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P.A. *Josef Palacios*

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7. ESPECTROS

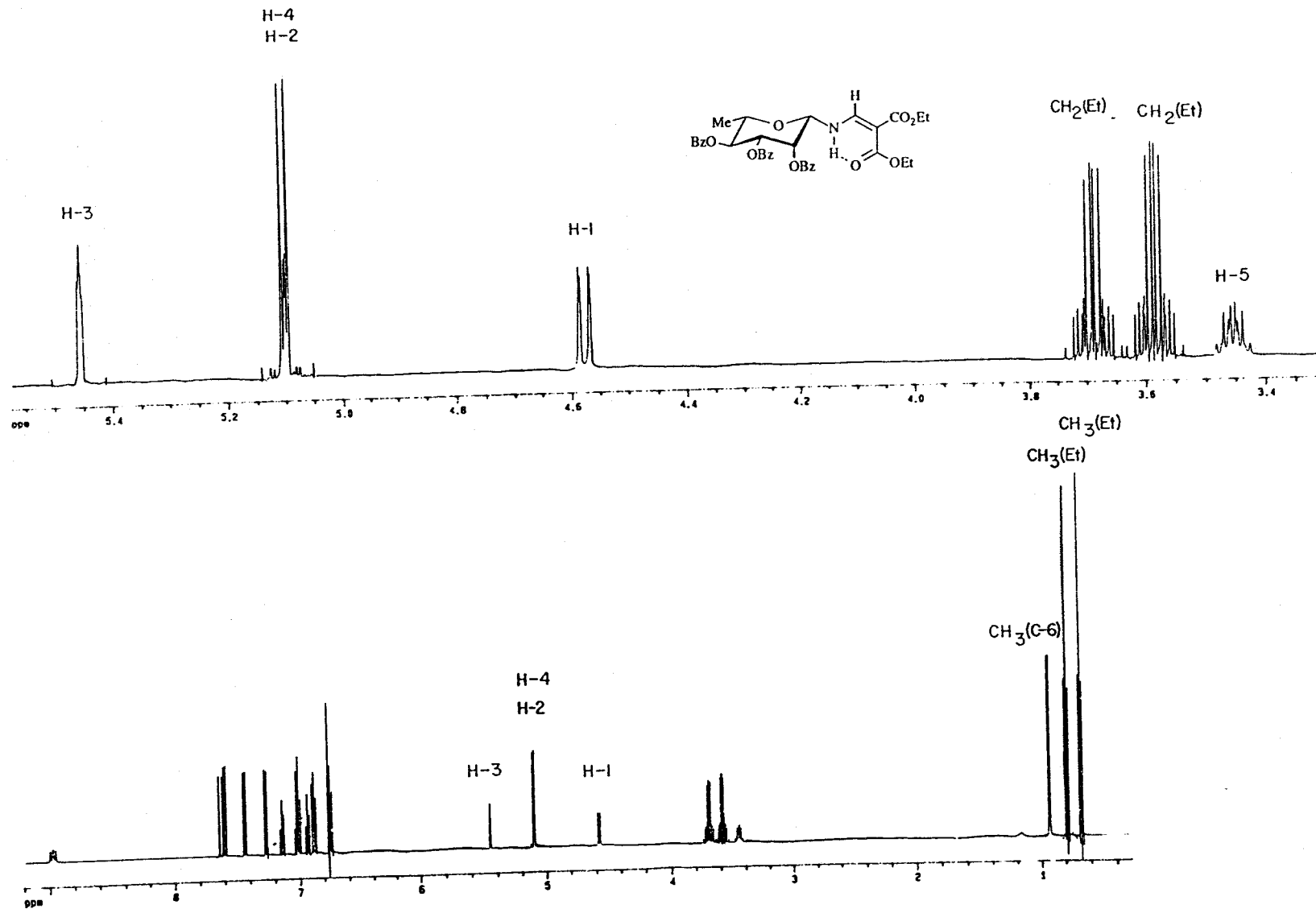


Figura 1. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de 2,3,4-tri-*O*-benzoyl-*N*-(2,2-diethoxycarbonylvinil)-β-L-ramnopiranosilamina (70).

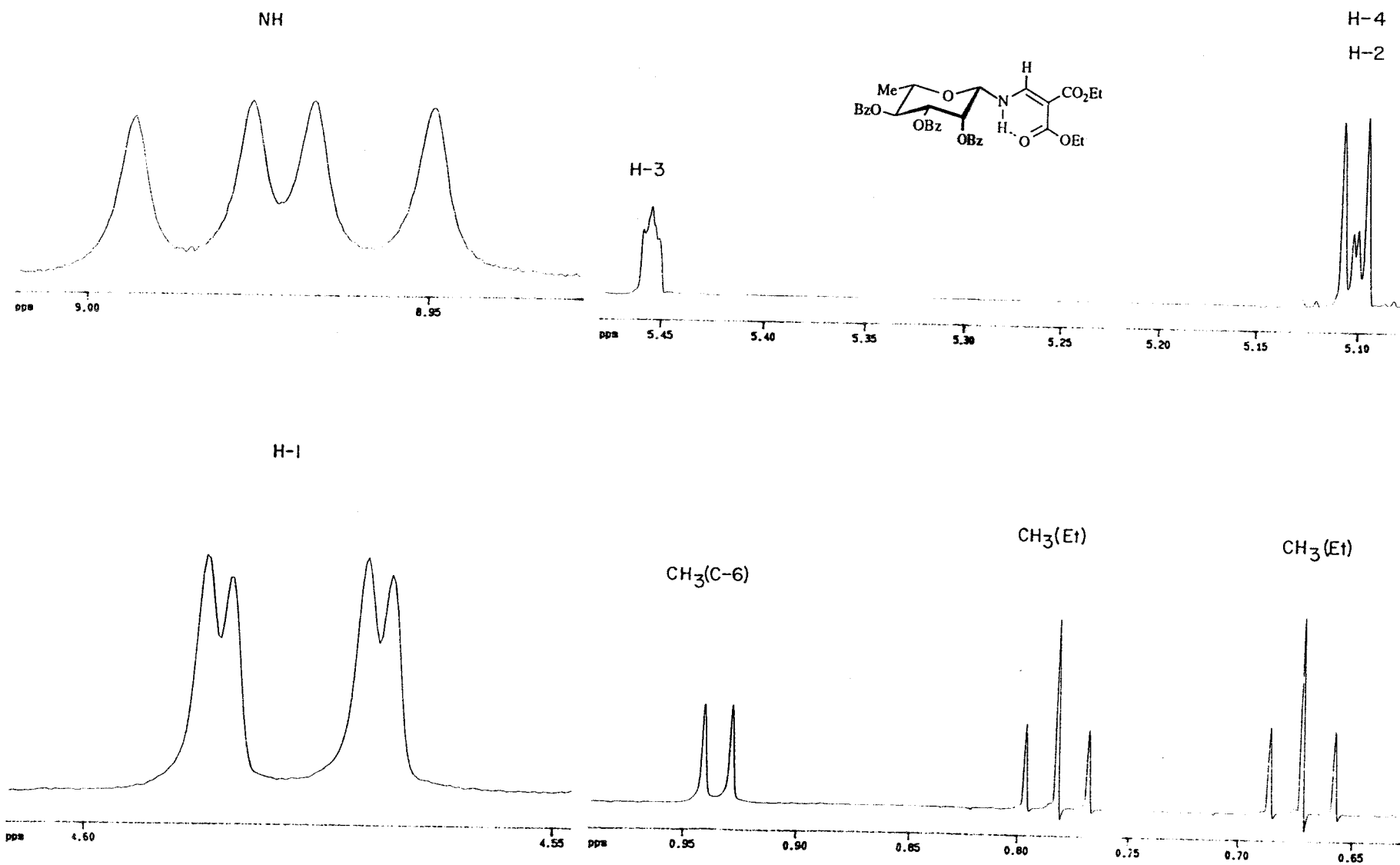


Figura 2. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de 2,3,4 -tri-*O*-benzoil-*N*-(2,2-dietoxicarbonilvinil)- β -L-ranopiranosilamina (70). Ampliación.

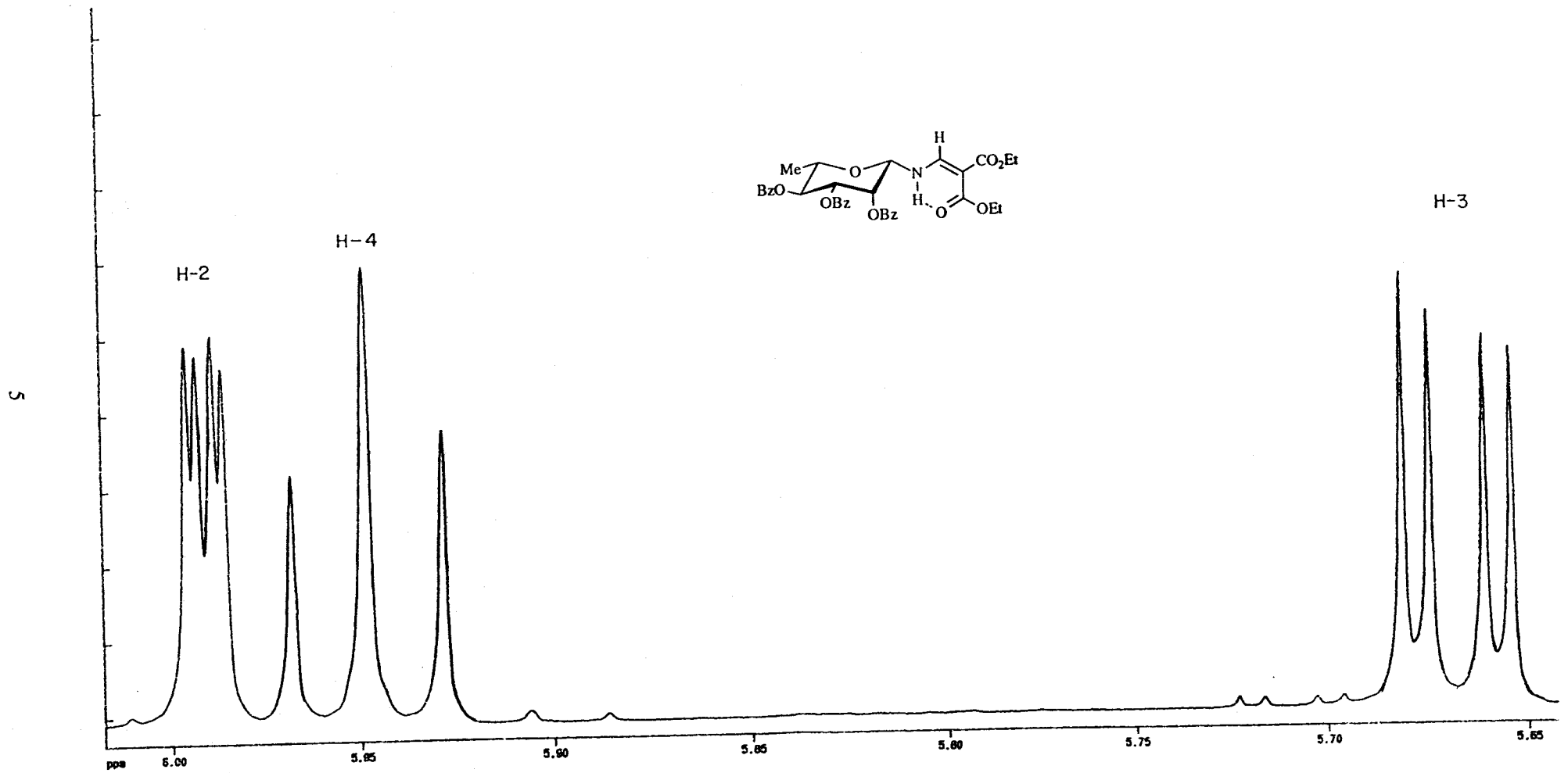


Figura 3. Espectro de $^1\text{H-RMN}$ a 500 MHz en C_6D_6 de 2,3,4 -tri-*O*-benzoil-*N*-(2,2-diethoxycarbonilvinil)- β -L-ramnopiranosilamina (**70**).

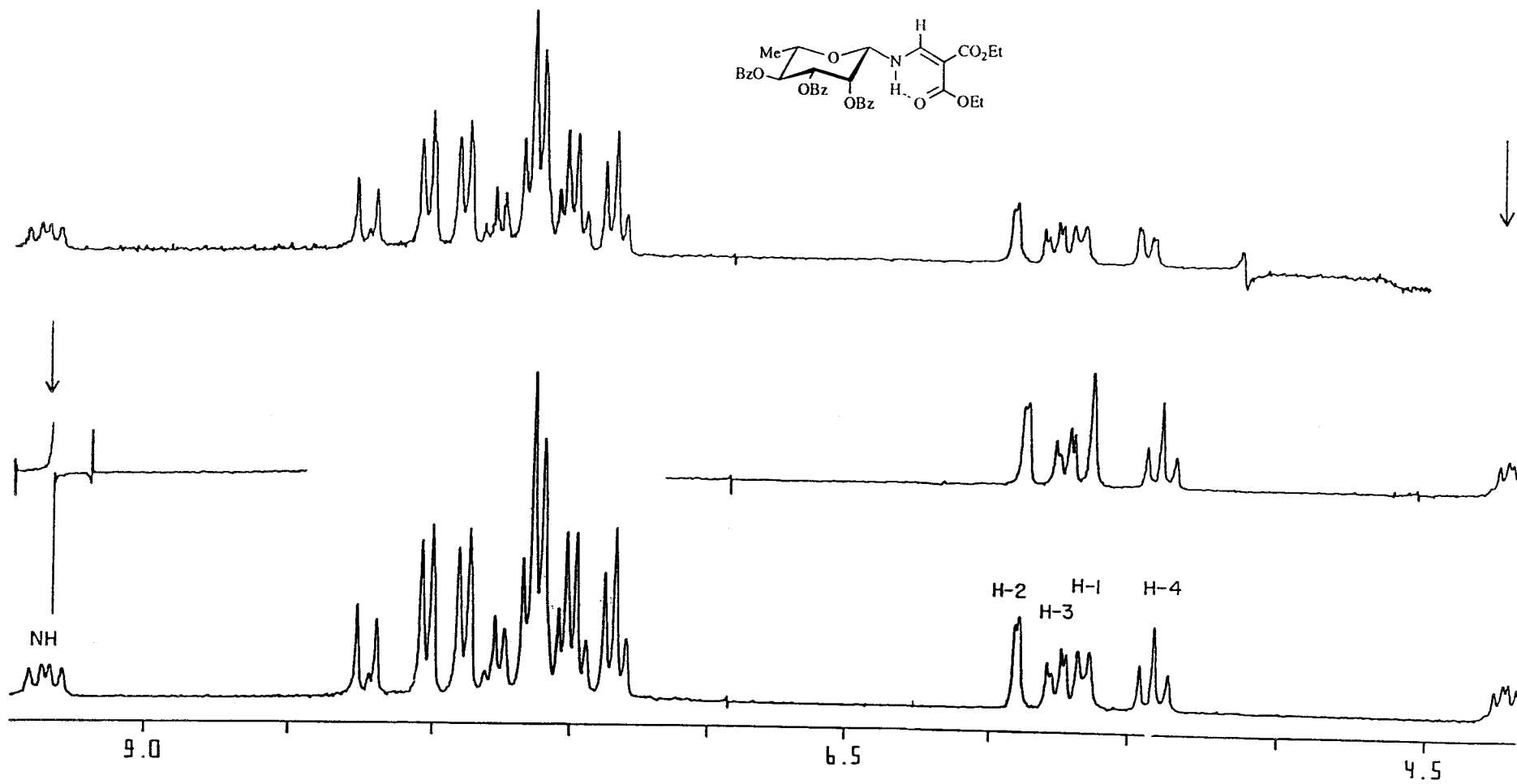


Figura 4. Espectro de ¹H-RMN a 200 MHz en DMSO-*d*₆ de 2,3,4 -tri-*O*-benzoil-*N*-(2,2-diétoxicarbonilvinil)-β-*L*-ramnopiranosilamina (70).

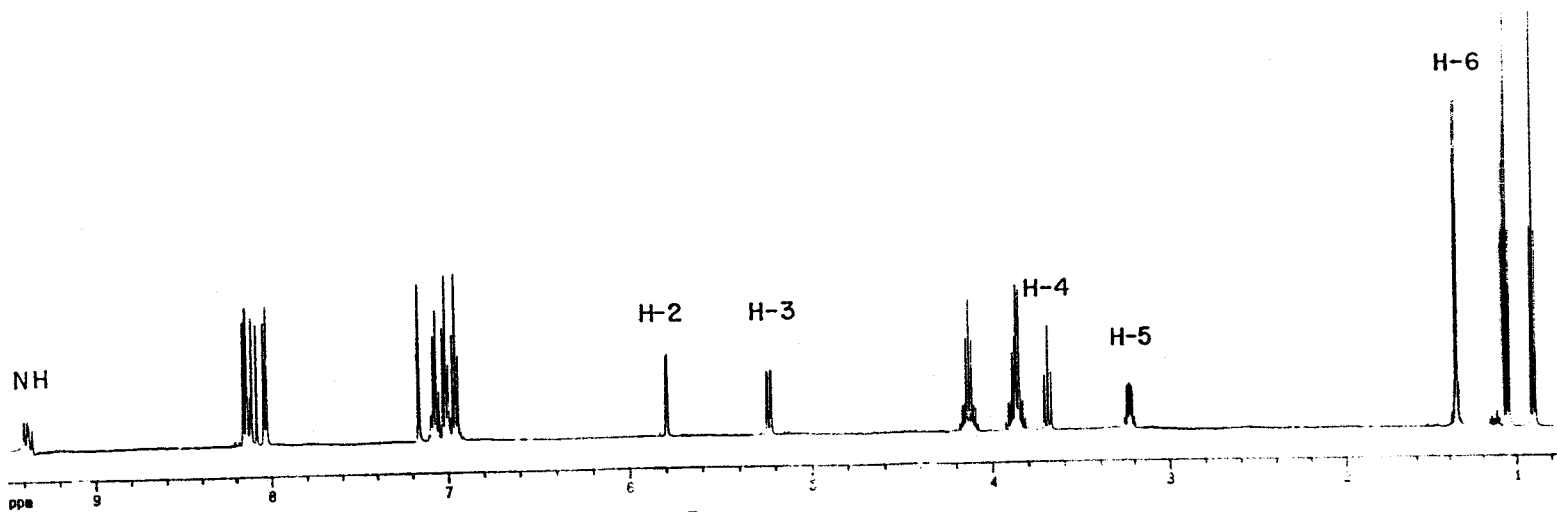
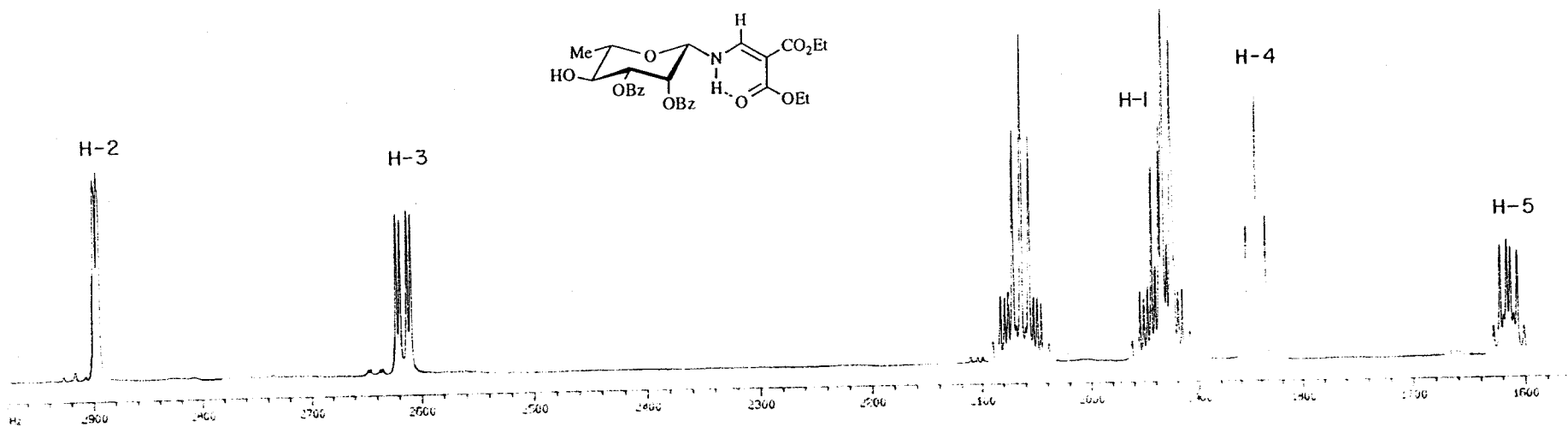


Figura 5. Espectro de $^1\text{H-RMN}$ a 500 MHz en C_6D_6 de 2,3-di-*O*-benzoil-*N*-(2,2-diétoxicarbonilvinil)- β -L-ranopiranosilamina (71).

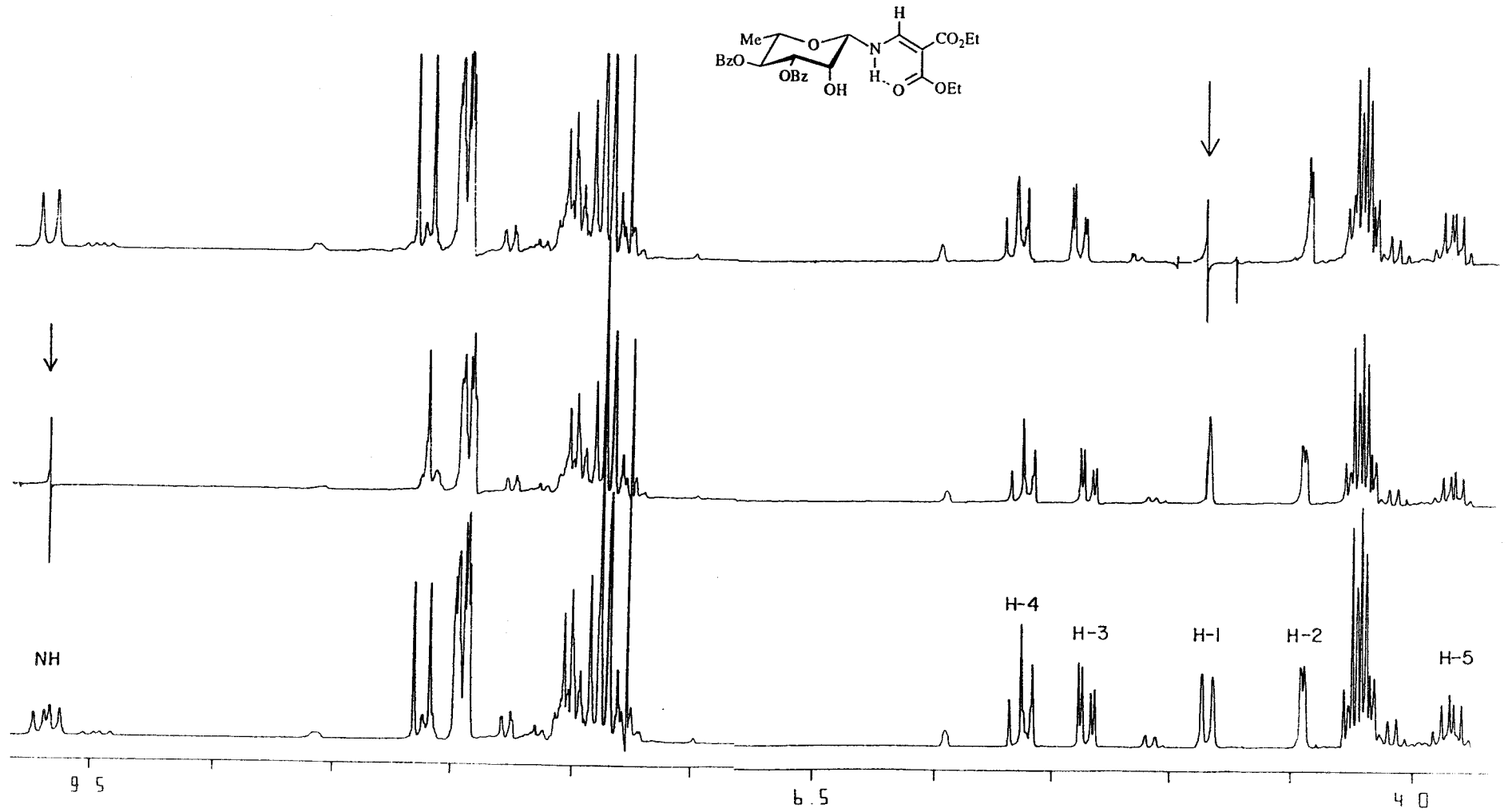


Figura 6. Espectro de $^1\text{H-RMN}$ a 200 MHz en Cl_3CD de 3,4-di-O-benzoil-N-(2,2-dietoxycarbonilvinil)-β-L-ramnopyranosilamina (72). Irradiaciones.

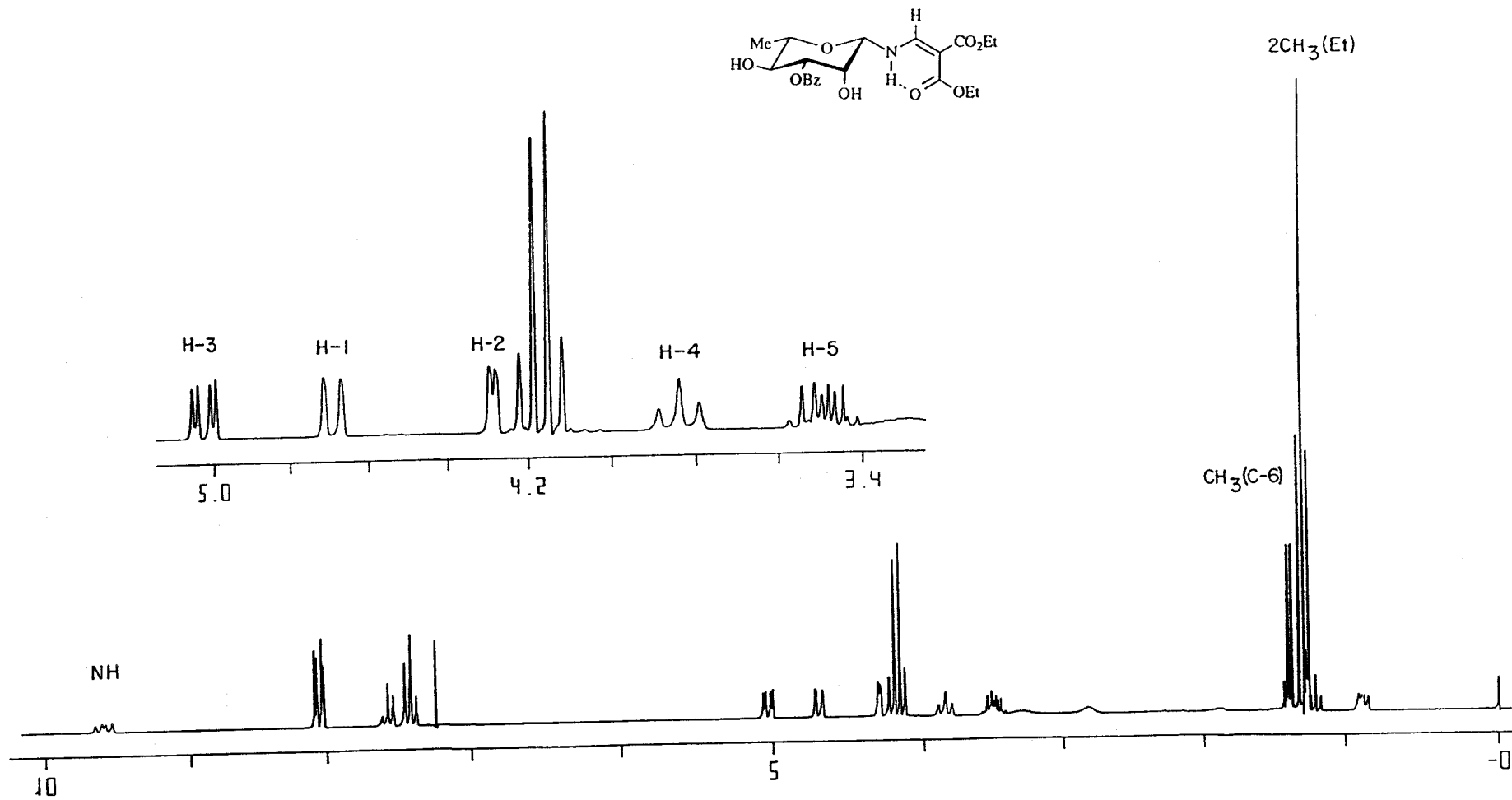


Figura 7. Espectro de $^1\text{H-RMN}$ a 200 MHz en Cl_3CD de 3-O-benzoyl-N-(2,2-diethoxyacryloyl)- β -L-rhamnopyranosilamina (73).

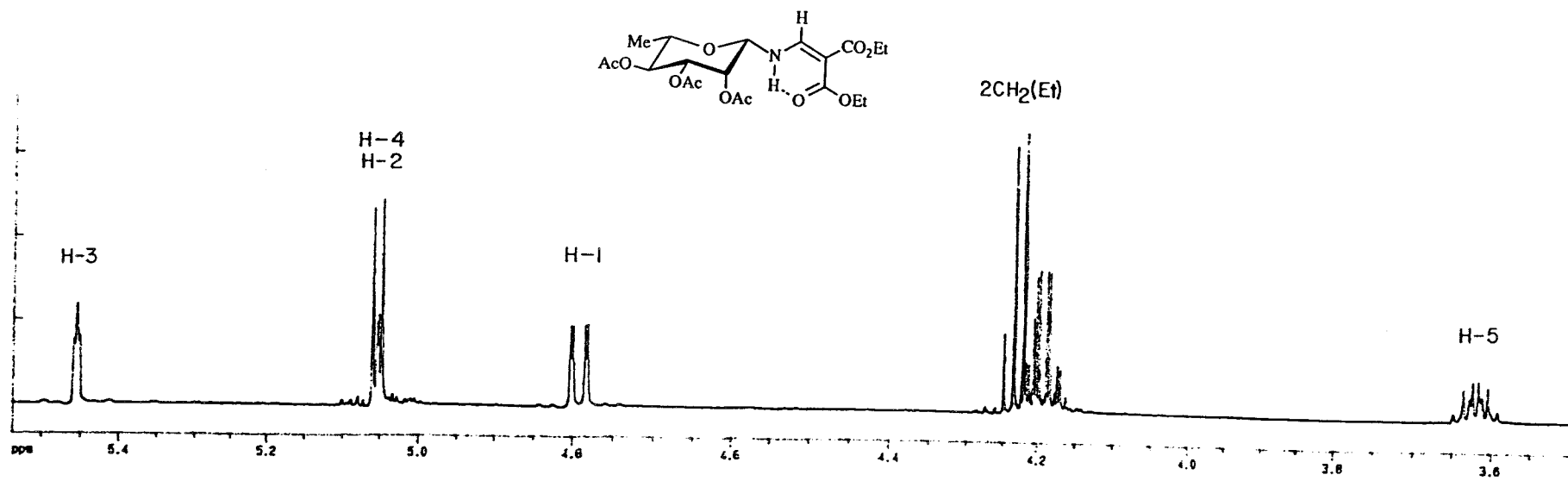


Figura 8. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de 2,3,4-tri-O-acetil-N-(2,2-dietoxycarbonilvinil)-β-L-ramnopyranosilamina (74).

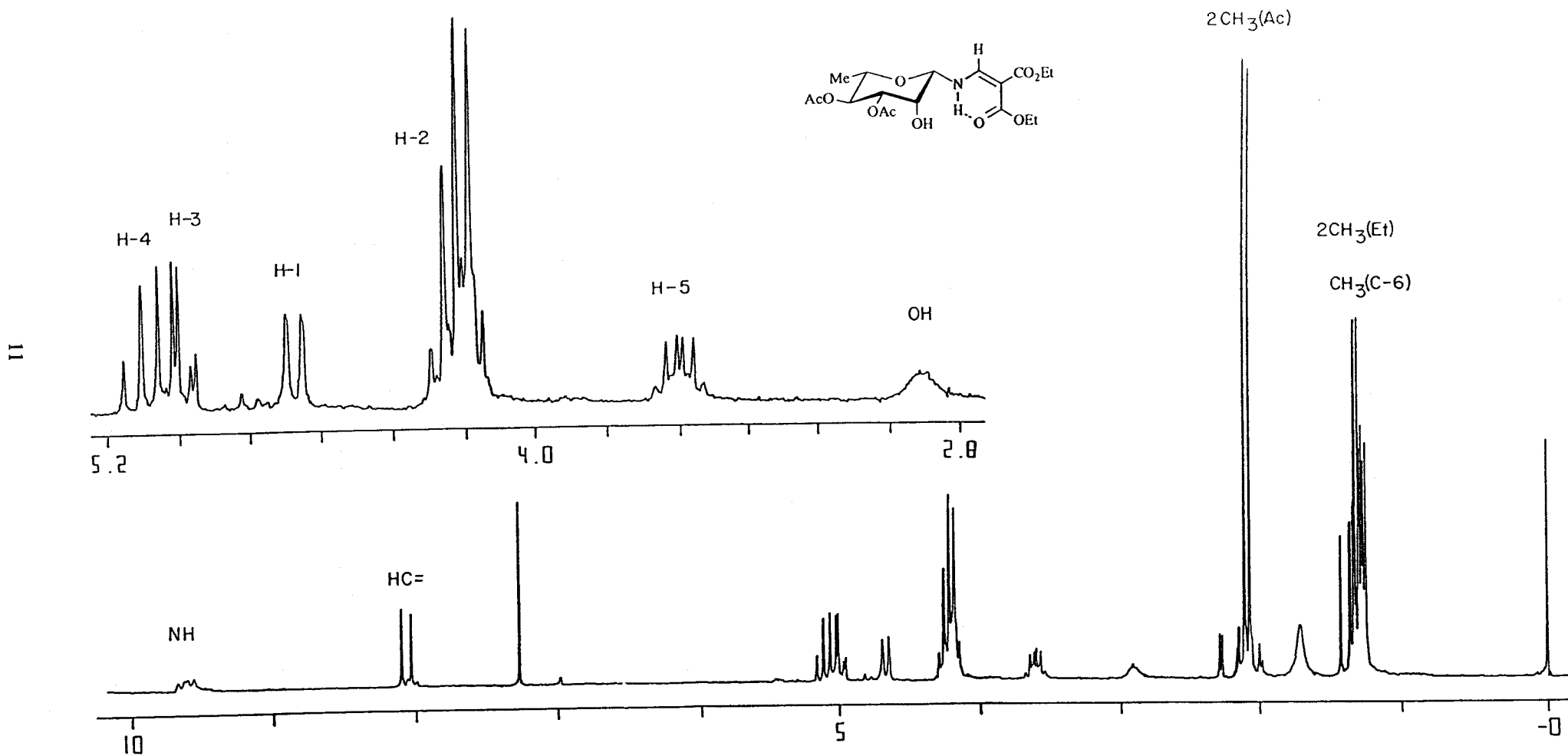


Figura 9. Espectro de ¹H-RMN a 200 MHz en Cl₃CD de 3,4-di-O-acetil-N-(2,2-diethoxycarbonilvinil)-β-L-ramnopiranosilamina (87).

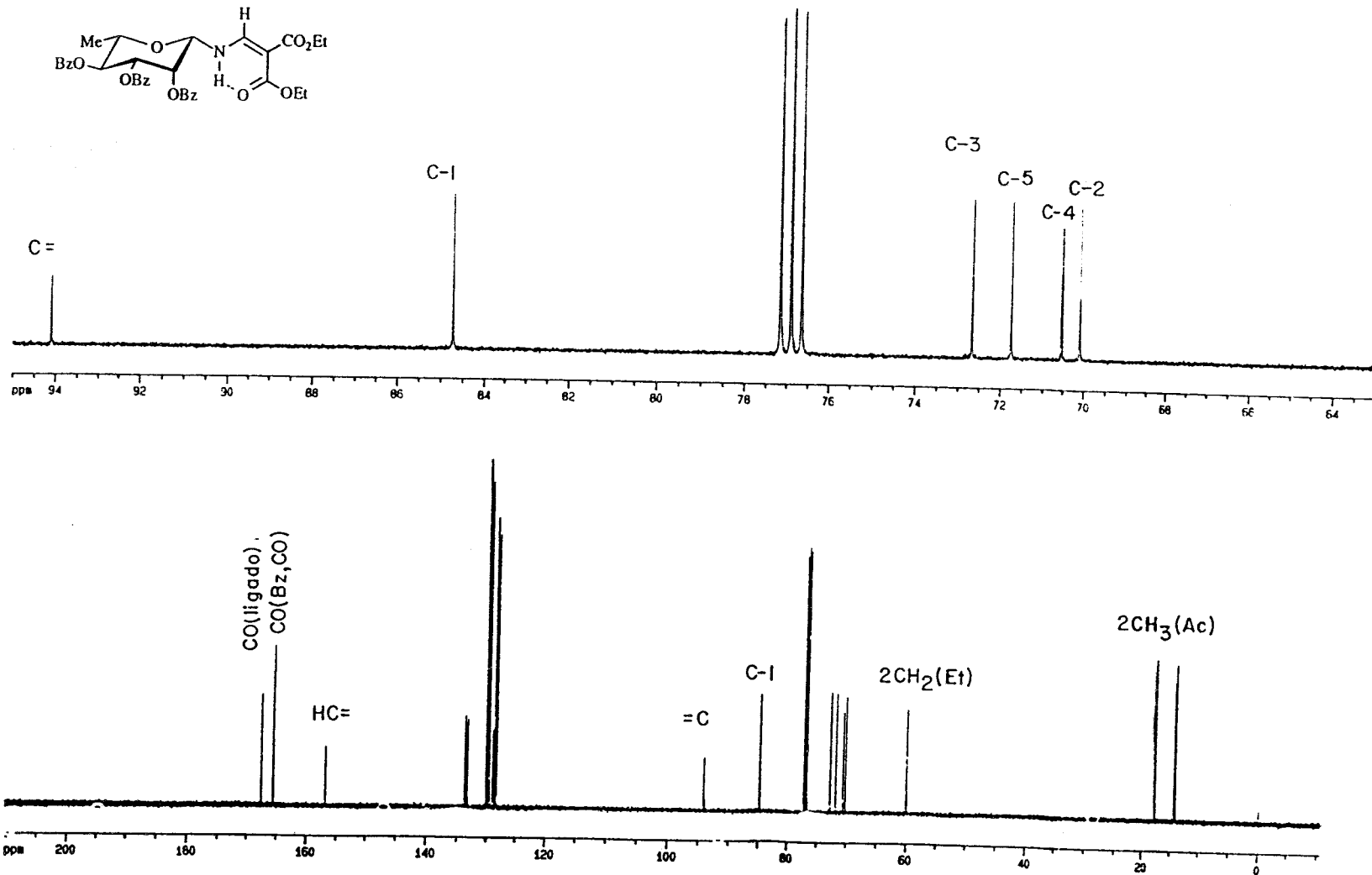


Figura 12. Espectro de ¹³C-RMN a 125,7 MHz en Cl₃CD de 2,3,4,-tri-*O*-benzoil-*N*-(2,2-diethoxycarbonilvinil)-β-*L*-ramnopiranosilamina (70).

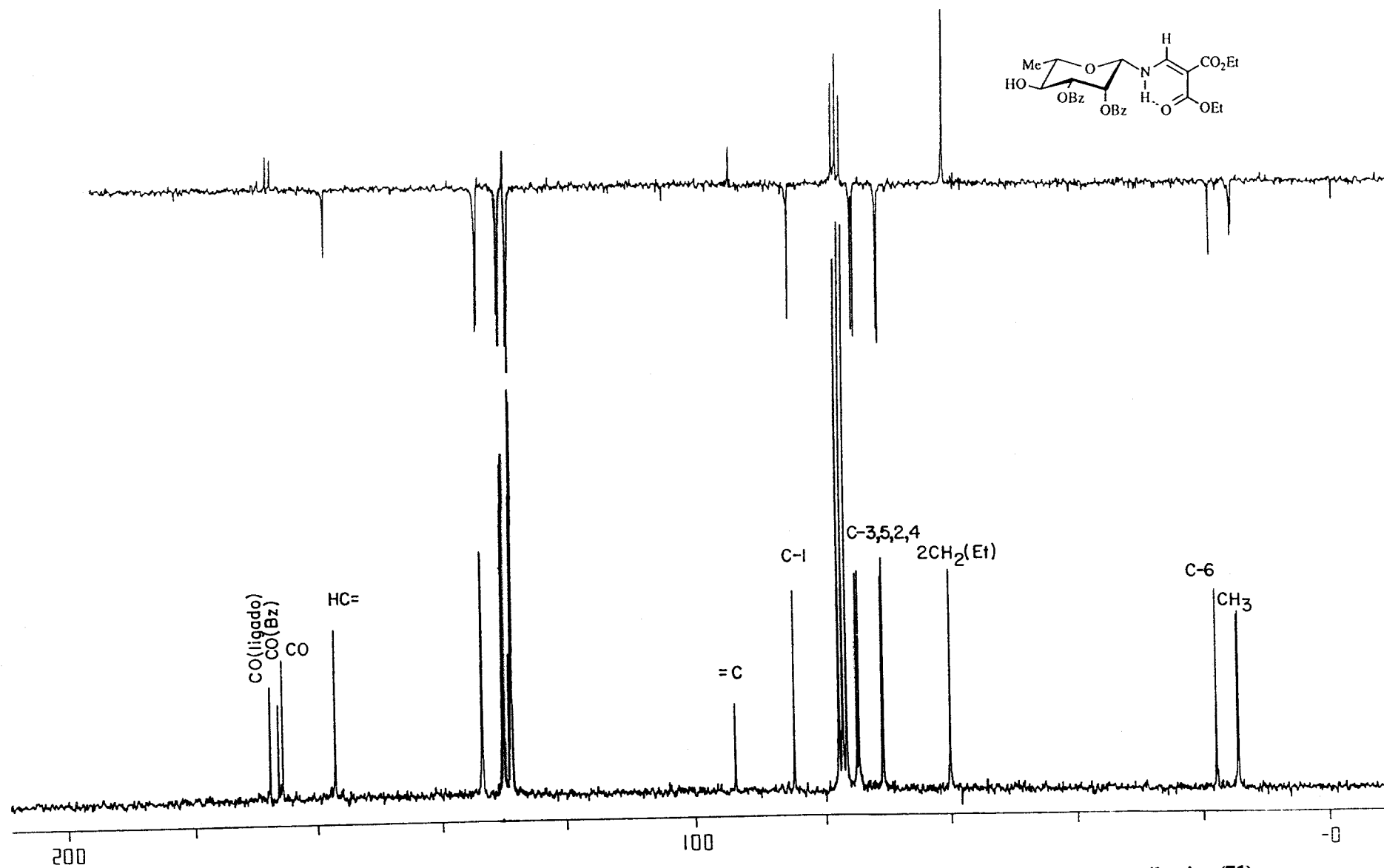


Figura 13. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 2,3-di-O-benzoil-N-(2,2-dietoxycarbonilvinil)-β-L-ranopiranosilamina (71).

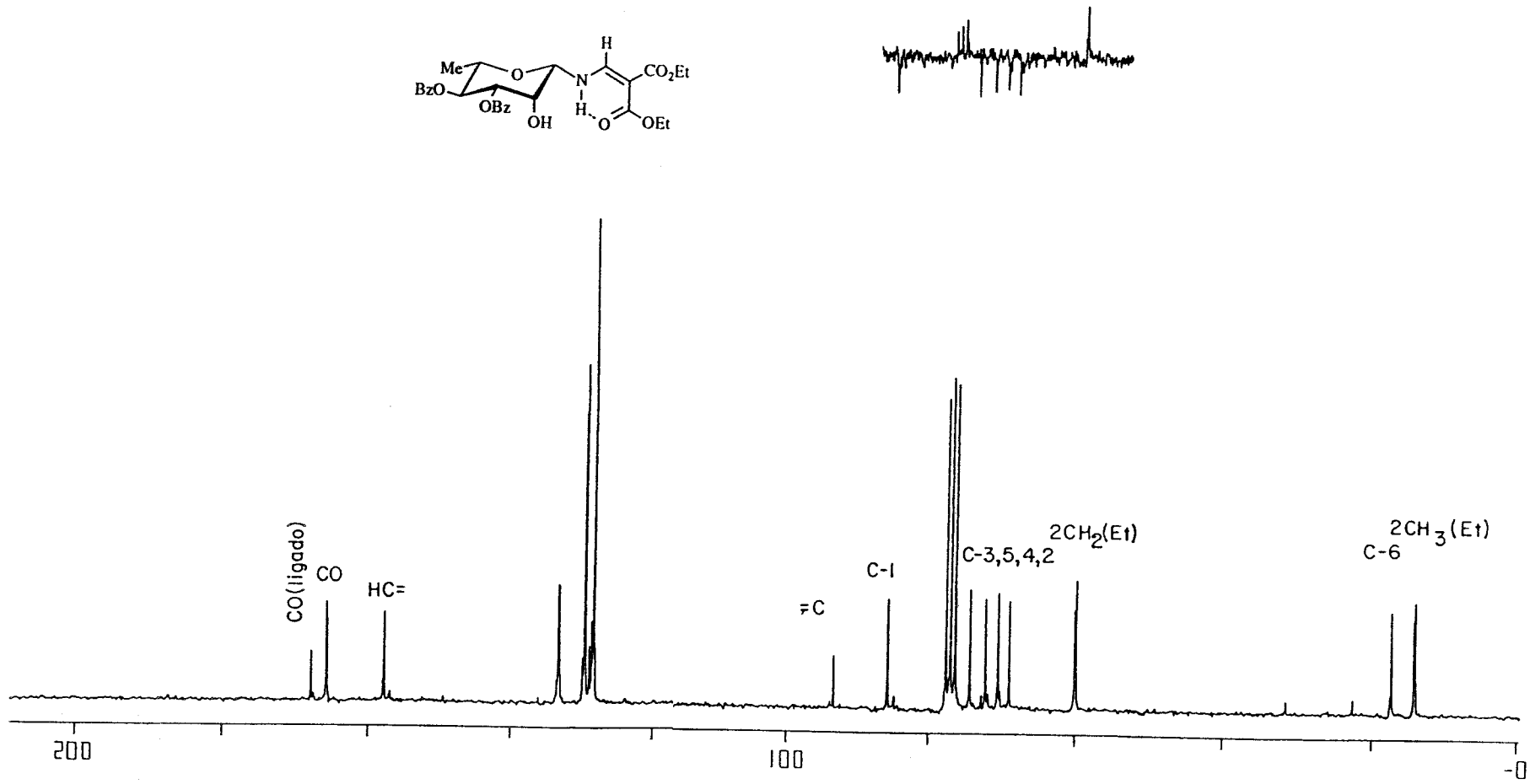


Figura 14. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 3,4-di-*O*-benzoil-*N*-(2,2-diethoxycarbonilvinil)-β-*L*-ramnopiranosilamina (72).

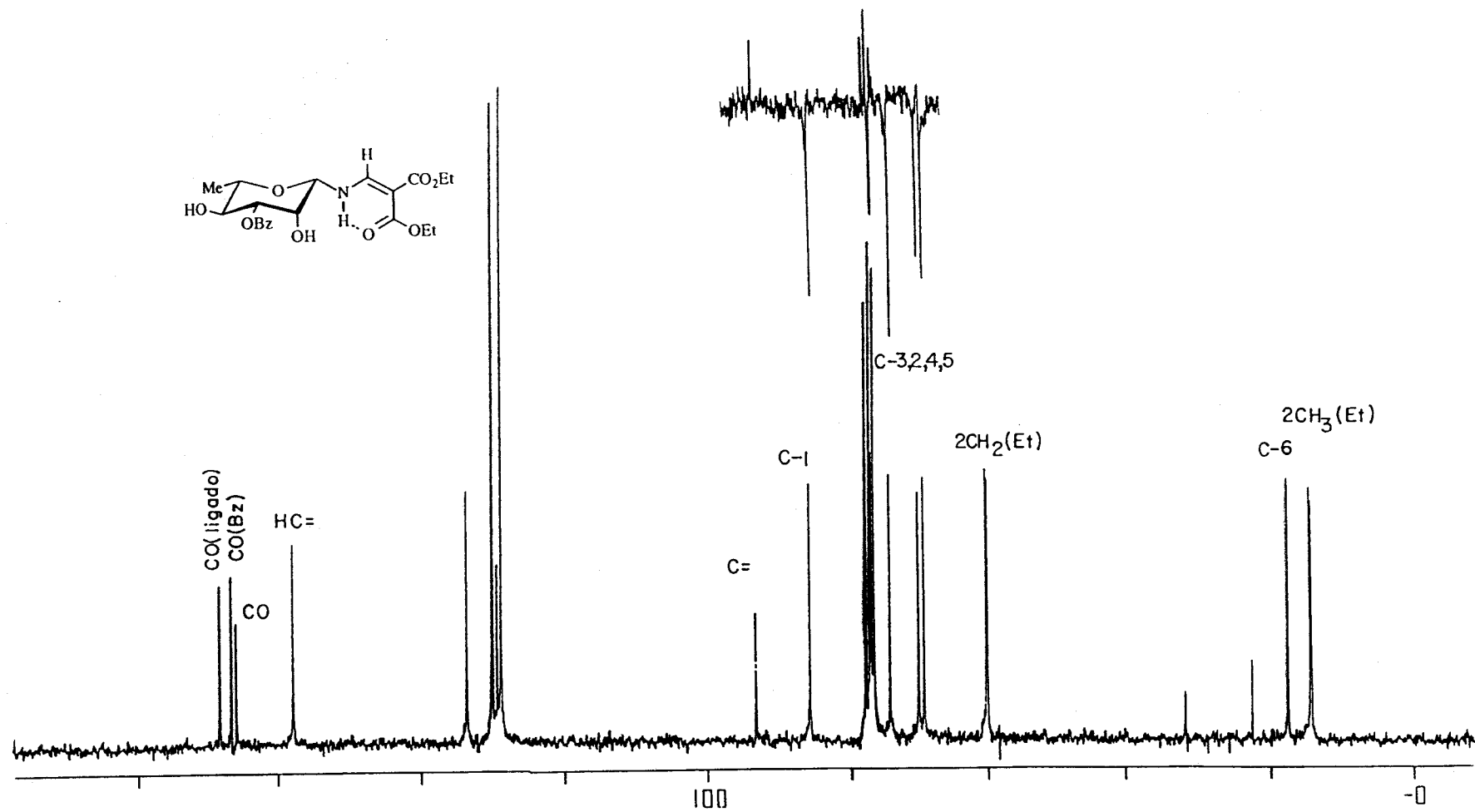


Figura 15. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 3-O-benzoyl-N-(2,2-diethoxyacetyl)- β -L-ramnopiranosilamina (73).

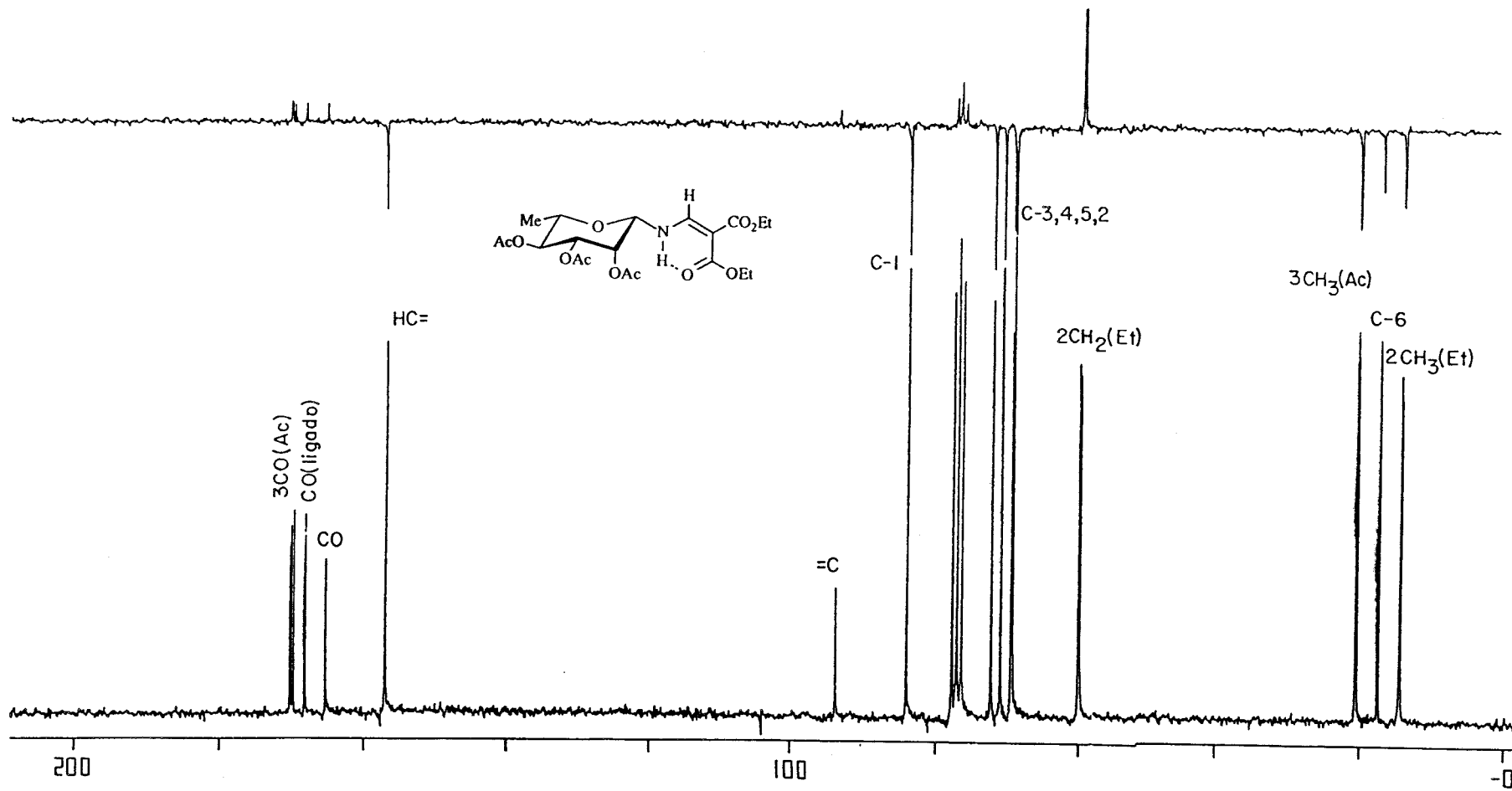


Figura 16. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 2,3,4-tri-*O*-acetil-*N*-(2,2-dietoxycarbonilvinil)-β-*L*-ranopiranosilamina (74).

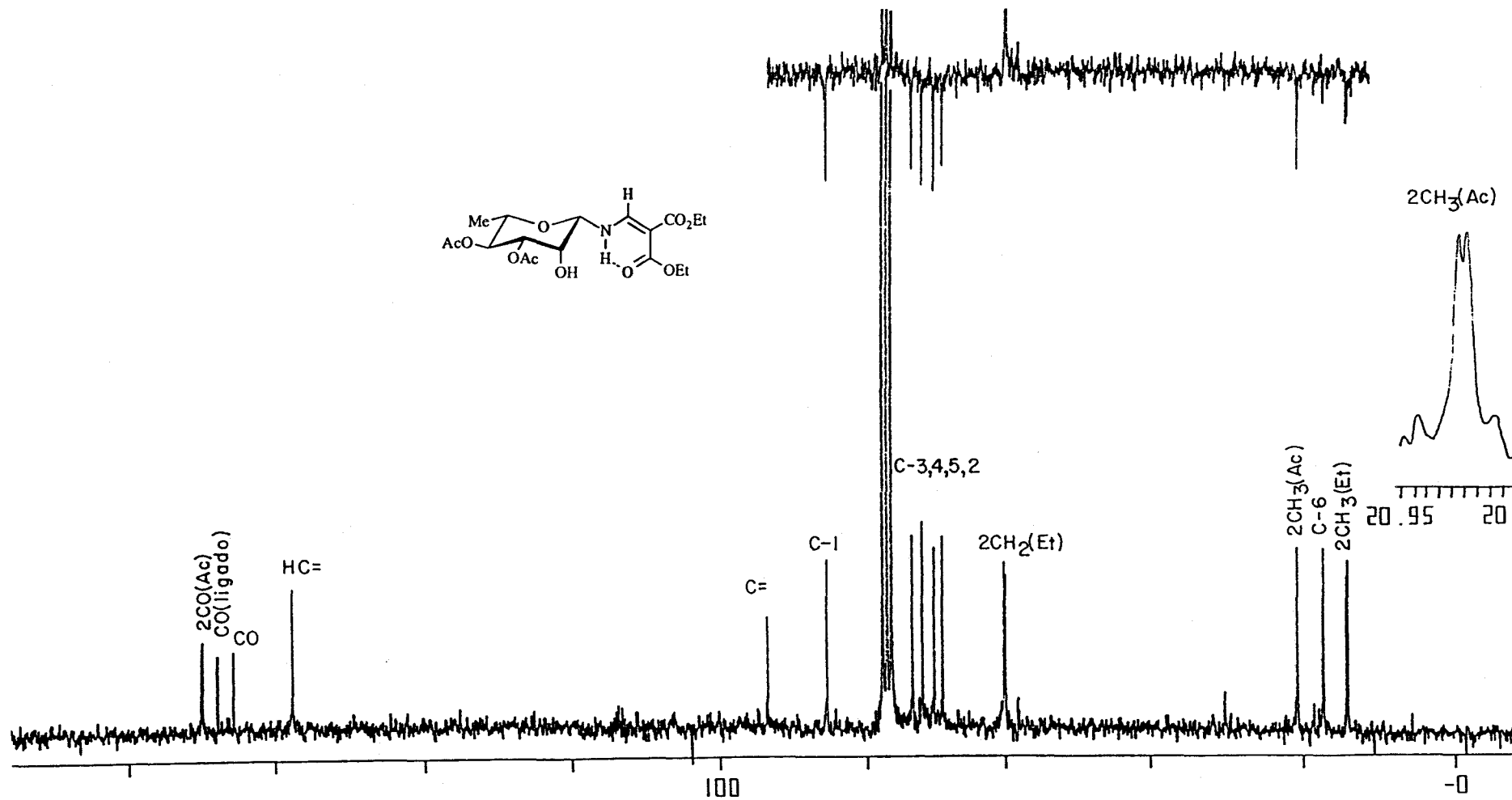


Figura 17. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 3,4-di-O-acetil-N-(2,2-dietoxycarbonilvinil)- β -L-ranopiranosilamina (87).

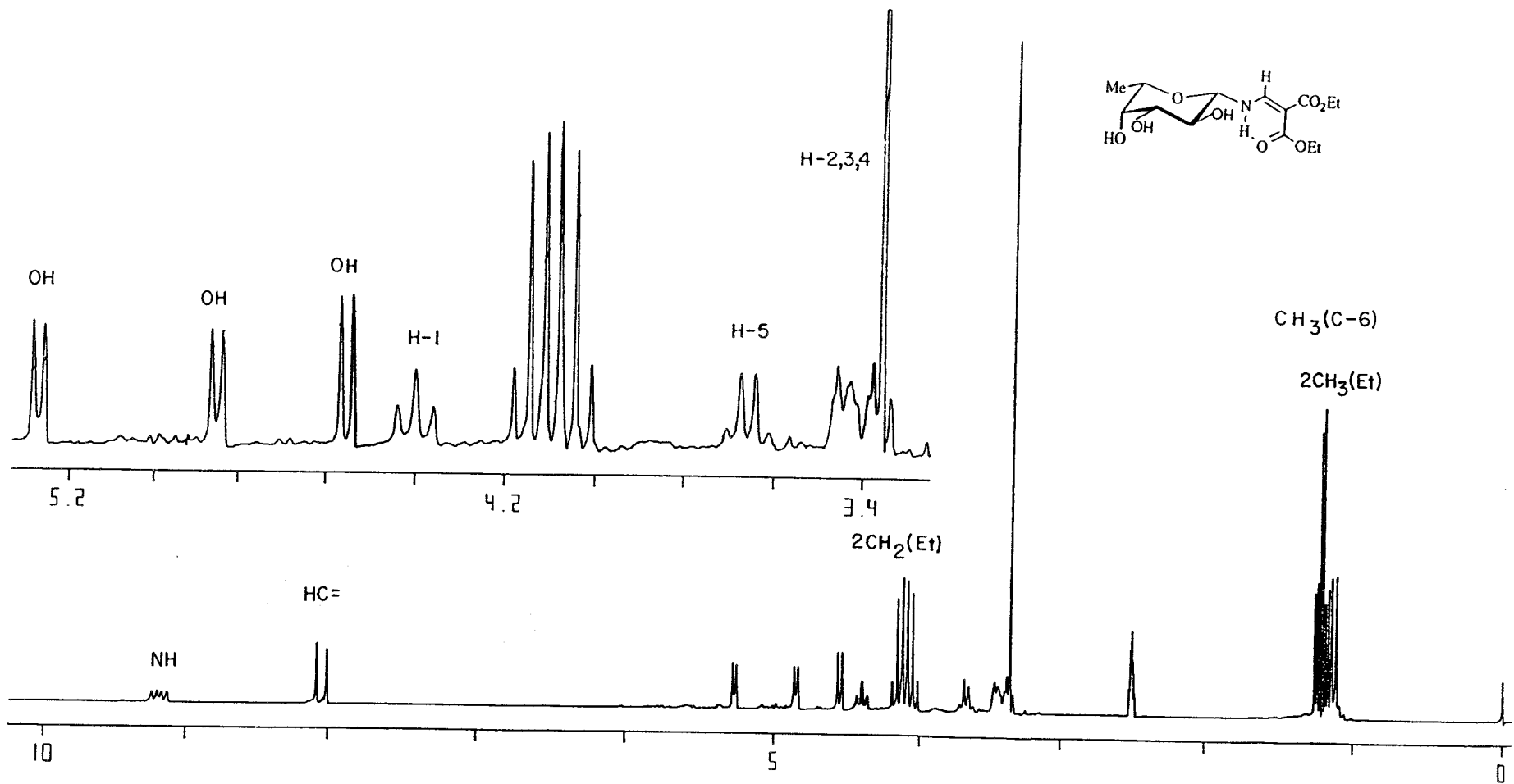


Figura 18. Espectro de ¹H-RMN a 200 MHz en DMSO-*d*₆ de *N*-(2,2-diethoxycarbonilvinil)-β-*L*-fucopiranosilamina (89).

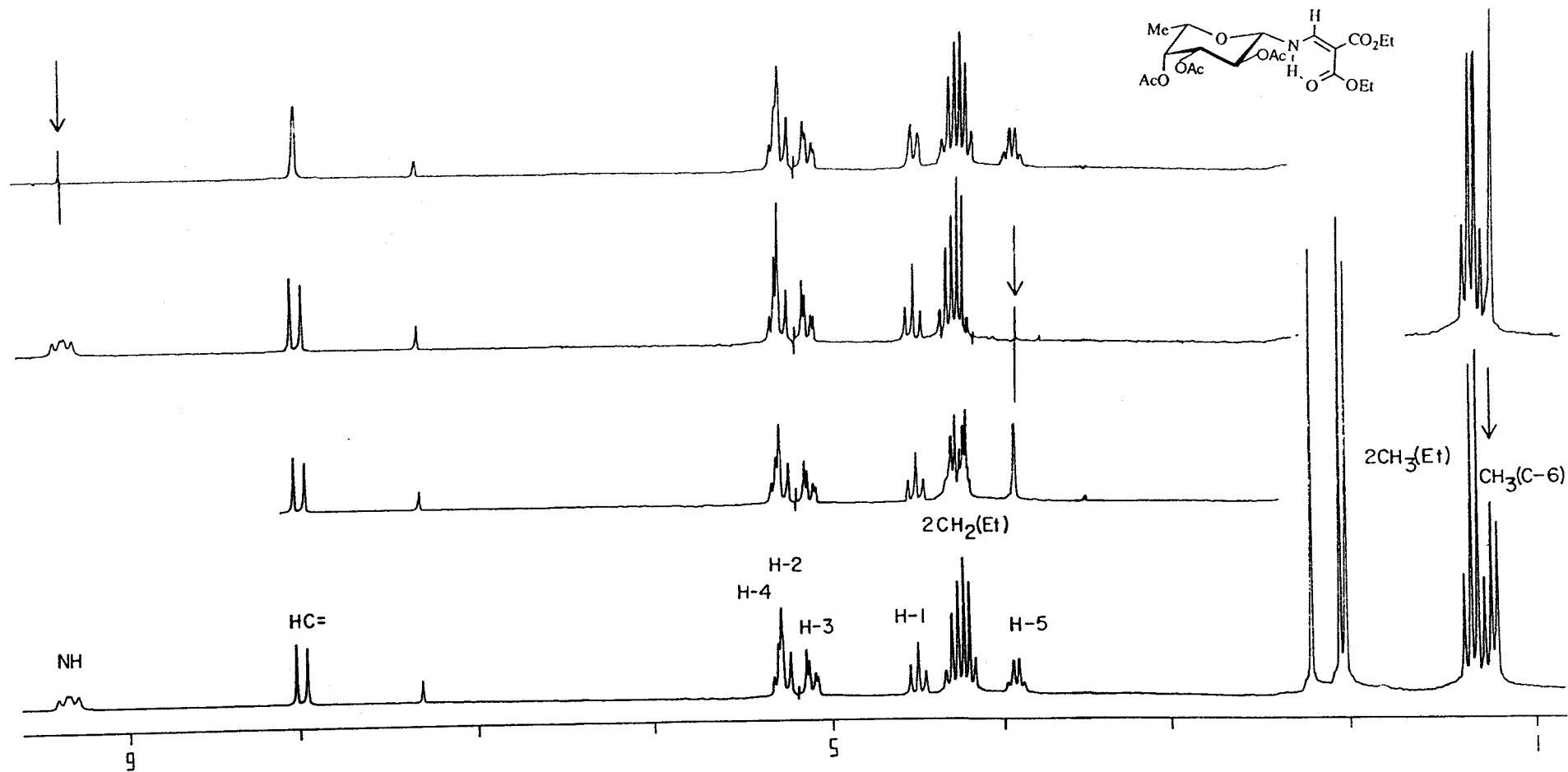


Figura 19. Espectro de $^1\text{H-RMN}$ a 200 MHz en Cl_3CD de 2,3,4-tri-*O*-acetil-*N*-(2,2-dietoxycarbonilvinil)- β -L-fucopiranosilamina (**90**). Irradiaciones.

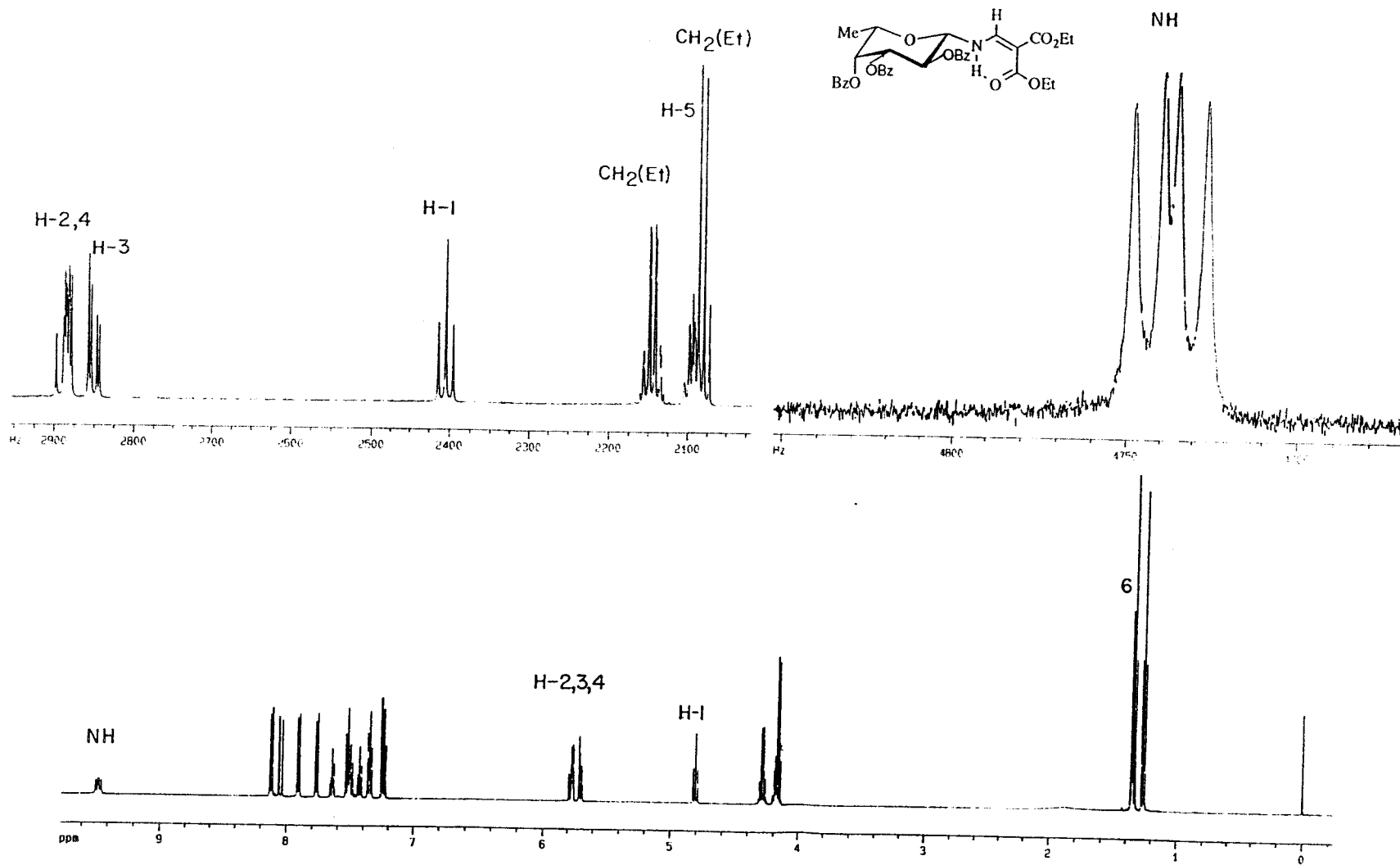


Figura 20. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de 2,3,4-tri-*O*-benzoil-*N*-(2,2-dietoxicarbonilvinil)-β-*L*-fucopiranosilamina (91).

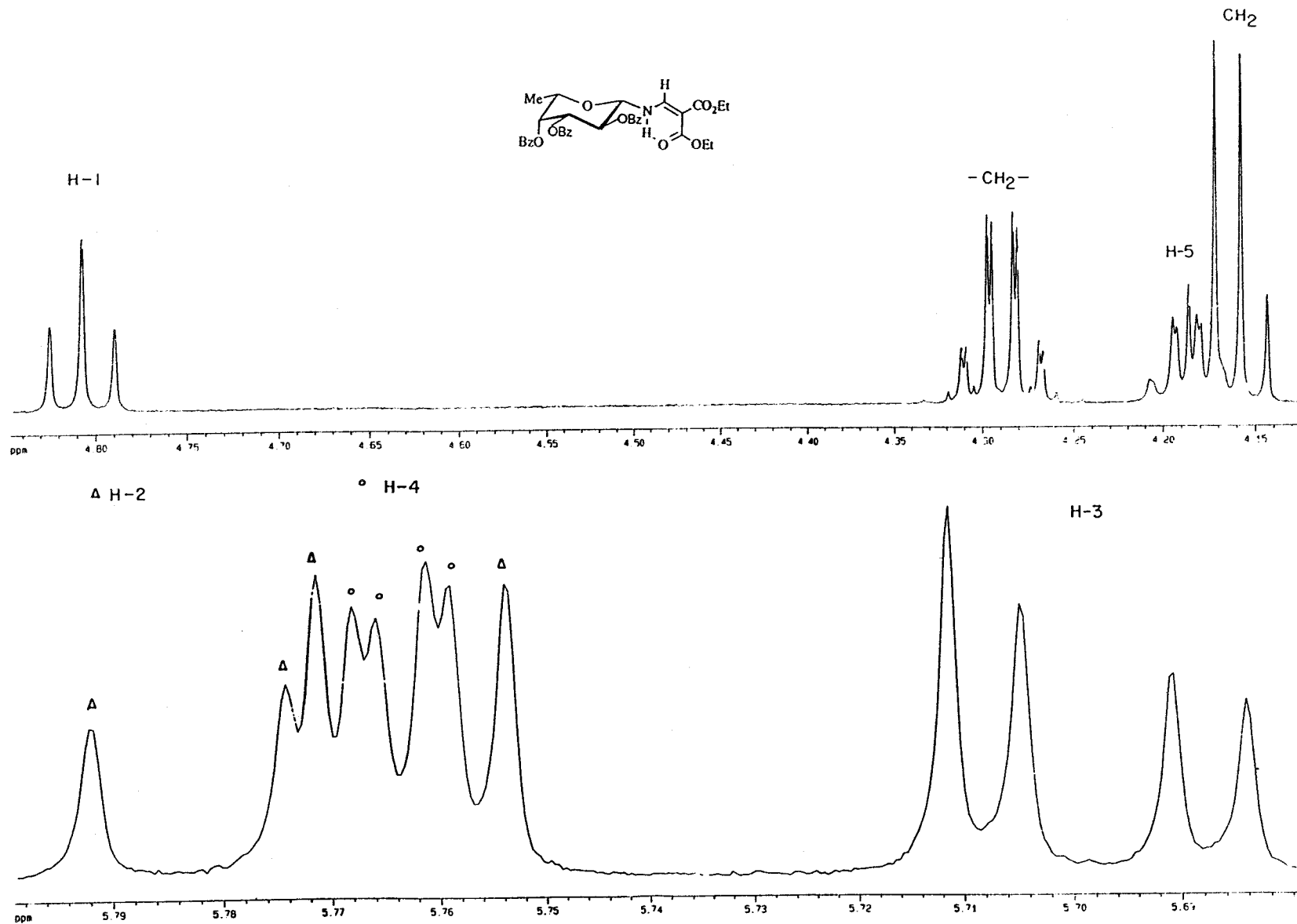


Figura 21. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de 2,3,4-tri-O-benzoil-N-(2,2-dietoxycarbonilvinil)-β-L-fucopiranosilamina (91). Ampliación.

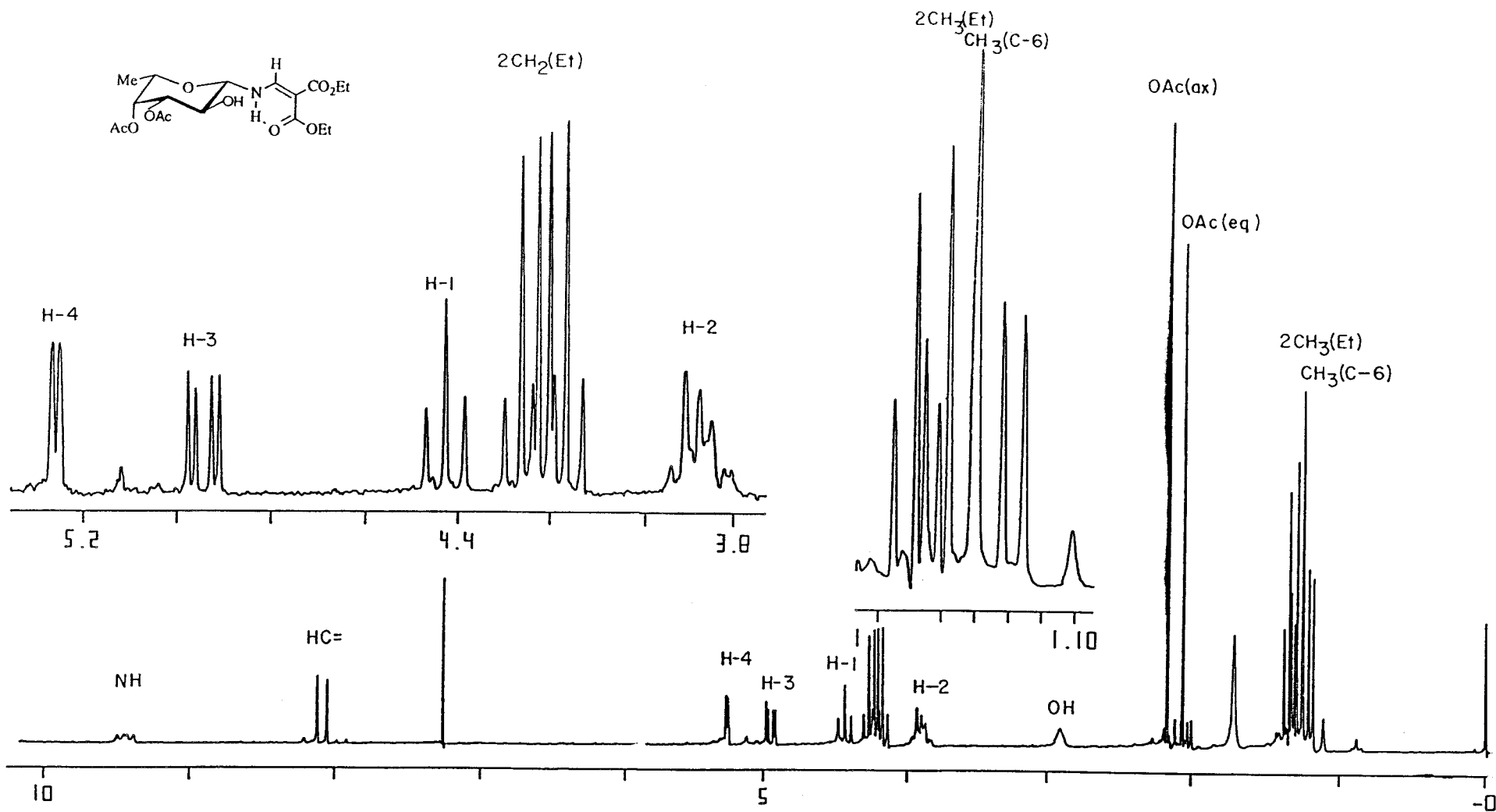


Figura 22. Espectro de ¹H-RMN a 200 MHz en Cl₃CD de 3,4-di-O-acetil-N-(2,2-dietoxycarbonilvinil)-β-L-fucopiranosilamina (92).

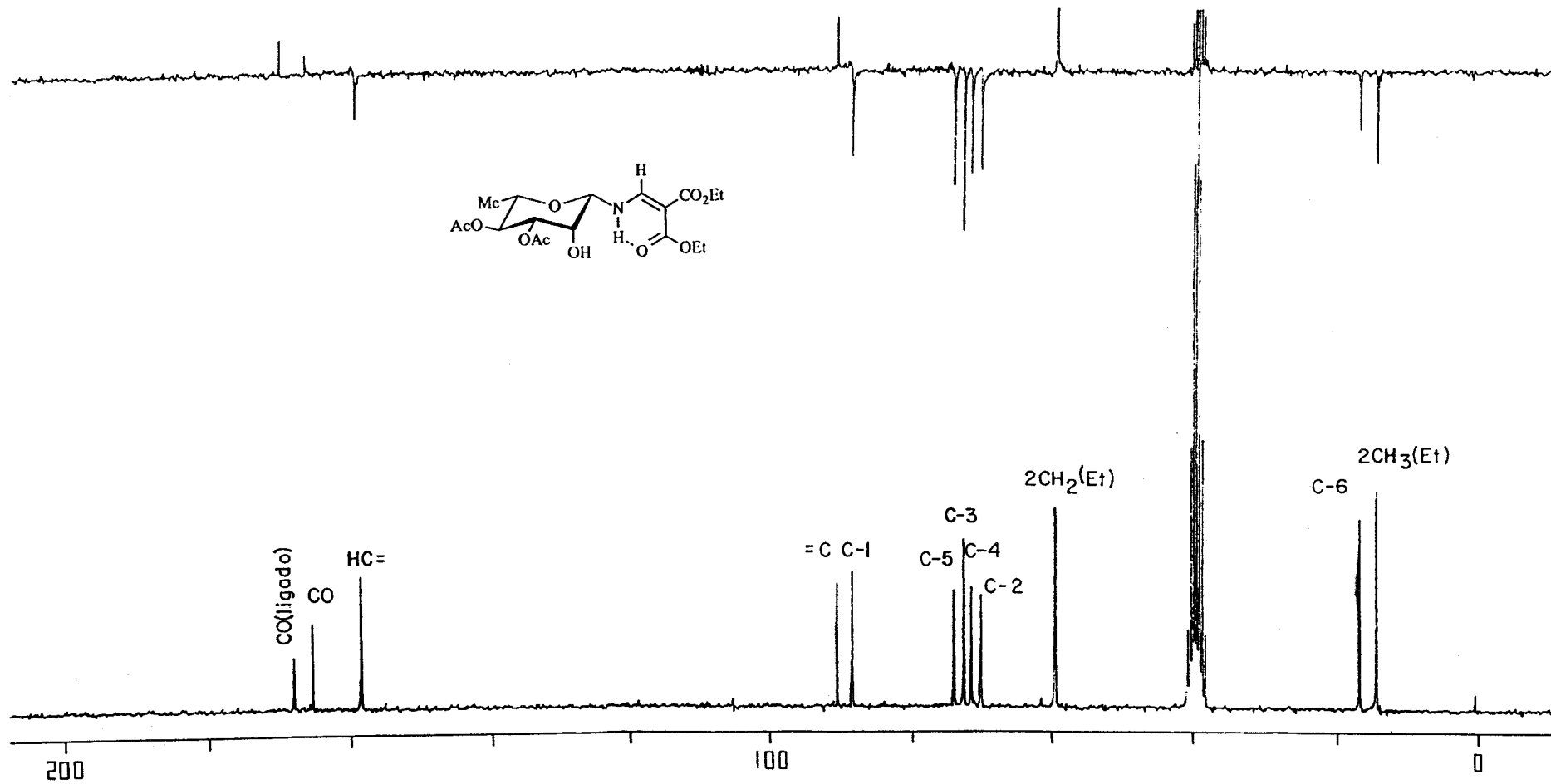


Figura 23. Espectro de ^{13}C -RMN y APT a 50,3 MHz en $\text{DMSO}-d_6$ de *N*-(2,2-dietoxycarbonilvinil)- β -L-fucopiranosilamina (89).

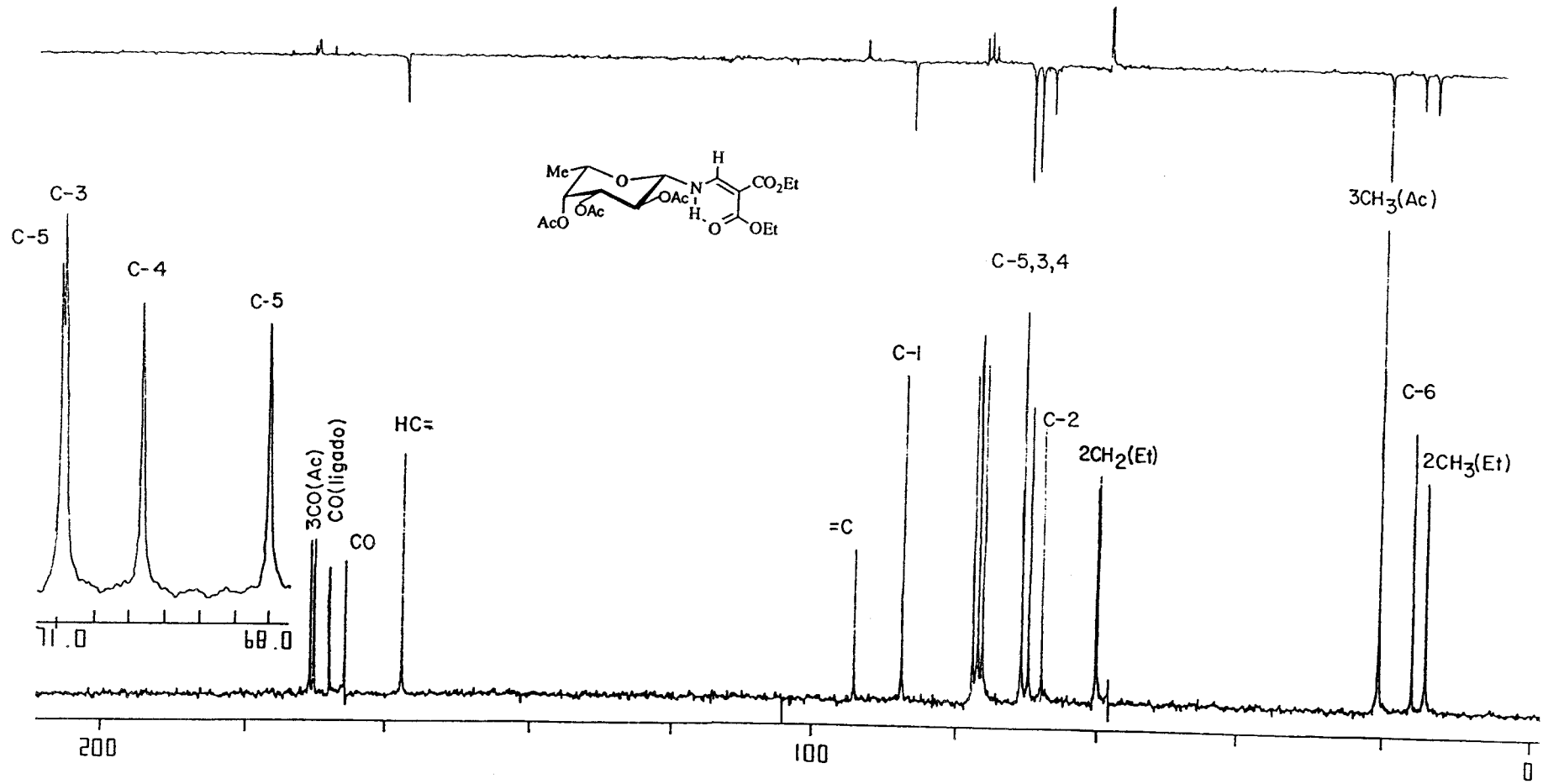


Figura 24. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 2,3,4-tri-*O*-acetil-*N*-(2,2-dietoxycarbonilvinil)- β -L-fucopiranosilamina (**90**).

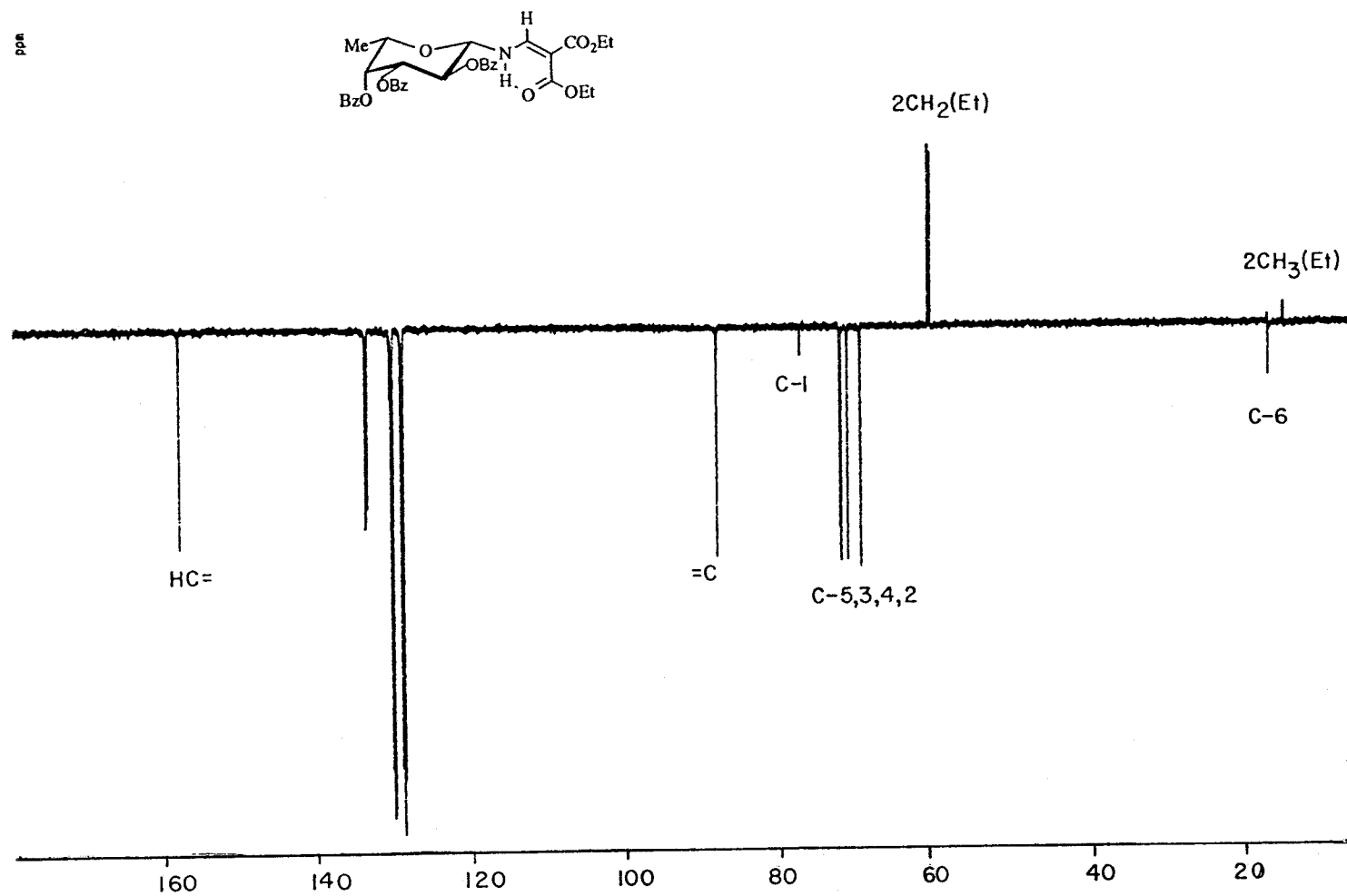


Figura 25. Espectro de ^{13}C -RMN y DEPT a 50,3 MHz en Cl_3CD de 2,3,4-tri-*O*-benzoyl-*N*-(2,2-diethoxycarbonilvinil)- β -L-fucopiranosilamina (91).

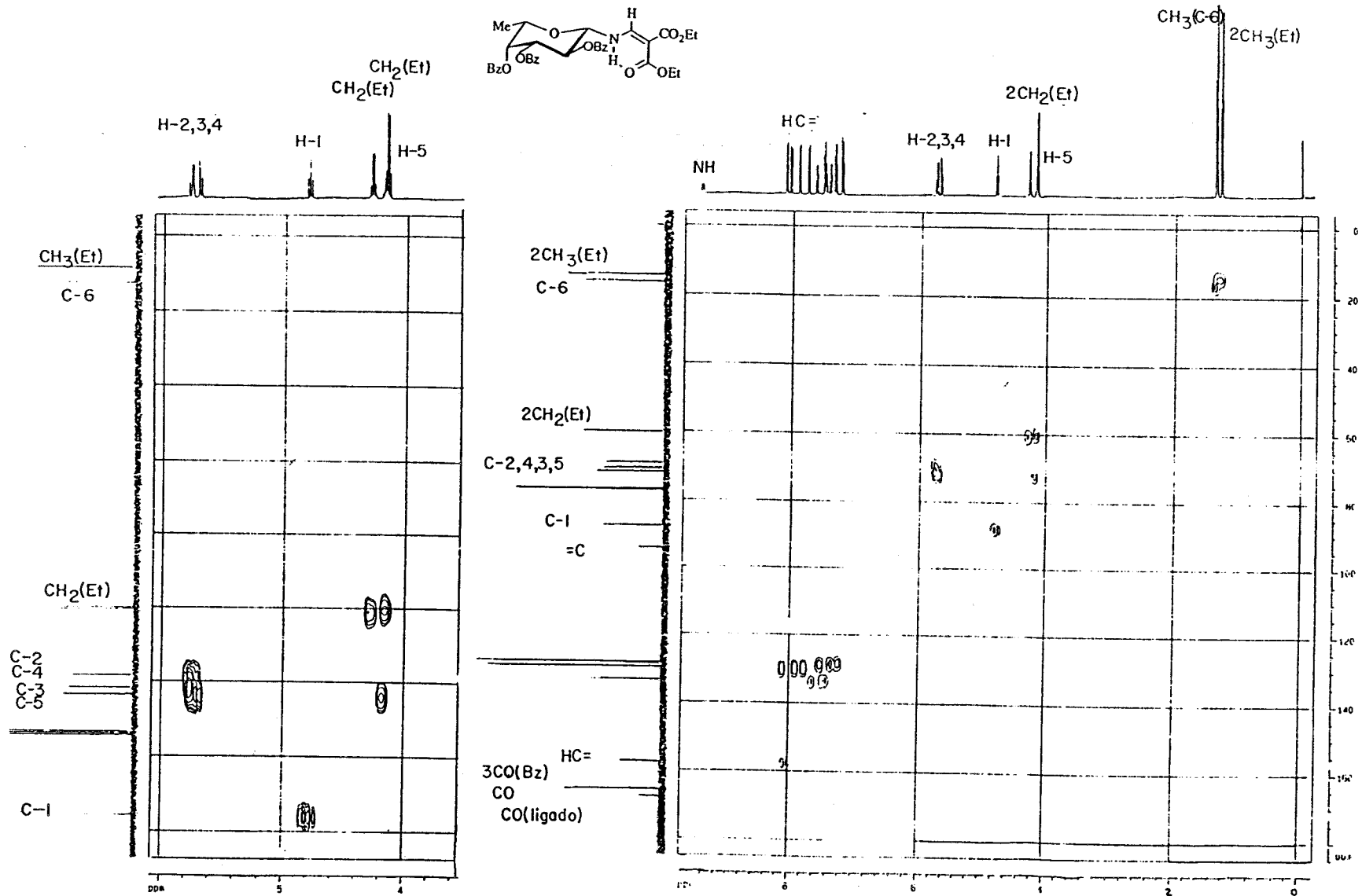


Figura 26. Espectro de heterocorrelación $^1\text{H}/^{13}\text{C}$ a 125,7 MHz en Cl_3CD de 2,3,4-tri-*O*-benzoil-*N*-(2,2-diétoxicarbonilvinil)- β -L-fucopiranosilamina (91).

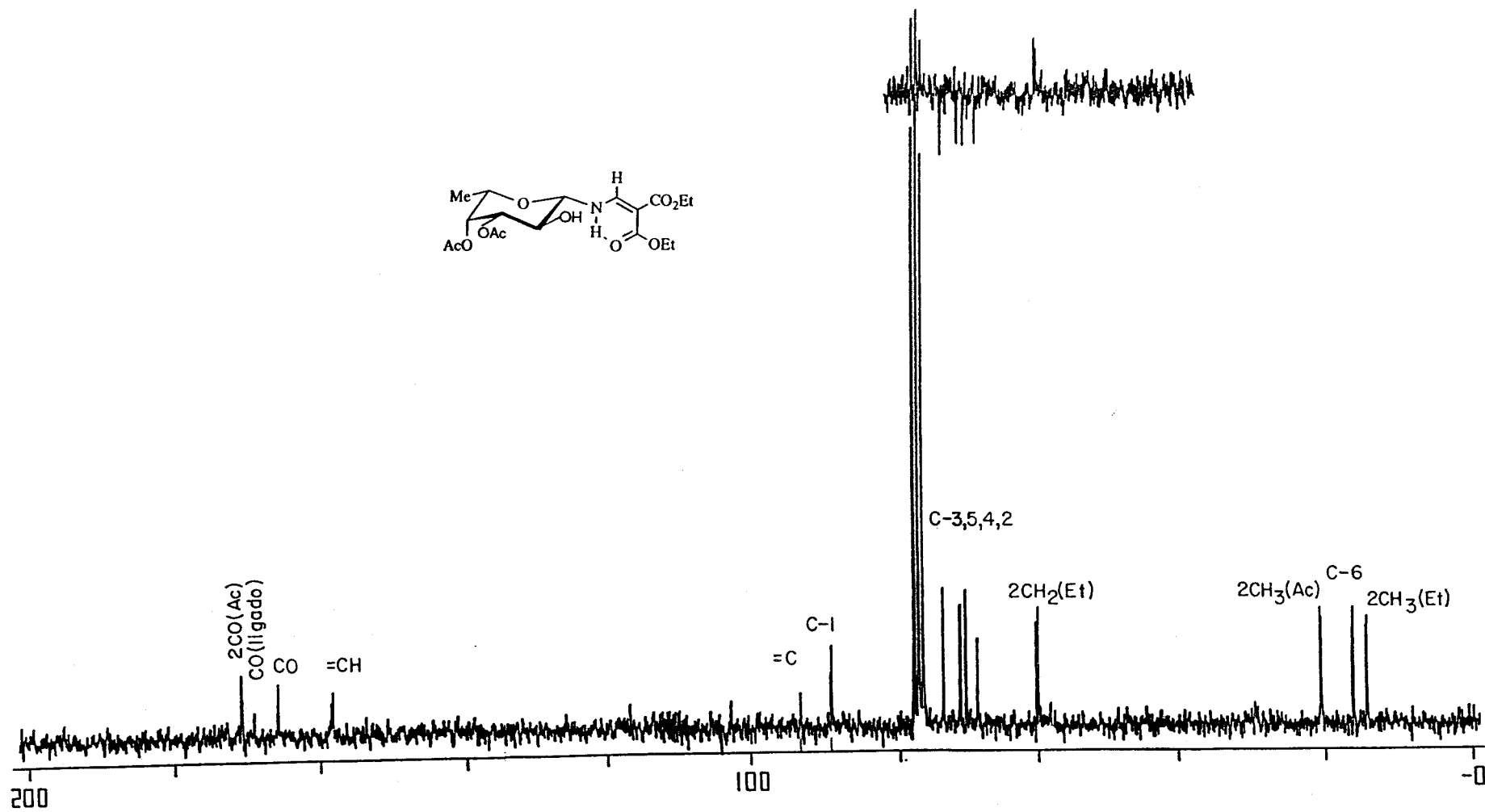


Figura 27. Espectro de ¹³C-RMN y APT a 50,3 MHz en Cl₃CD de 3,4-di-O-acetil-N-(2,2-diethoxycarbonilvinil)-β-L-fucopiranosilamina (92).

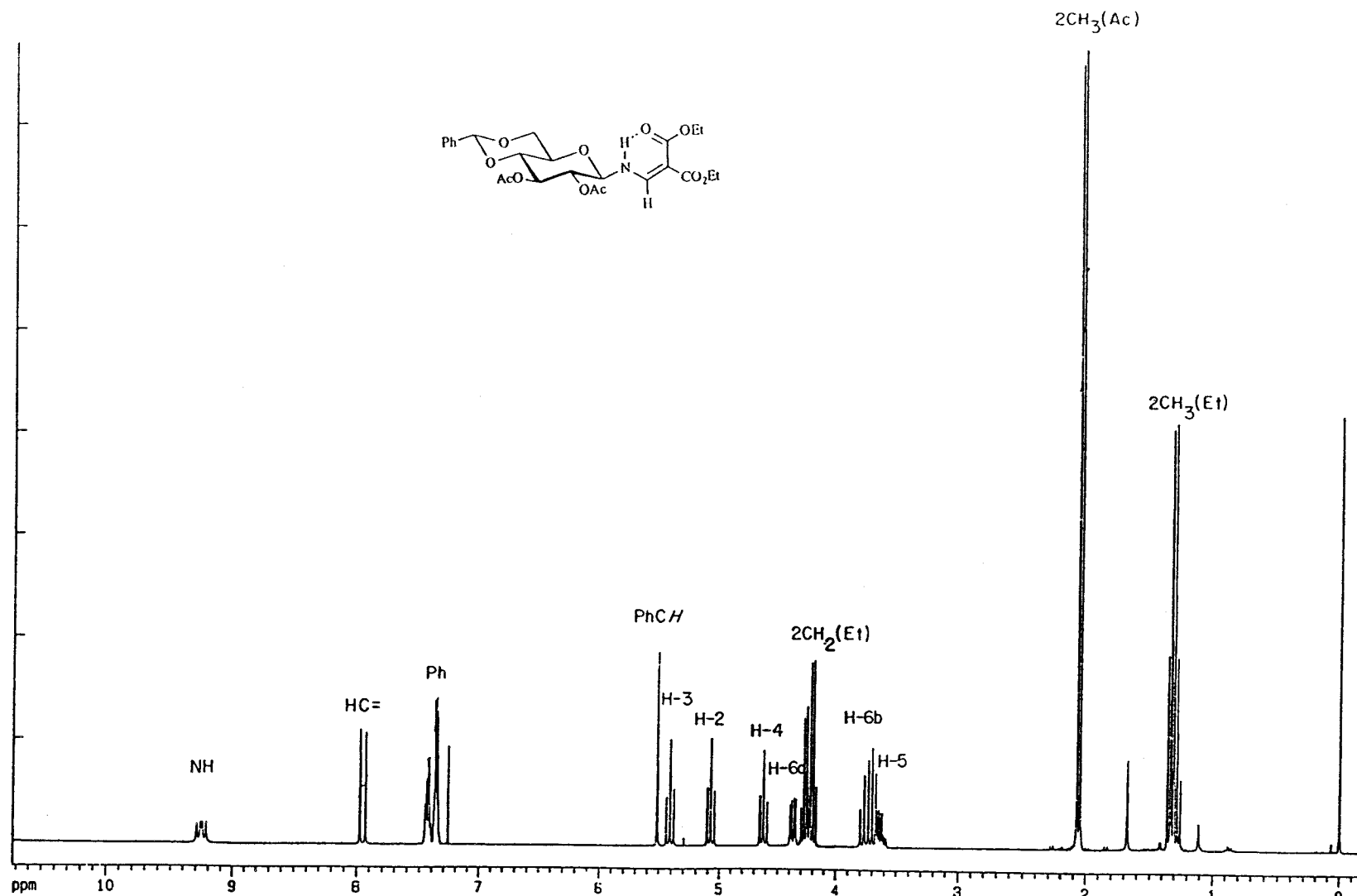


Figura 28. Espectro de ^1H -RMN a 300 MHz en Cl_3CD de 2,3-di-O-acetil-4,6-O-bencilidén-N-(2,2-diétoxicarbonilvinil)-β-D-glucopiranosilamina (84).

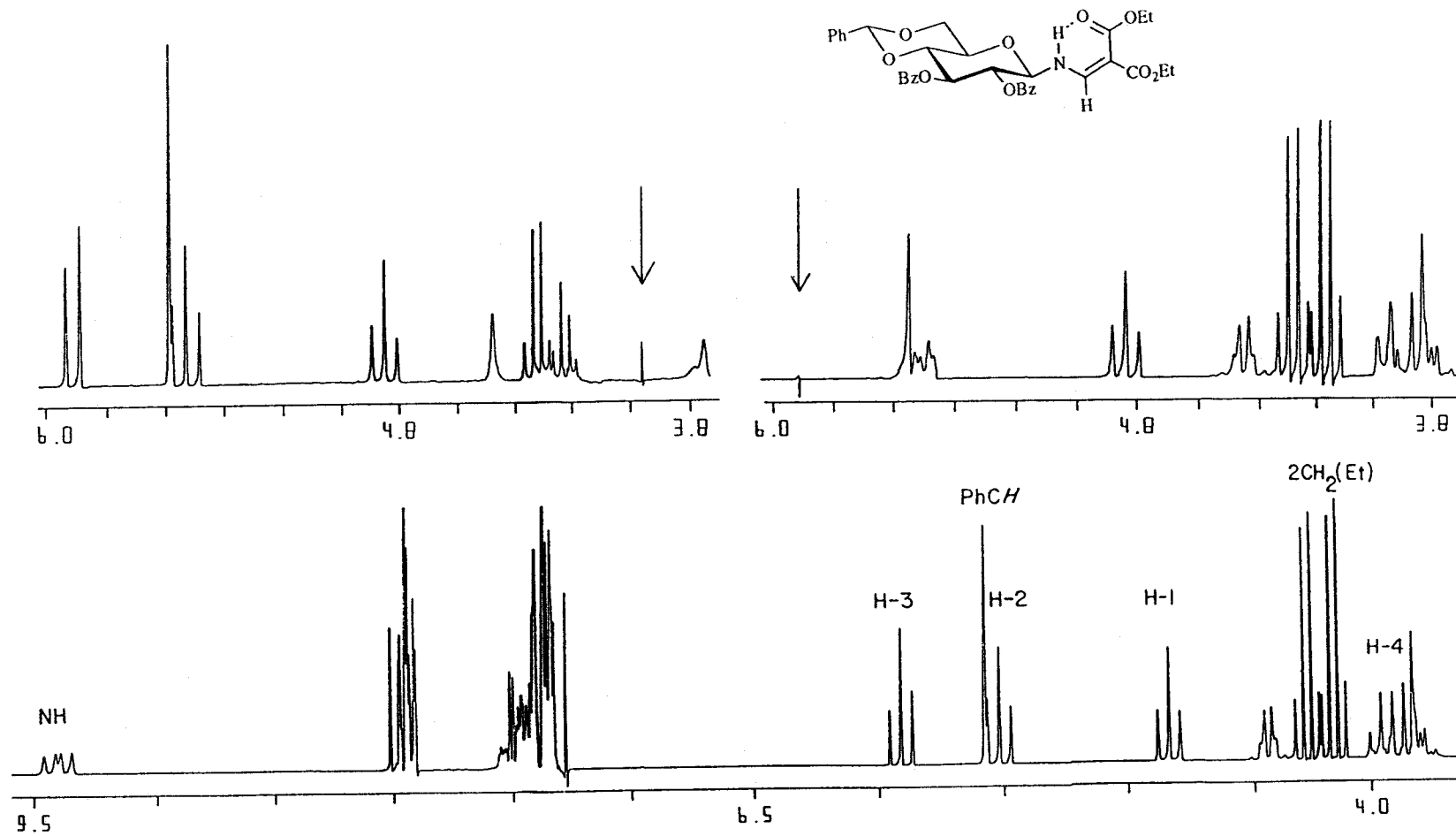


Figura 29. Espectro de ^1H -RMN a 200 MHz en Cl_3CD de 2,3-di-O-benzoil-4,6-O-bencilidén-N-(2,2-dietoxicarbonilvinil)-β-D-glucopiranosilamina (85).

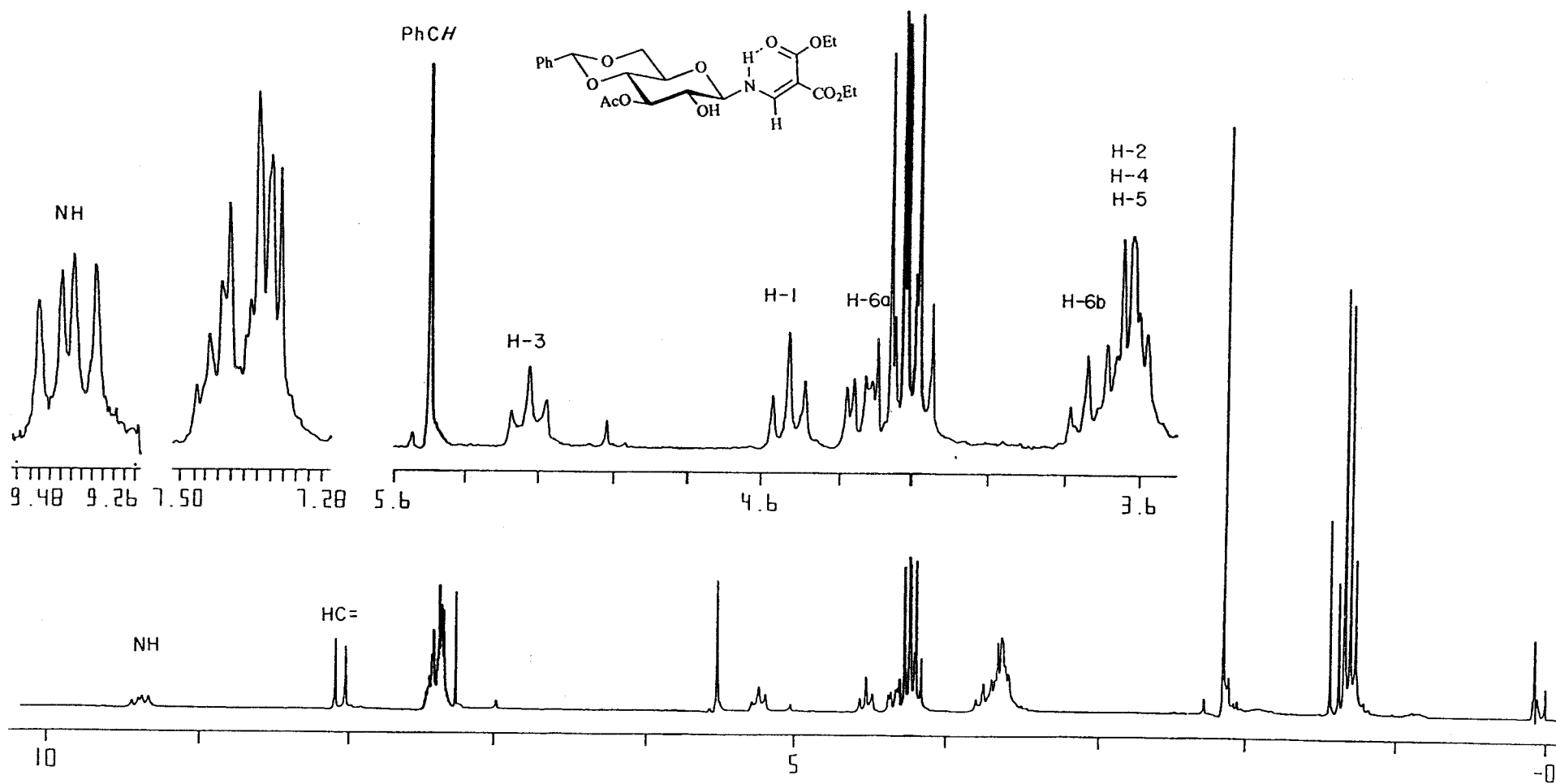


Figura 30. Espectro de ¹H-RMN a 200 MHz en Cl₃CD de 3-O-acetil-4,6-O-bencilidén-N-(2,2-dietoxicarbonilvinil)-β-D-glucopiranosilamina (**86**).

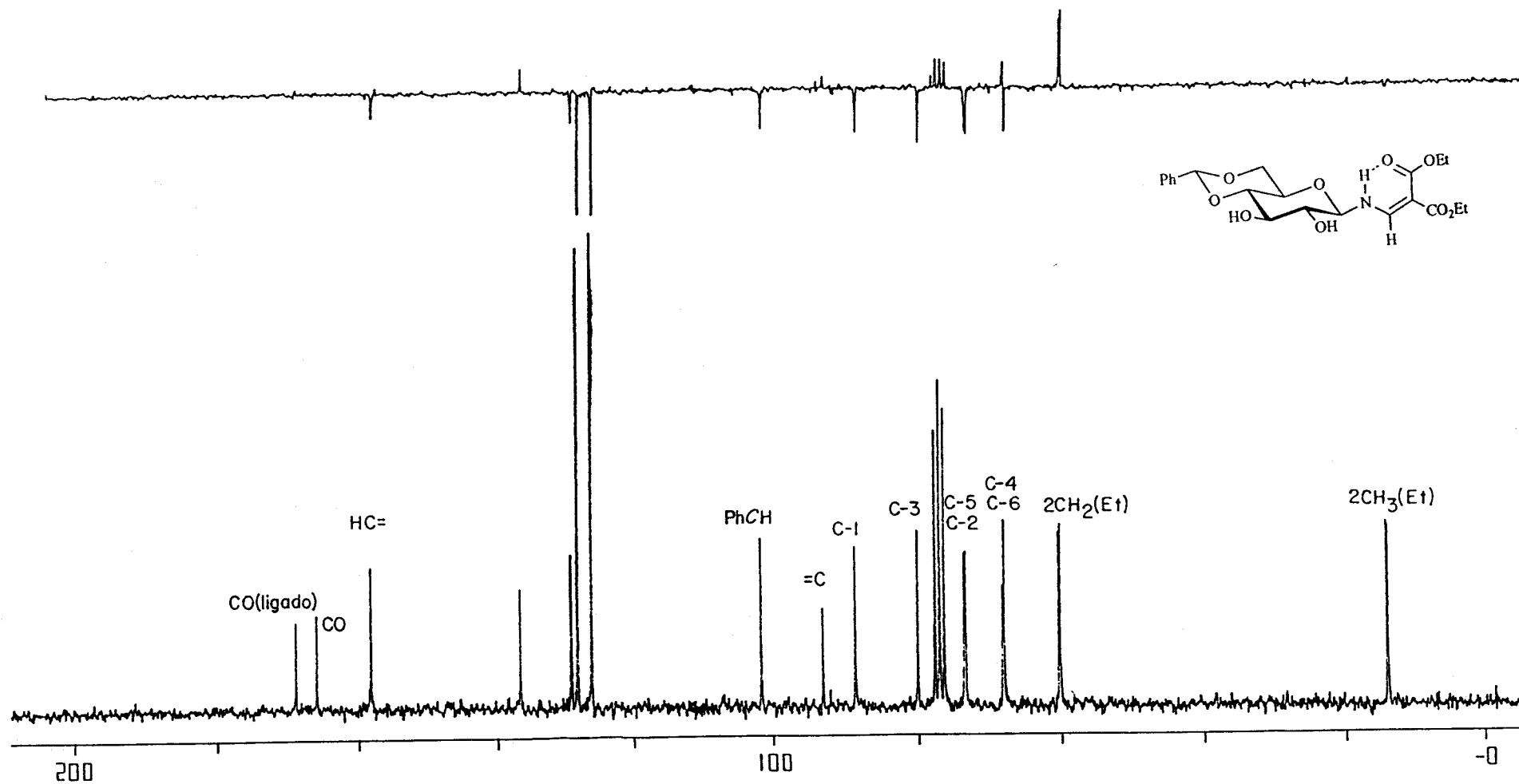


Figura 31. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 4,6-O-bencilidén-N-(2,2-dietoxicarbonilvinil)-β-D-glucopiranosilamina (83).

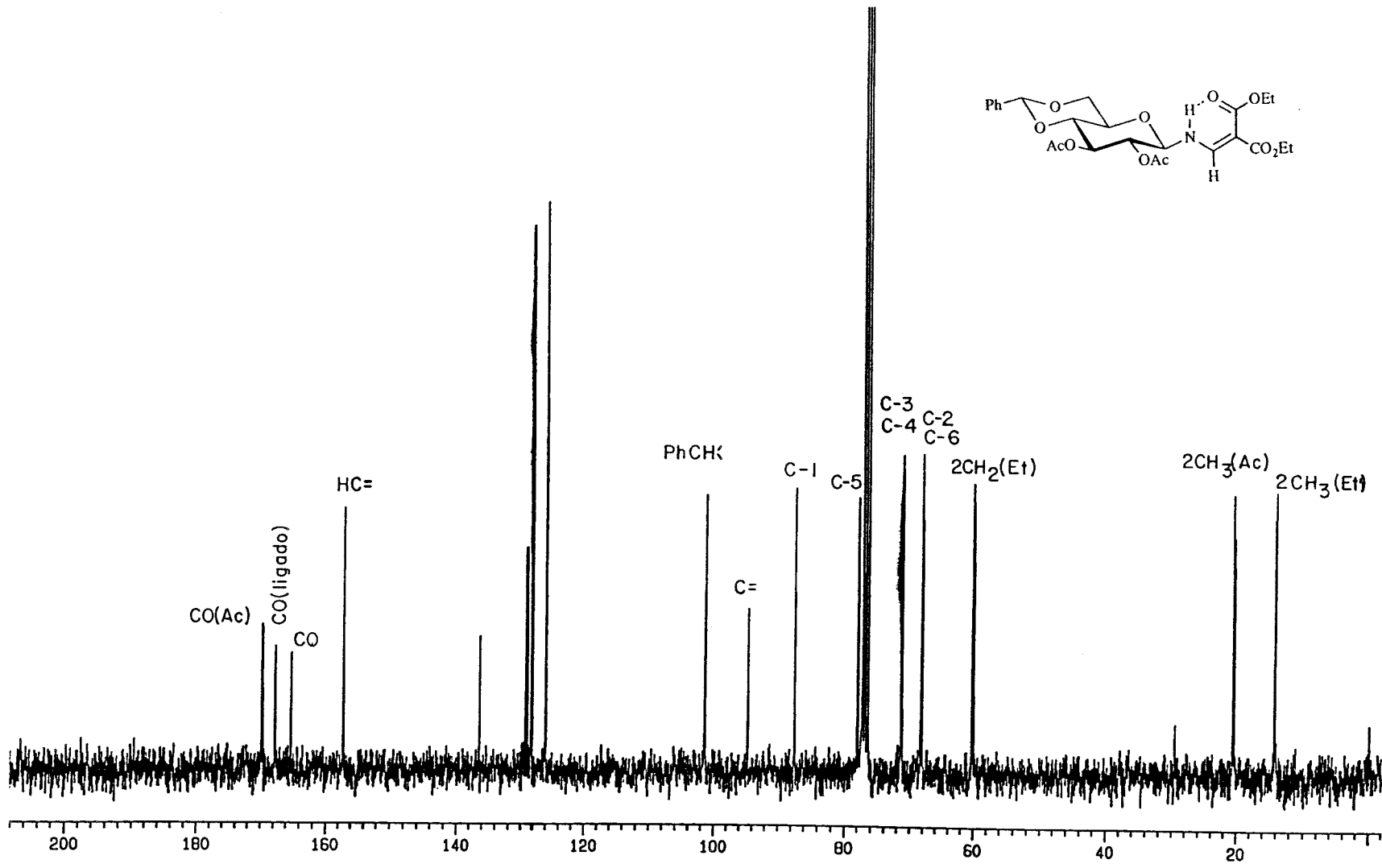


Figura 32. Espectro de ^{13}C -RMN y APT a 75,4 MHz en Cl_3CD de 2,3-di-*O*-acetil-4,6-*O*-bencilidén-*N*-(2,2-dietoxicarbonilvinil)- β -D-glucopiranosilamina (84).

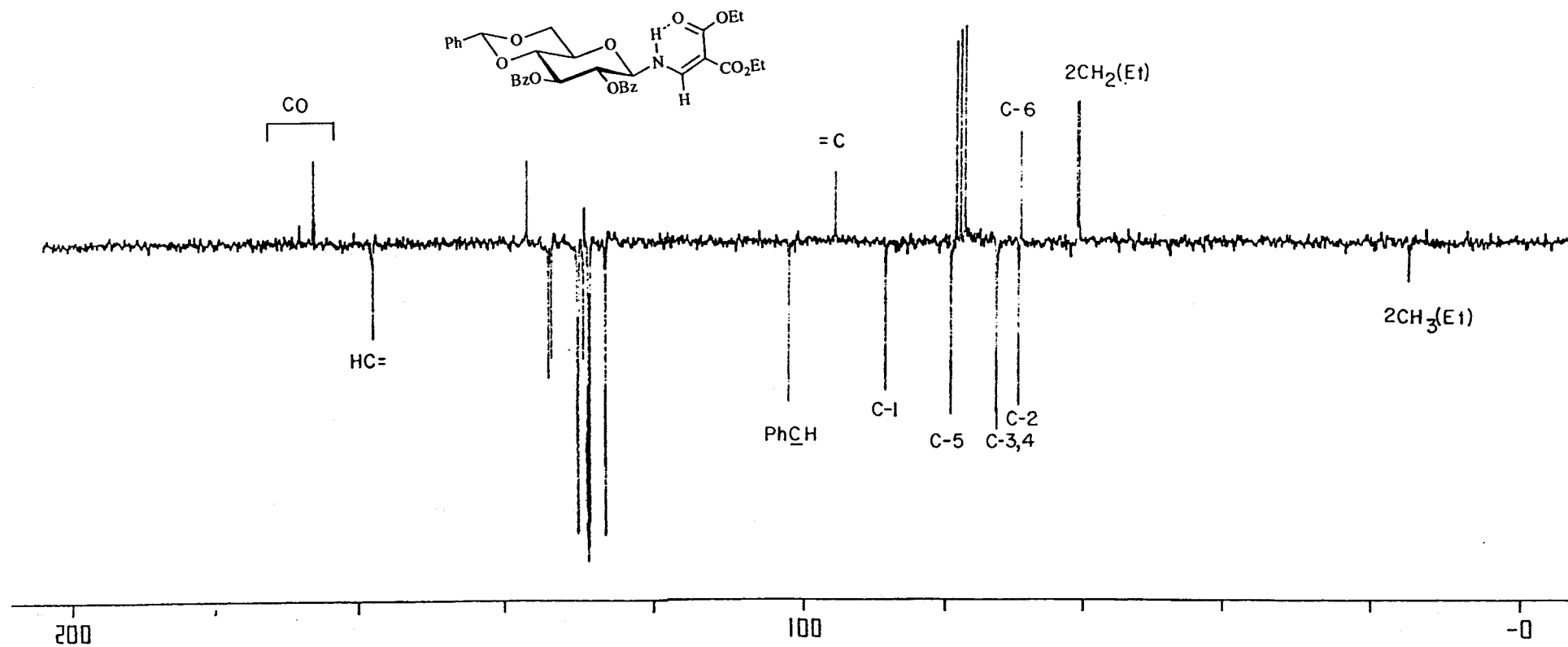


Figura 33. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 2,3-di-*O*-benzoil-4,6-*O*-bencilidén-*N*-(2,2-dietoxicarbonilvinil)- β -D-glucopiranosilamina (85).

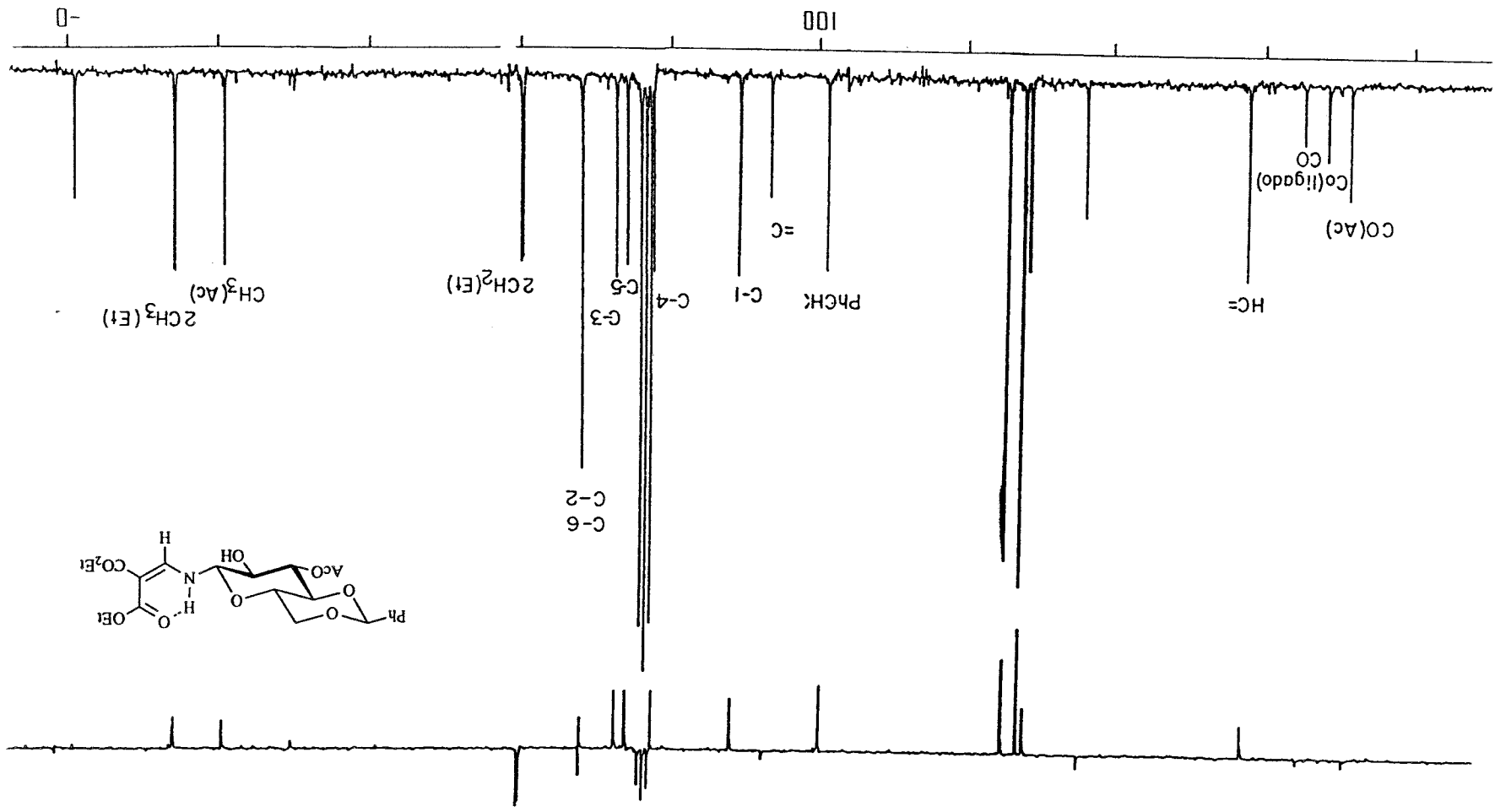


Figura 34. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de 3-O-acetil-4,6-O-bencilidén-N-(2,2-dietoxicarbonilvinil)- β -D-glucopiranosilamina (86).

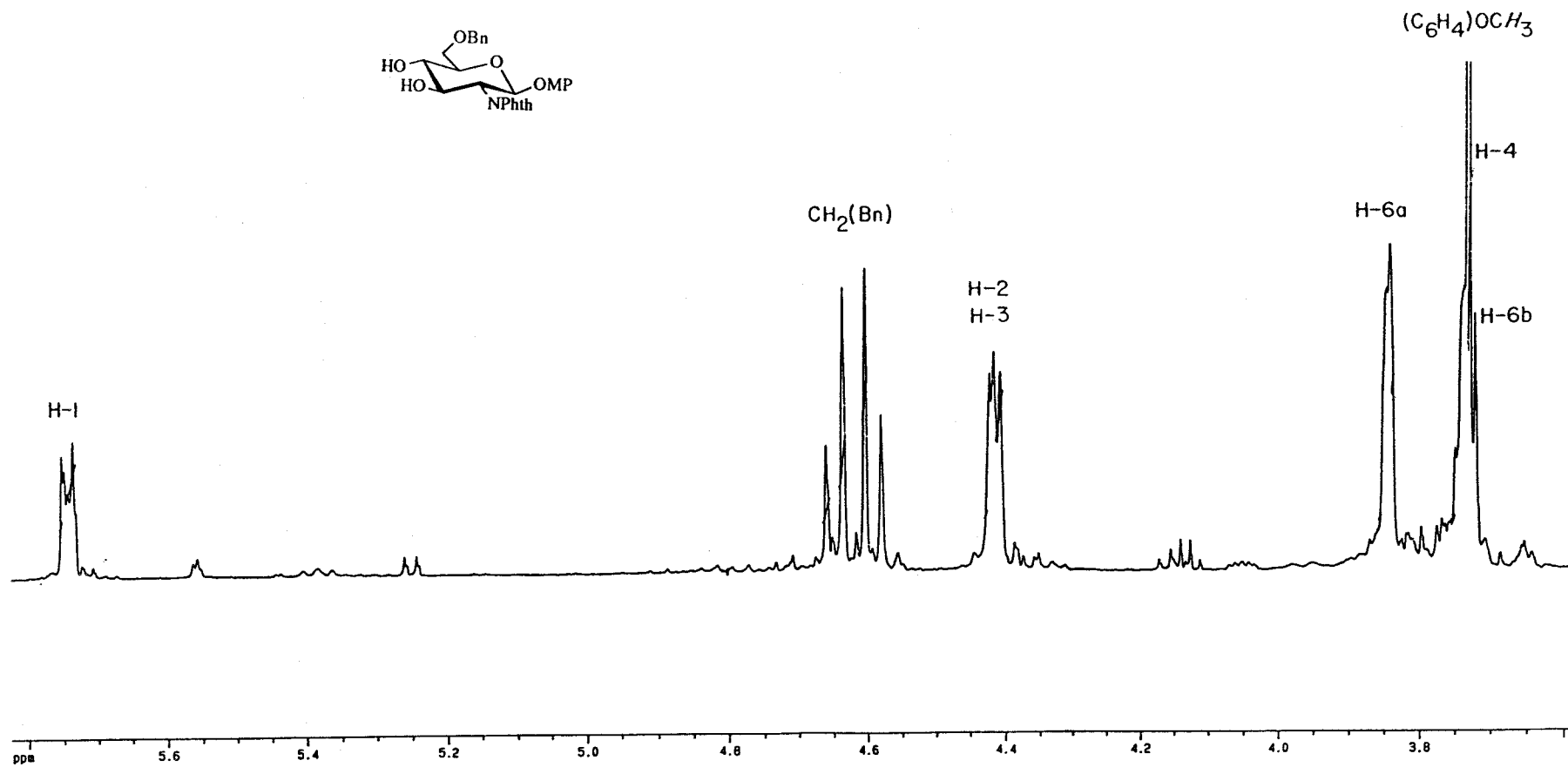


Figura 35. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *p*-metoxifenil 6-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (76).

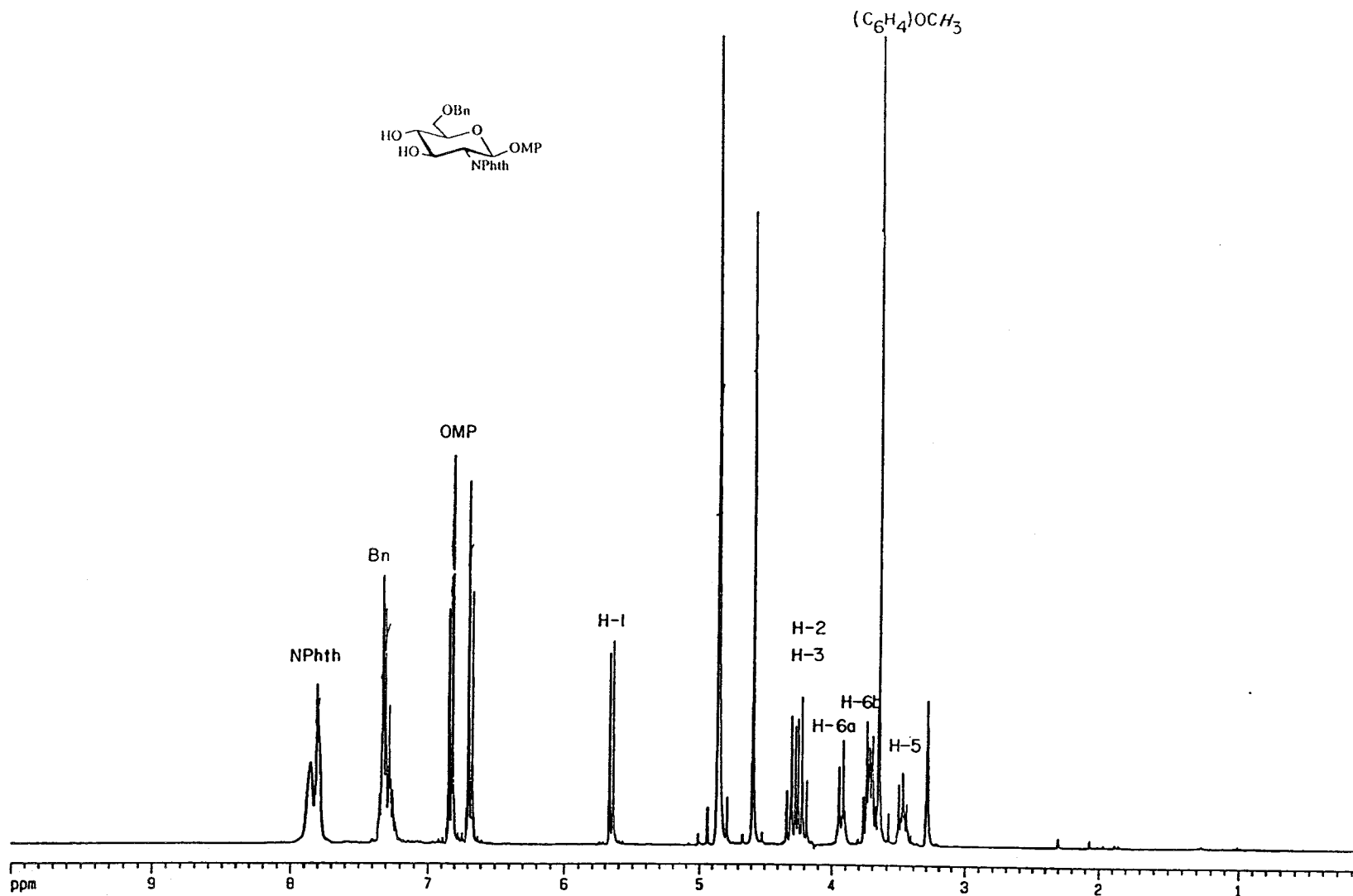


Figura 36. Espectro de $^1\text{H-RMN}$ a 300 MHz en $\text{MeOH-}d_4$ de *p*-metoxifenil 6-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (76).

ppm

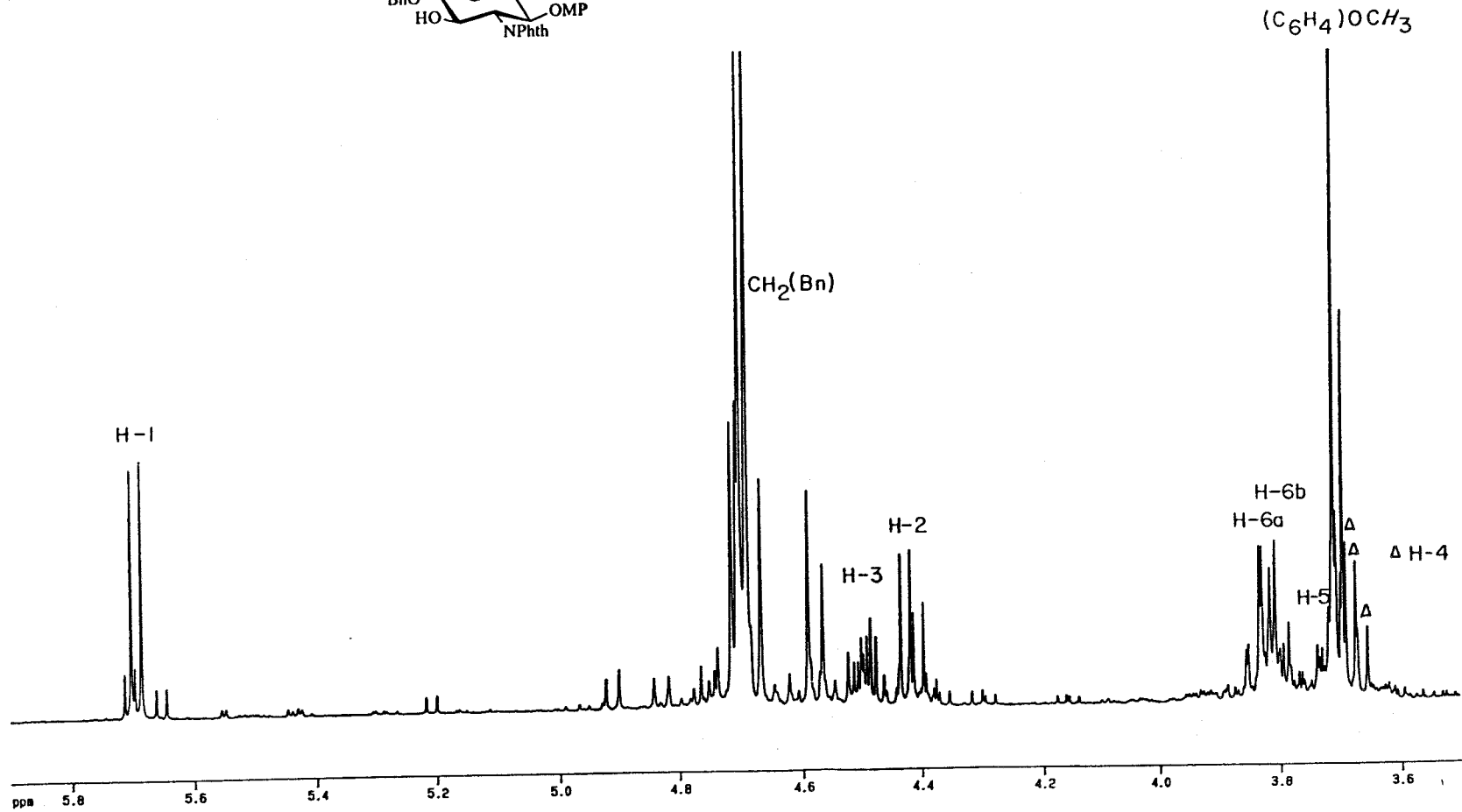
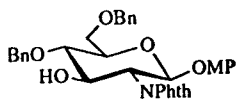


Figura 37. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil 4,6-di-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (77).

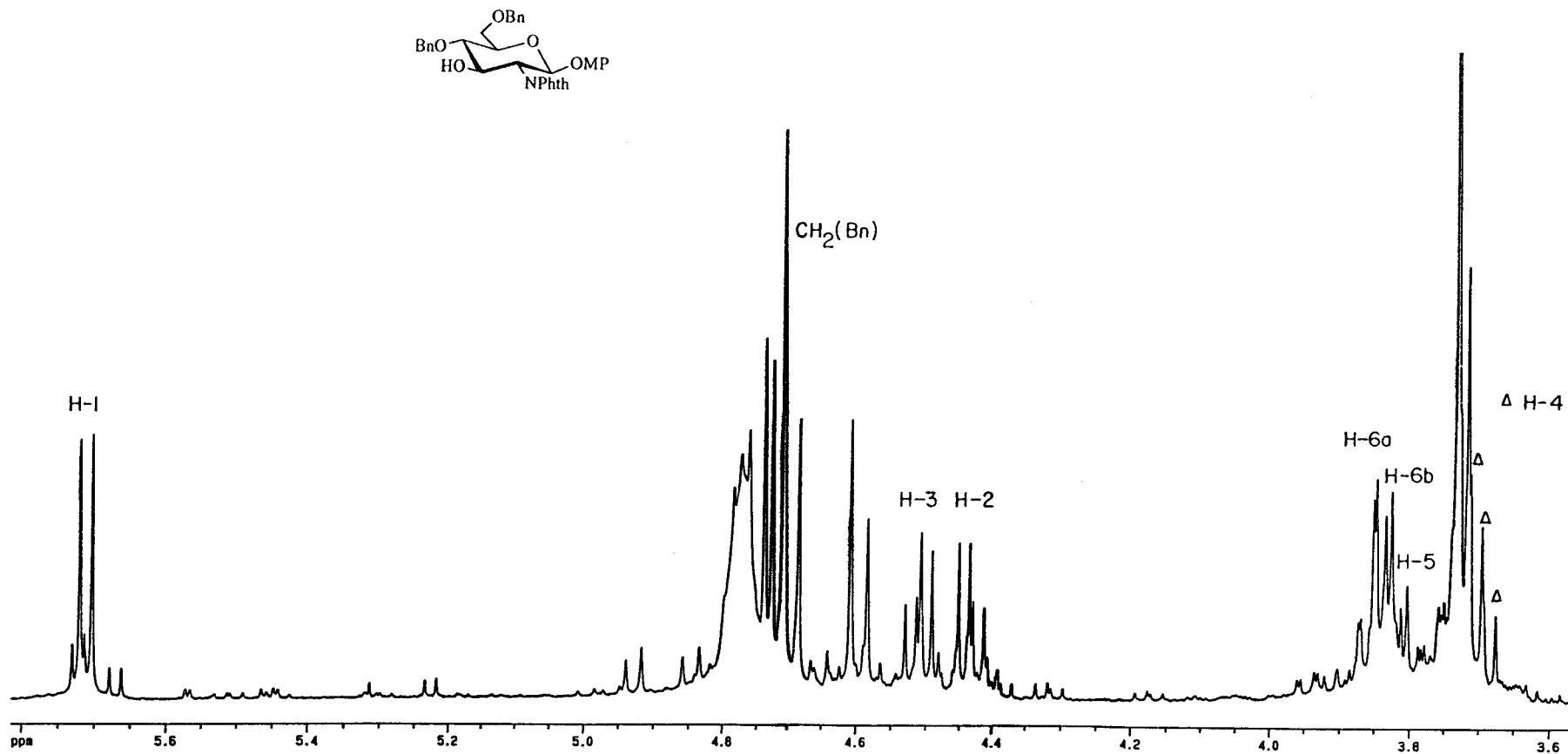


Figura 38. Espectro de ¹H-RMN a 500 MHz en Cl₃CD + D₂O de *p*-metoxifenil 4,6-di-*O*-bencil-2-desoxi-2-ftalimido-β-D-glucopiranosido (77).

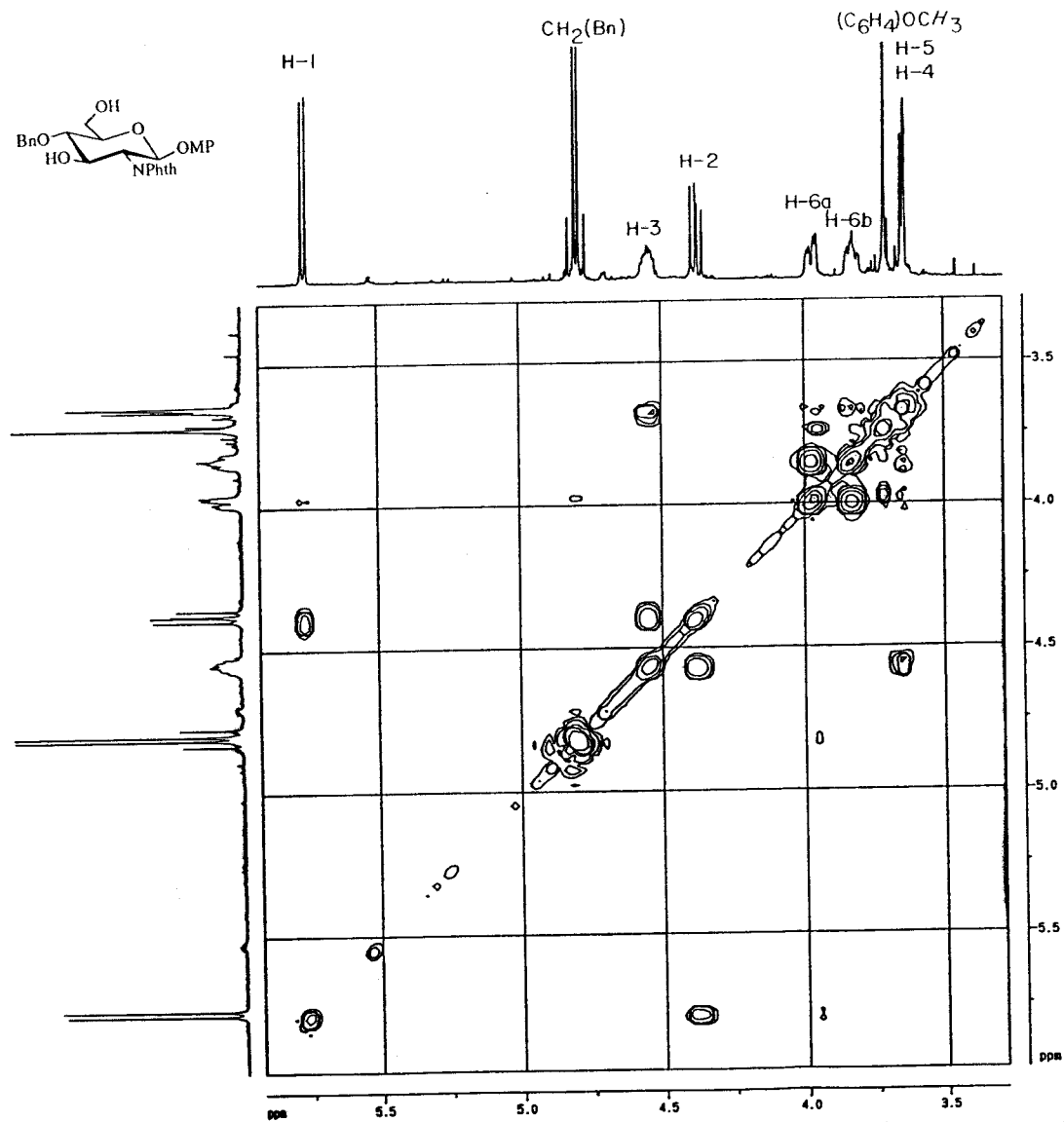


Figura 39. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil 4-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (78).

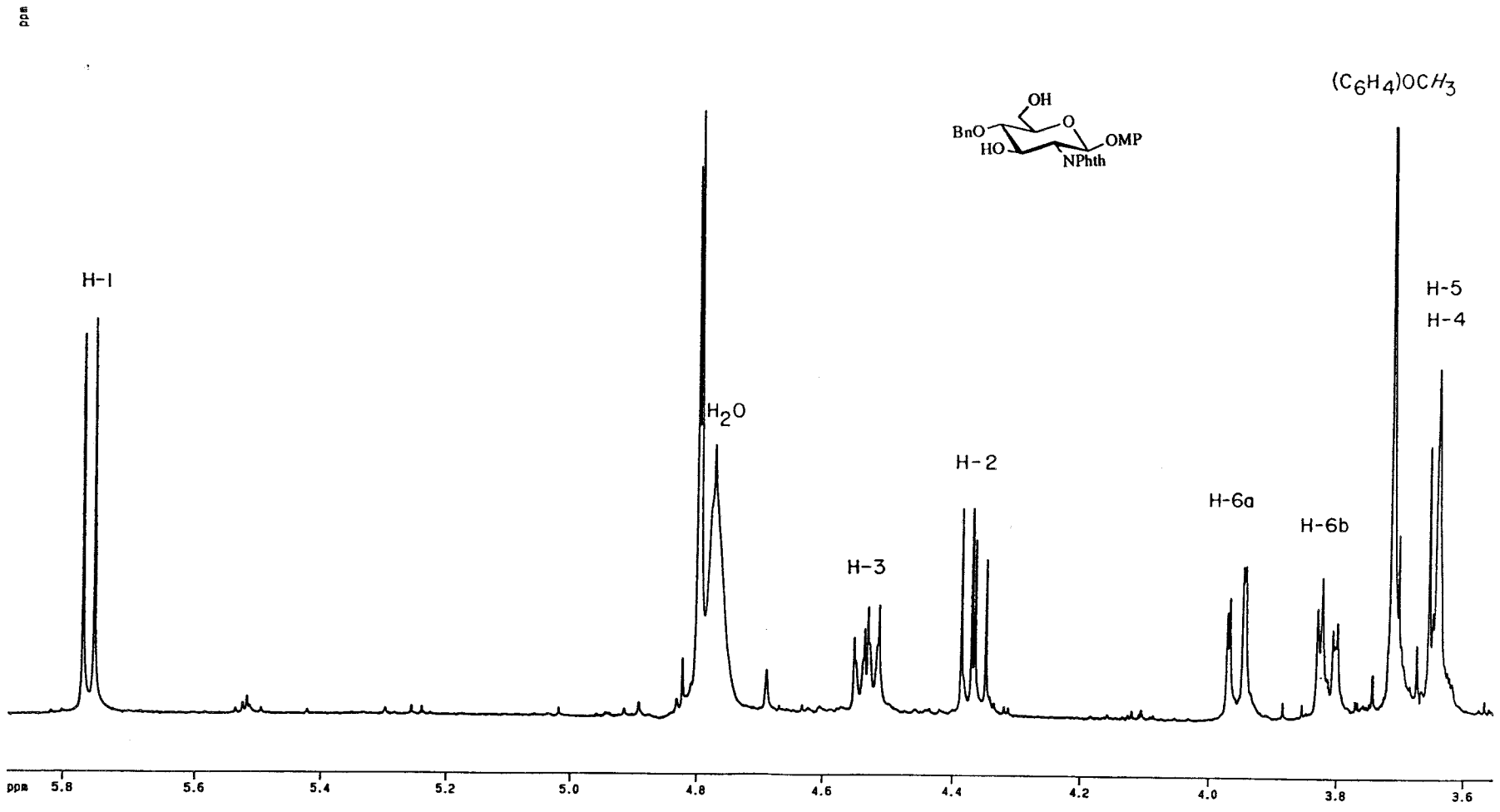


Figura 40. Espectro de ¹H-RMN a 500 MHz en Cl₃CD + D₂O de *p*-metoxifenil 3,4-di-*O*-acetil-6-*O*-bencil-2-desoxi-2-ftalimido-β-D-glucopiranosido (80).

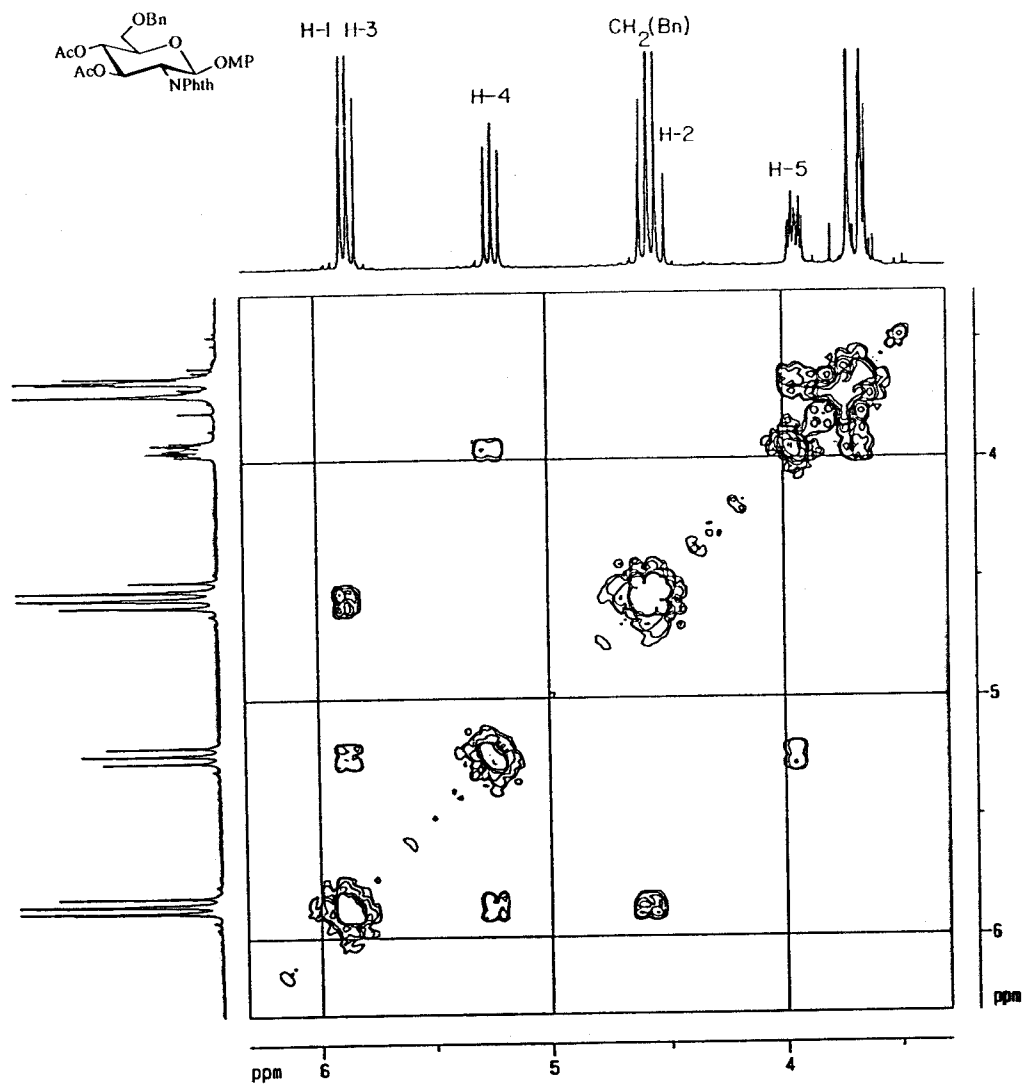


Figura 41. Espectro COSY a 300 MHz en Cl₃CD de *p*-metoxifenil 3,4-di-*O*-acetil-6-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (80).

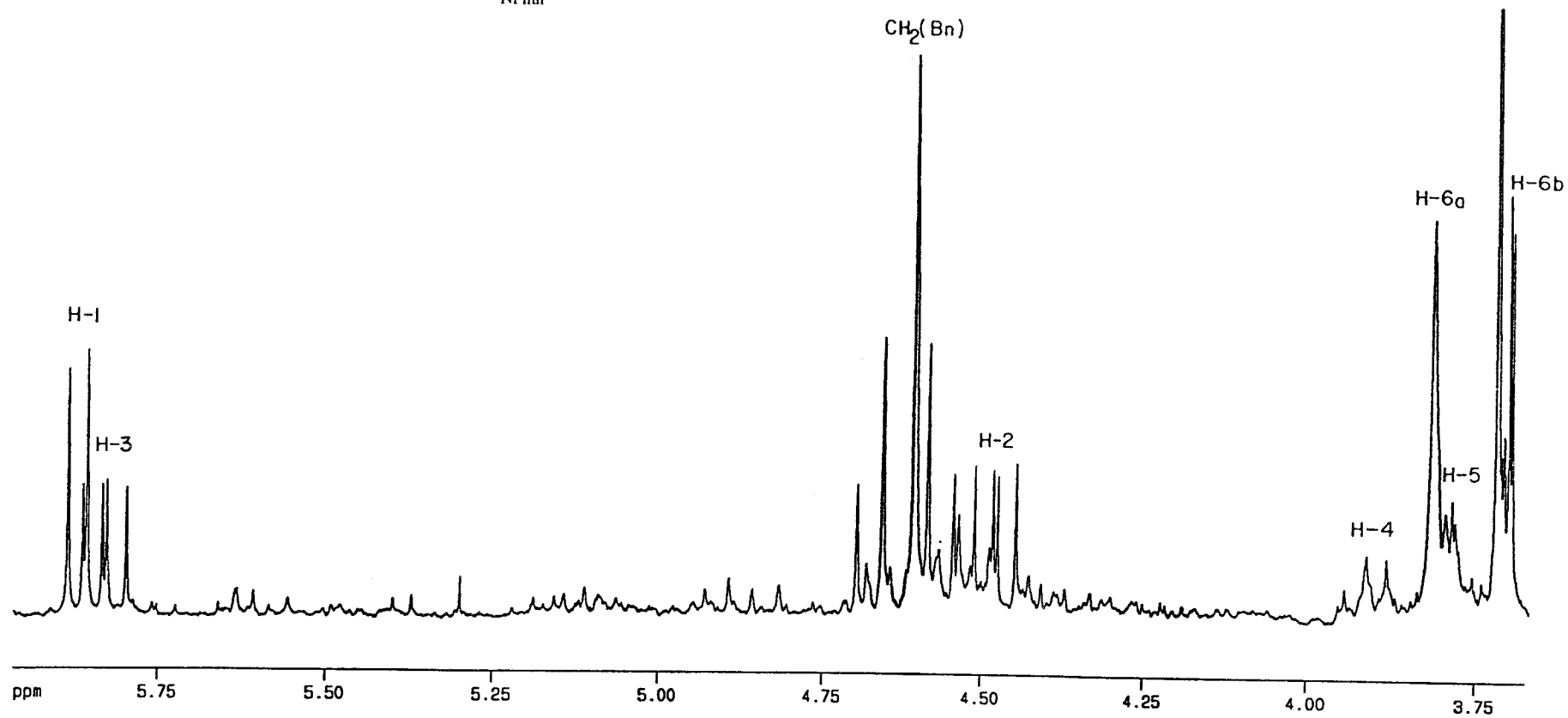
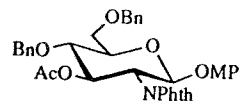


Figura 42. Espectro de ^1H -RMN a 300 MHz en Cl_3CD de *p*-metoxifenil 3-*O*-acetil-4,6-di-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (**81**).

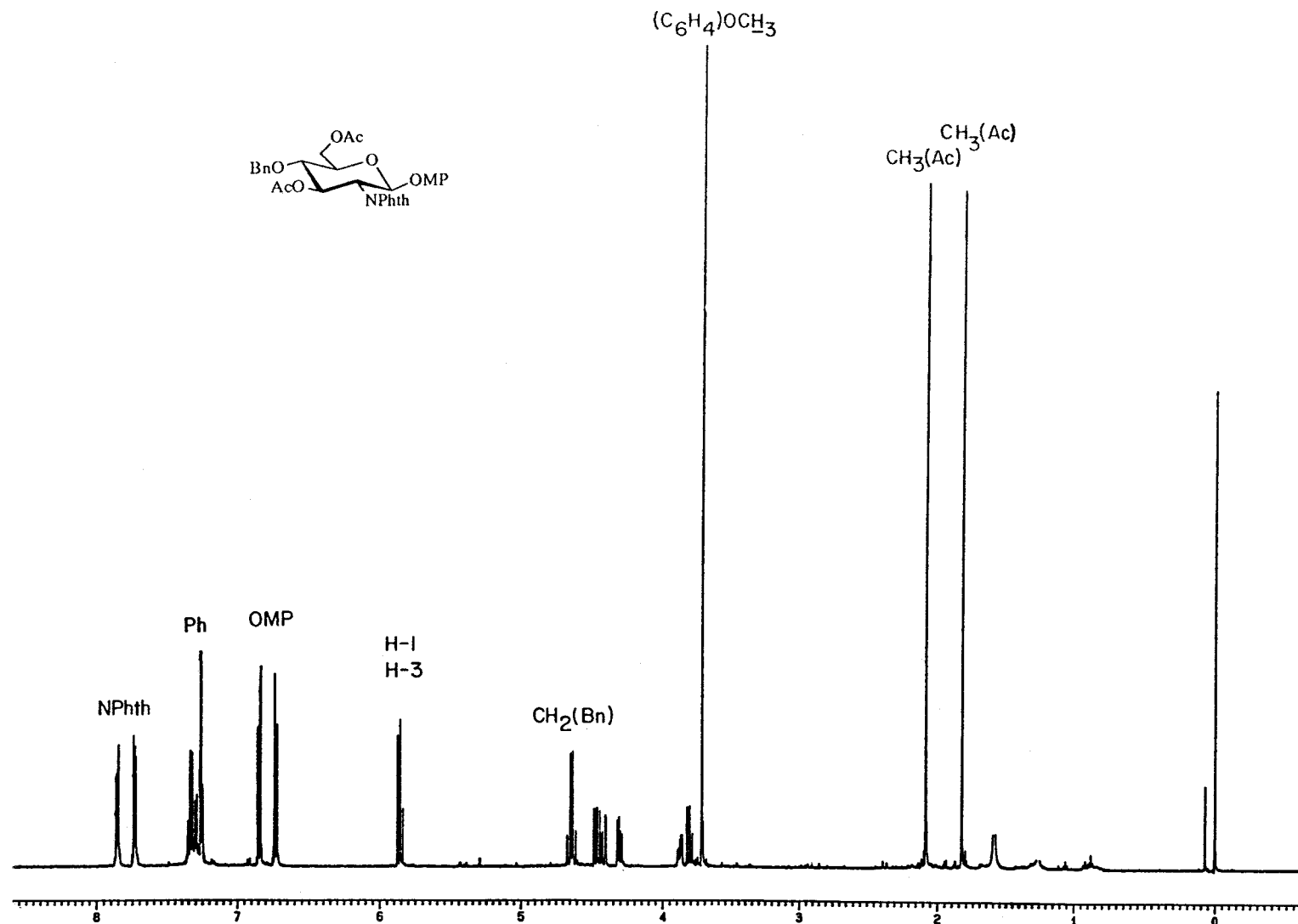


Figura 43. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *p*-metoxifenil 3,6-di-*O*-acetil-4-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (82).

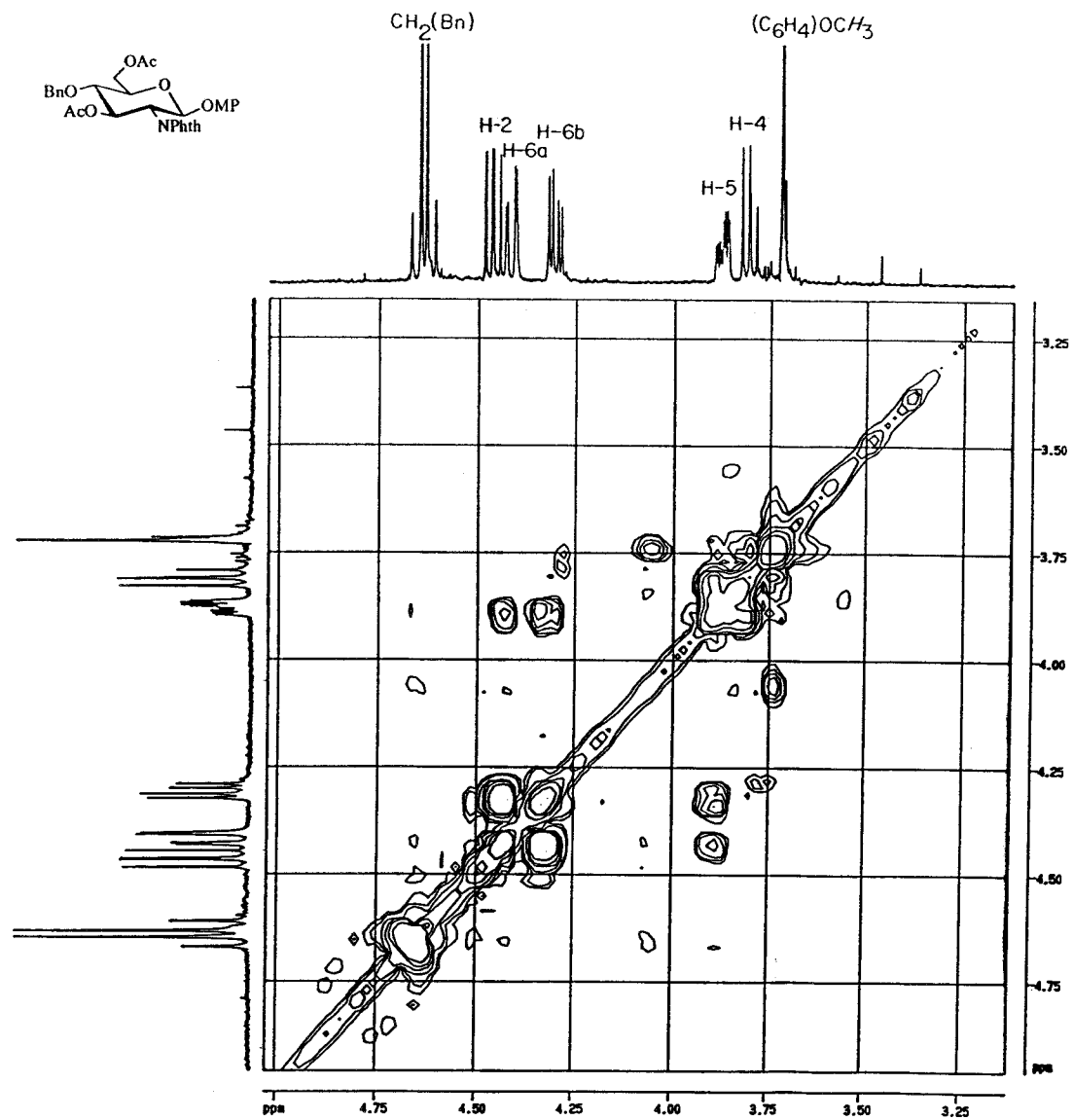


Figura 44. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil 3,6-di-*O*-acetil-4-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (82).

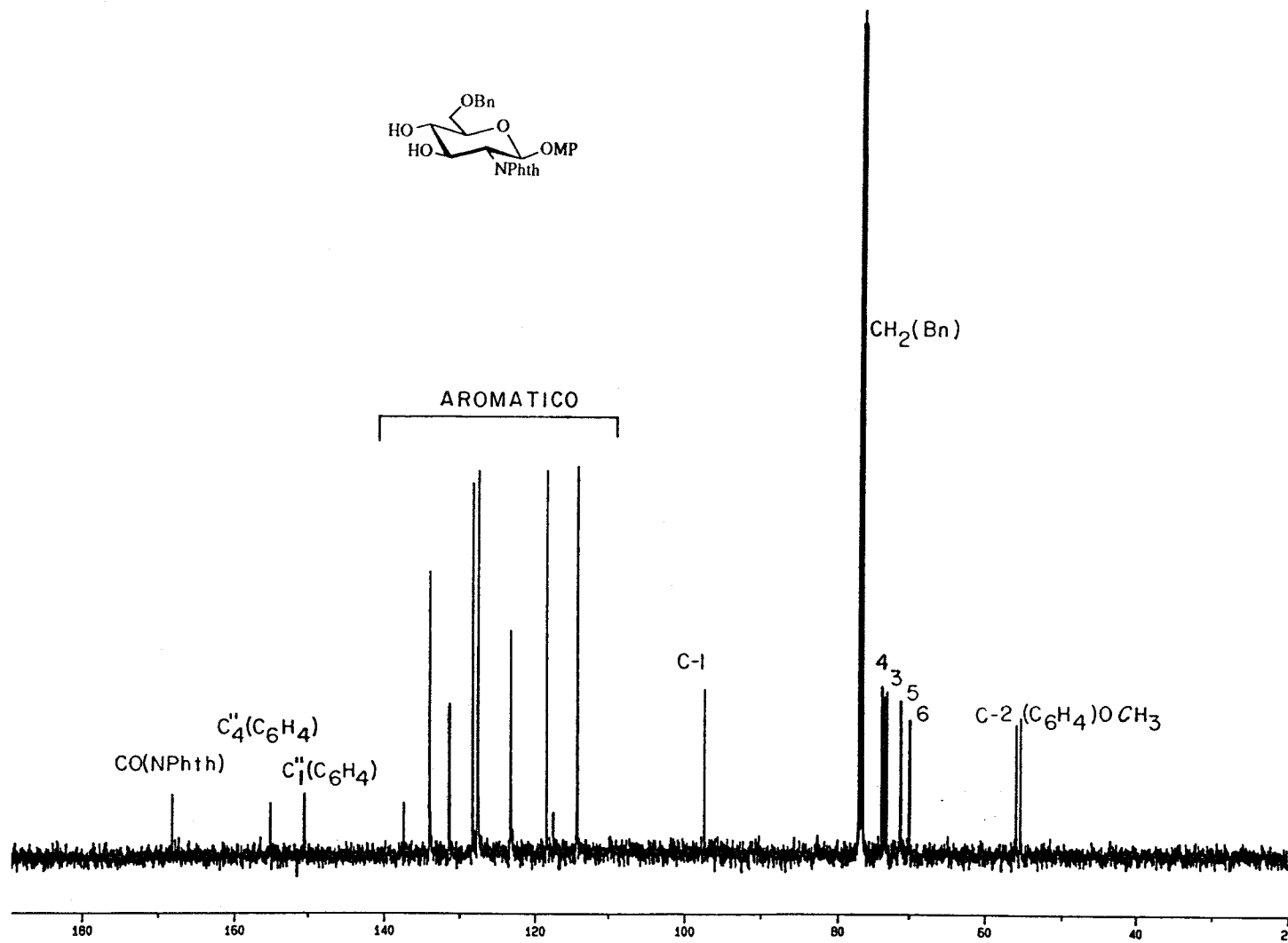


Figura 45. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil 6-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (76).

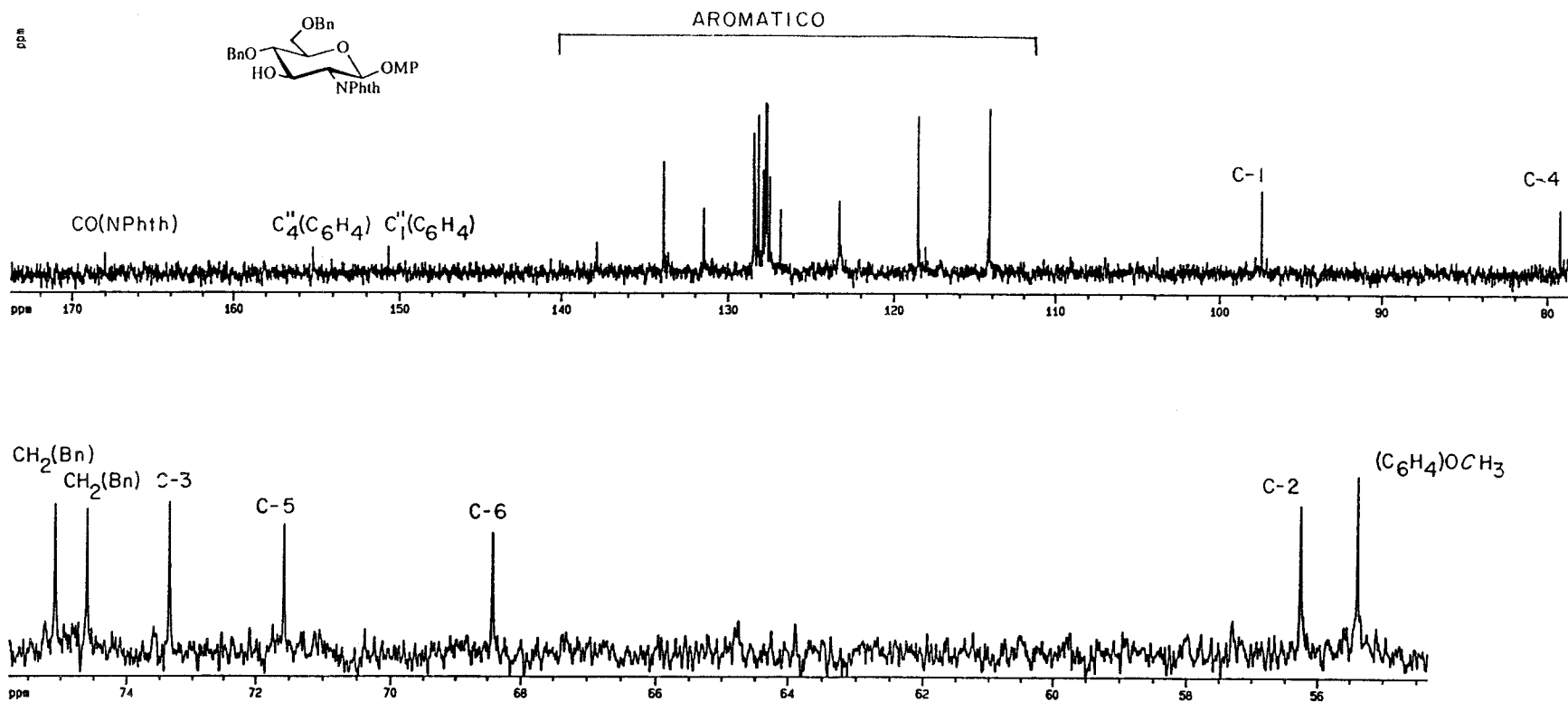


Figura 46. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil 4,6-di-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (77).

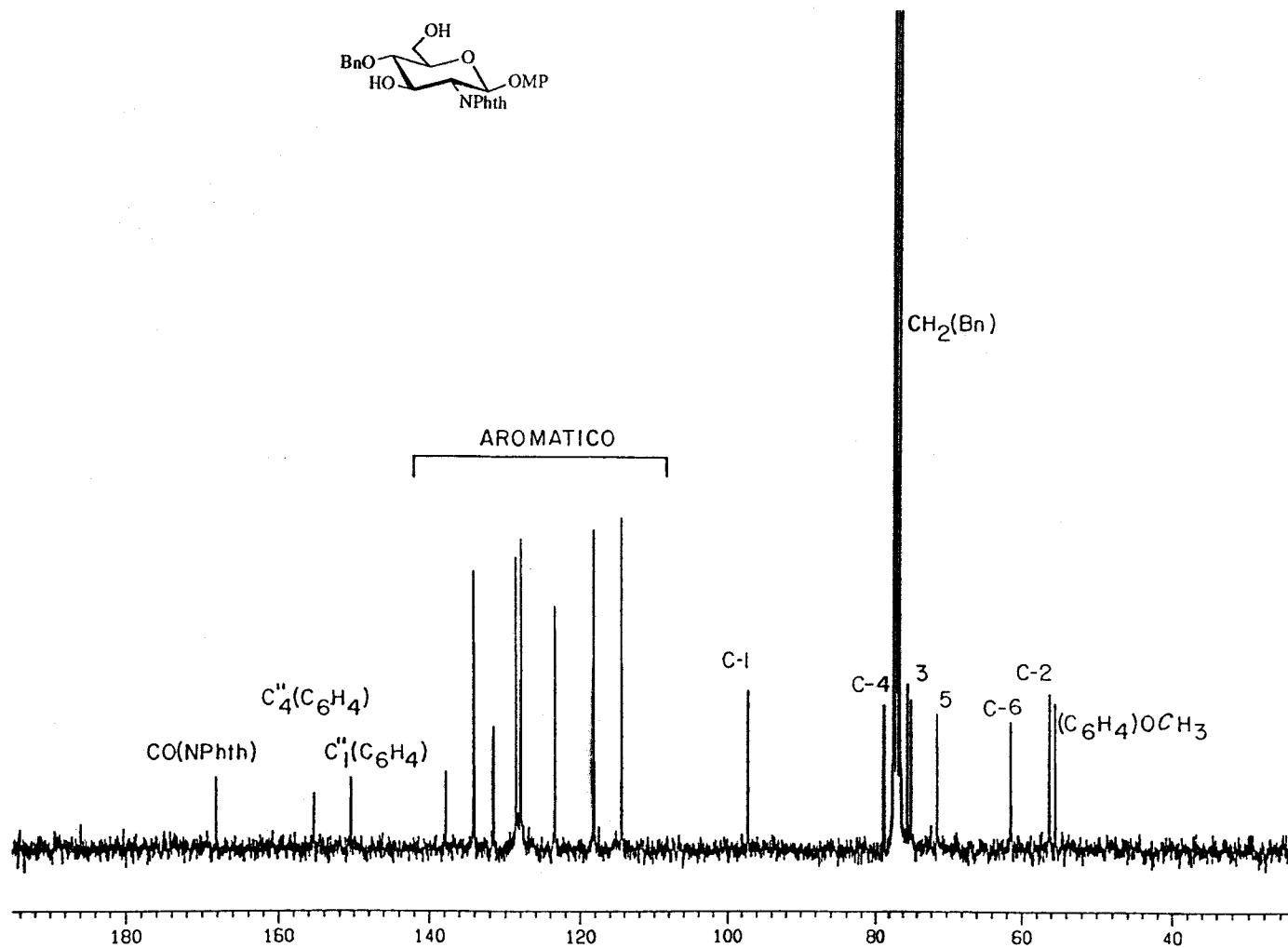


Figura 47. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil 4-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (78).

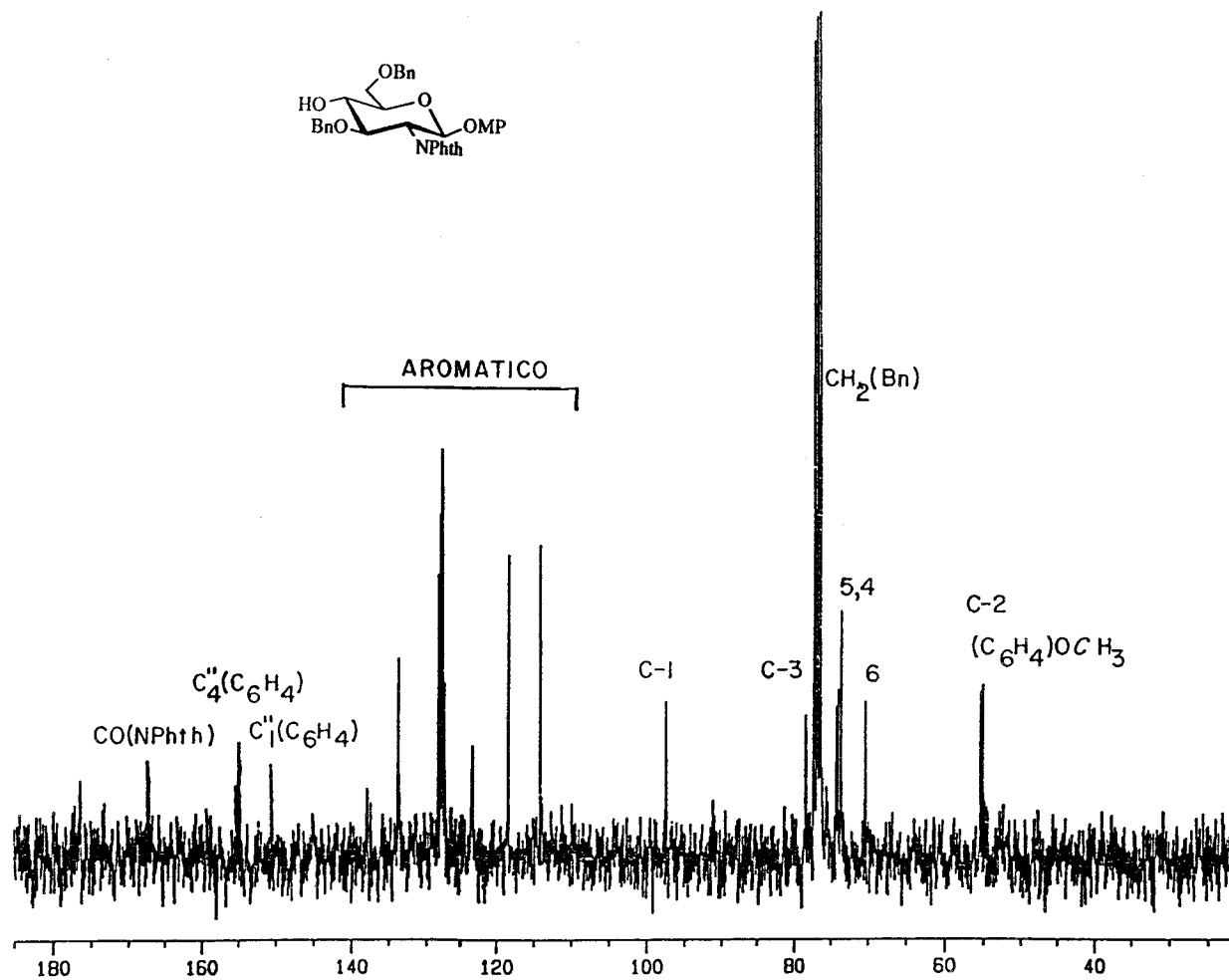


Figura 48. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil 3,6-di-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (7).

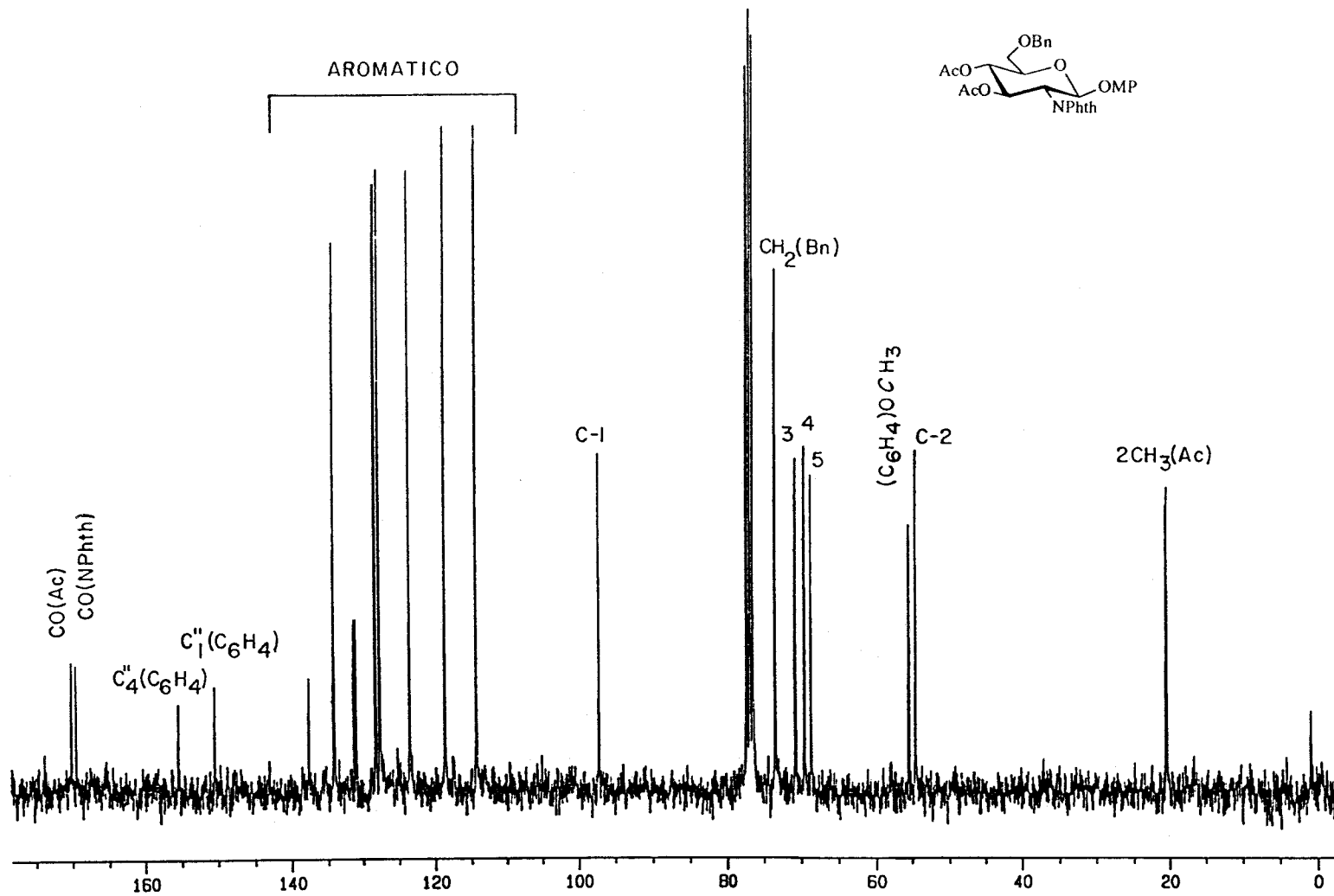


Figura 49. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil 3,4-di-*O*-acetil-6-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (**80**).

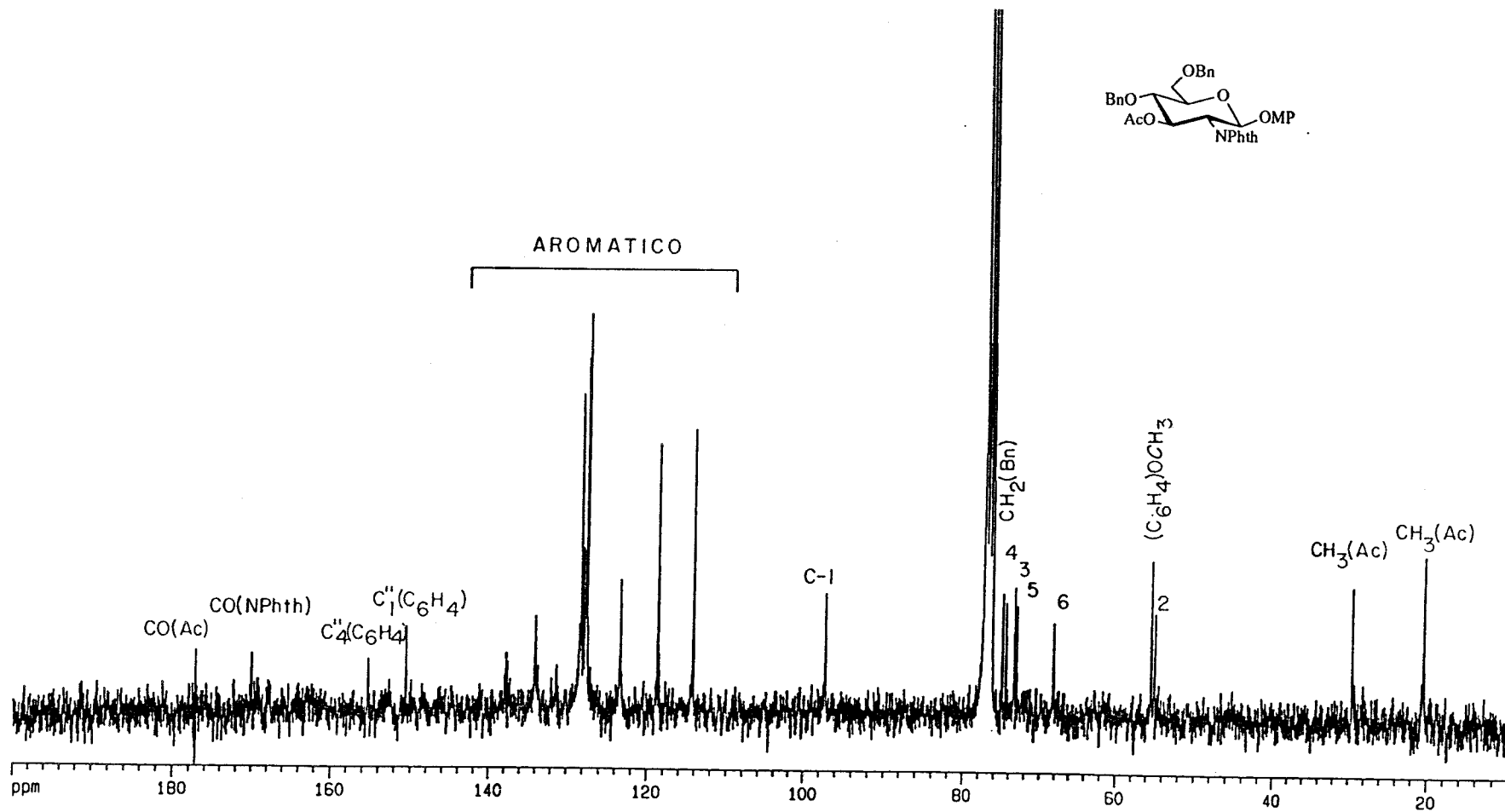


Figura 50. Espectro de ¹³C-RMN a 75,4 MHz en Cl₃CD de *p*-metoxifenil 3-*O*-acetil-4,6-di-*O*-bencil-2-desoxi-2-ftalimido-β-D-glucopiranosido (81).

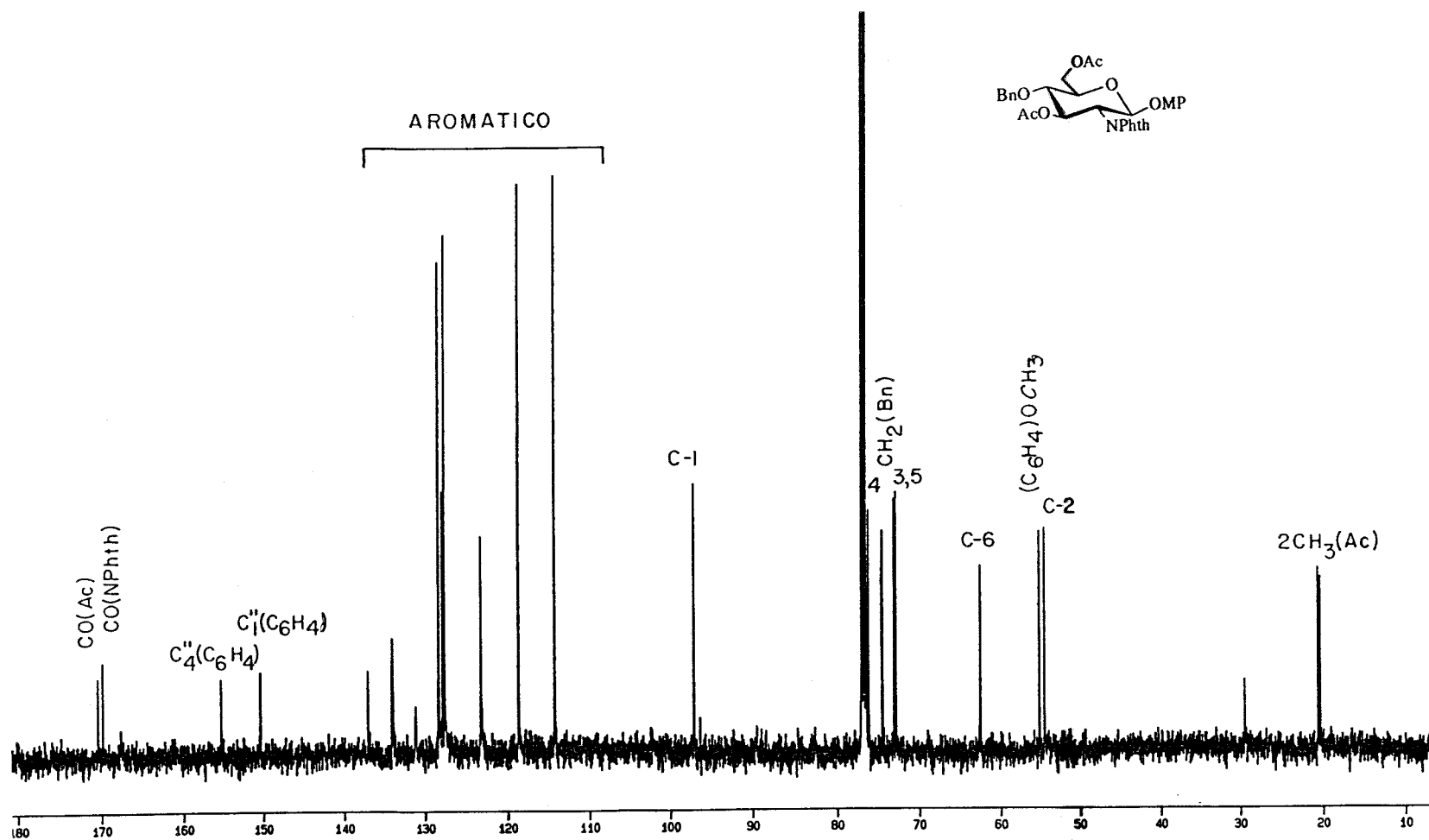


Figura 51. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil 3,6-di-*O*-acetil-4-*O*-bencil-2-desoxi-2-ftalimido- β -D-glucopiranosido (82).

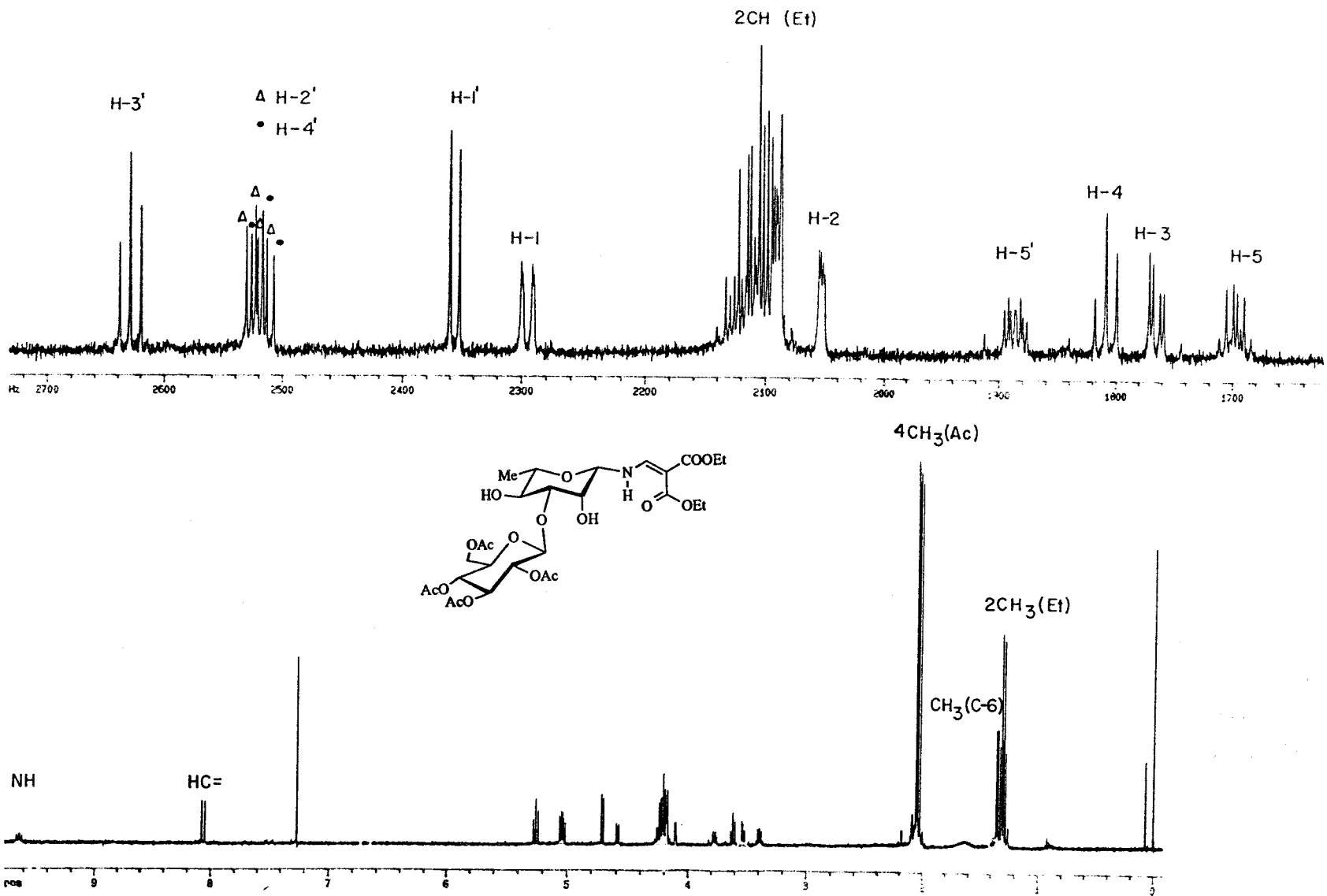


Figura 52. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *N*-(2,2-dietoxicarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-ramnopiranosilamina (**93**).

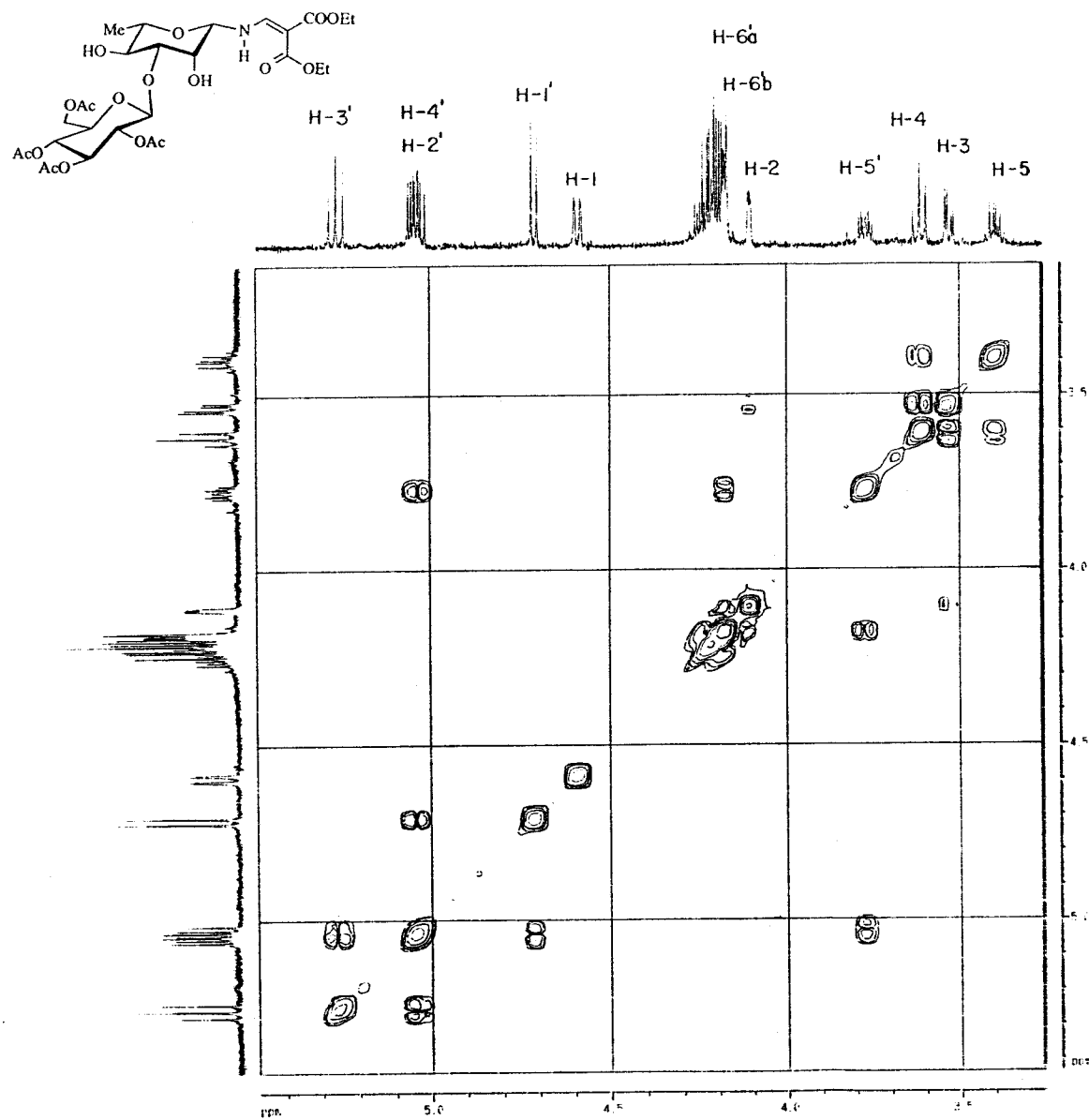
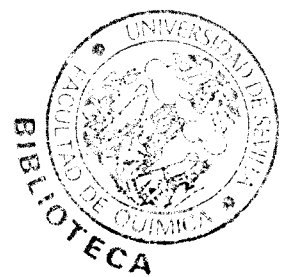


Figura 53. Espectro COSY a 500 MHz en Cl_3CD de *N*-(2,2-dietoxicarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-ramnopiranosilamina (93).

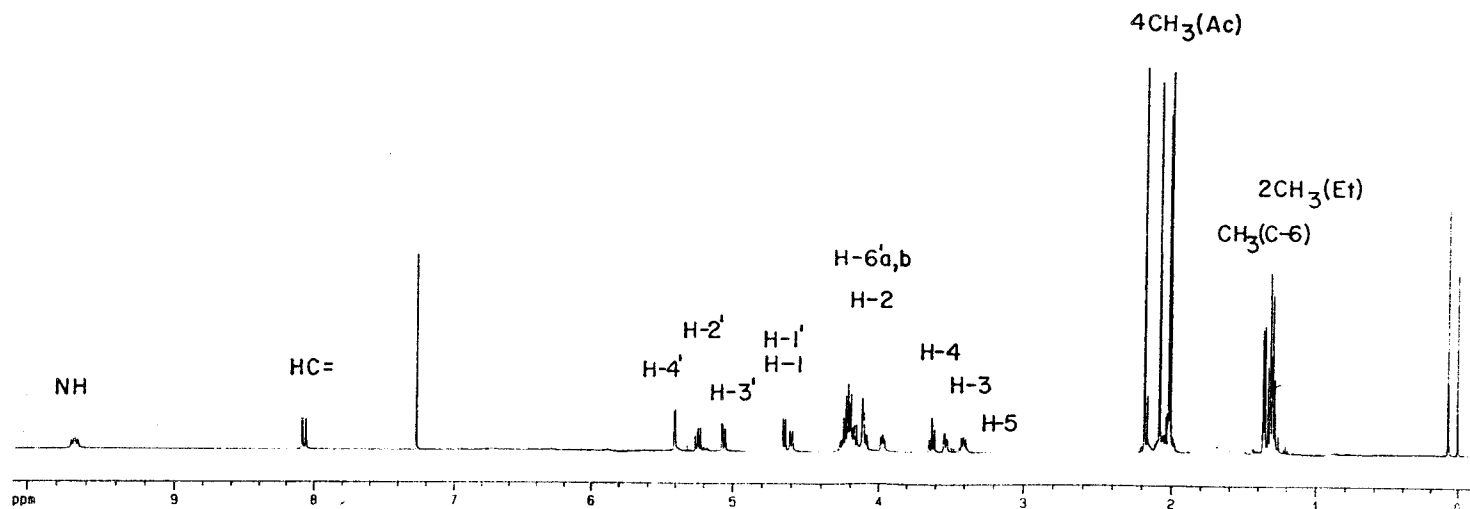
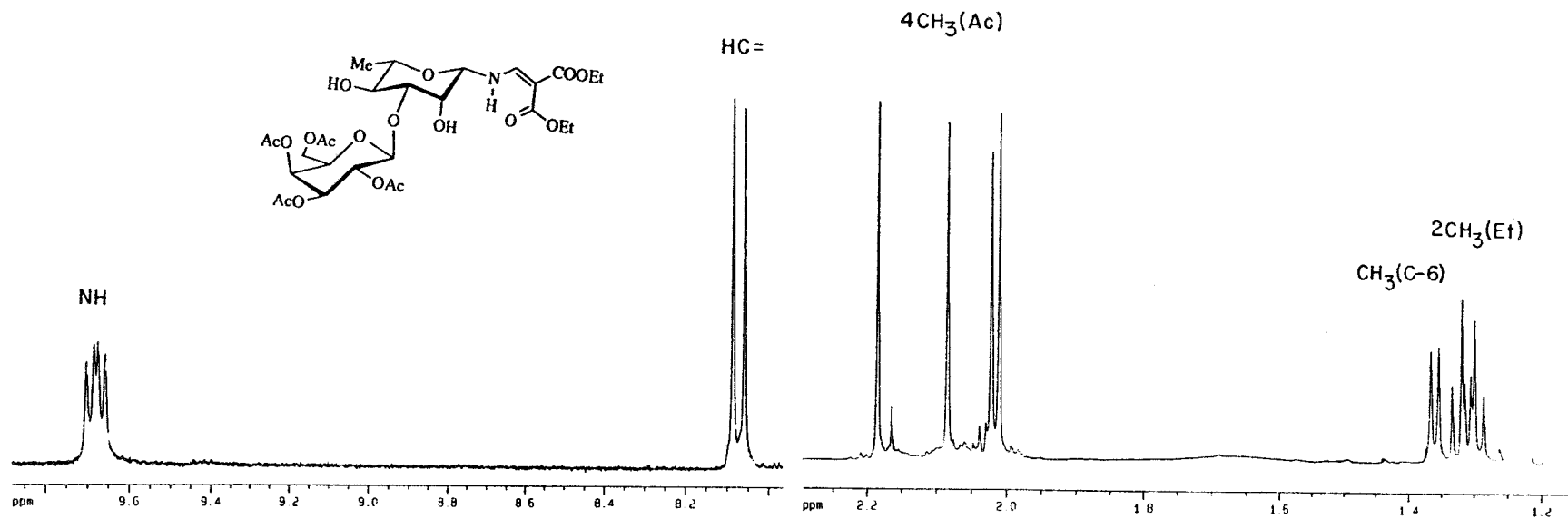


Figura 54. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *N*-(2,2-dietoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-rannopiranosilamina (97).

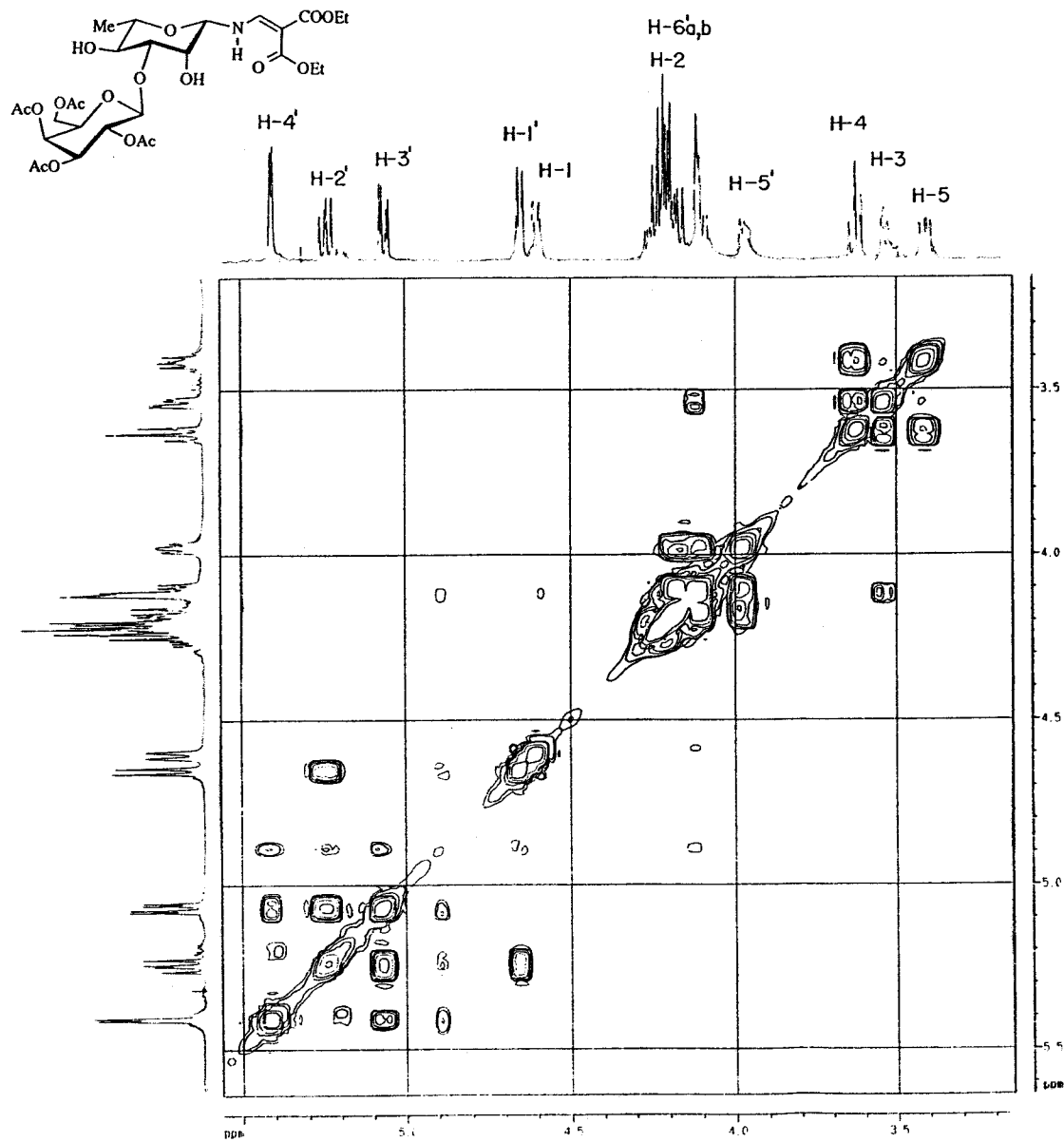


Figura 55. Espectro COSY a 500 MHz en Cl_3CD de *N*-(2,2-dietoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-rannopiranosilamina (97).

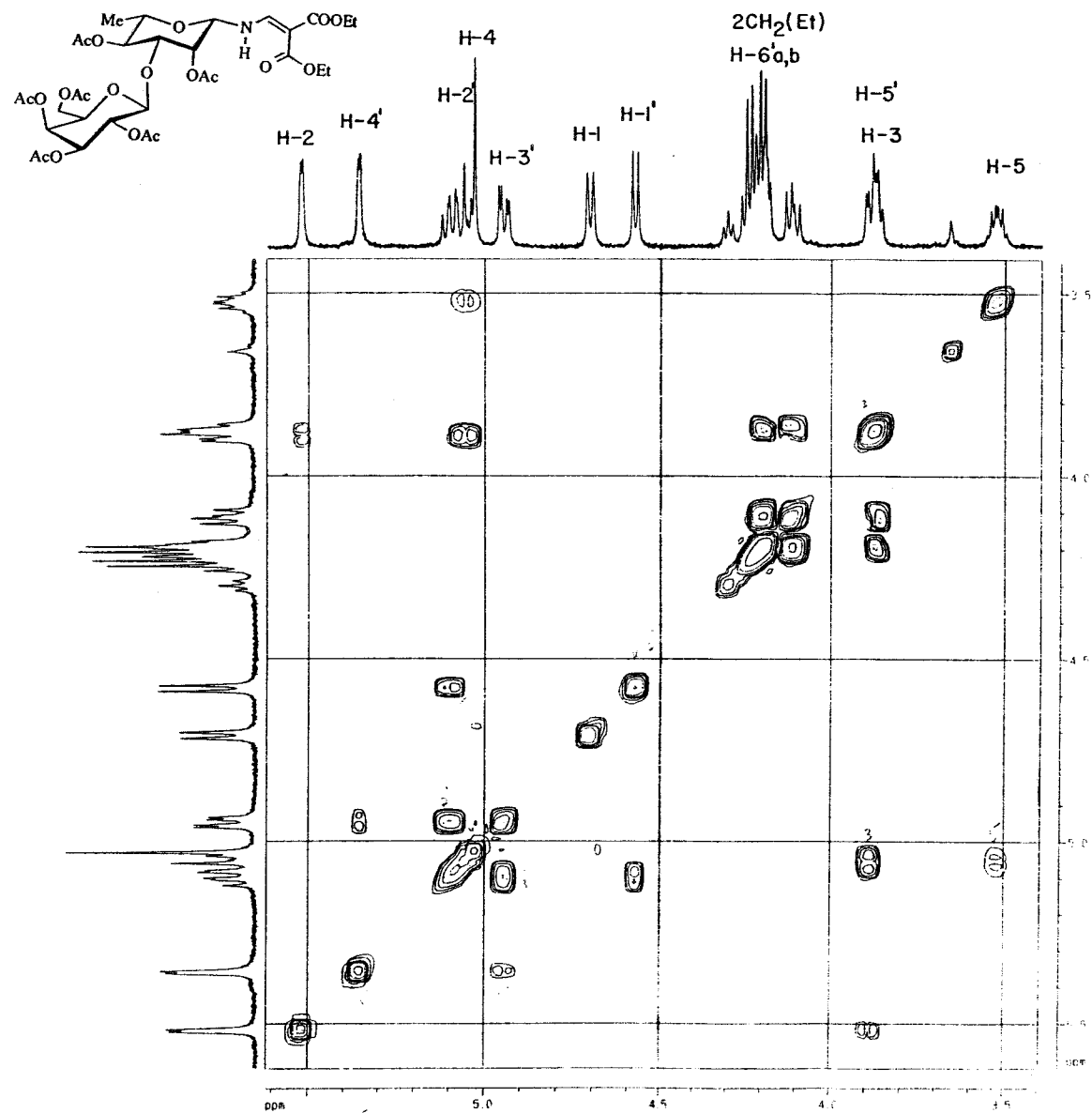


Figura 56. Espectro COSY a 500 MHz en Cl_3CD de 2,4-di-*O*-acetil-*N*-(2,2-diethoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ramnopiranosilamina (98).

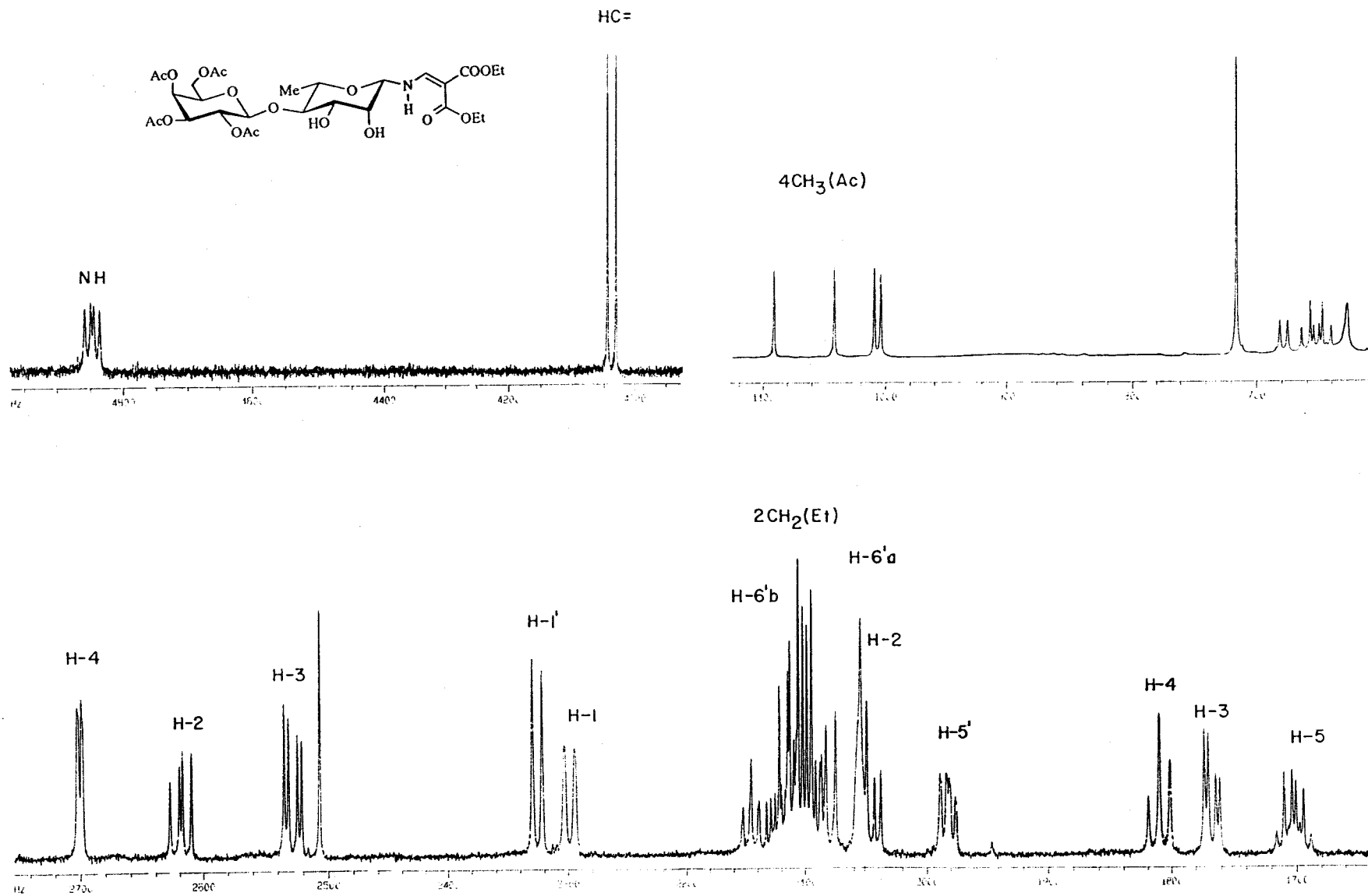


Figura 57. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *N*-(2,2-dietoxycarbonilvinil)-4-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ramnopiranosilamina (99). Ampliación.

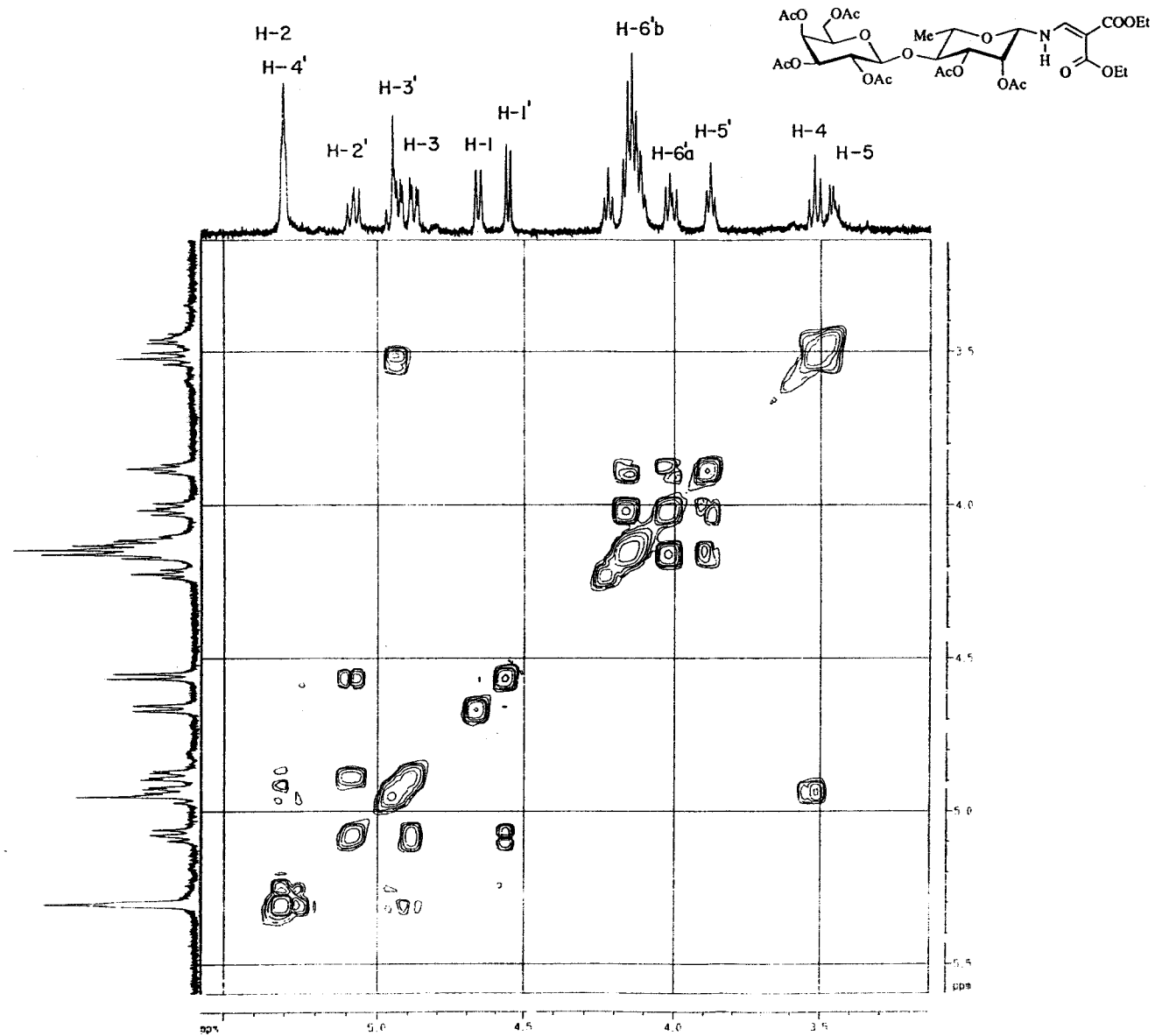


Figura 58. Espectro COSY a 500 MHz en Cl_3CD de 2,3-di-O-acetil-N-(2,2-diethoxycarbonilvinil)-4-O-(2,3,4,6-tetra-O-acetil-β-D-galactopiranosil)-β-L-ramnopyranosilamina (100).

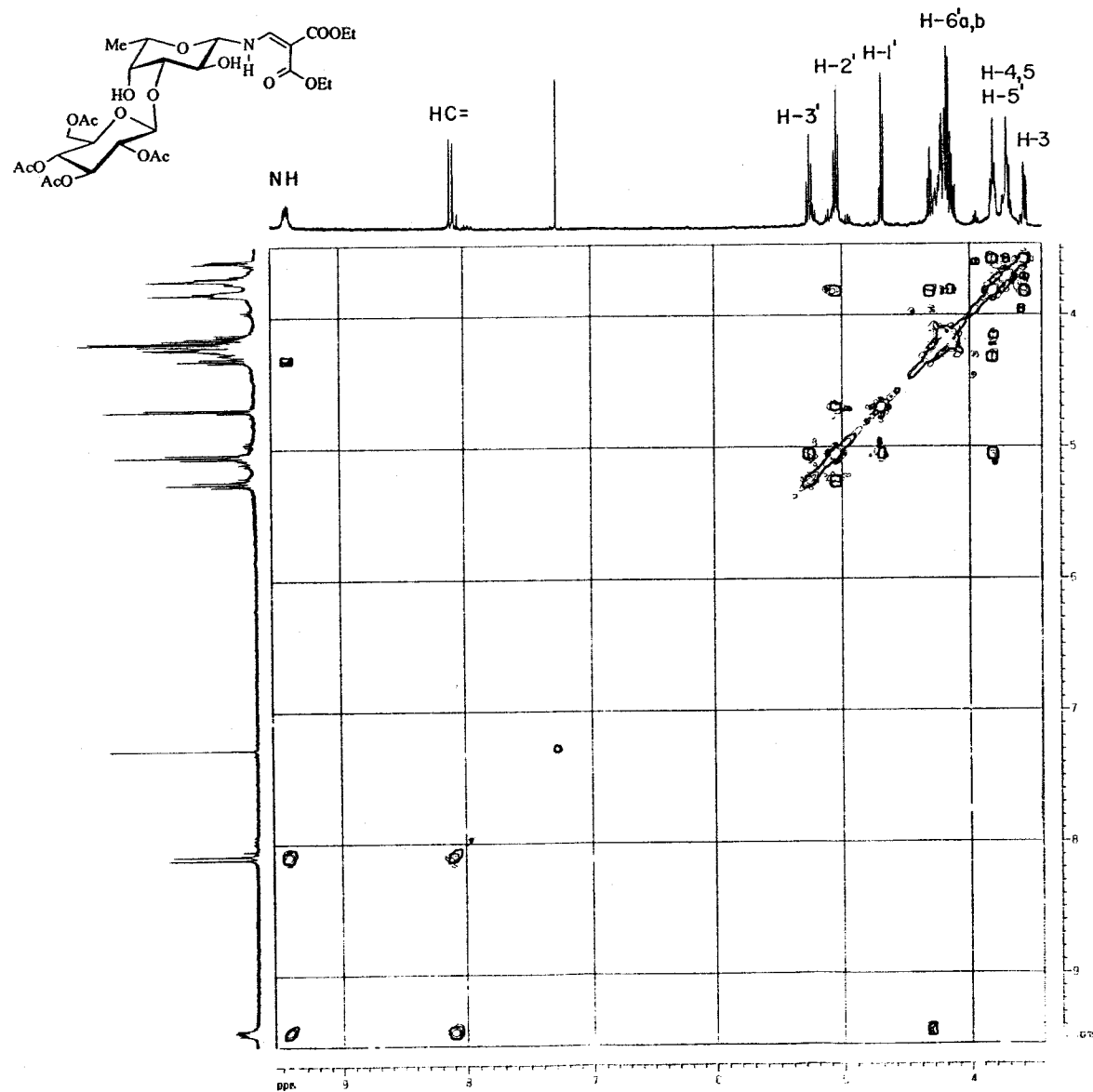


Figura 59. Espectro COSY a 500 MHz en Cl_3CD de *N*-(2,2-diethoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-fucopiranosilamina (101).

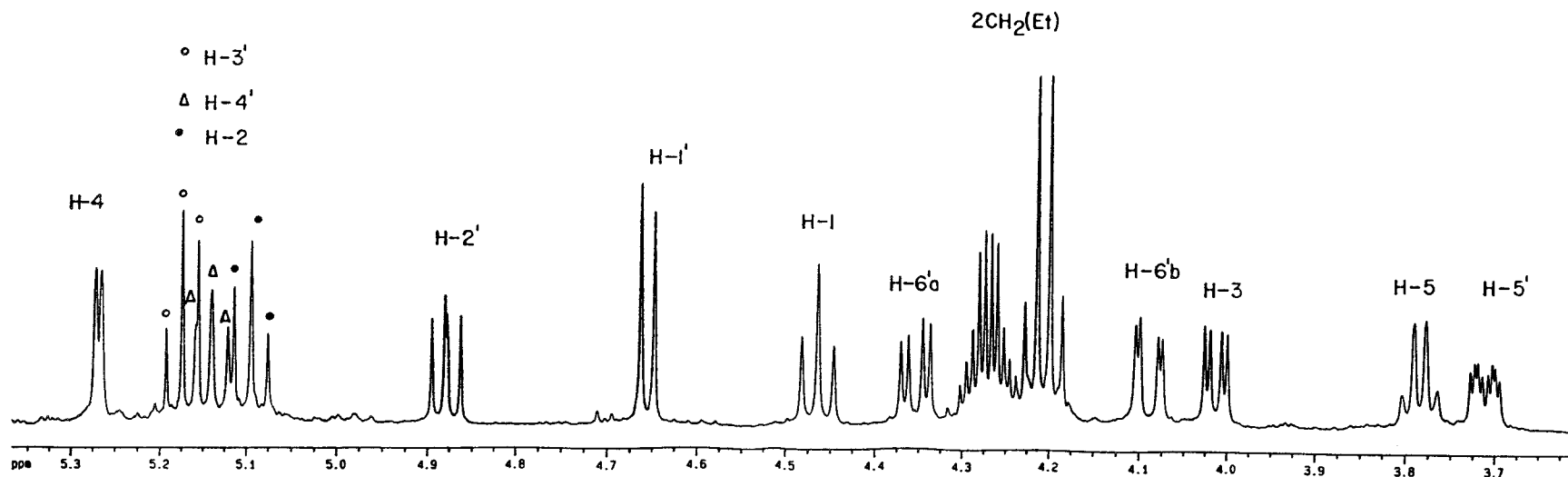
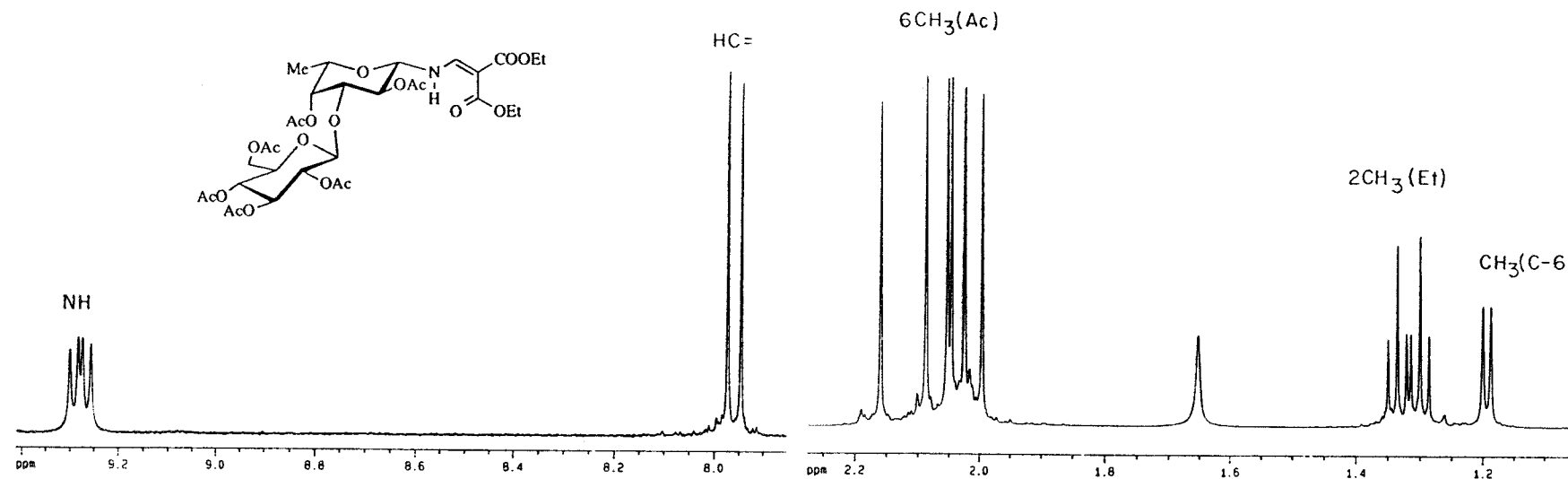


Figura 60. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de 2,4-di-O-acetil-N-(2,2-dietoxycarbonilvinil)-3-O-(2,3,4,6-tetra-O-acetil-β-D-glucopiranosil)-β-L-fucopiranosilamina (102). Ampliación.

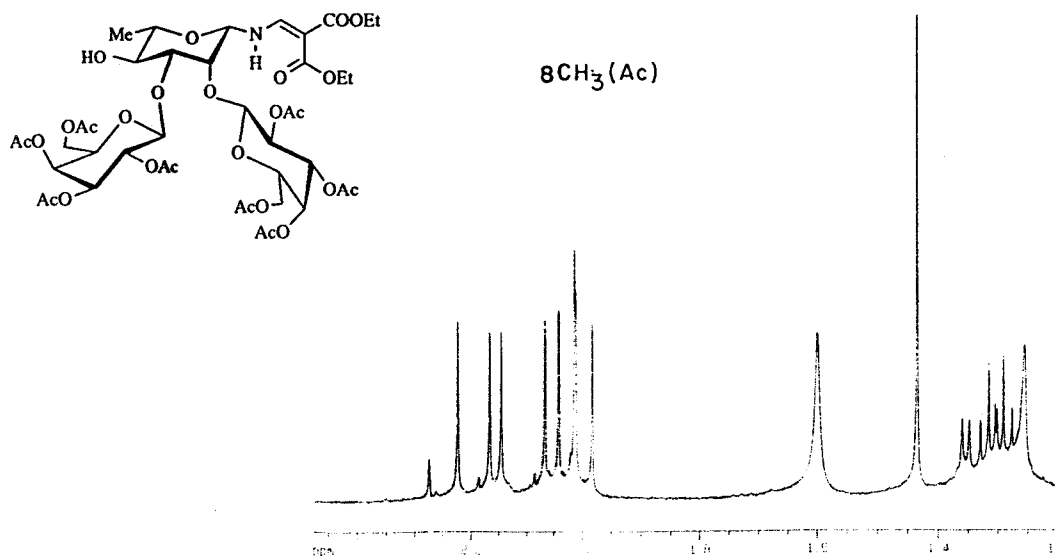
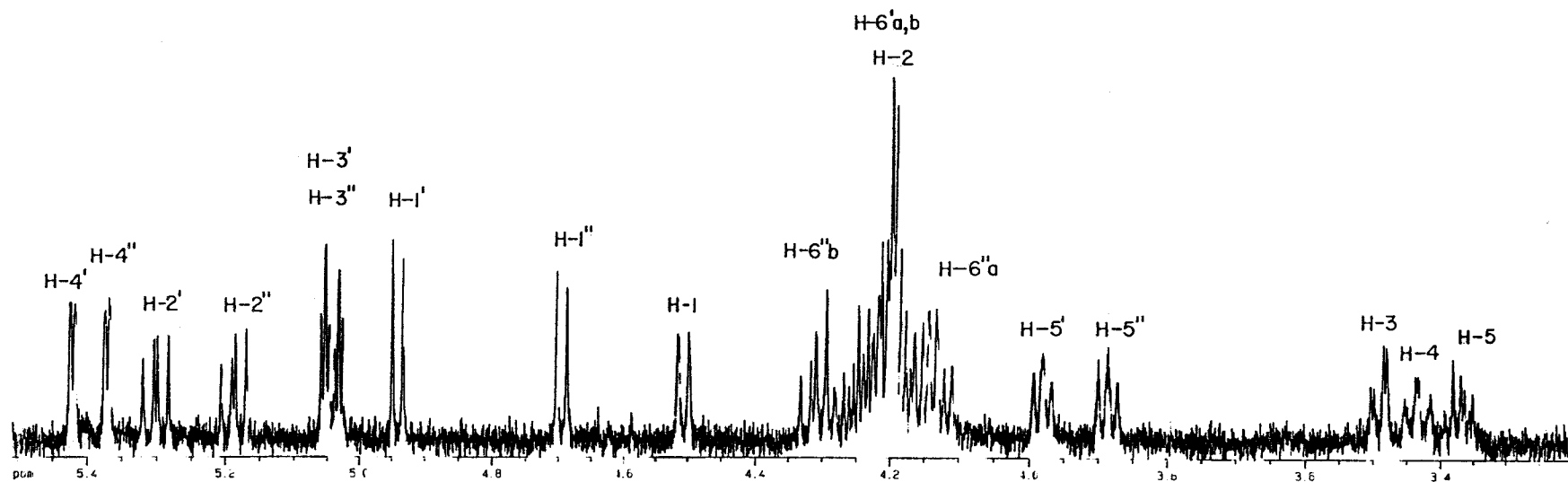


Figura 61. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *N*-(2,2-diethoxycarbonilvinil)-2,3-di-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ramnopiranosilamina (104).

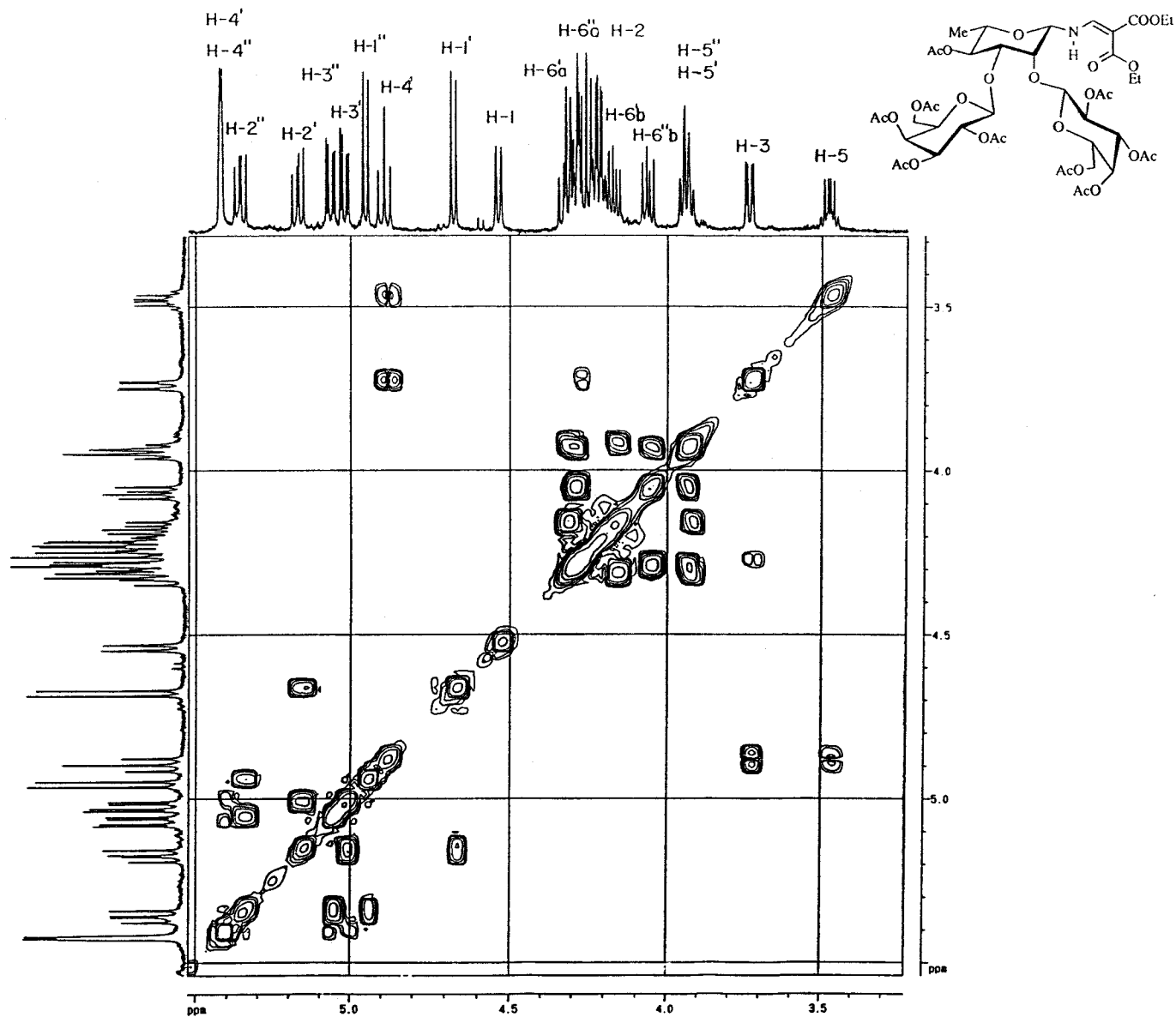


Figura 62. Espectro COSY a 500 MHz en Cl_3CD de 4-*O*-acetil-*N*-(2,2-dietoxicarbonilvinil)-2,3-di-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ramnopiranosilamina (105).

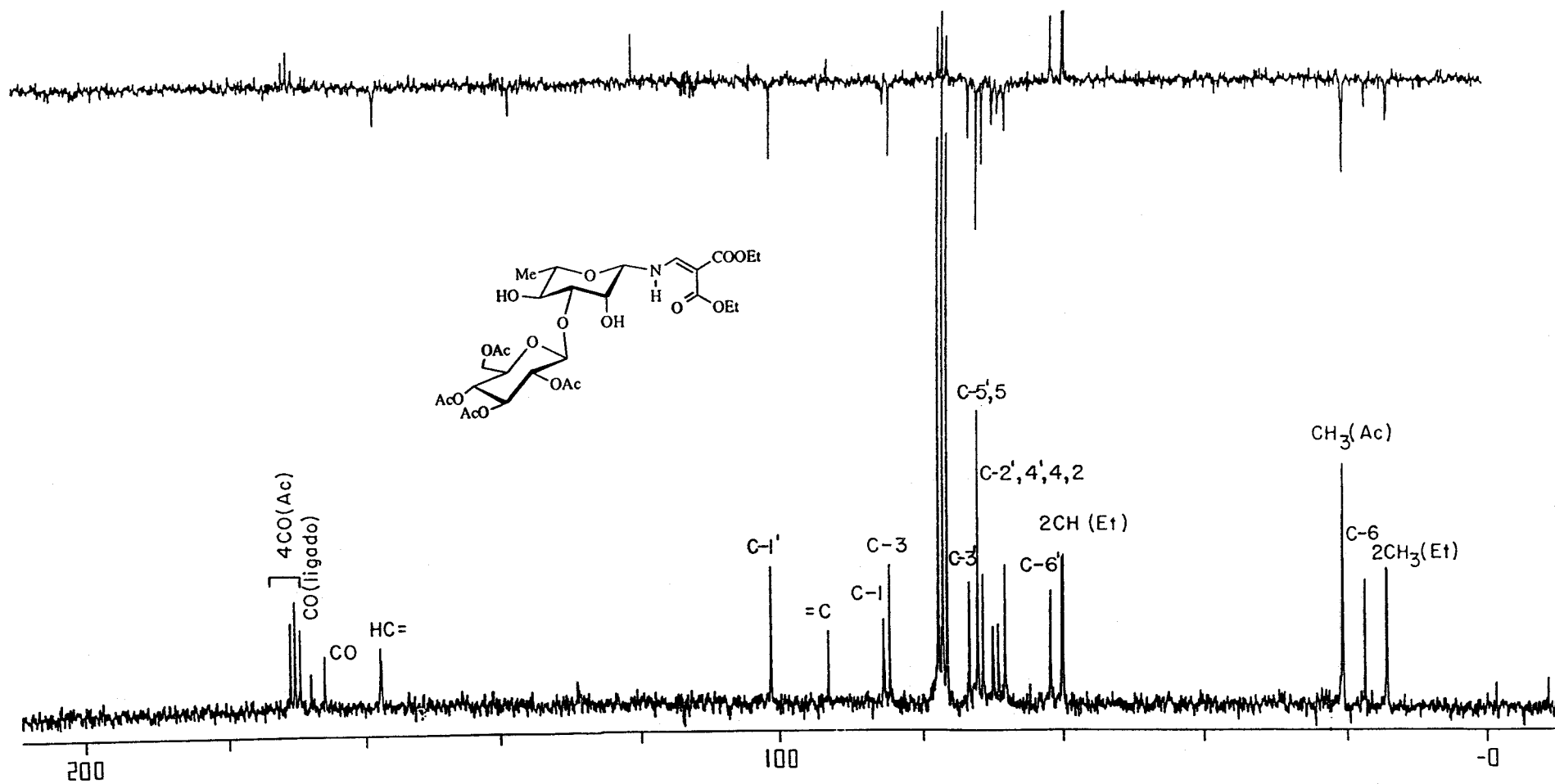


Figura 63. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de *N*-(2,2-diethoxycarbonylvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-ramnopiranosilamina (93).

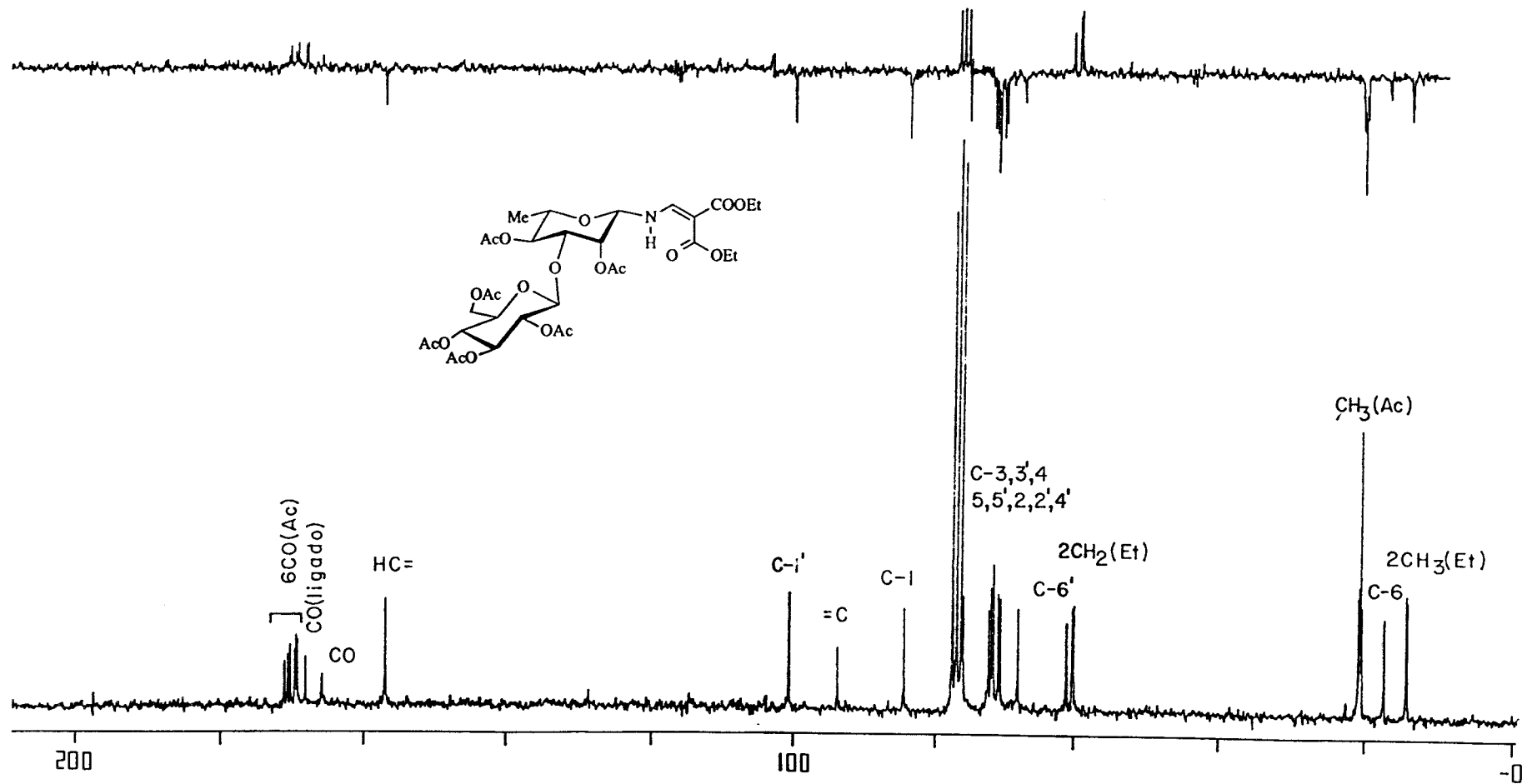


Figura 64. Espectro de ¹³C-RMN y APT a 50,3 MHz en Cl₃CD de 2,4-di-O-acetil-N-(2,2-diethoxycarbonilvinil)-3-O-(2,3,4,6-tetra-O-acetil-β-D-glucopiranosil)-β-L-ranopiranosilamine (94).

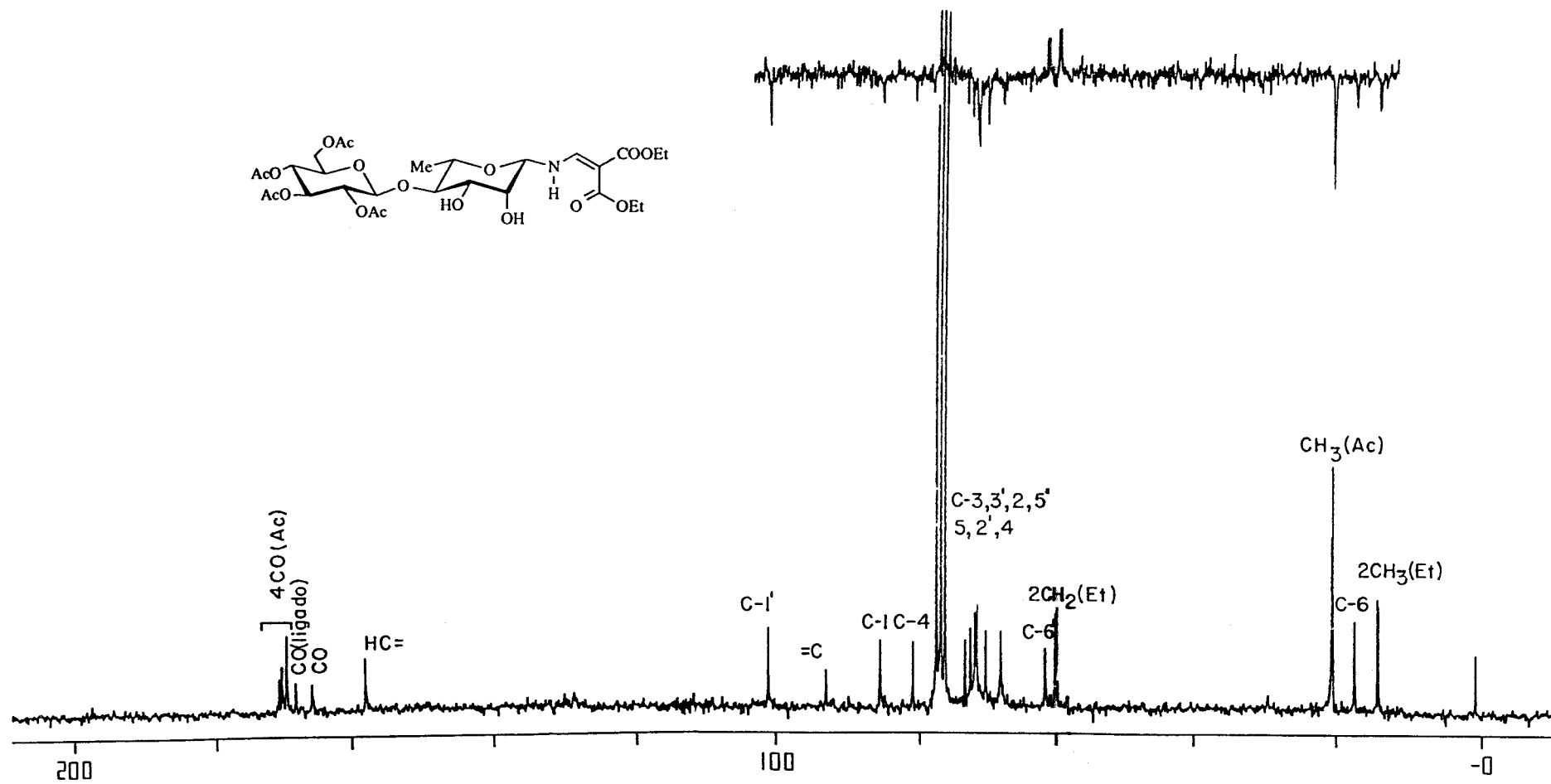


Figura 65. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de *N*-(2,2-dietoxicarbonilvinil)-4-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-ramnopiranosilamina (95).

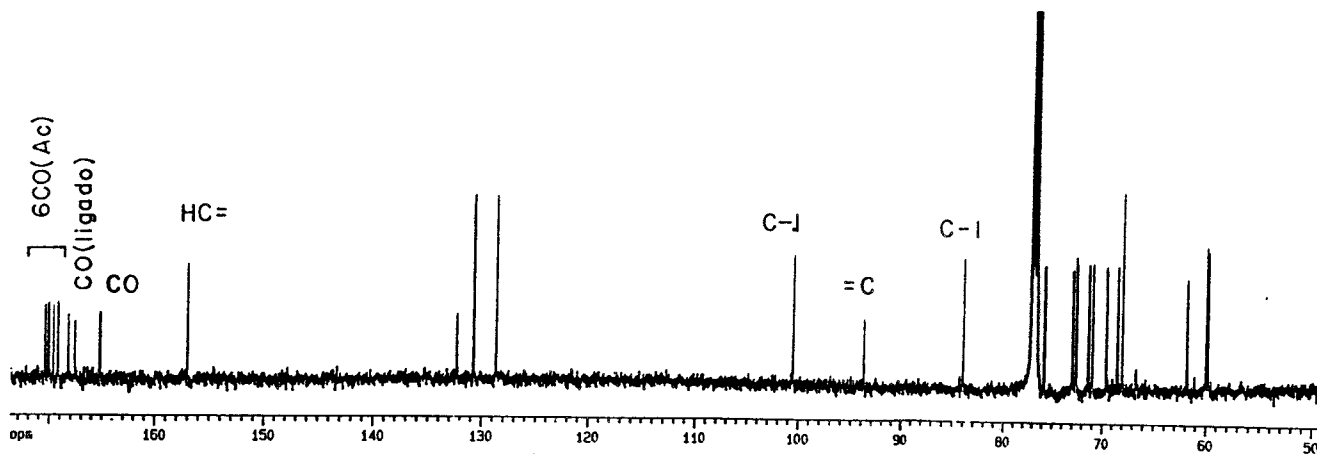
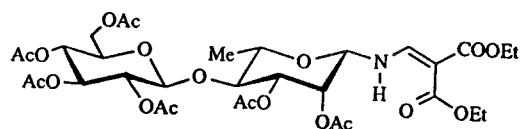
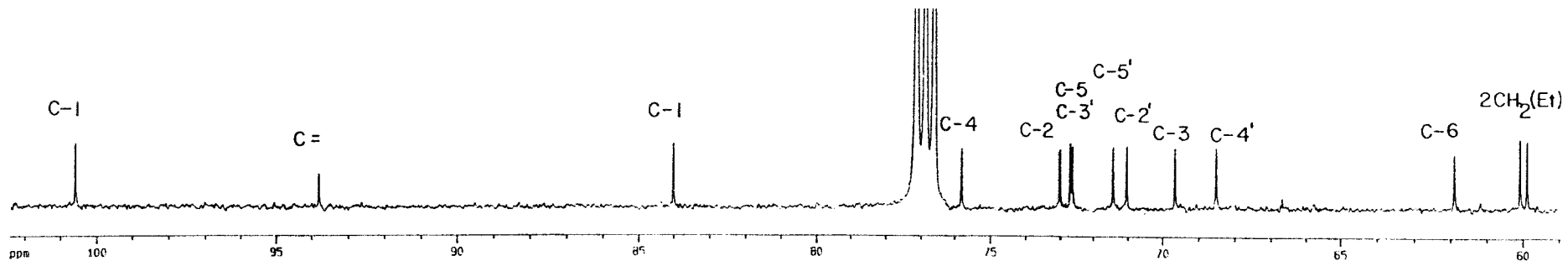


Figura 66. Espectro de ^{13}C -RMN a 74,5 MHz en Cl_3CD de 2,4-di-*O*-acetil-*N*-(2,2-dietoxicarbonilvinil)-4-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-ramnopiranosilamina (96).

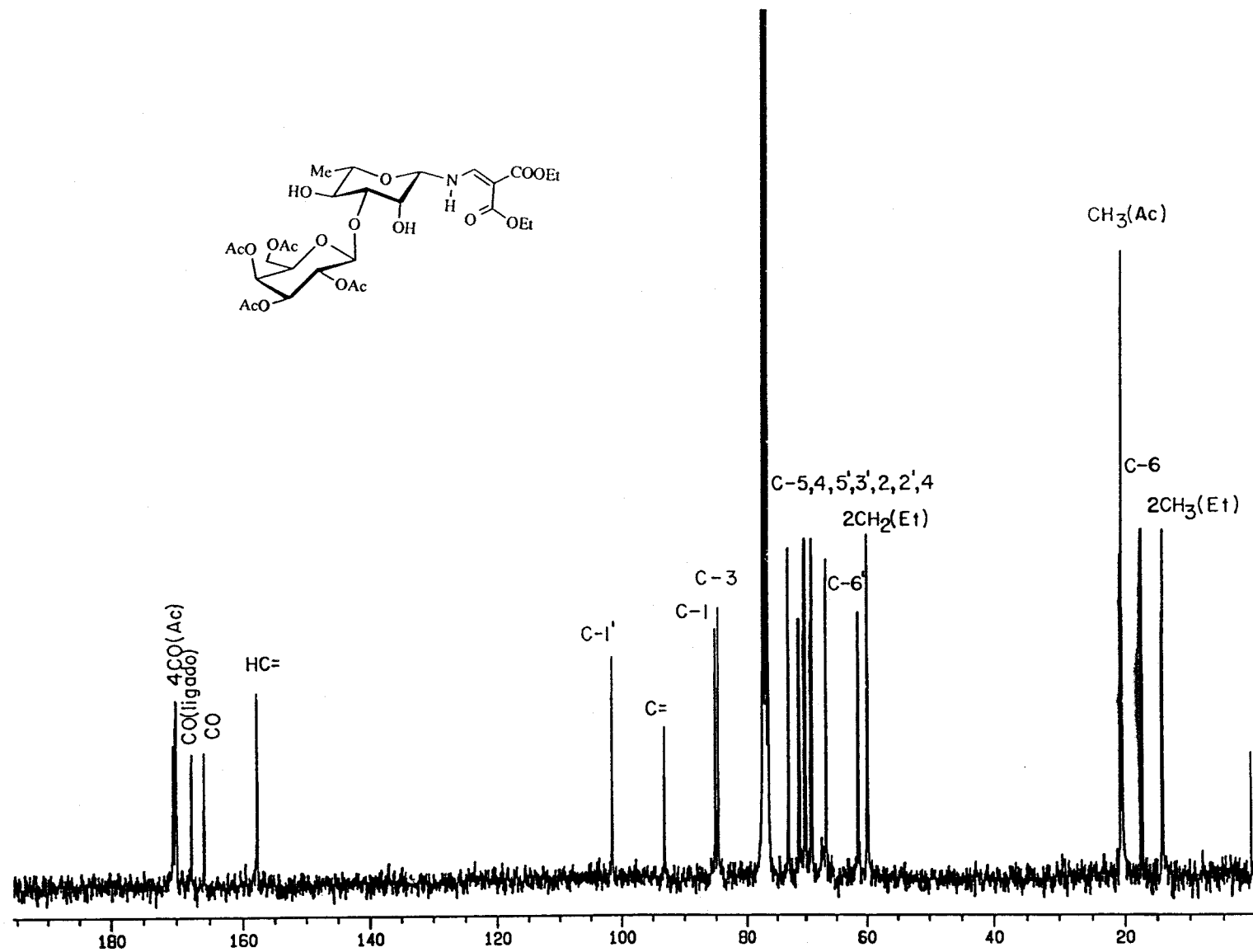


Figura 67. Espectro de ^{13}C -RMN a 74,5 MHz en Cl_3CD de *N*-(2,2-dietoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ramnopiranosilamina (97).

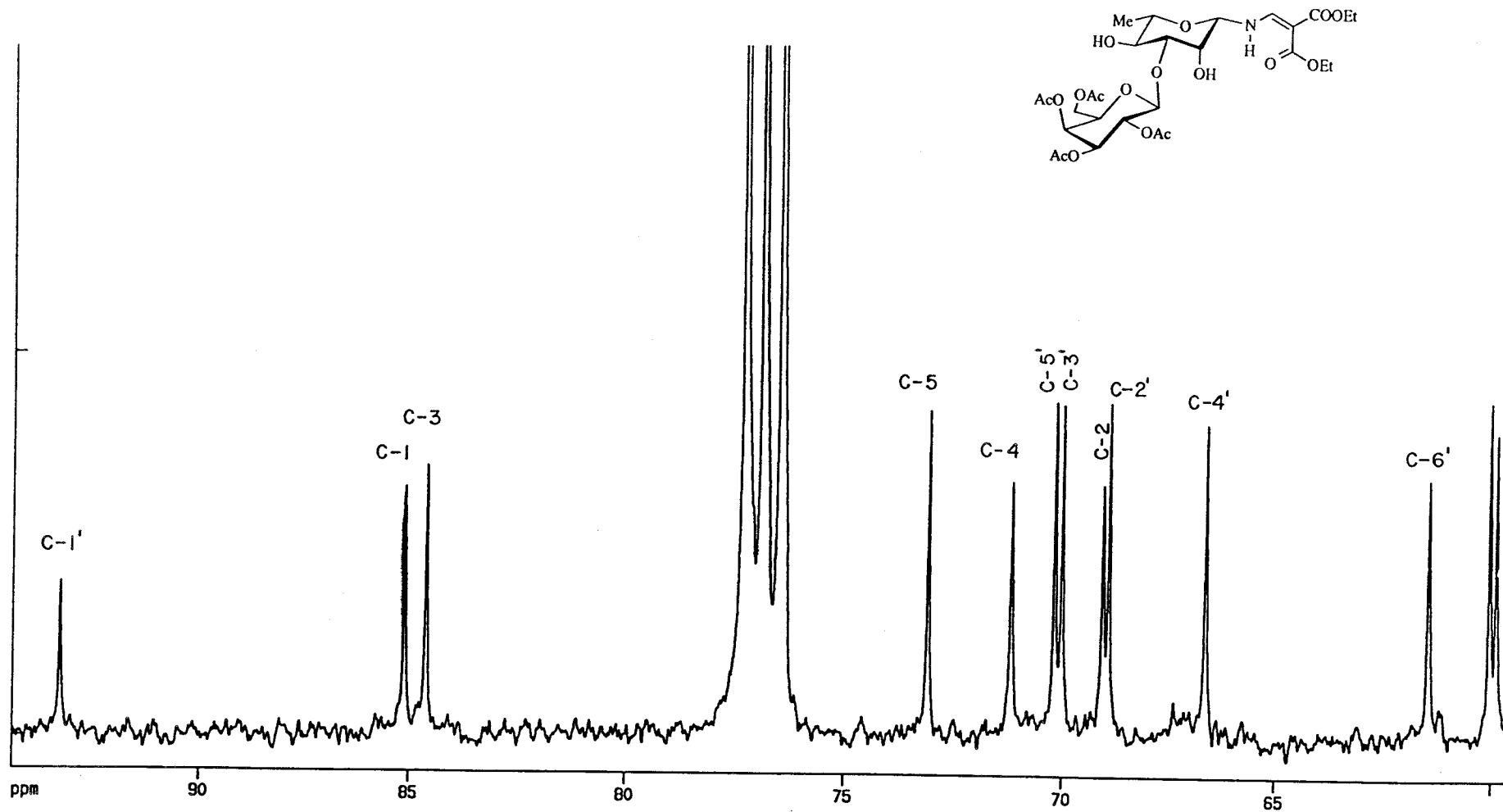


Figura 68. Espectro de ^{13}C -RMN a 74,5 MHz en Cl_3CD de *N*-(2,2-dietoxycarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-galactopiranosil)- β -L-ranopiranosilamina (97). Ampliación.

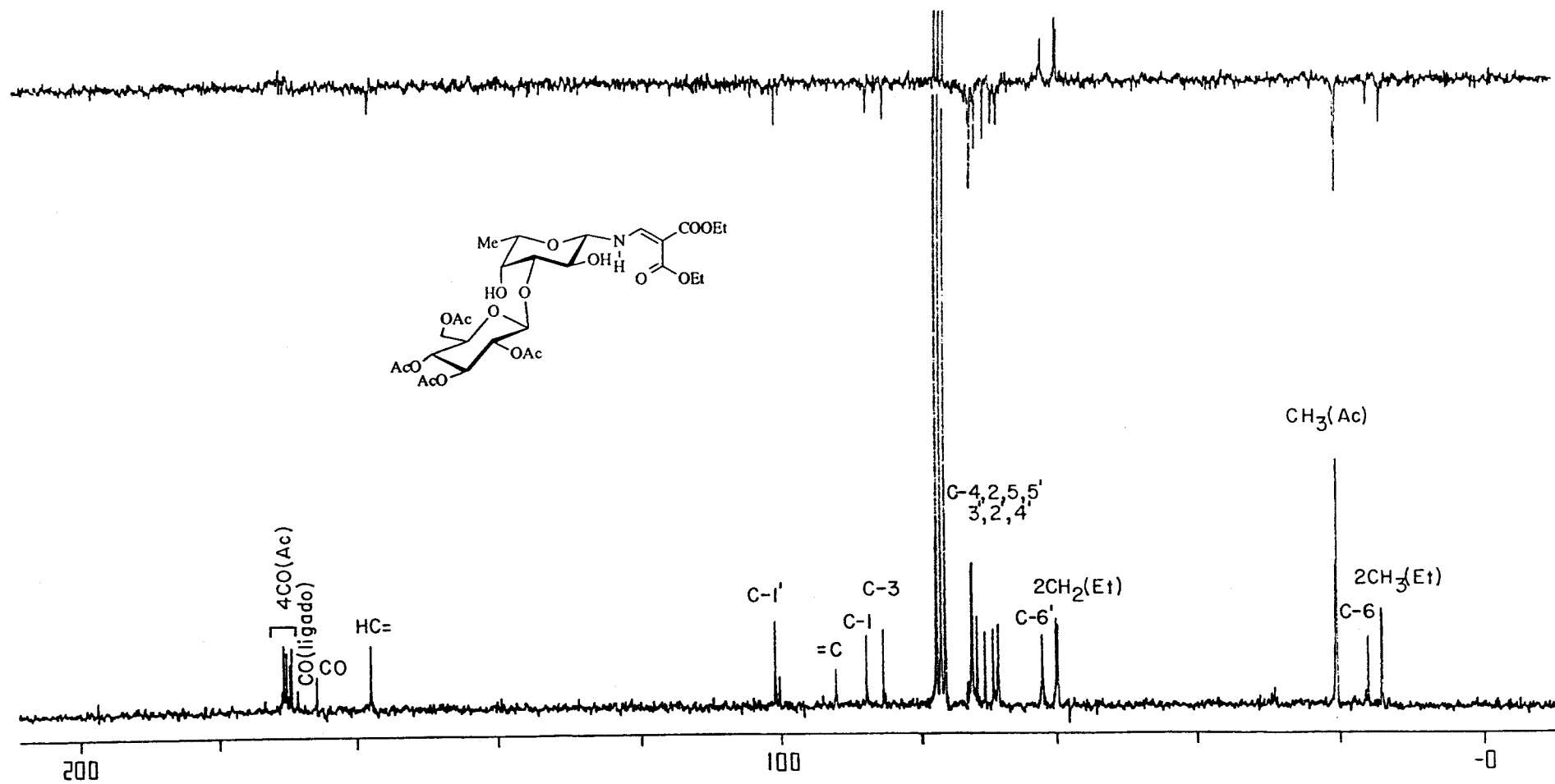


Figura 69. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de *N*-(2,2-diethoxycarbonylvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-fucopiranosilamina (101).

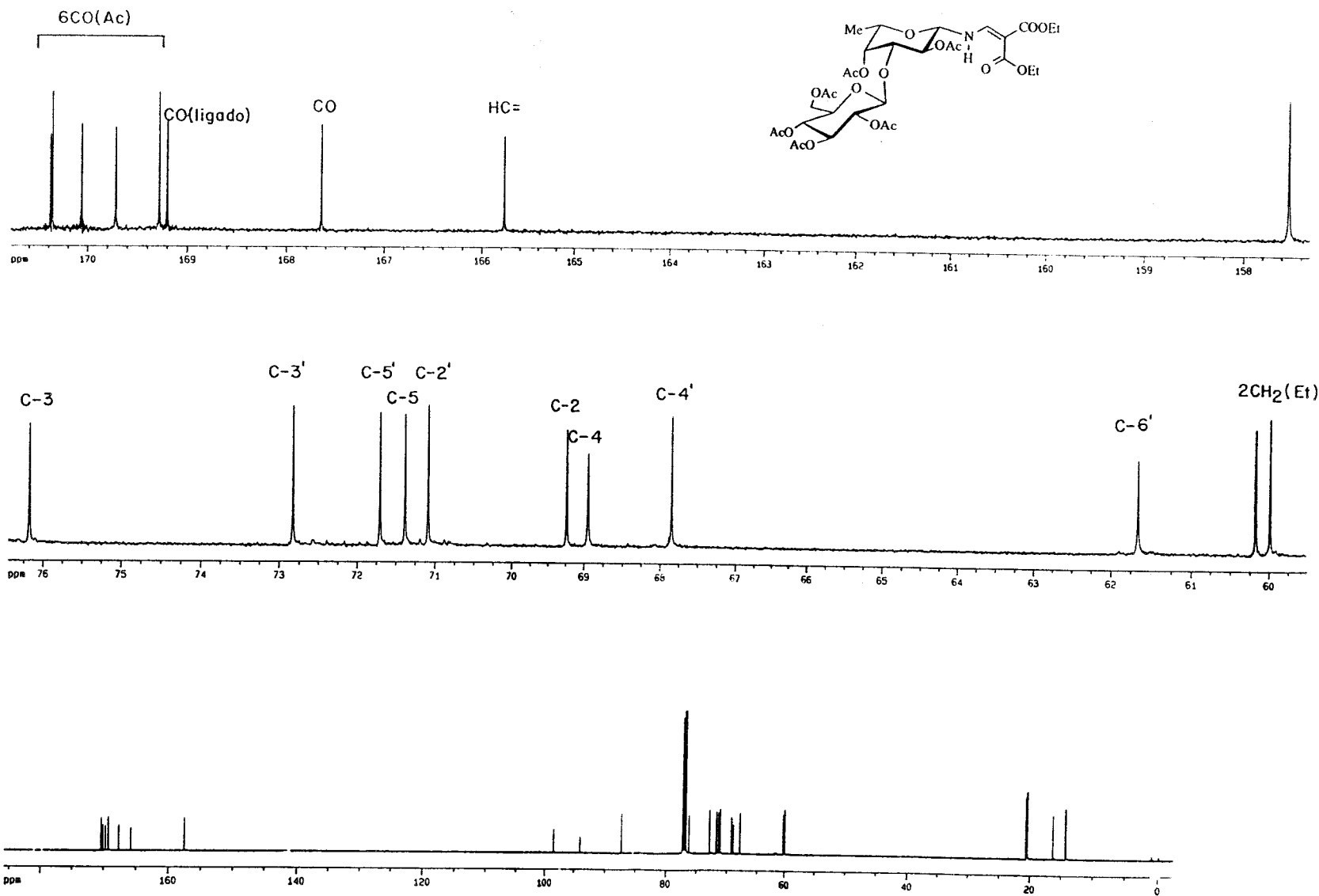


Figura 70. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de 2,4-di-*O*-acetil-*N*-(2,2-dietoxicarbonilvinil)-3-*O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)- β -L-fucopiranosilamina (102).

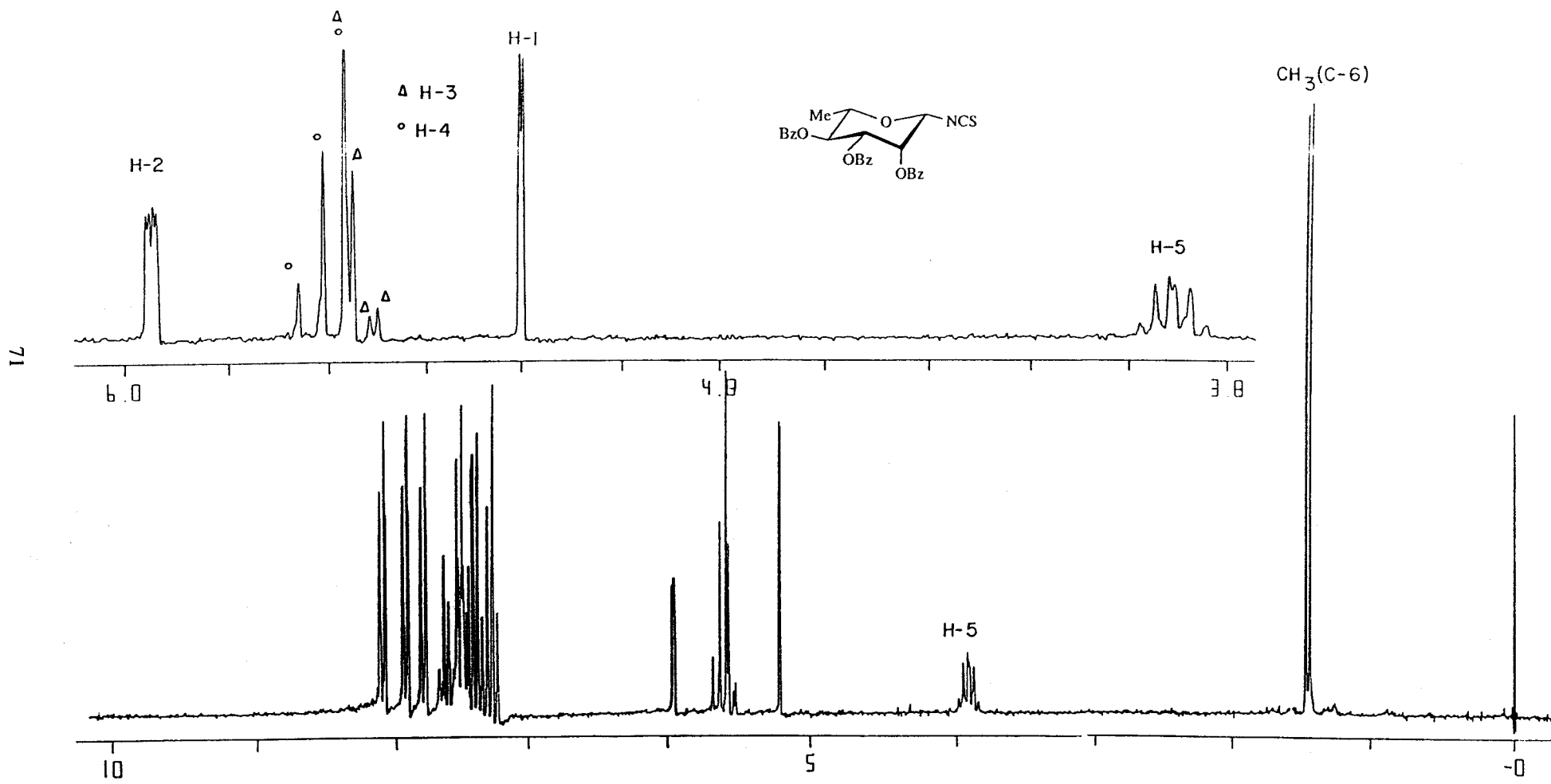


Figura 71. Espectro de ¹H-RMN a 200 MHz en Cl₃CD de isotiocianato de 2,3,4-tri-*O*-benzoil-β-L-ranpianosilo (106).

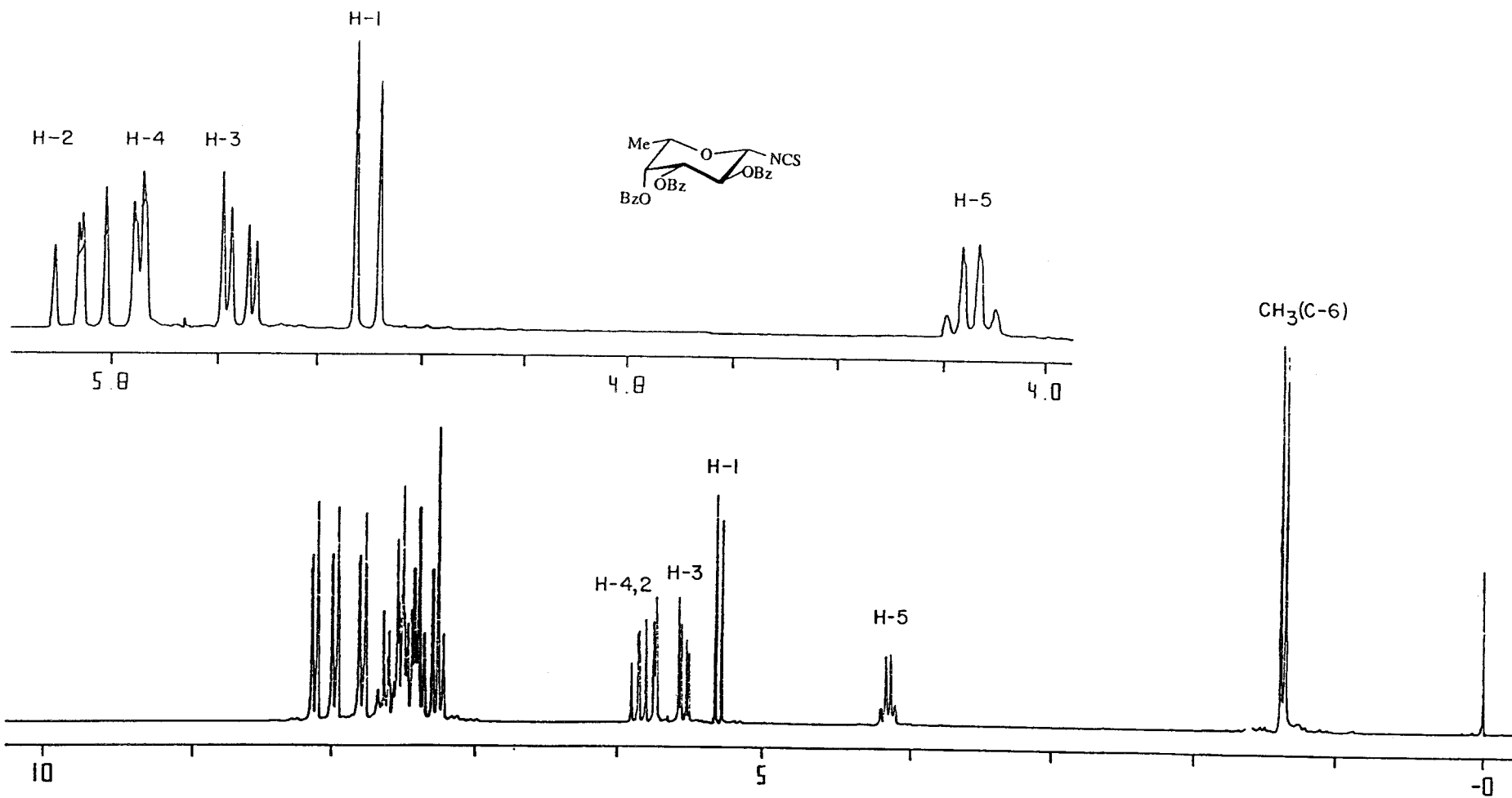


Figura 72. Espectro de $^1\text{H-RMN}$ a 200 MHz en Cl_3CD de isotiocianato de 2,3,4-tri-*O*-benzoil- β -L-fucopiranosilo (107).

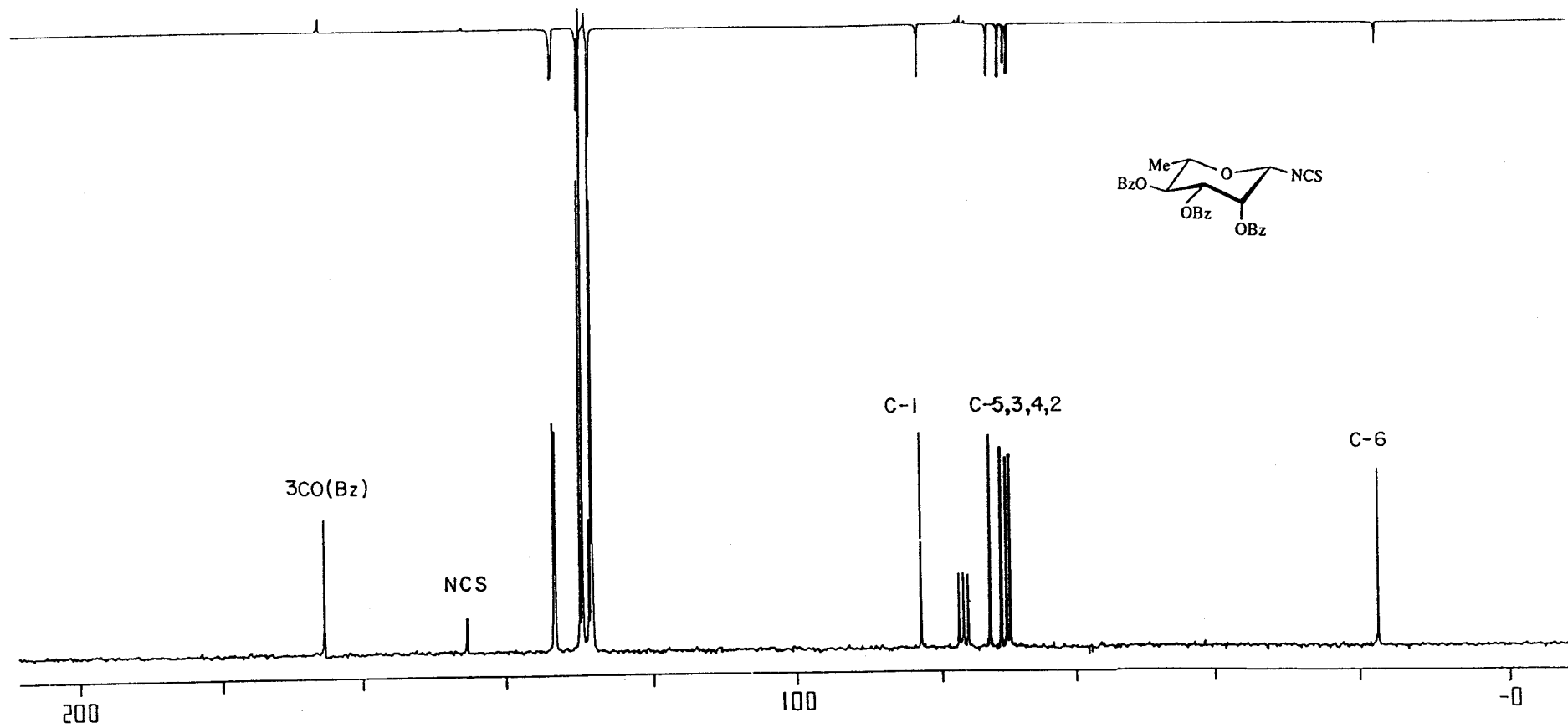


Figura 73. Espectro de ^{13}C -RMN y APT a 50,3 MHz en Cl_3CD de isotiocianato de 2,3,4-tri-*O*-benzoil- β -L-ramnopiranosilo (106).

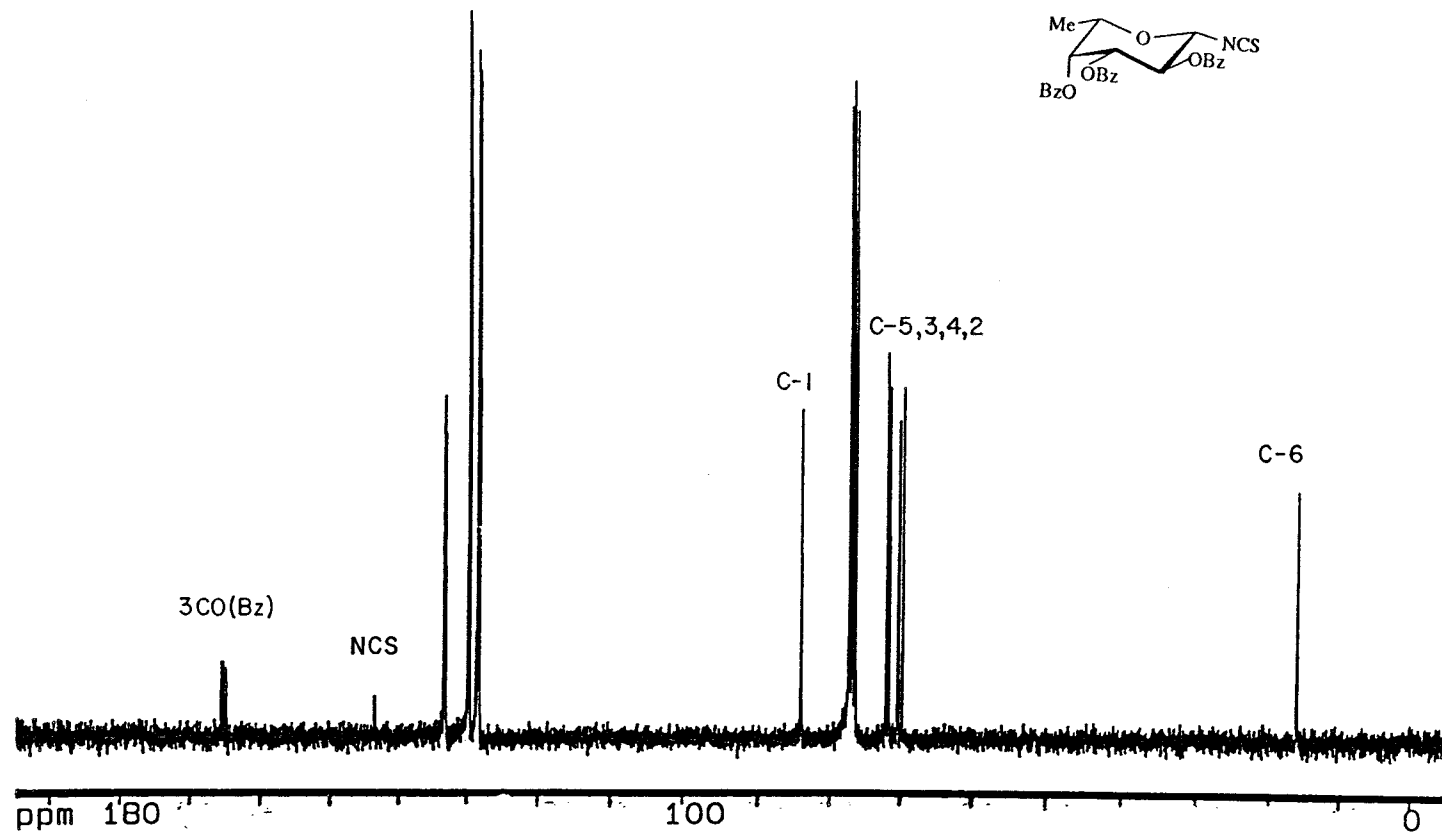


Figura 74 Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de isotiocianato de 2,3,4-tri-*O*-benzoil- β -L-fucopiranosilo (107).

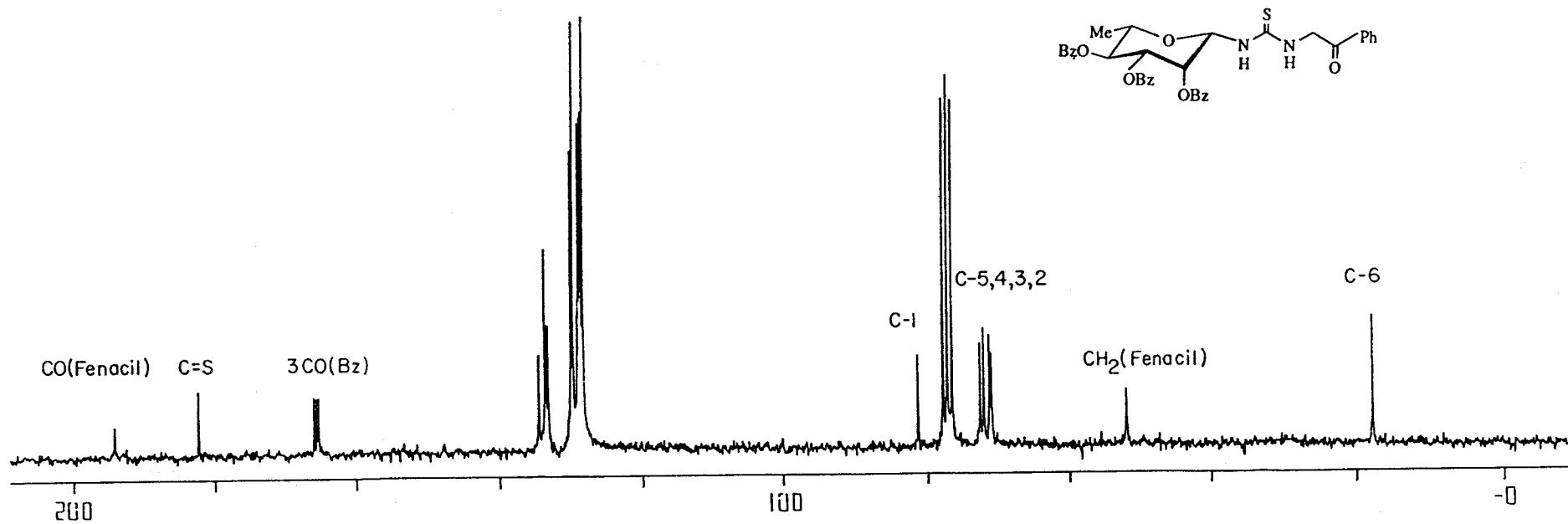


Figura 75. Espectro de ^{13}C -RMN a 50,3 MHz en Cl_3CD de *N*-fenacil-*N'*-[2,3,4-tri-*O*-benzoil- β -L-ramnopiranosil]tiourea (108).

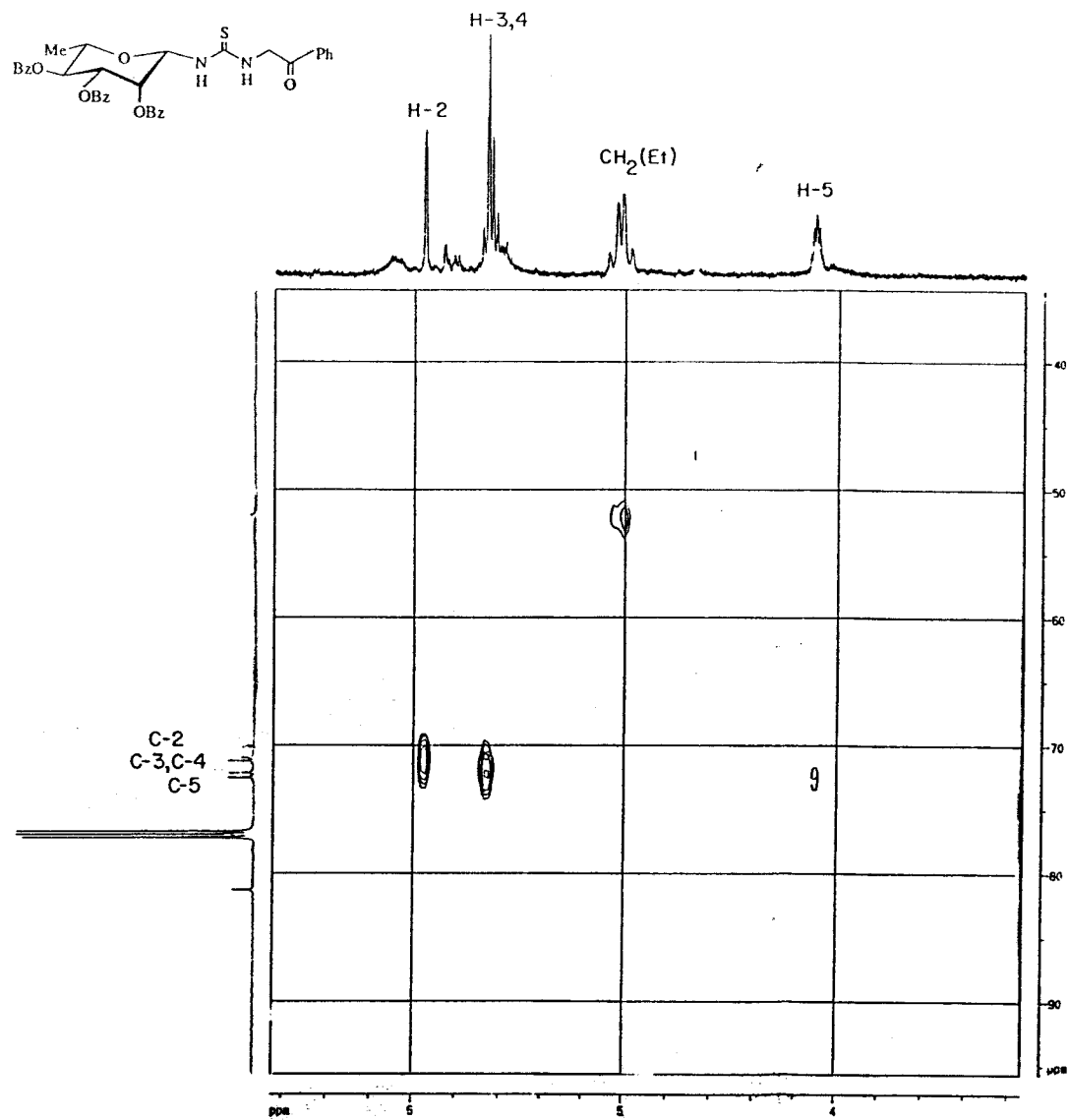


Figura 76. Espectro de heterocorrelación $^1\text{H}/^{13}\text{C}$ a 124,7 MHz en Cl_3CD de *N*-fenacil-*N'*-[2,3,4-tri-*O*-benzoil- β -L-ramnopiranosil]tiourea (108).

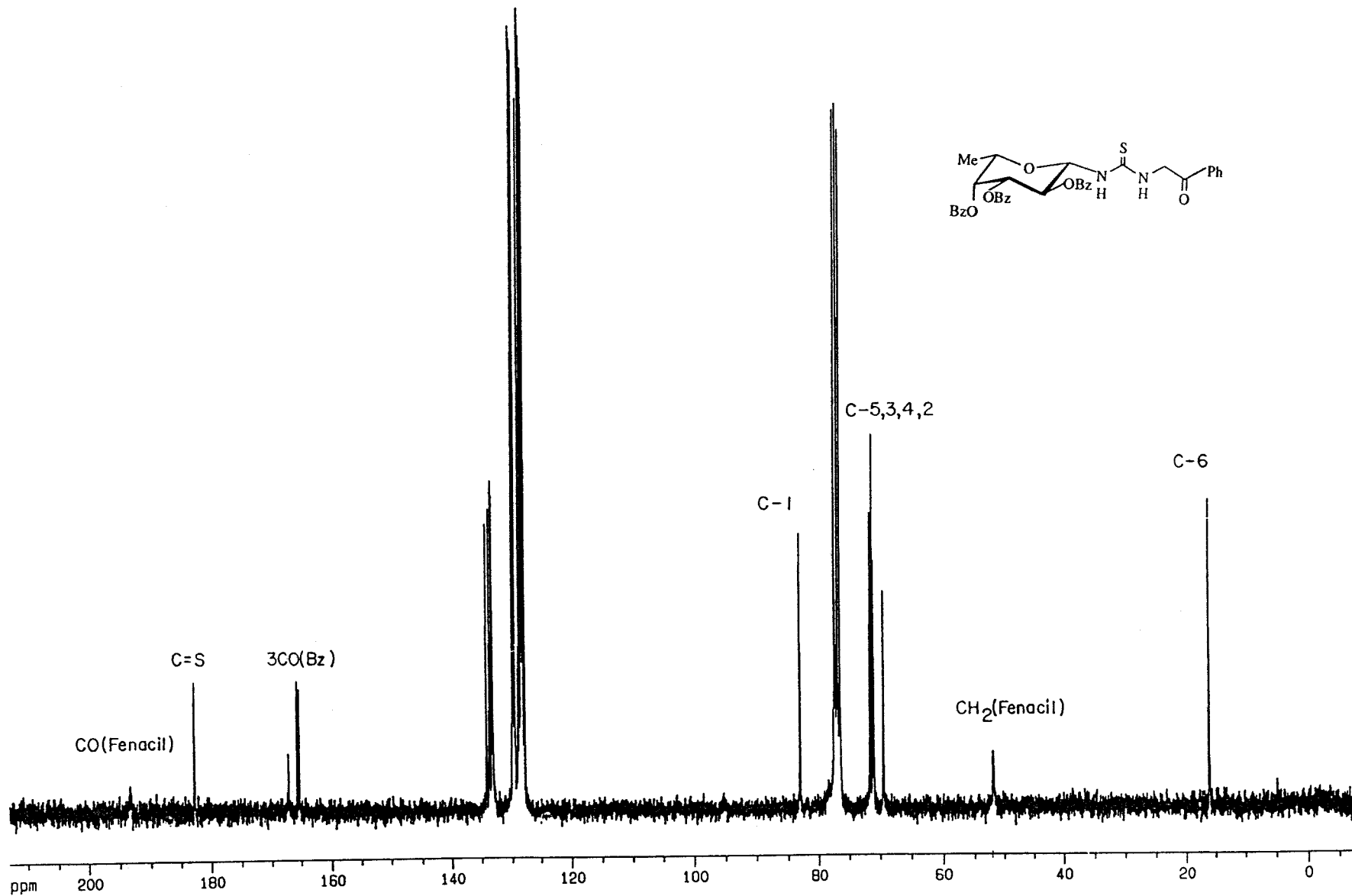


Figura 77. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *N*-fenacil-*N'*-[2,3,4-tri-*O*-benzoil- β -L-fucopiranosil]tiourea (109).

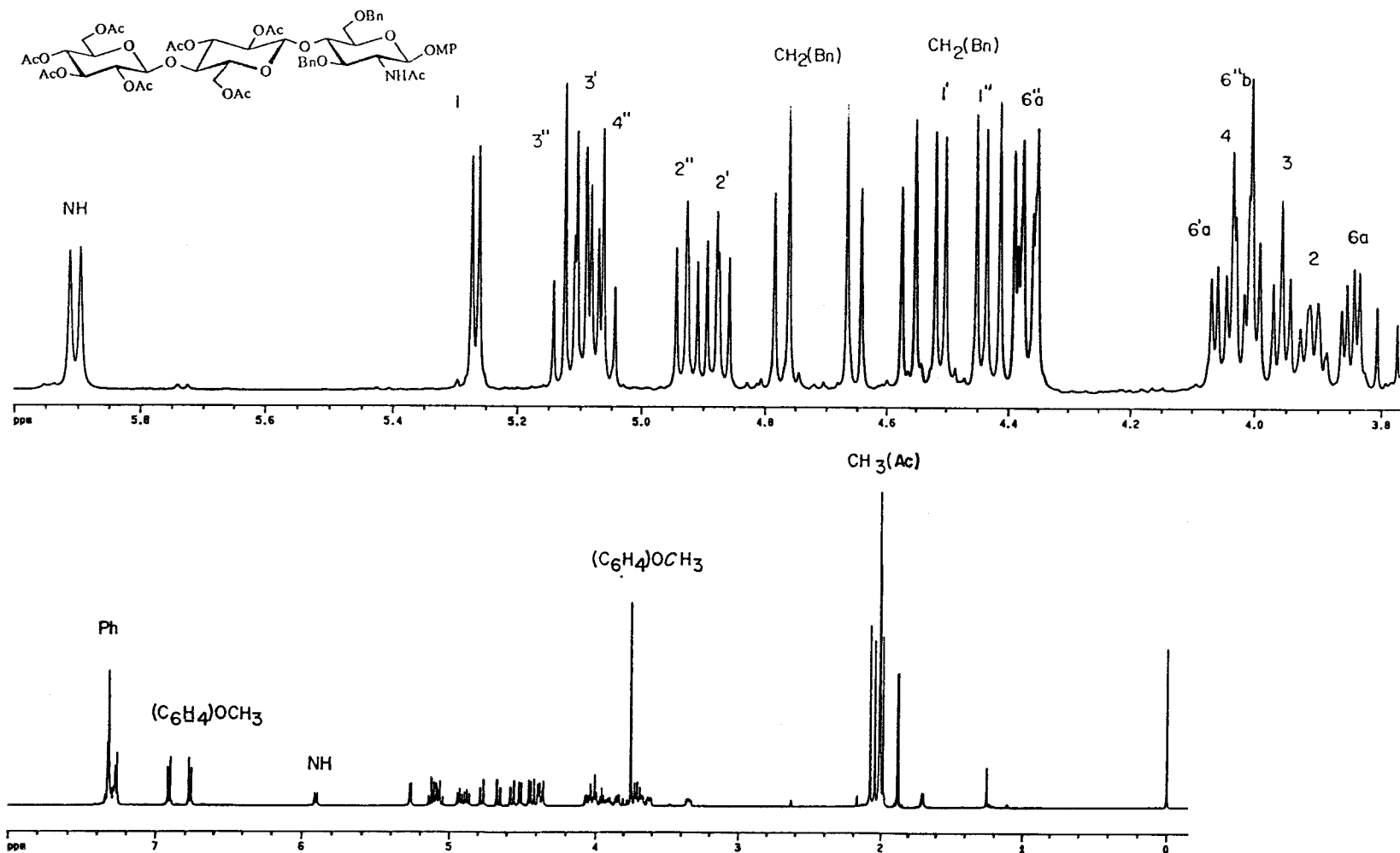


Figura 78. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil *O*-(2,3,4,6-tetra-*O*-acetil-β-D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-acetil-β-D-glucopiranosil)-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi-β-D-glucopiranosido (126).

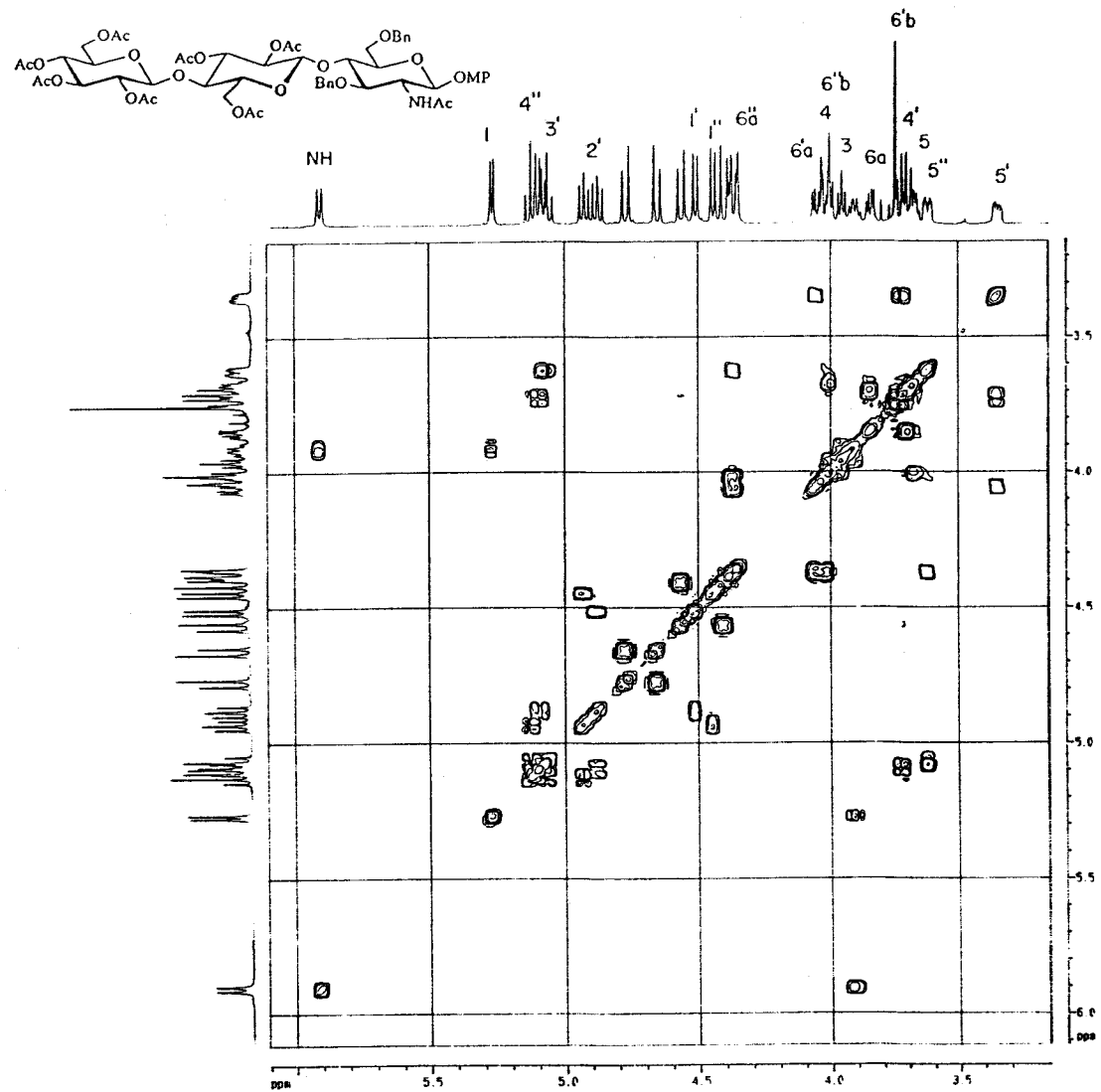


Figura 79. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (126).

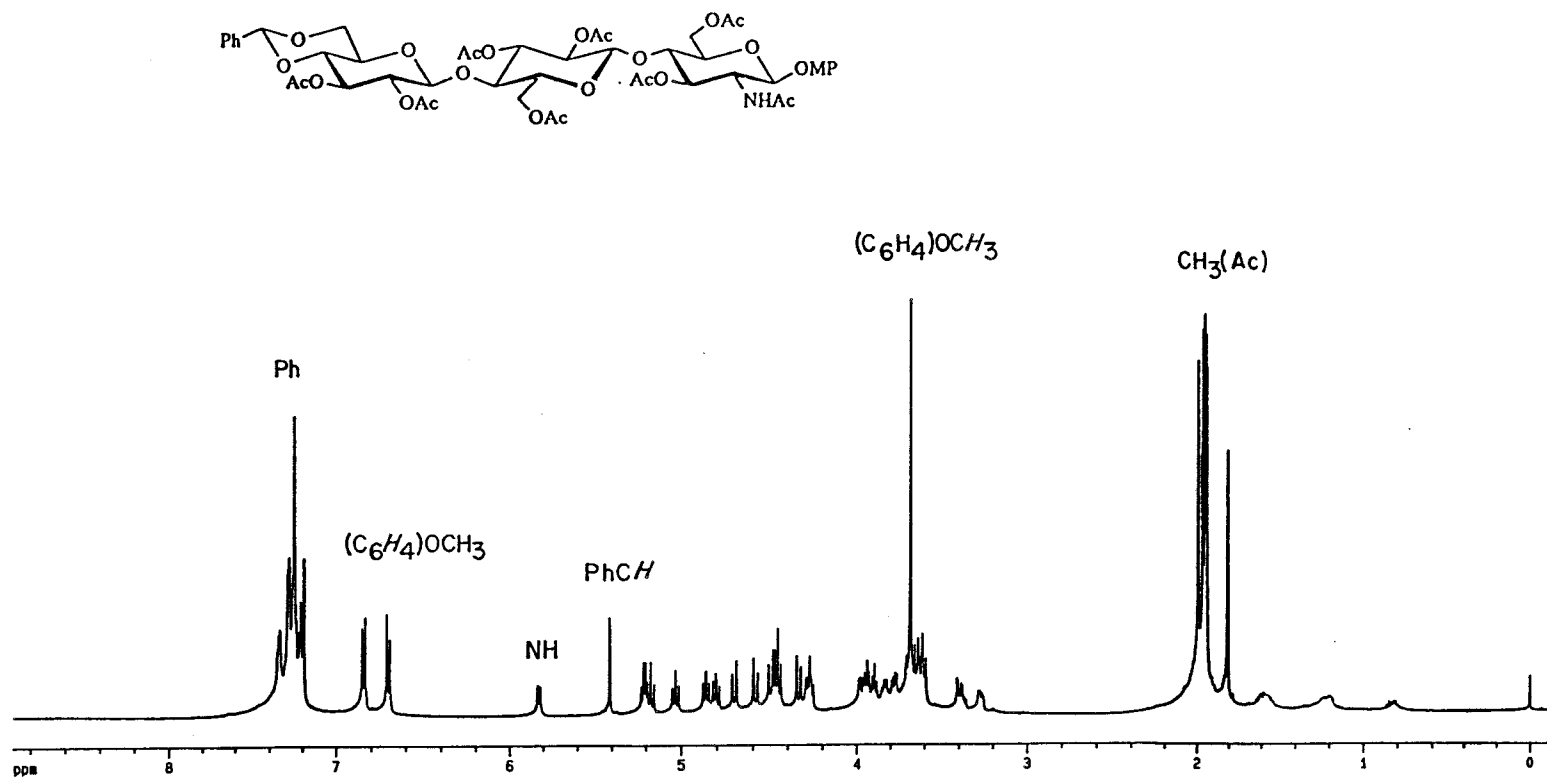


Figura 80. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil *O*-(2,3-di-*O*-acetil-4,6-*O*-bencilidén-β-D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-acetil-β-D-glucopiranosil)-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi-β-D-glucopiranosido (144).

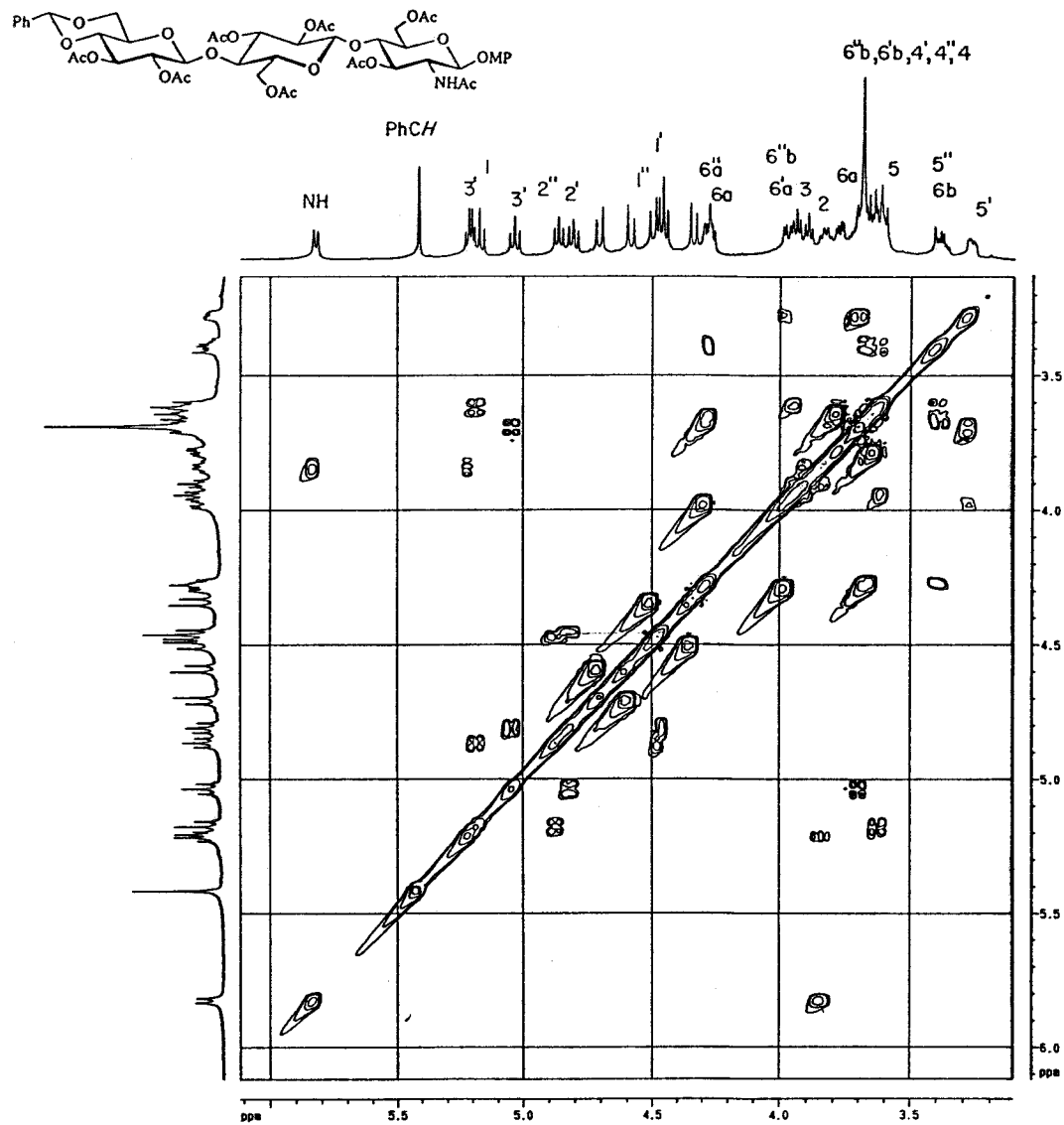


Figura 81. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3-di-*O*-acetil-4,6-*O*-bencilidén- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil-(1 \rightarrow 4))-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (144).

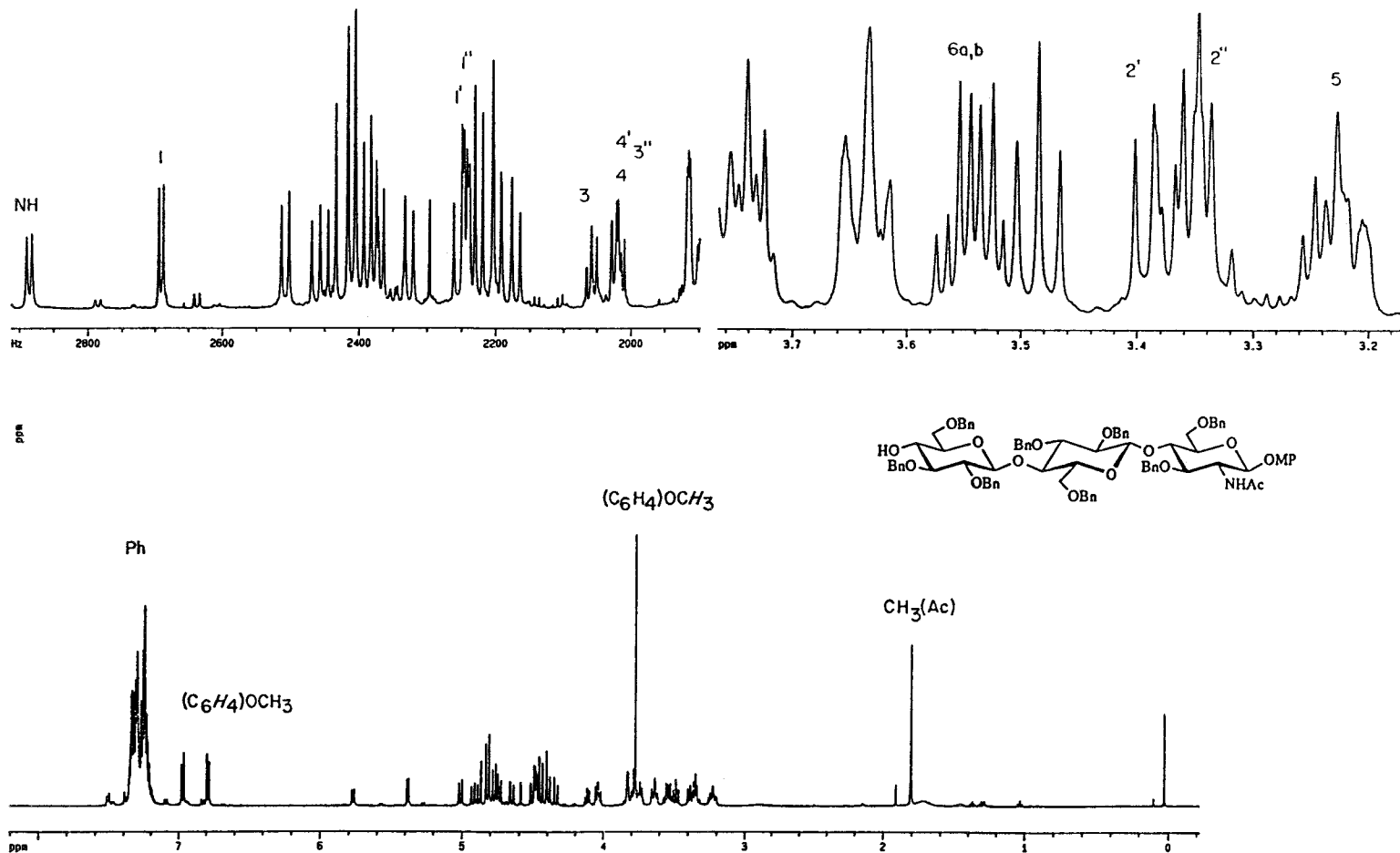


Figura 82. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil *O*-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi-β-D-glucopiranosido (129).

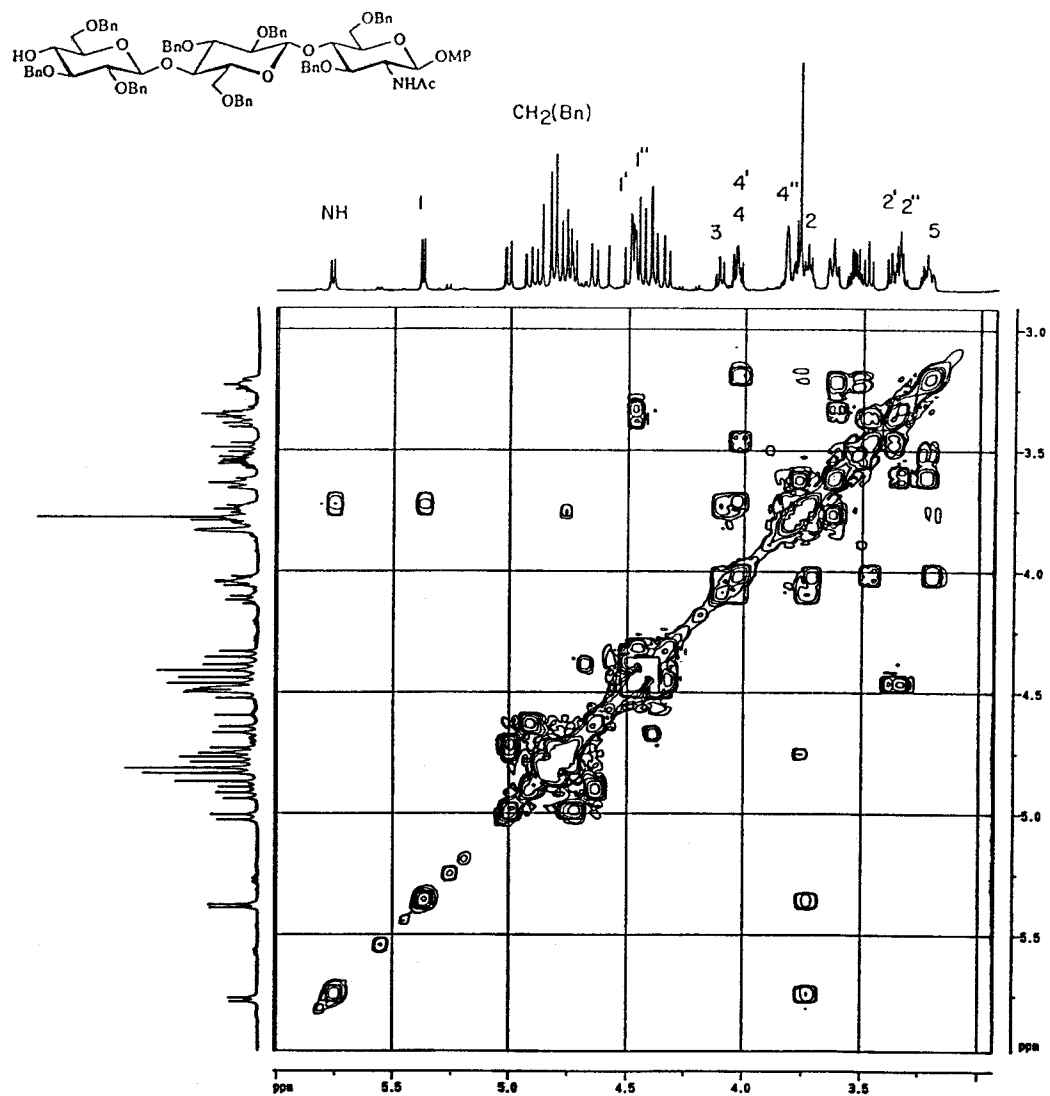


Figura 83. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil)-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi-β-D-glucopiranosido (129).

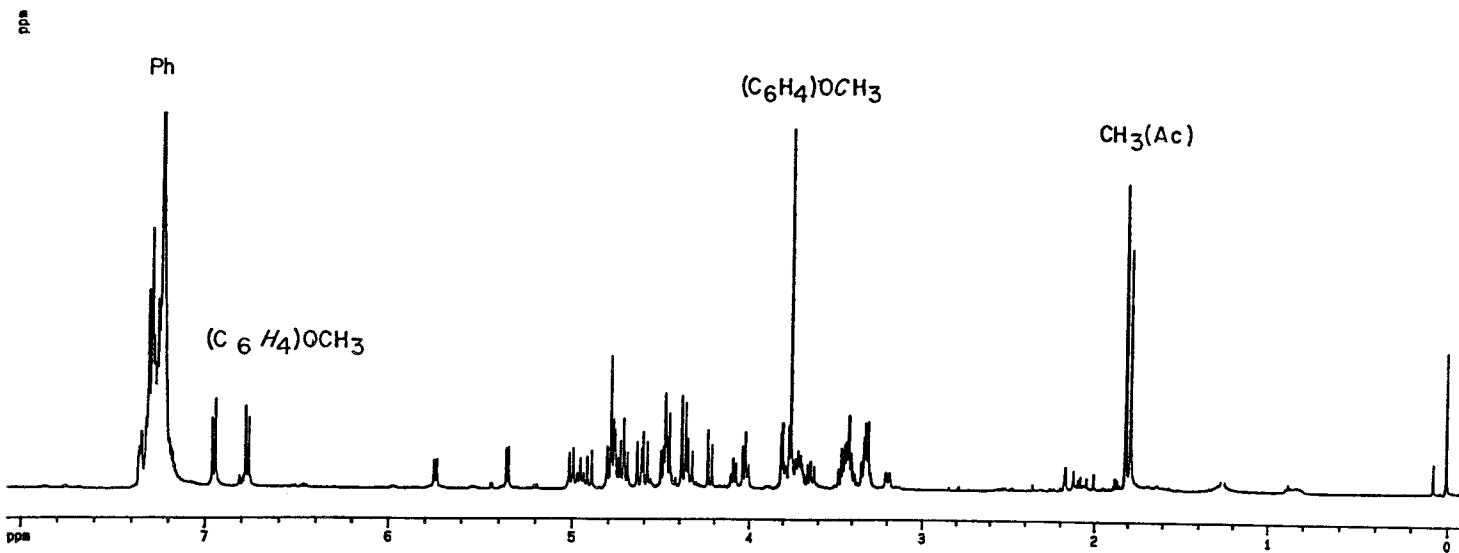
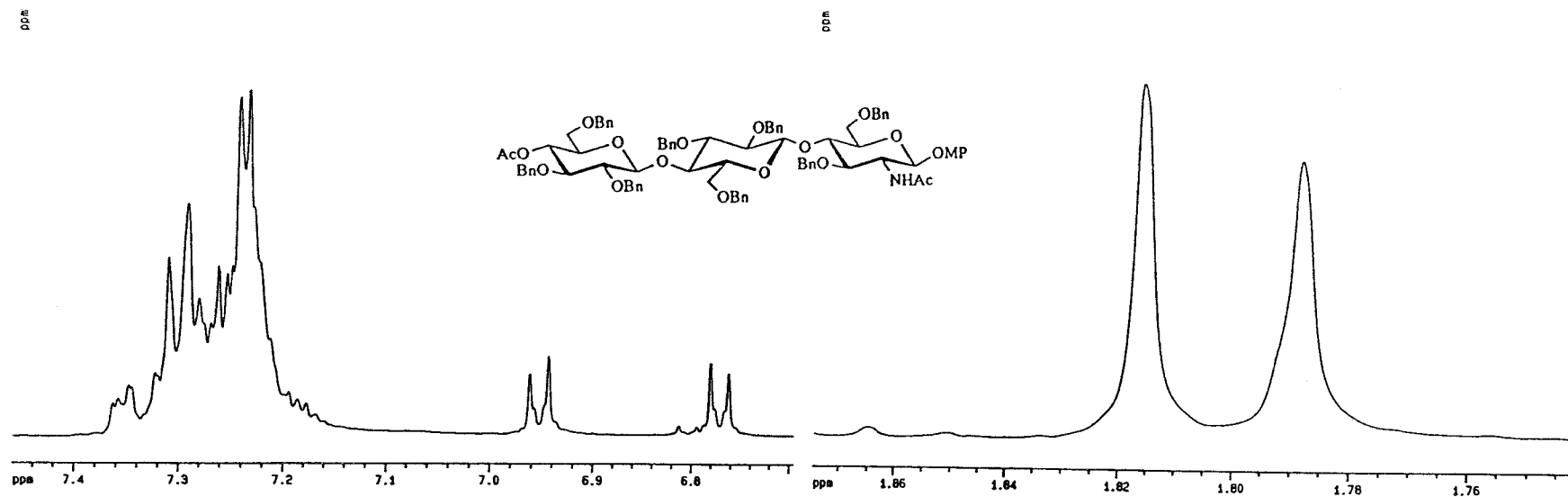
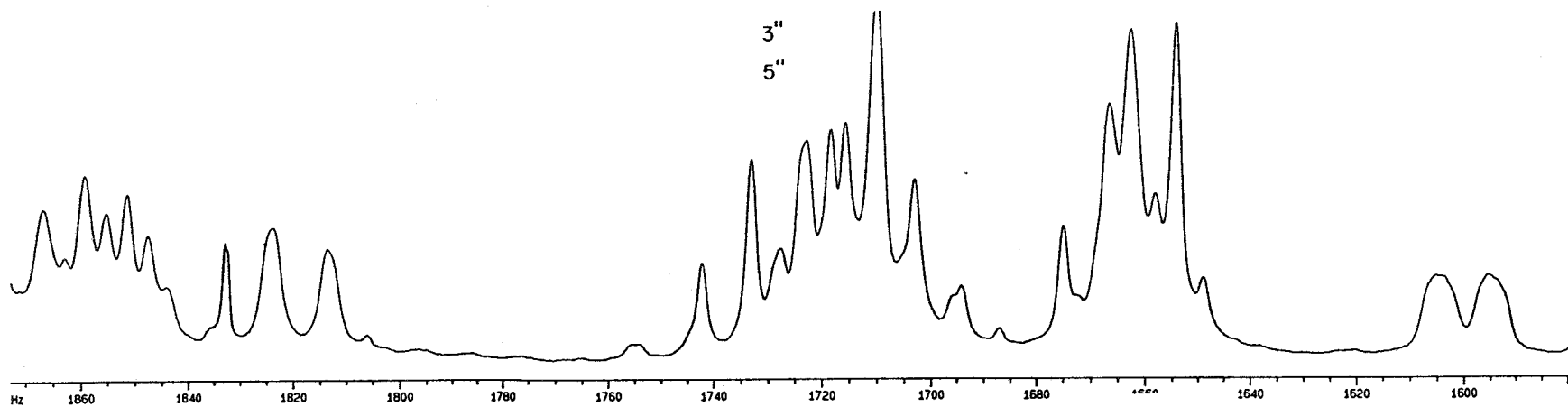


Figura 84. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(4-*O*-acetil-2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (143).

Hz



Hz

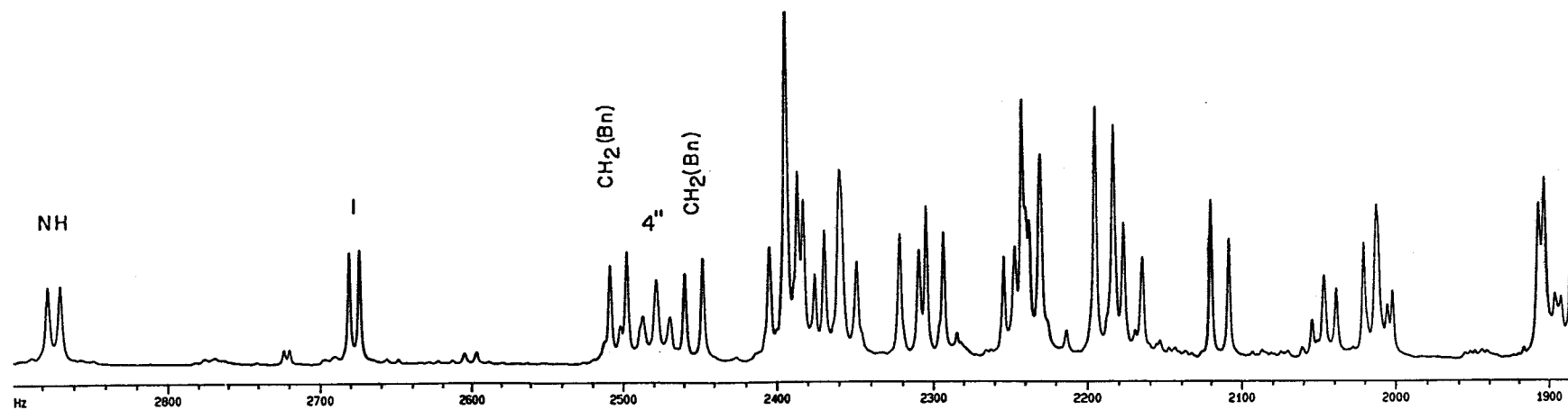
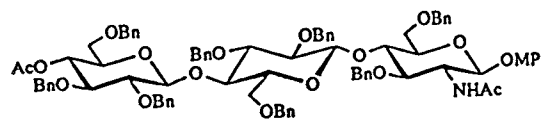


Figura 85. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(4-*O*-acetil-2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (143). Ampliación.

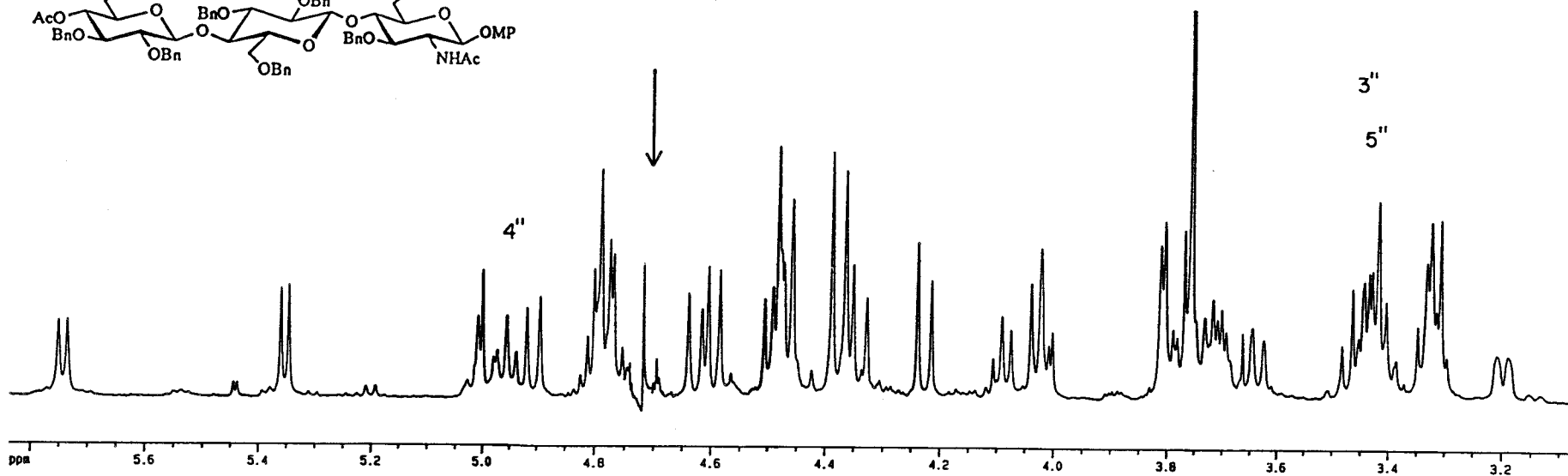
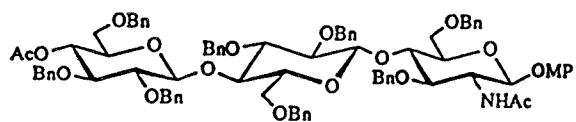
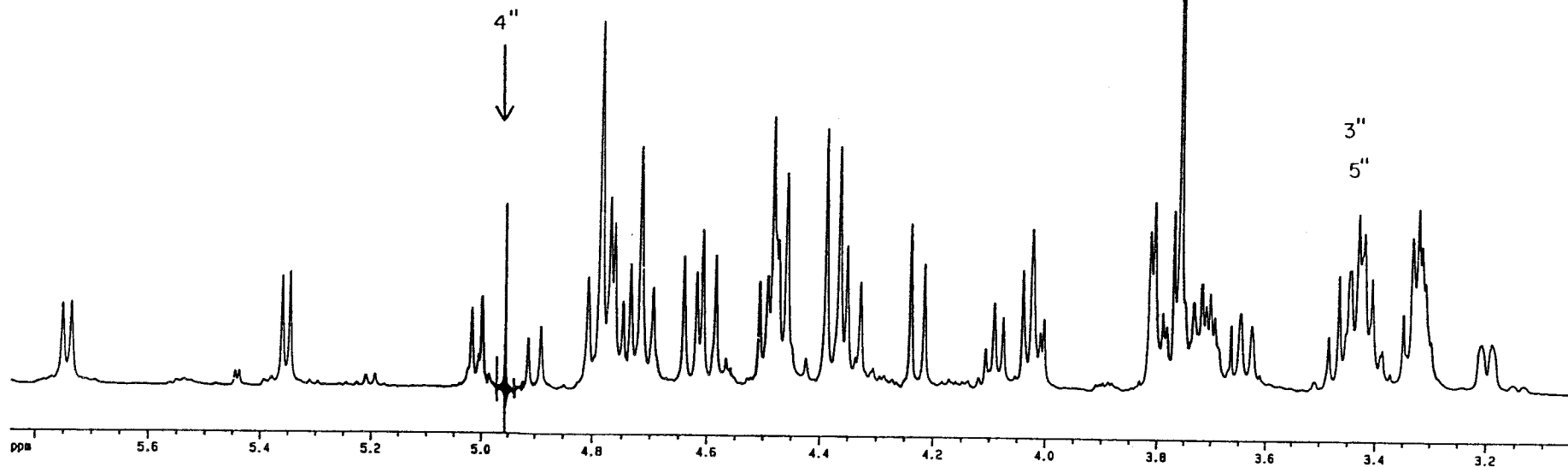


Figura 86. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(4-*O*-acetil-2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (143). Irradiaciones.

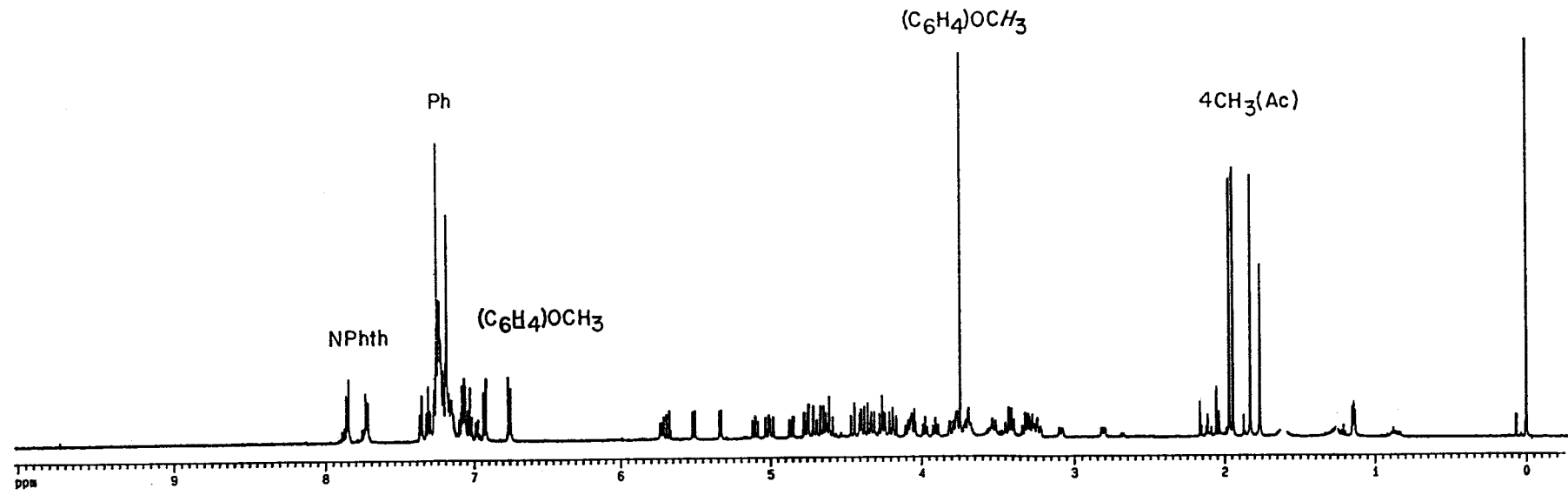
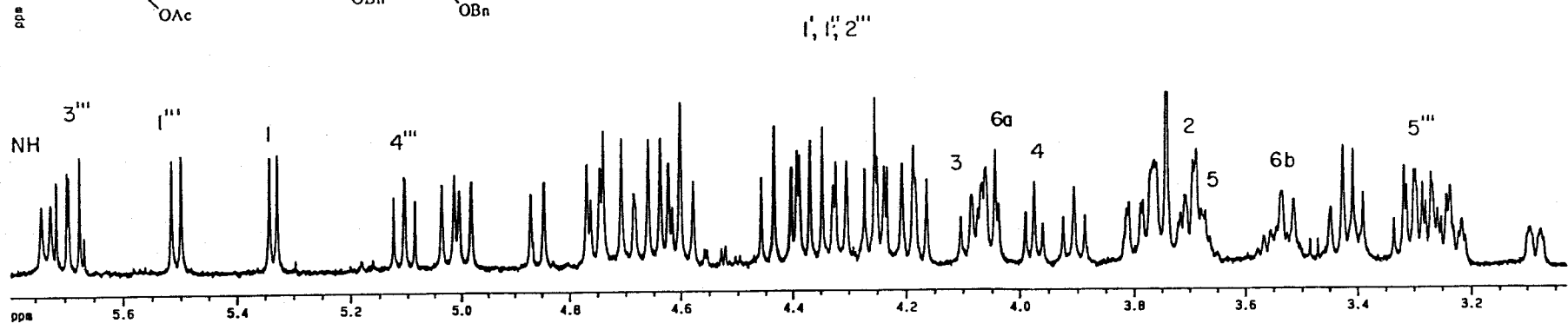
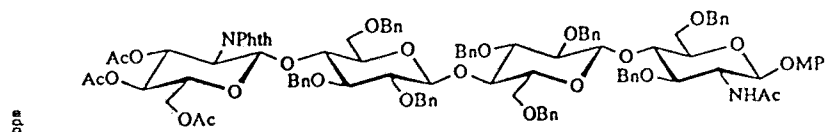


Figura 87. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (130).

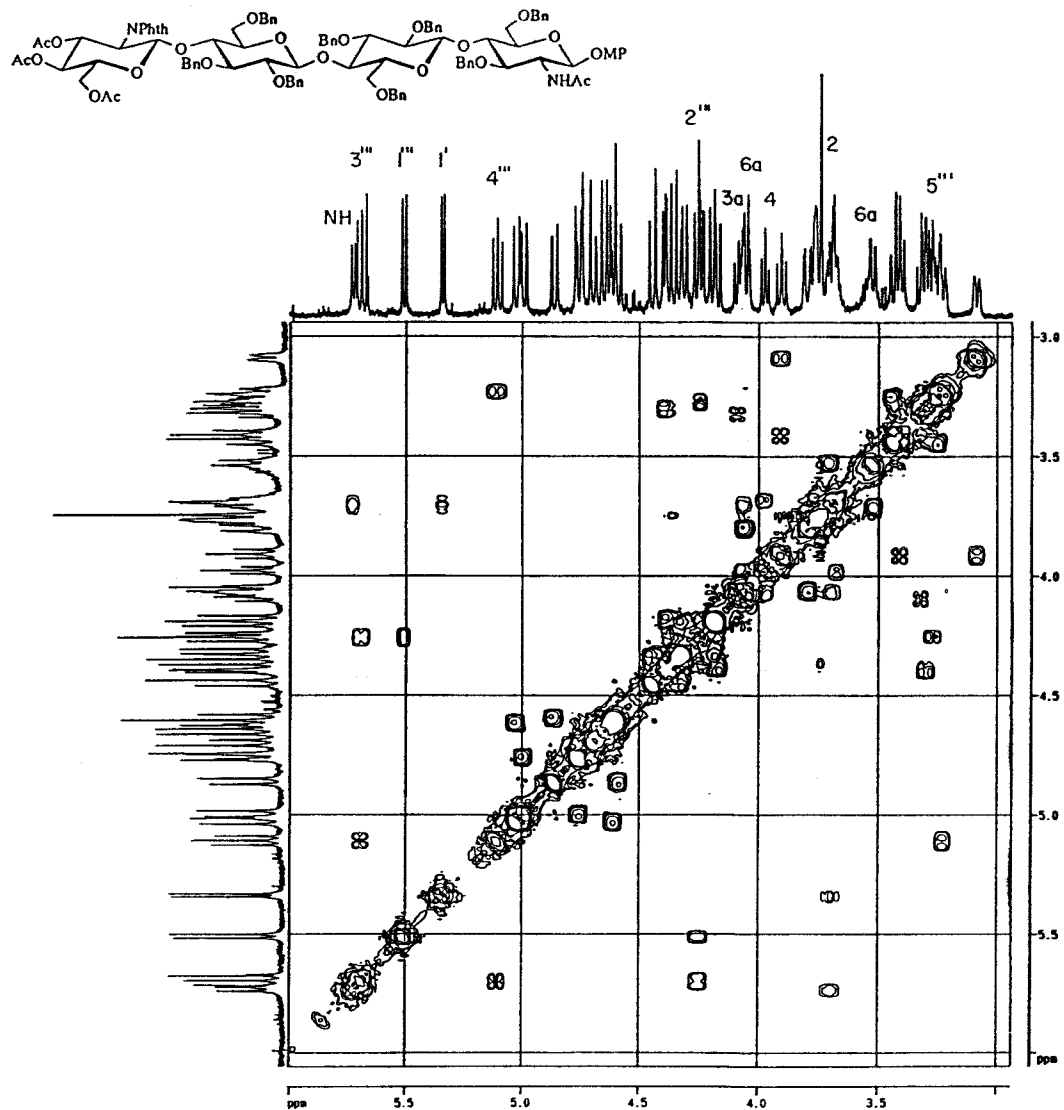


Figura 88. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido-β-D-glucopiranosil)-(1→4)-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-bencil-β-D-glucopiranosil-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi-β-D-glucopiranosido (130).

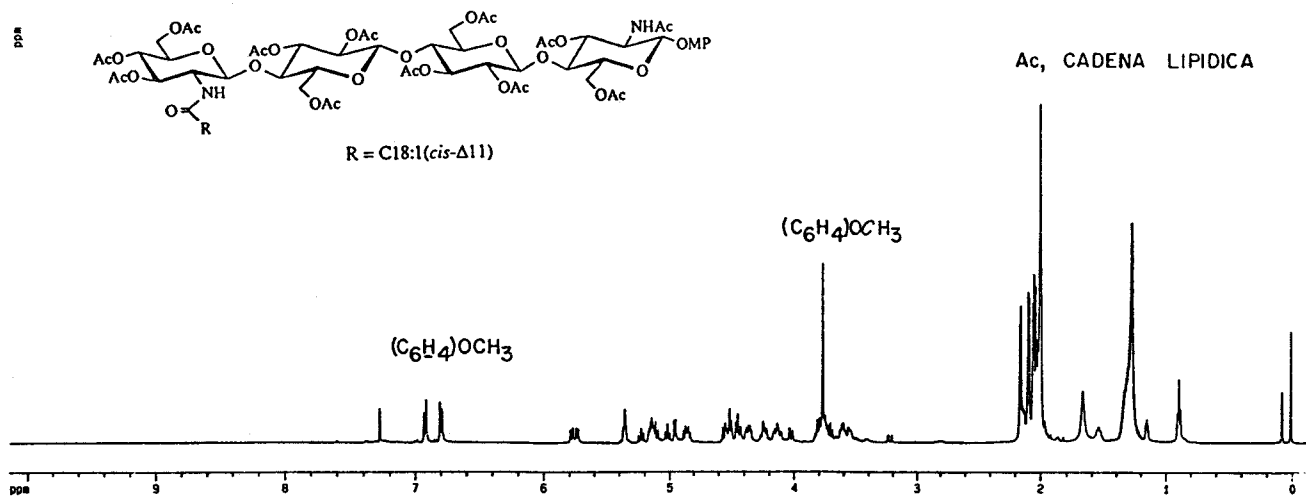
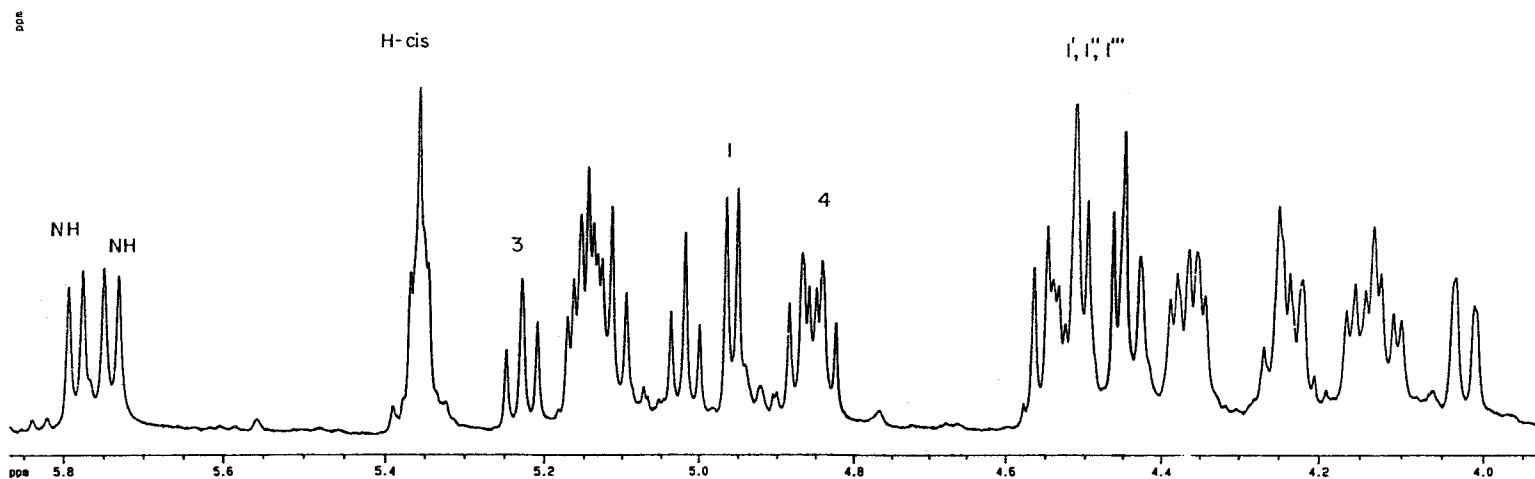


Figura 89. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-[3,4,6-tri-*O*-acetil-2-desoxi-2-(11*Z*-octadecaenilamido)- β -D-glucopiranosil)-(1 \rightarrow 4)-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-acetil-2-desoxi- β -D-glucopiranosido (149).



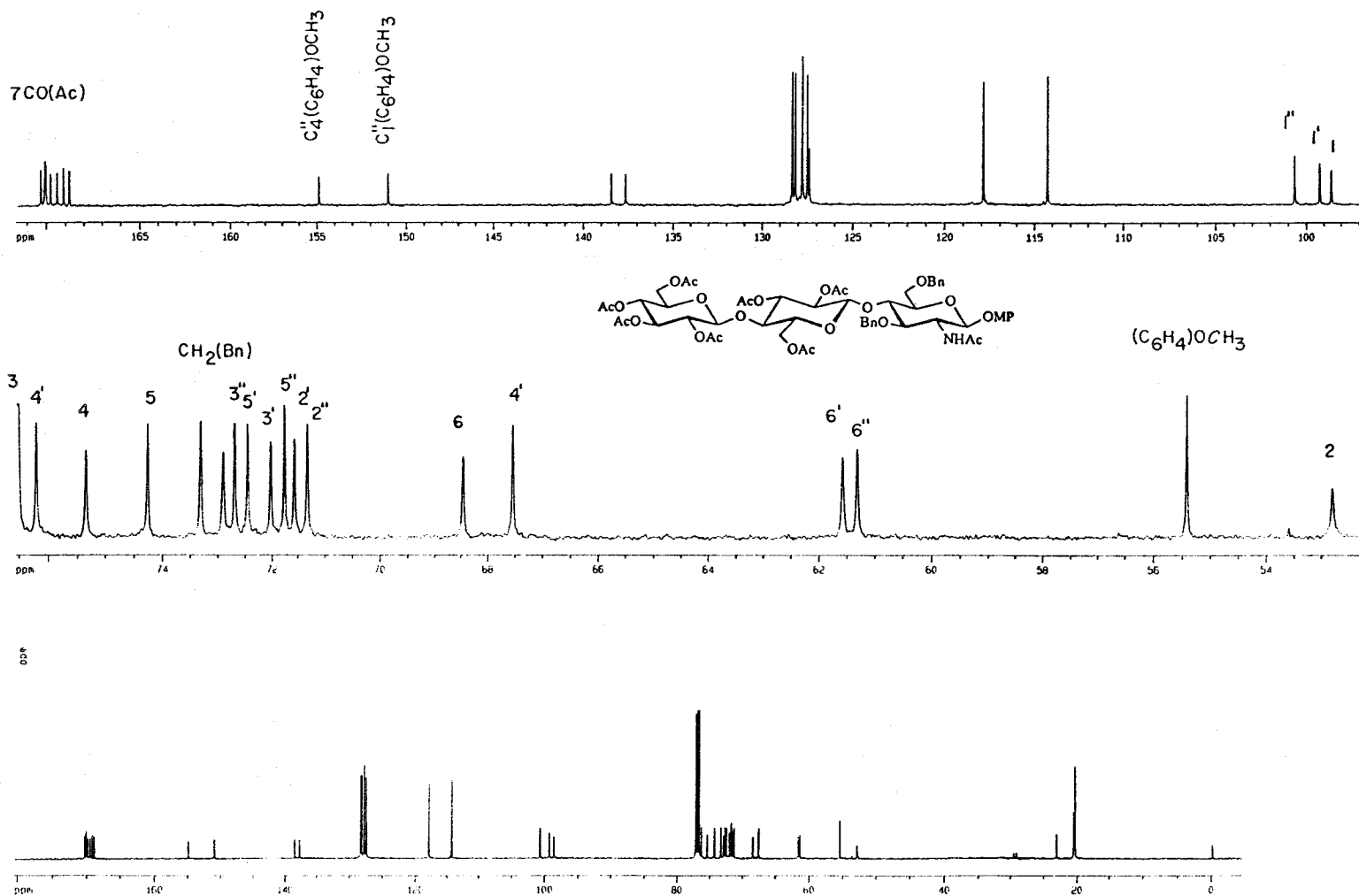


Figura 90. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (126).

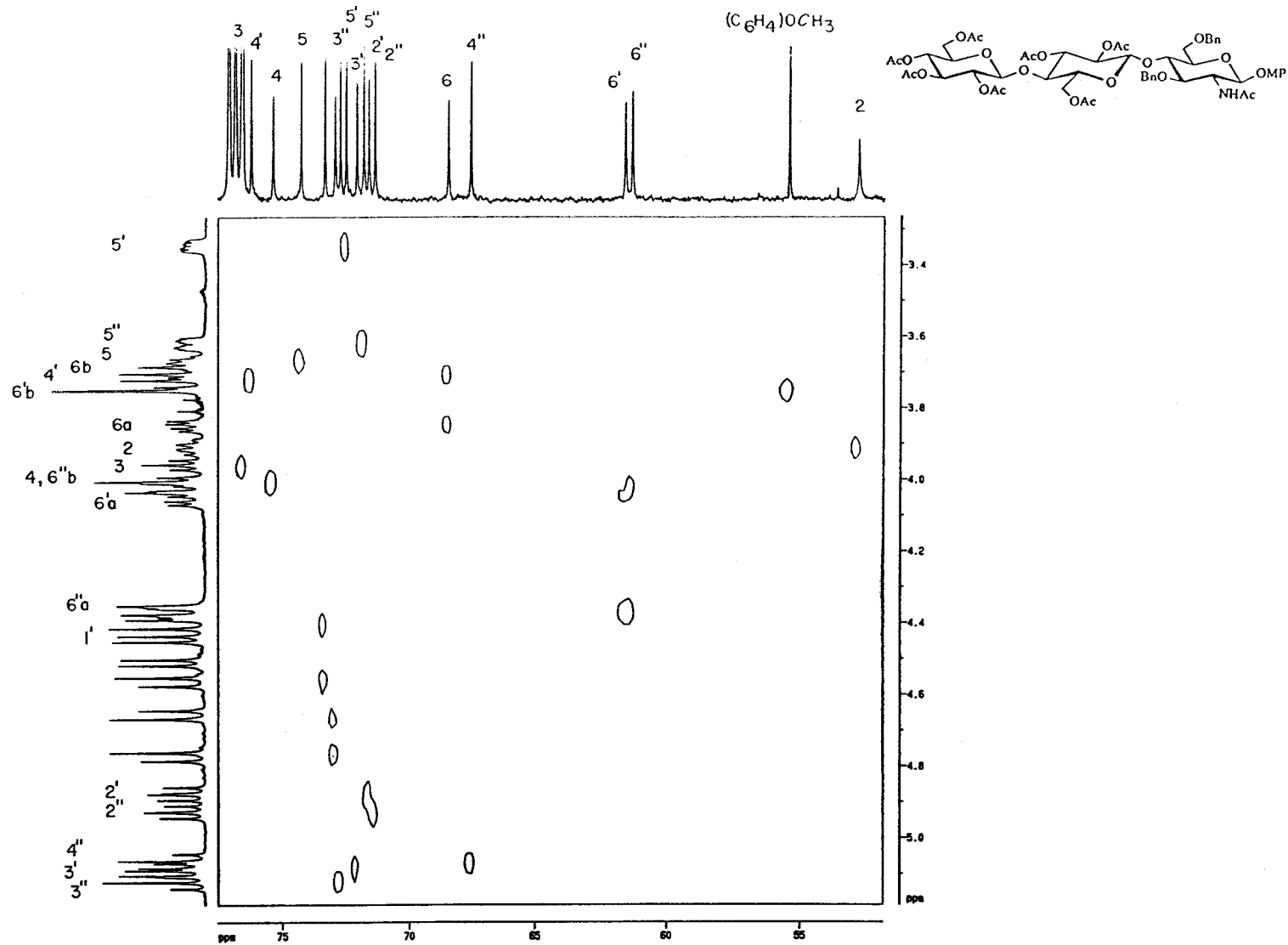


Figura 91. Espectro de heterocorrelación directa $^1\text{H}/^{13}\text{C}$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3,4,6-tetra-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (126).

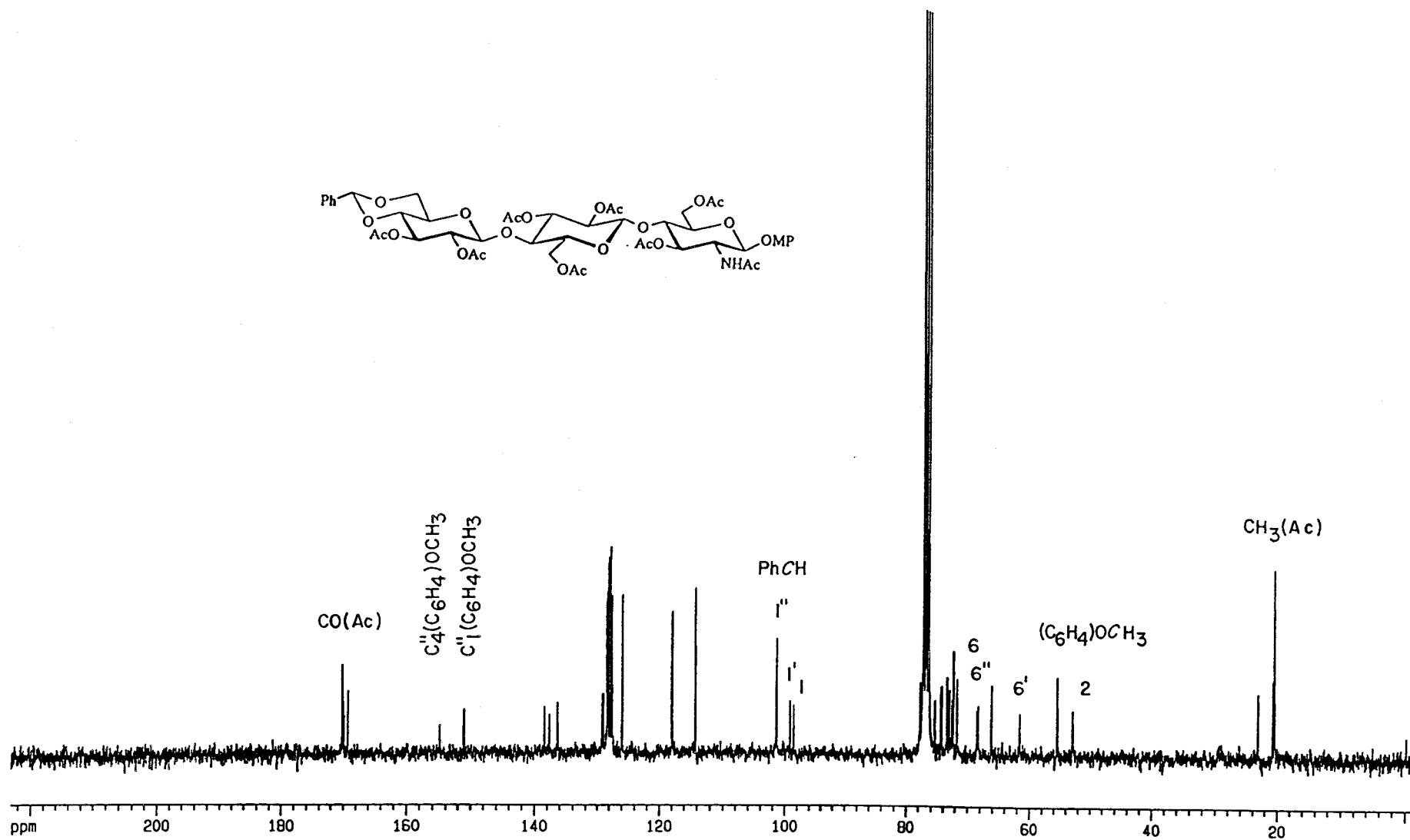


Figura 92. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3-di-*O*-acetil-4,6-*O*-bencilidén- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (144).

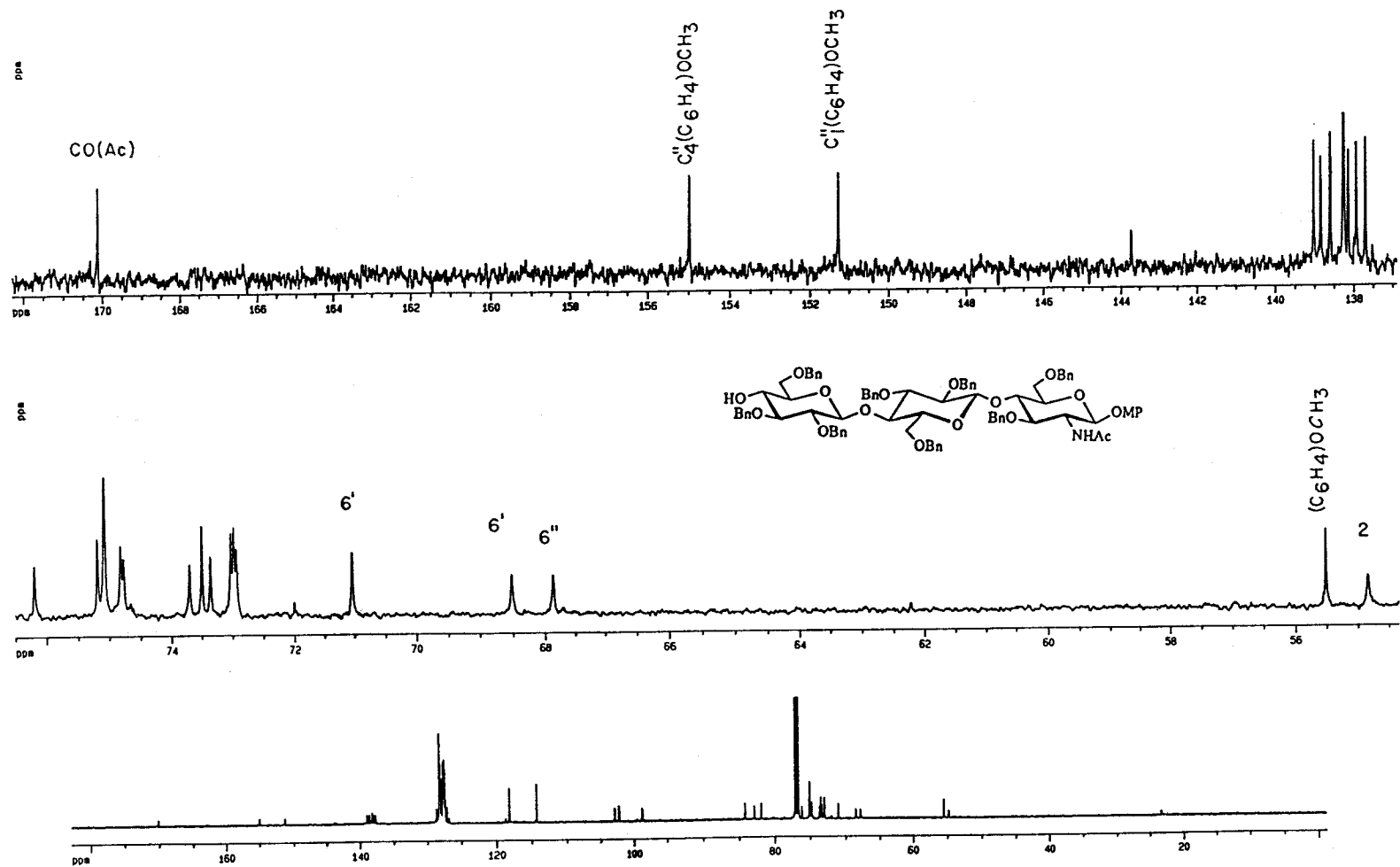


Figura 93. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1→4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (129).

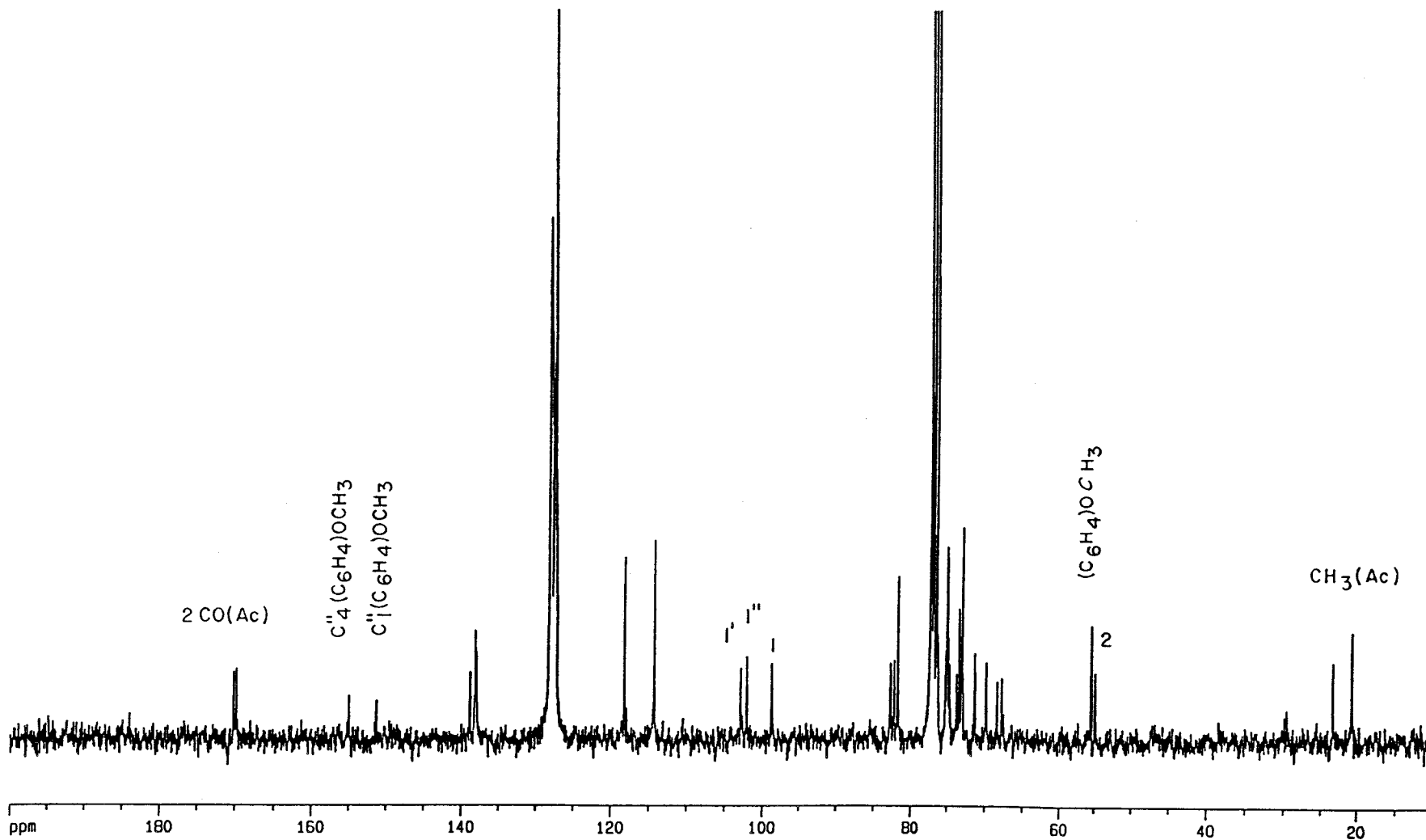


Figura 94. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil *O*-(4-*O*-acetil-2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (143).

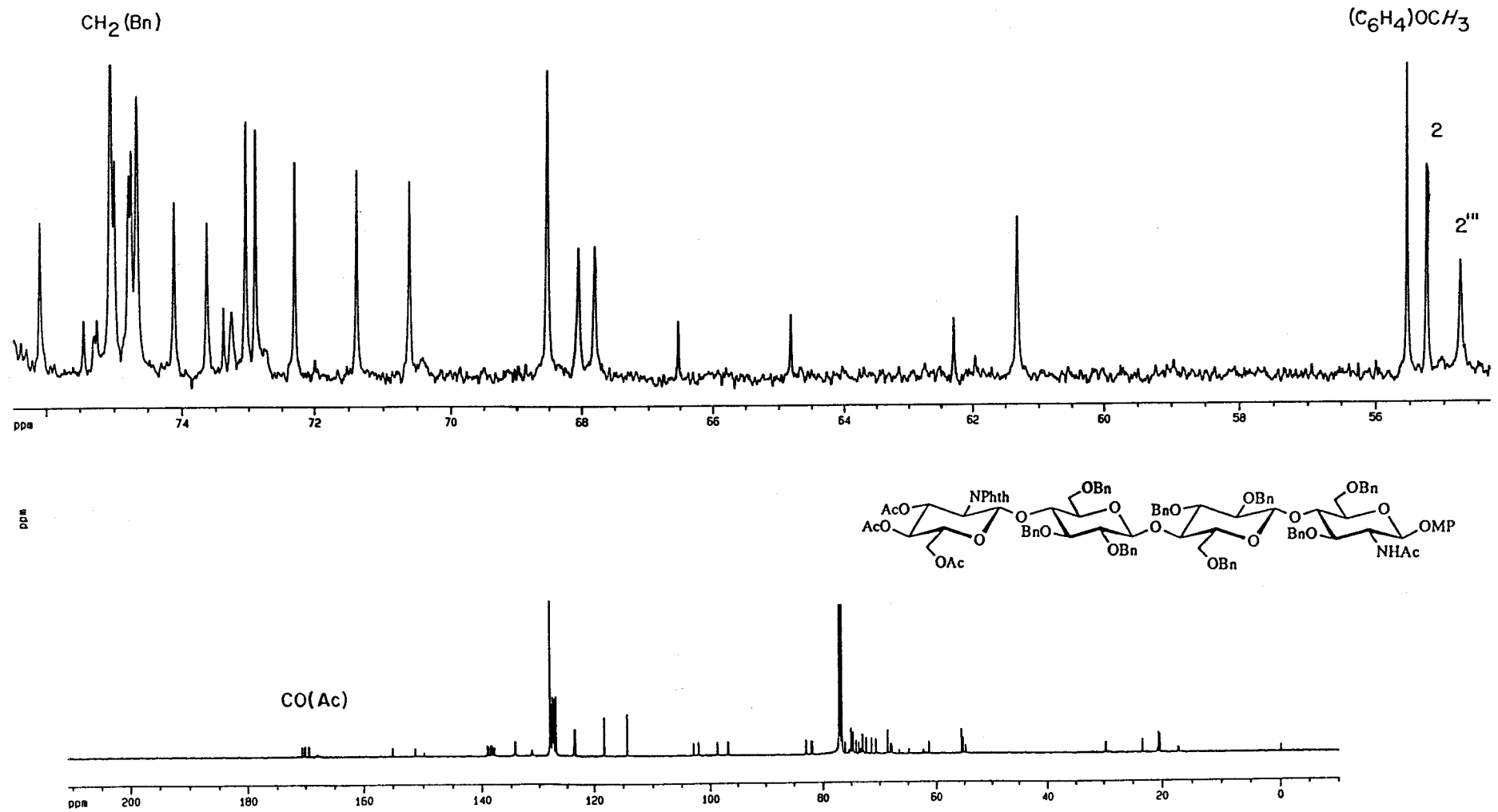


Figura 95. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-bencil-2-desoxi- β -D-glucopiranosido (130).

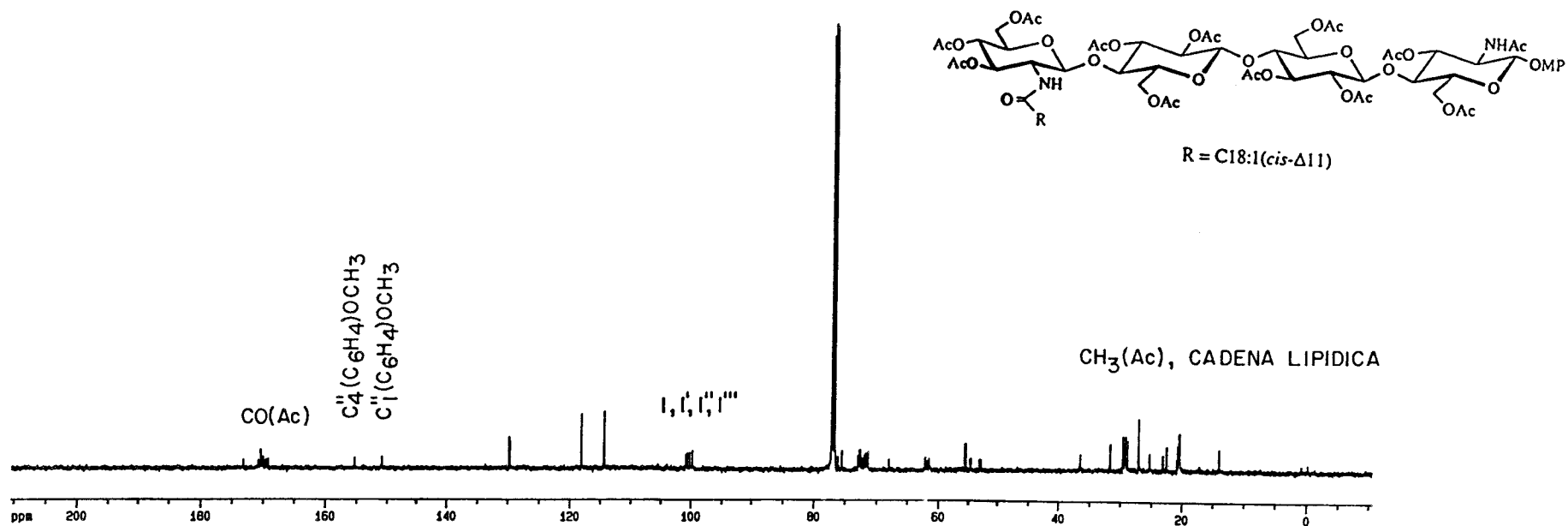
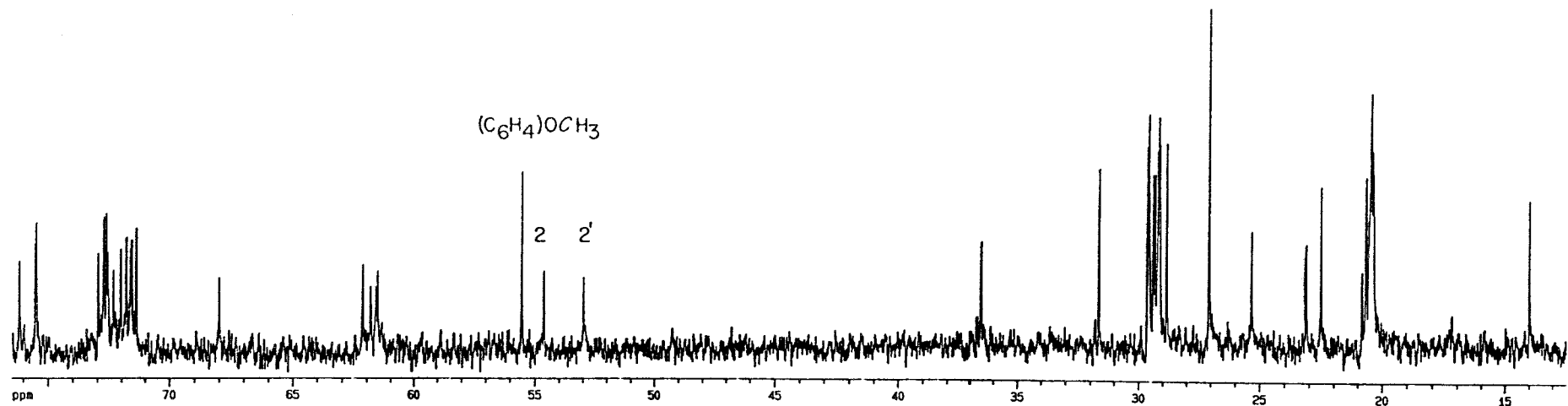


Figura 96. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-[3,4,6-tri-*O*-acetil-2-desoxi-2-(11*Z*-octadecaenilamido)- β -D-glucopiranosil)-(1 \rightarrow 4)-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-acetil-2-desoxi- β -D-glucopiranosido (149).

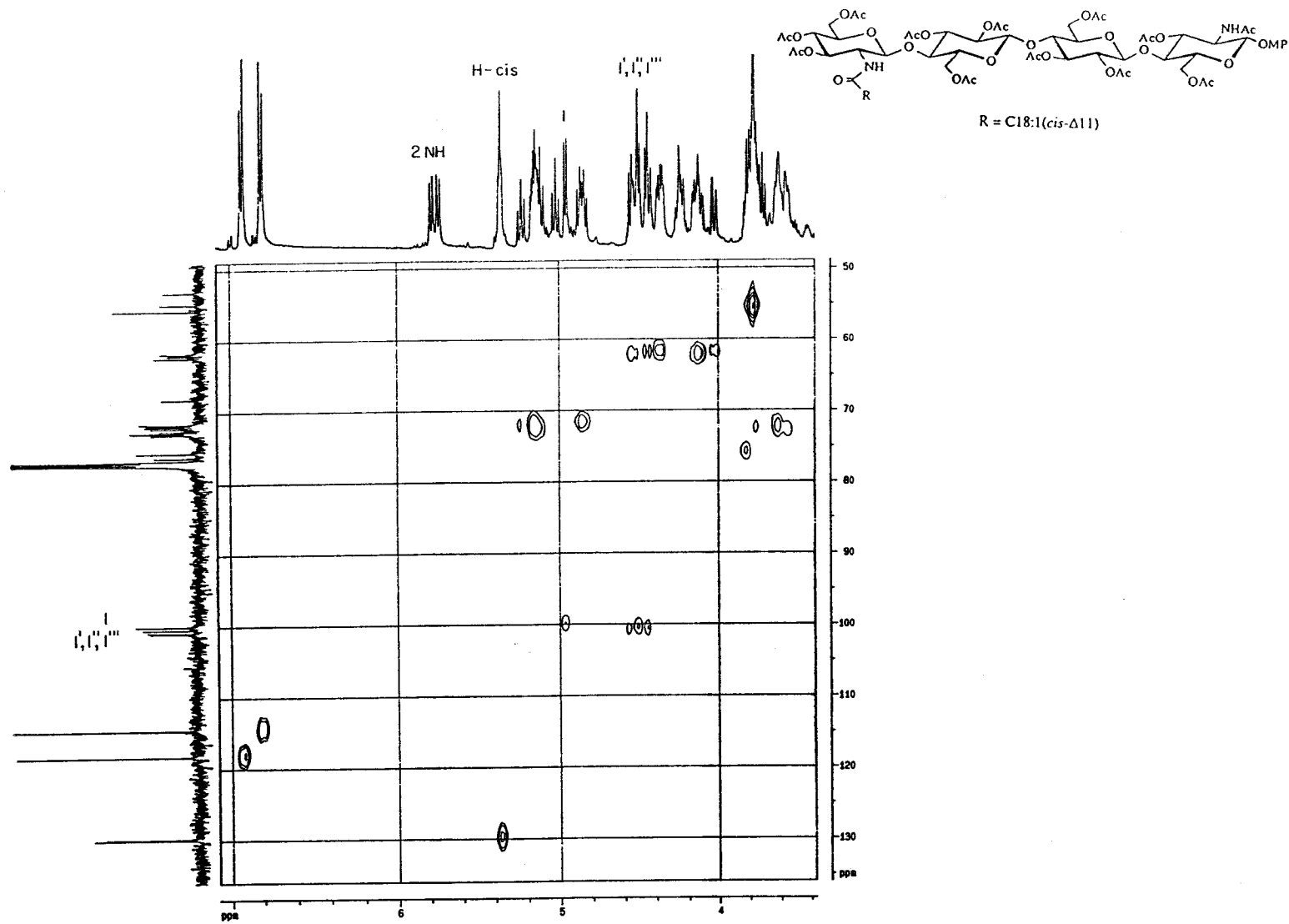


Figura 97. Espectro de heterocorrelación $^1H/^{13}C$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-[3,4,6-tri-*O*-acetil-2-desoxi-2-(11*Z*-octadecaenilamido)- β -D-glucopiranosil)-(1 \rightarrow 4)-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil-(1 \rightarrow 4)-2-acetamido-3,6-di-*O*-acetil-2-desoxi- β -D-glucopiranosido (149).

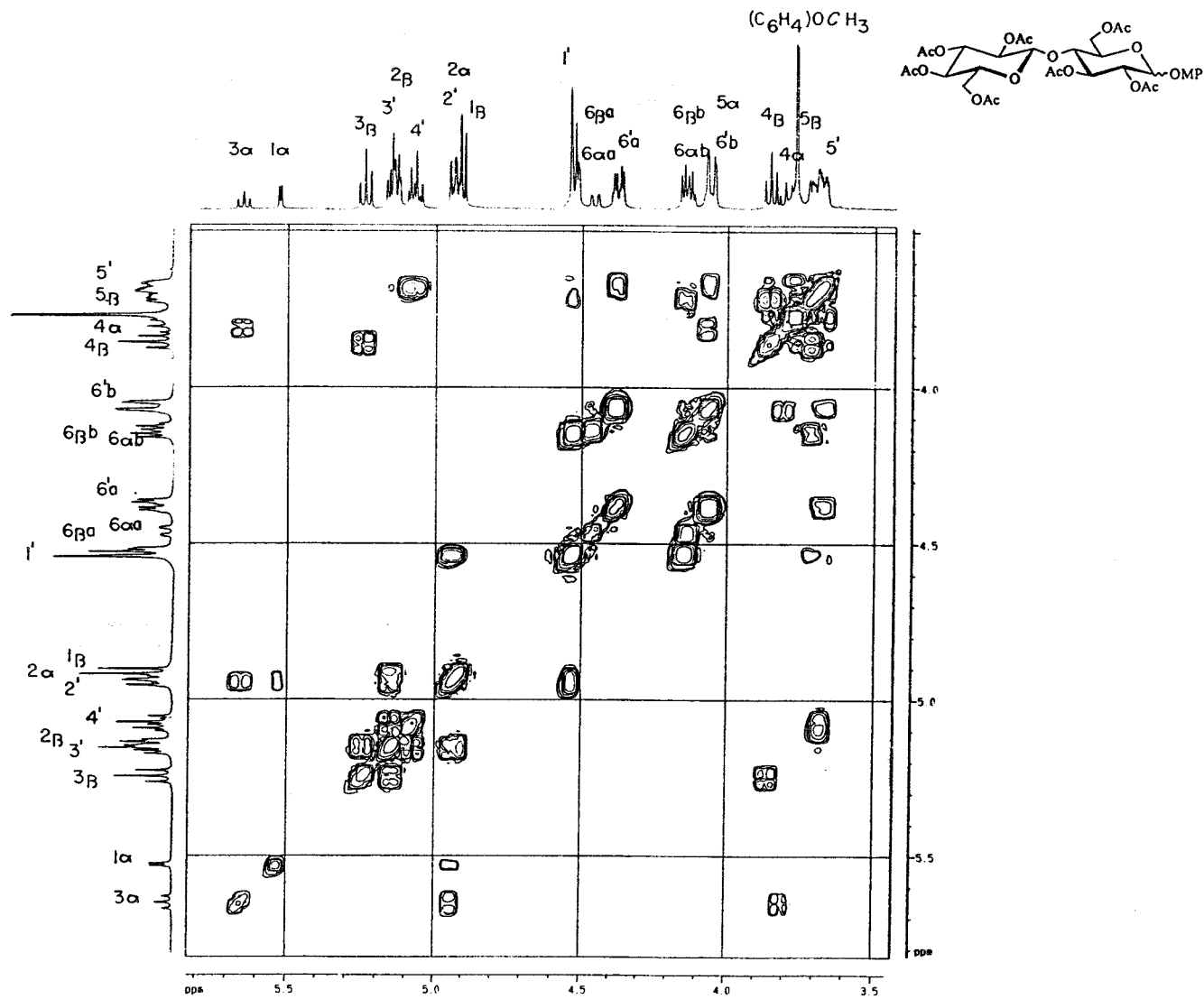
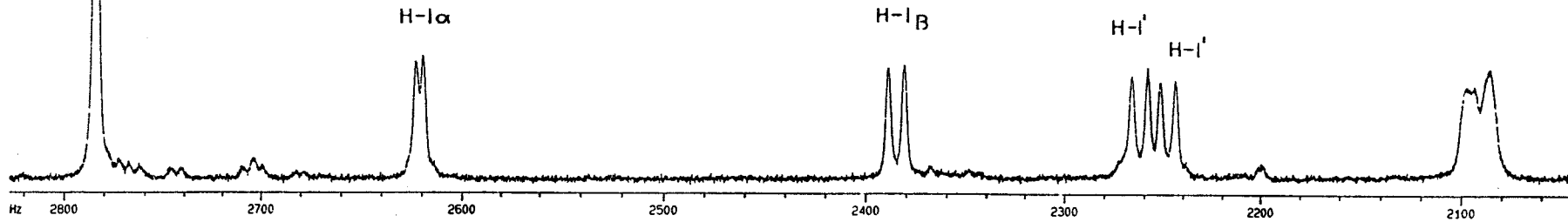
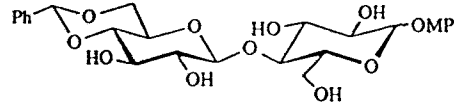


Figura 98. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil 2,3,4,6,2',3',6'-hepta-*O*-acetil- α y β -D-celbiósidos (157).

PhCH



PhCH

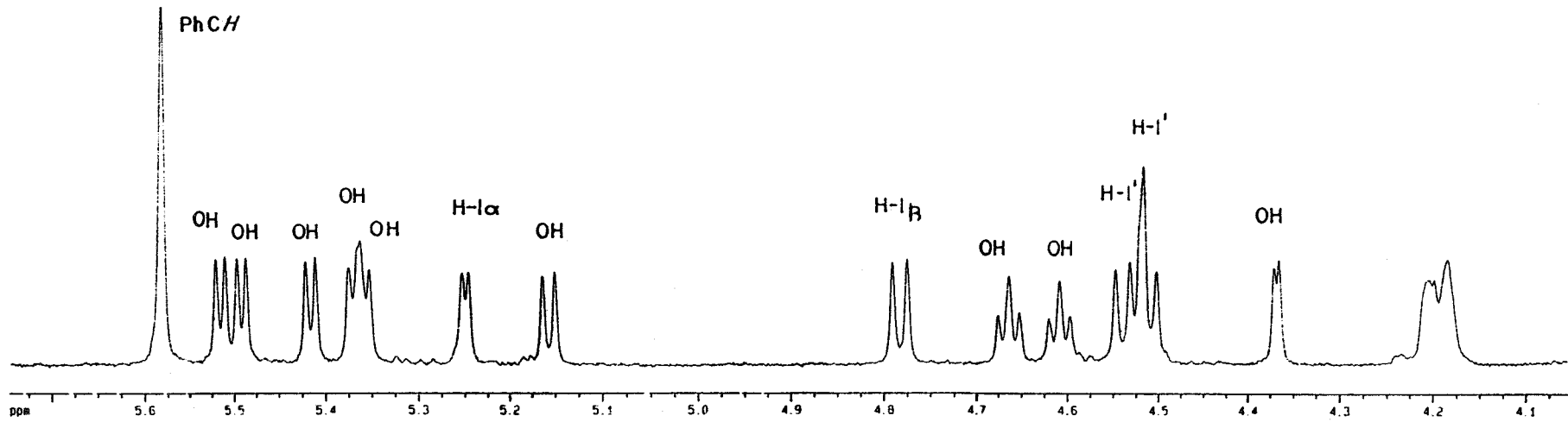


Figura 99. Espectro de ^1H -RMN a 500 MHz en $\text{DMSO}-d_6$ de *p*-metoxifenil 4', 6'-*O*-bencilidén- α y β -D-celobiosidos (134).

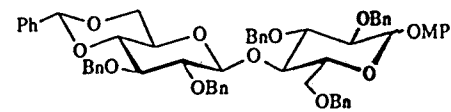
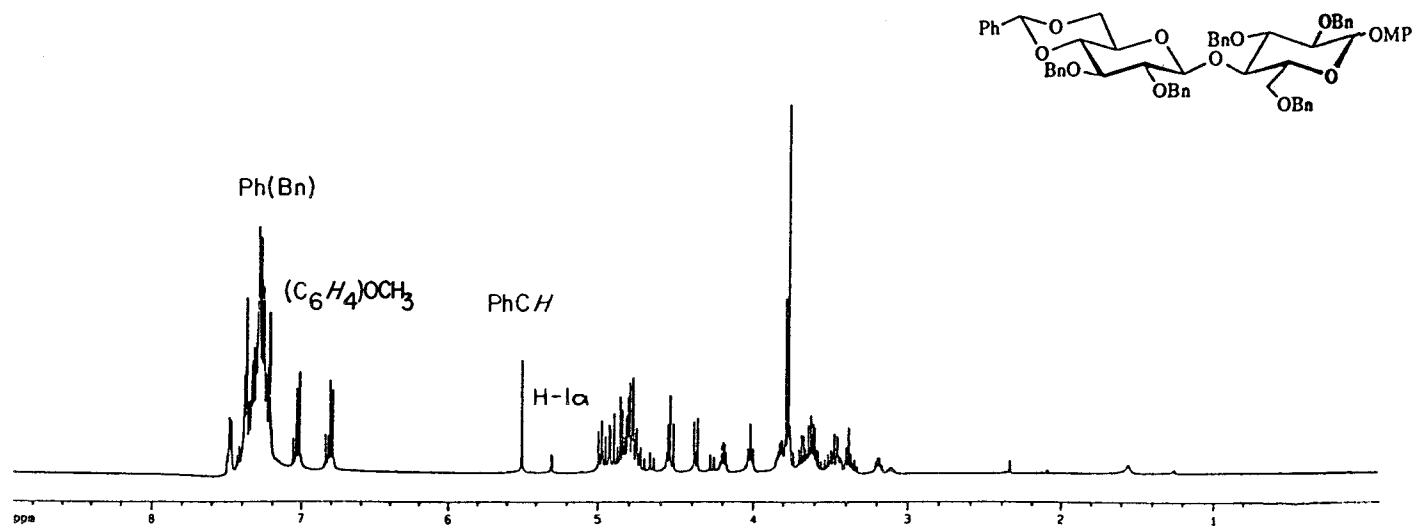
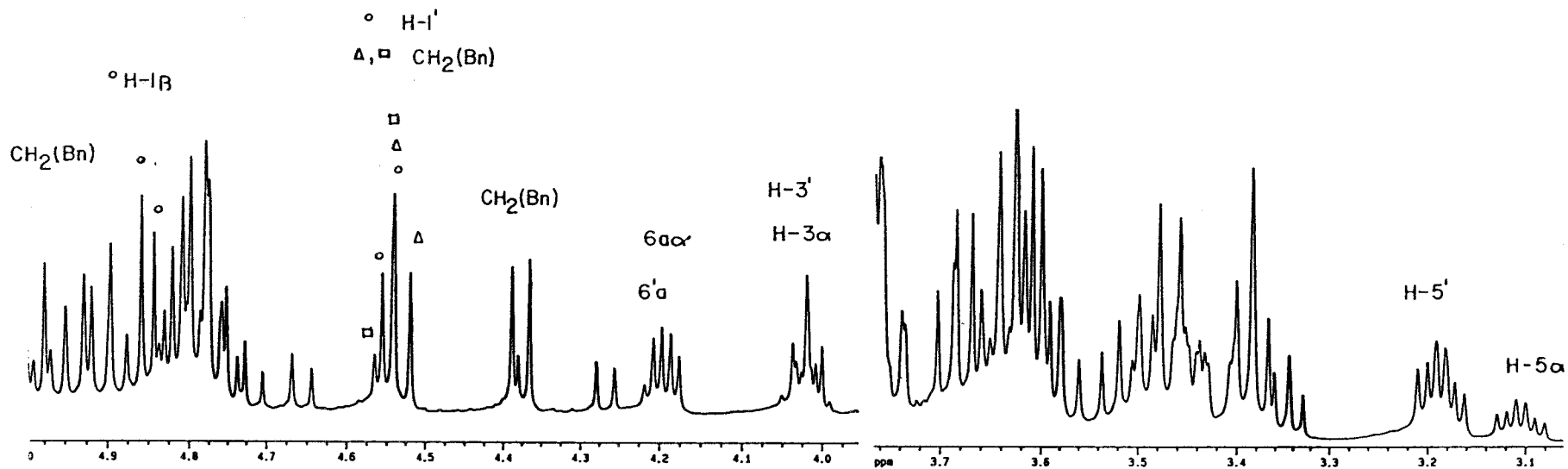


Figura 100. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil 2,3,6,2',3'-penta-*O*-bencil-4',6'-*O*-bencilidén- α y β -D-celobiosidos (135).

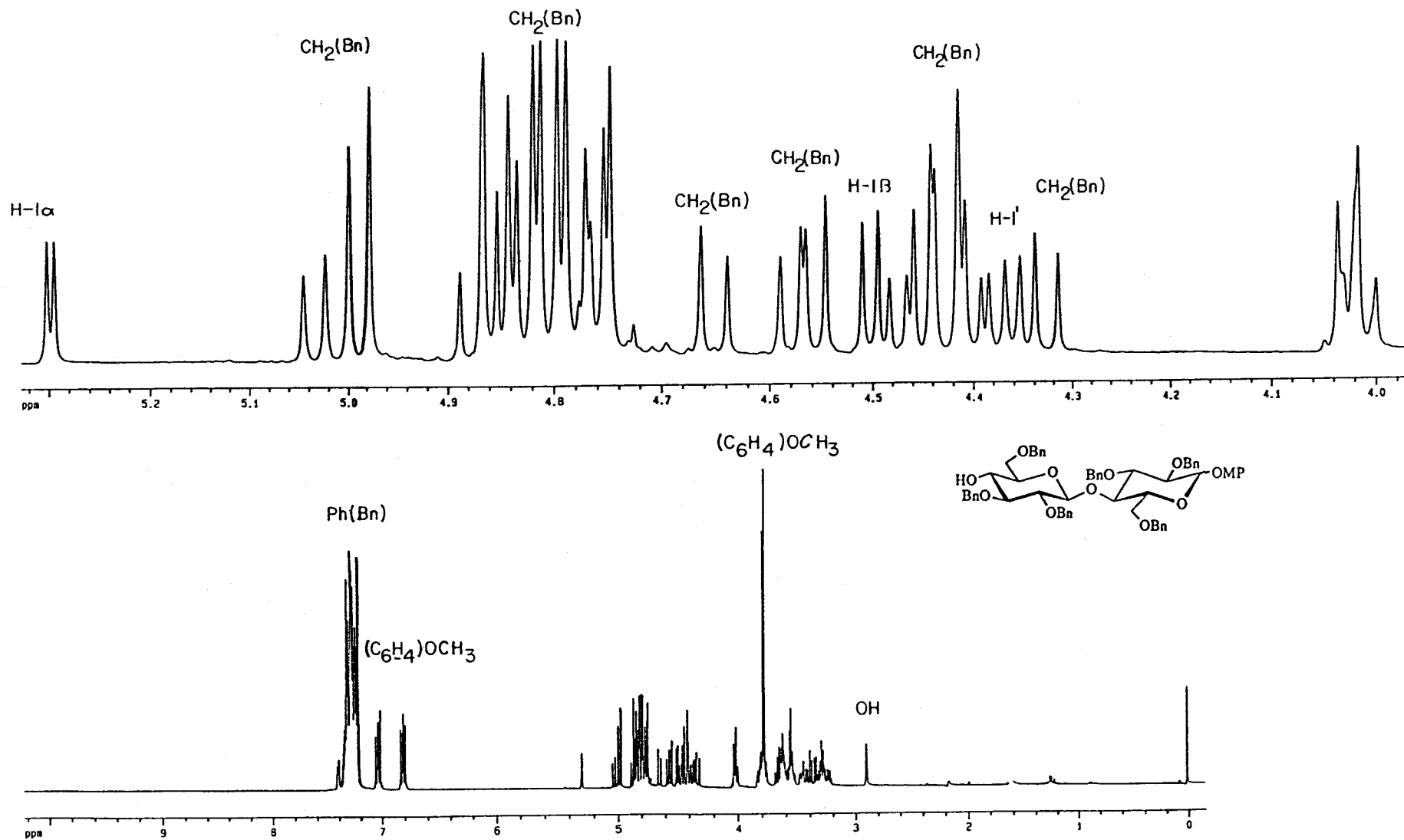


Figura 101. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *p*-metoxifenil 2,3,6,2',3',6'-hexa-*O*-bencil- α y β -D-celobiosidos (136).

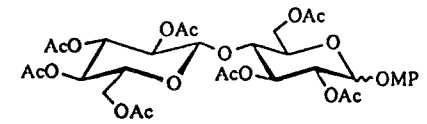
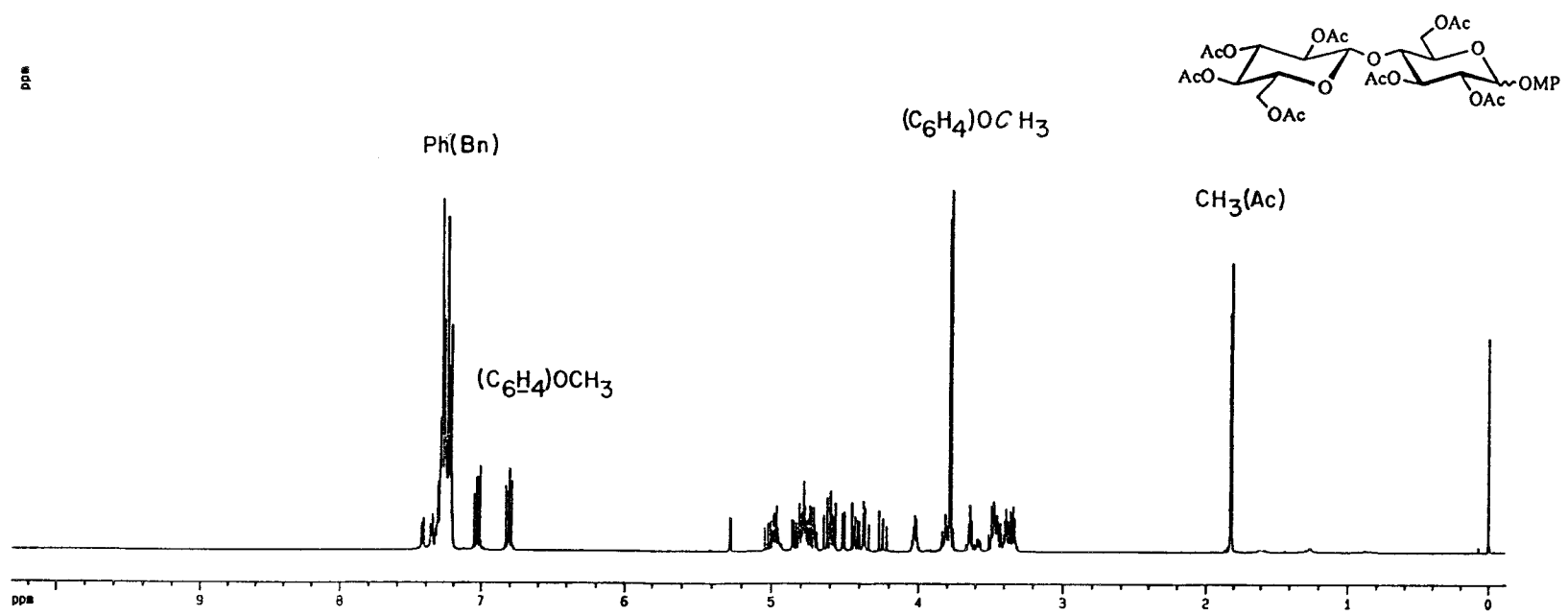
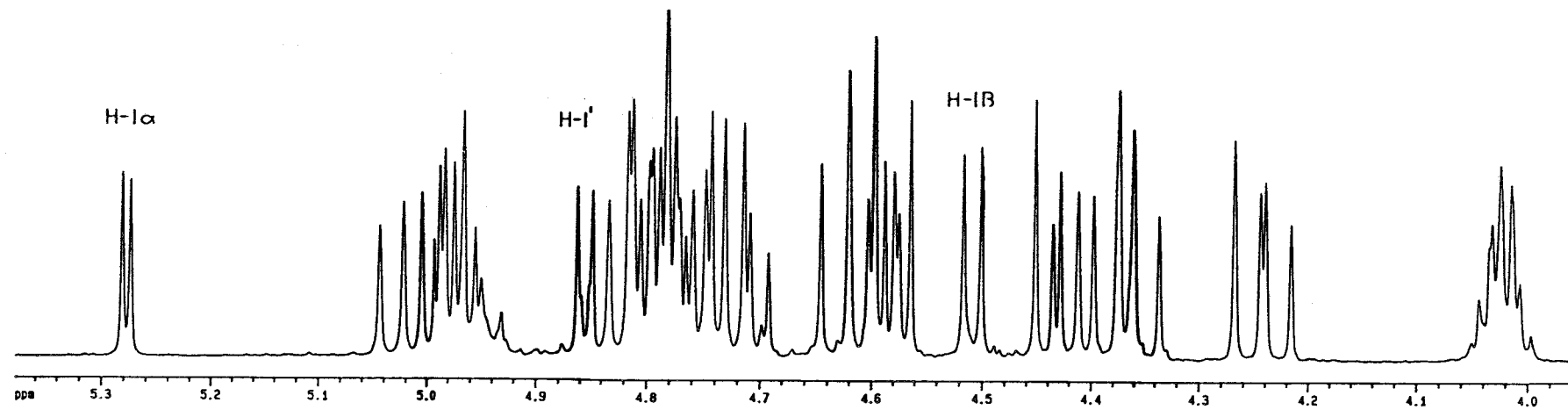


Figura 102. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil 4-*O*-acetil-2,3,6,2',3',6'-hexa-*O*-bencil- α y β -D-celobiosidos (142).

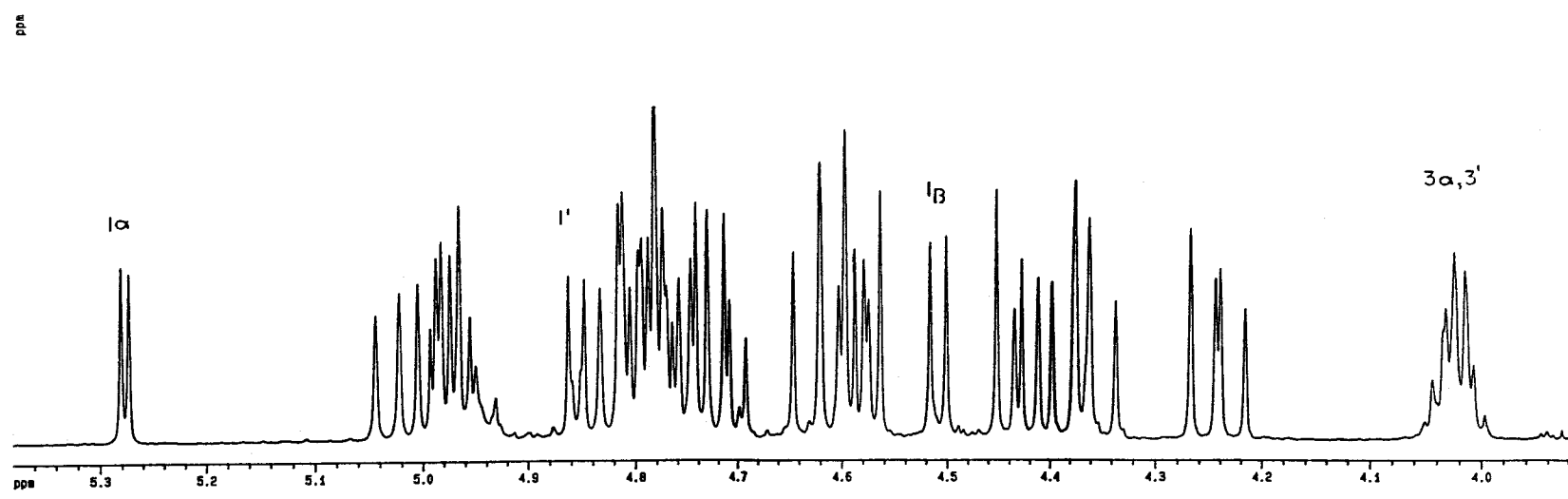
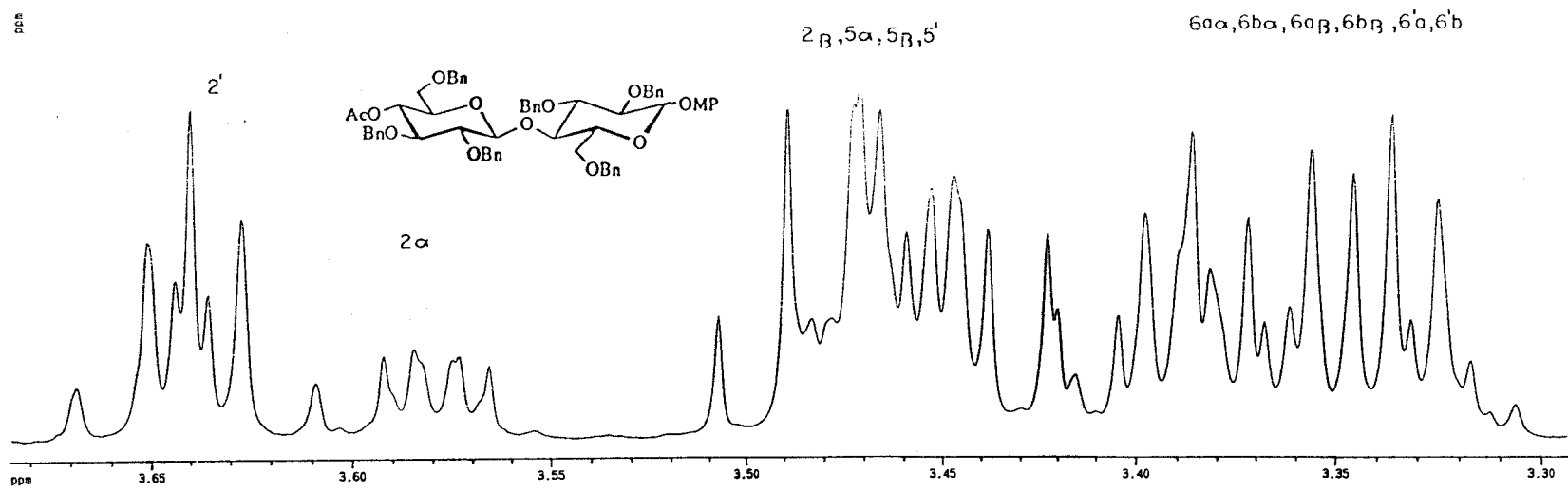


Figura 103. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil 4-*O*-acetil-2,3,6,2',3',6'-hexa-*O*-bencil- α y β -D-celobiósidos (142). Ampliaciones.

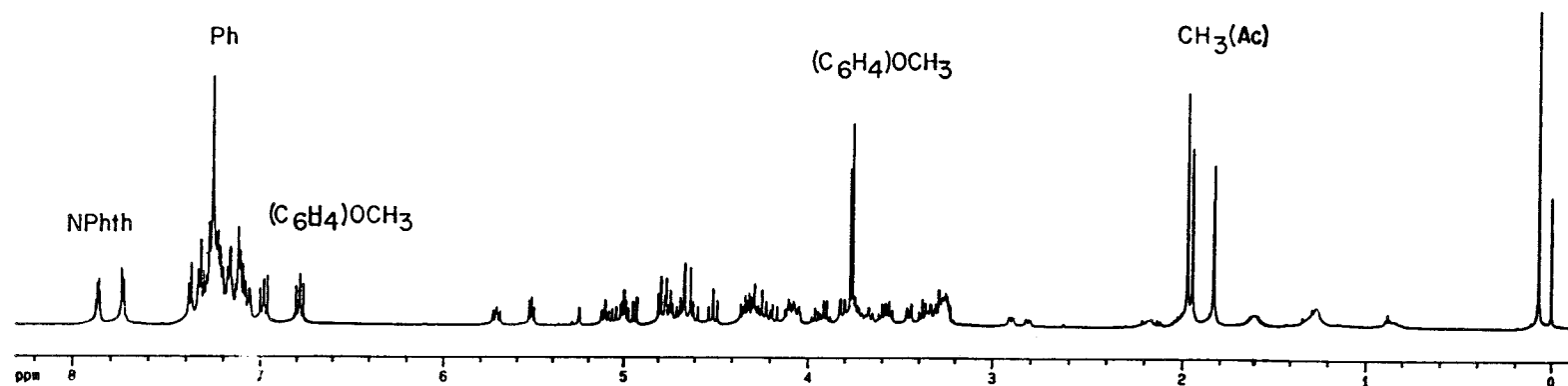
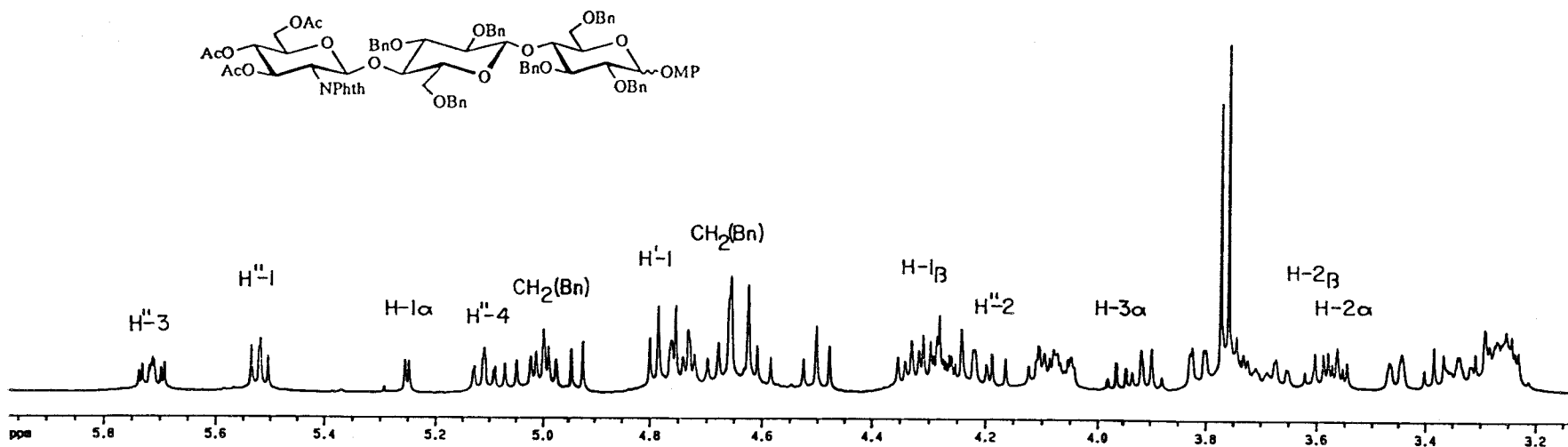


Figura 104. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-bencil- α y β -D-glucopiranosidos (137).

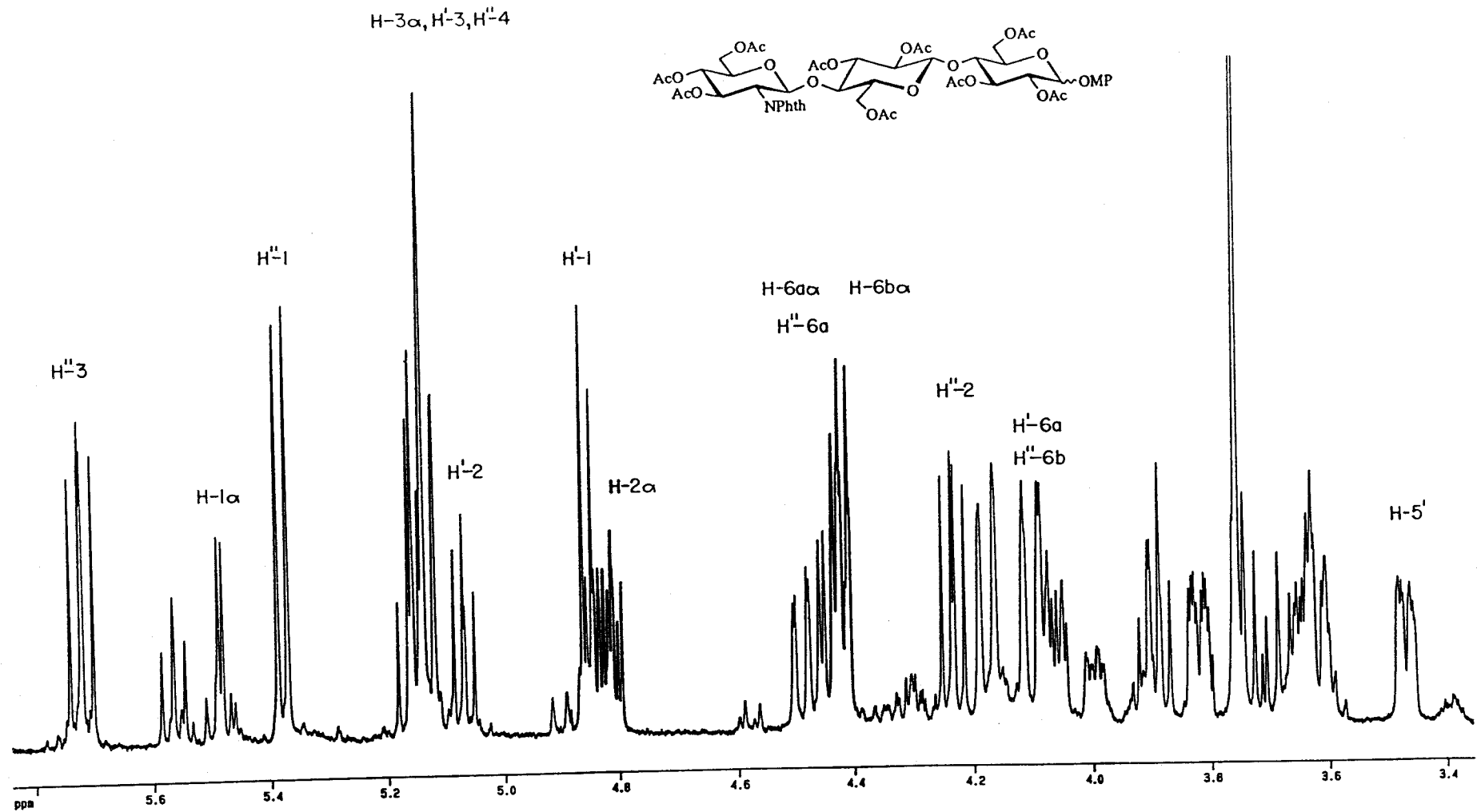


Figura 105. Espectro de ^1H -RMN a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (145). Ampliación.

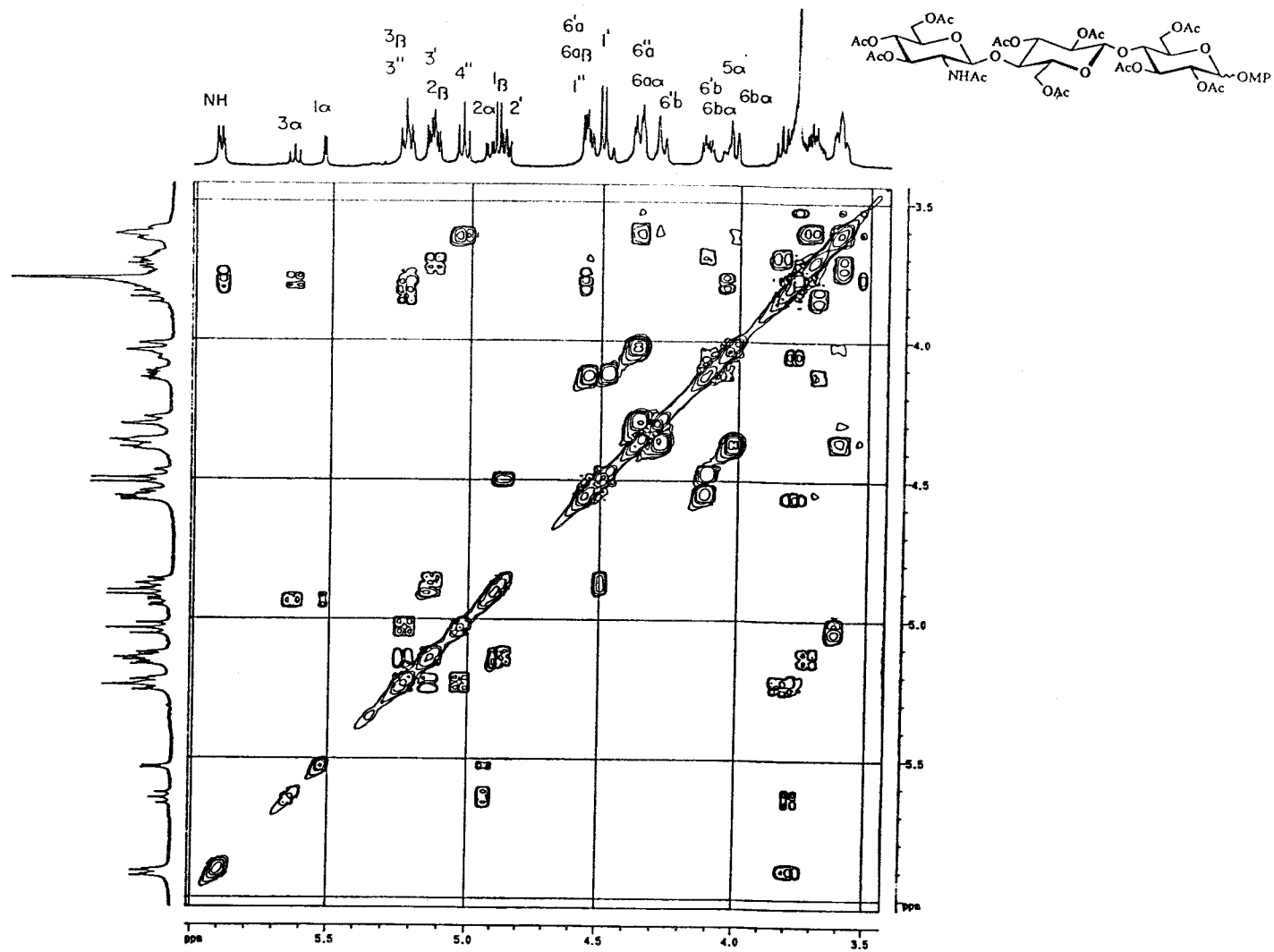


Figura 106. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-(2-acetamido-3,4,6-tri-*O*-acetil-2-desoxi- β -D-glucopiranosil)-(1→4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil-(1→4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (146).

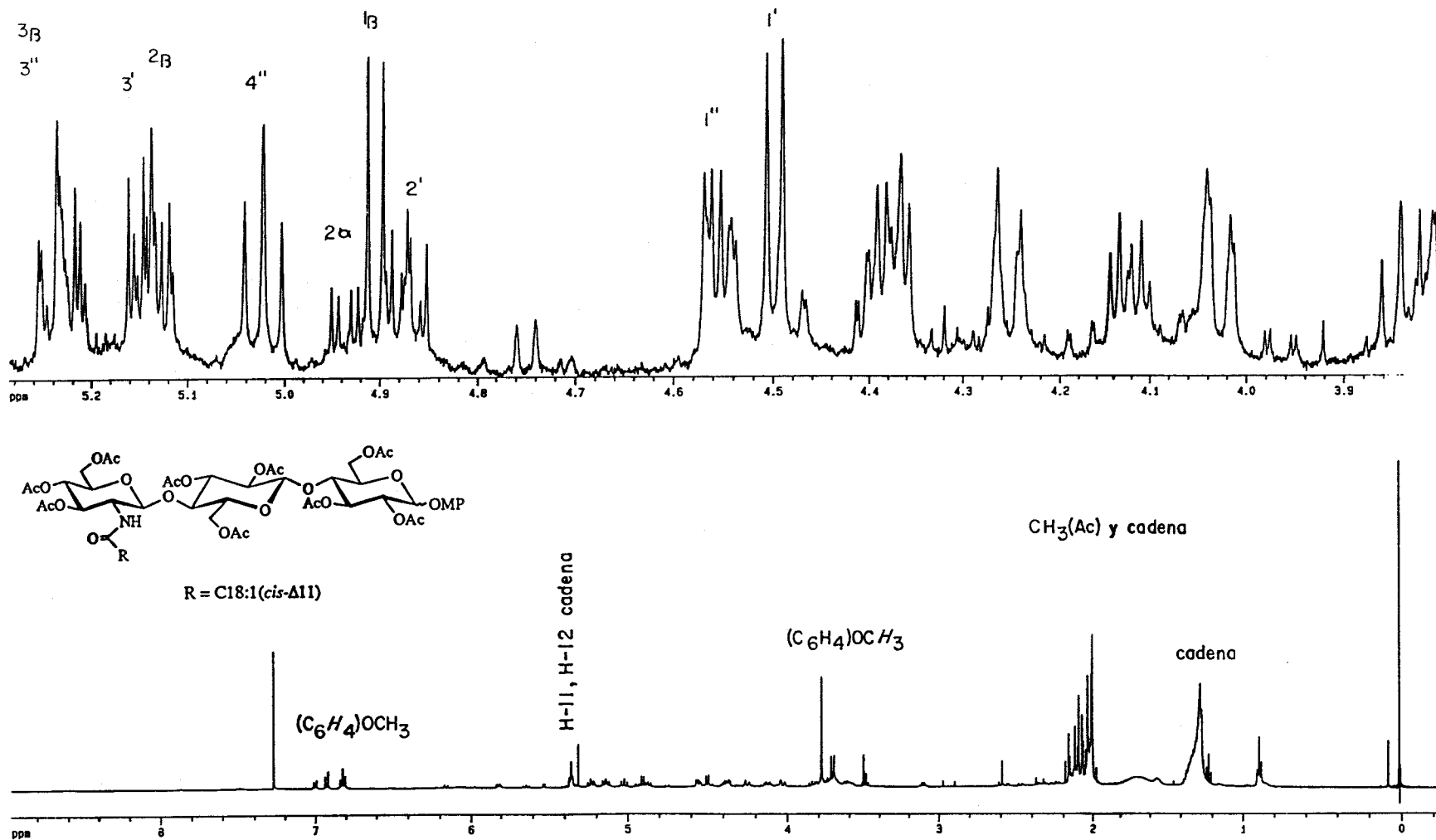


Figura 107. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil *O*-[3,4,6-tri-*O*-acetil-2-desoxi-2-(11*Z*-octadecaenilamido)-β-D-glucopiranosil]-(1→4)-*O*-(2,3,6-tri-*O*-acetil-β-D-glucopiranosil)-(1→4)-2,3,6-tri-*O*-acetil-α y β-D-glucopiranosidos (147).

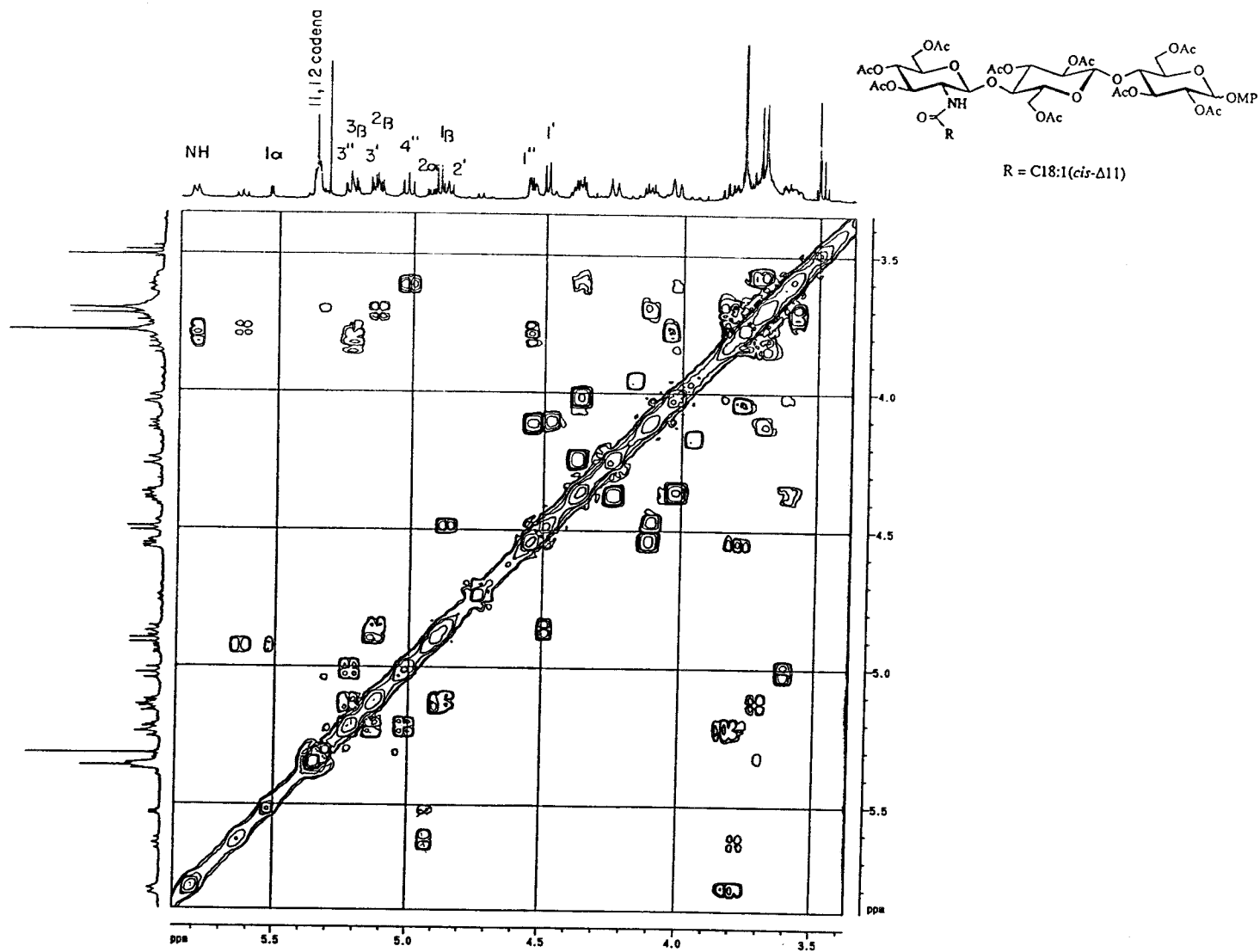


Figura 108. Espectro COSY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-[3,4,6-tri-*O*-acetil-2-desoxi-2-(11*Z*-octadecaenilamido)-β-D-glucopiranosil]-(1→4)-*O*-(2,3,6-tri-*O*-acetil-β-D-glucopiranosil)-(1→4)-2,3,6-tri-*O*-acetil-α y β-D-glucopiranósidos (147).

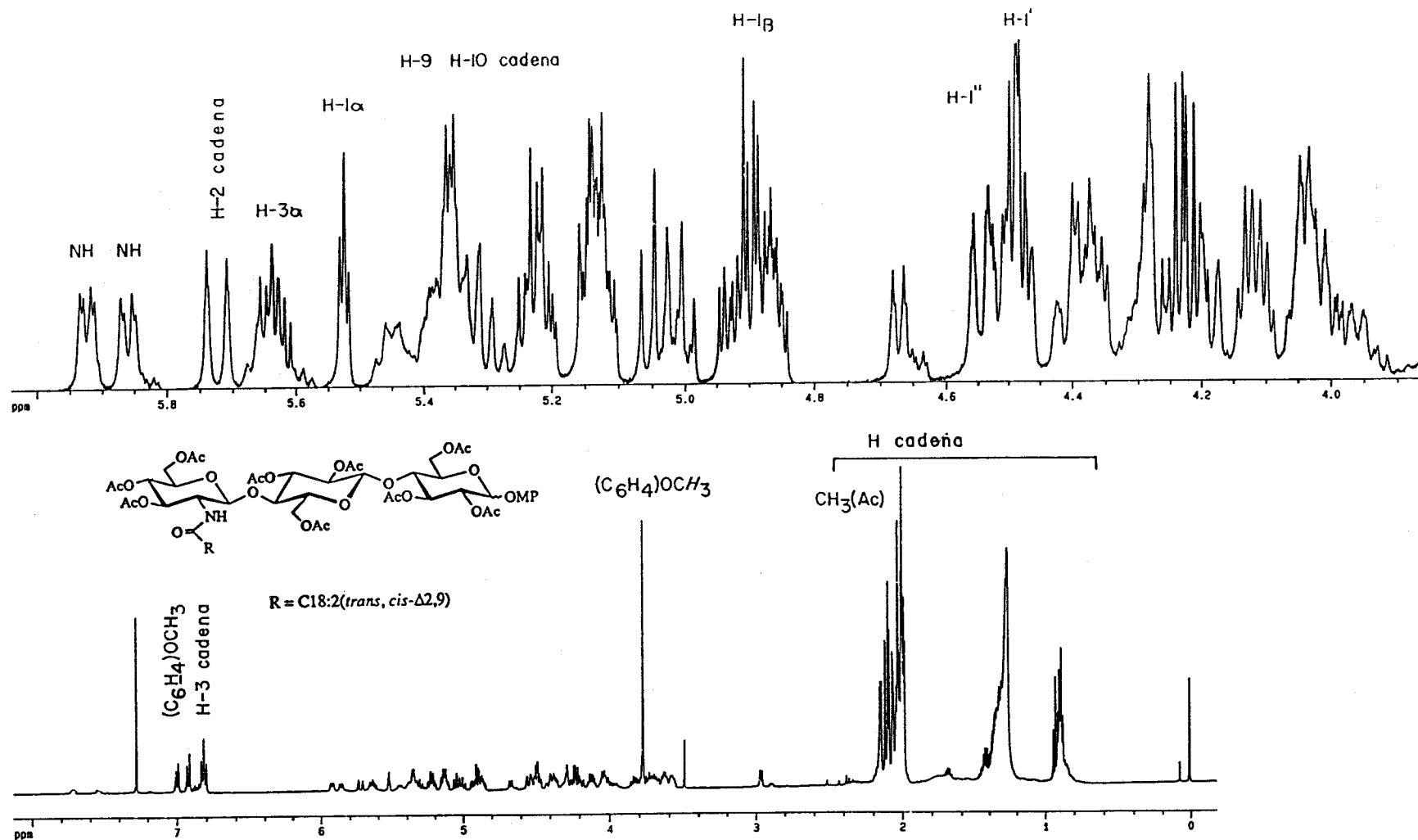


Figura 109. Espectro de ¹H-RMN a 500 MHz en Cl₃CD de *p*-metoxifenil *O*-{3,4,6-tri-*O*-acetil-2-desoxi-2-[(2*E*, 9*Z*)-2,9-octadecadienilamido]-β-D-glucopiranosil}-(1→4)-*O*-(2,3,6-tri-*O*-acetil-β-D-glucopiranosil)-(1→4)-2,3,6-tri-*O*-acetil-α y β-D-glucopiranosidos (148).

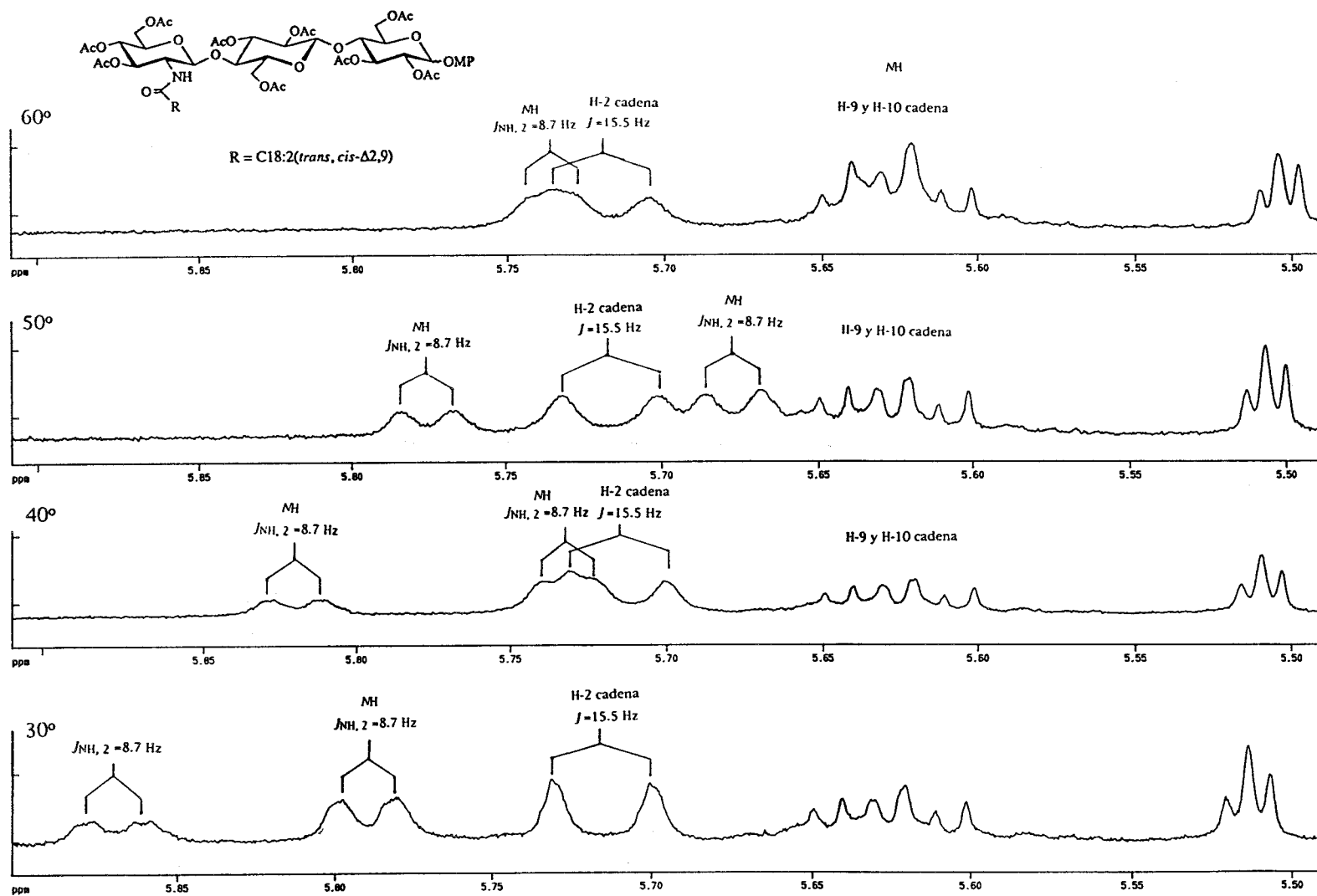


Figura 110. Espectro de $^1\text{H-RMN}$ a 500 MHz en Cl_3CD a distintas temperaturas de *p*-metoxifenil *O*-{3,4,6-tri-*O*-acetil-2-desoxi-2-[(2*E*, 9*Z*)-2,9-octadecadienilamido]- β -D-glucopiranosil}-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (148).

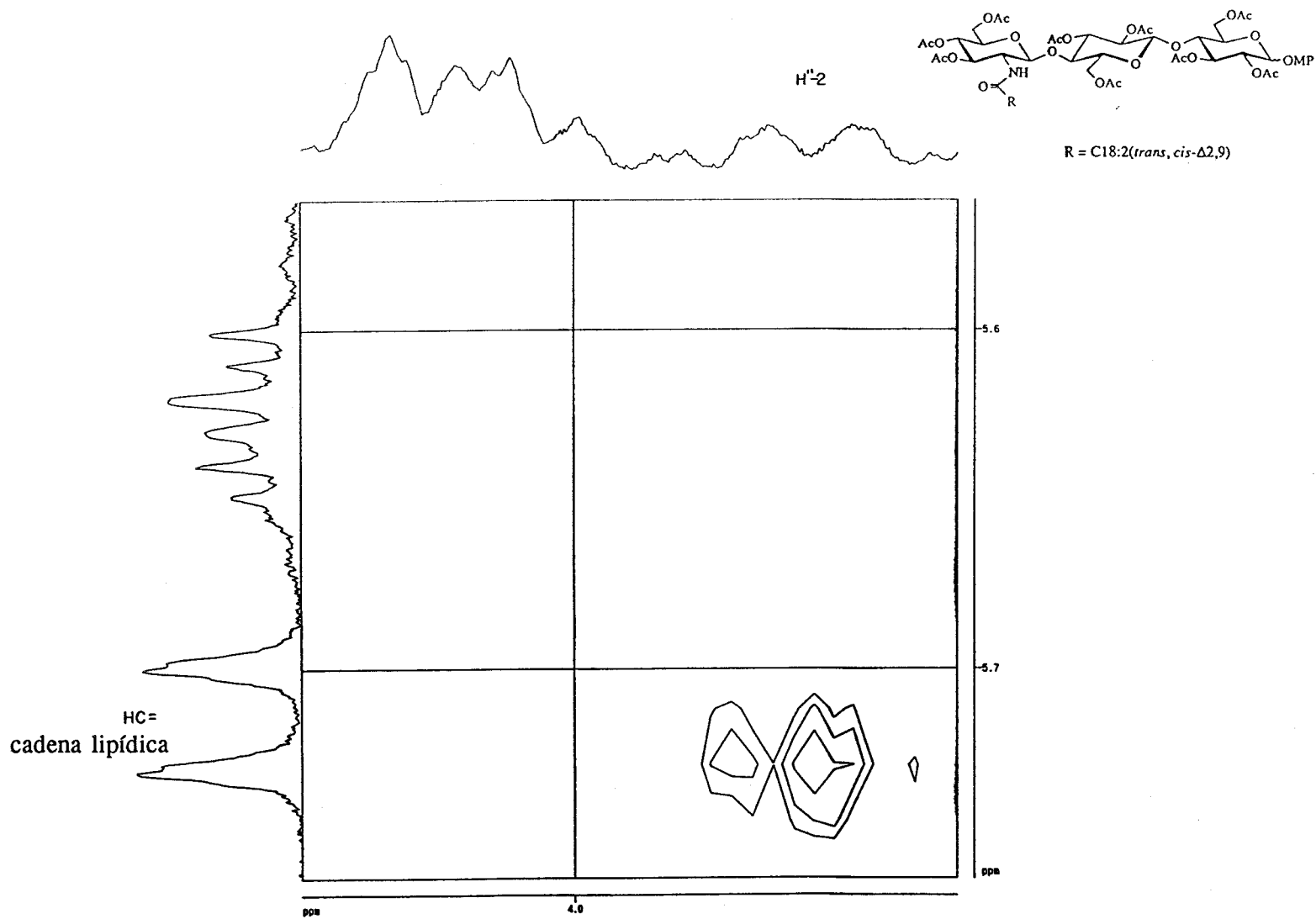


Figura 111. Espectro ROESY a 500 MHz en Cl_3CD de *p*-metoxifenil *O*-{3,4,6-tri-*O*-acetil-2-desoxi-2-[(2*E*, 9*Z*)-2,9-octadecadienilamido]- β -D-glucopiranosil}-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (148).

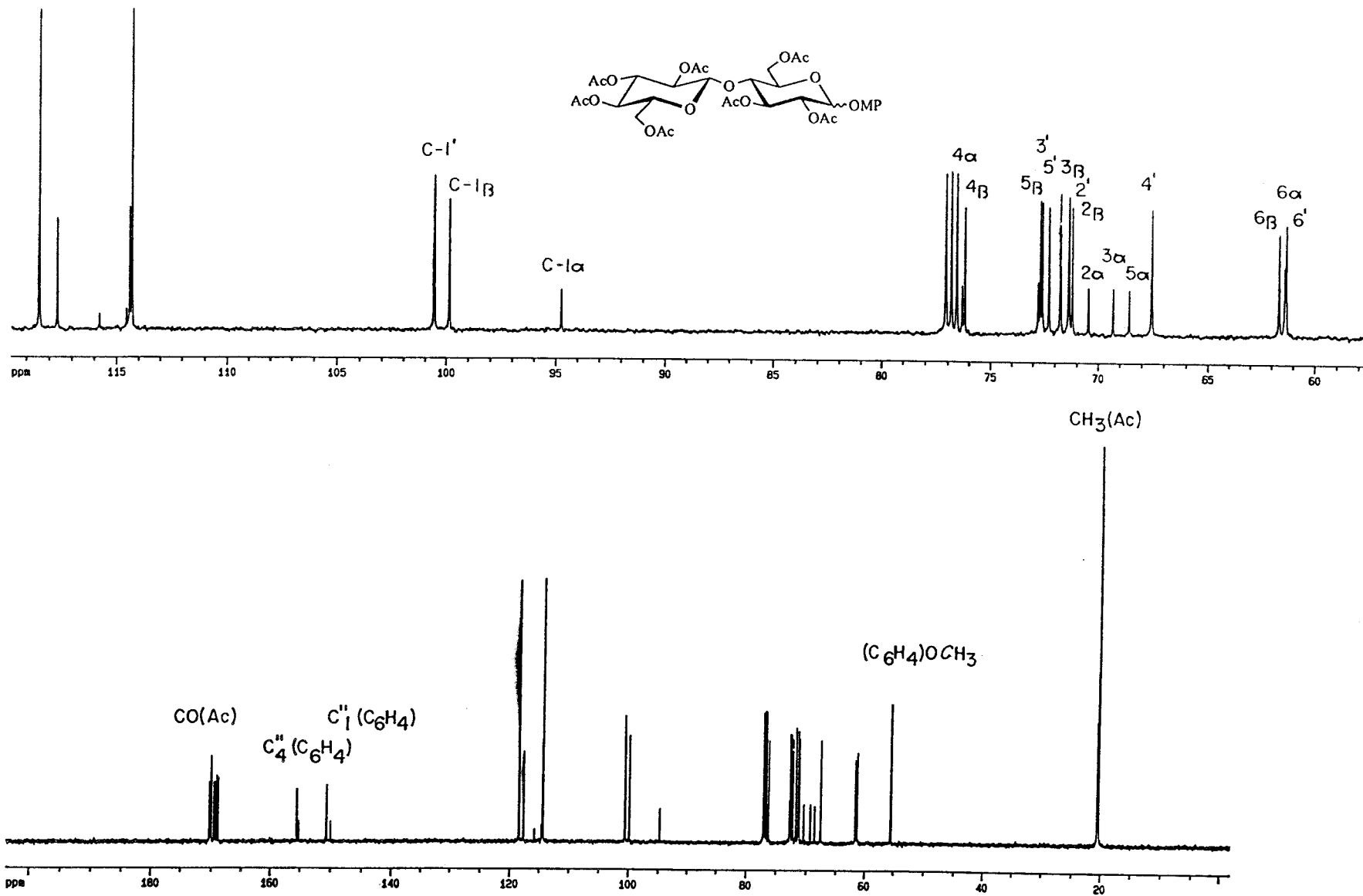


Figura 112. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil 2,3,4,6,2',3',6'-hepta-*O*-acetil- α y β -D-celbiósidos (157).

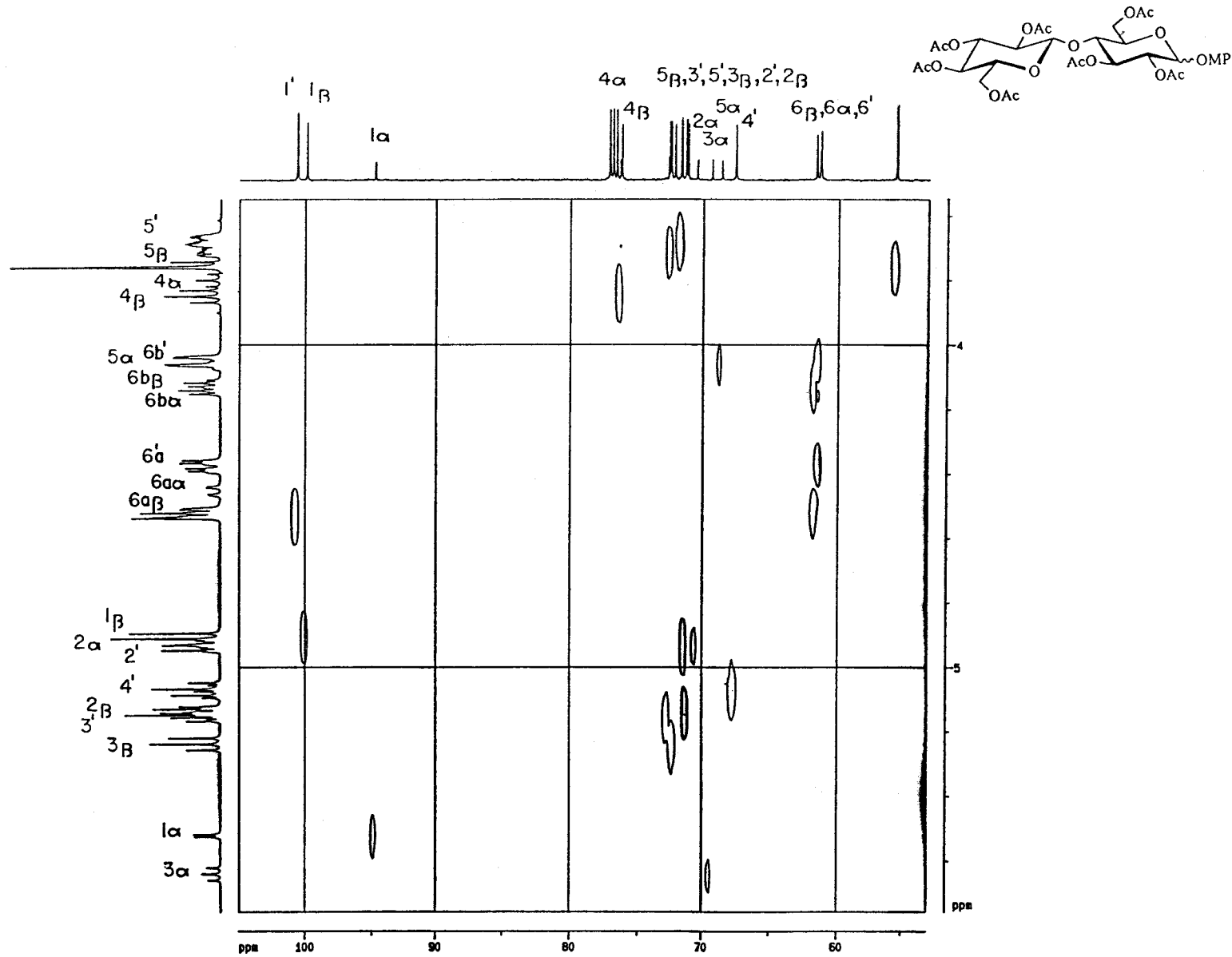


Figura 113. Espectro de heterocorrelación $^1\text{H}/^{13}\text{C}$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil 2,3,4,6,2',3',6'-hepta-*O*-acetil- α y β -D-celobiosidos (157).

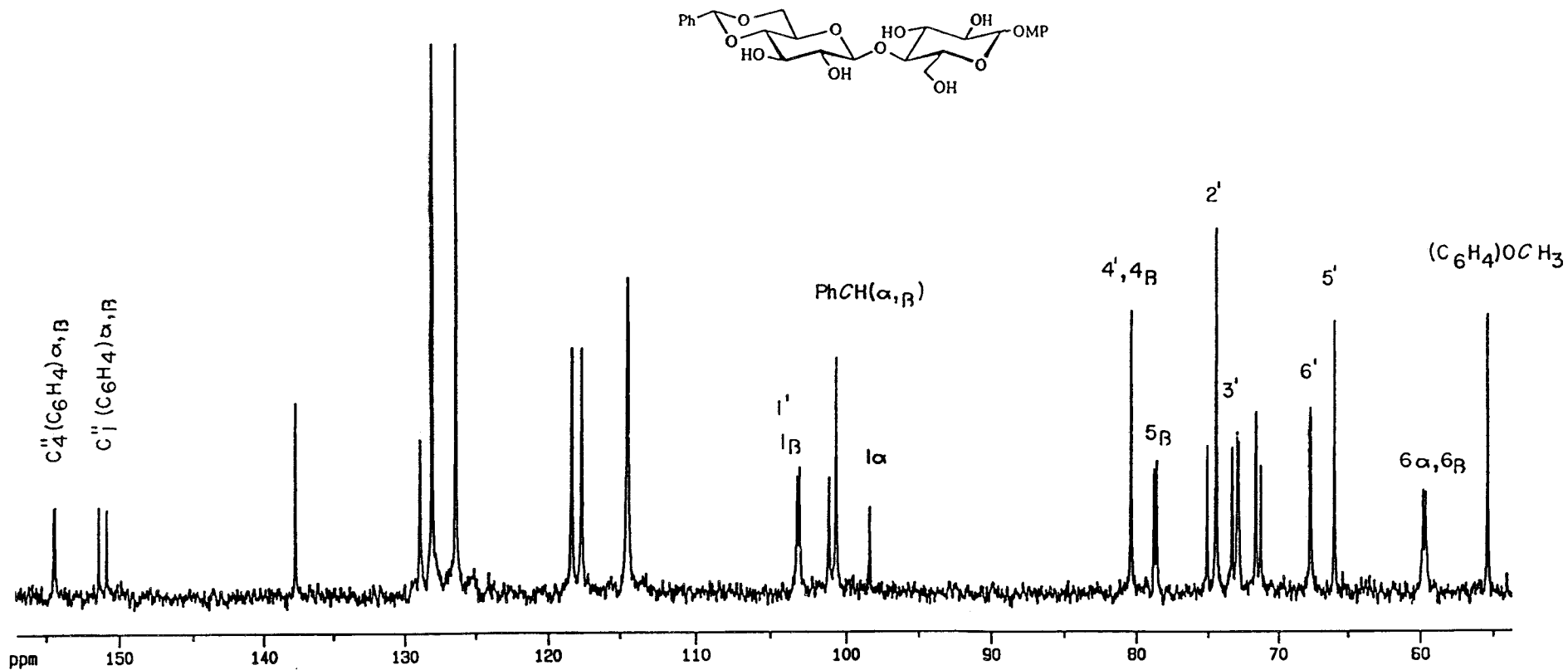


Figura 114. Espectro de ^{13}C -RMN a 75,4 MHz en DMSO- d_6 de *p*-metoxifenil 4',6'-*O*-bencilidén- α y β -D-celobiosidos (134). Ampliación.

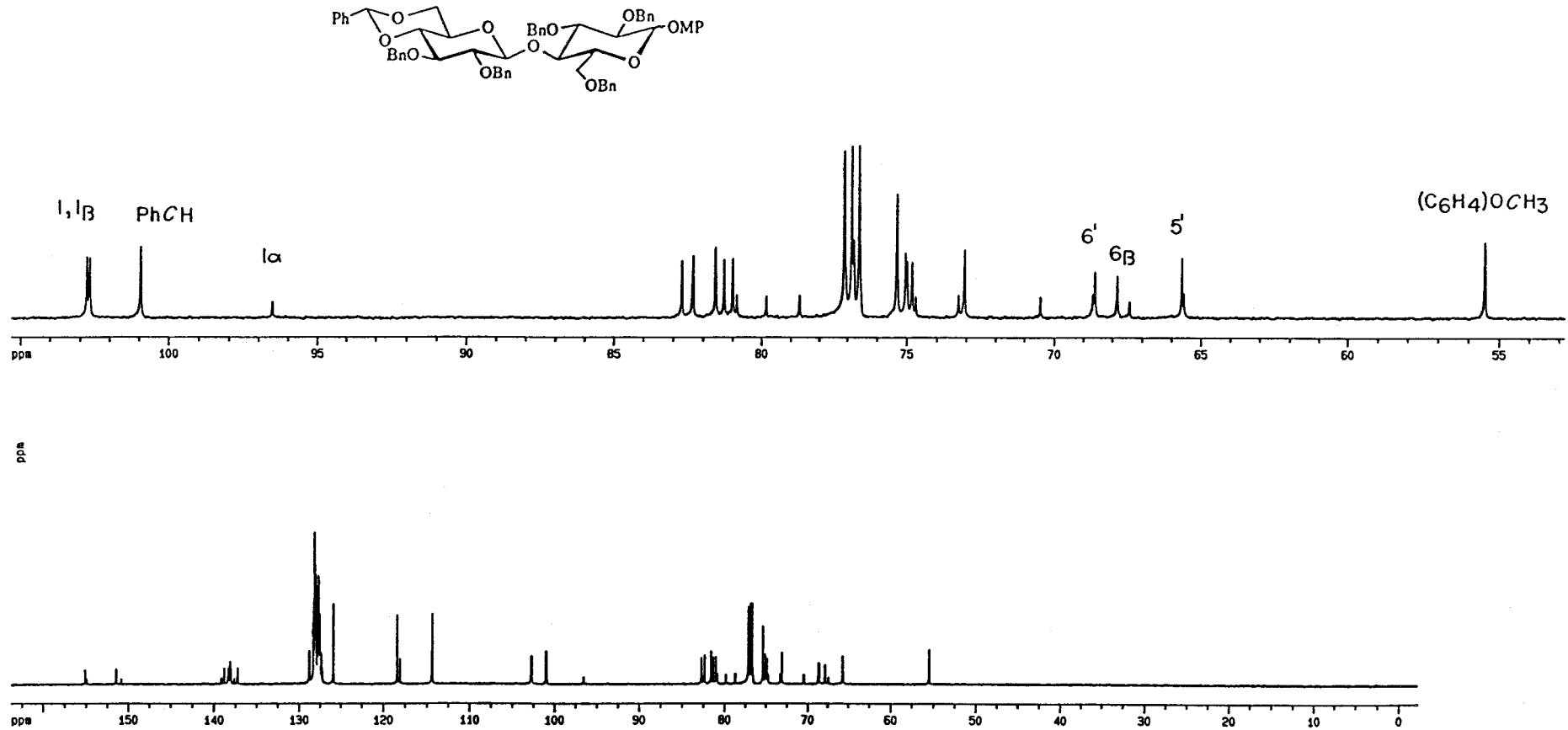


Figura 115. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil 2,3,6,2',3'-penta-*O*-bencil-4',6'-*O*-bencilidén- α y β -D-celobiosidos (135).

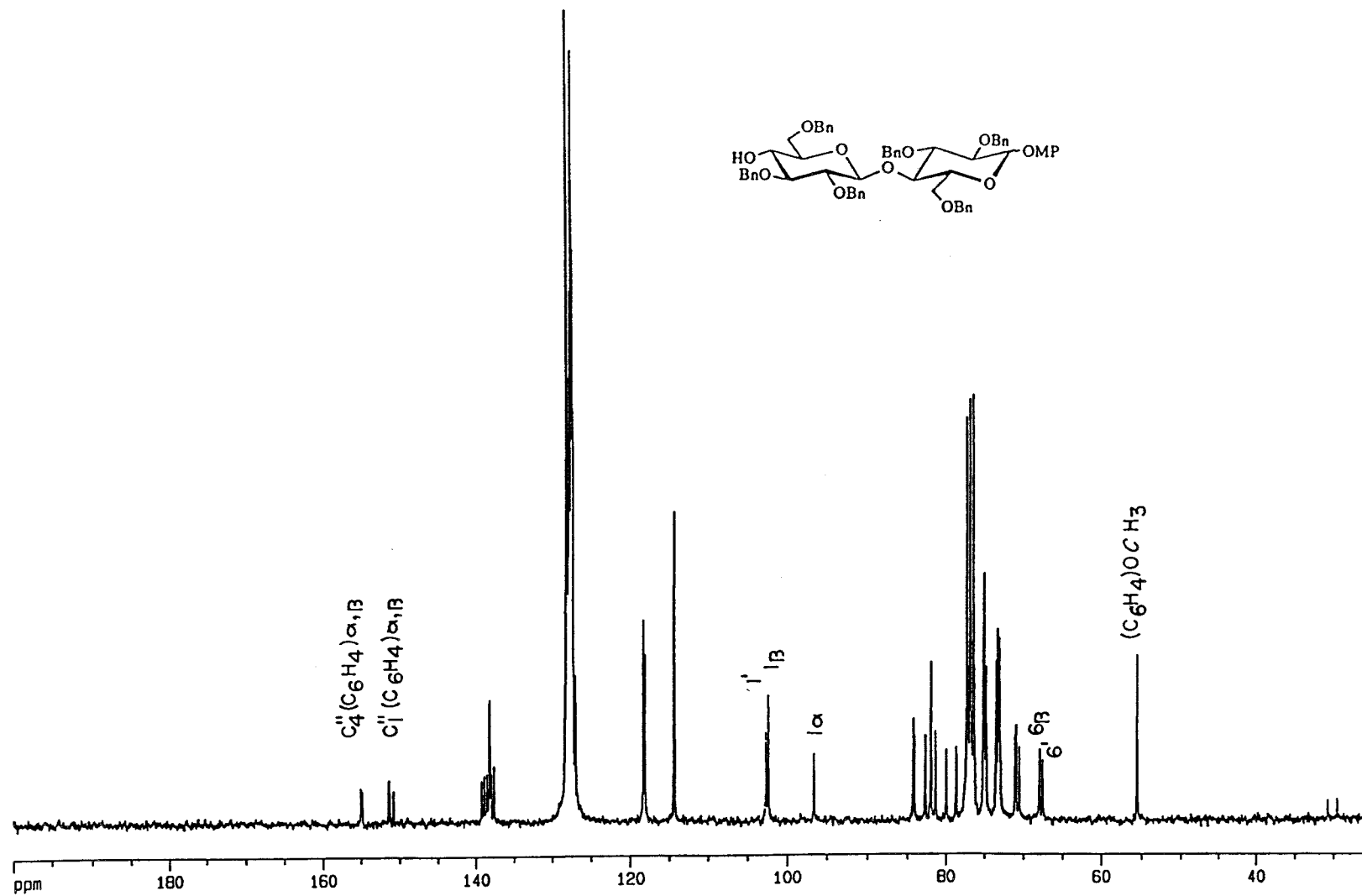


Figura 116. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil 2,3,6,2',3',6'-hexa-*O*-bencil- α y β -D-celobiosidos (136).

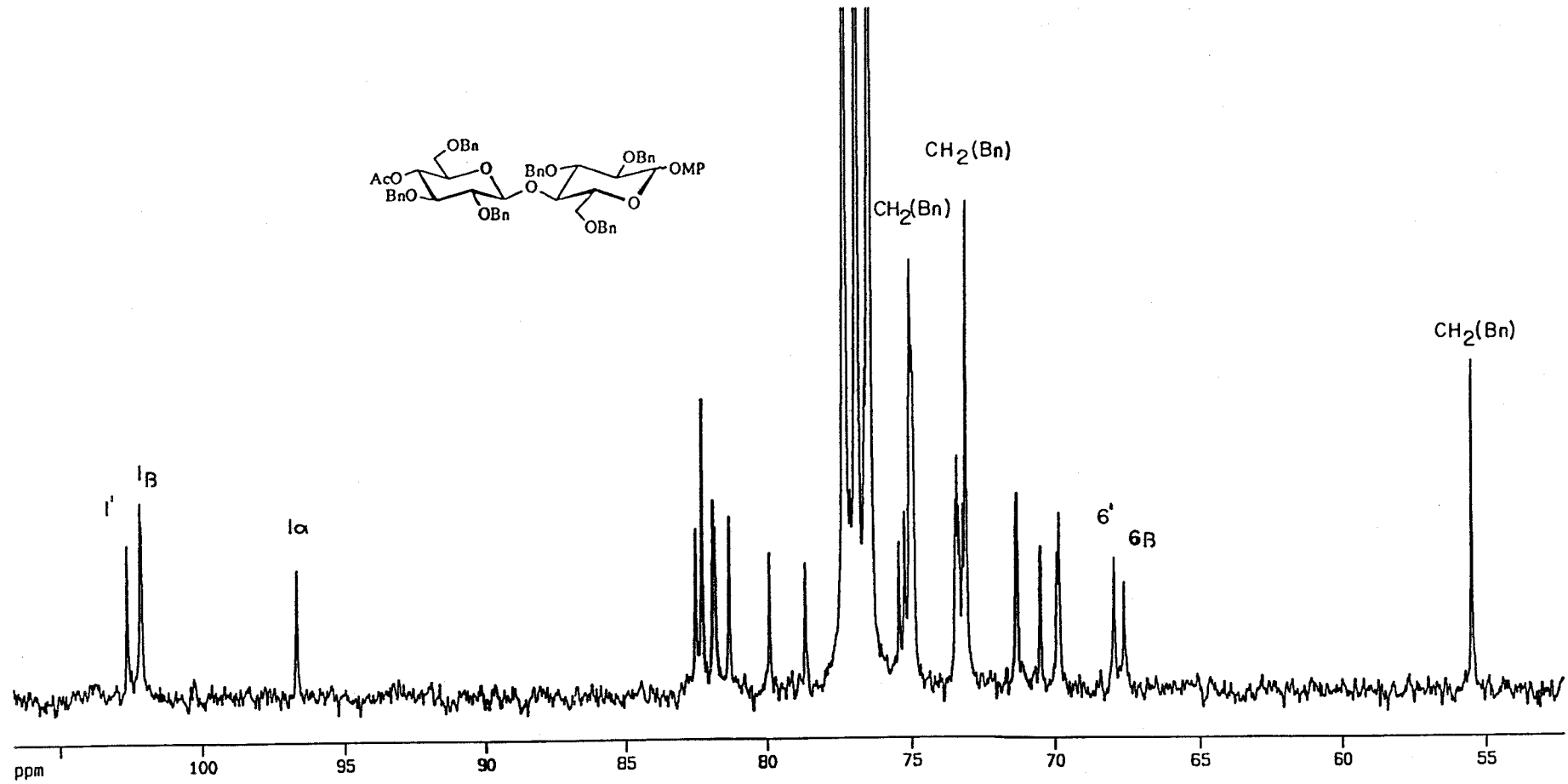


Figura 117. Espectro de ^{13}C -RMN a 75,4 MHz en Cl_3CD de *p*-metoxifenil 4-*O*-acetil-2,3,6,2',3',6'-hexa-*O*-bencil- α y β -D-celobiosidos (142). Ampliación.

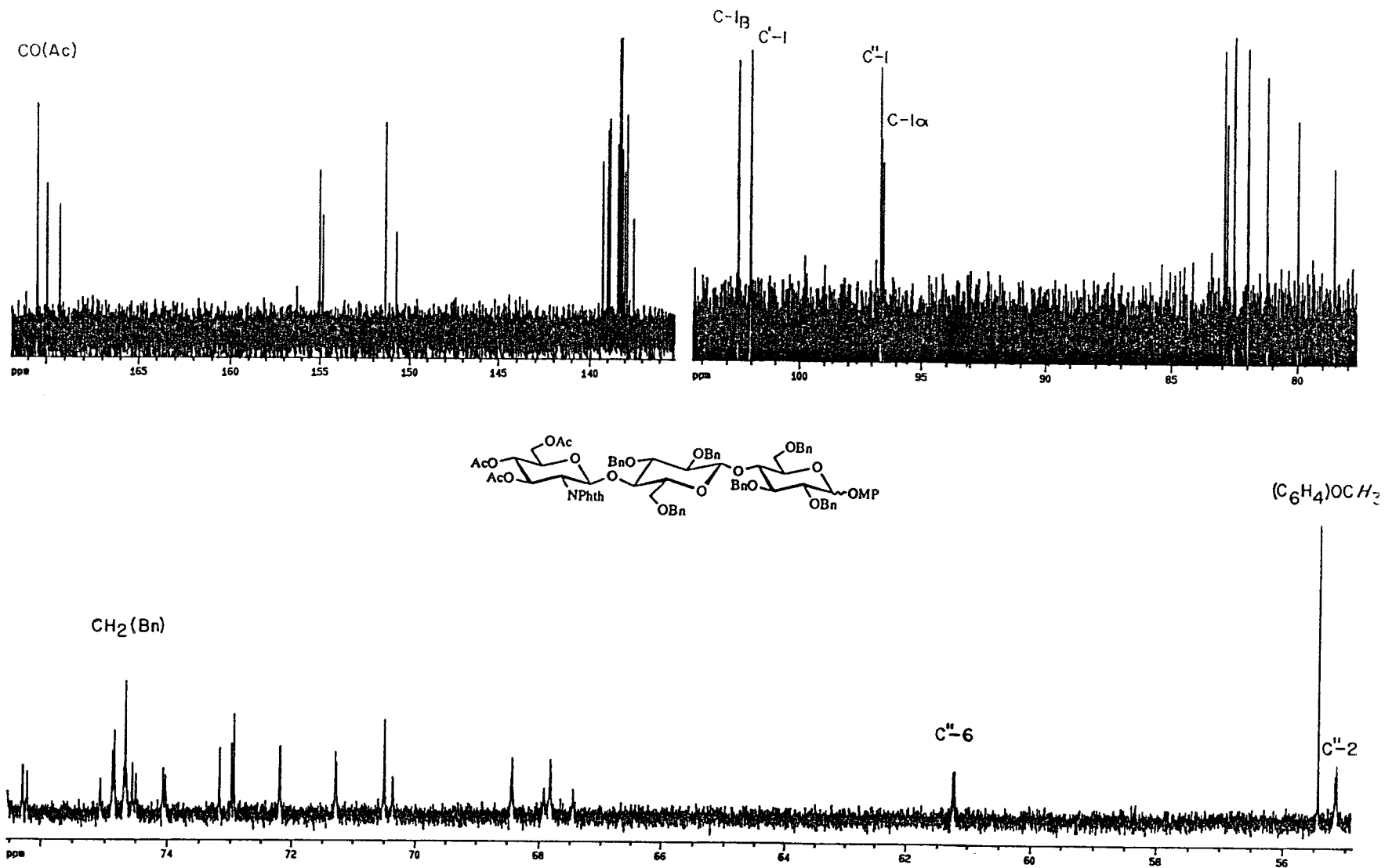


Figura 118. Espectro de ^{13}C -RMN a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-bencil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-bencil- α y β -D-glucopiranosidos (137). Ampliación.

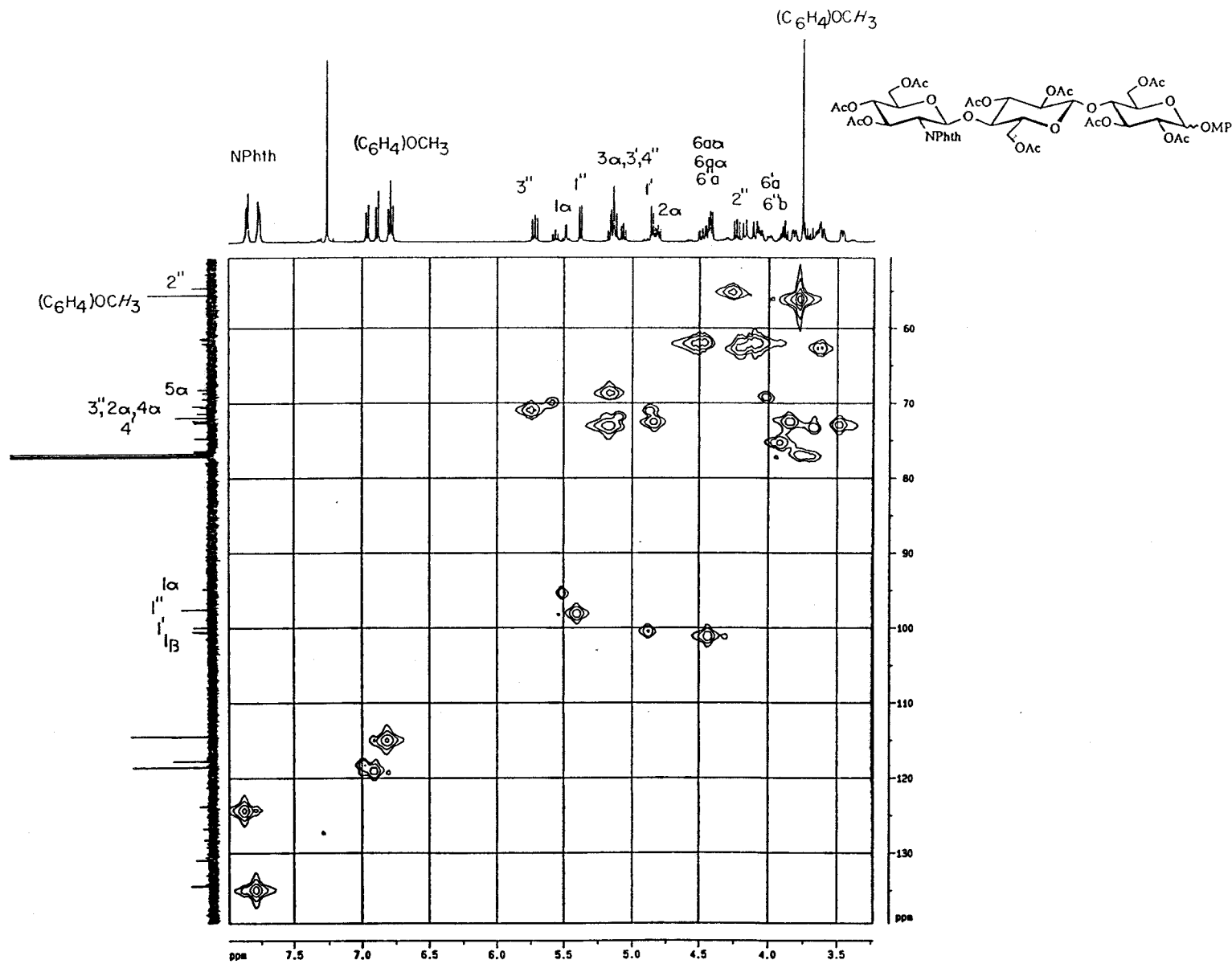


Figura 119. Espectro de heterocorrelación $^1\text{H}/^{13}\text{C}$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(3,4,6-tri-*O*-acetil-2-desoxi-2-ftalimido- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (145).

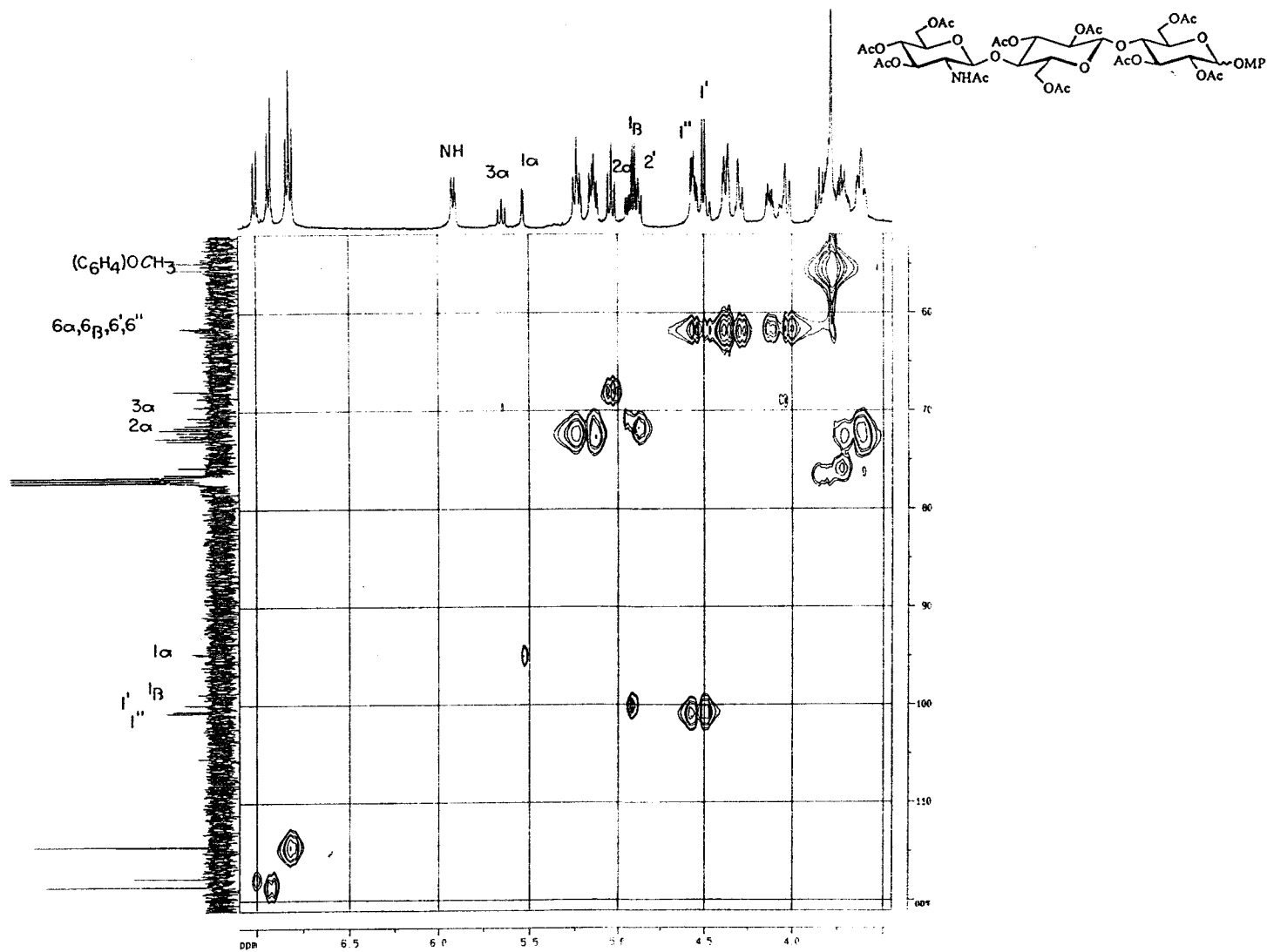


Figura 120. Espectro heterocorrelación $^1\text{H}/^{13}\text{C}$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-(2-acetamido-3,4,6-tri-*O*-acetil-2-desoxi- β -D-glucopiranosil)-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranósidos (146).

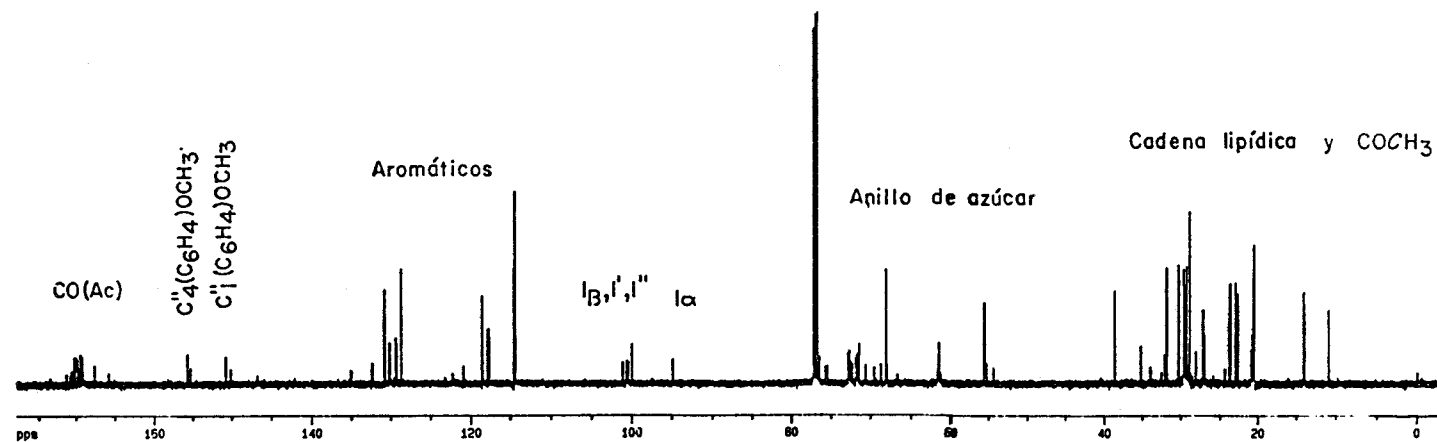
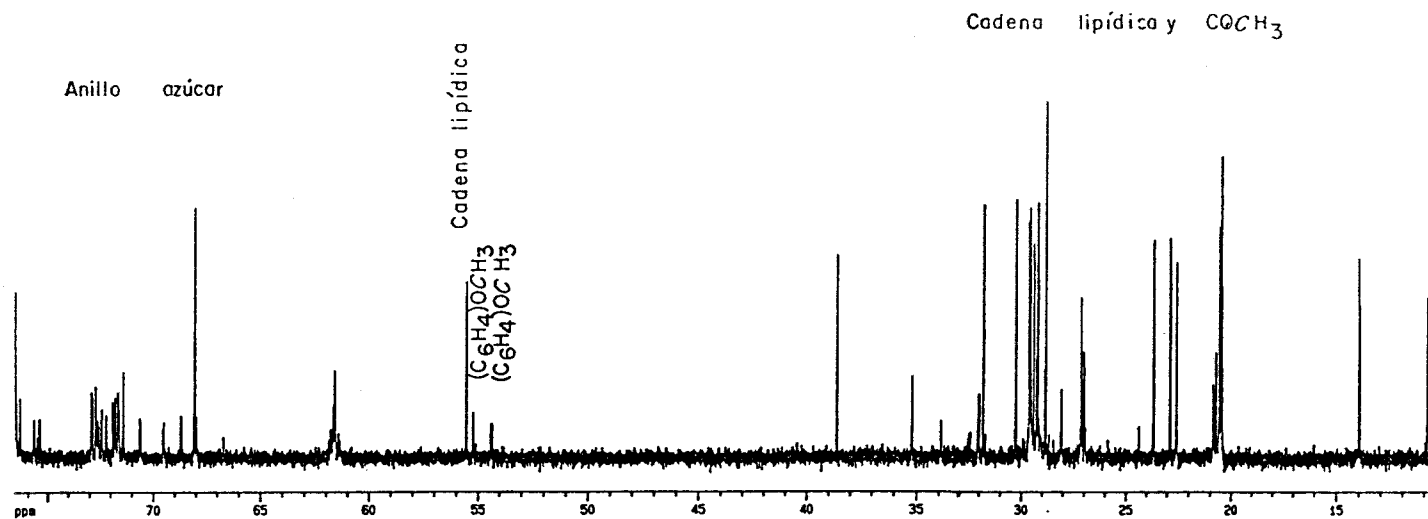


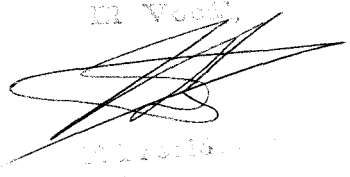
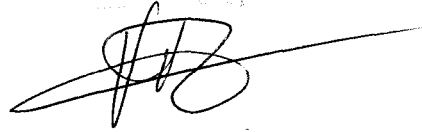

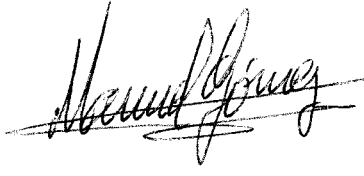
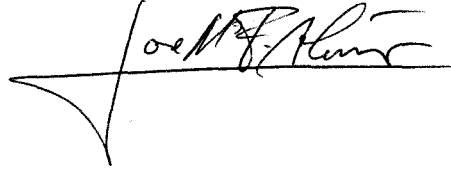
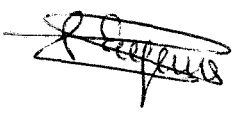
Figura 121. Espectro de $^{13}\text{C-RMN}$ a 125,7 MHz en Cl_3CD de *p*-metoxifenil *O*-{3,4,6-tri-*O*-acetil-2-desoxi-2-[(2*E*, 9*Z*)-2,9-octadecadienilamido]- β -D-glucopiranosil}-(1 \rightarrow 4)-*O*-(2,3,6-tri-*O*-acetil- β -D-glucopiranosil)-(1 \rightarrow 4)-2,3,6-tri-*O*-acetil- α y β -D-glucopiranosidos (148).

UNIVERSIDAD DE SEVILLA

Reunido el Tribunal de Examen de la Facultad de Ciencias Exactas y Naturales el día de la fecha, para juzgar el Tesis Doctoral de

D. Eugenio López Borde.
Tesis: Aminopolisacáridos, síntesis de
glicosilaminas de disacáridos y de
lipopolisacáridos
acuerdo otorgarle la calificación de apto "cum laude"

por unanimidad
Sevilla, dos de octubre 1995

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