

SUPPLEMENTARY MATERIAL

**Carbohydrate nitrene and nitrile oxide cycloaddition
approach to chiral sulfur heterocycles and nucleosides**

Subhrangshu Mukherjee, Sukhendu B. Mandal* and Anup Bhattacharjya*

Chemistry Department, Indian Institute of Chemical Biology (a unit of CSIR), 4,

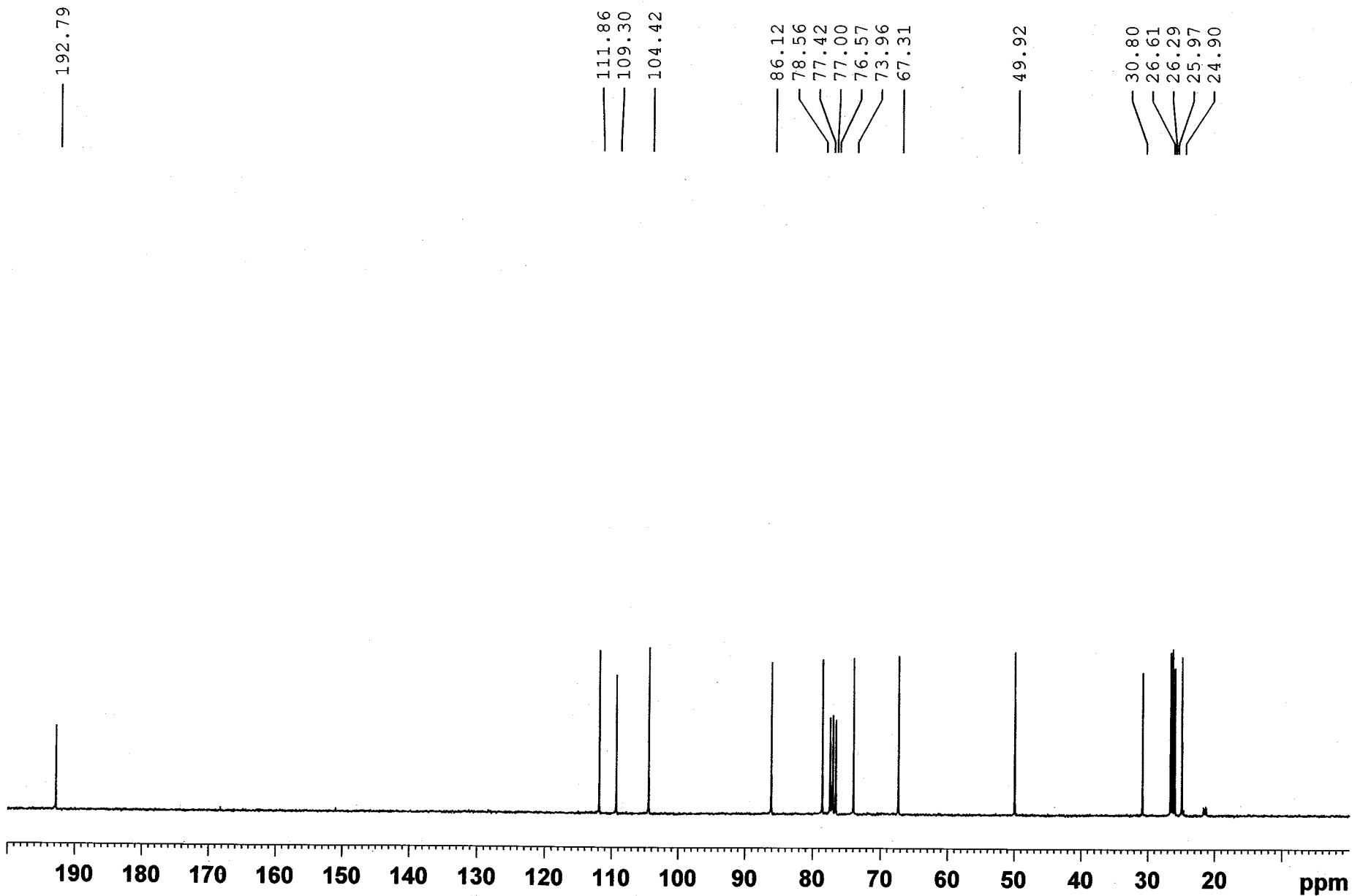
Raja S. C. Mullick Road, Kolkata 700032, India

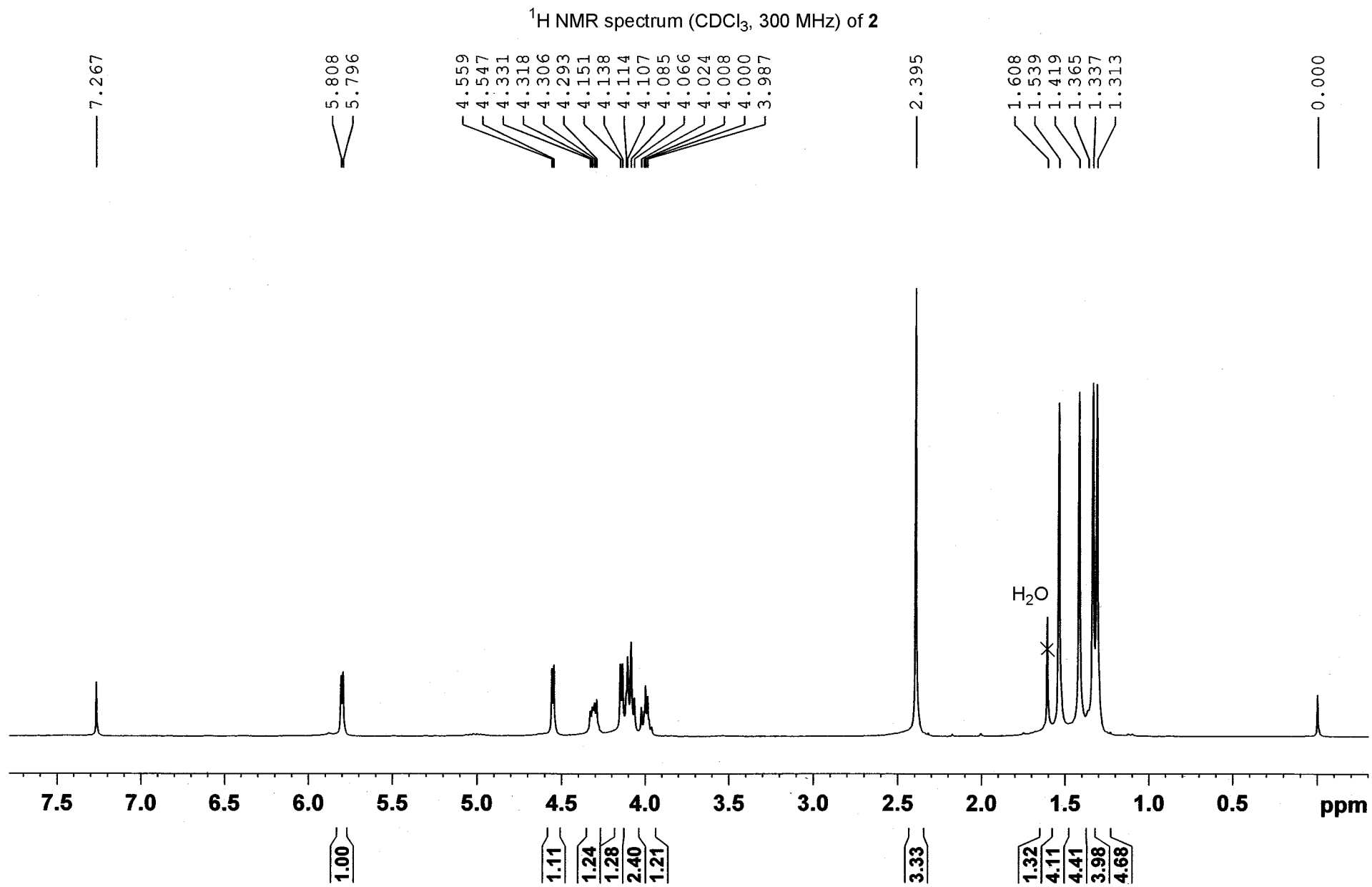
Email: anupbh@hotmail.com; anupbhattacharjya@gmail.com

sbmandal@iicb.res.in

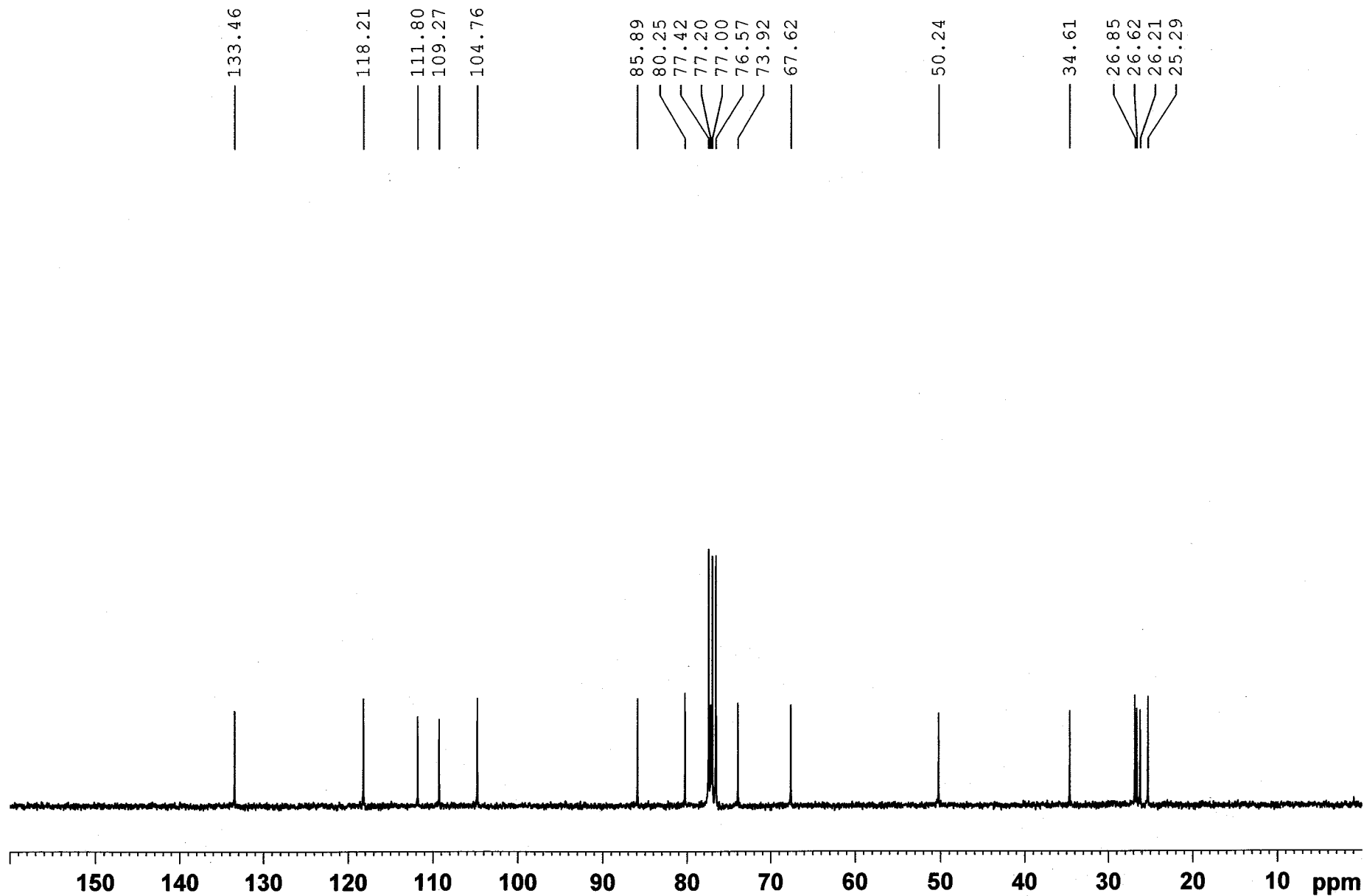
S2

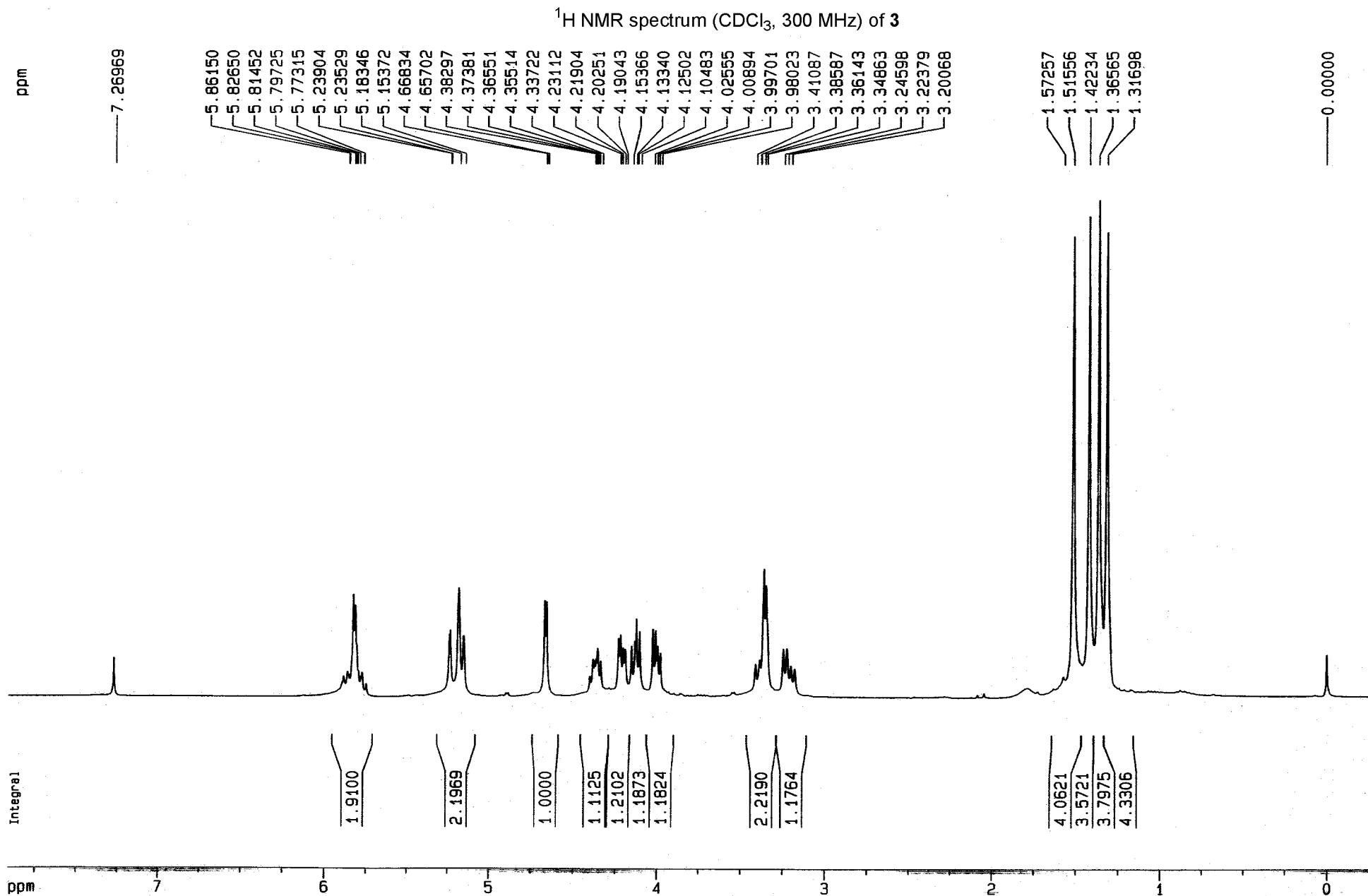
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **2**





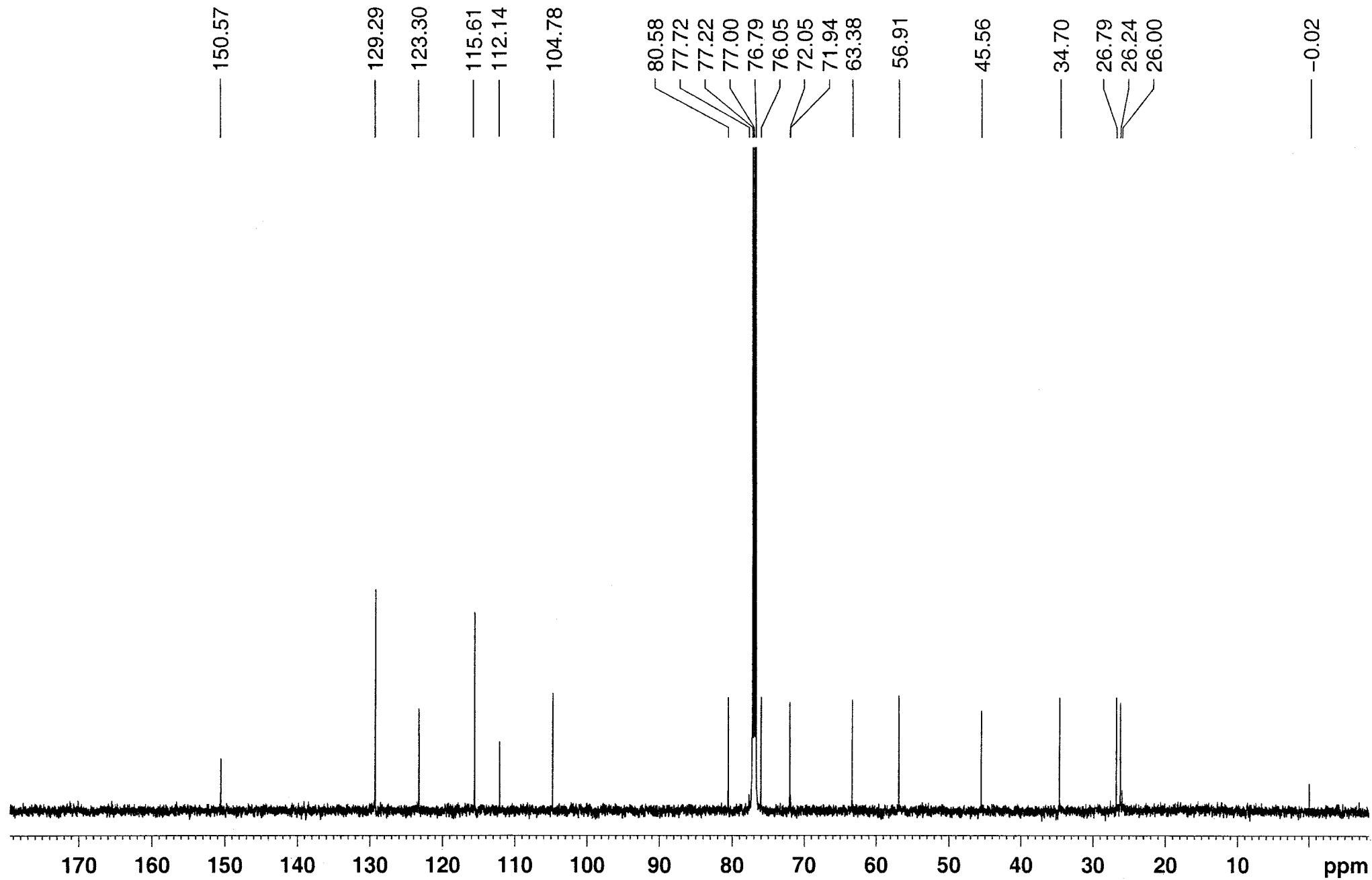
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **3**



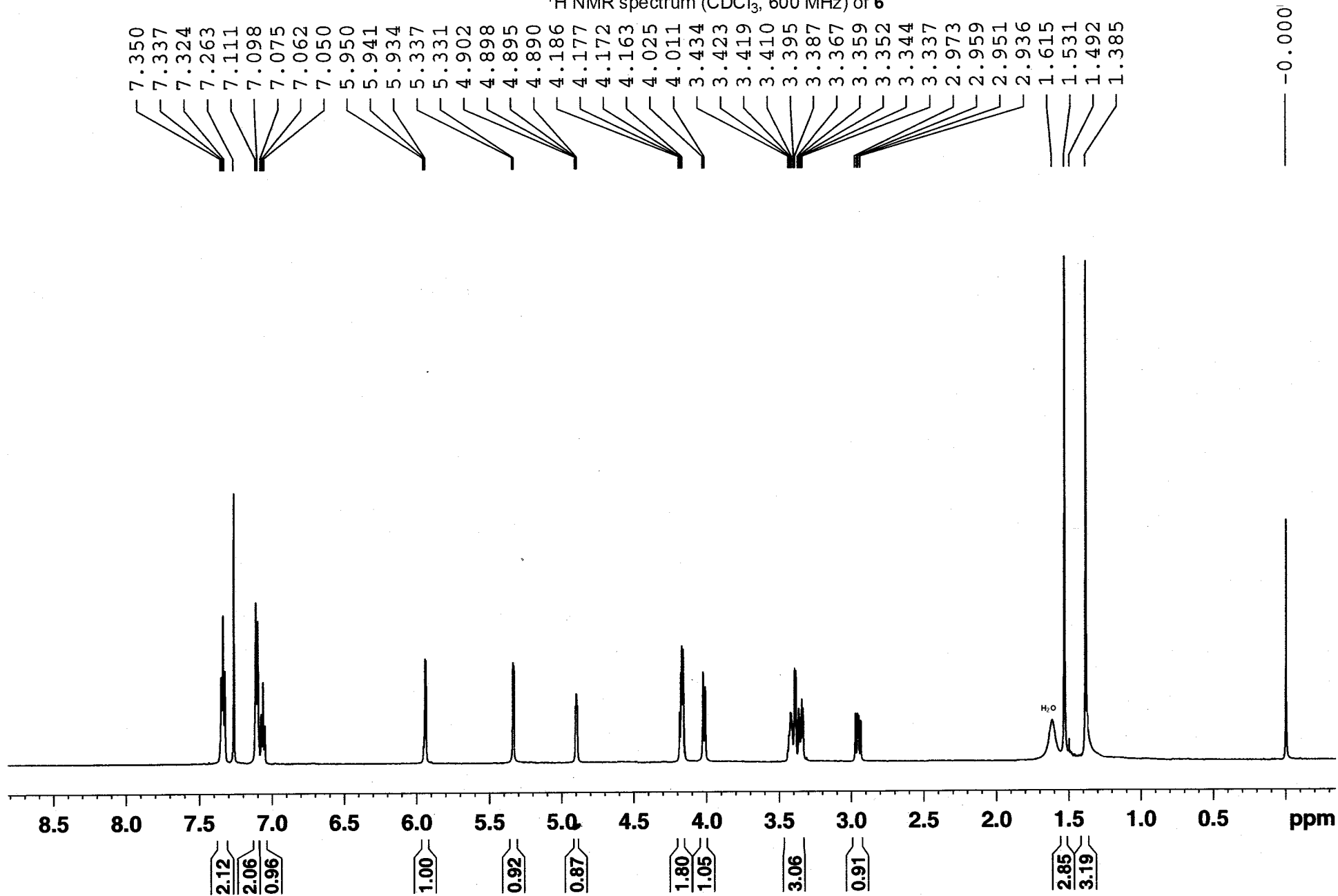


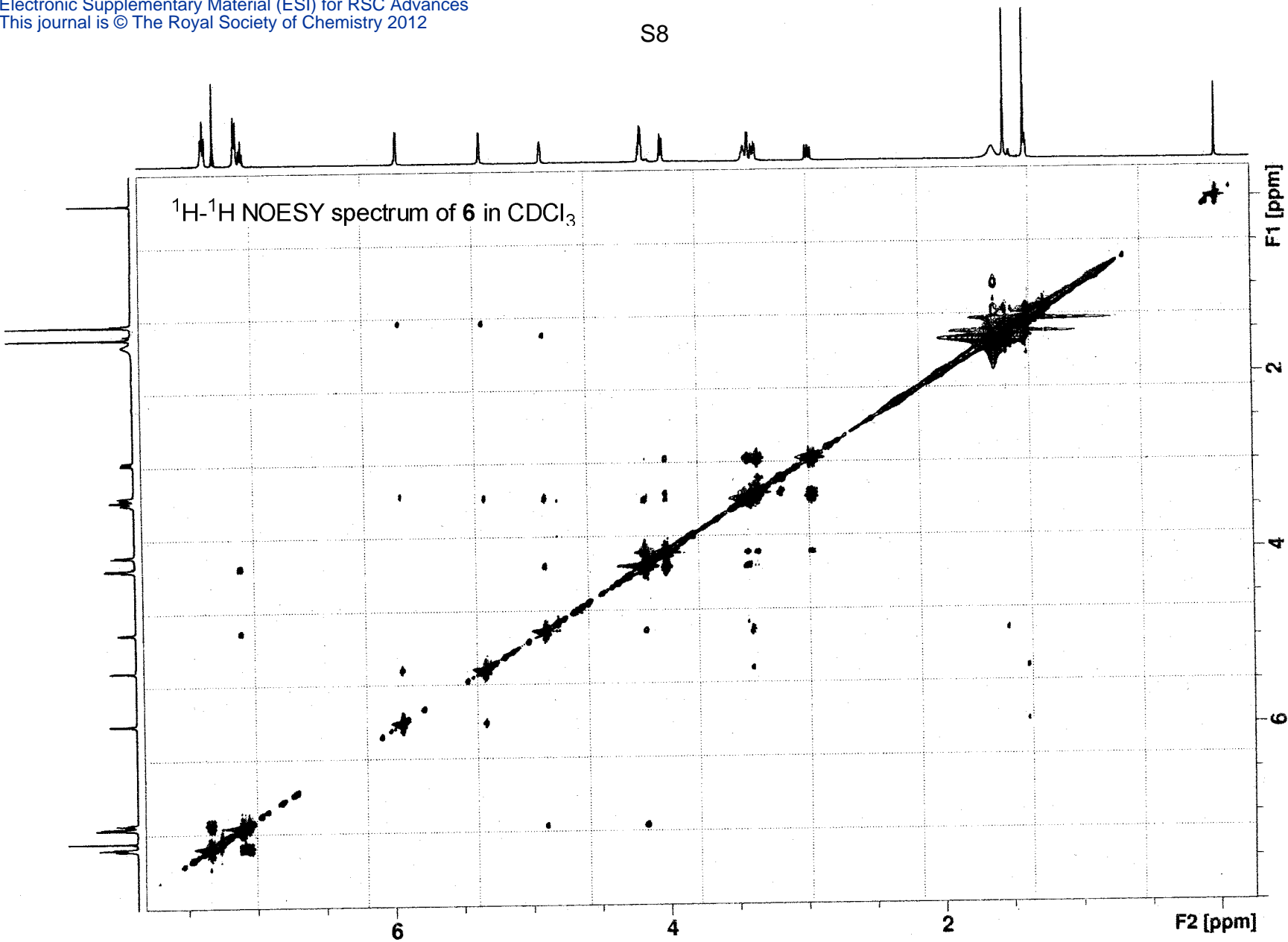
S6

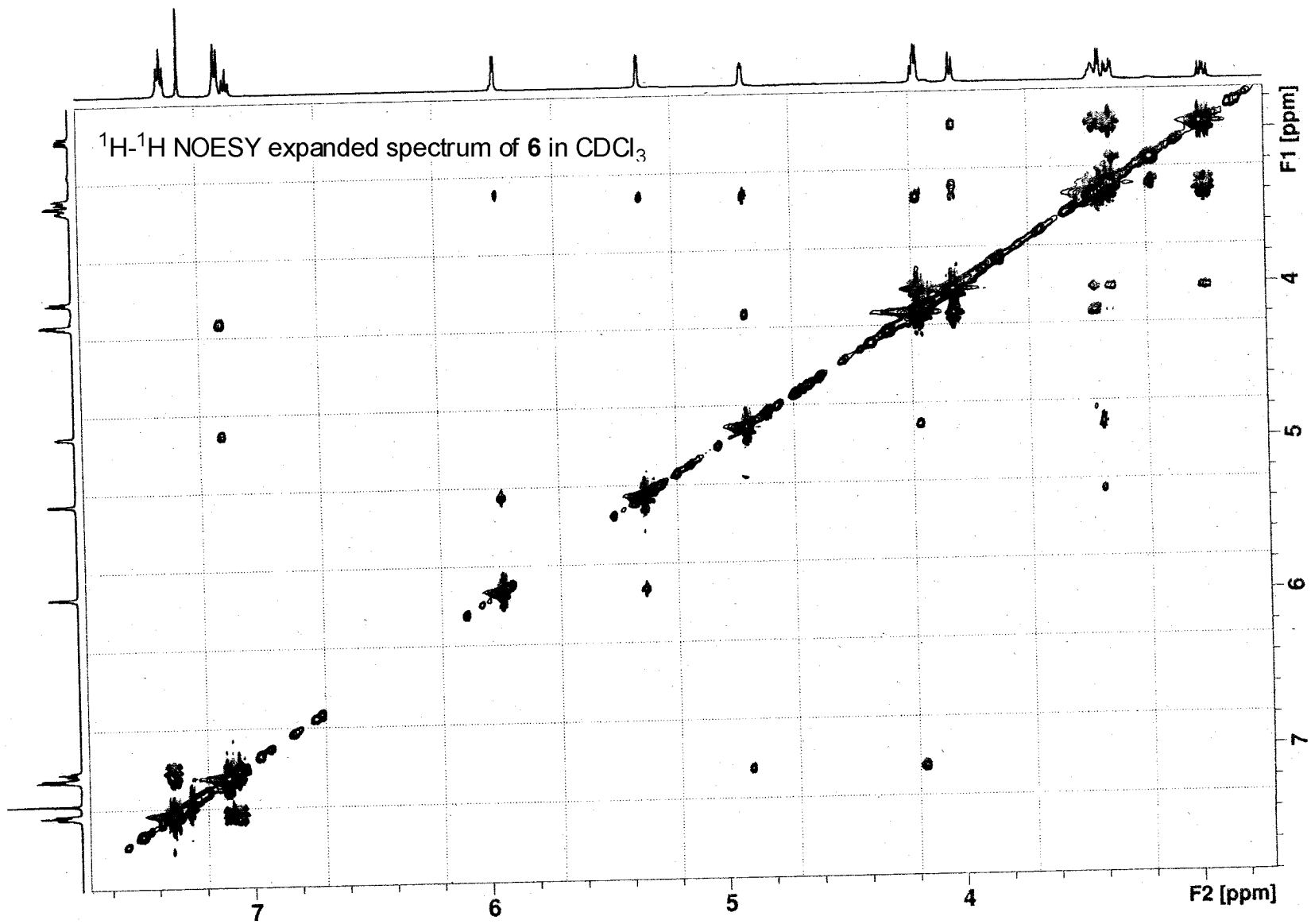
^{13}C NMR spectrum (CDCl_3 , 150 MHz) of **6**



¹H NMR spectrum (CDCl₃, 600 MHz) of **6**

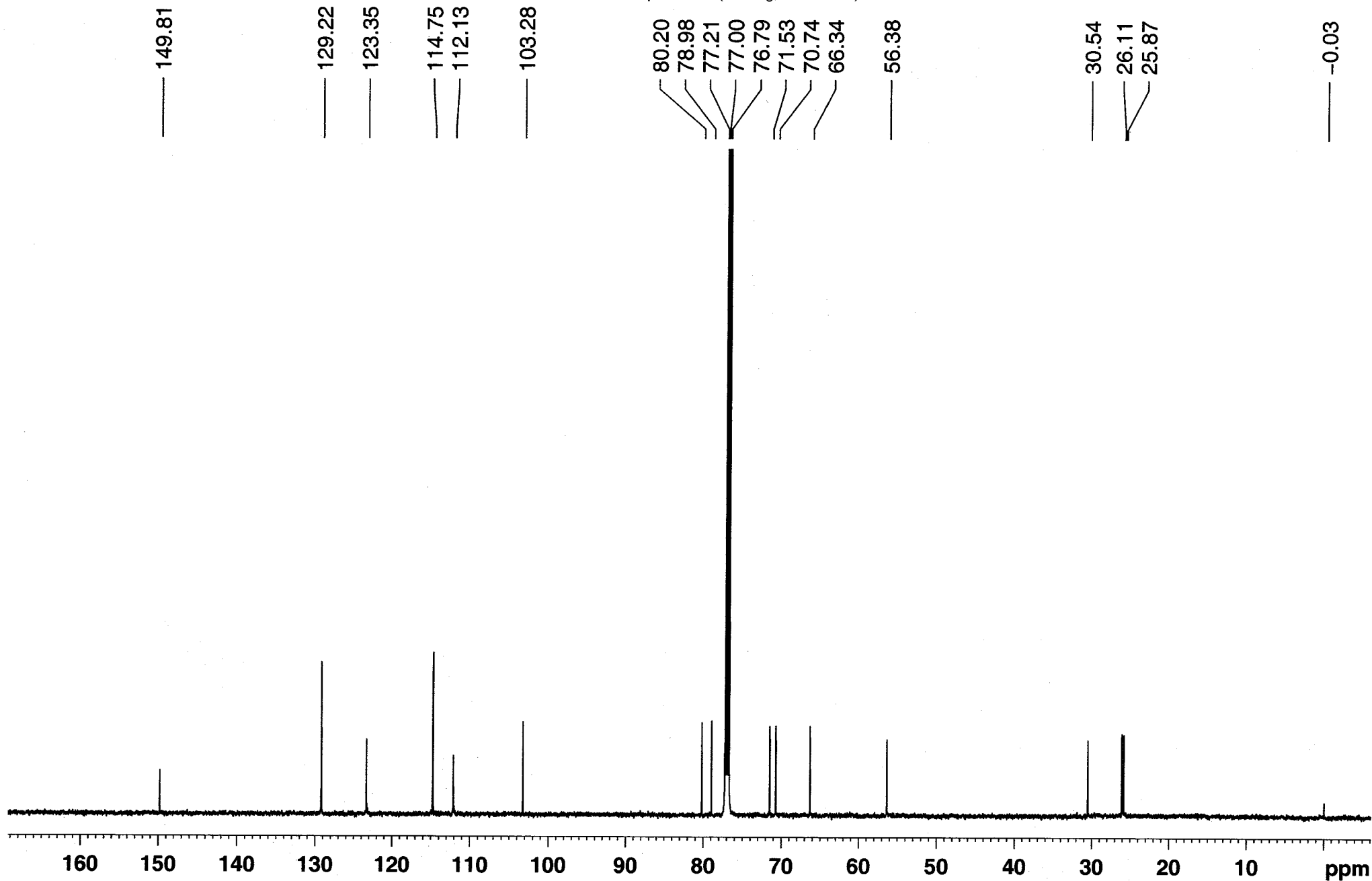




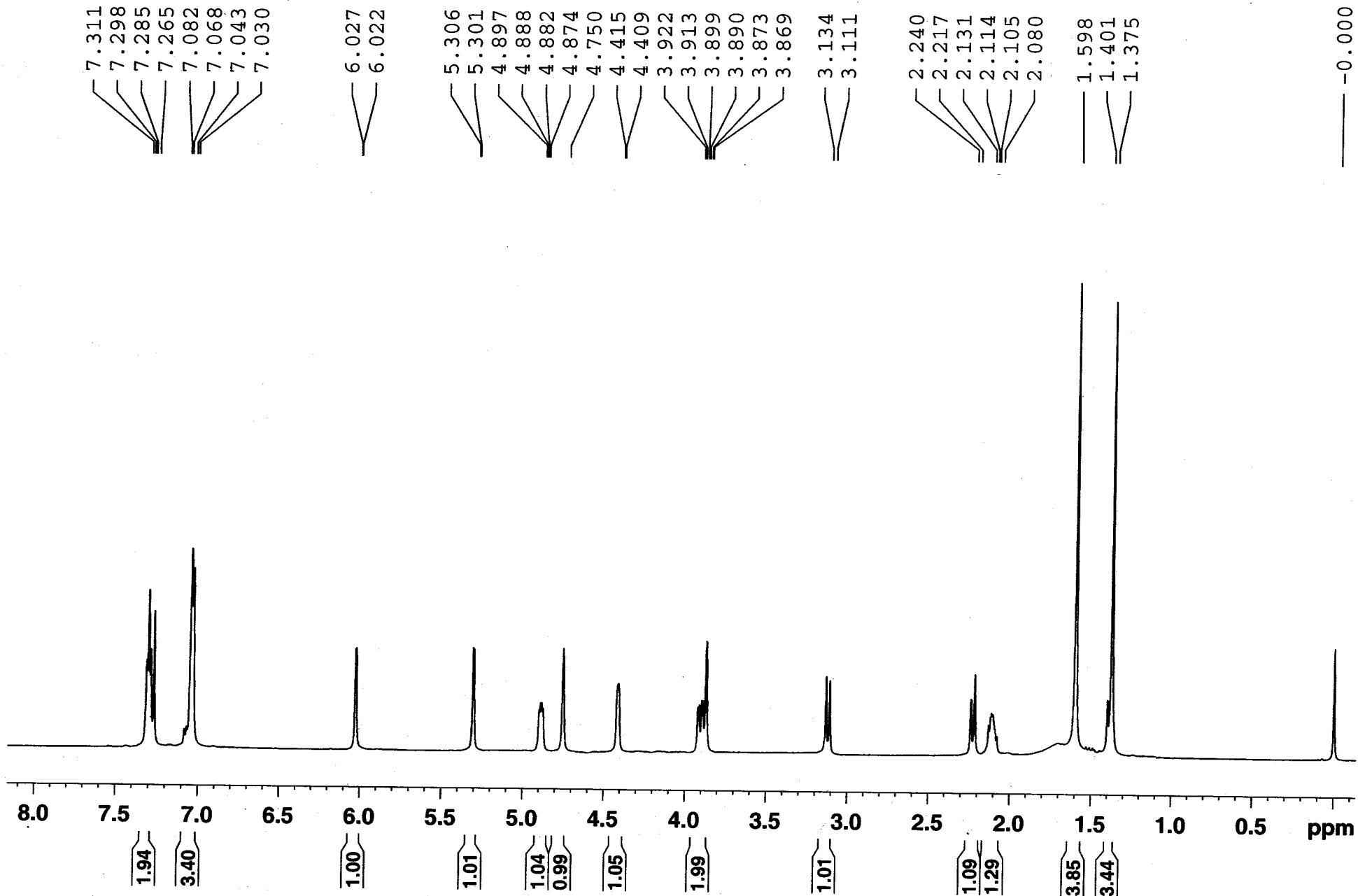


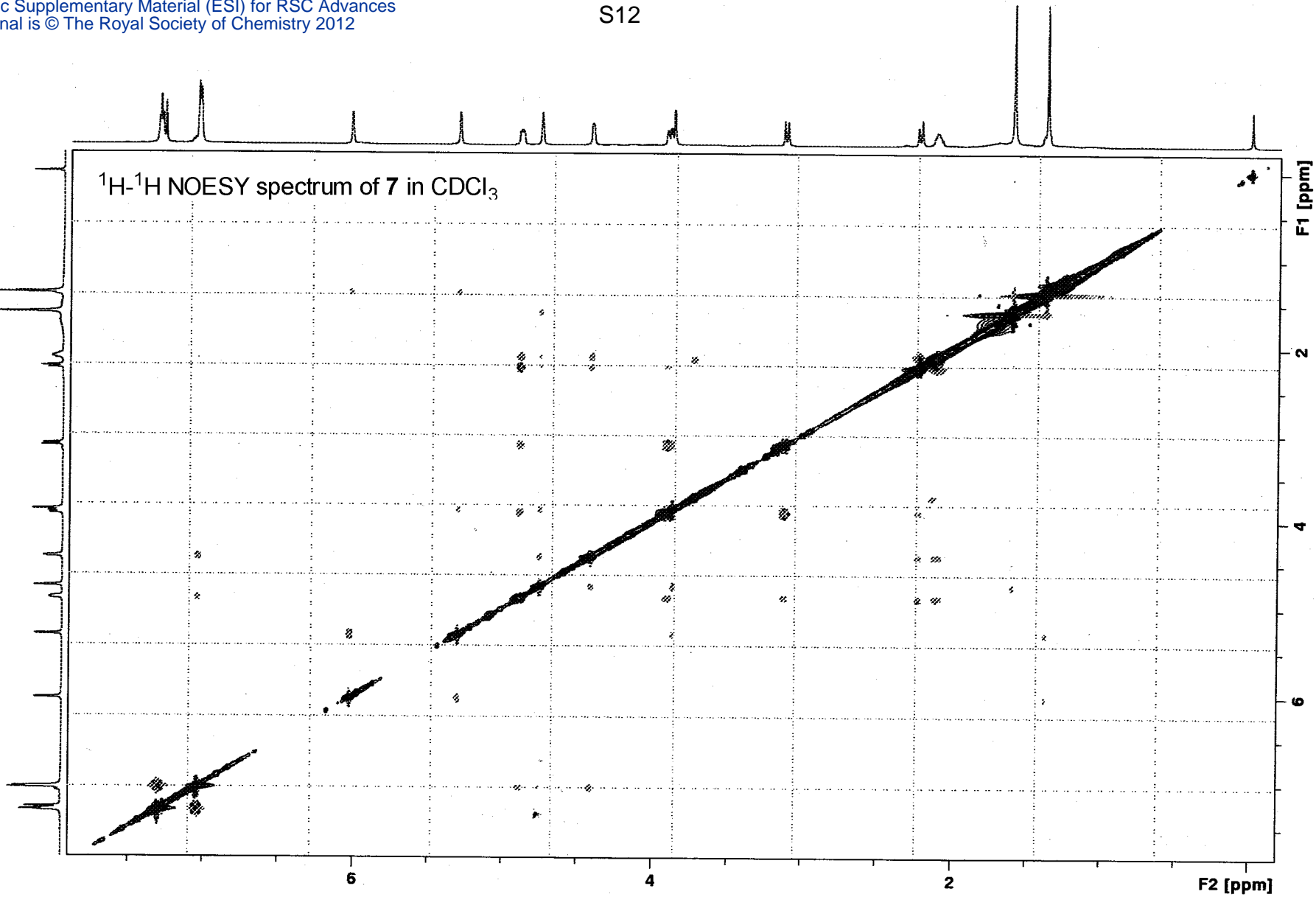
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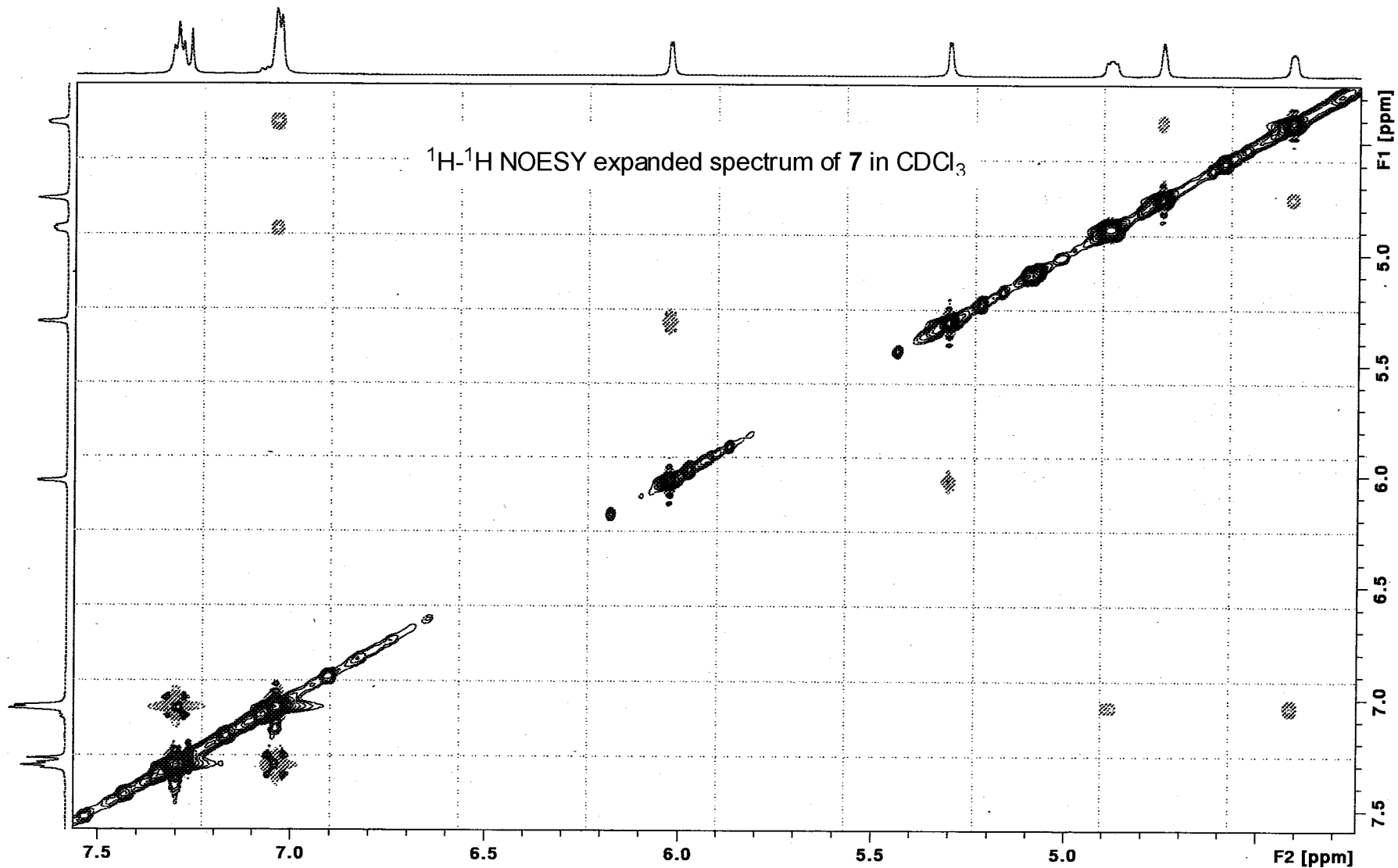
¹³C NMR spectrum (CDCl₃, 150 MHz) of 7



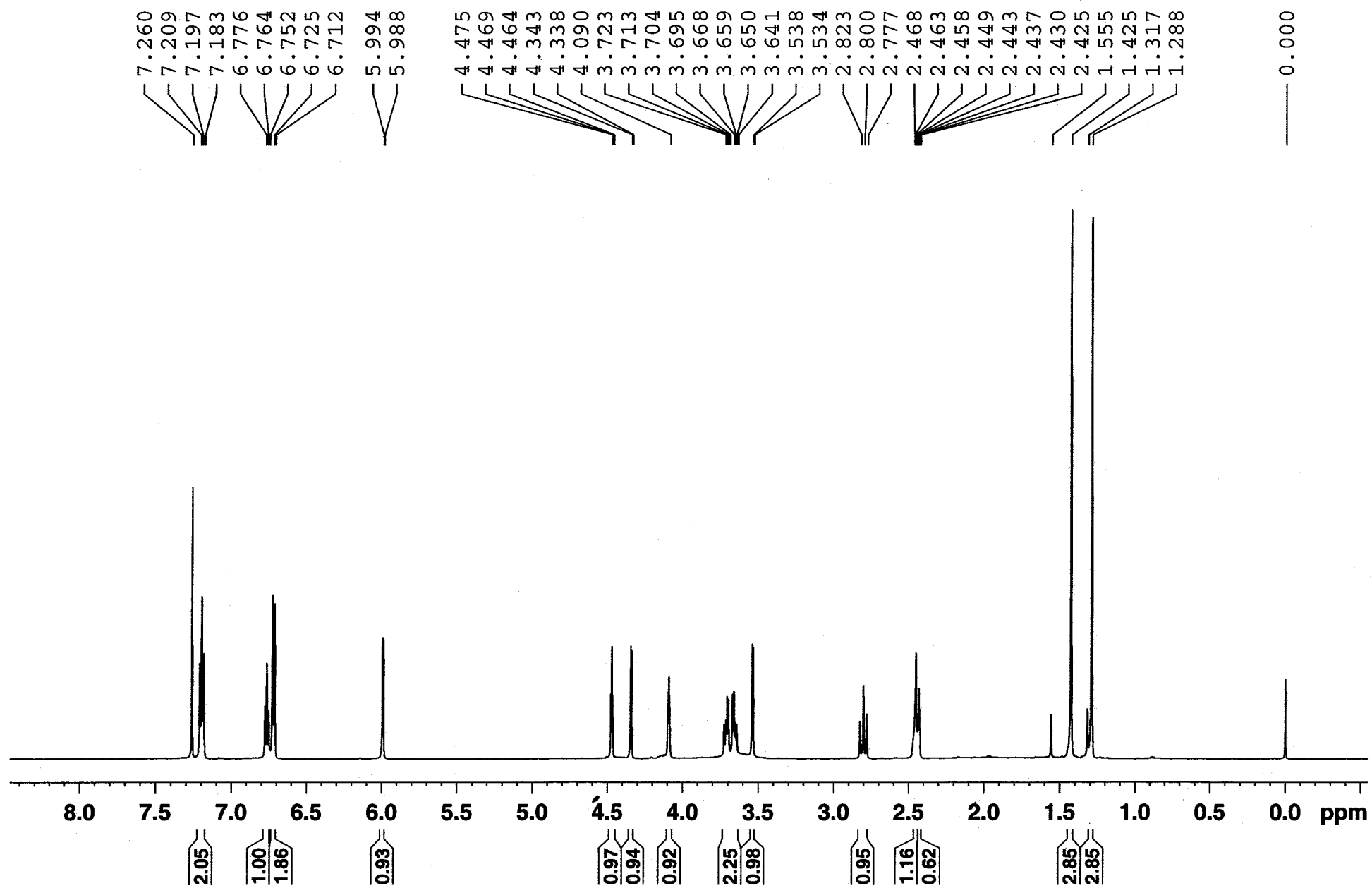
¹H NMR spectrum (CDCl₃, 600 MHz) of 7



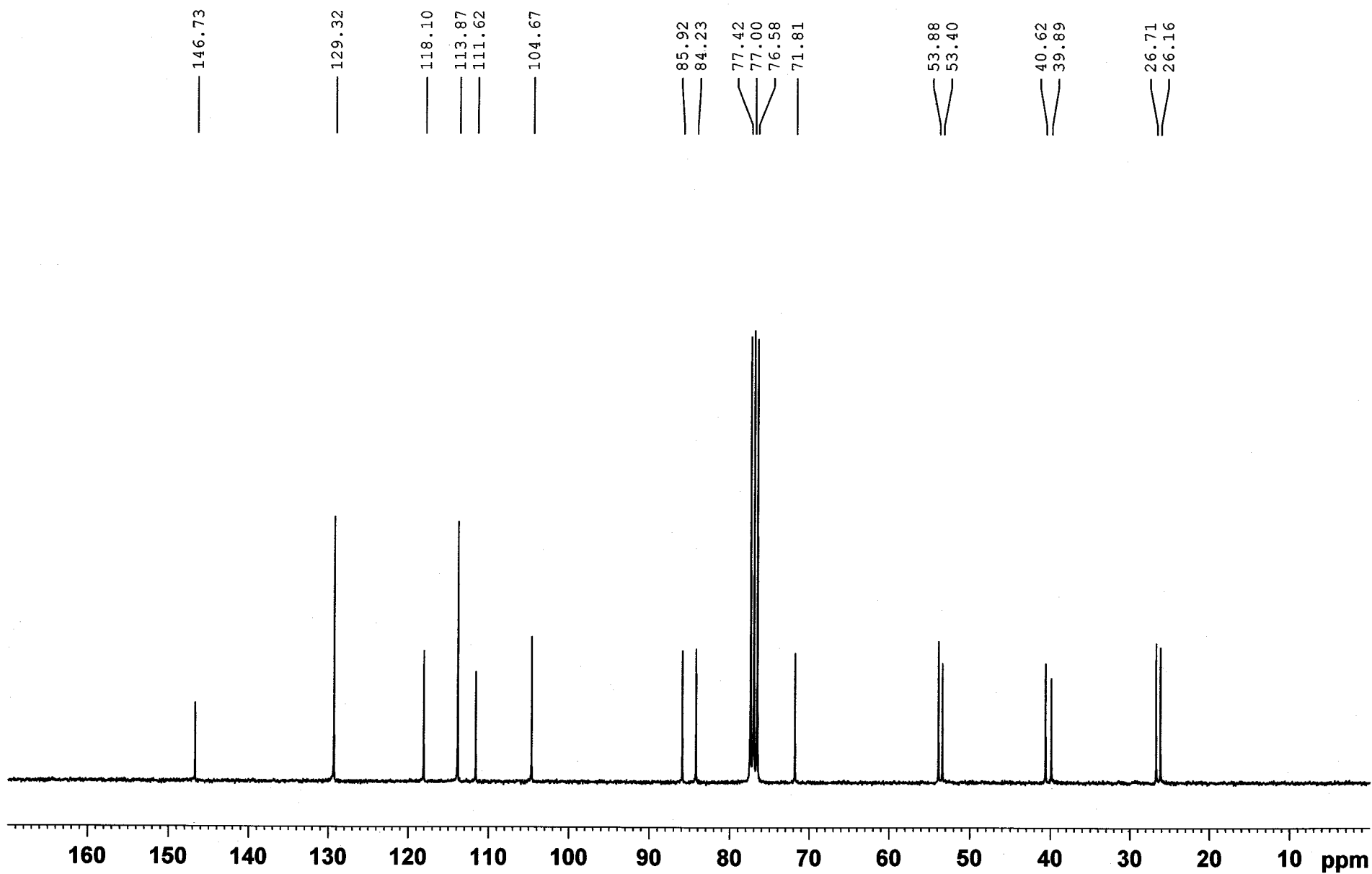




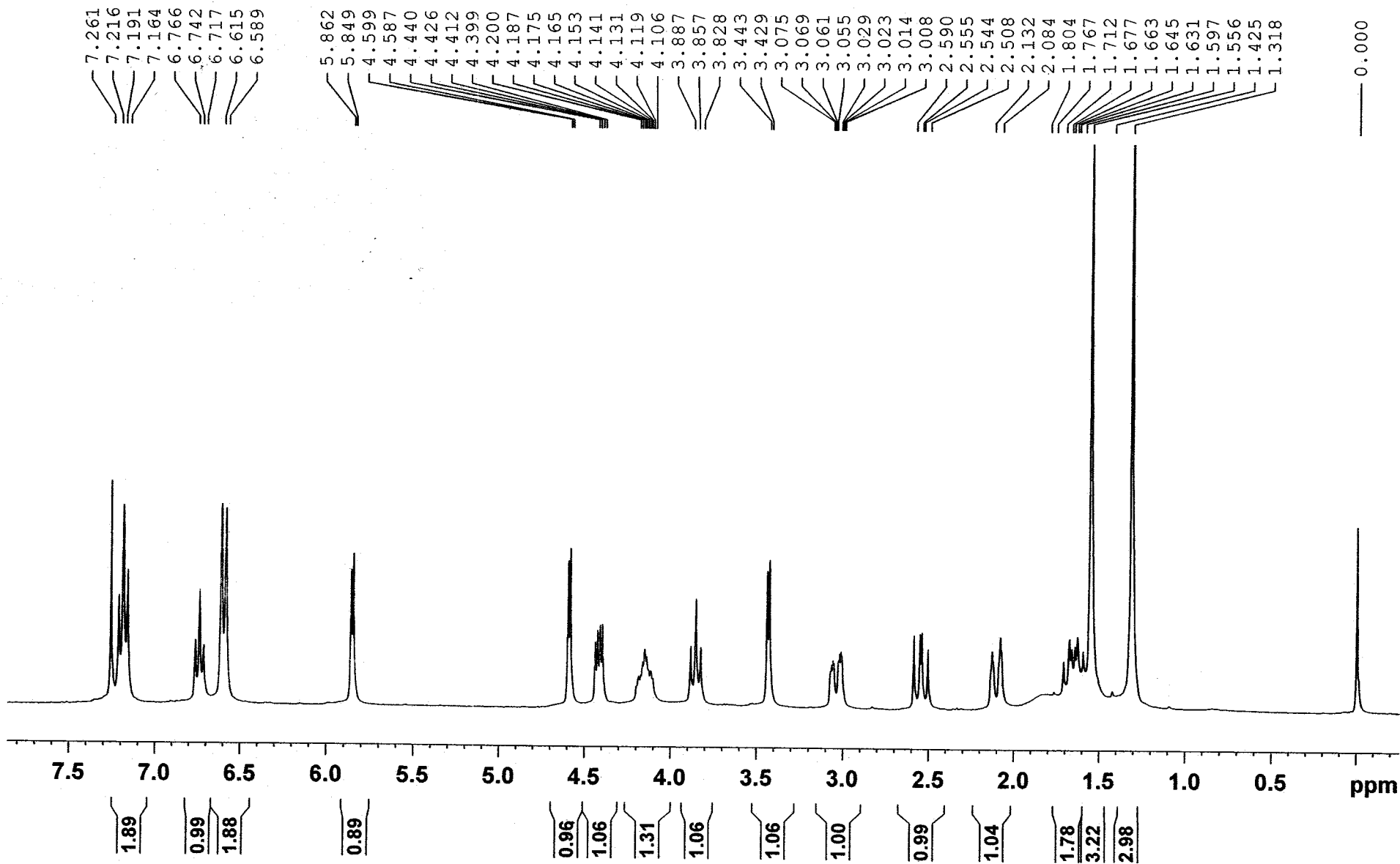
¹H NMR spectrum (CDCl₃, 600 MHz) of 8



^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **9**

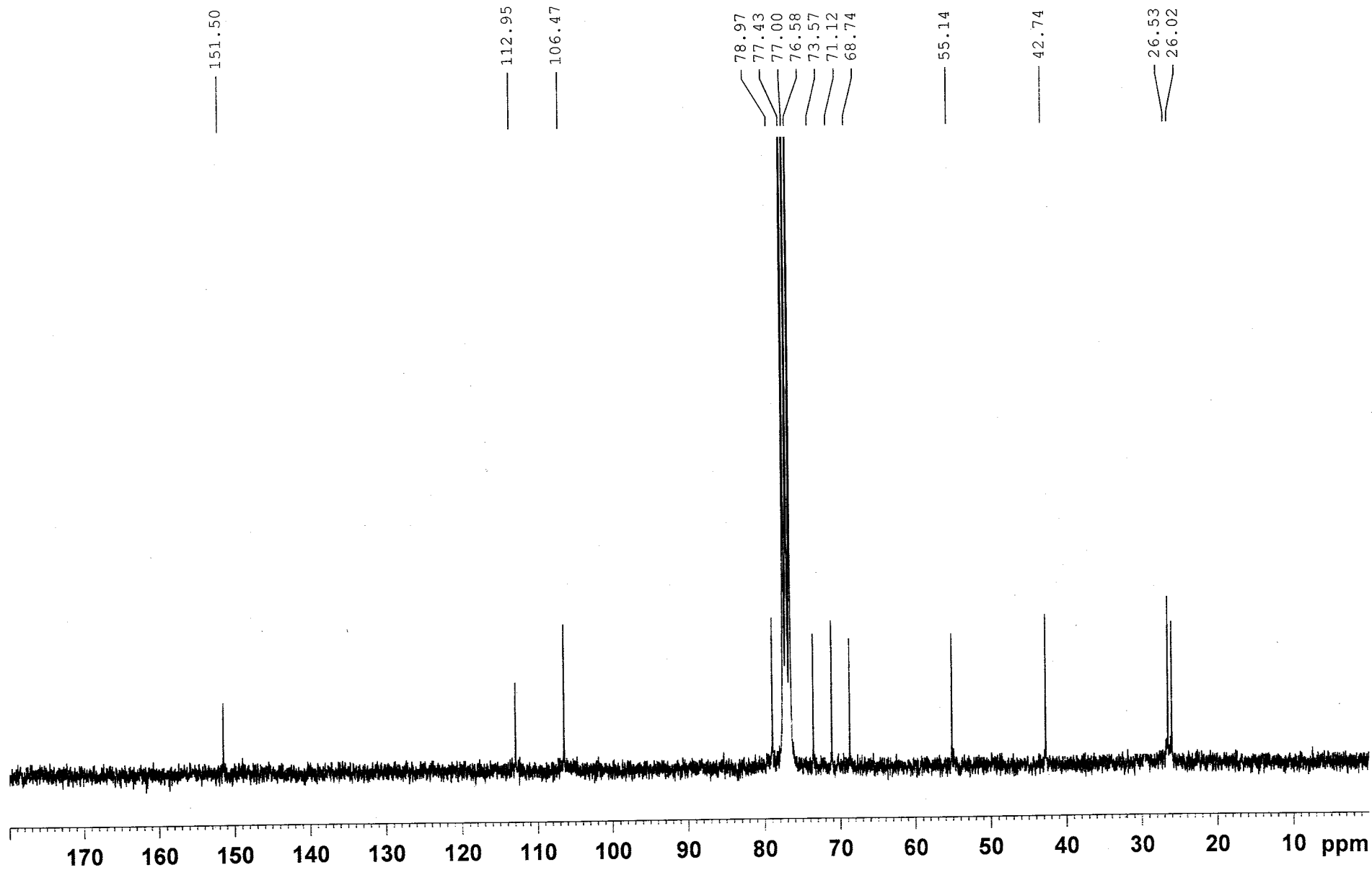


^1H NMR spectrum (CDCl_3 , 300 MHz) of **9**

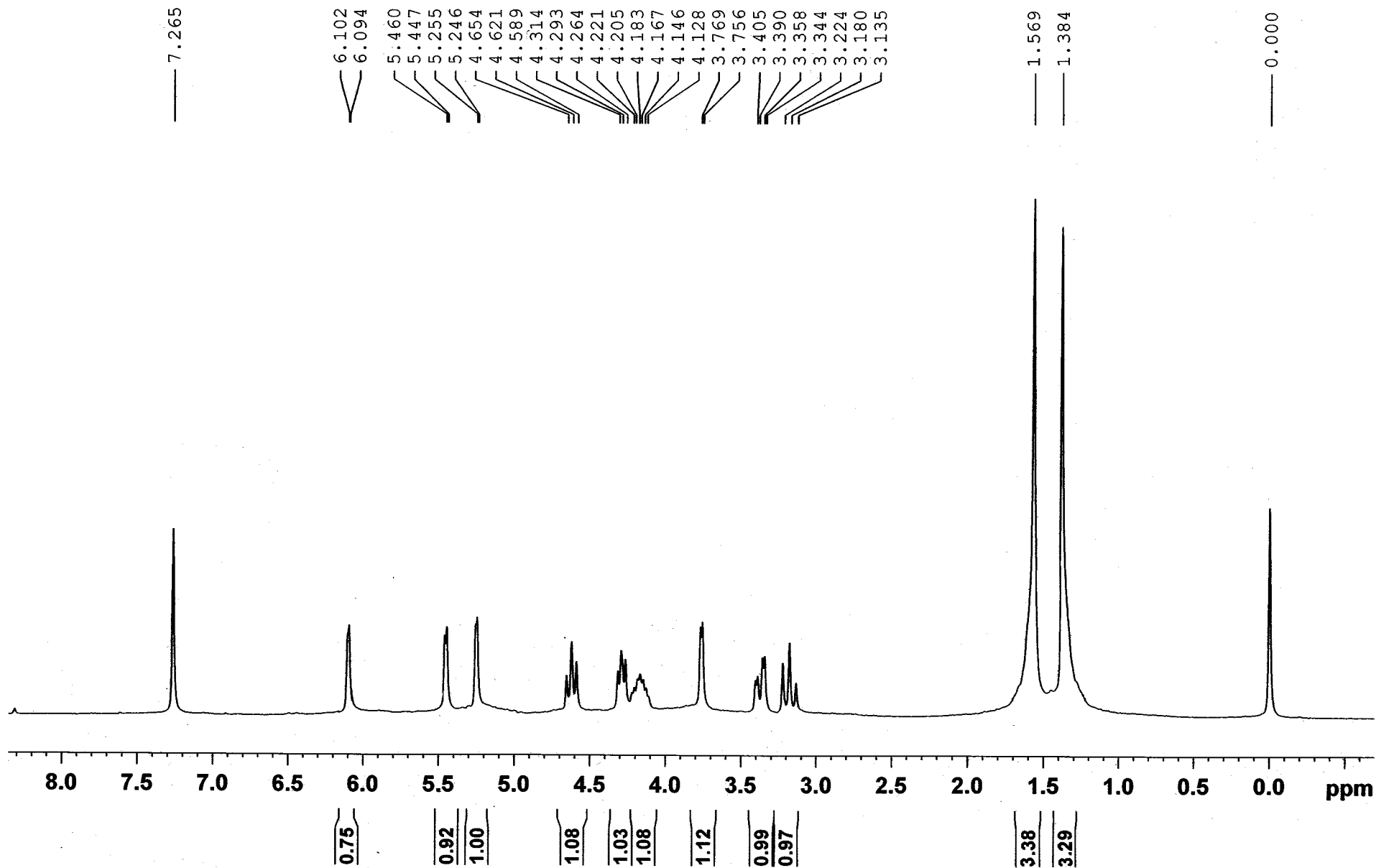


S17

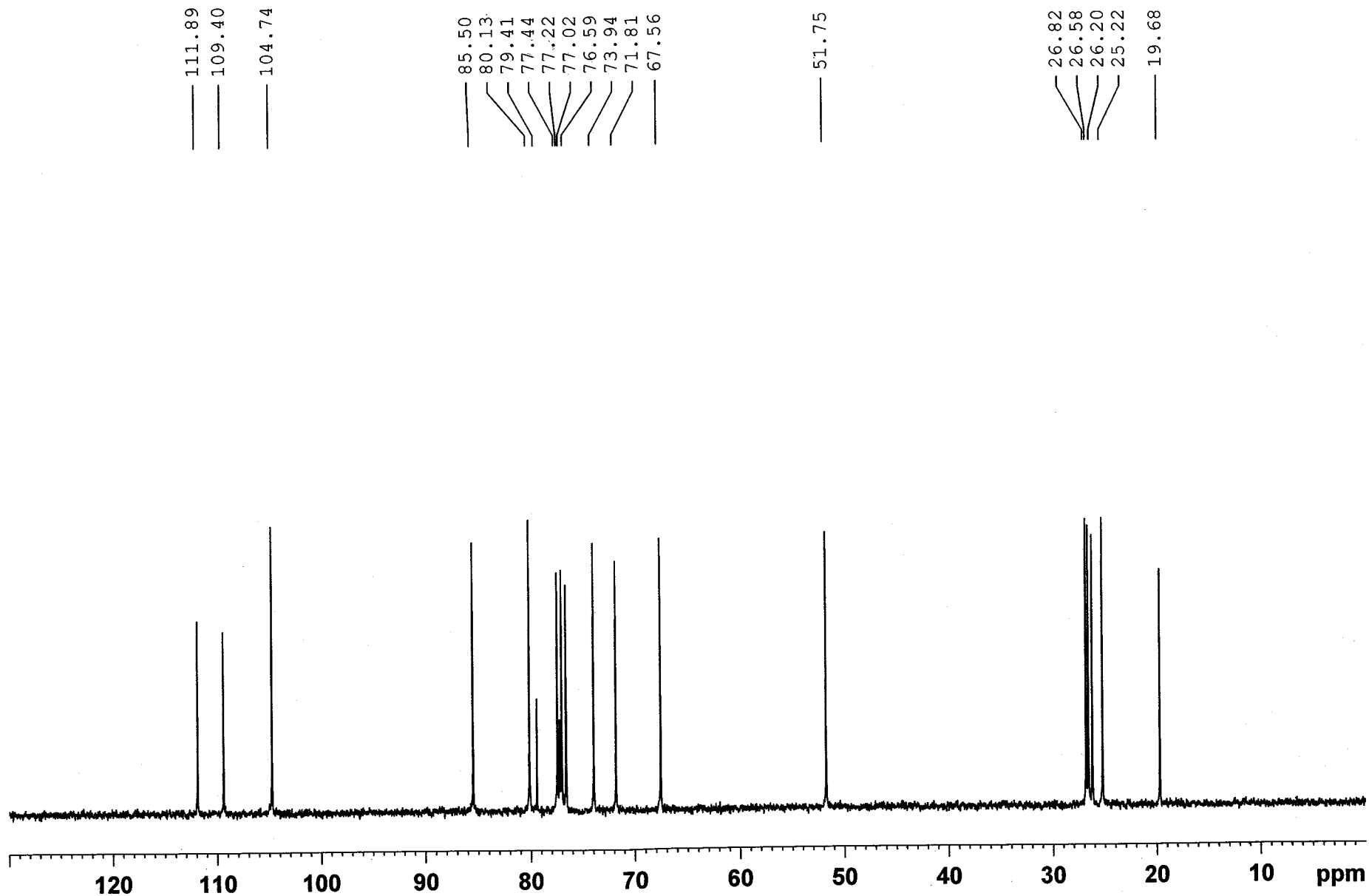
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **12**



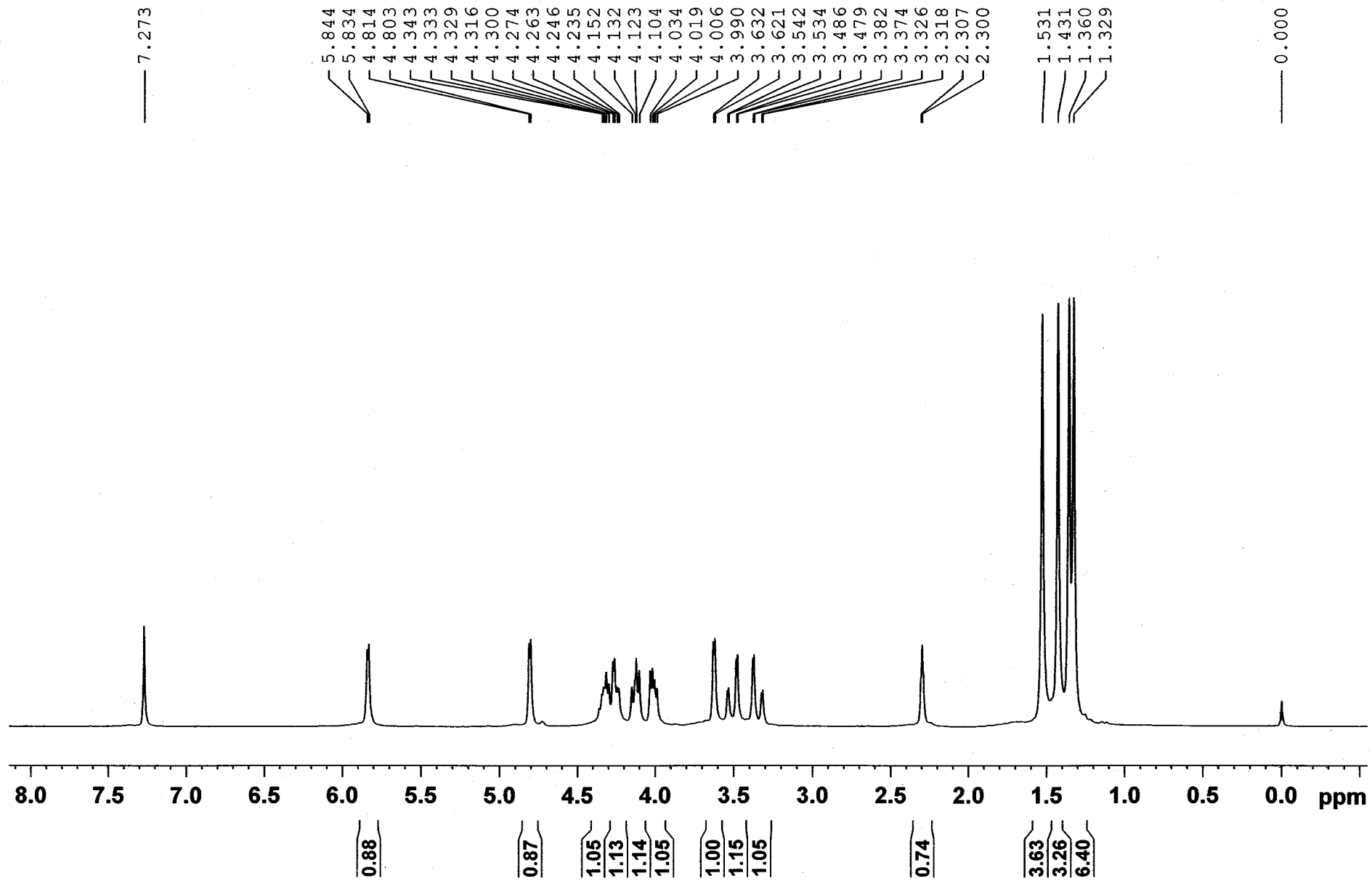
¹H NMR spectrum (CDCl₃, 300 MHz) of 12



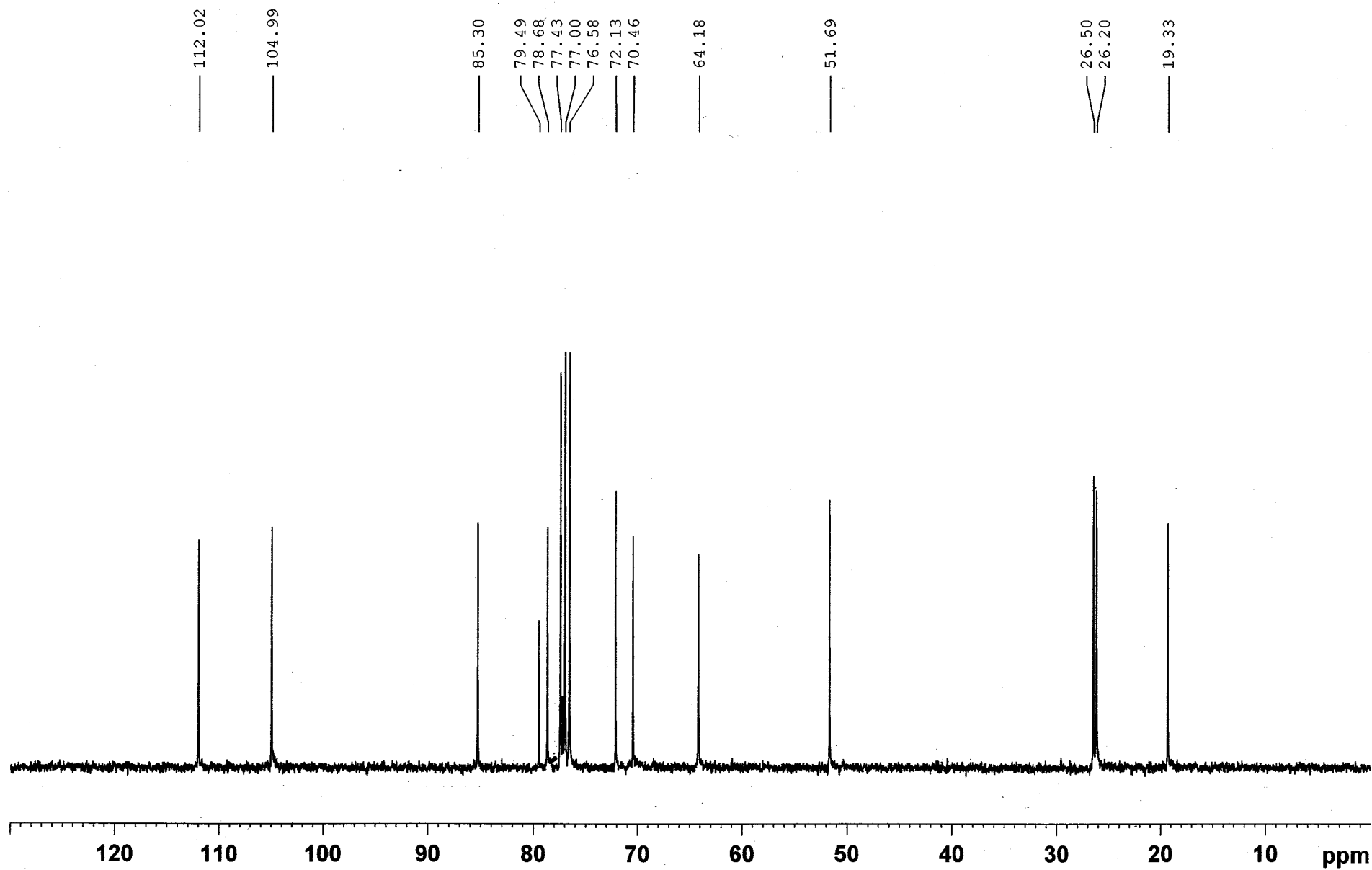
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **13**



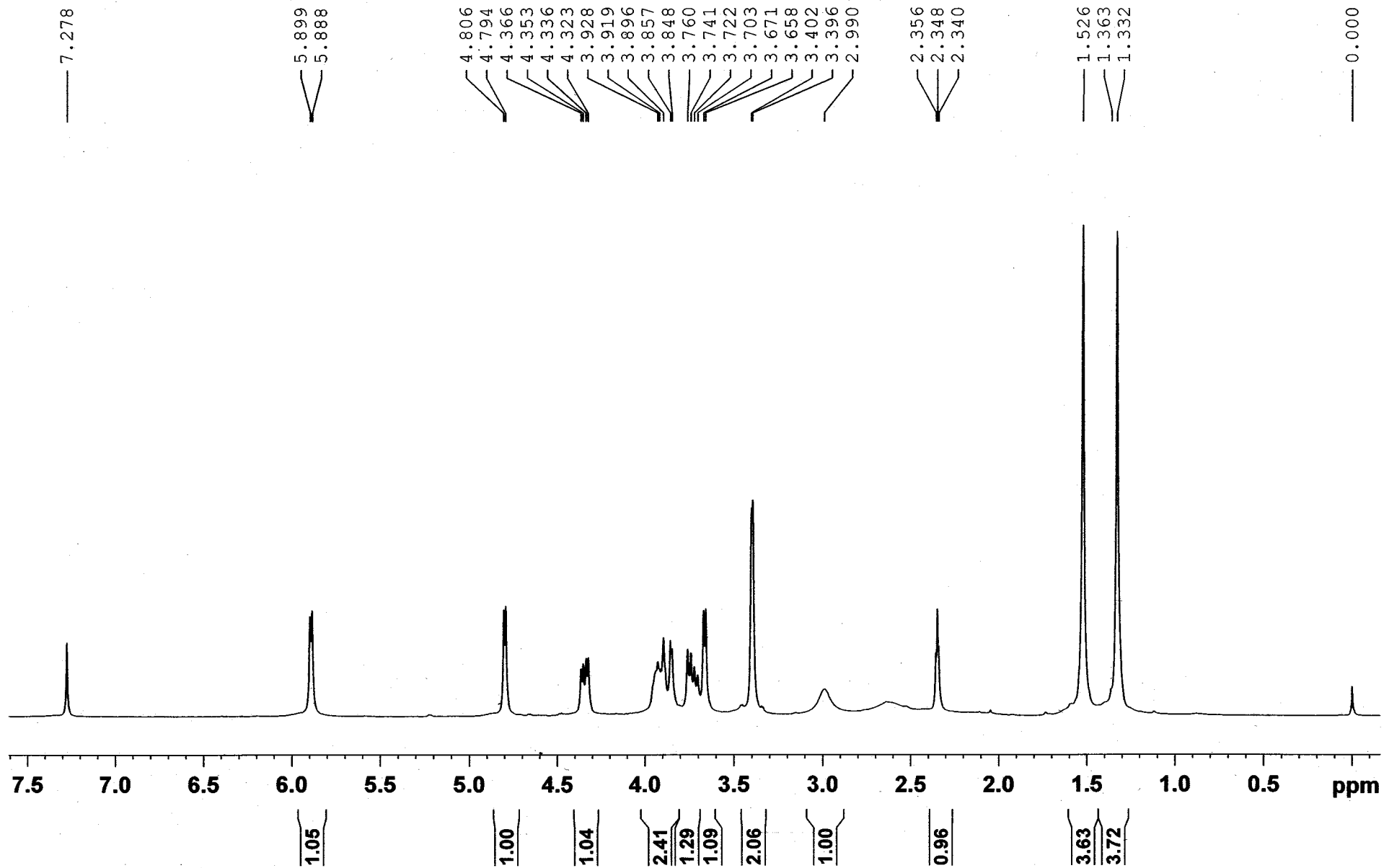
¹H NMR spectrum (CDCl₃, 300 MHz) of **13**



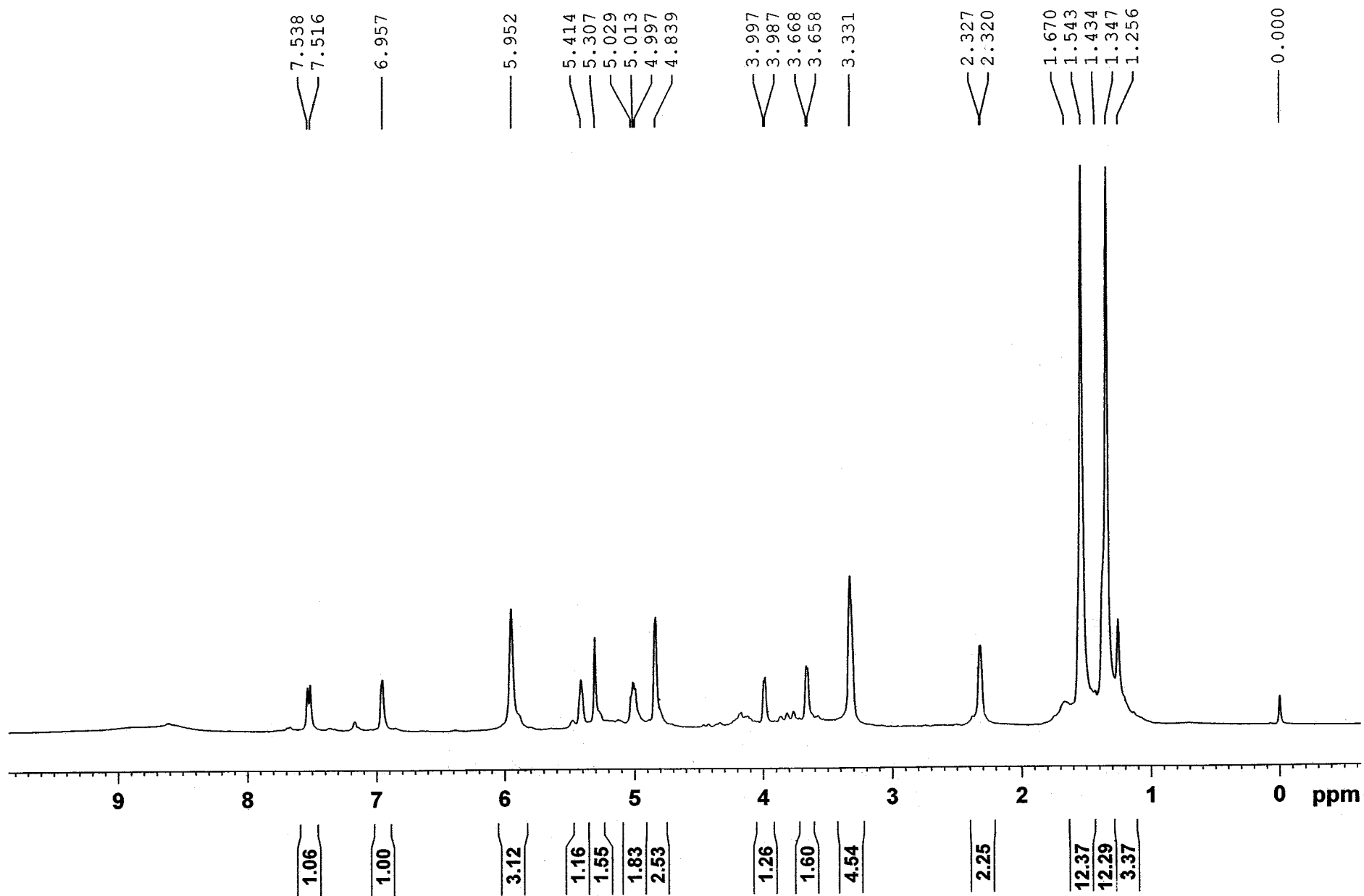
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **14**



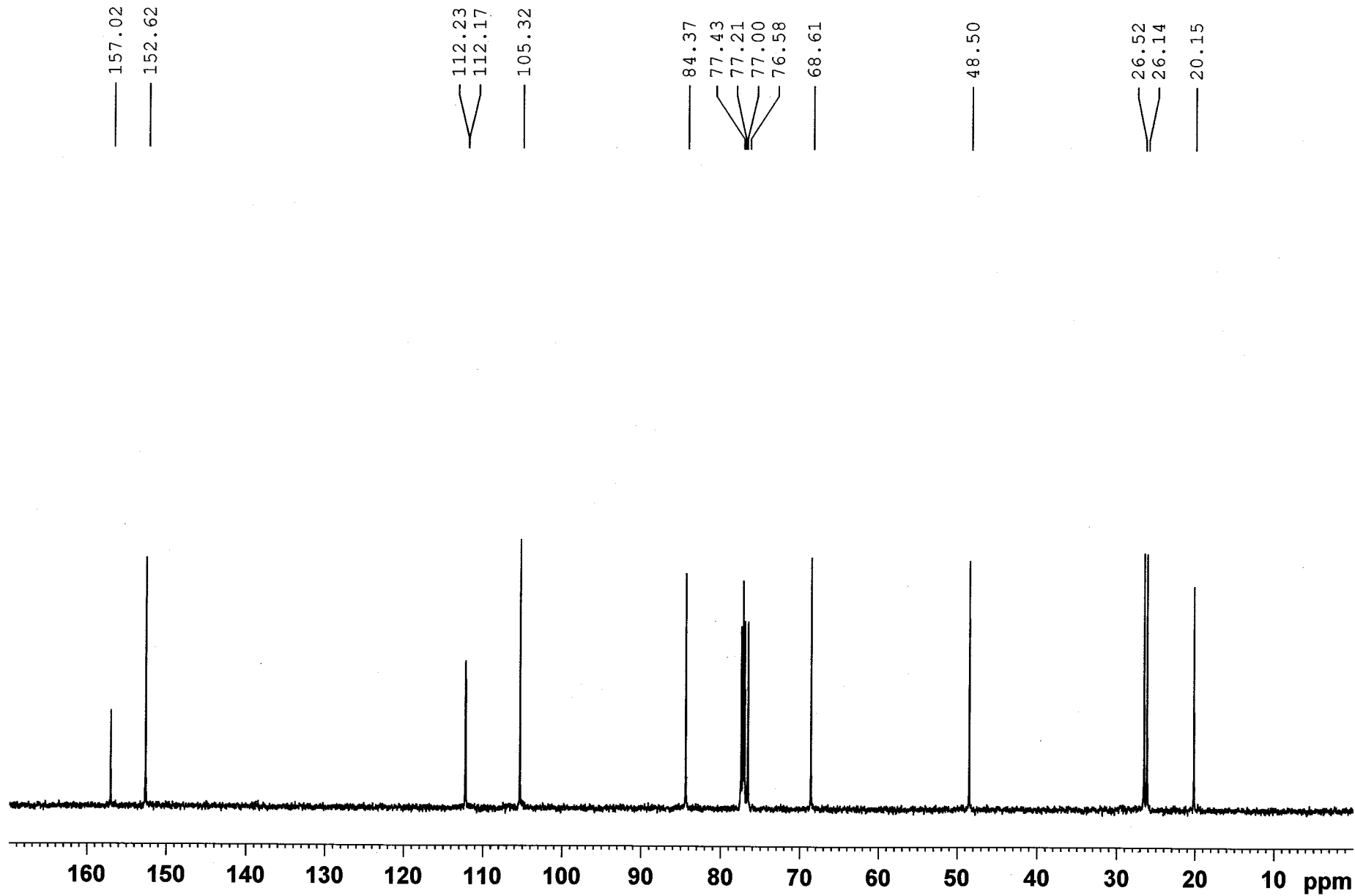
¹H NMR spectrum (CDCl₃, 300 MHz) of 14



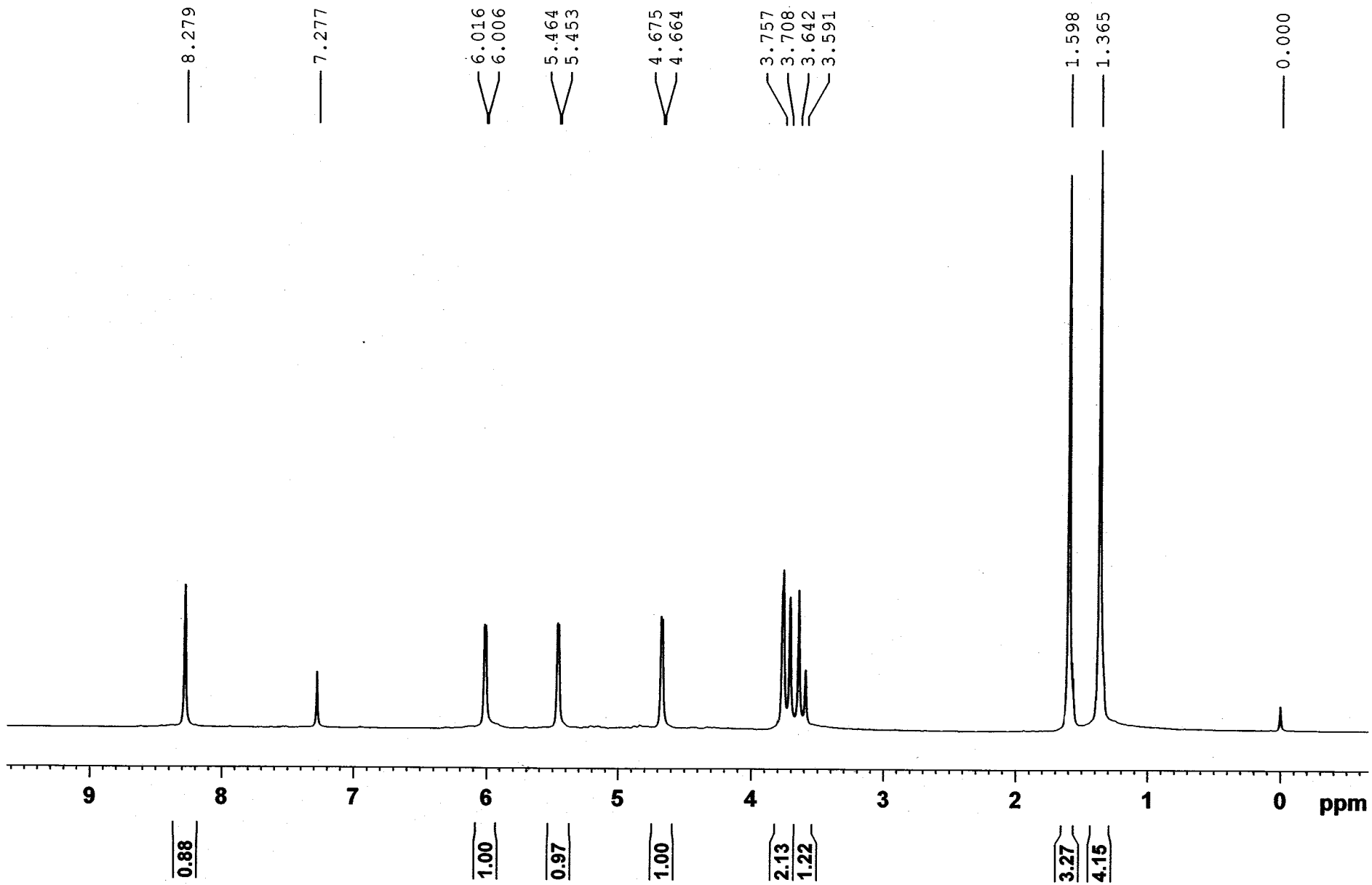
¹H NMR spectrum (CDCl₃, 300 MHz) of **15**



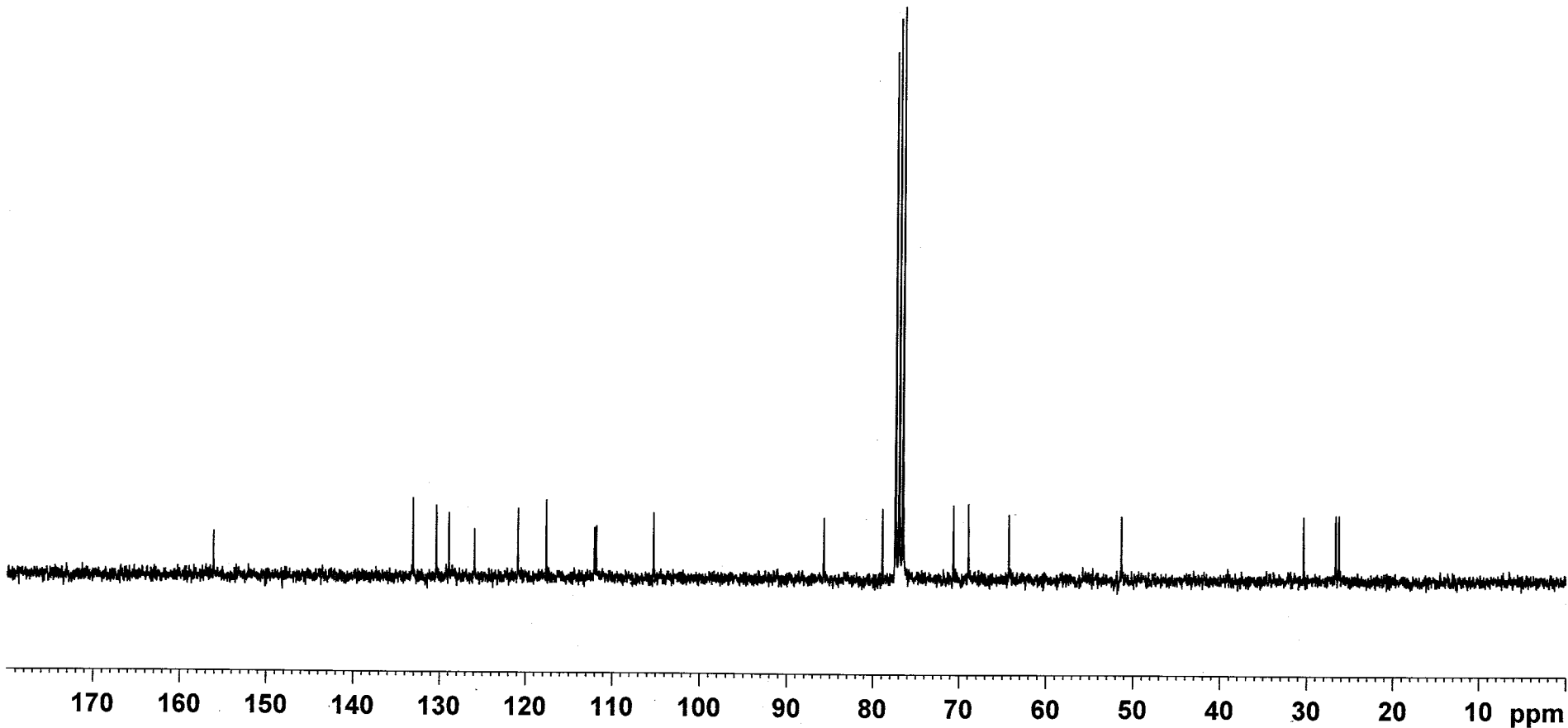
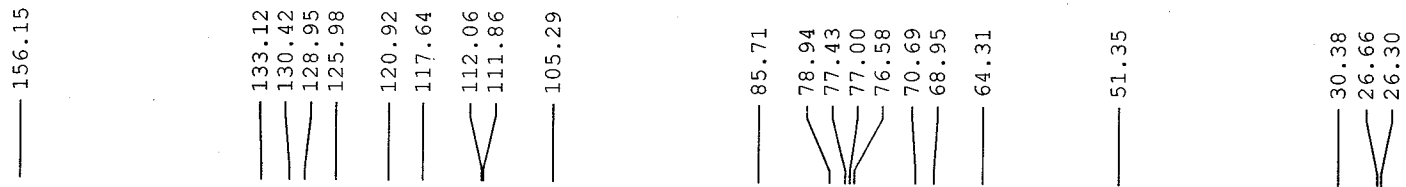
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of 17



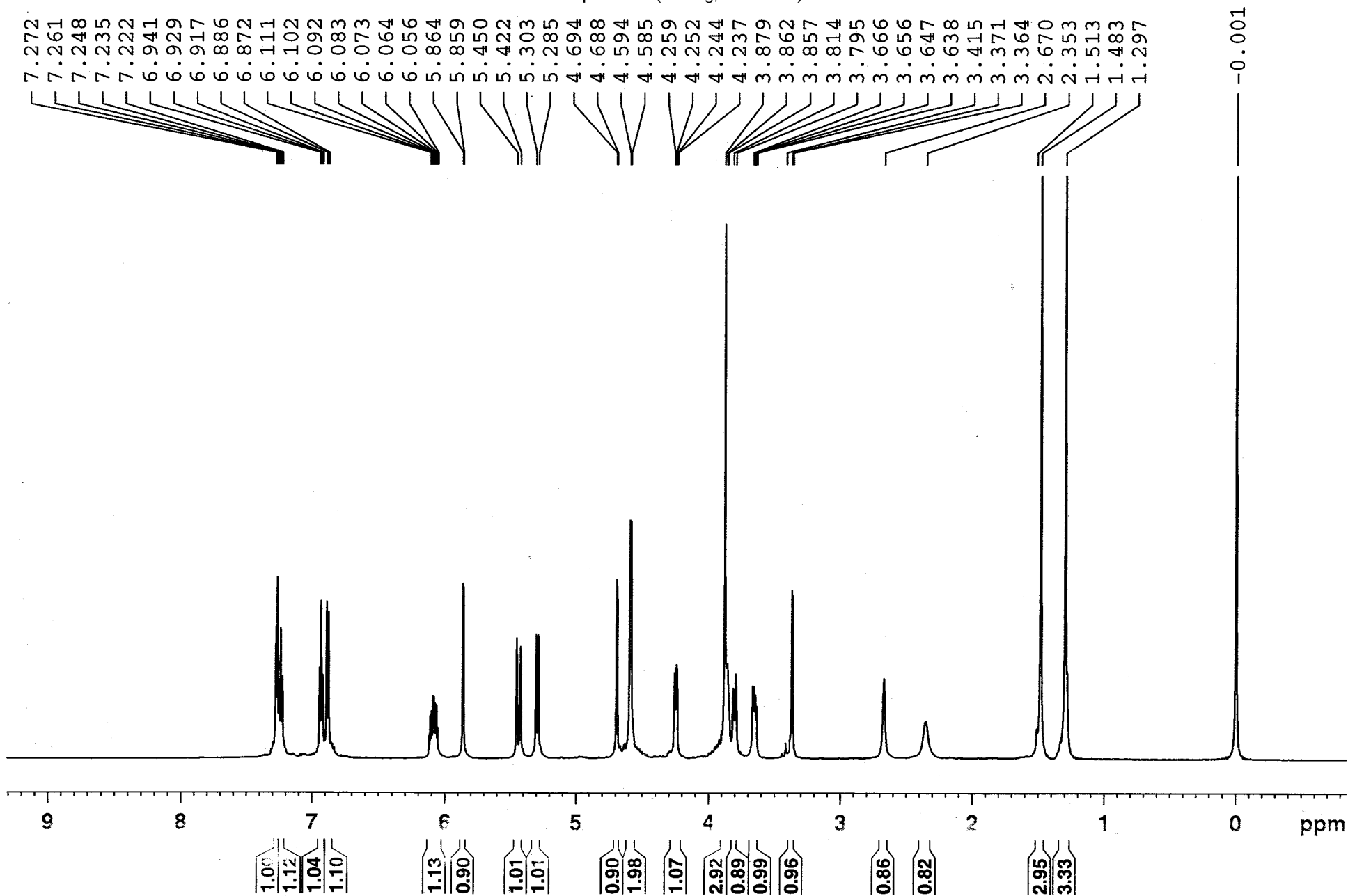
¹H NMR spectrum (CDCl₃, 300 MHz) of 17



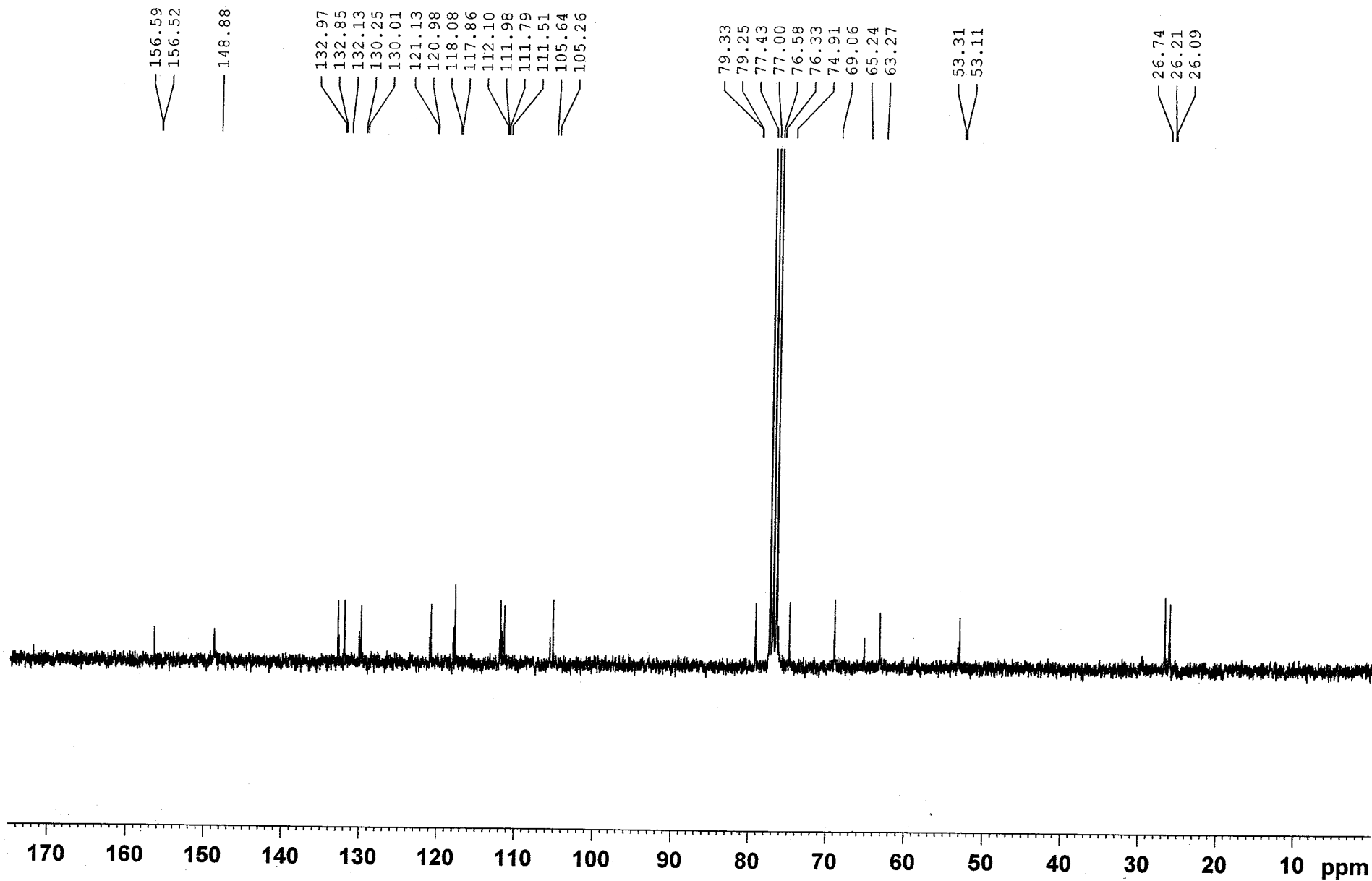
^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **19**



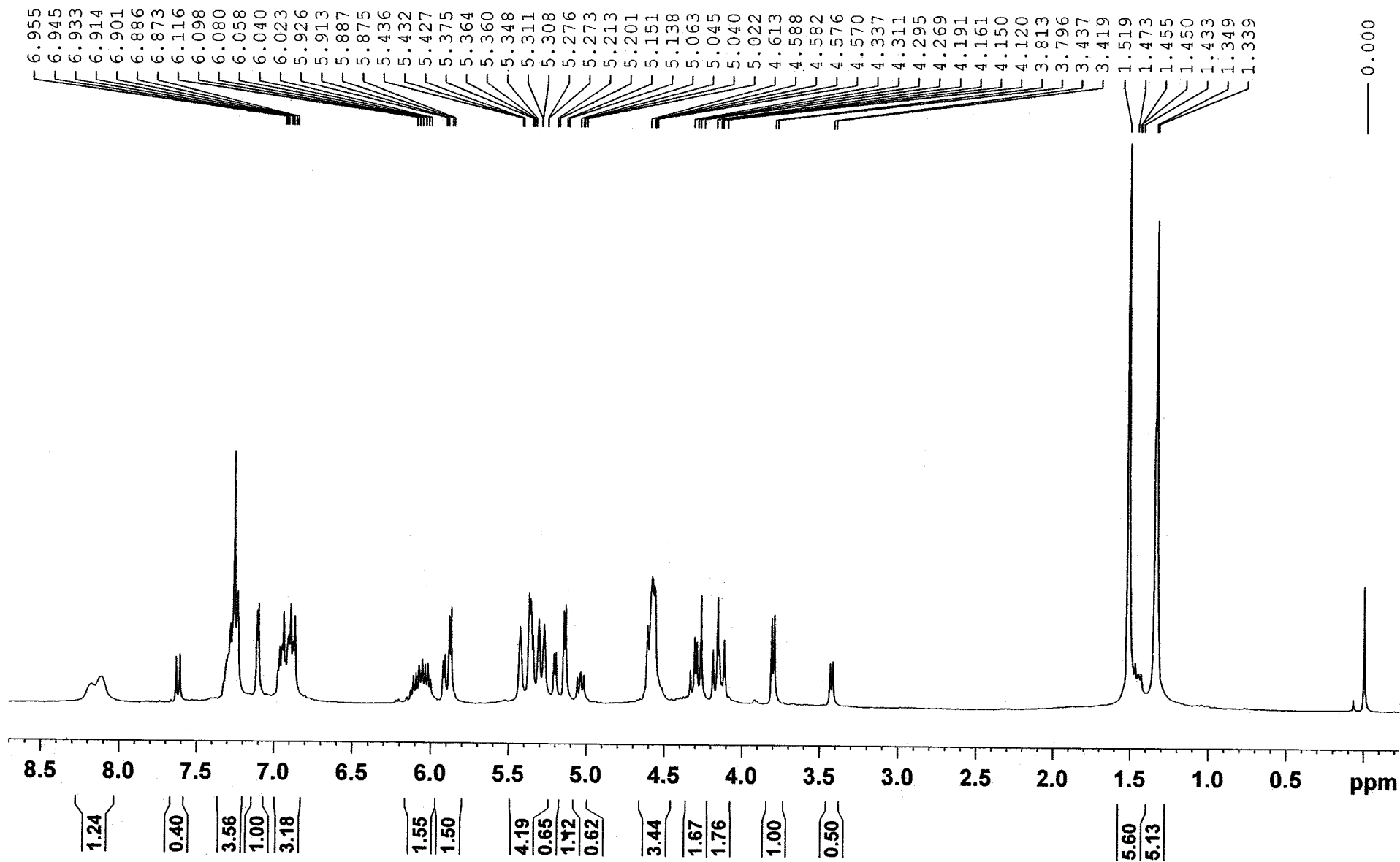
¹H NMR spectrum (CDCl₃, 600 MHz) of **19**



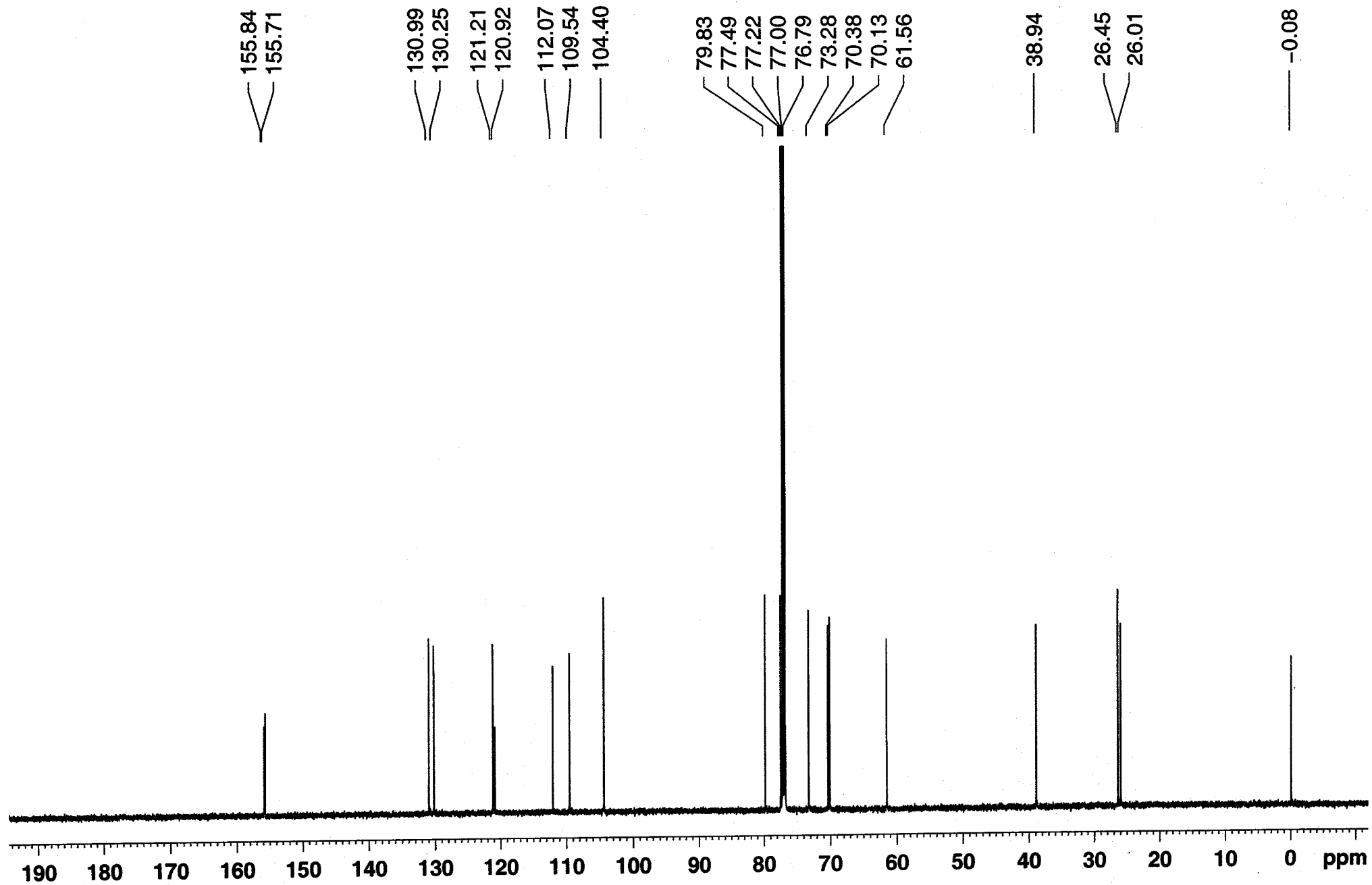
¹³C NMR spectrum (CDCl₃, 75 MHz) of 21



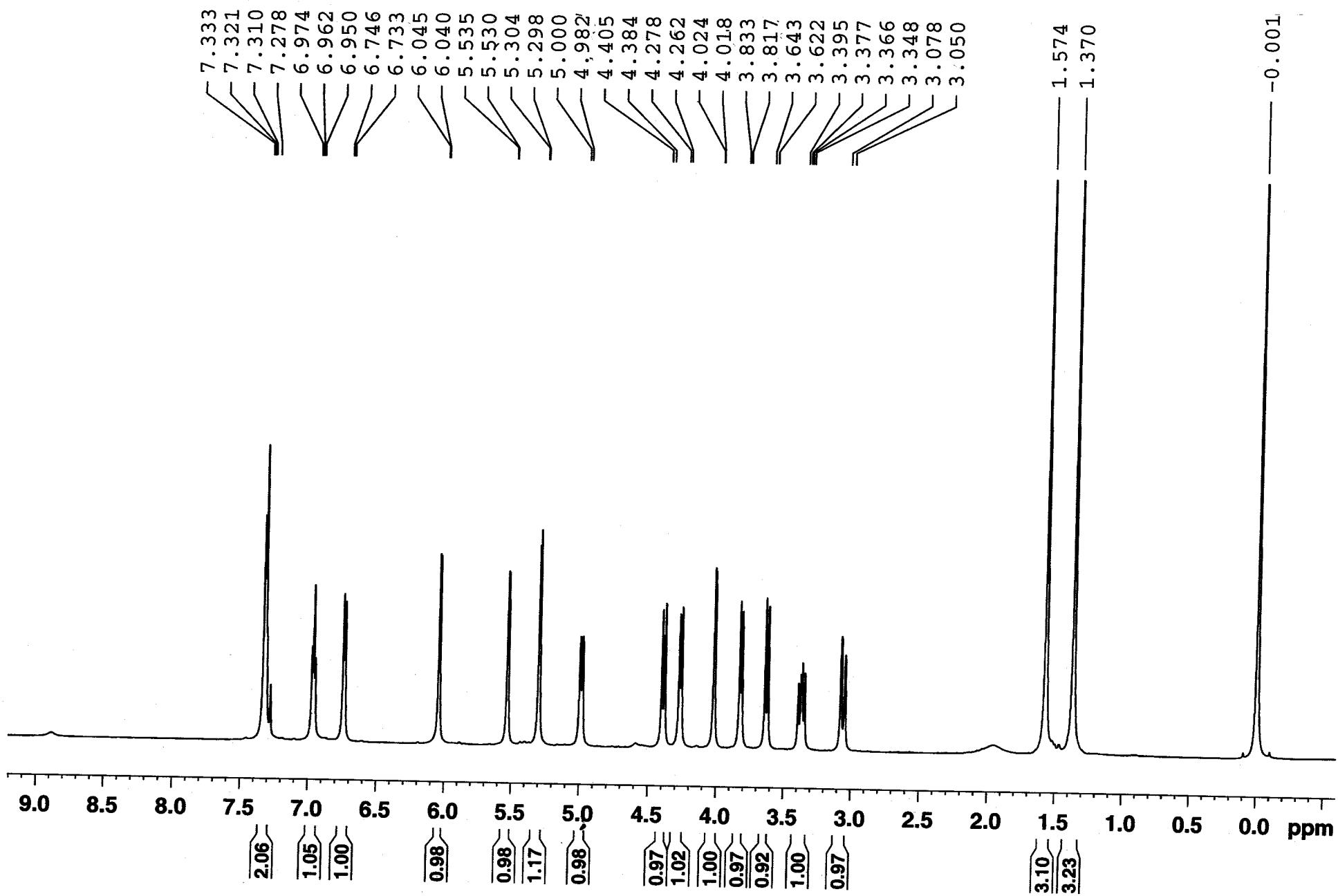
¹H NMR spectrum (CDCl₃, 300 MHz) of **21**

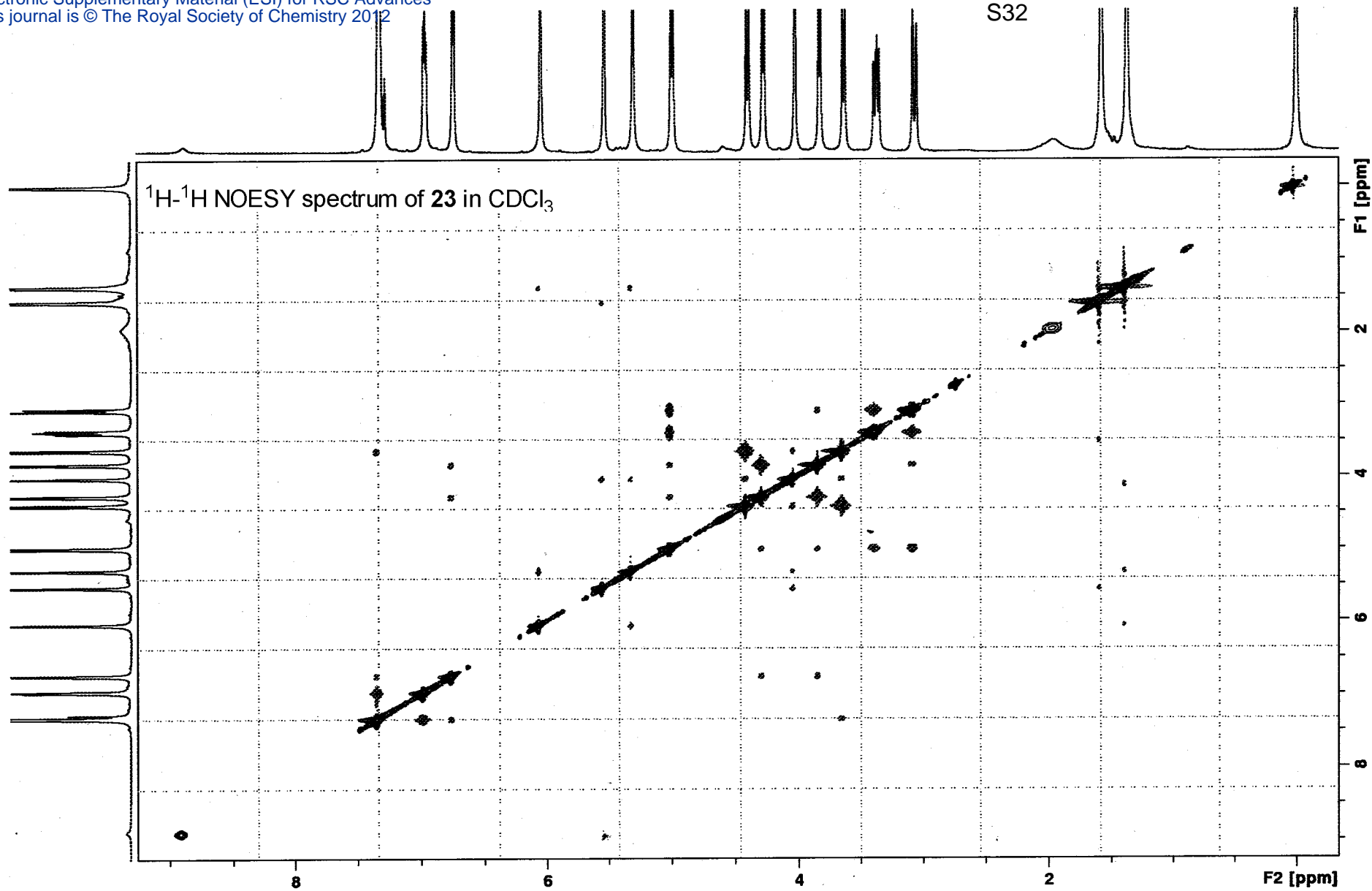


^{13}C NMR spectrum (CDCl_3 , 150 MHz) of **23**

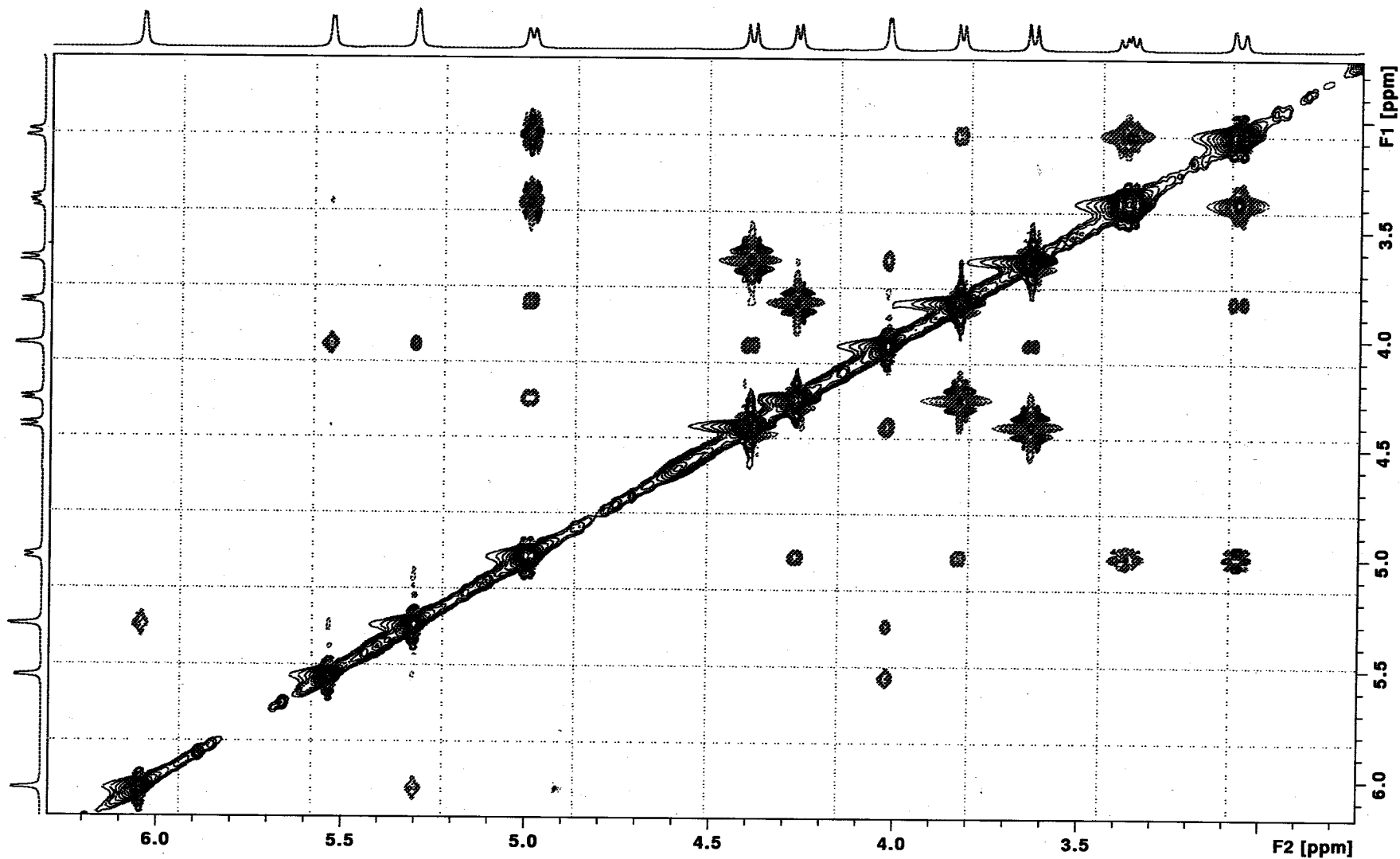


^1H NMR spectrum (CDCl_3 , 600 MHz) of **23**

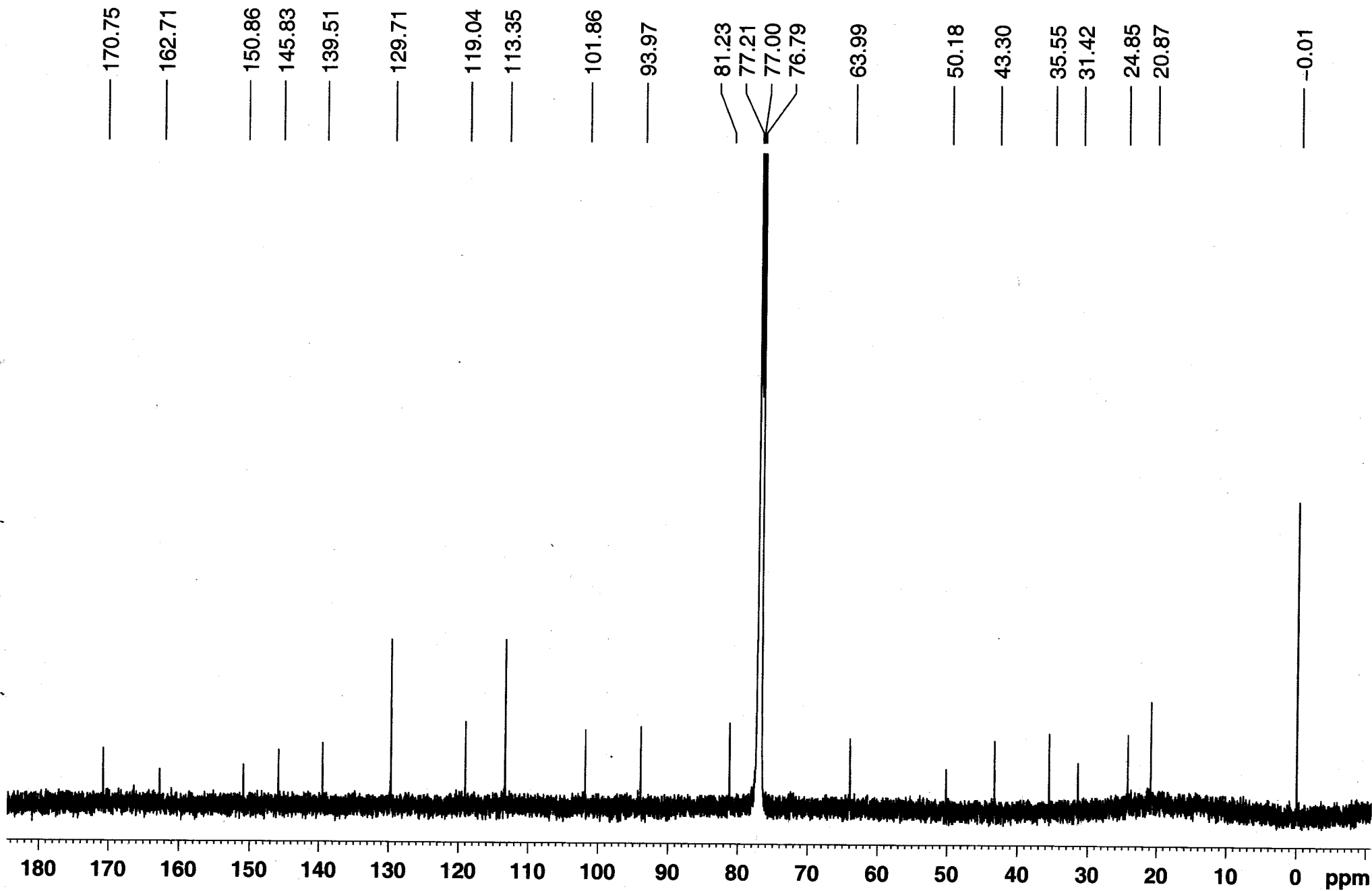




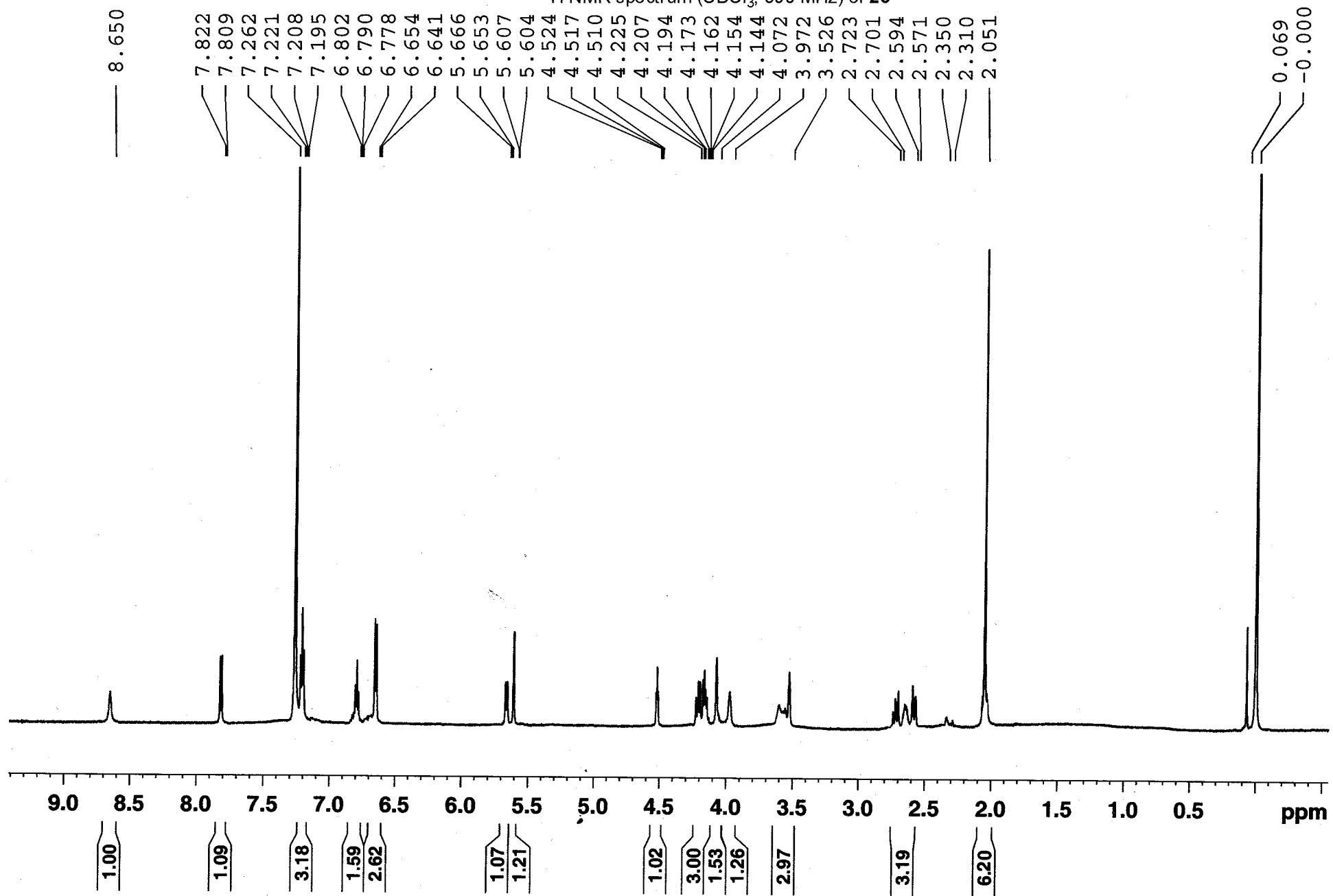
^1H - ^1H NOESY expanded spectrum of **23** in CDCl_3



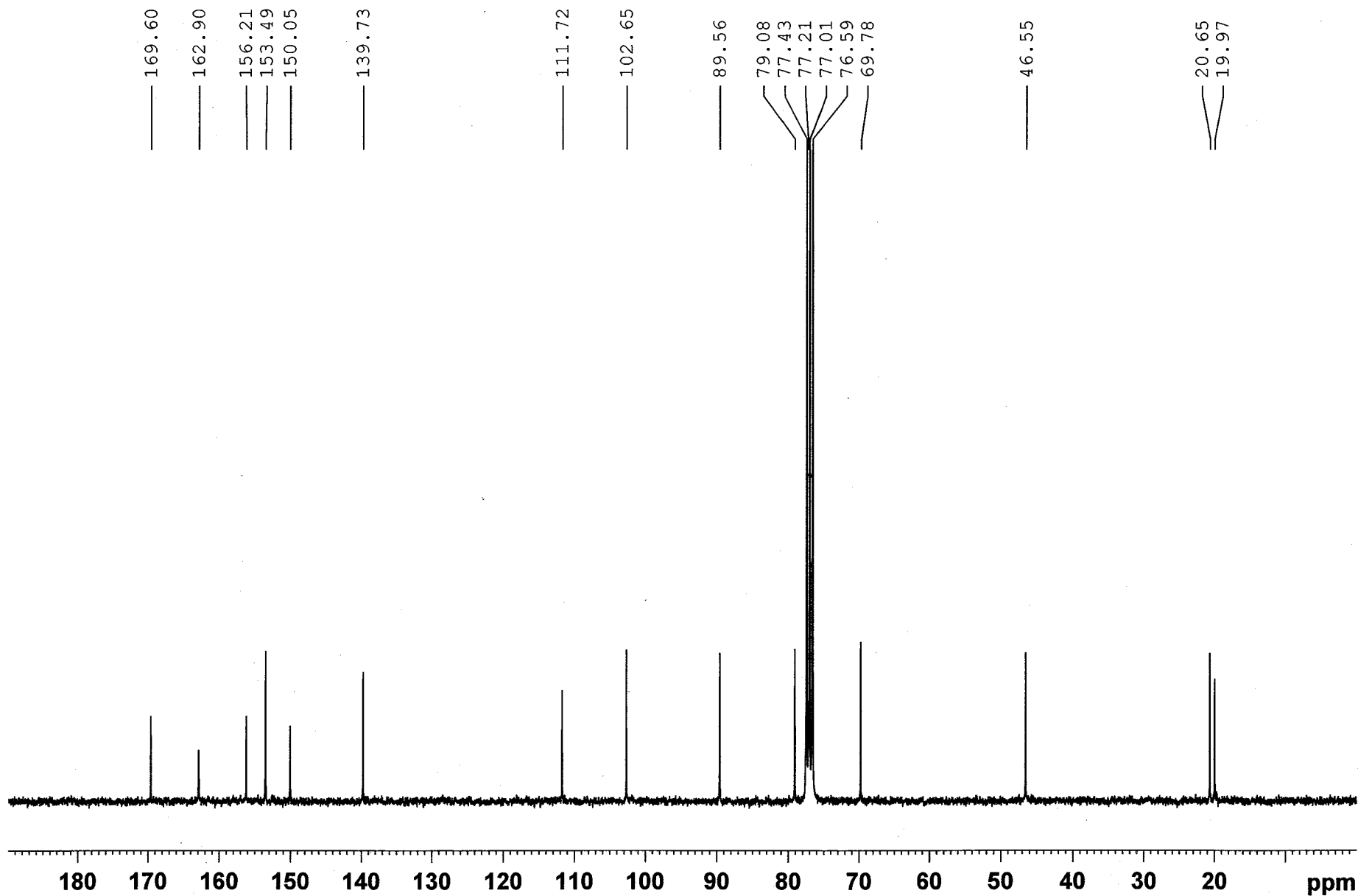
¹³C NMR of spectrum (CDCl₃, 150 MHz) of 25



¹H NMR spectrum (CDCl₃, 600 MHz) of **25**



^{13}C NMR spectrum (CDCl_3 , 75 MHz) of **27**



^1H NMR spectrum (CDCl_3 , 300 MHz) of **27**

