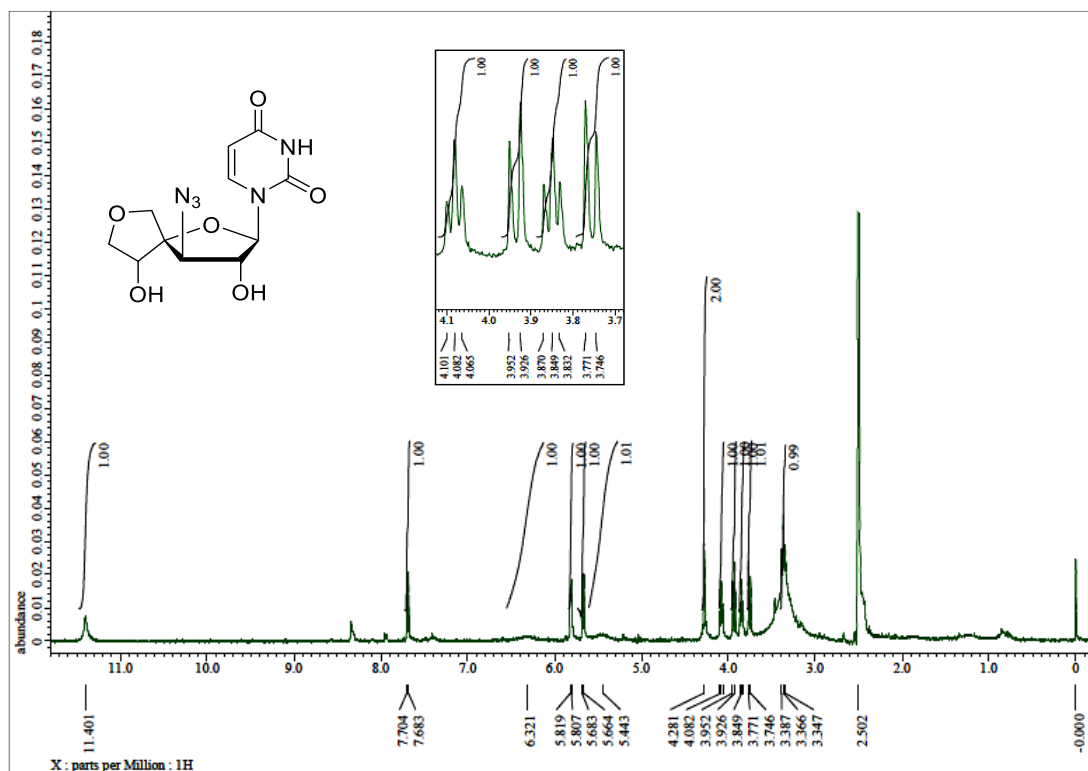
# <sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 13d (400 MHz and 100.6 MHz, CDCl<sub>3</sub>)



**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 5a (400 MHz and 100.6 MHz, DMSO-*d*<sub>6</sub>)**

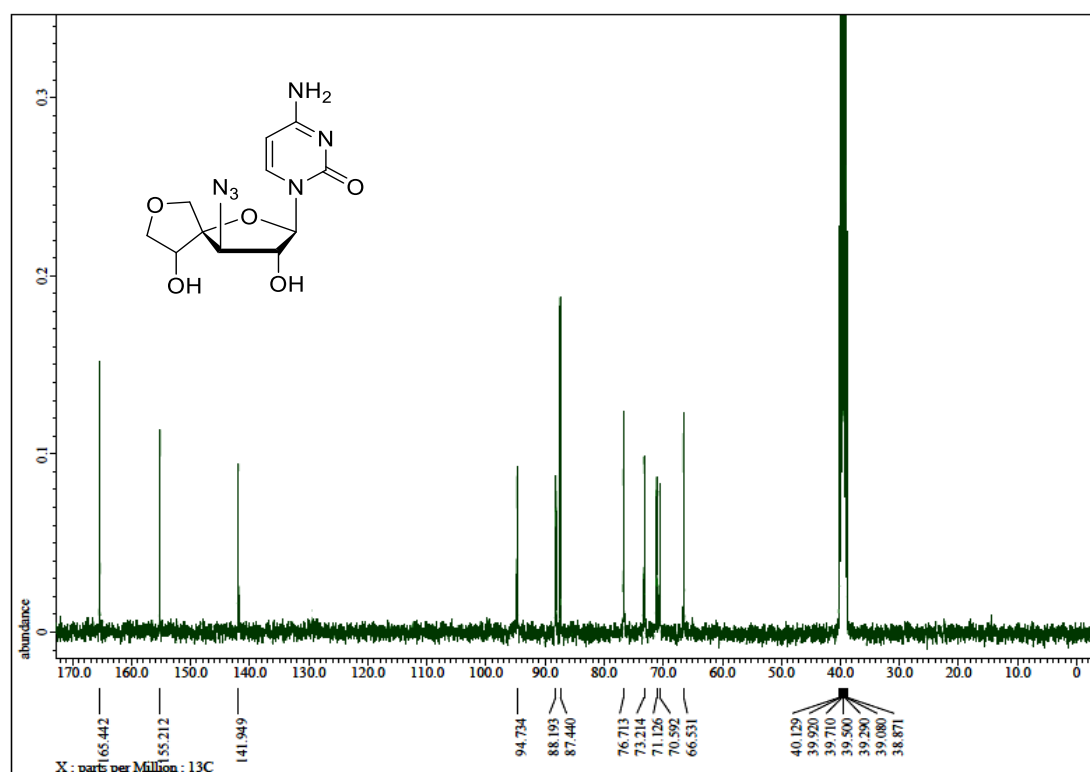
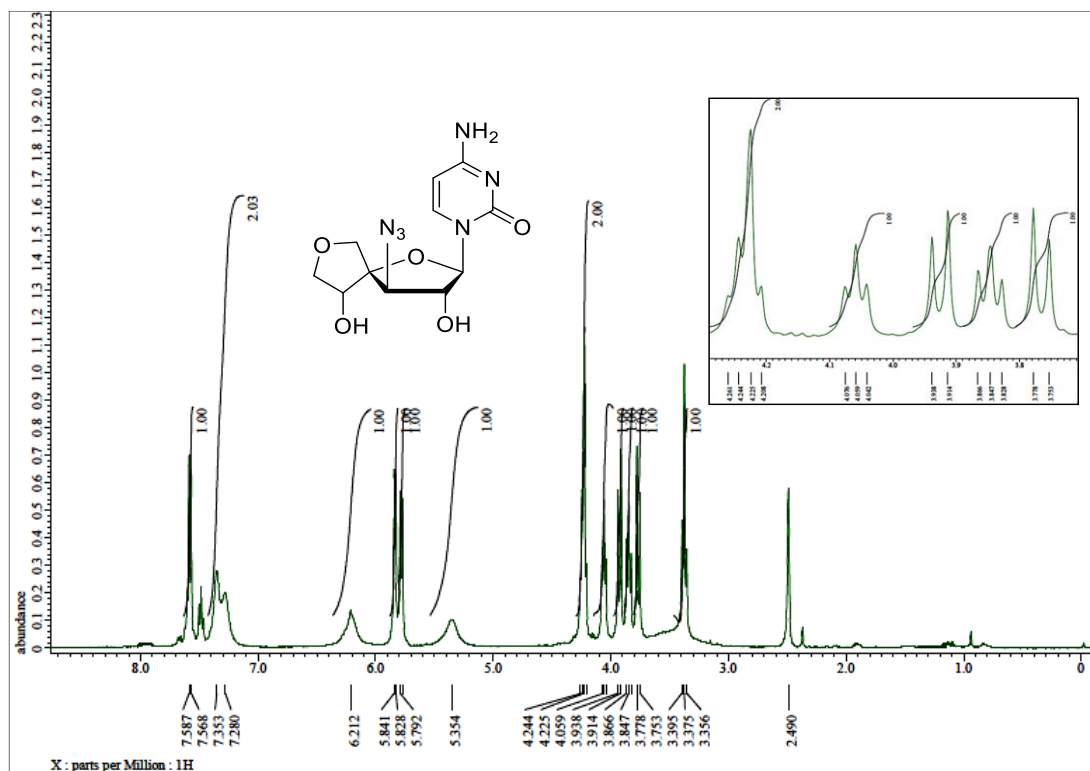


**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 5b (400 MHz and 100.6 MHz, DMSO-*d*<sub>6</sub>)**

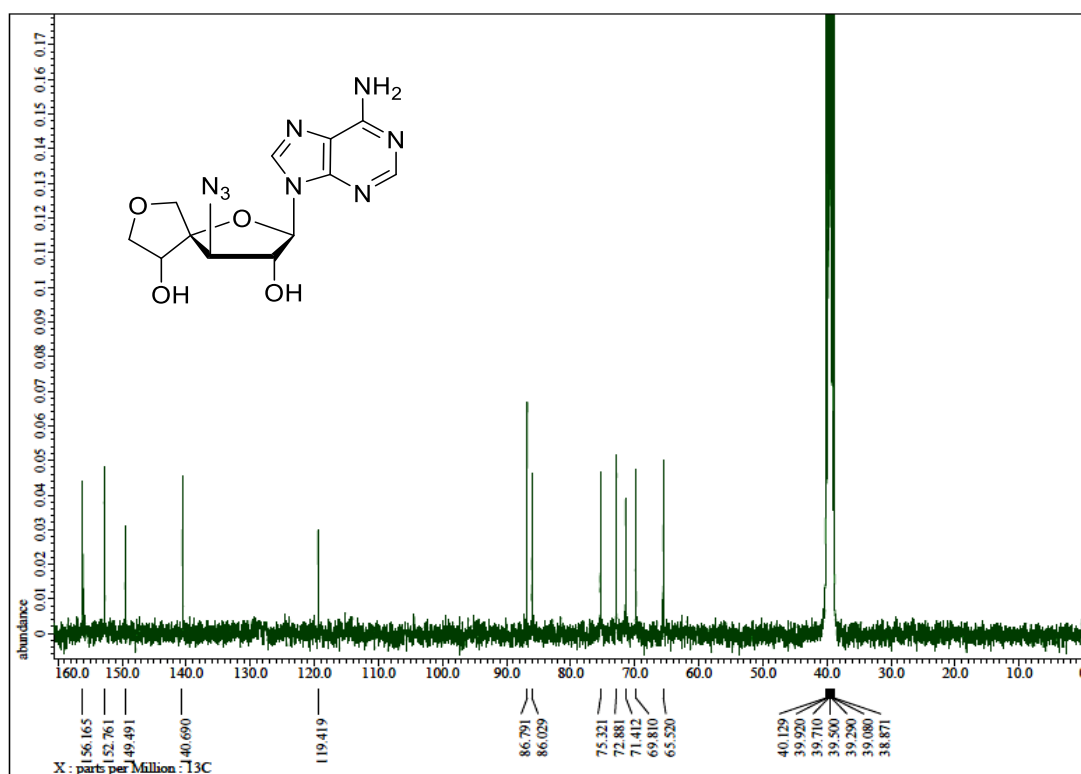
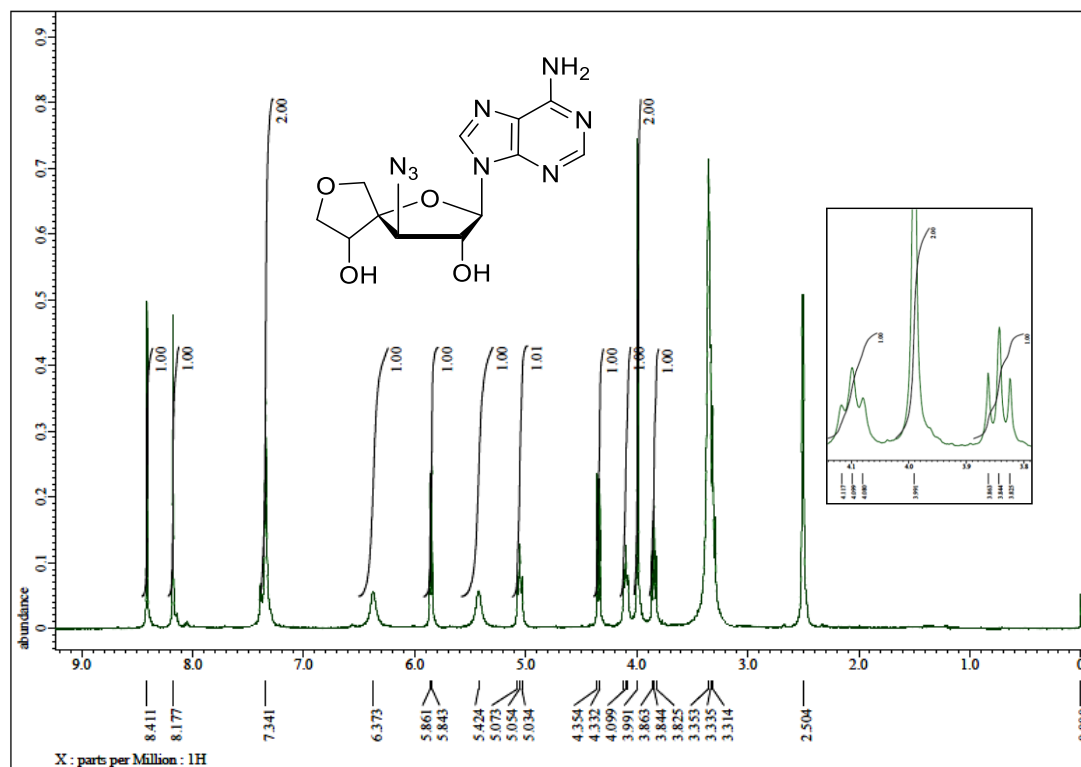




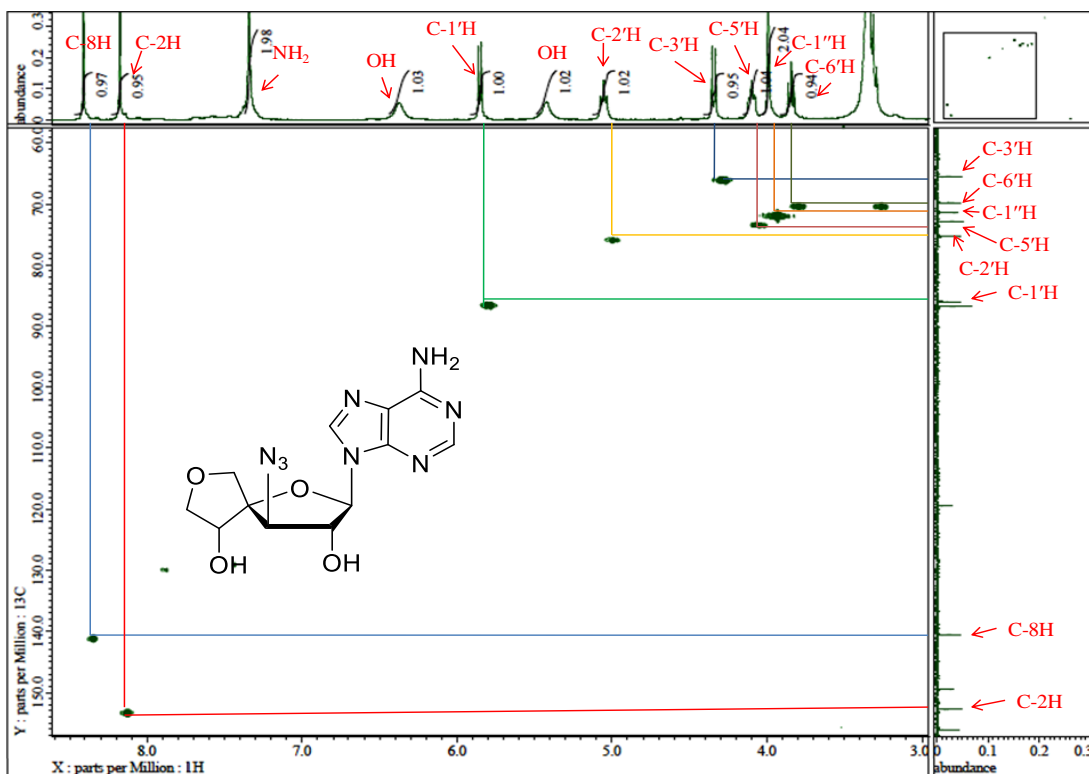
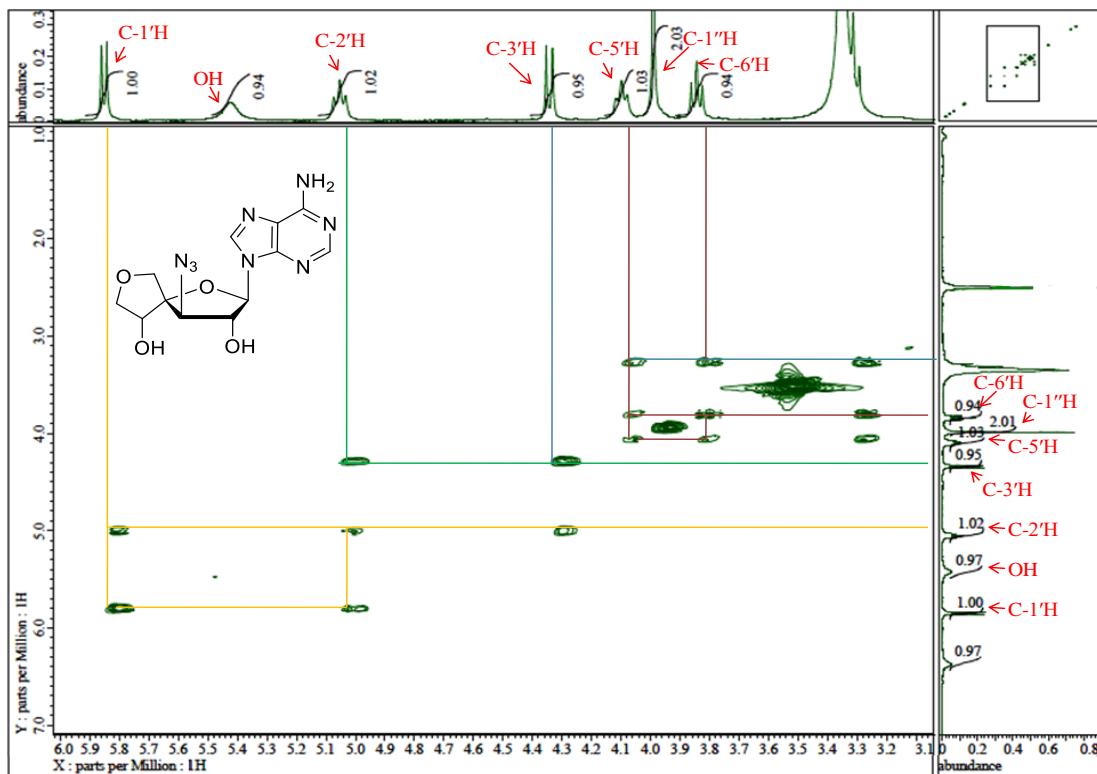
**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 5c (400 MHz and 100.6 MHz, DMSO-d<sub>6</sub>)**



**<sup>1</sup>H- and <sup>13</sup>C NMR Spectra of compound 5d (400 MHz and 100.6 MHz, DMSO-*d*<sub>6</sub>)**



$^1\text{H}$ - $^1\text{H}$  COSY and  $^1\text{H}$ - $^{13}\text{C}$  HMQC NMR Spectra of compound 5d (400 MHz, DMSO- $d_6$ )



**X-Ray diffraction studies on (1''R)-3'-azido-3'-deoxy,5'-O,4'-C-ethylen-1''-ol-β-D-xylofuranosyl cytosine (5c)**

The molecular structure (1''R)-3'-azido-3'-deoxy,5'-O,4'-C-ethylen-1''-ol-β-D-xylofuranosyl cytosine (**5c**) was drawn as given in Figure 3 using ORTEP and Mercury software. The selected bond lengths, bond angles, etc. are given in Table 1 and other details obtained using PROSIT are mentioned in result and discussion section. CCDC-2004227 contains the supplementary data for this paper. These data can be obtained free of charge *via* <http://www.ccdc.cam.ac.uk/services/structures?access=referee&searchdepnms=2004227&searchauthor=rungta>.