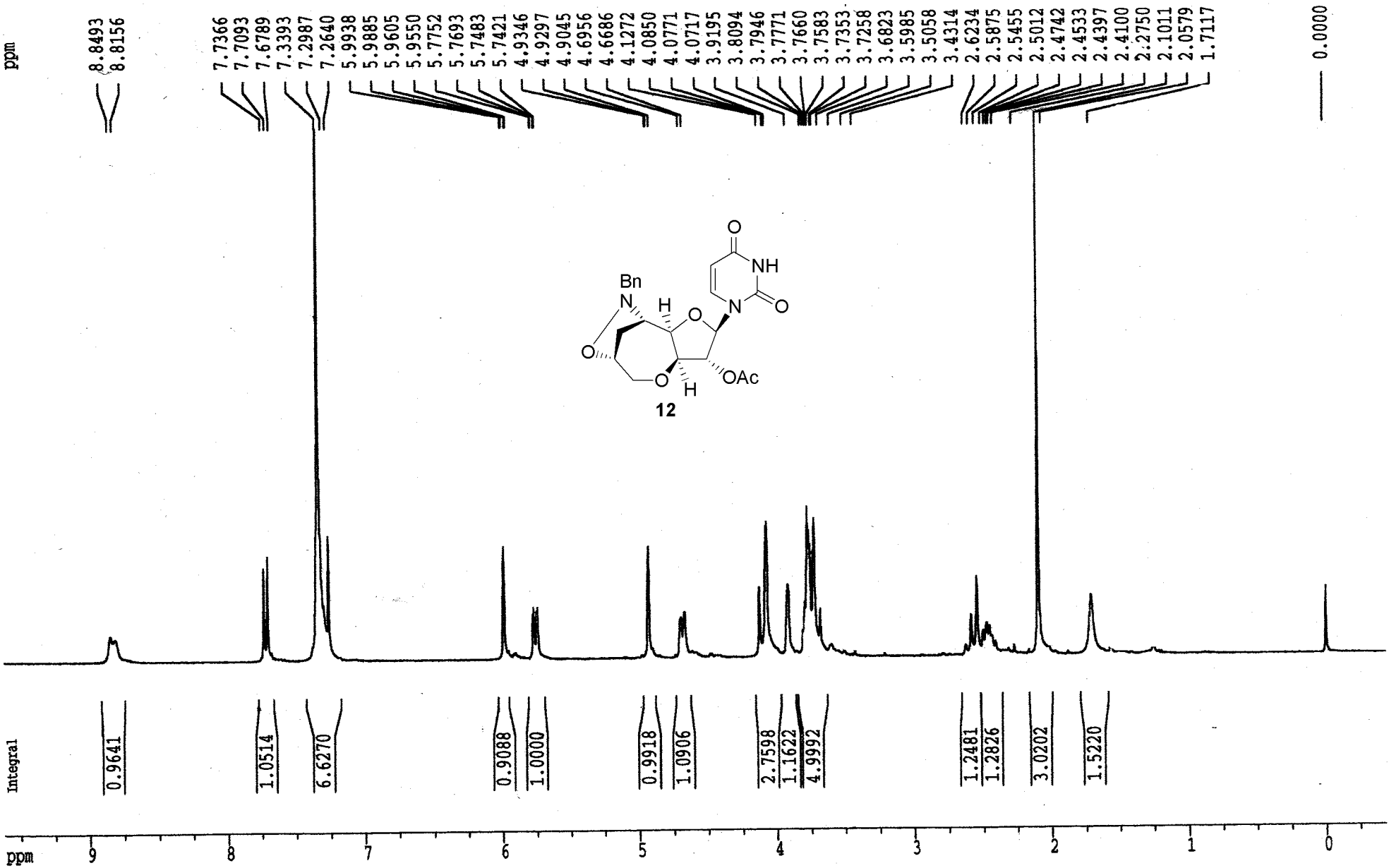
Synthesis of Oxepane Ring Containing Monocyclic, Conformationally Restricted Bicyclic and Spirocyclic Nucleosides from D-Glucose:A Cycloaddition Approach

Subhankar Tripathi,[†] Biswajit G. Roy,[†] Michael G. B. Drew,[‡] Basudeb Achari,[†] and Sukhendu B. Mandal[*,†]

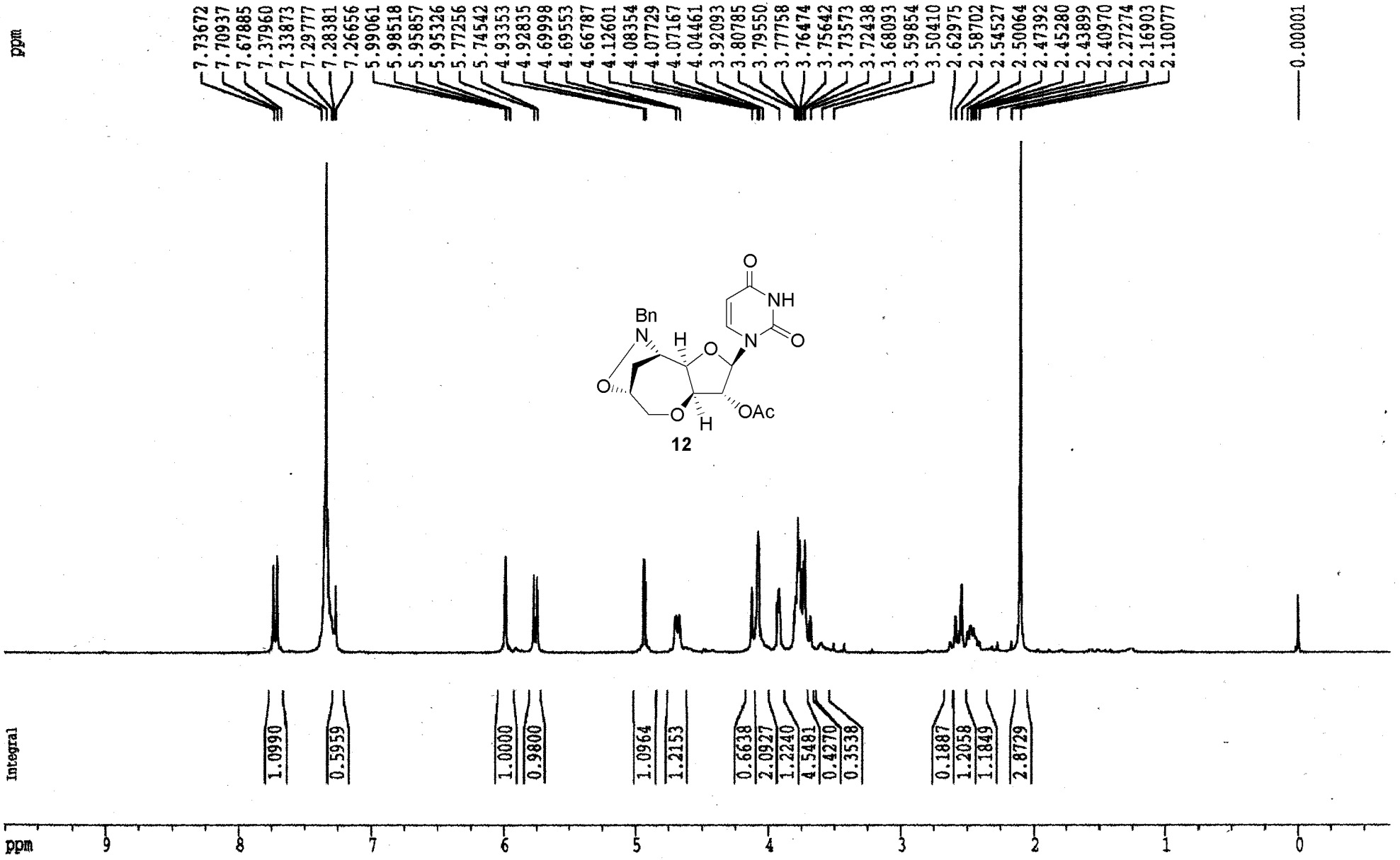
[†]Department of Chemistry, Indian Institute of Chemical Biology, 4, Raja S. C. Mullick Road, Jadavpur, Kolkata 700 032, India, and [‡]Department of Chemistry, University of Reading, Whiteknights, Reading RG6 6AD, U. K.

"Supporting Information Available"

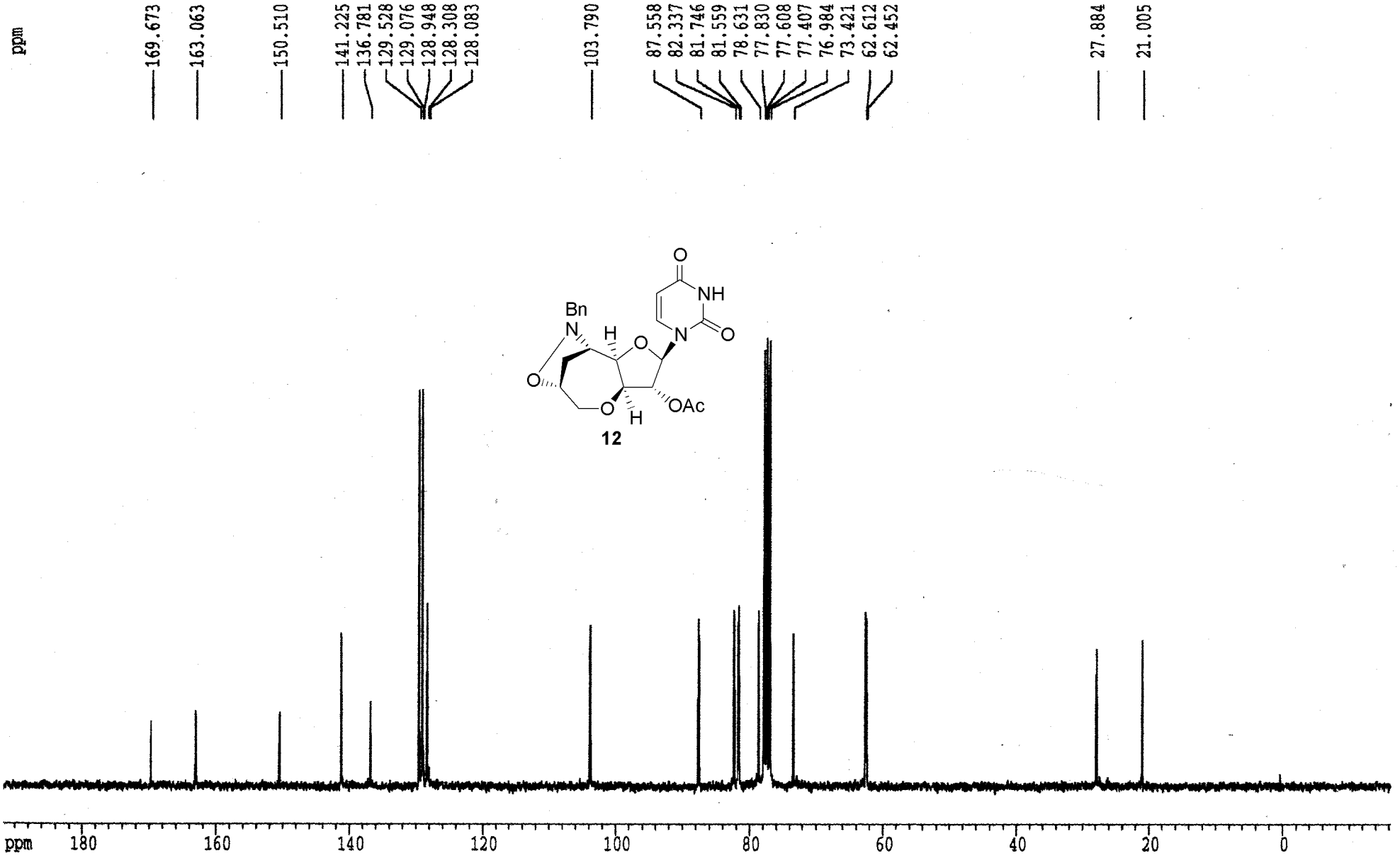
^{1}H NMR spectrum of 12 in $CDCl_3$



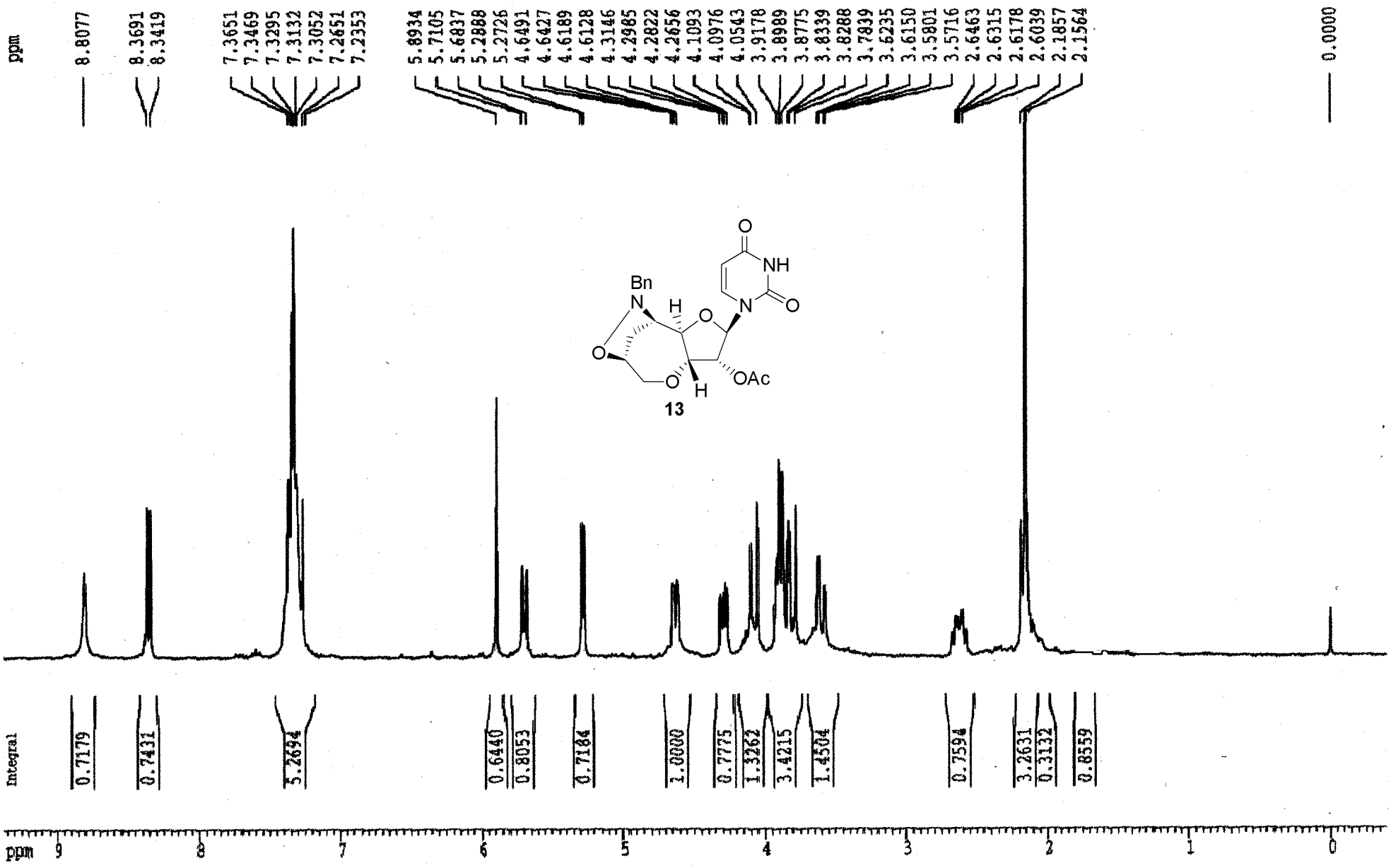
^{1}H NMR Spectrum of 12 in $CDCl_3$ + D_2O



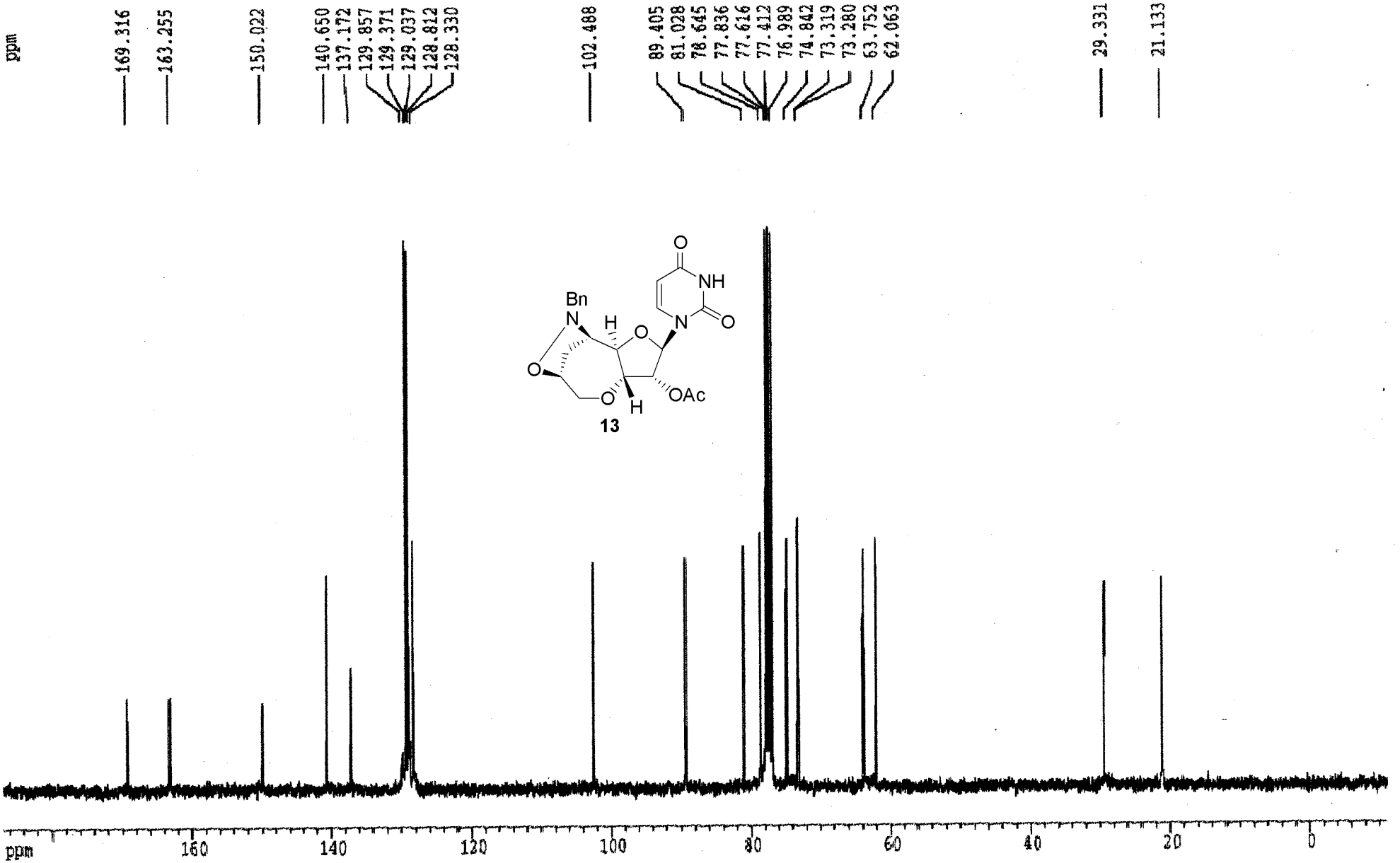
^{13}C NMR spectrum of 12 in $CDCl_3$



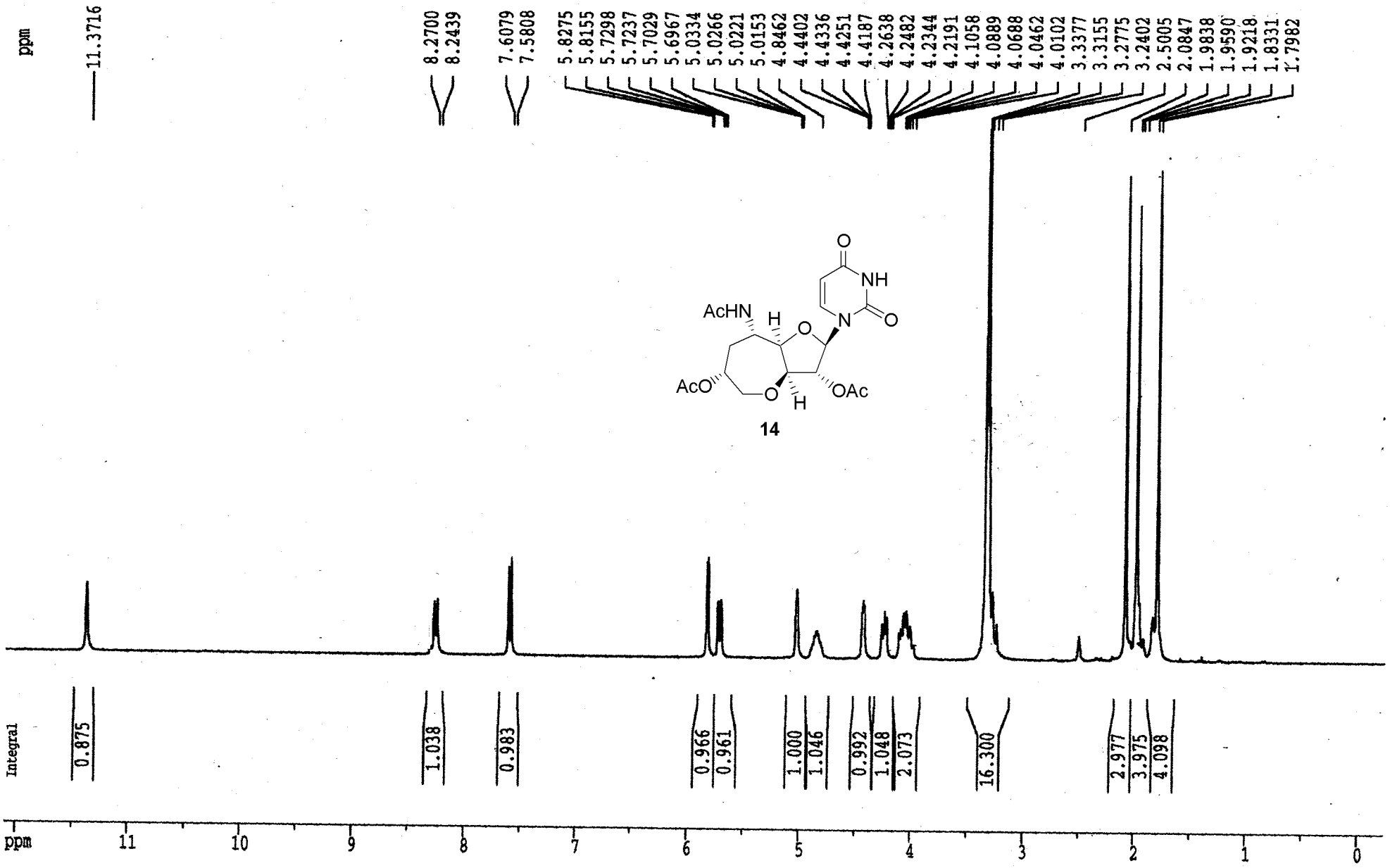
^{1}H NMR spectrum of 13 in $CDCl_3$



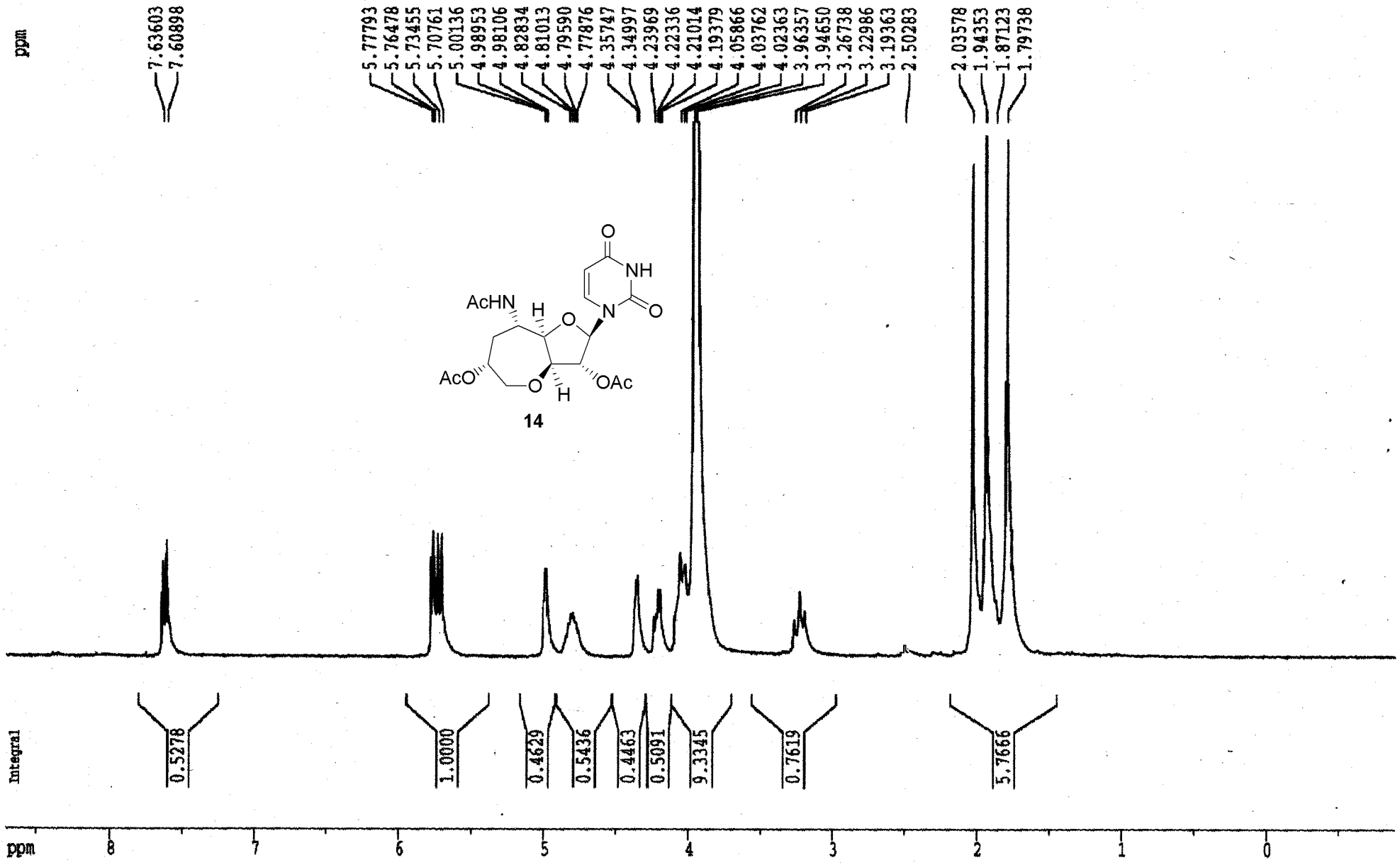
^{13}C NMR spectrum of 13 in $CDCl_3$



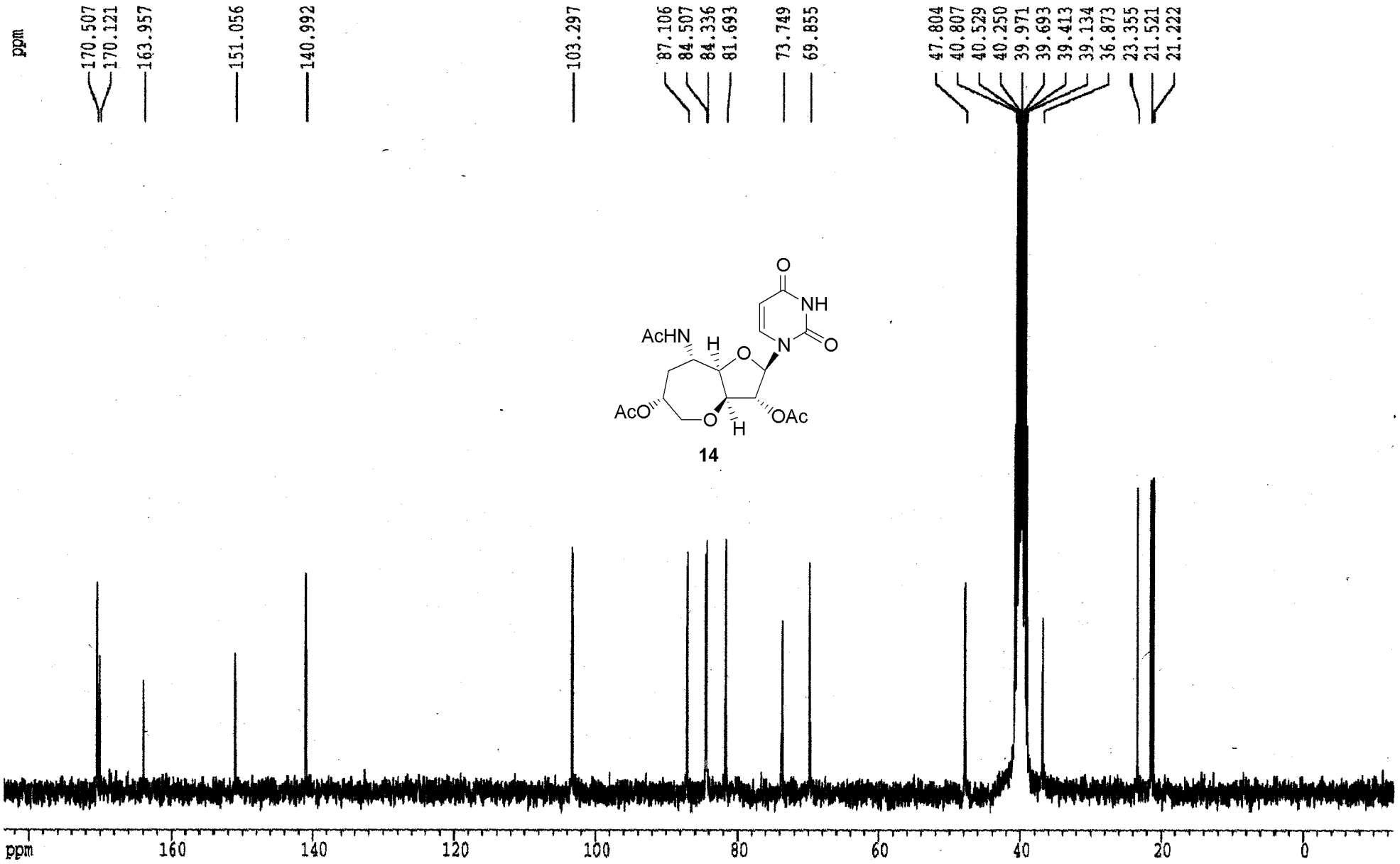
^{1}H NMR spectrum of 14 in DMSO-d_6



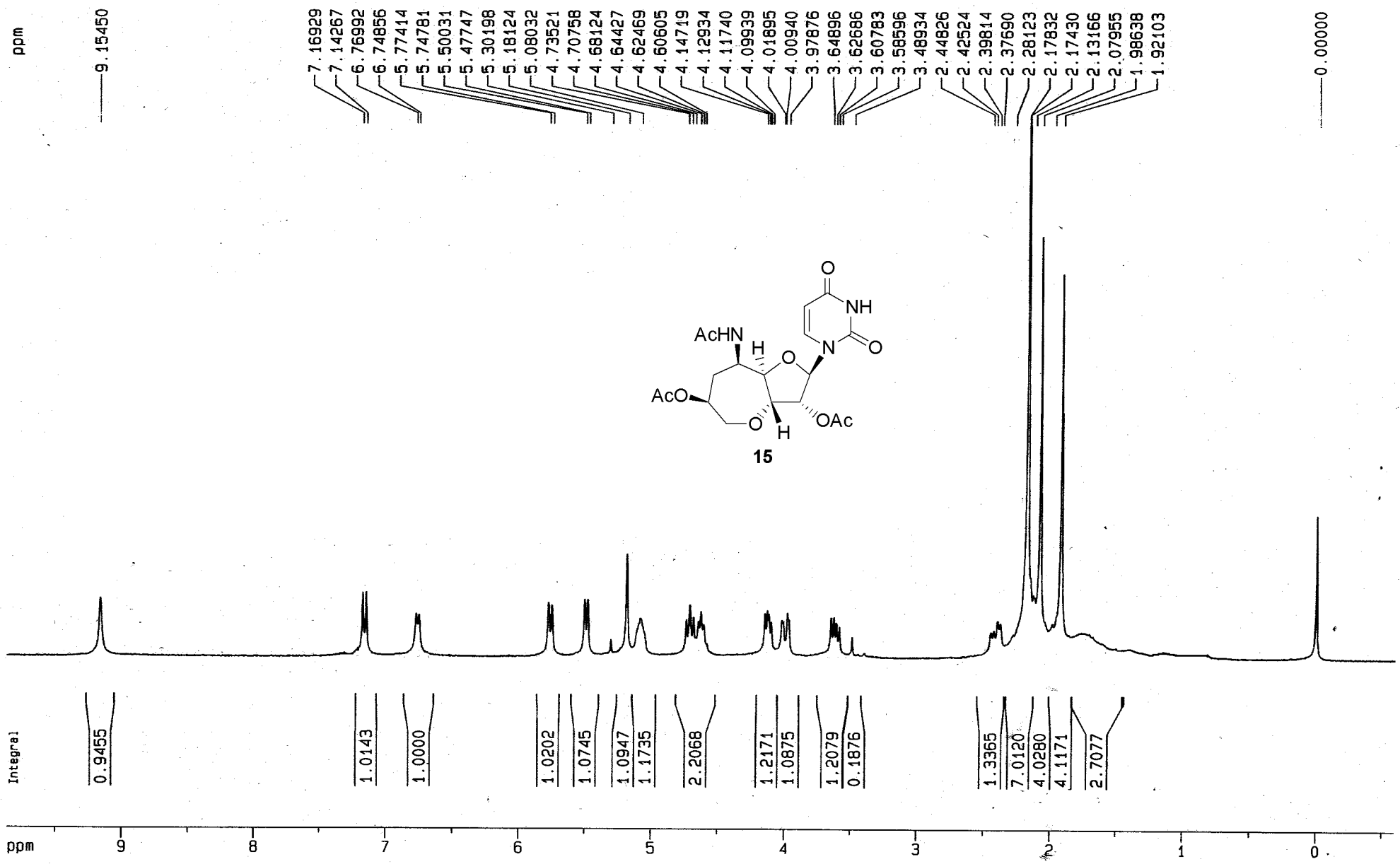
^{1}H NMR spectrum of 14 in DMSO-d6 + D_2O



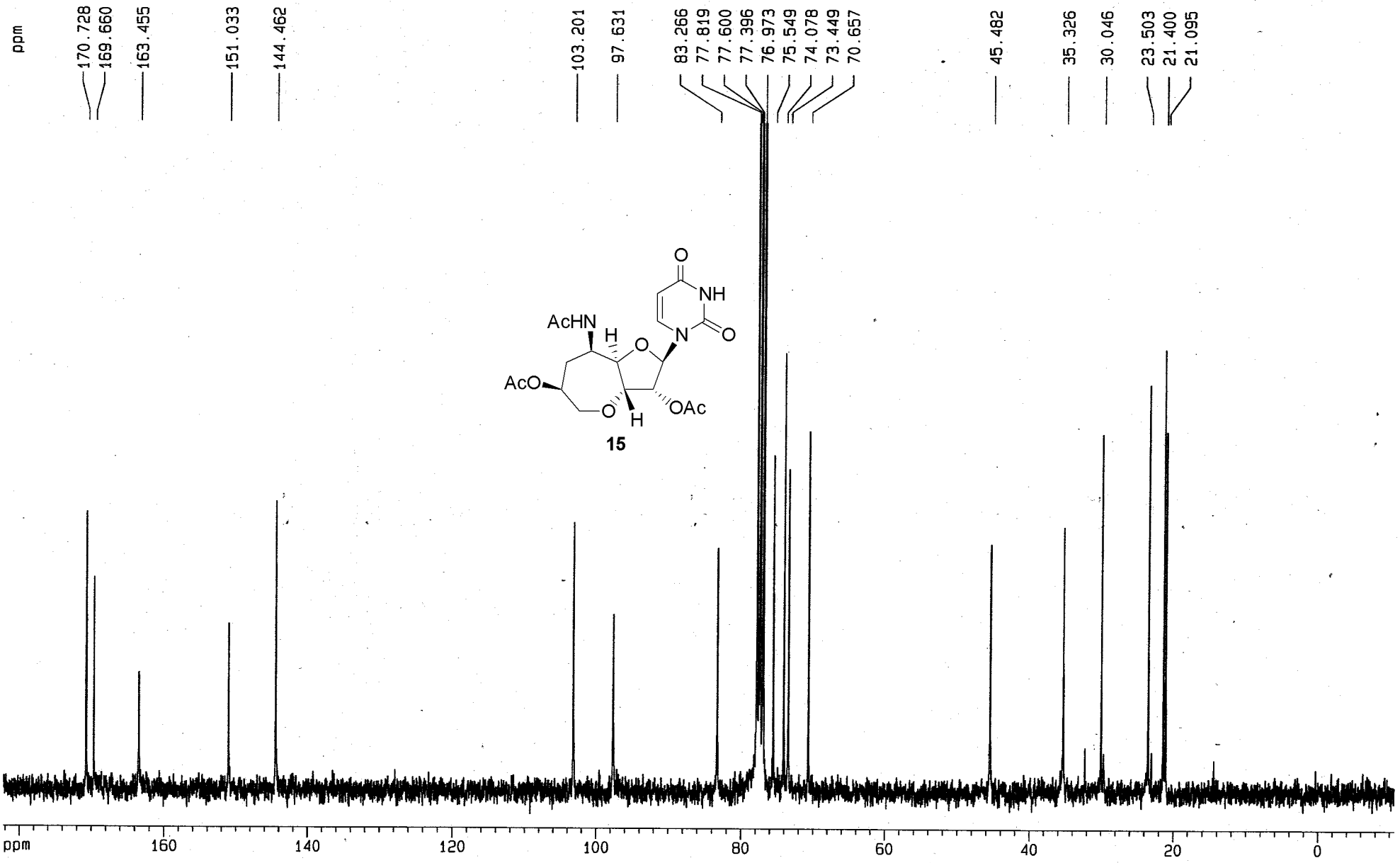
^{13}C NMR spectrum of 14 in DMSO-d_6



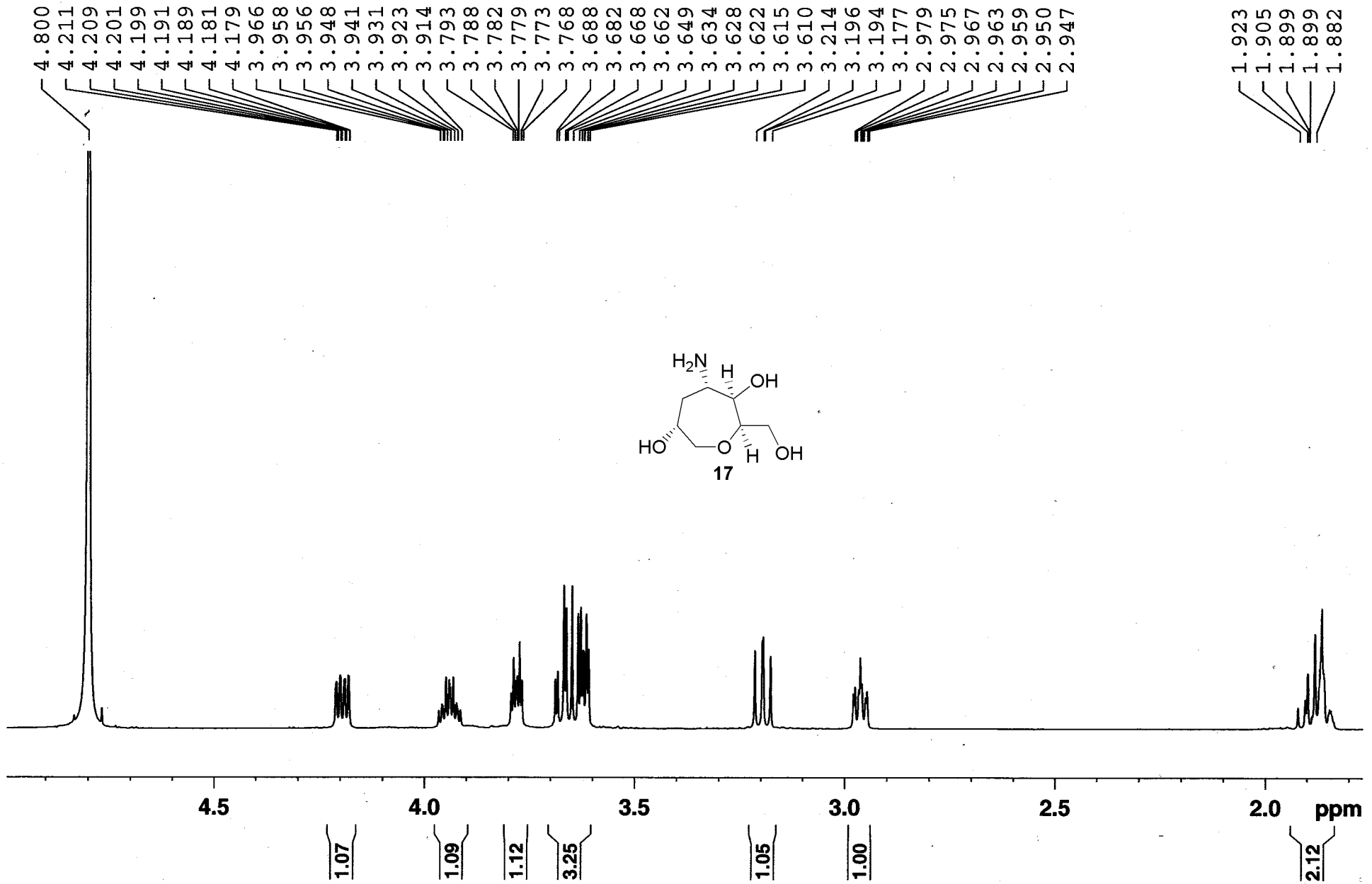
^{1}H NMR spectrum of 15 in $CDCl_3$



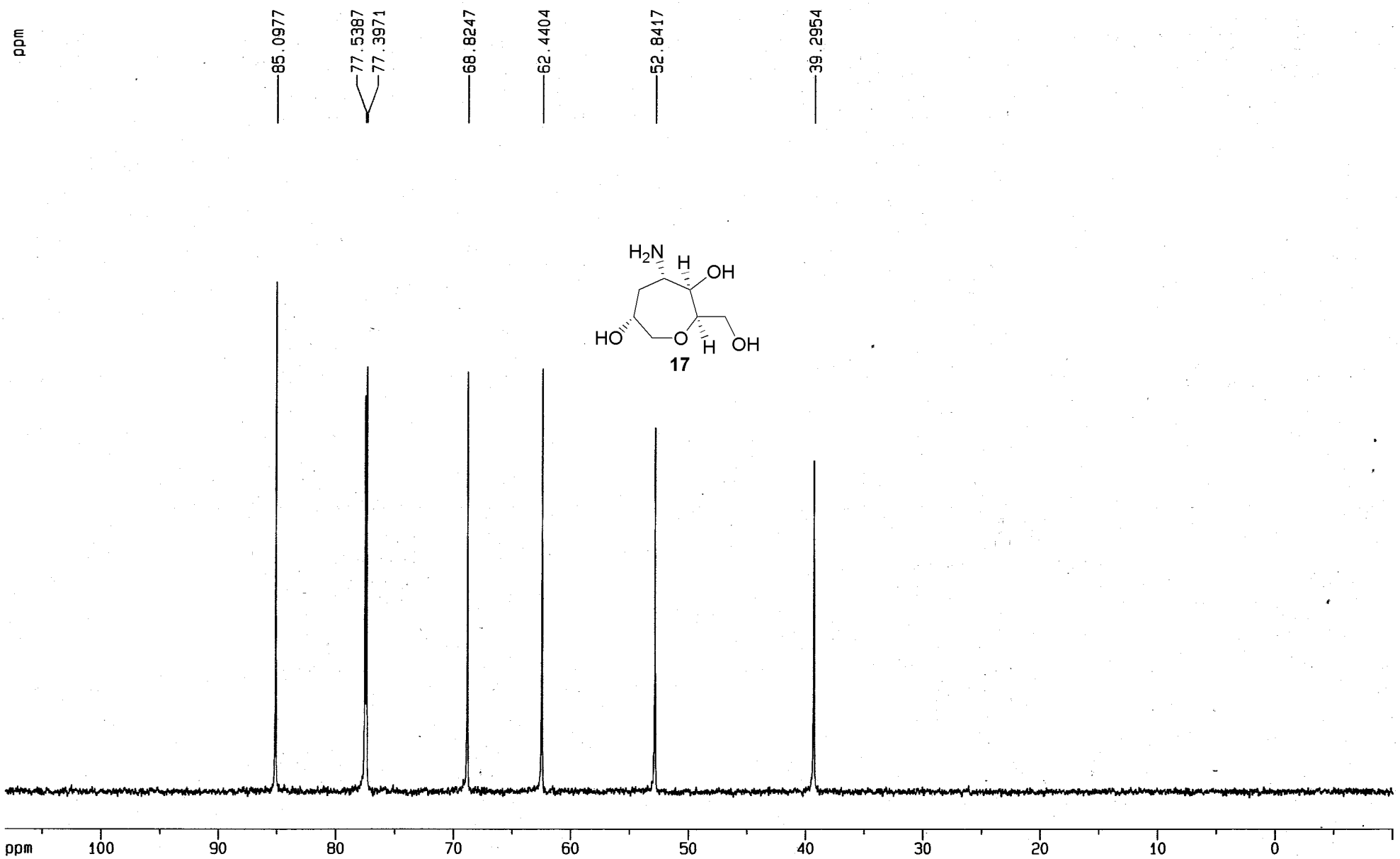
^{13}C NMR spectrum of 15 in $CDCl_3$



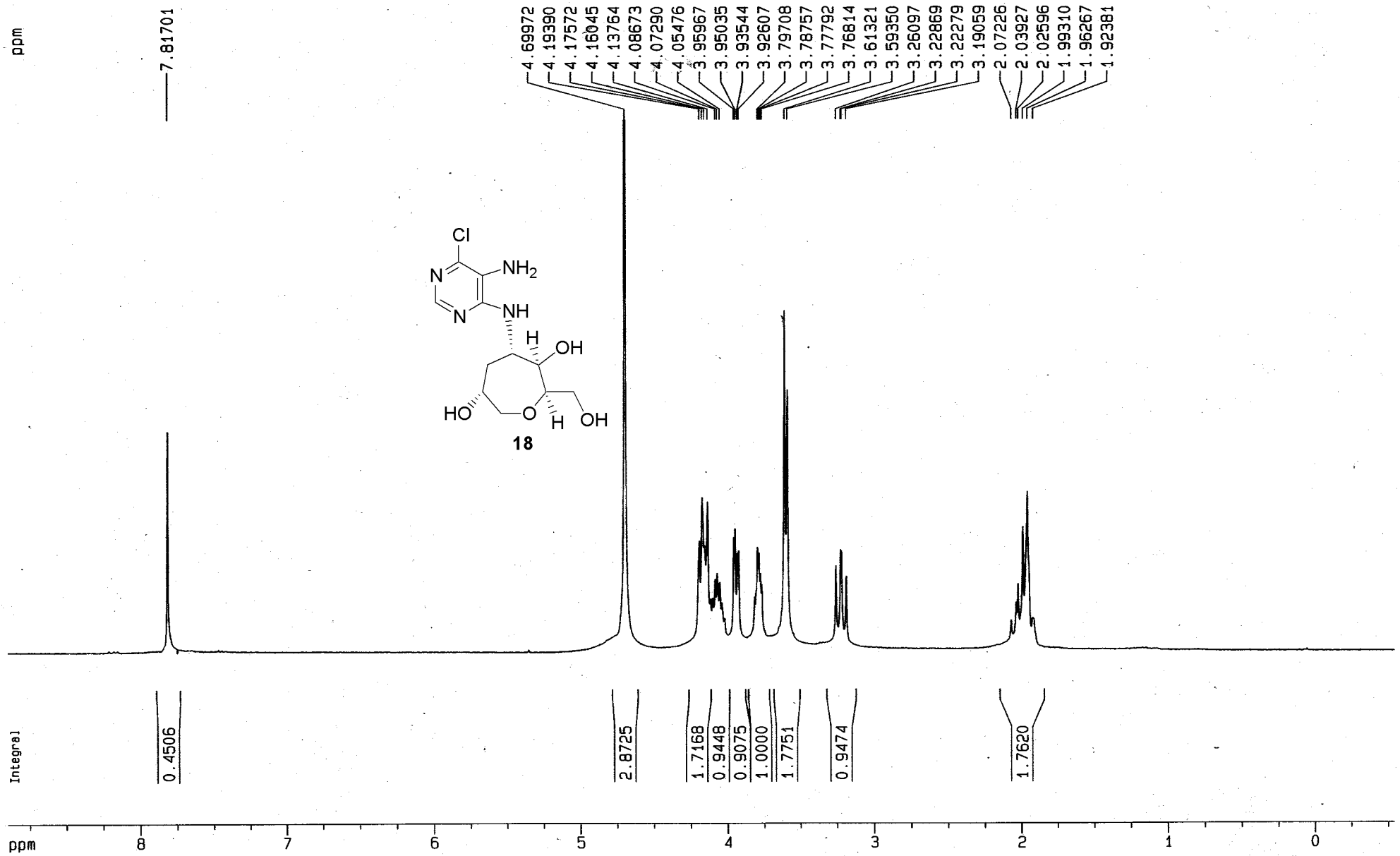
^{1}H NMR spectrum of 17 in D_2O



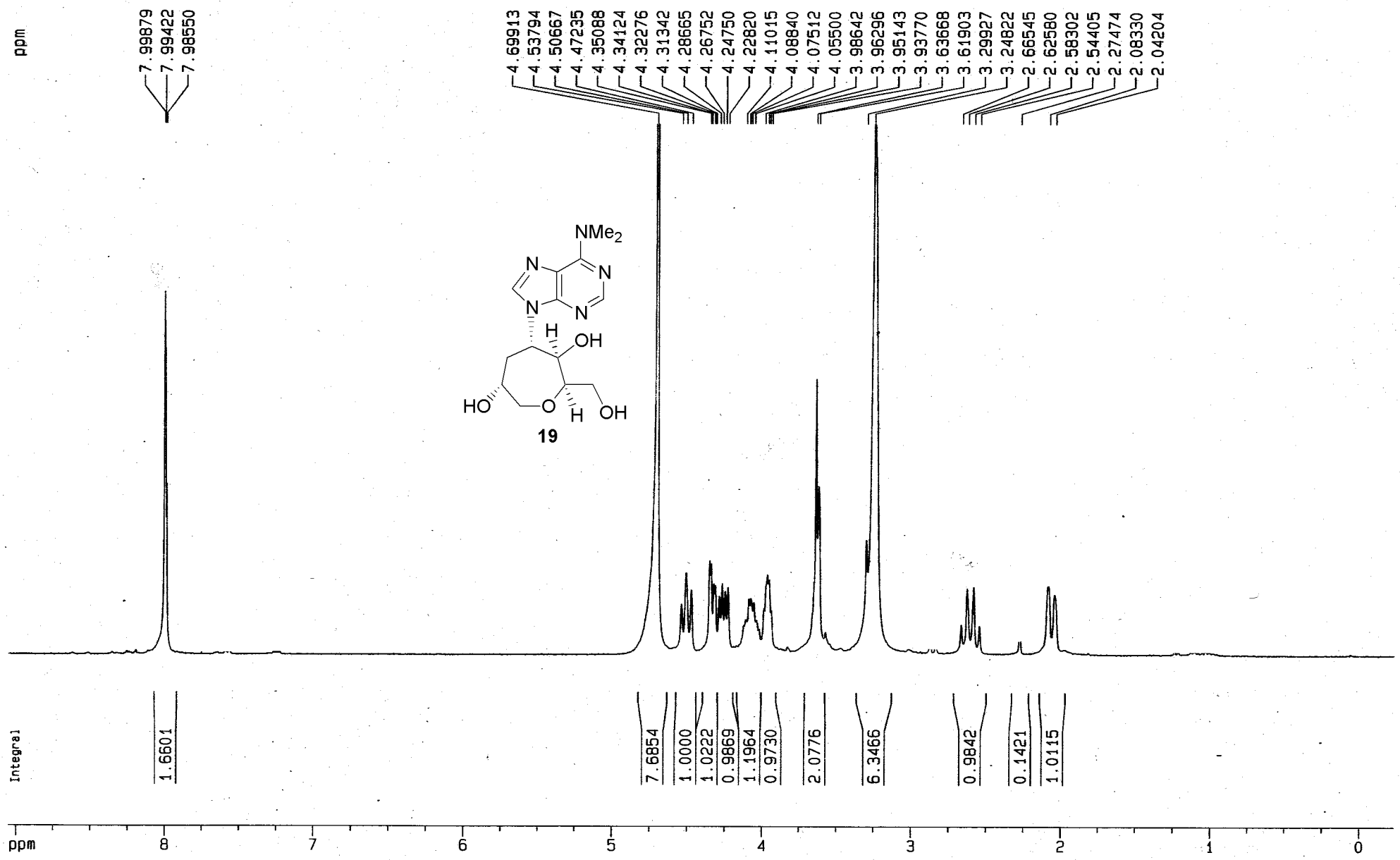
^{13}C NMR spectrum of 17 in D_2O



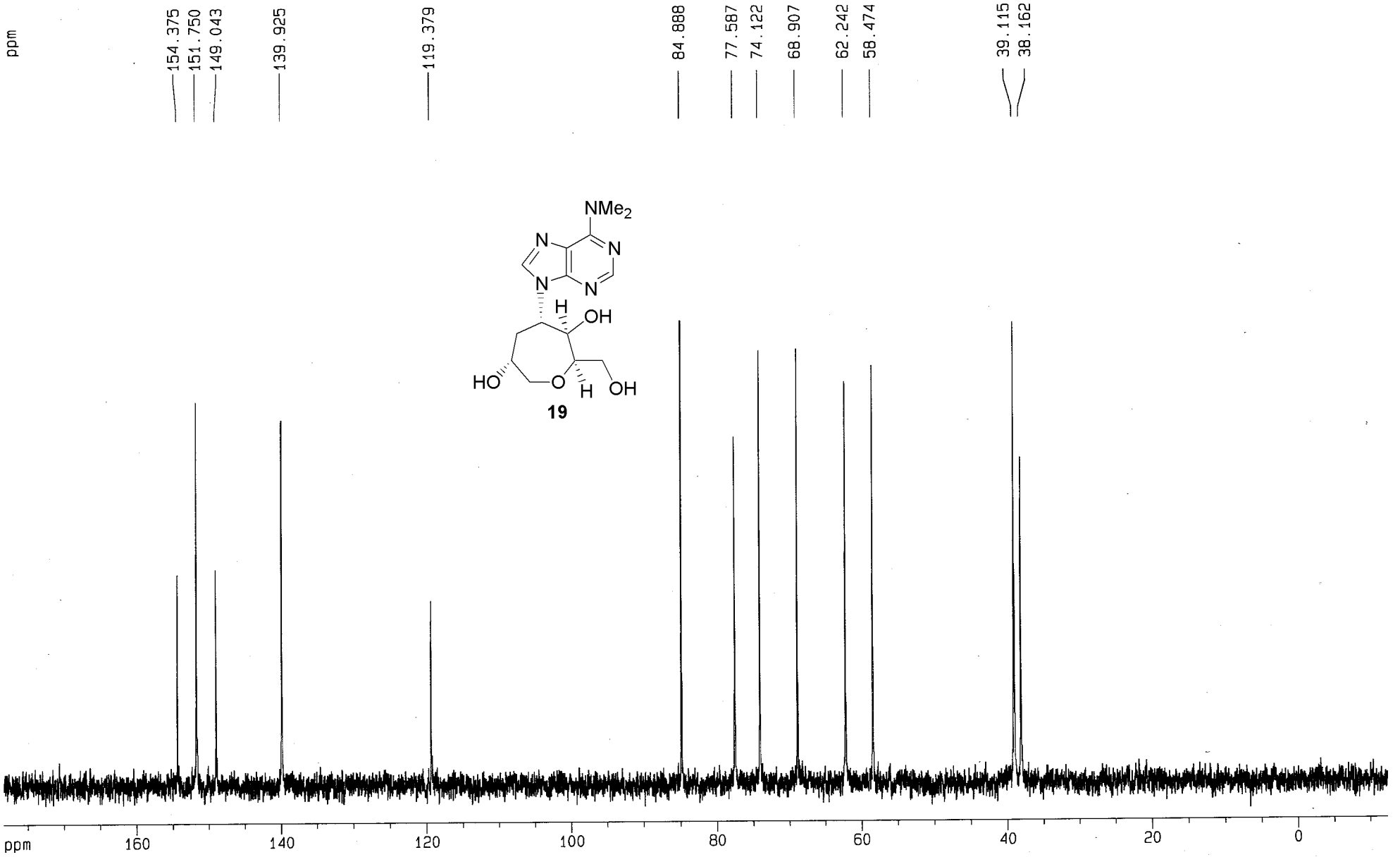
^{1}H NMR spectrum of 18 in D_2O



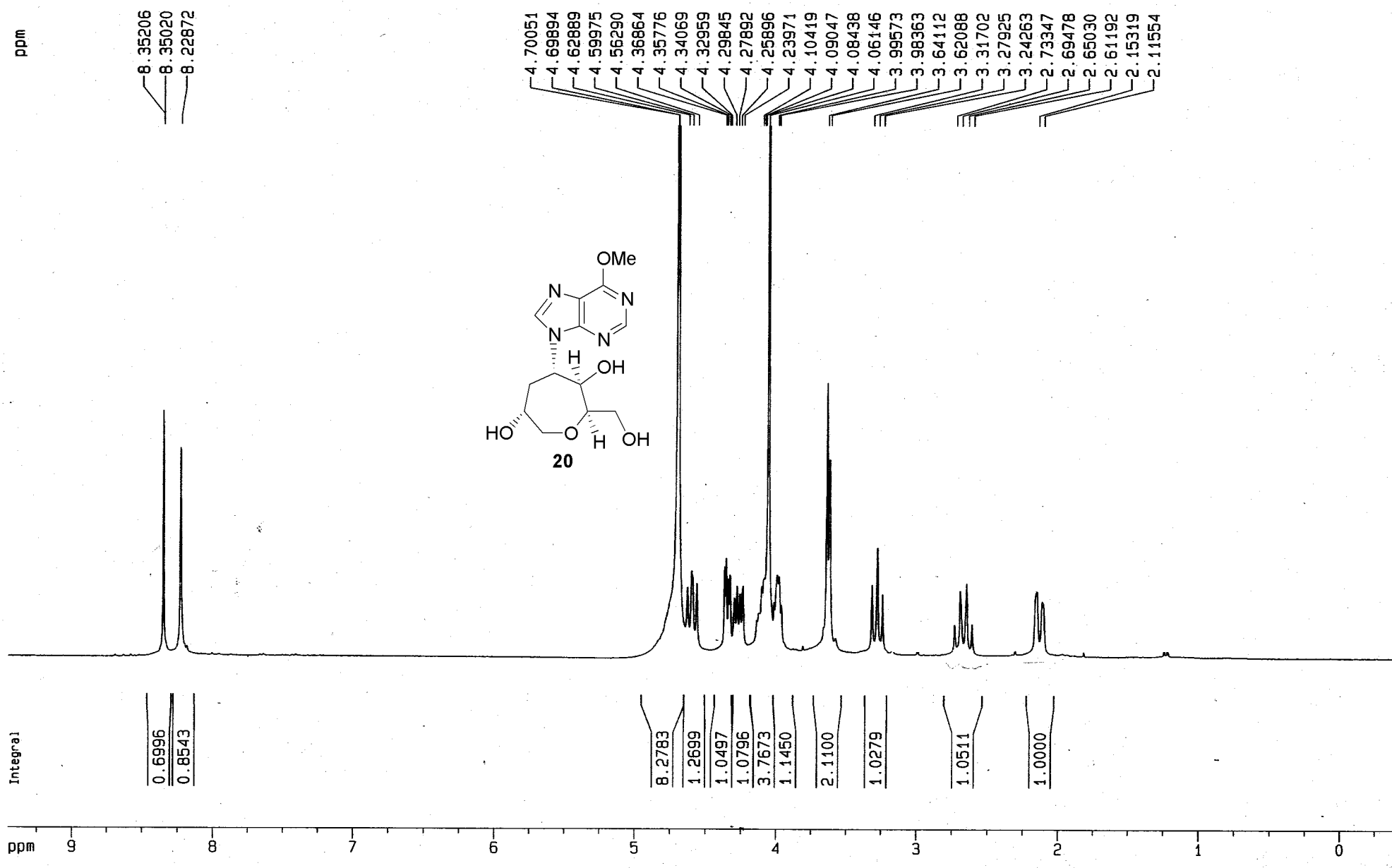
^{1}H NMR spectrum of 19 in D_2O



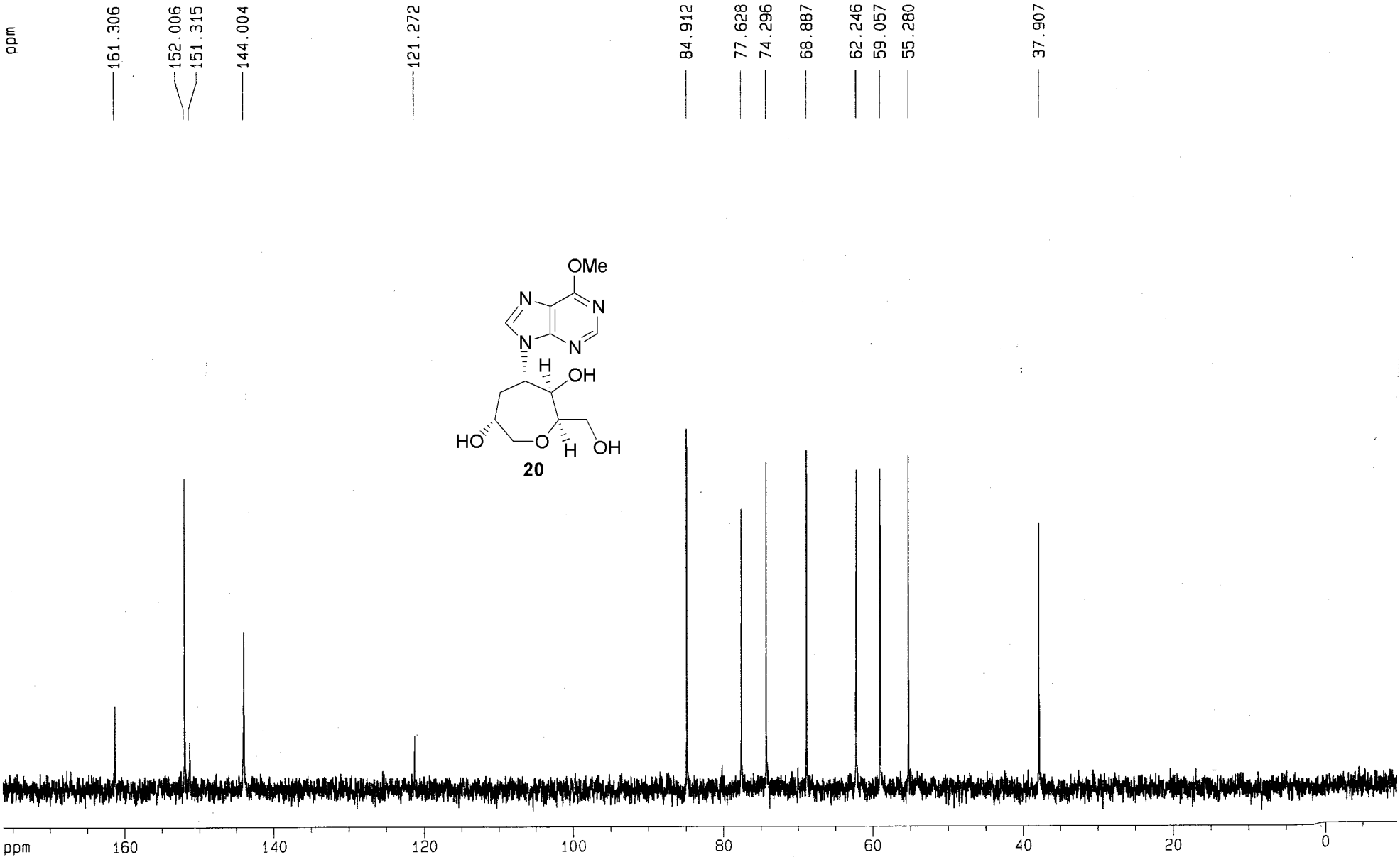
^{13}C NMR spectrum of 19 in D_2O



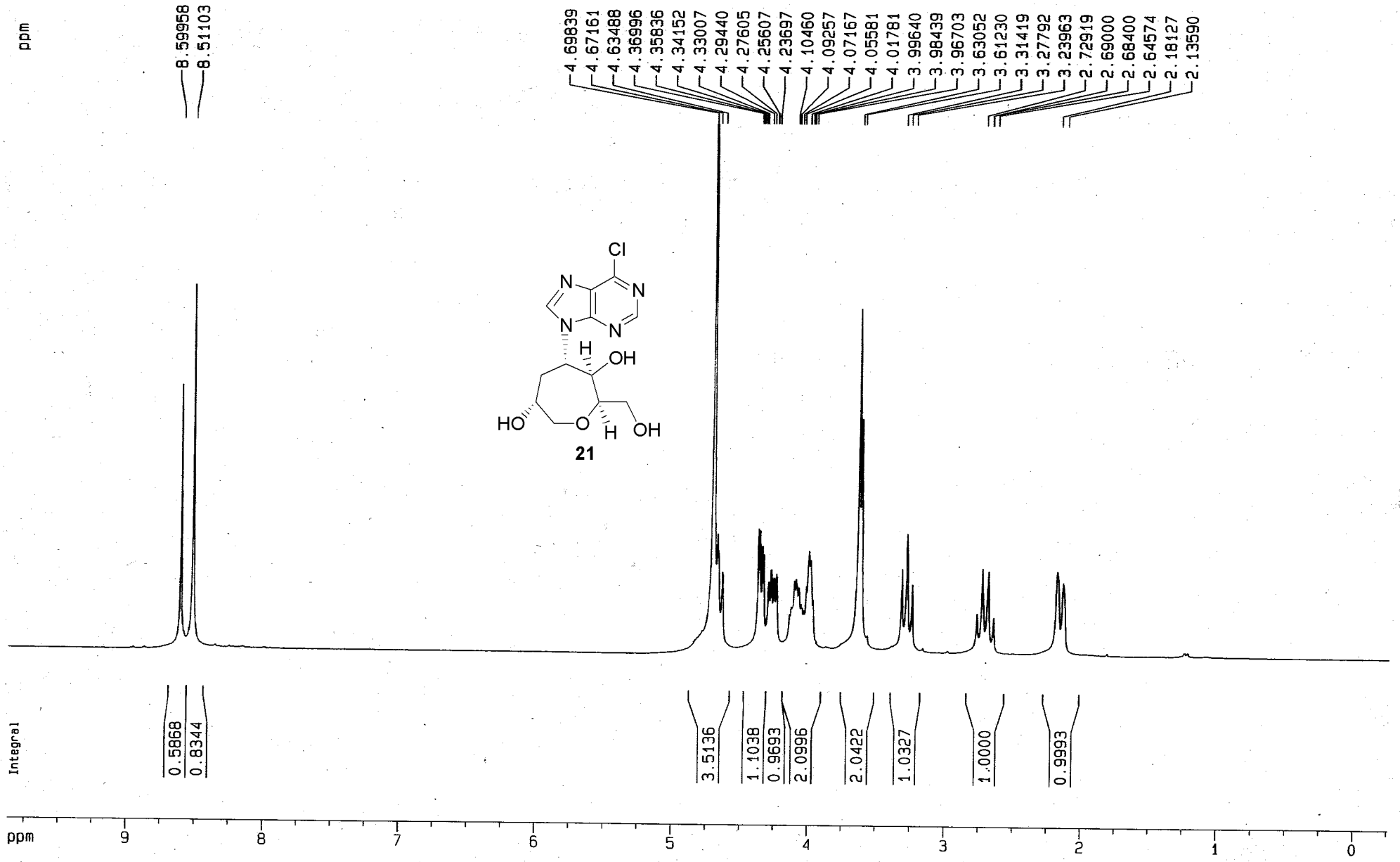
^{1}H NMR spectrum of 20 in D_2O



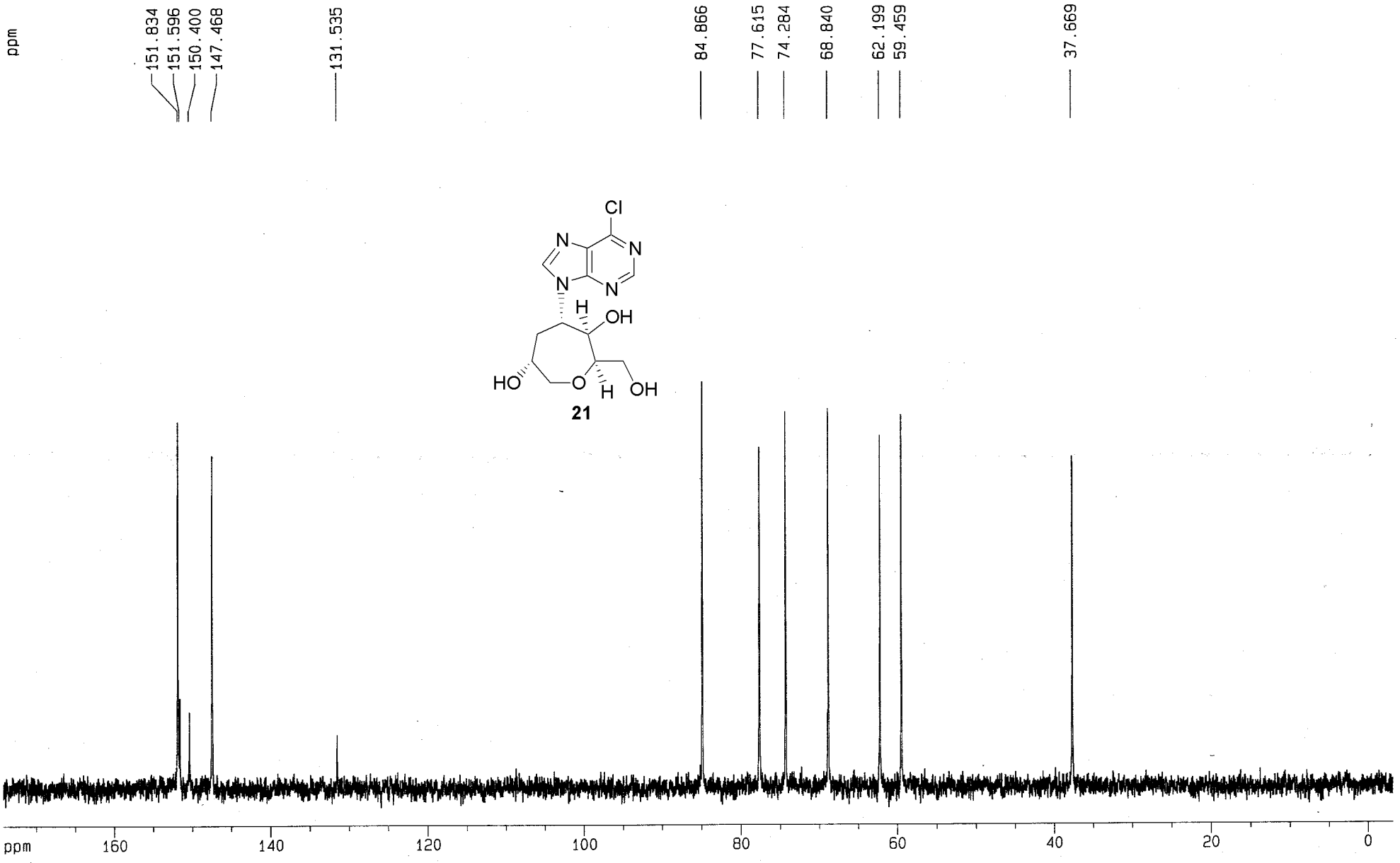
^{13}C NMR spectrum of 20 in D_2O



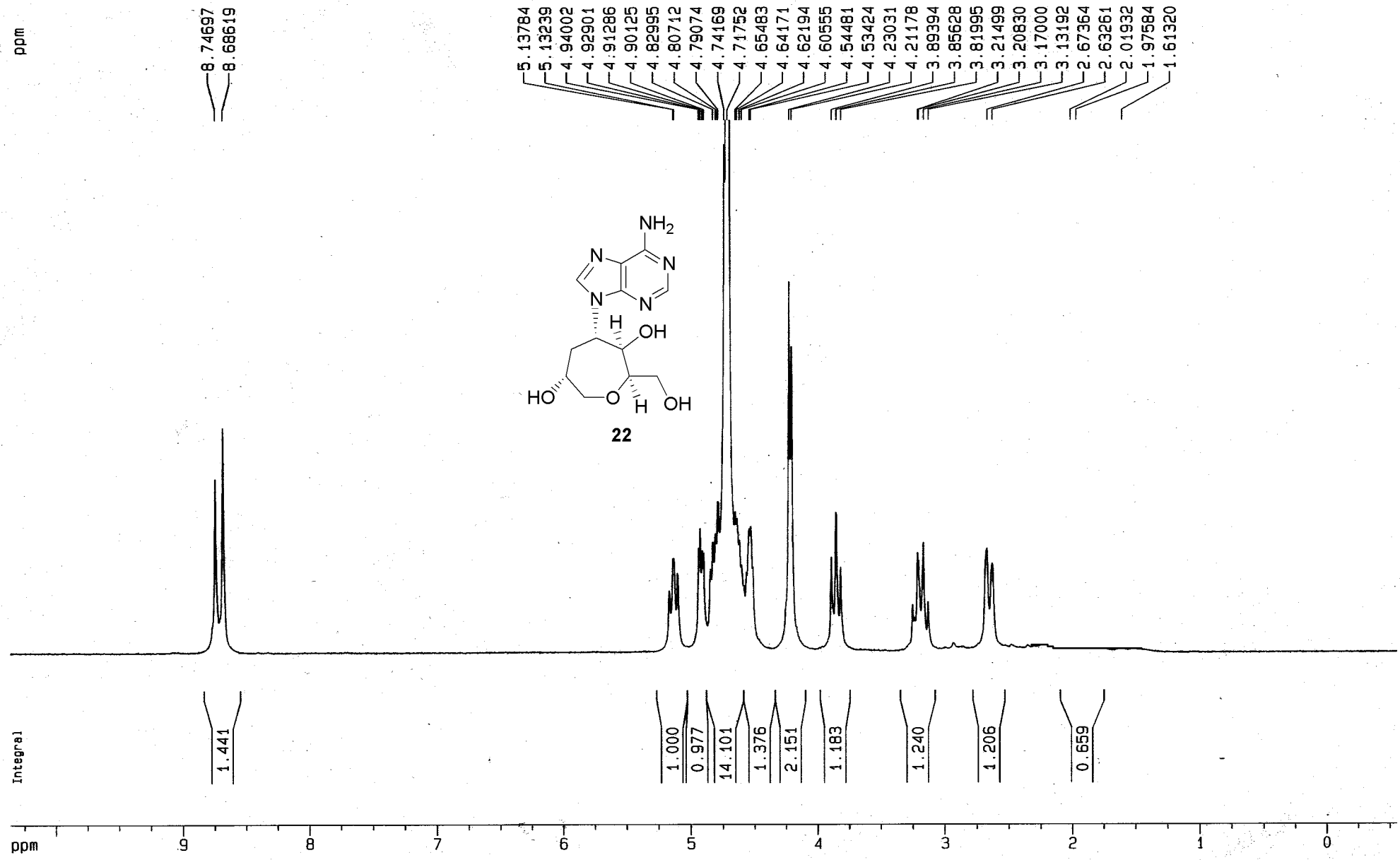
^{1}H NMR spectrum of 21 in D_2O



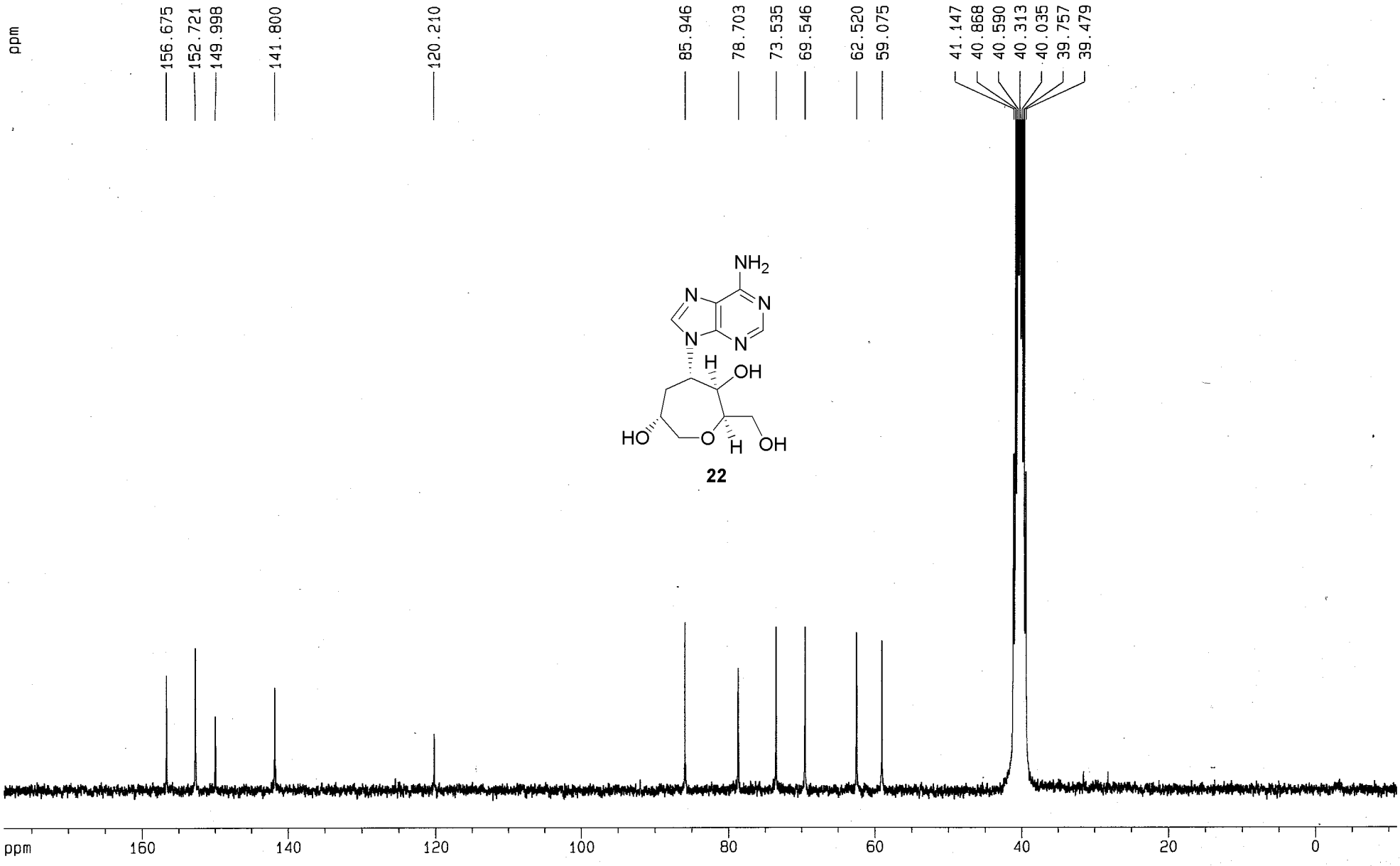
^{13}C NMR spectrum of 21 in D_2O



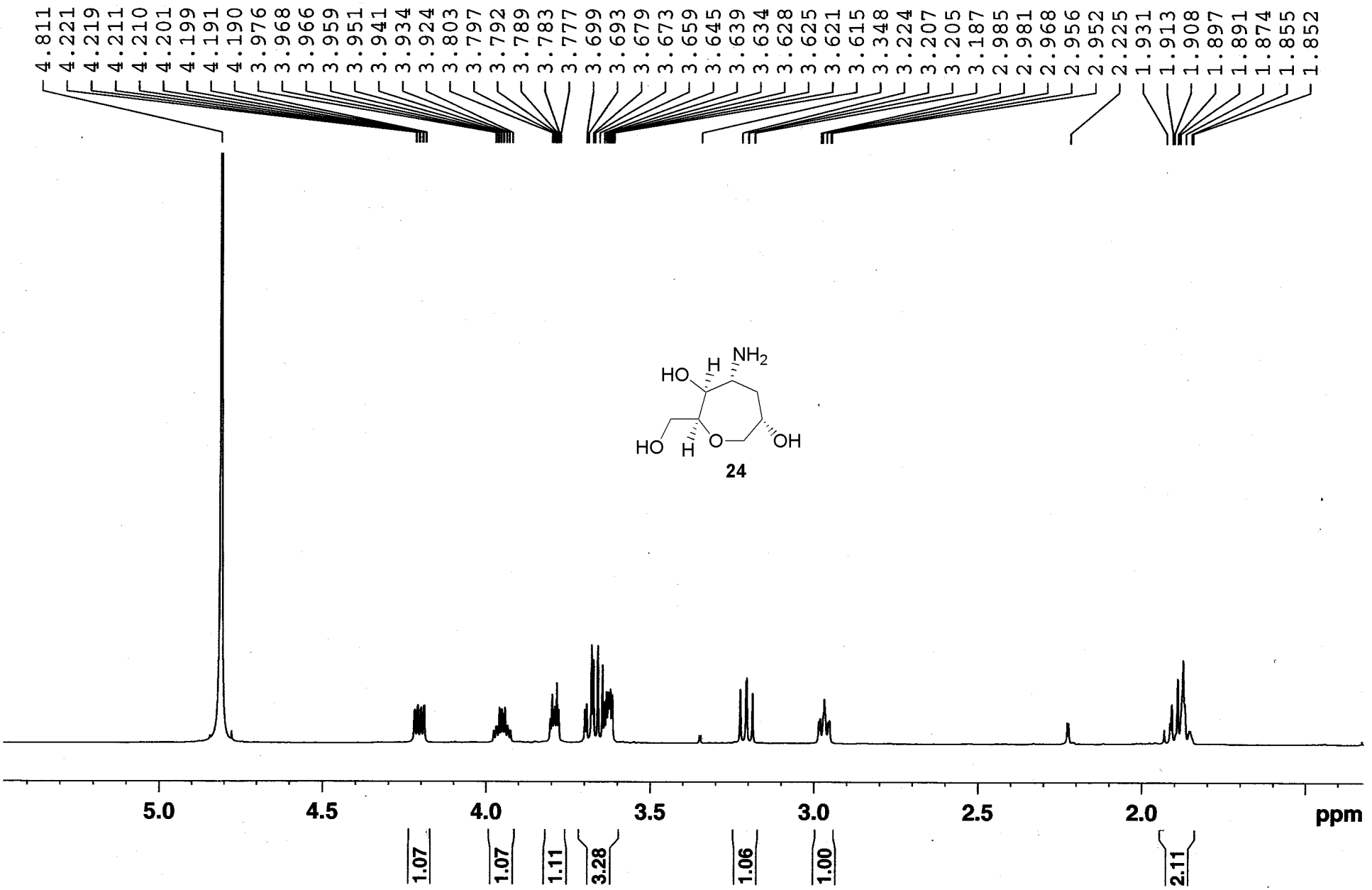
^{1}H NMR spectrum of 22 in D_2O at 70 °C



^{13}C NMR spectrum of 22 in D_2O

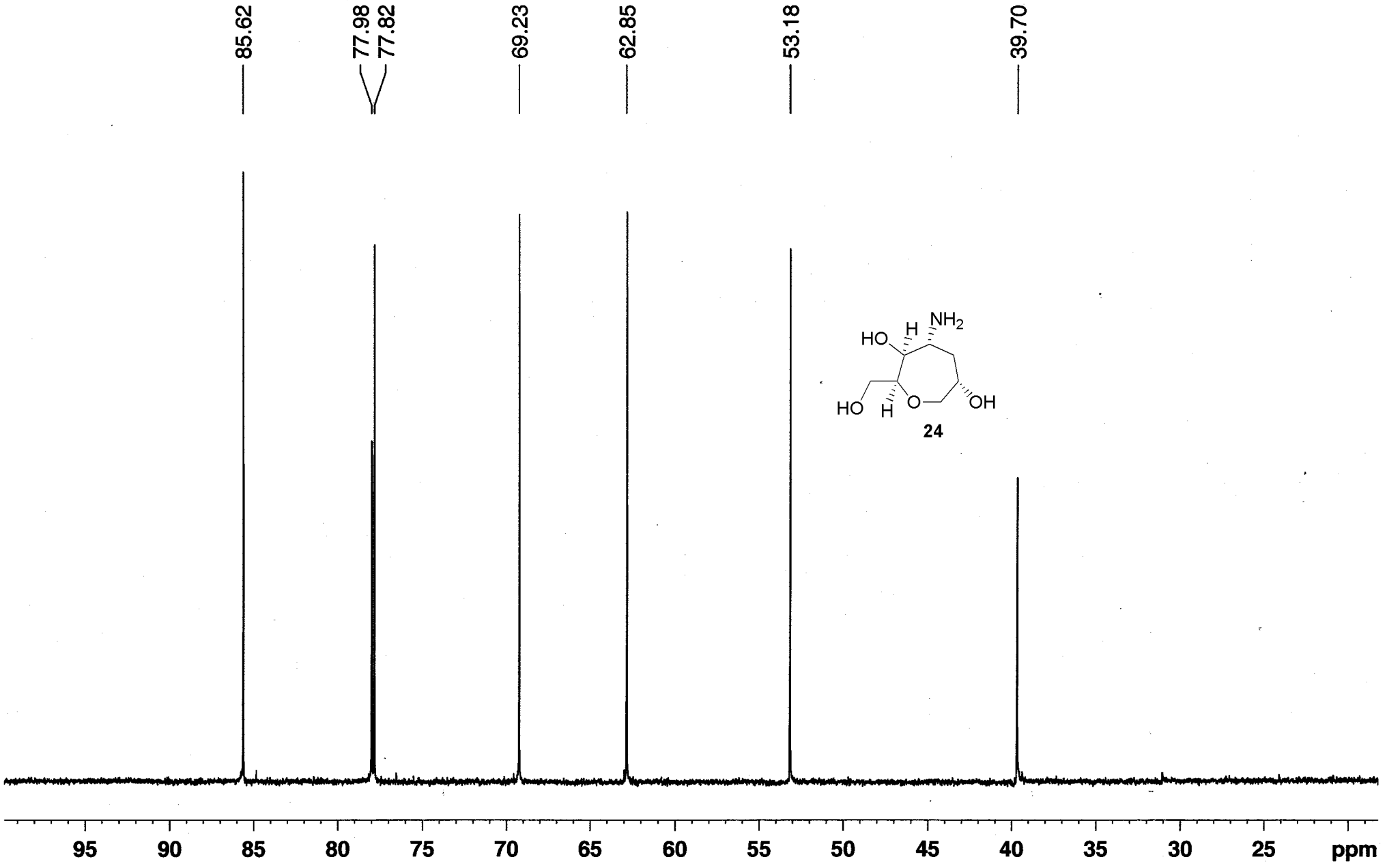


^{1}H NMR spectrum of 24 in D_2O

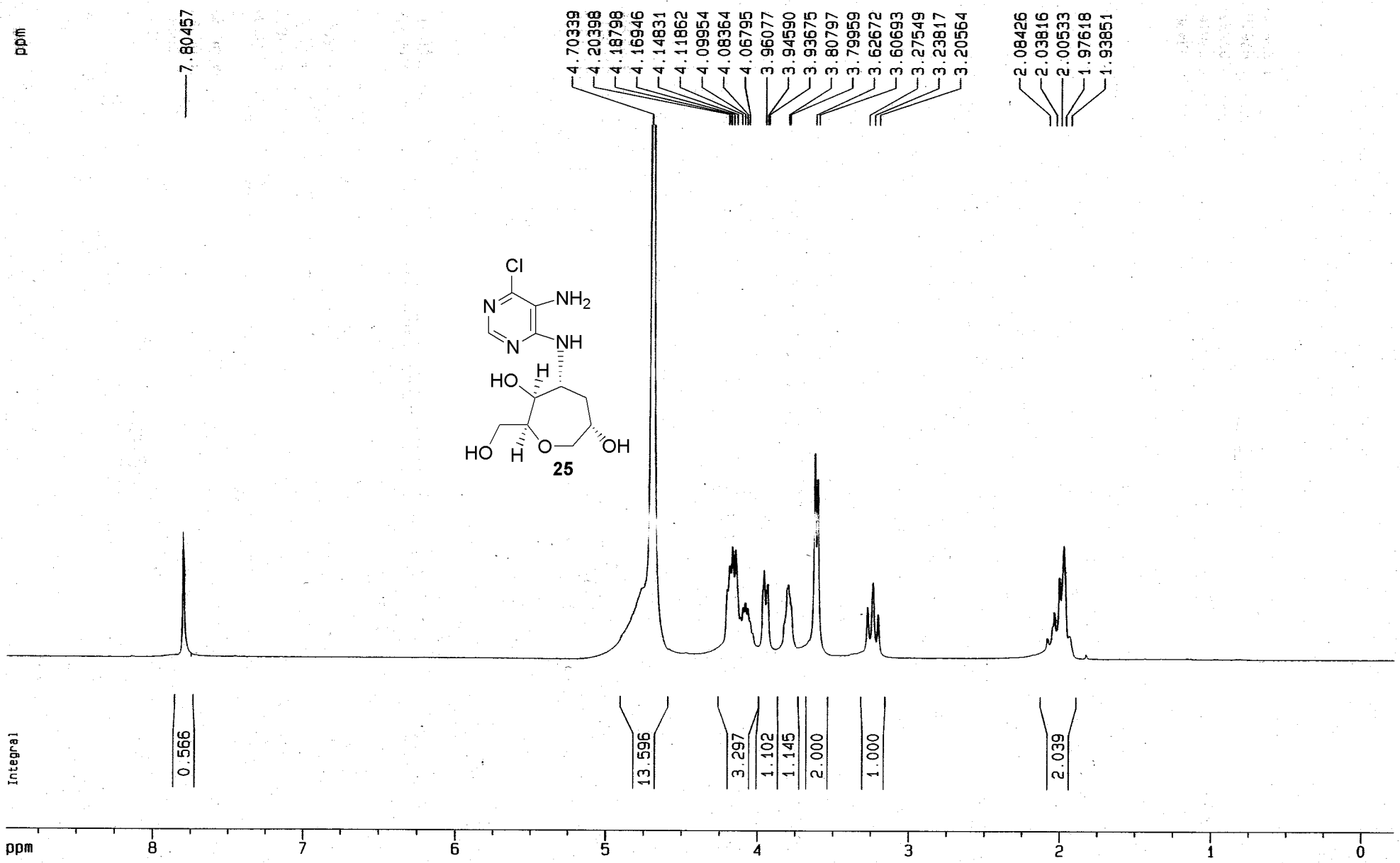


^{13}C NMR spectrum of 24 in D_2O

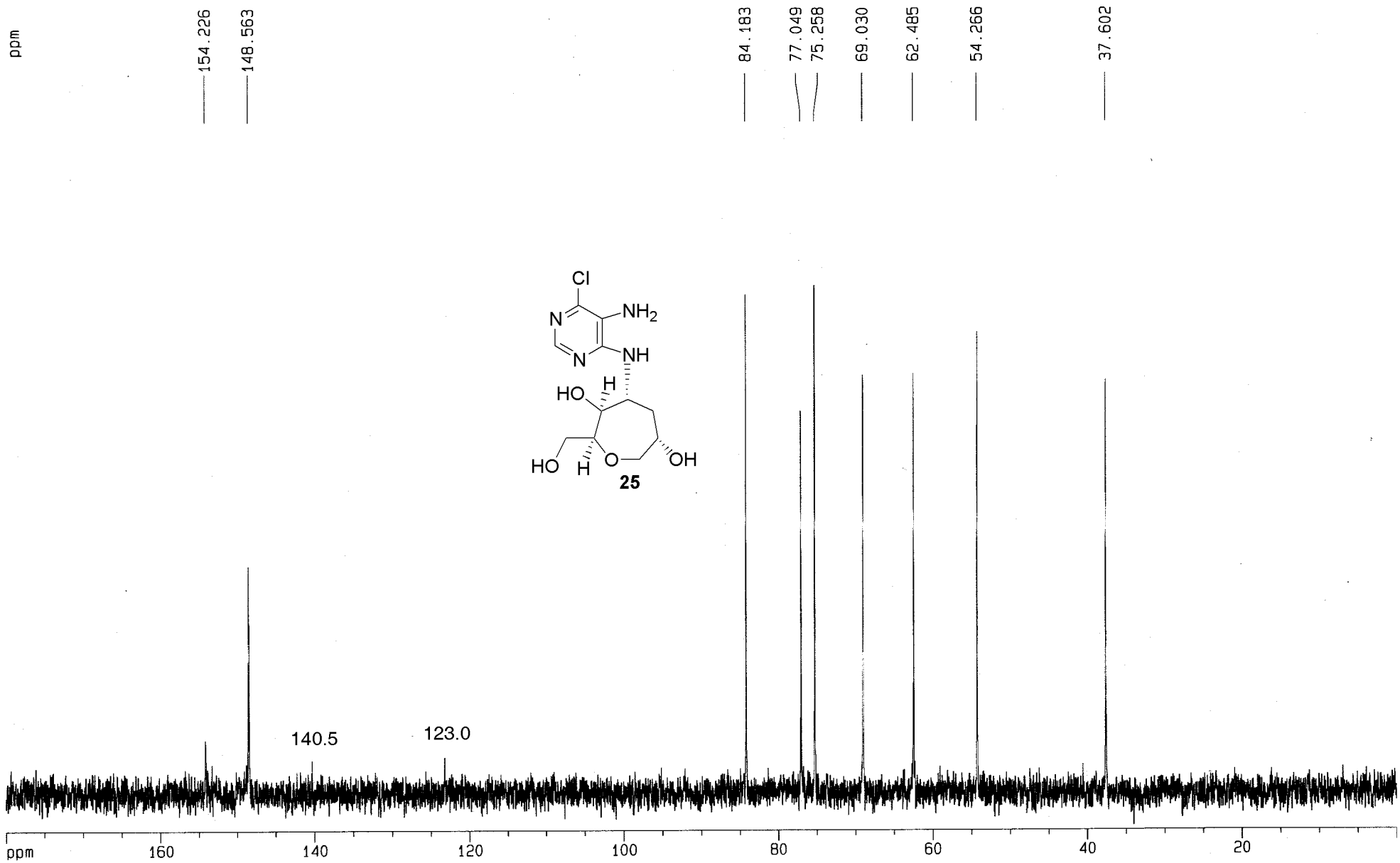
IICB



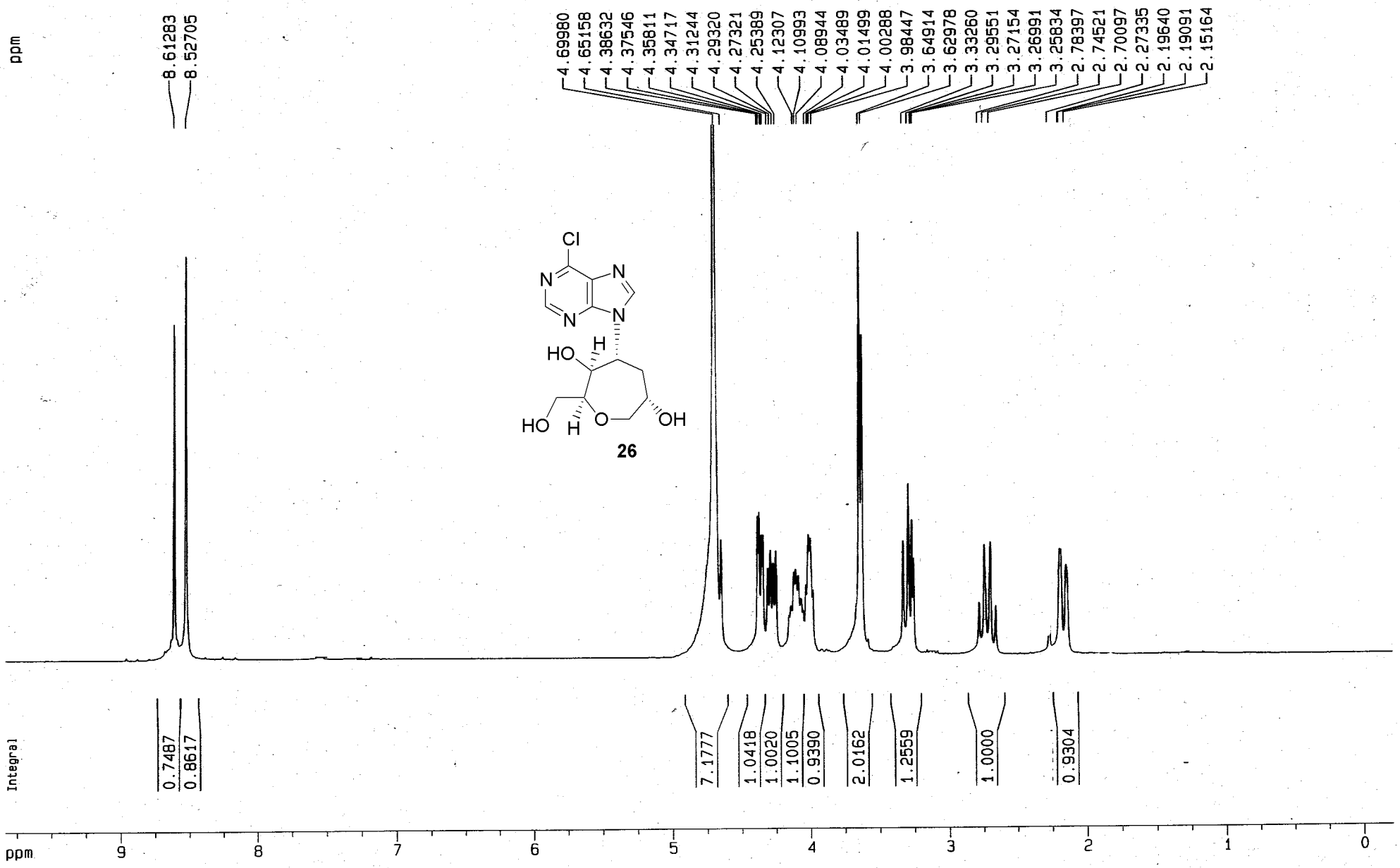
^{1}H NMR spectrum of 25 in D_2O



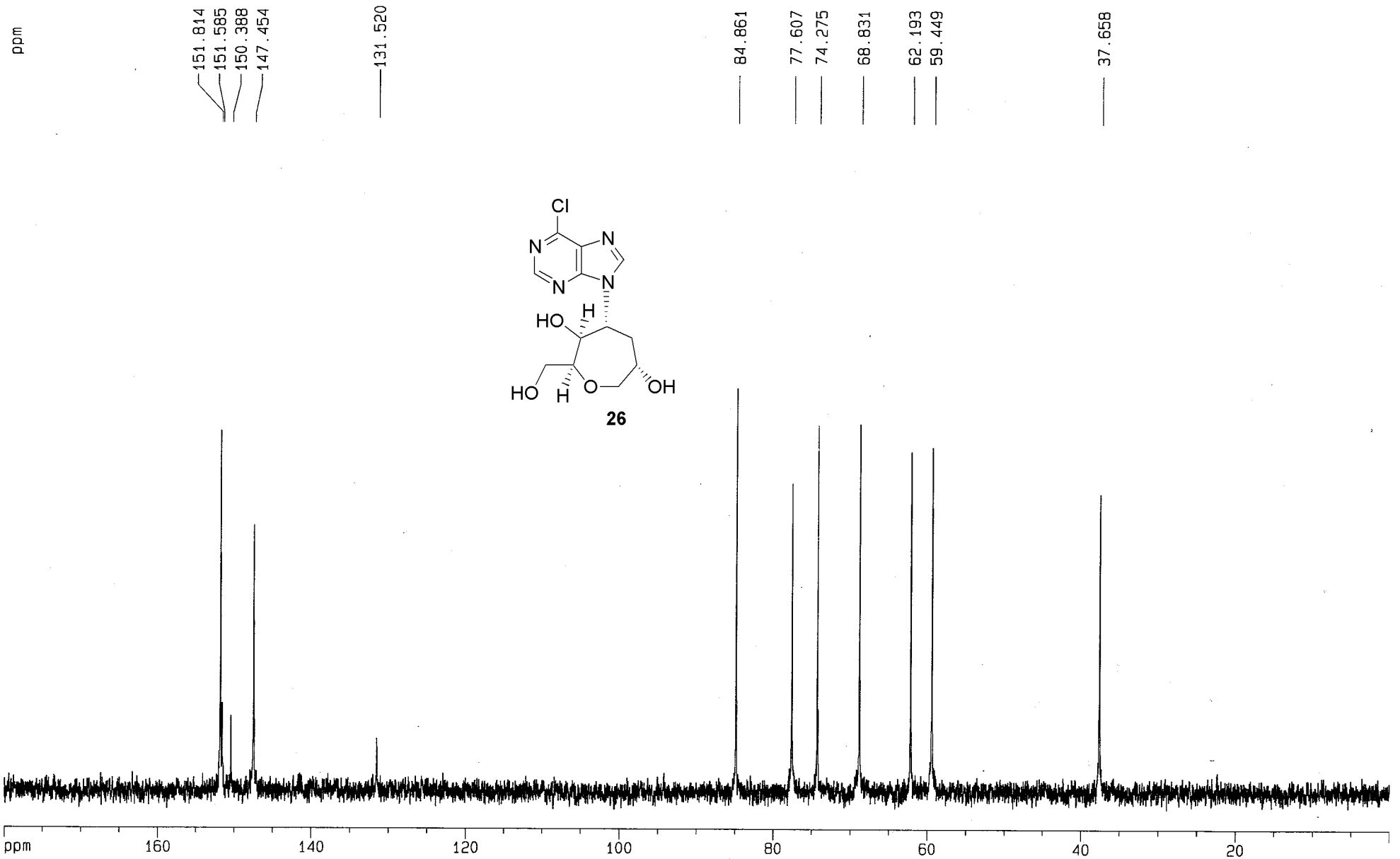
^{13}C NMR spectrum of 25 in D_2O



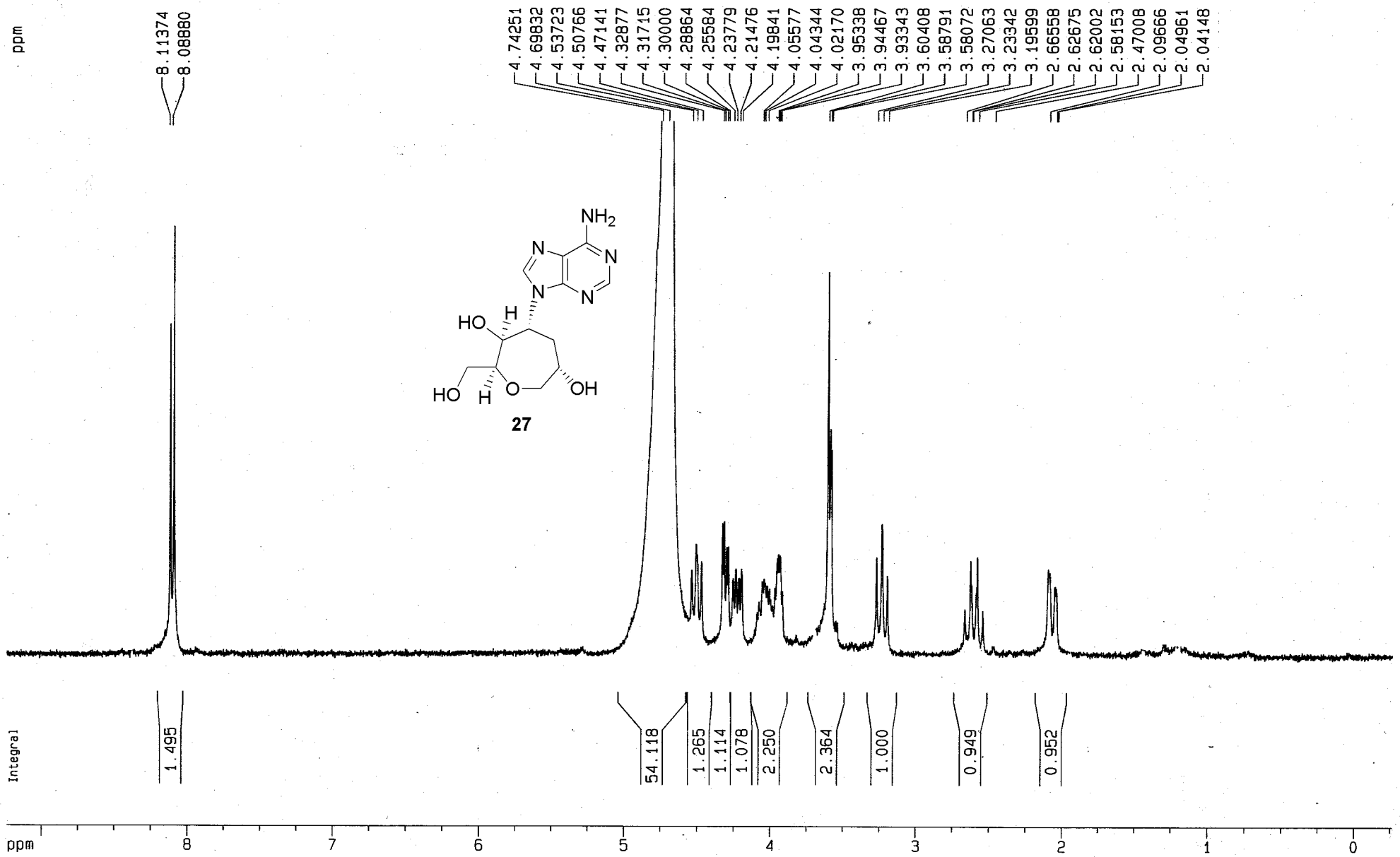
^{1}H NMR spectrum of 26 in D_2O



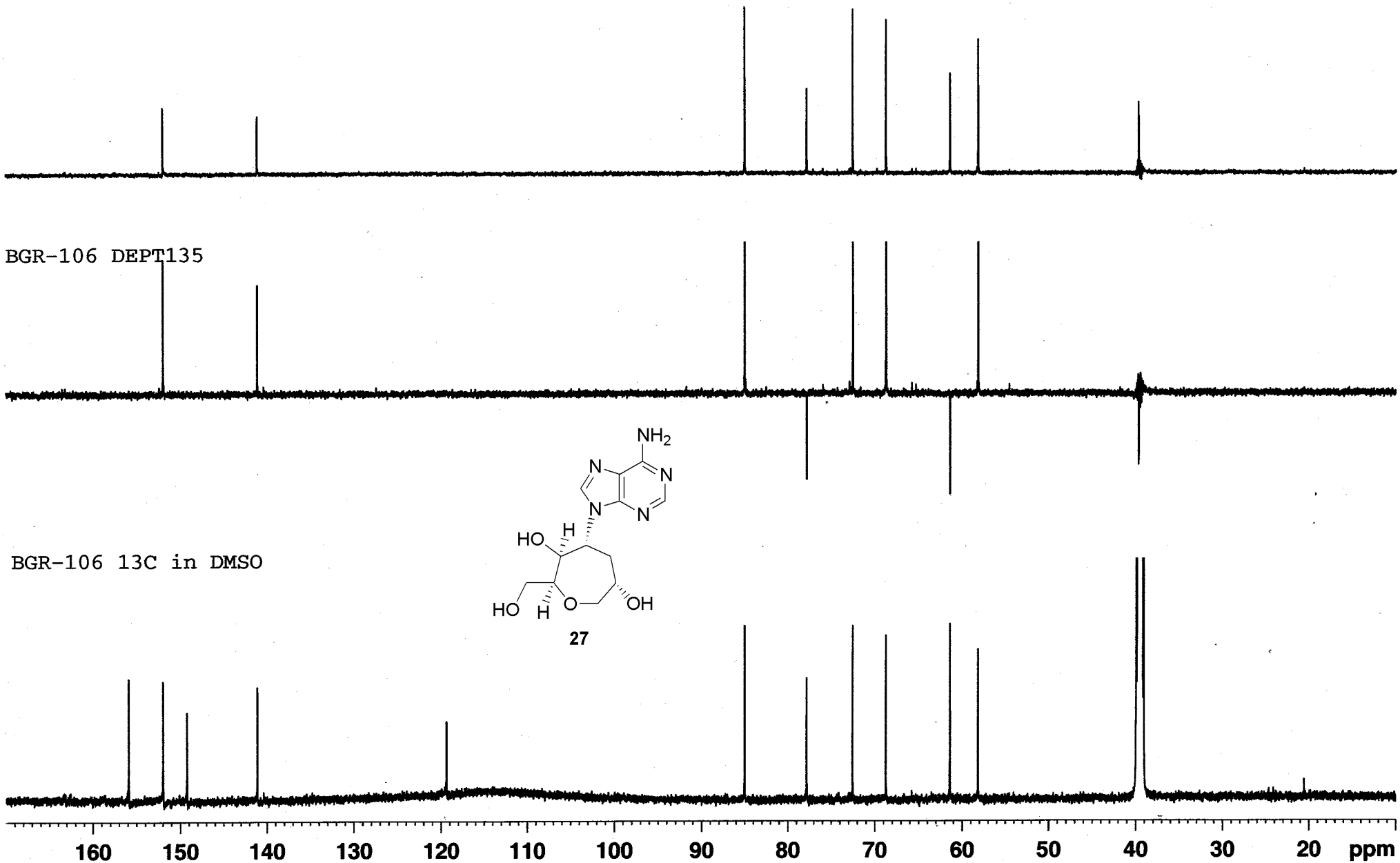
^{13}C NMR spectrum of 26 in D_2O



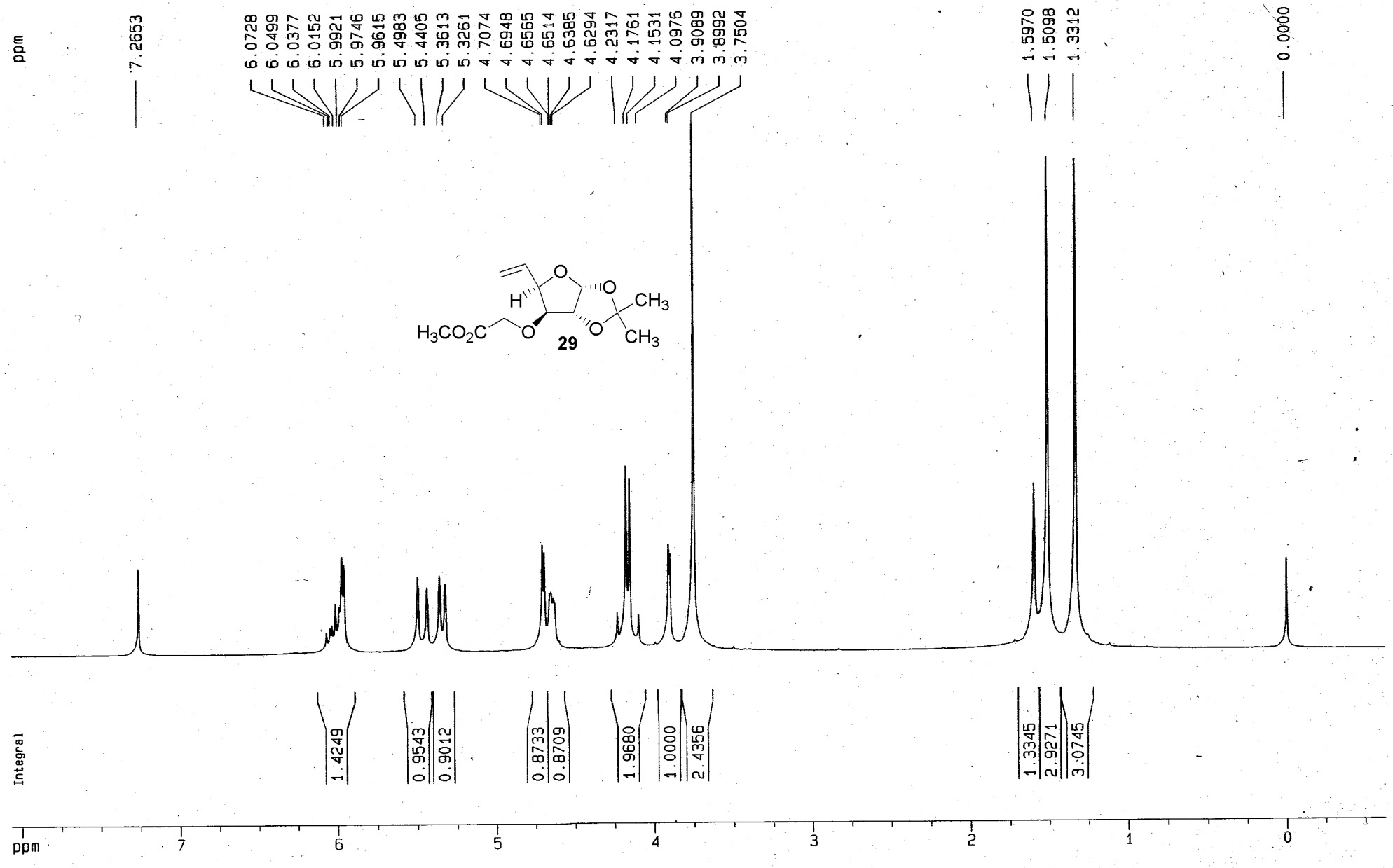
^{1}H NMR spectrum of 27 in D_2O



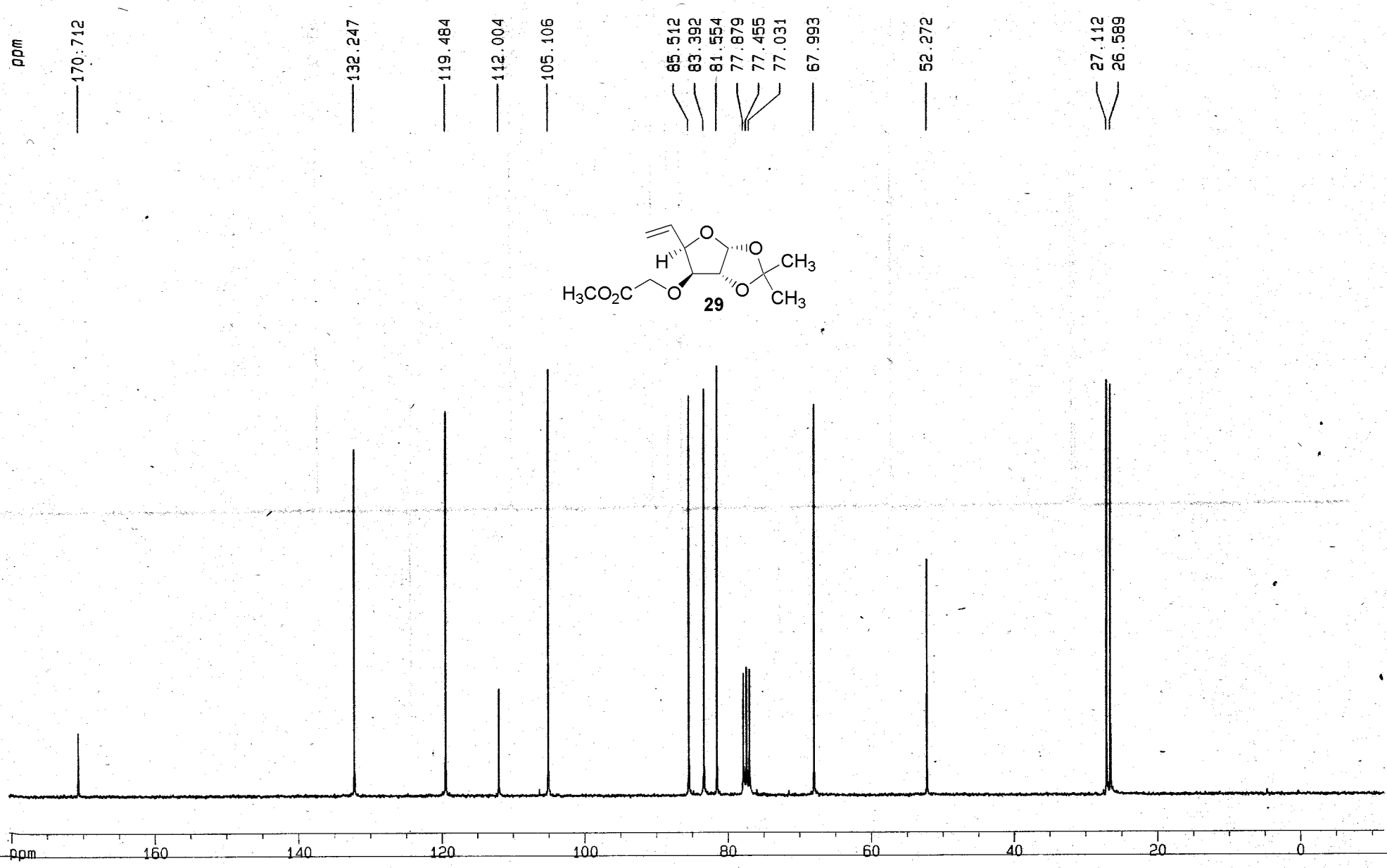
^{13}C NMR spectrum of 27 (with DEPT 90° and 135°) in D_2O



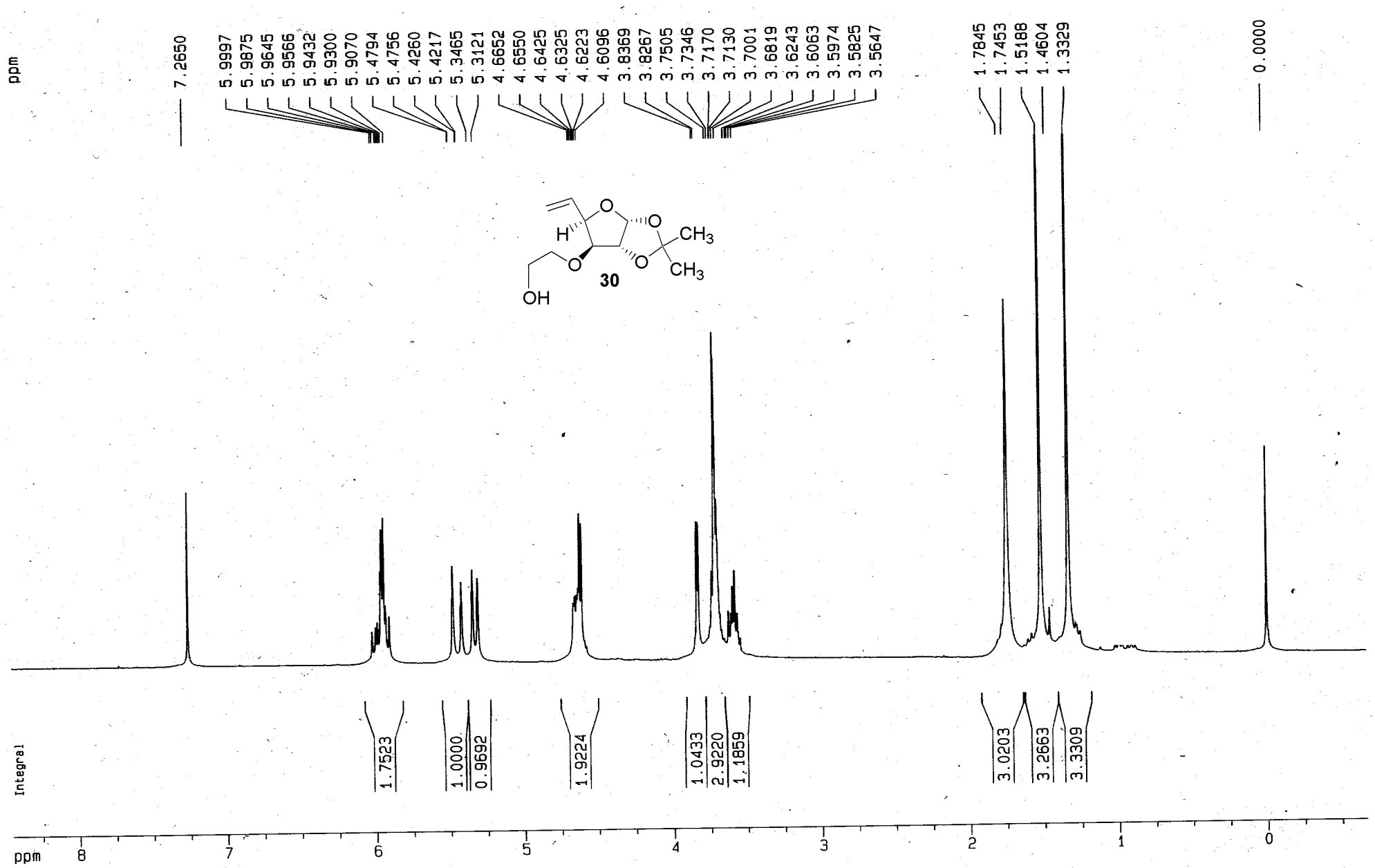
^{1}H NMR spectrum of 29 in $CDCl_3$



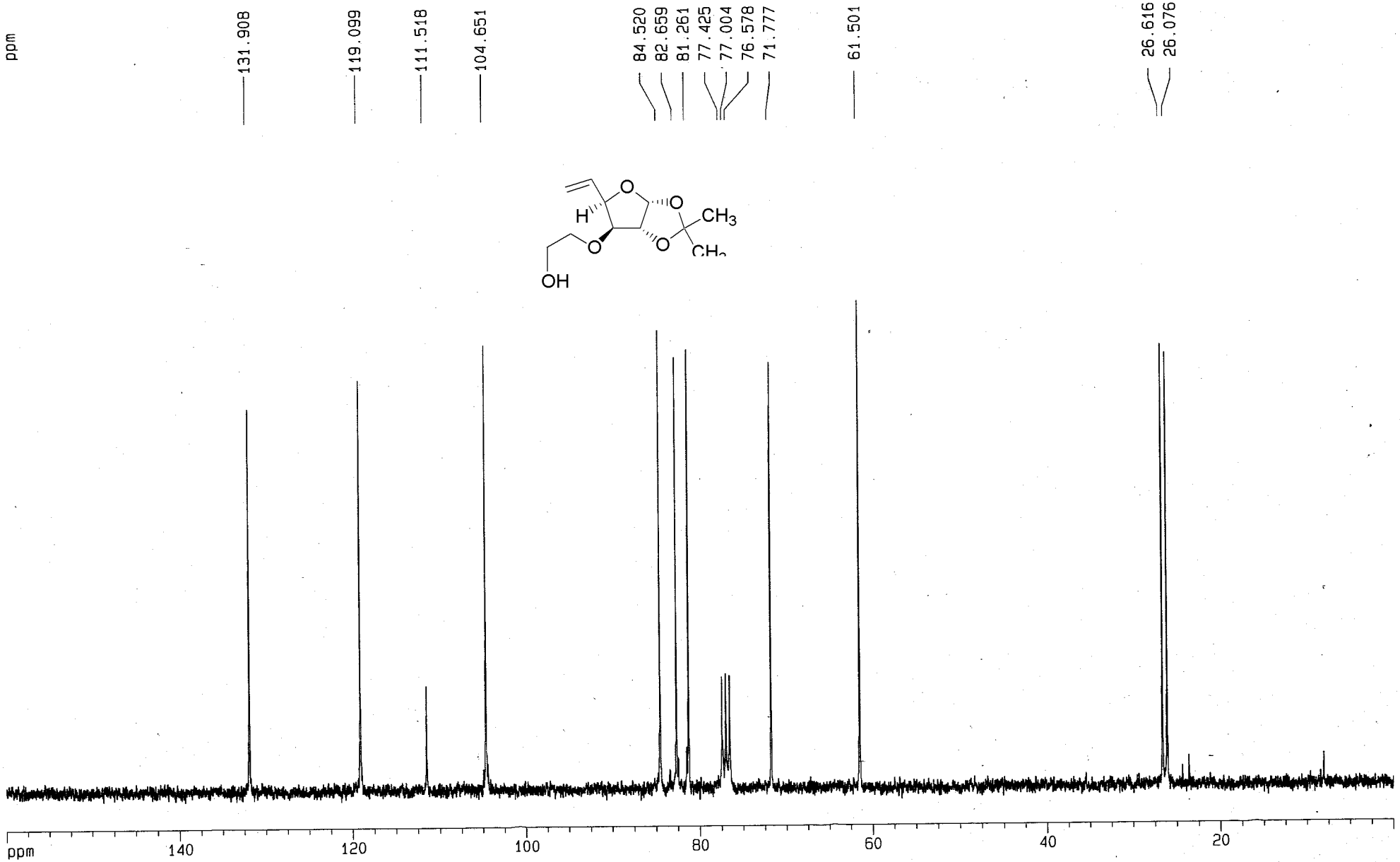
^{13}C NMR spectrum of 29 in $CDCl_3$



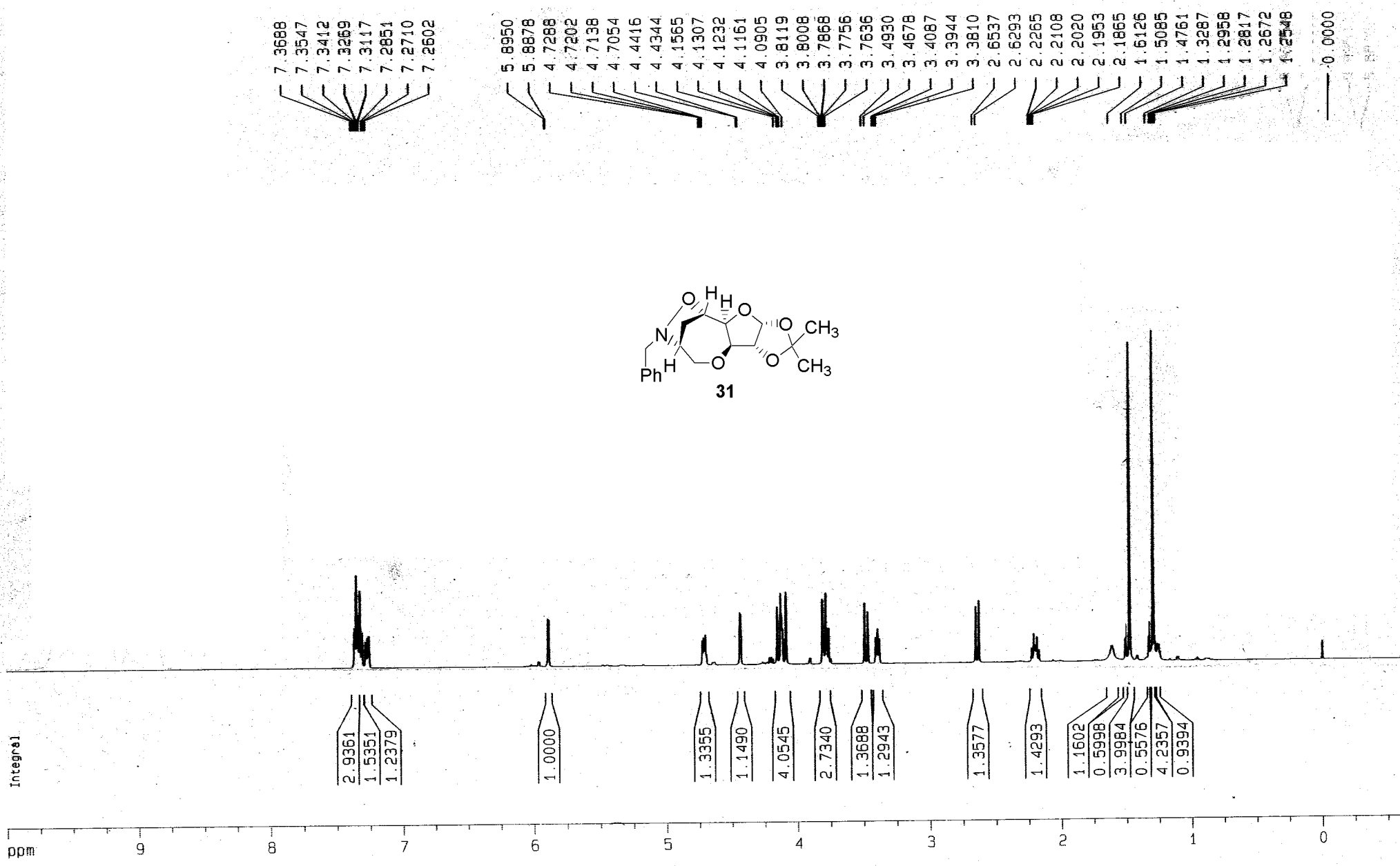
^{1}H NMR spectrum of 30 in $CDCl_3$



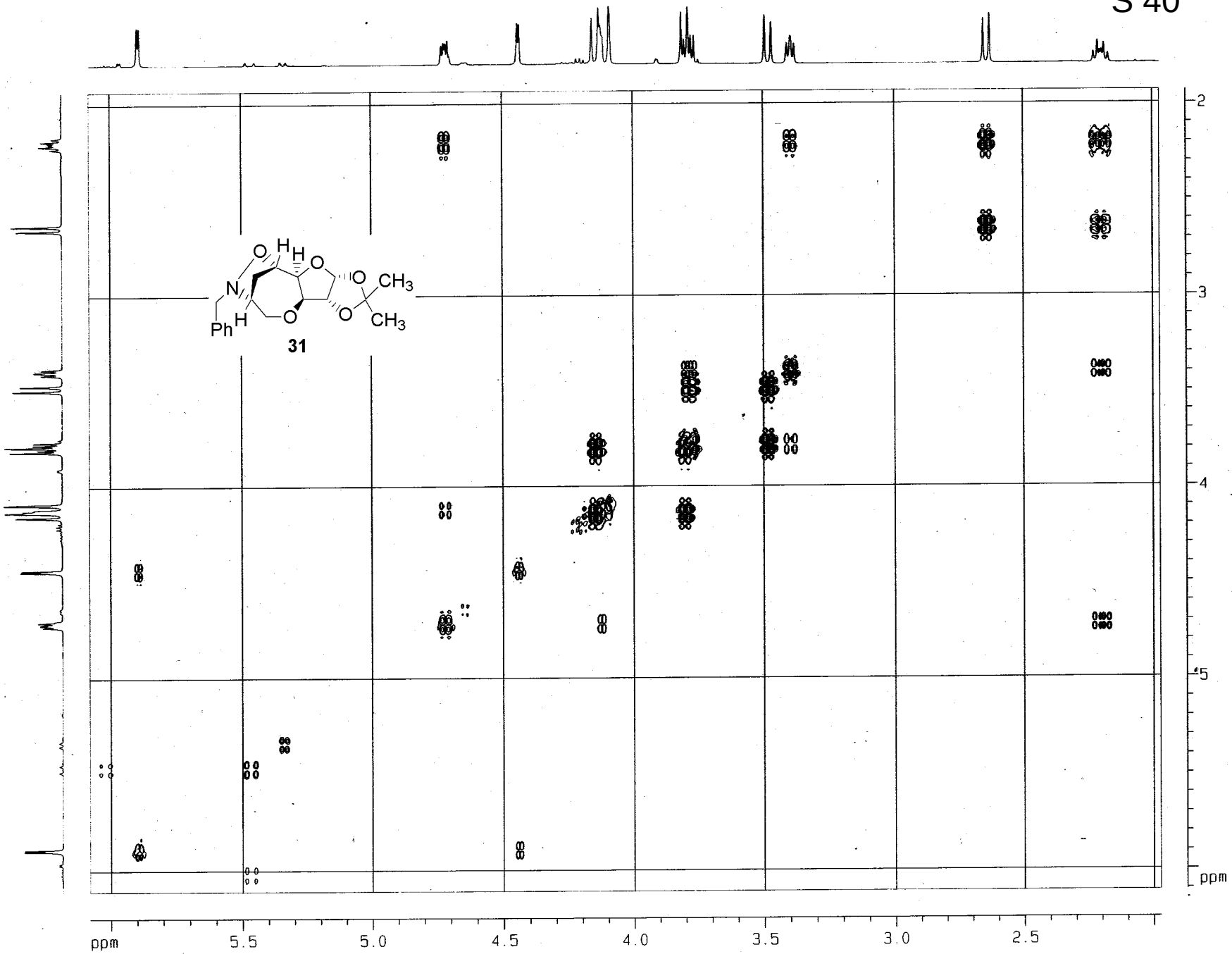
^{13}C NMR spectrum of 30 in $CDCl_3$



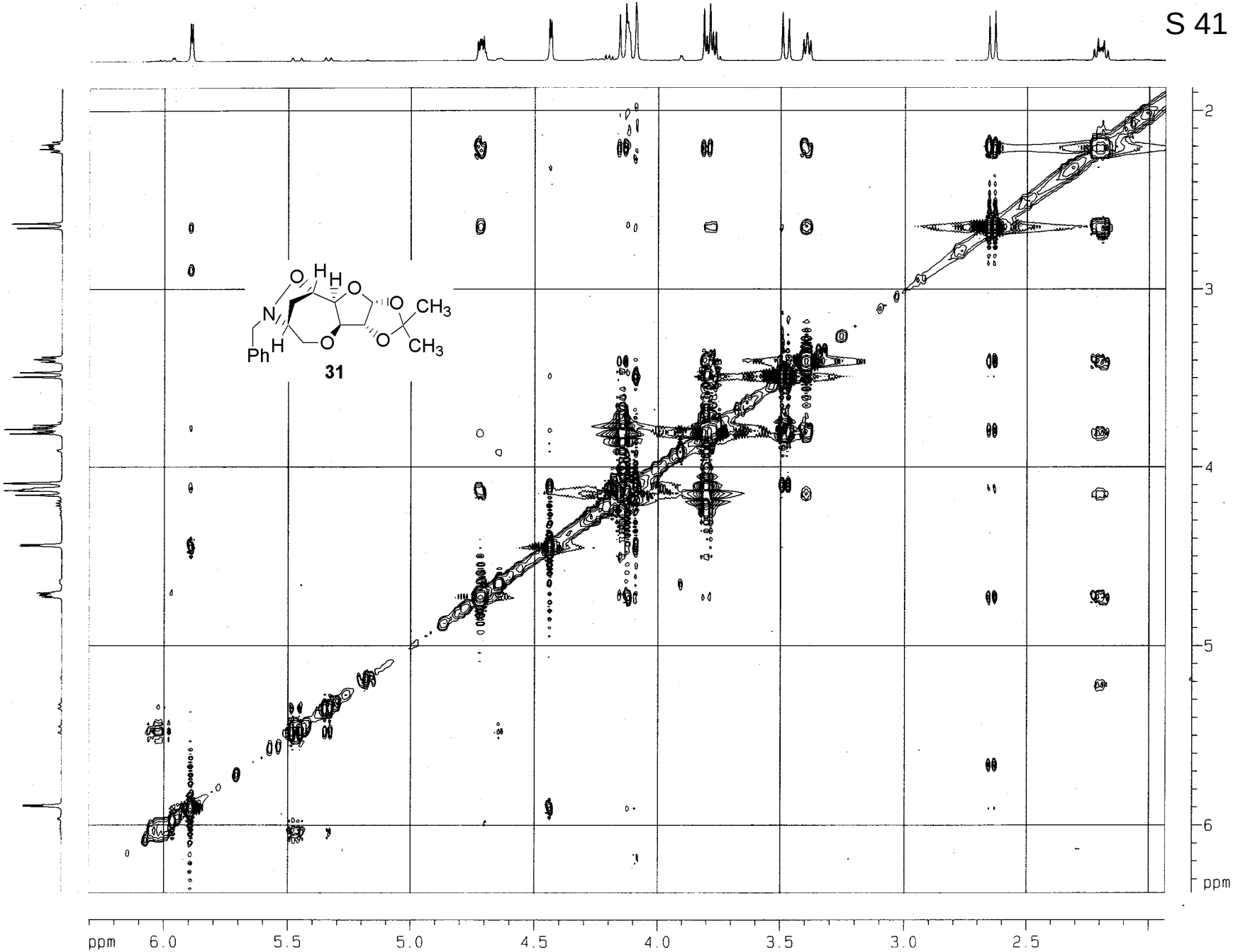
^{1}H NMR spectrum of 31 in $CDCl_3$



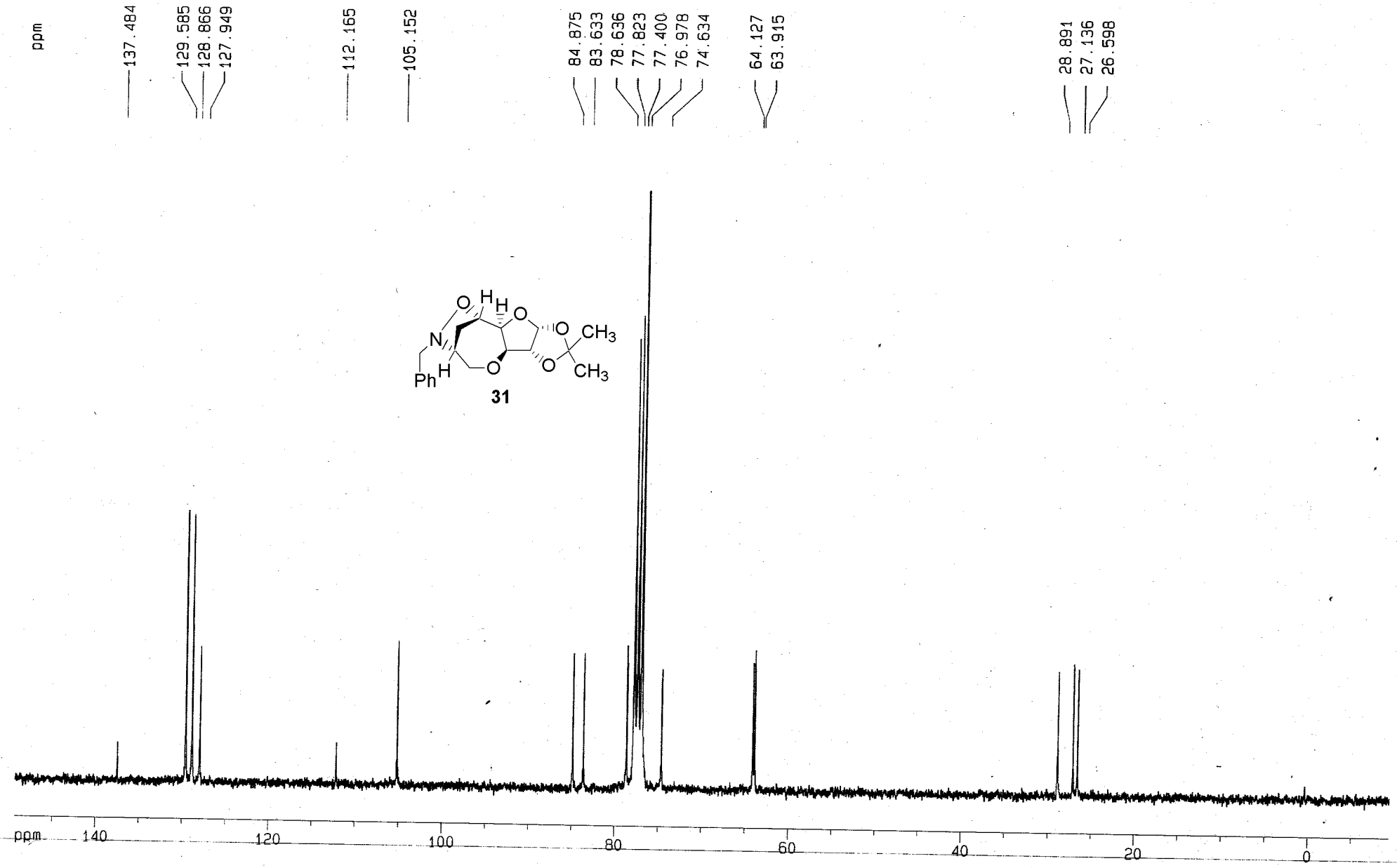
^1H - ^1H COSY spectrum of 31 in $CDCl_3$ (δ 2.18 - 5.90 vs δ 2.18 - 5.90)



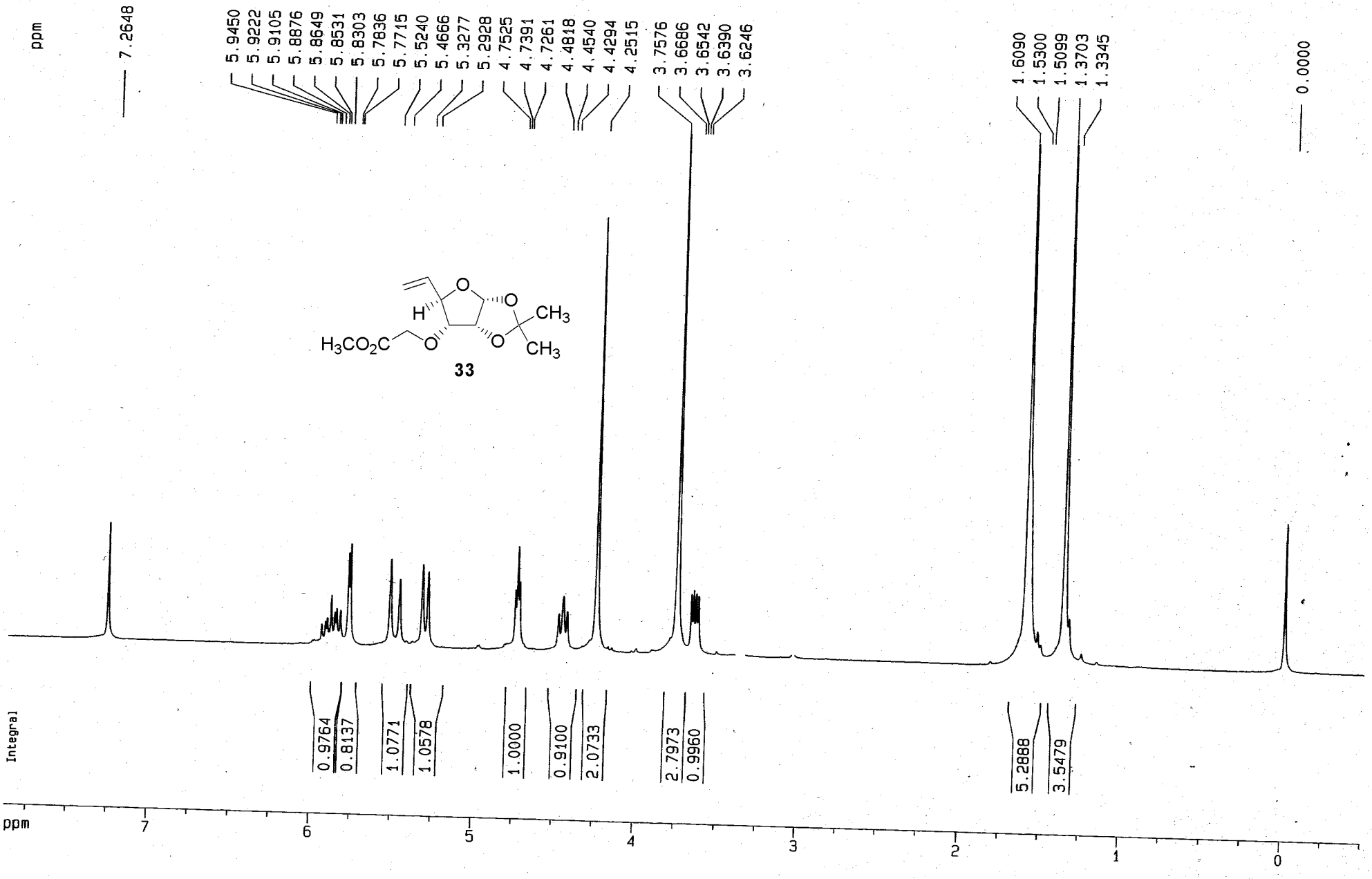
NOESY spectrum of 31 in $CDCl_3$ (δ 2.18 - 5.90 vs δ 2.18 - 5.90)



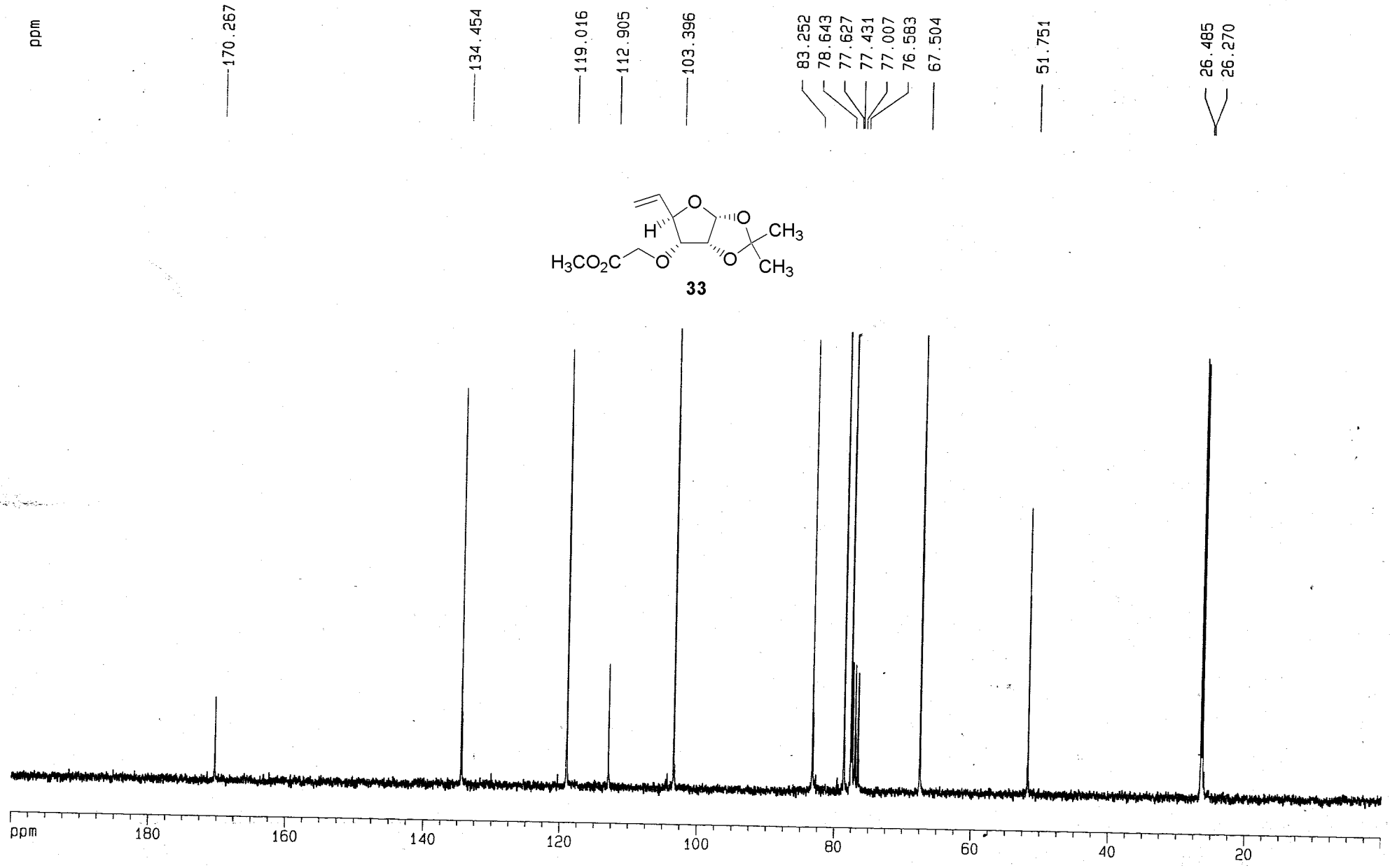
^{13}C NMR spectrum of 31 in $CDCl_3$



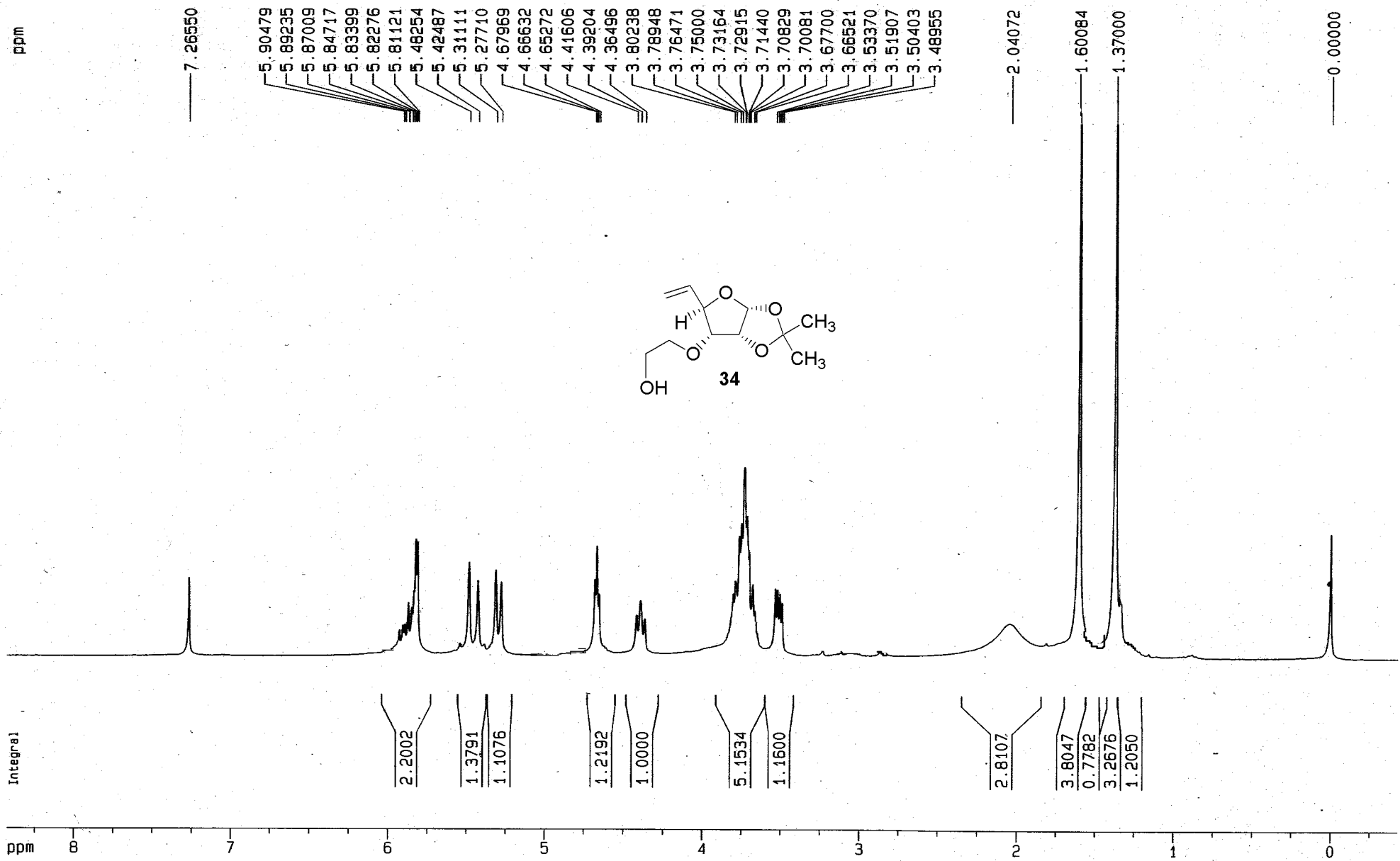
^{1}H NMR spectrum of 33 in $CDCl_3$



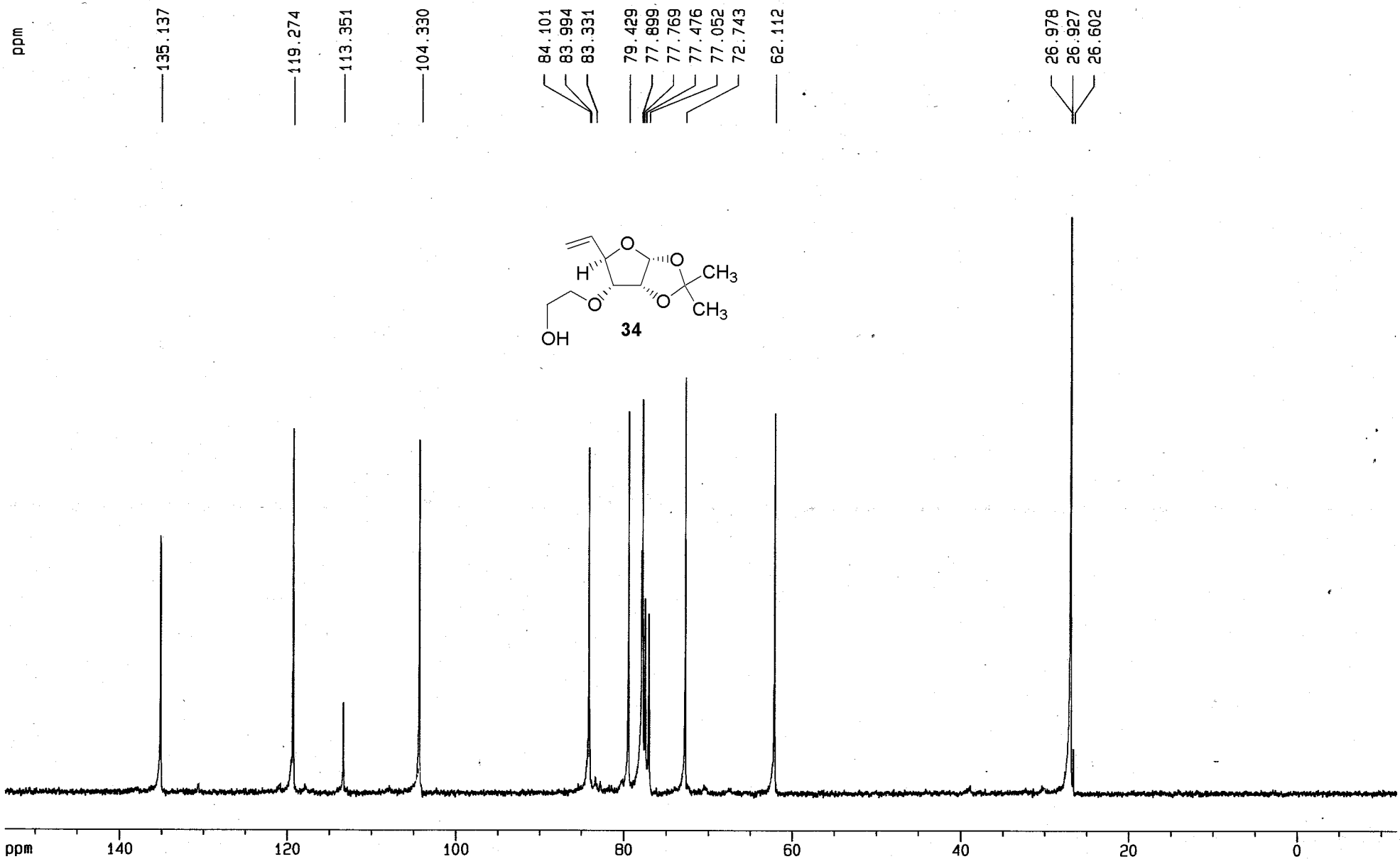
^{13}C NMR spectrum of 33 in $CDCl_3$



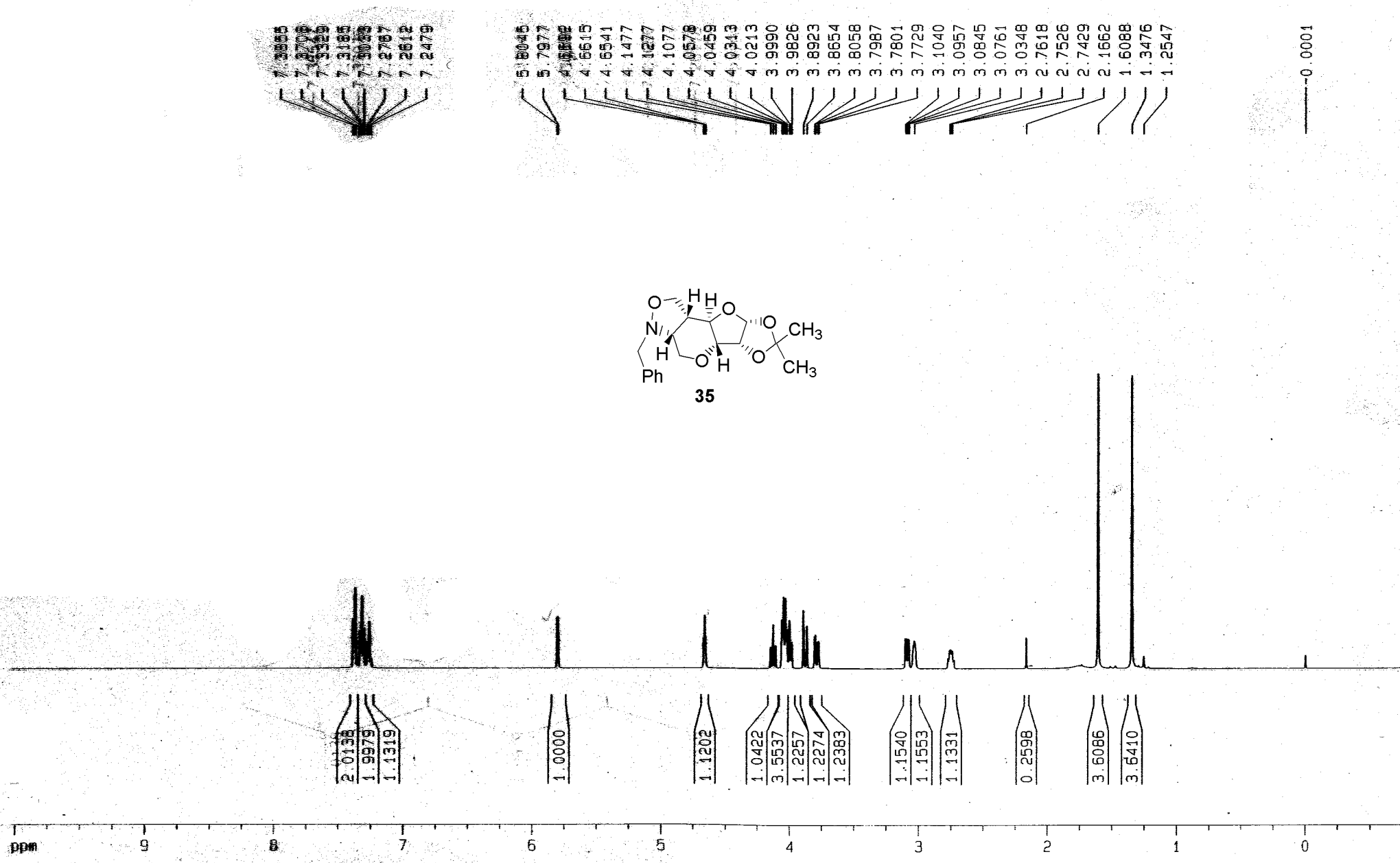
^{1}H NMR spectrum of 34 in $CDCl_3$



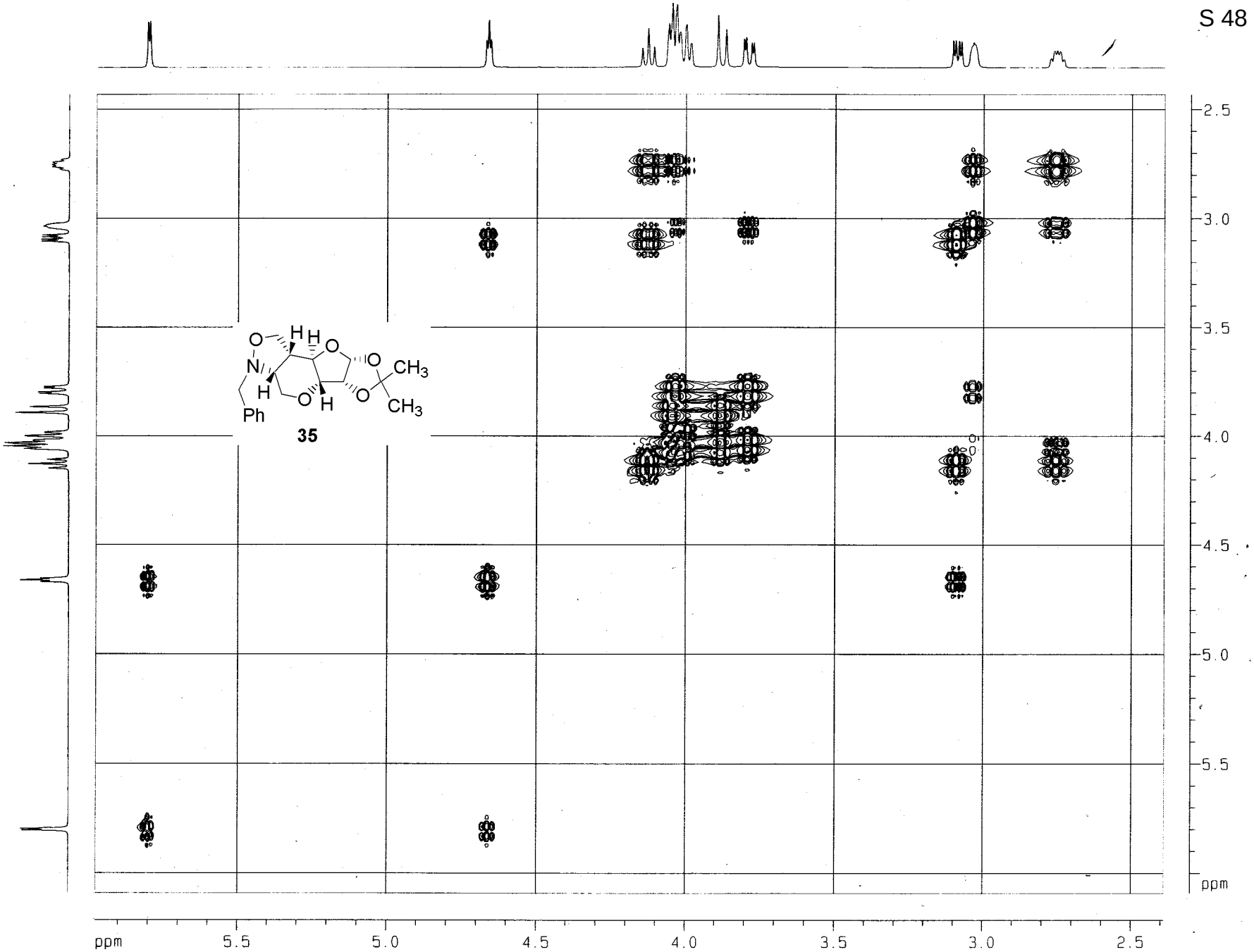
^{13}C NMR spectrum of 34 in $CDCl_3$



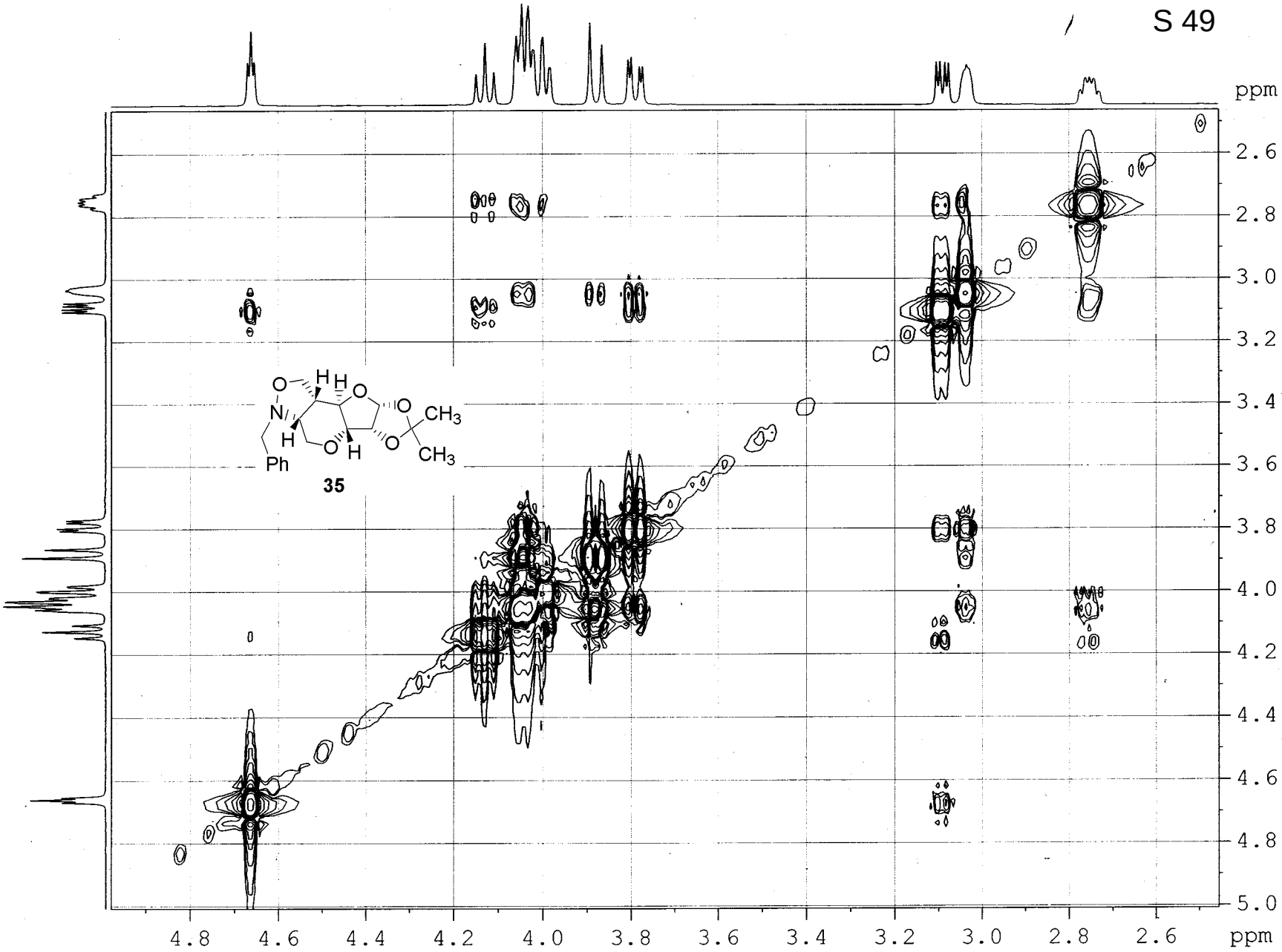
^{1}H NMR spectrum of 35 in $CDCl_3$



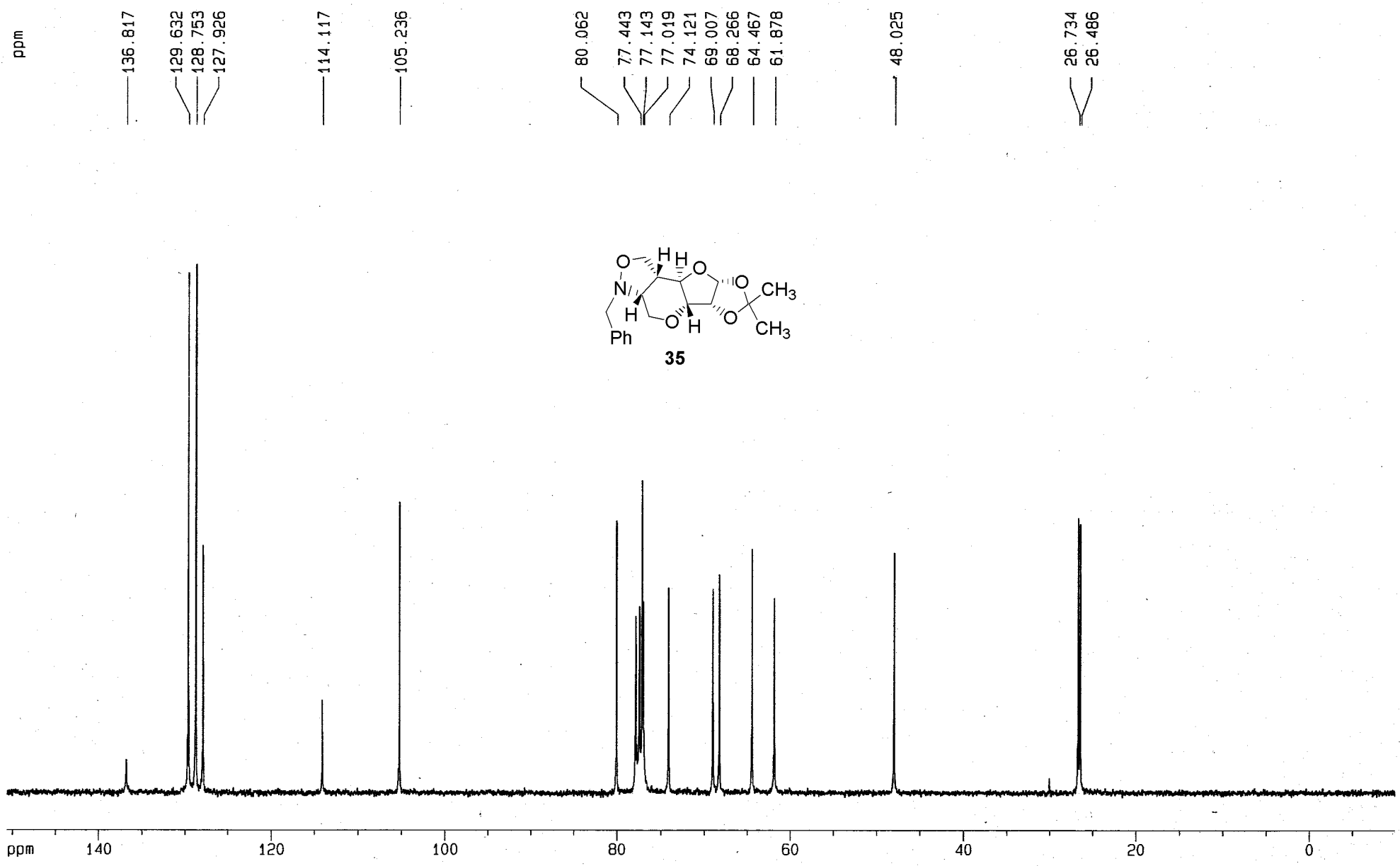
^1H - ^1H COSY spectrum of 35 in $CDCl_3$ (δ 2.74 - 5.80 vs δ 2.74 - 5.80)



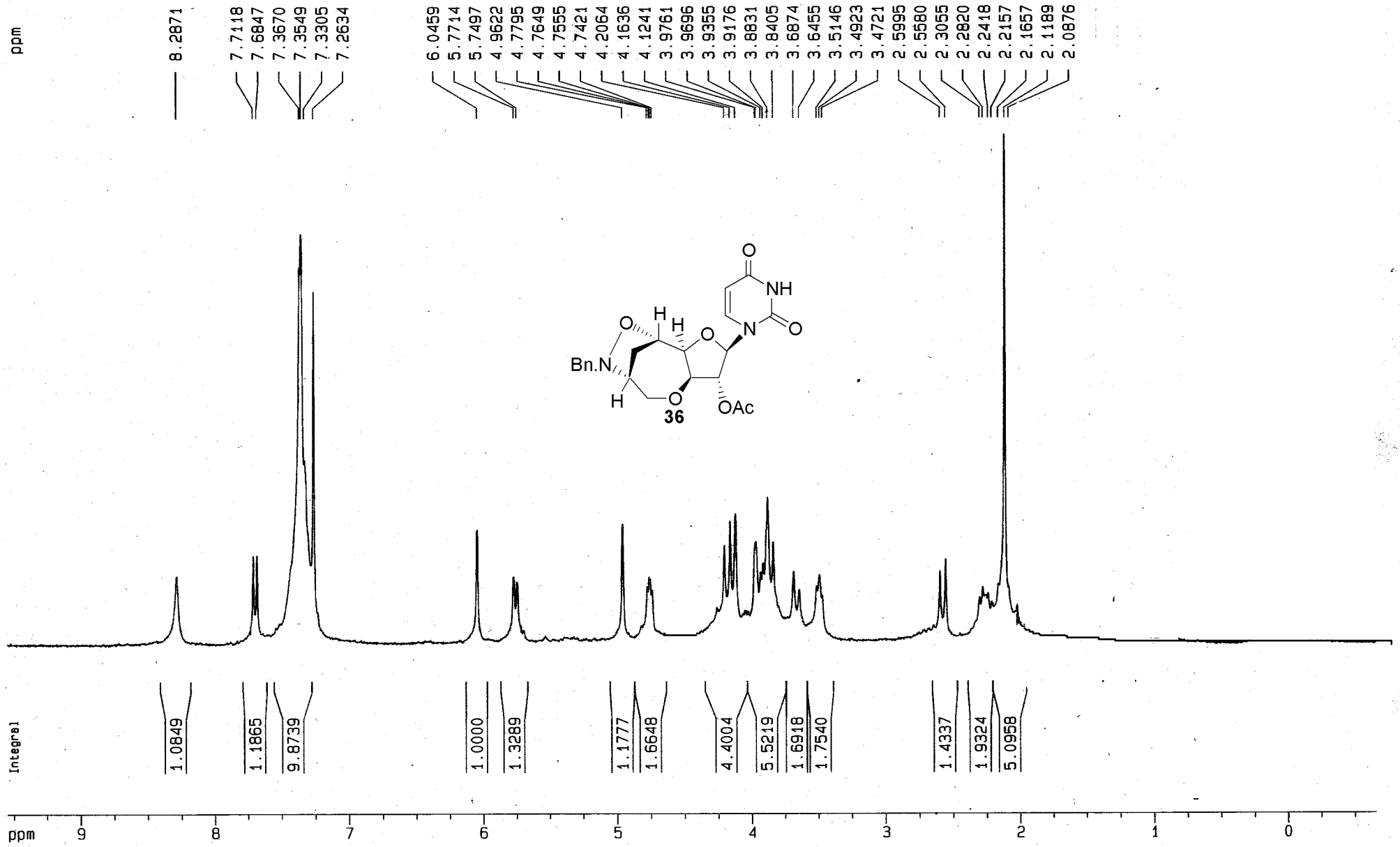
NOESY spectrum of 35 in $CDCl_3$ (δ 2.74 - 5.80 vs δ 2.74 - 5.80)



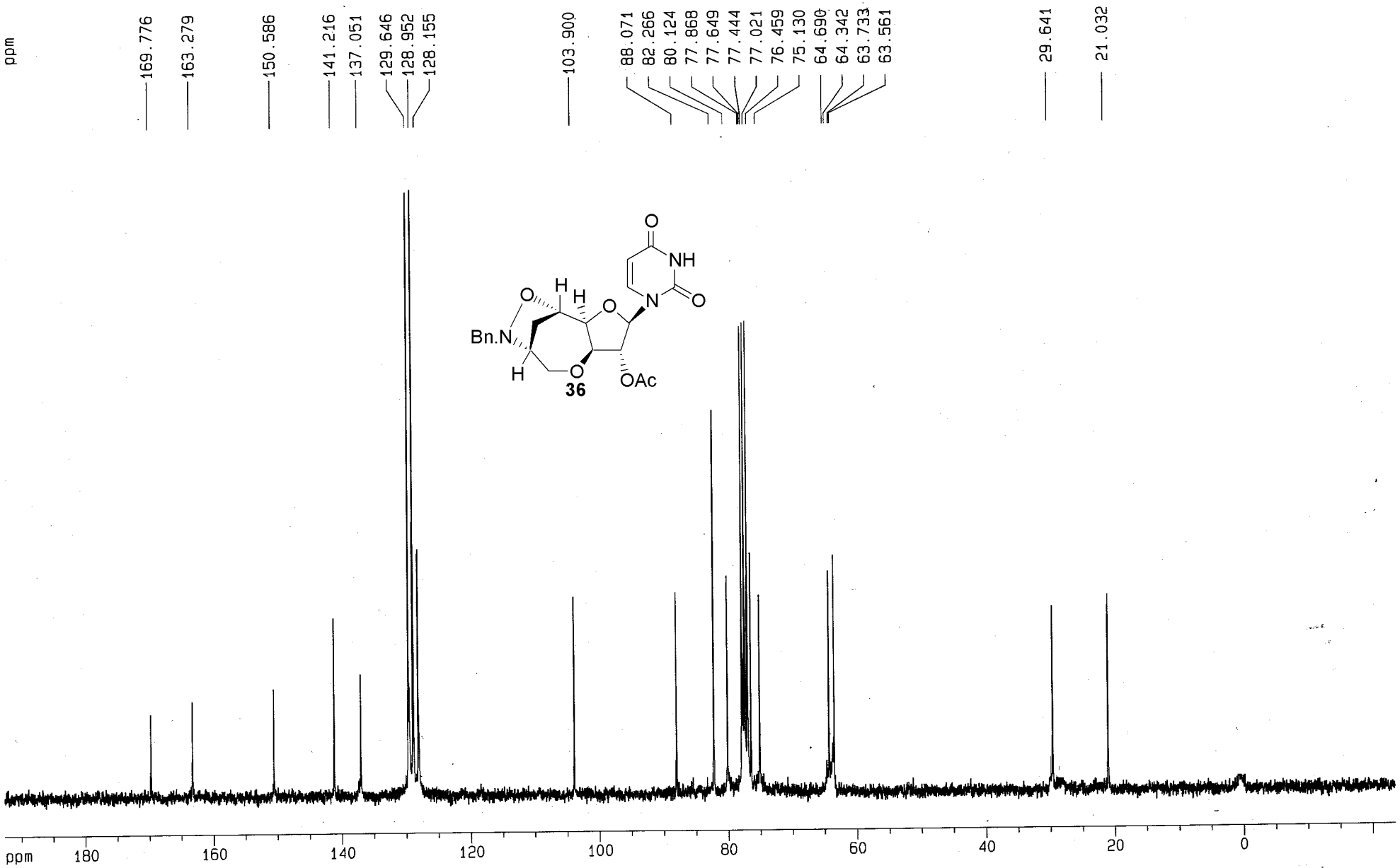
^{13}C NMR spectrum of 35 in $CDCl_3$



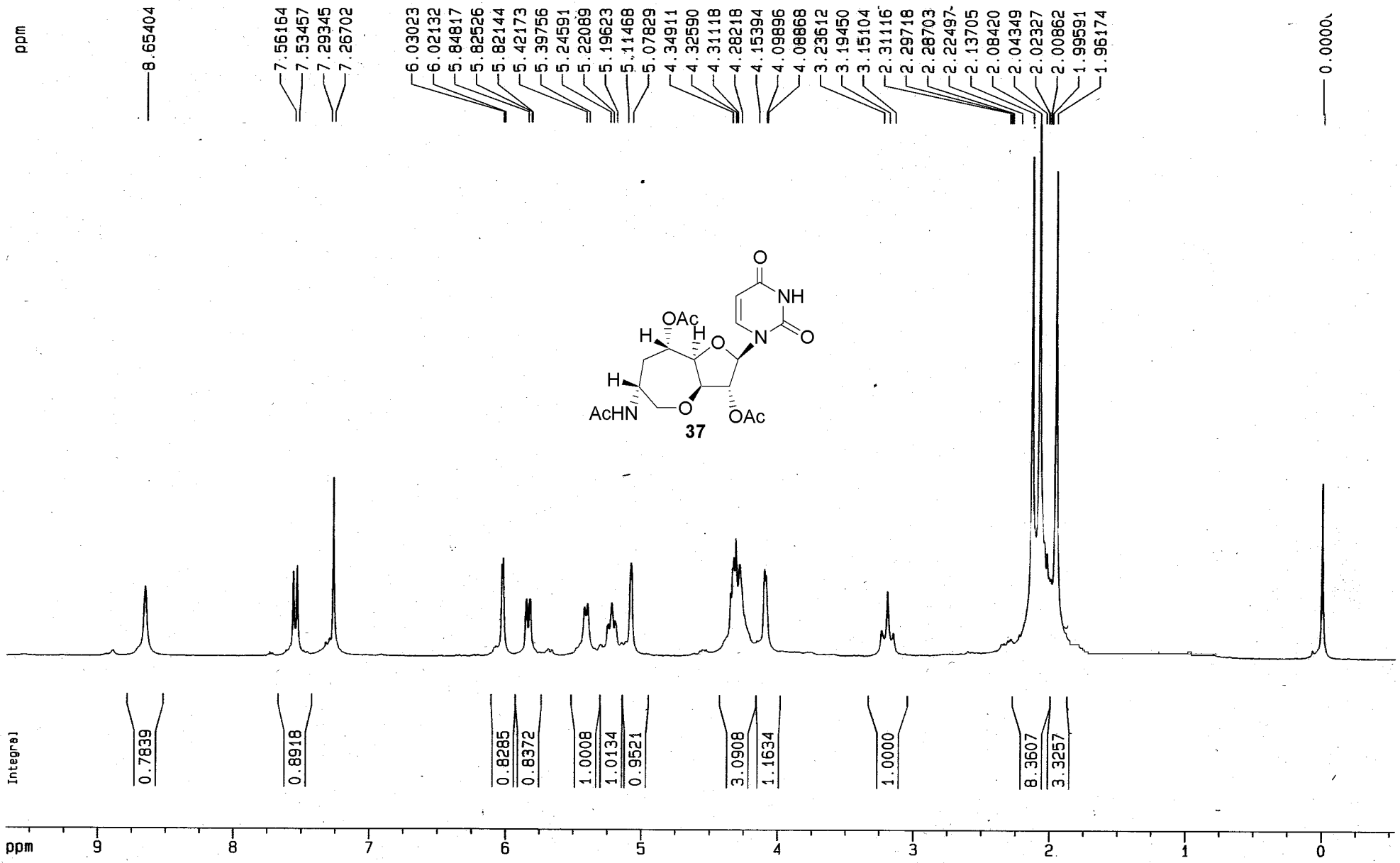
^{1}H NMR spectrum of 36 in $CDCl_3$



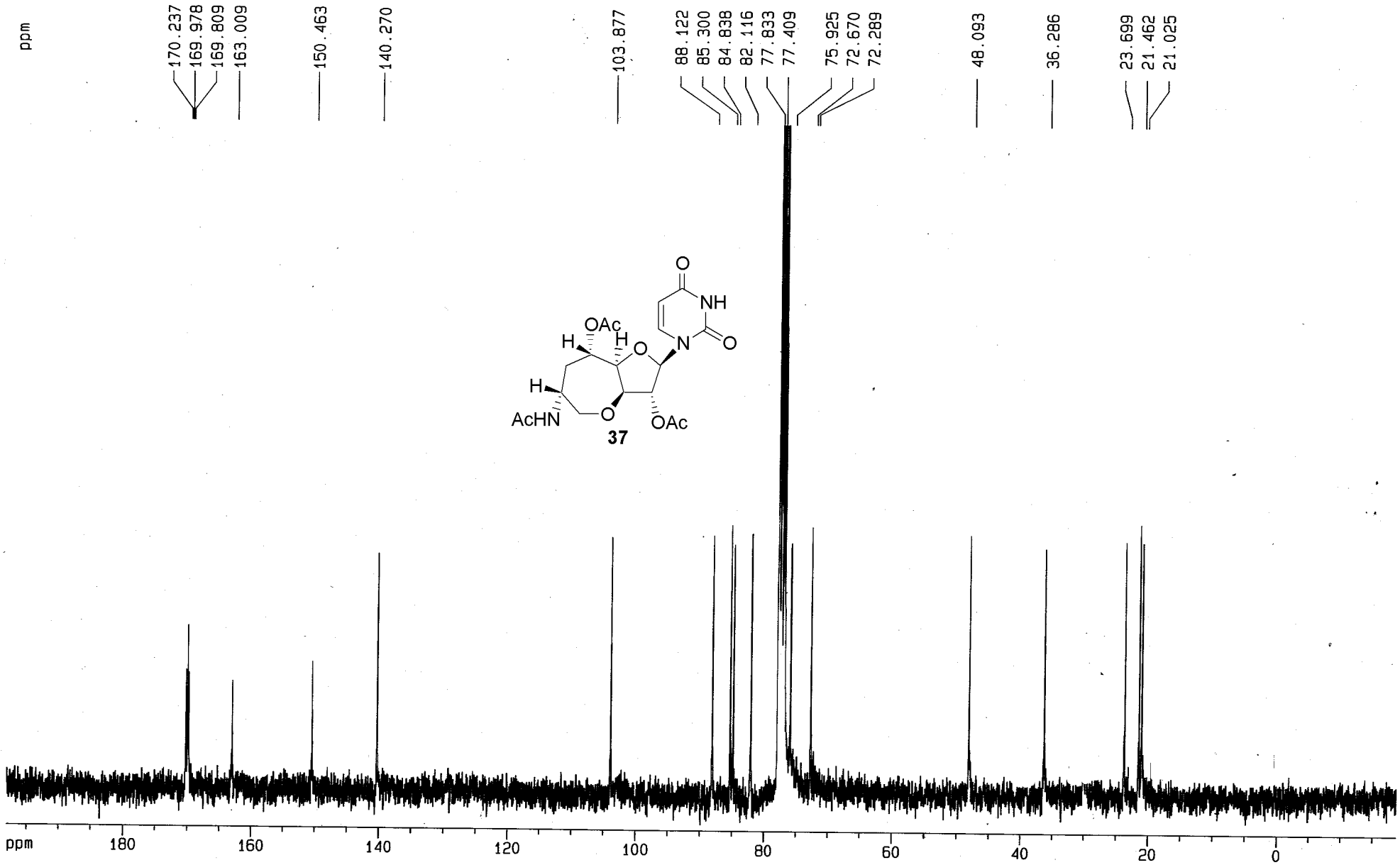
^{13}C NMR spectrum of 36 in $CDCl_3$



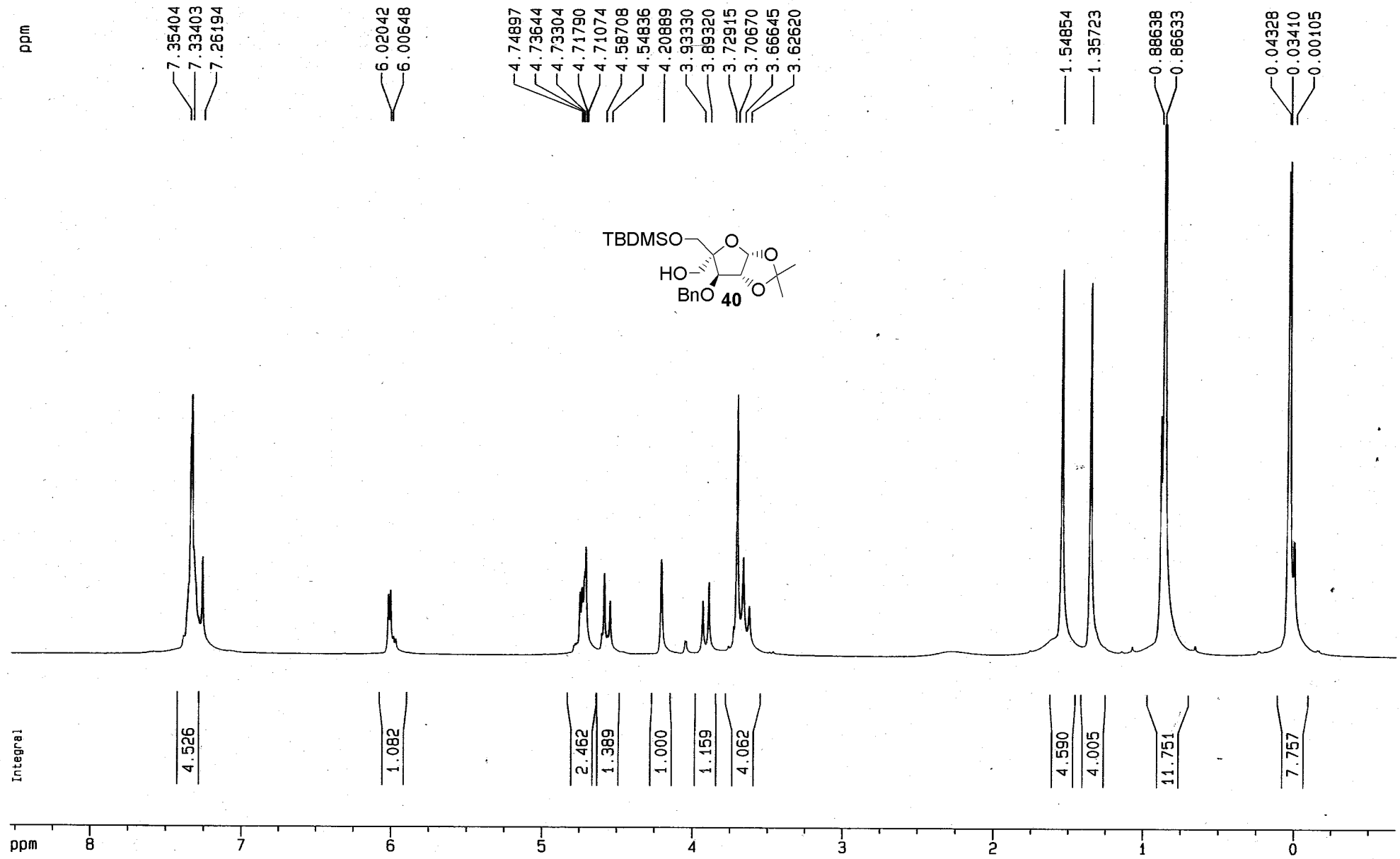
^{1}H NMR spectrum of 37 in $CDCl_3$



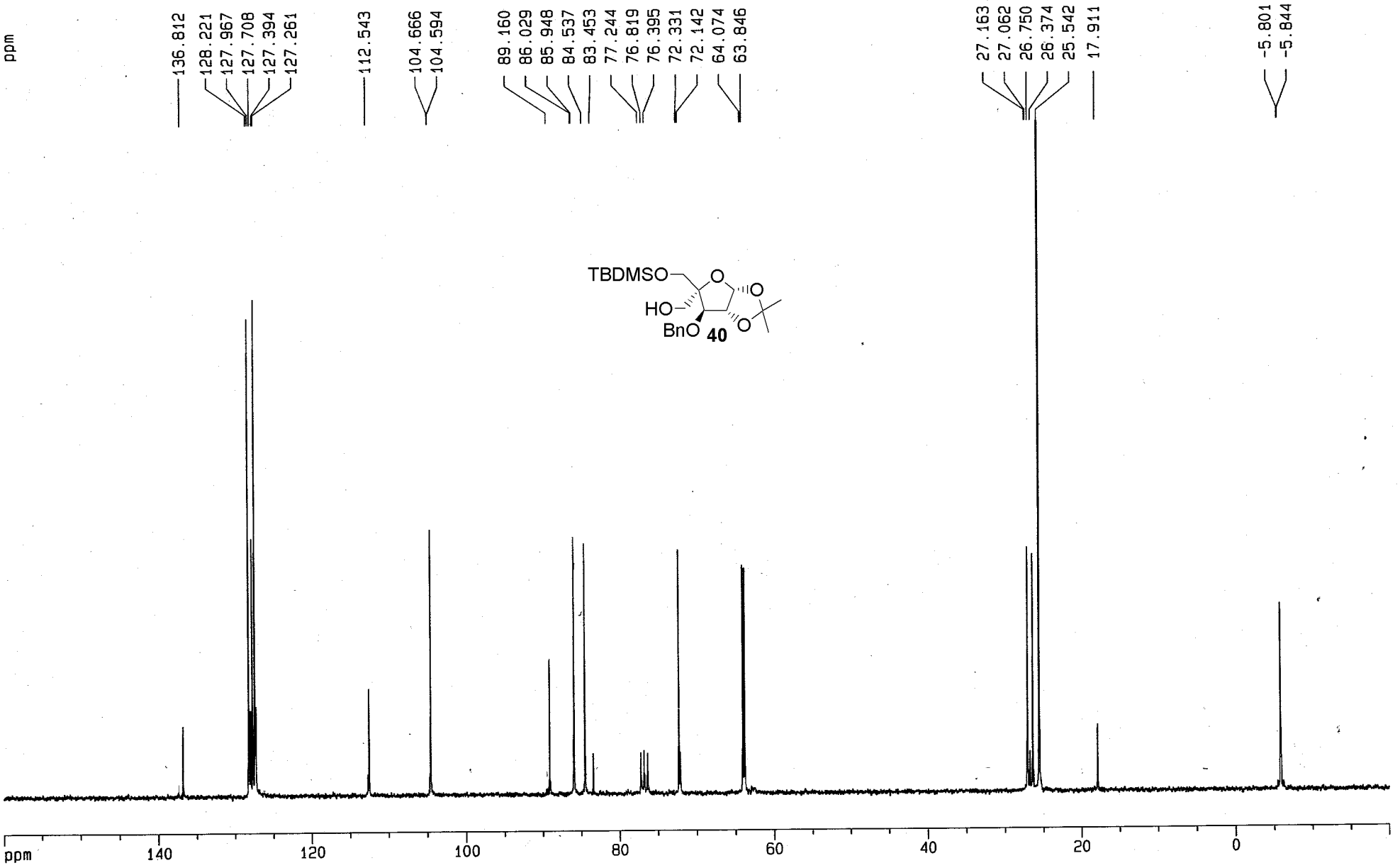
^{13}C NMR spectrum of 37 in $CDCl_3$



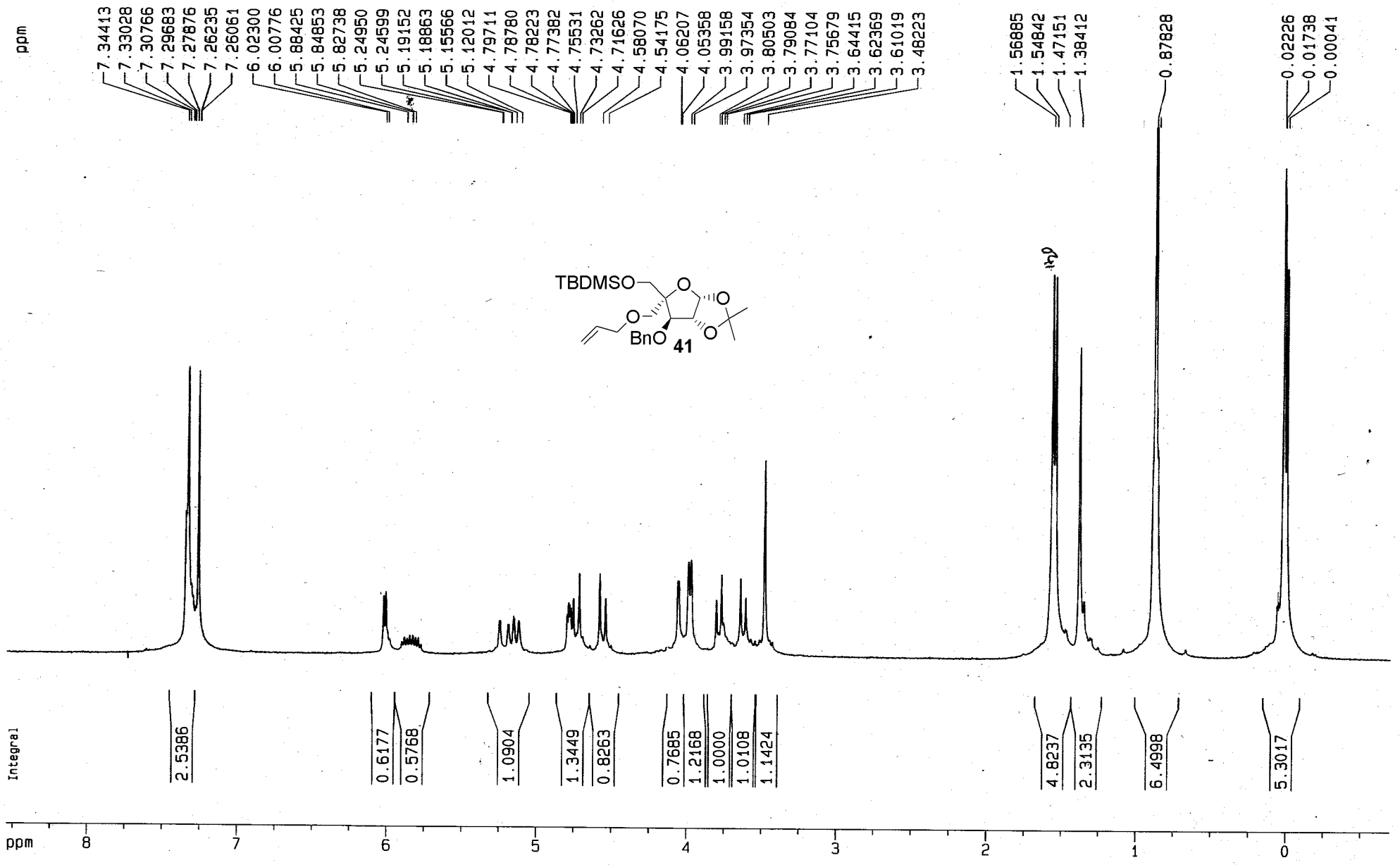
^{1}H NMR spectrum of 40 in $CDCl_3$



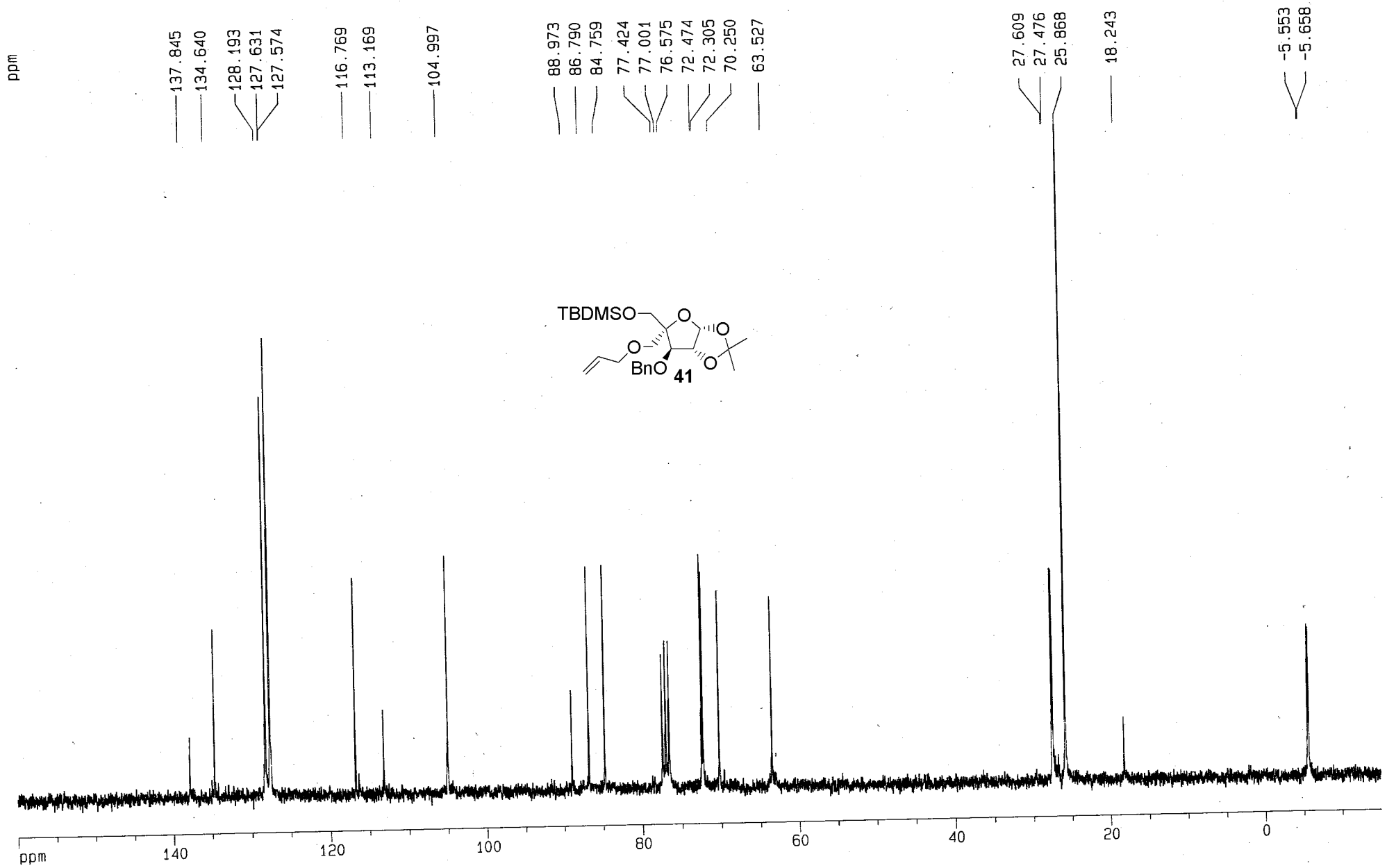
^{13}C NMR spectrum of 40 in $CDCl_3$



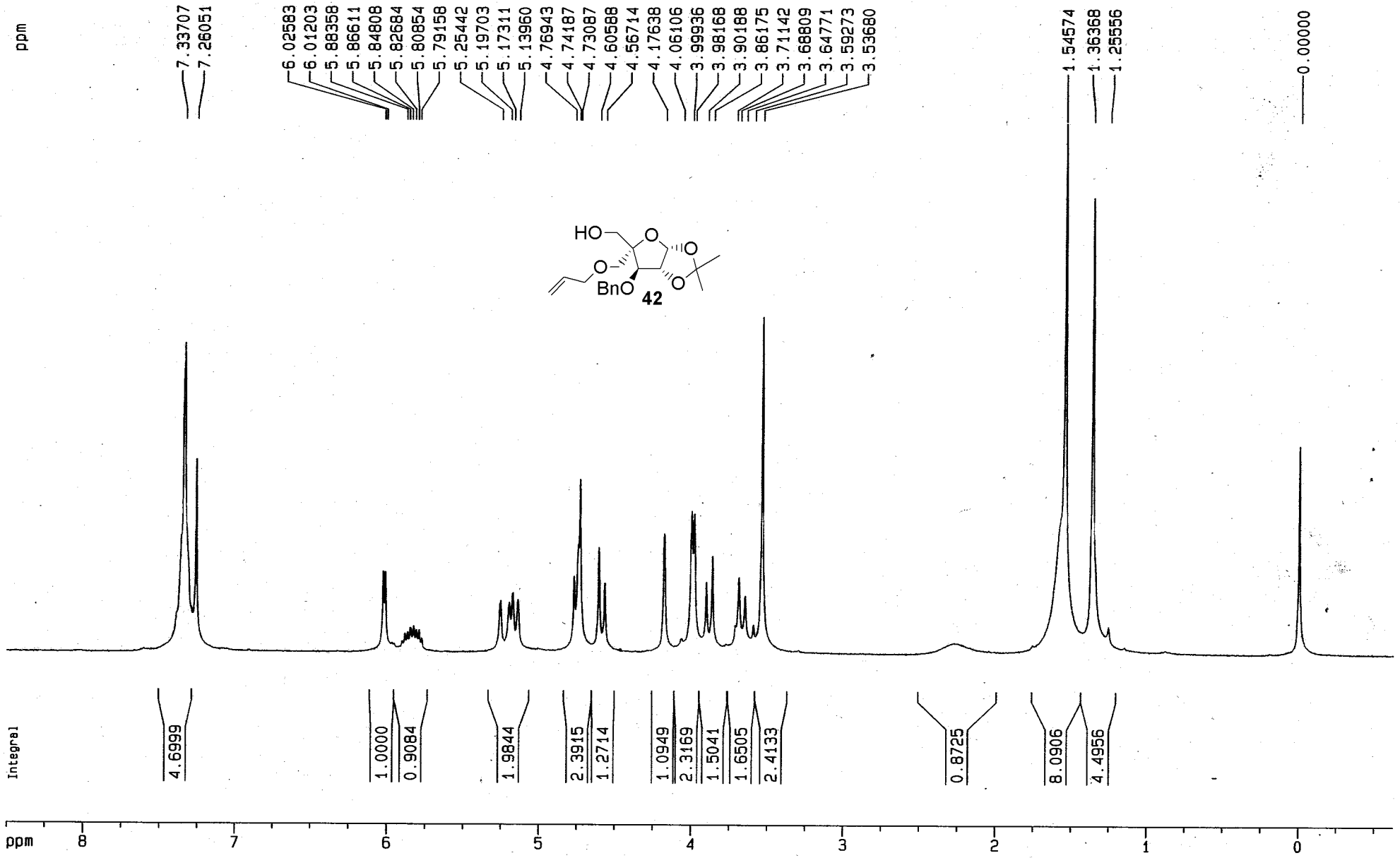
^{1}H NMR spectrum of 41 in $CDCl_3$



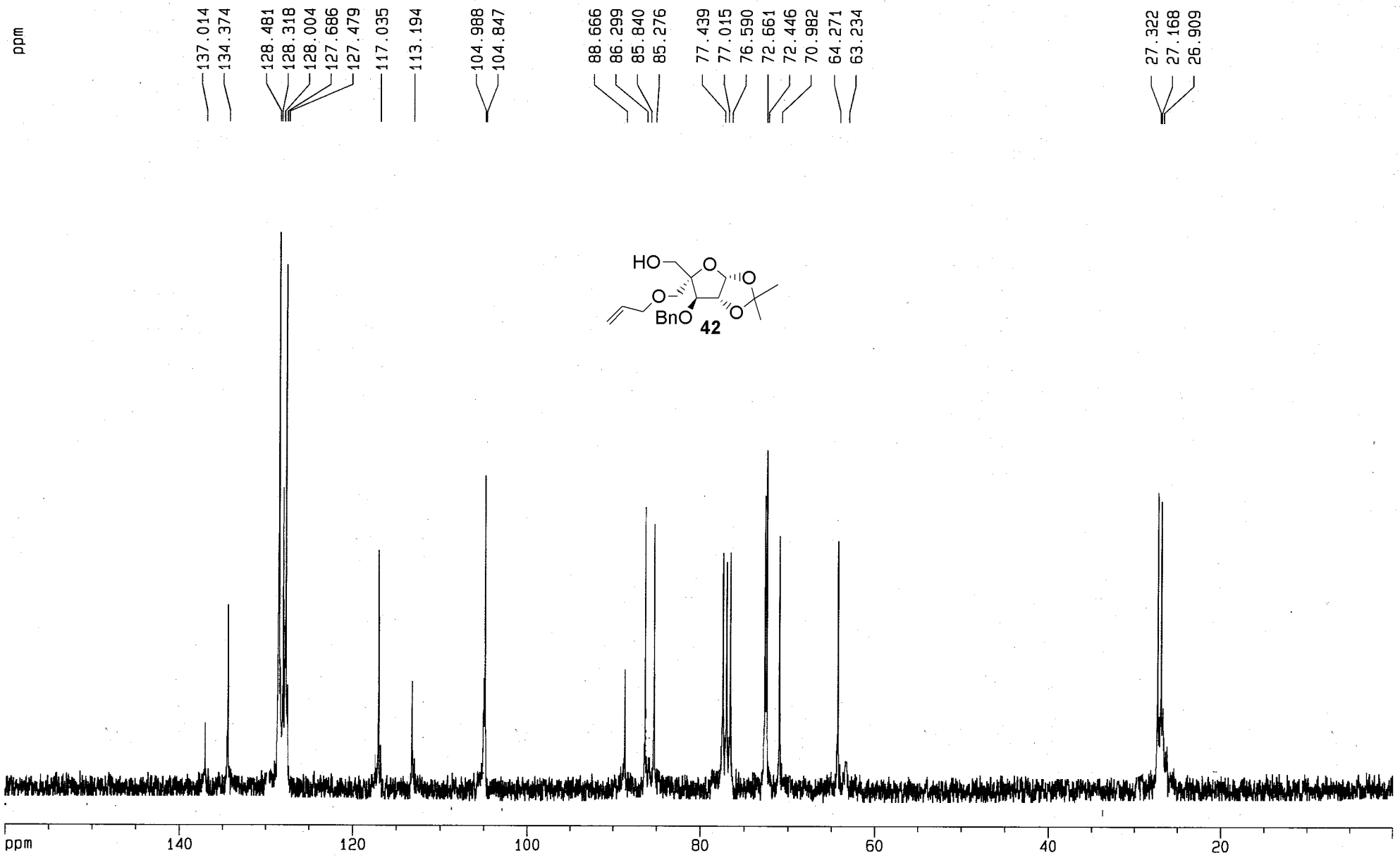
^{13}C NMR spectrum of 41 in $CDCl_3$



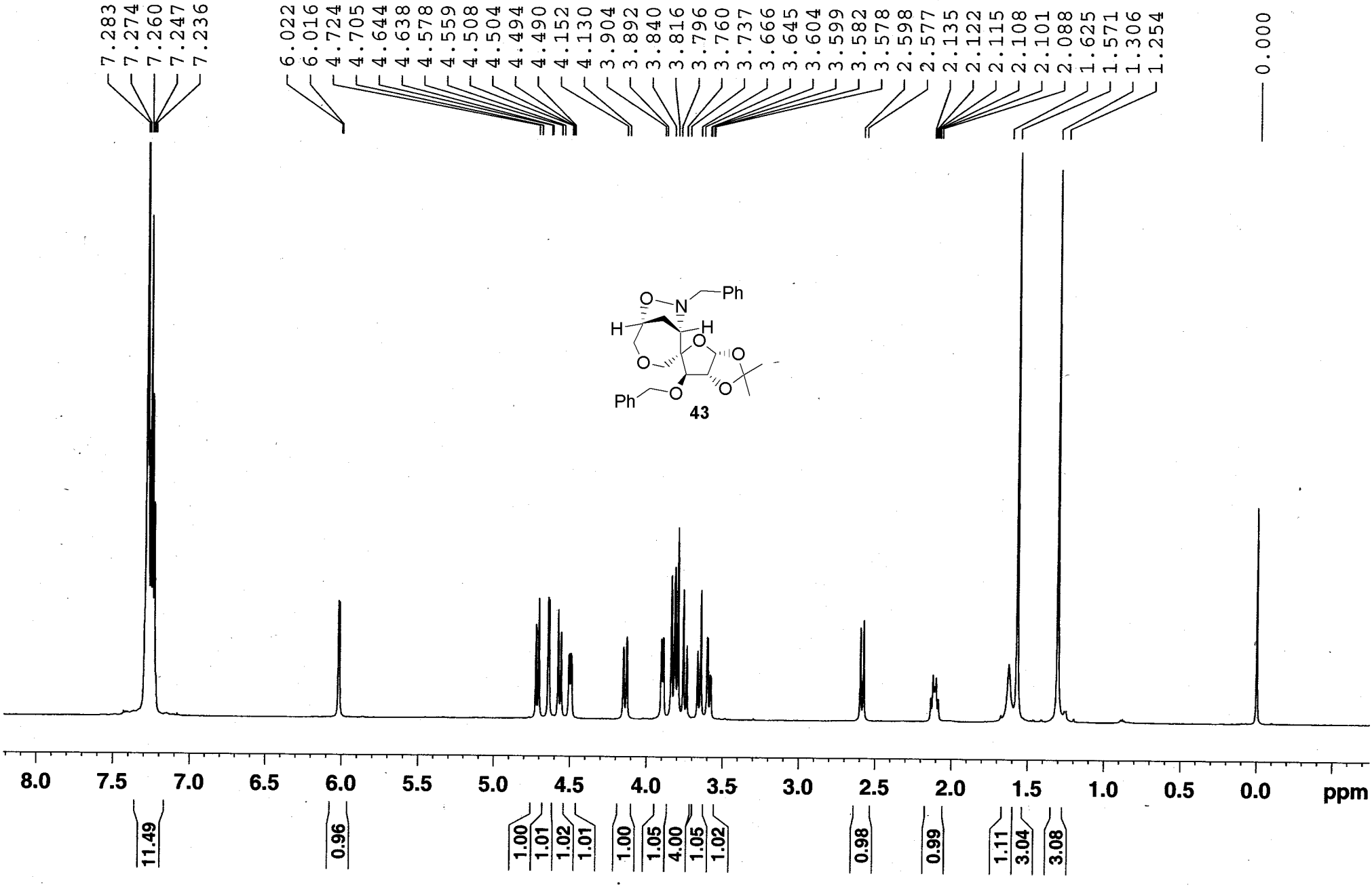
^{1}H NMR spectrum of 42 in $CDCl_3$



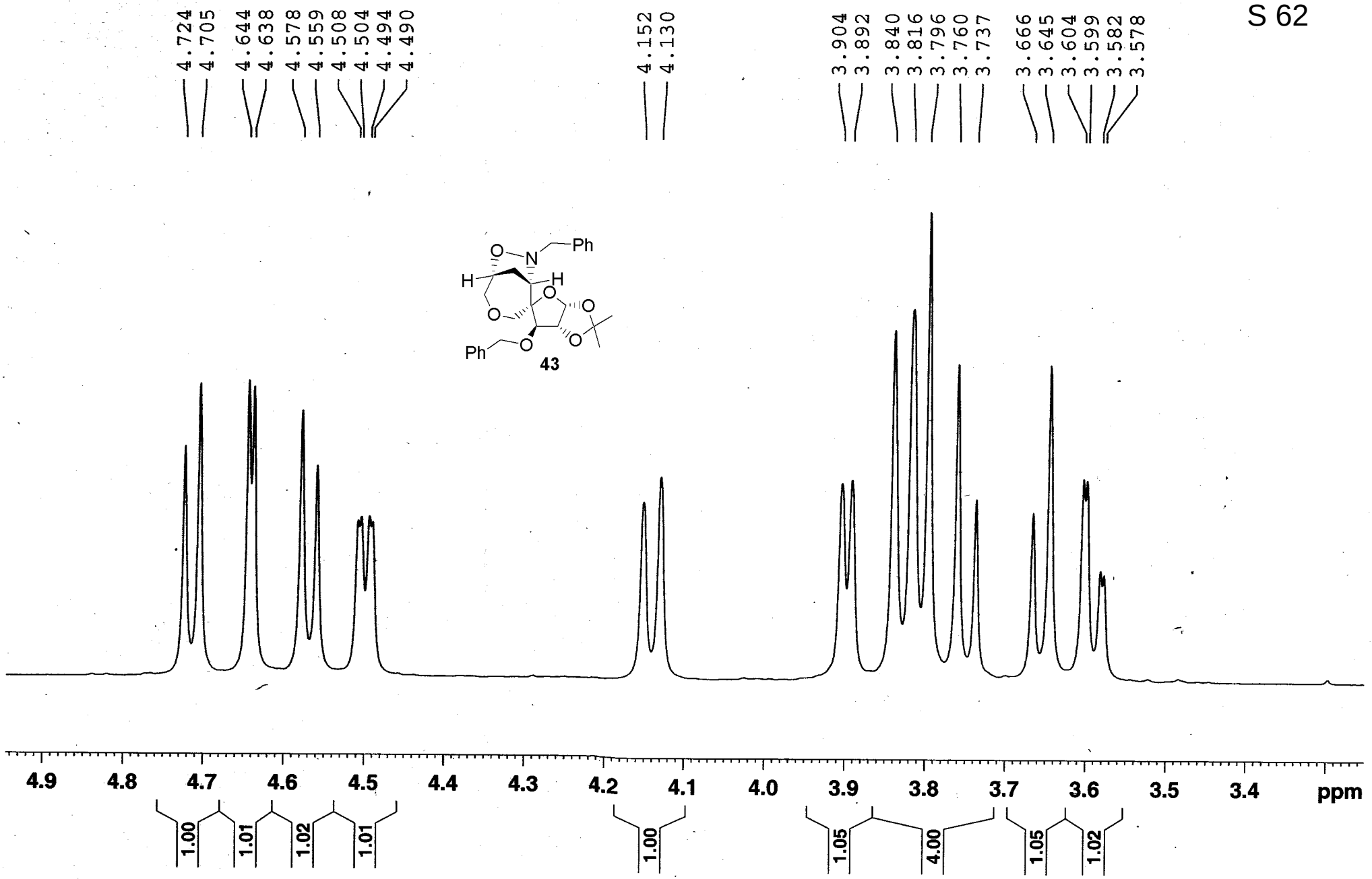
^{13}C NMR spectrum of 42 in $CDCl_3$



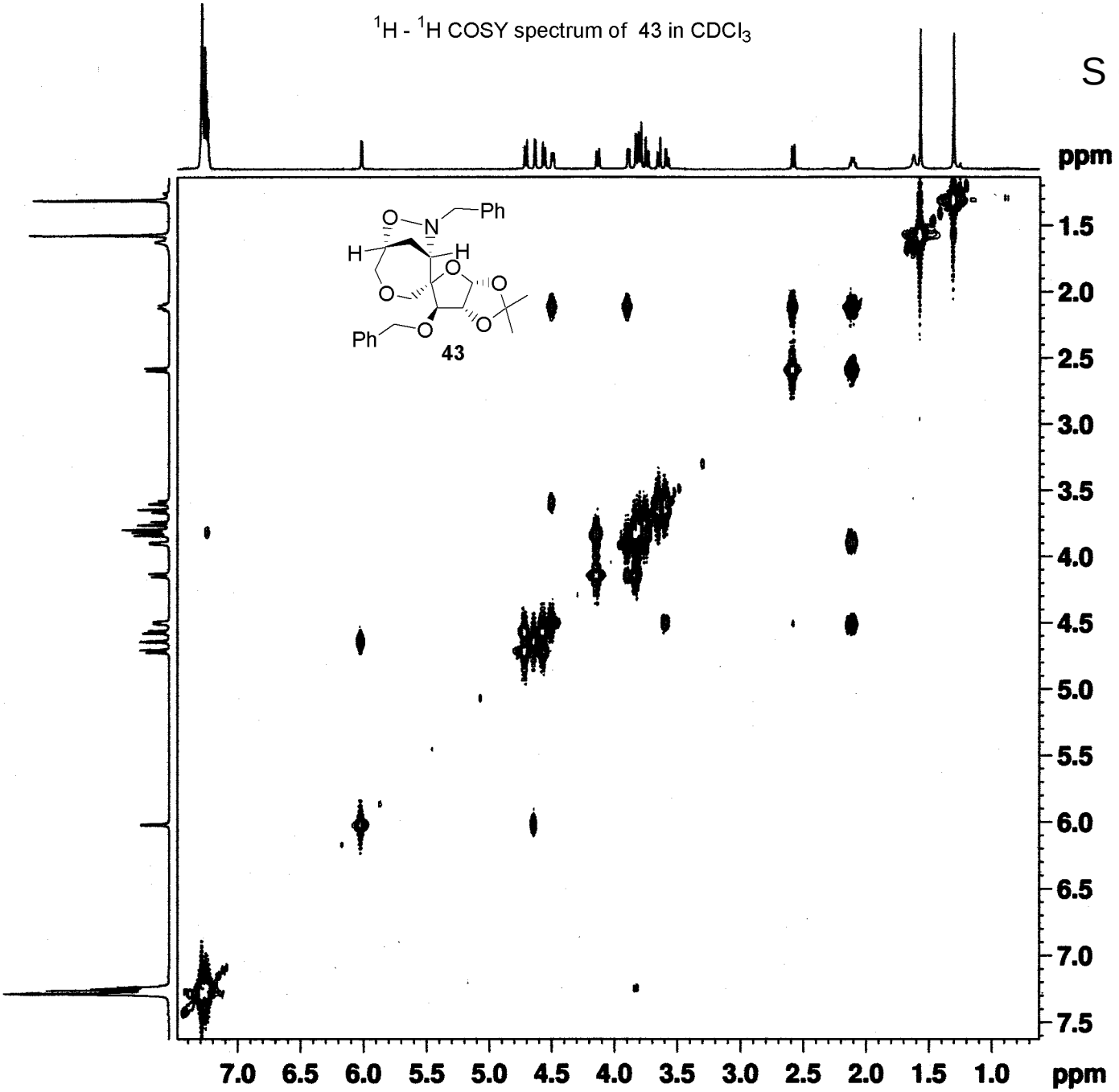
^{1}H NMR spectrum of 43 in $CDCl_3$



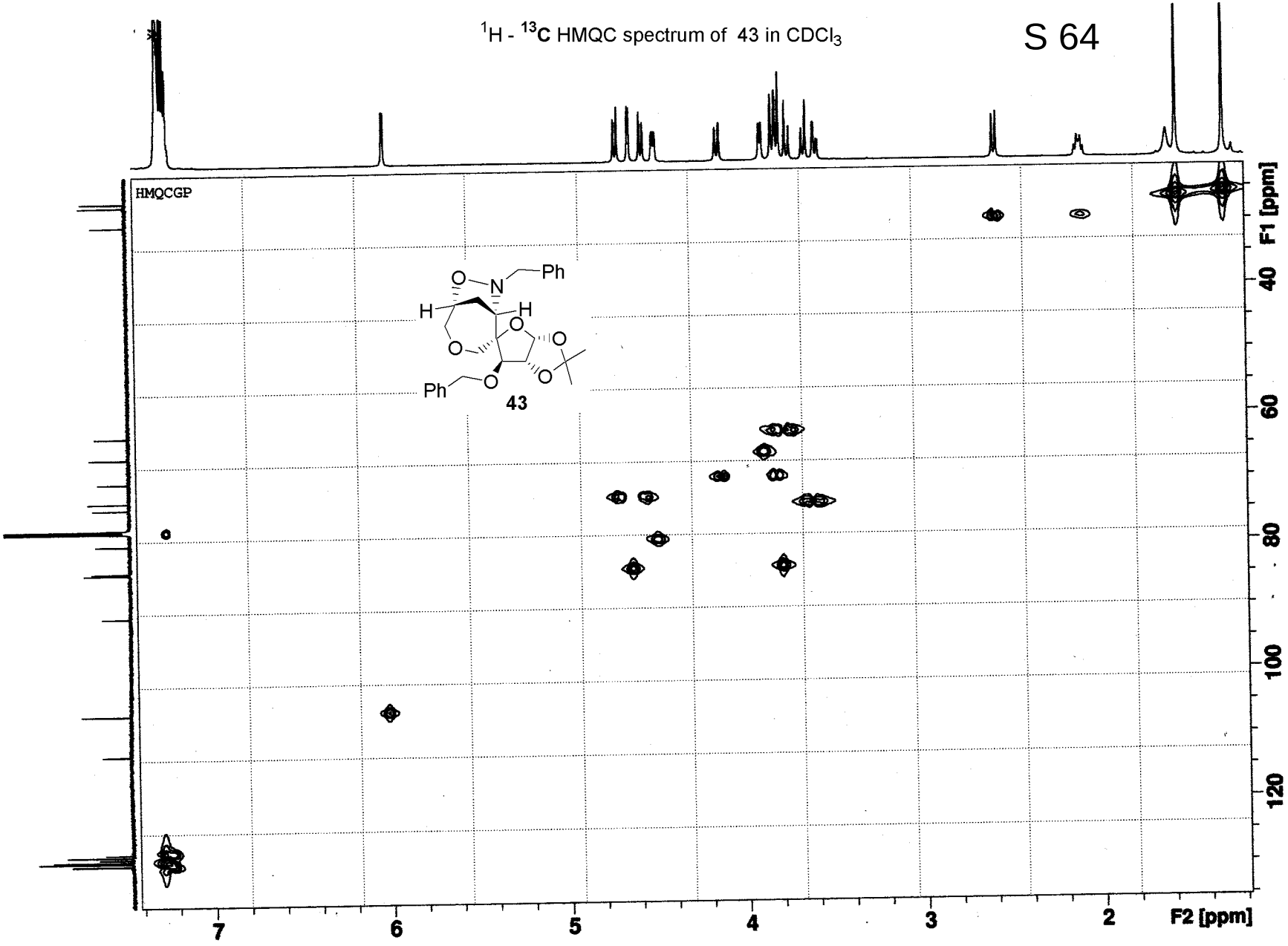
Expanded ^{1}H NMR of 43 (δ 3.58 - 4.72) in $CDCl_3$



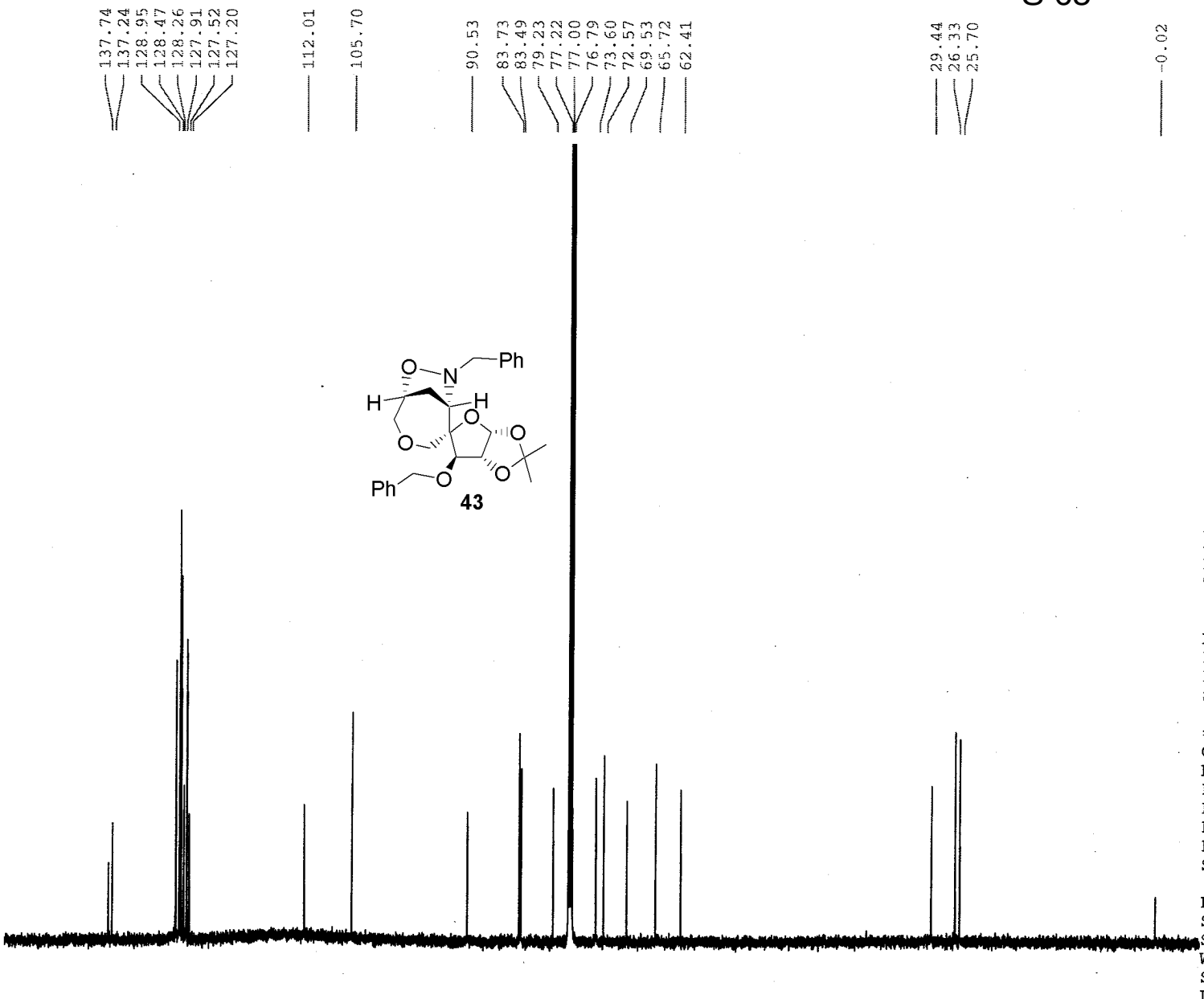
^1H - ^1H COSY spectrum of 43 in $CDCl_3$



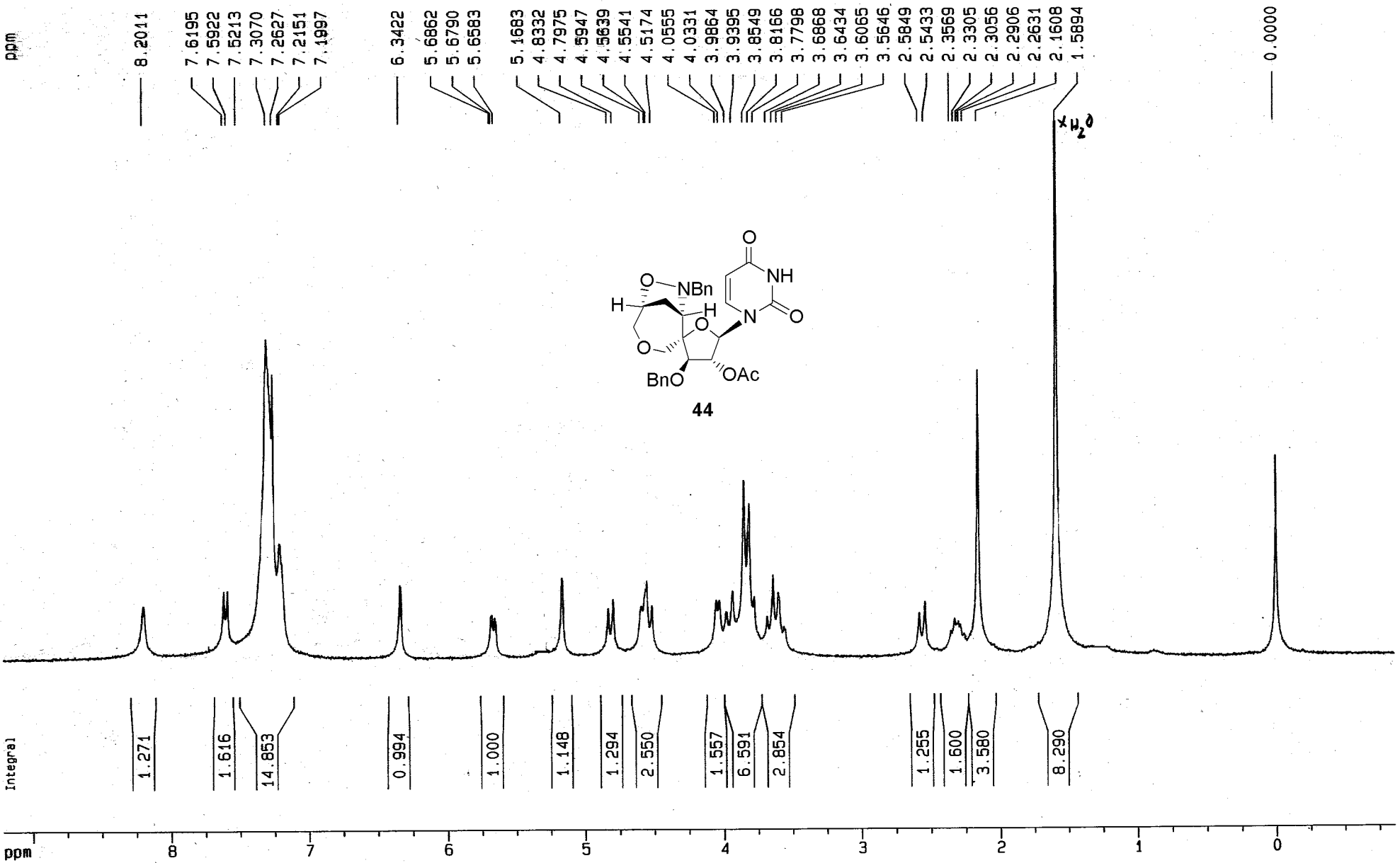
^{1}H - ^{13}C HMQC spectrum of 43 in $CDCl_3$



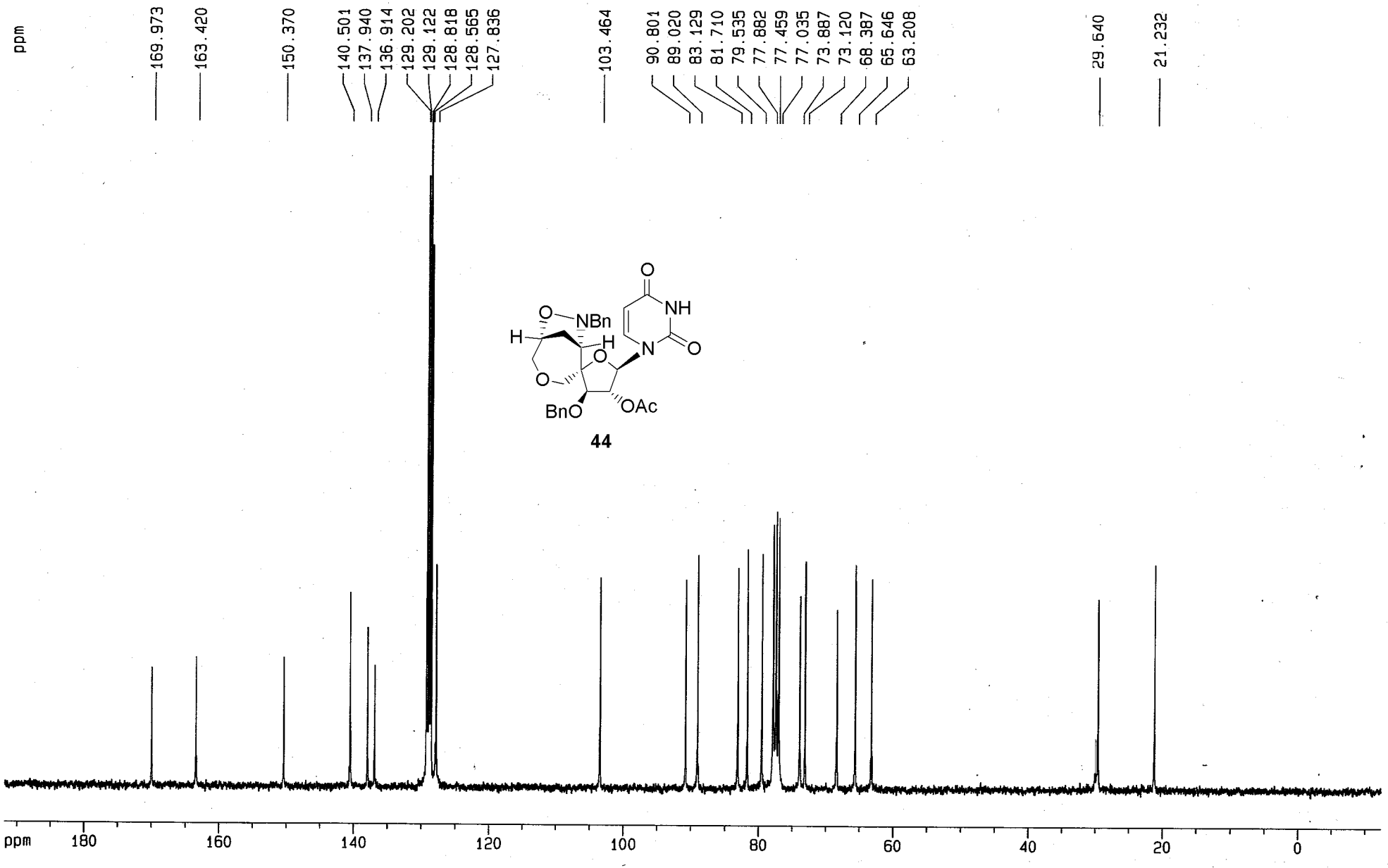
^{13}C NMR spectrum of 43 in $CDCl_3$



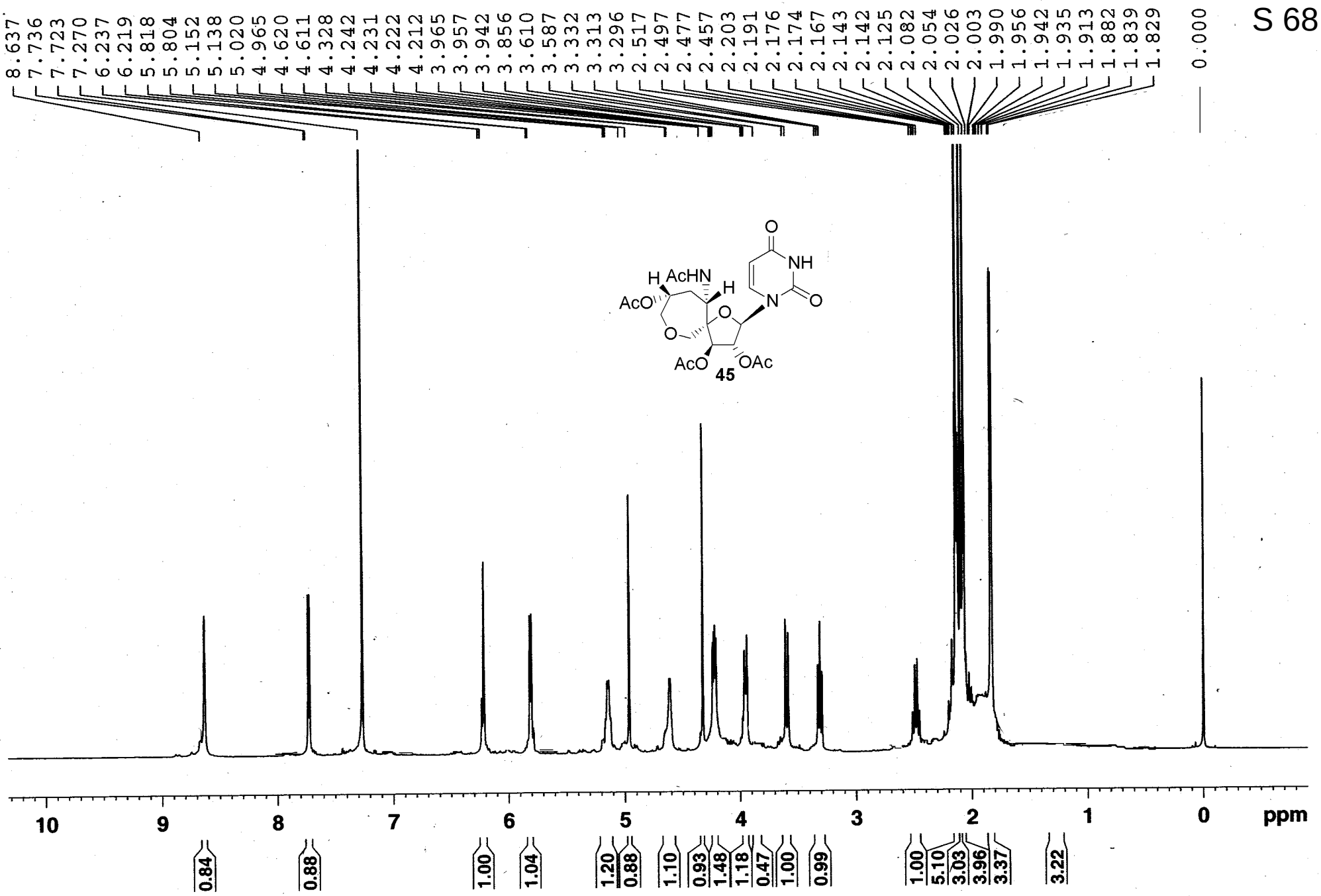
^{1}H NMR spectrum of 44 in $CDCl_3$



^{13}C NMR spectrum of 44 in $CDCl_3$



^{1}H NMR spectrum of 45 in $CDCl_3$



^{13}C NMR spectrum of 45 in $CDCl_3$