STEREOSELECTIVE STUDIES

IN

THE BAYLIS-HILLMAN REACTION

PART B: Supplementary Material

N.m.r. Spectra

by

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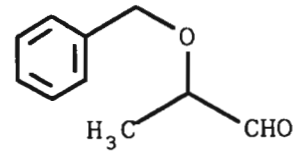
NOTES:

1. The n.m.r. spectra are arranged in number order, followed by alphabetical order and as follows:
   ^{1}H, "TAI" (^{1}H) and ^{13}C.

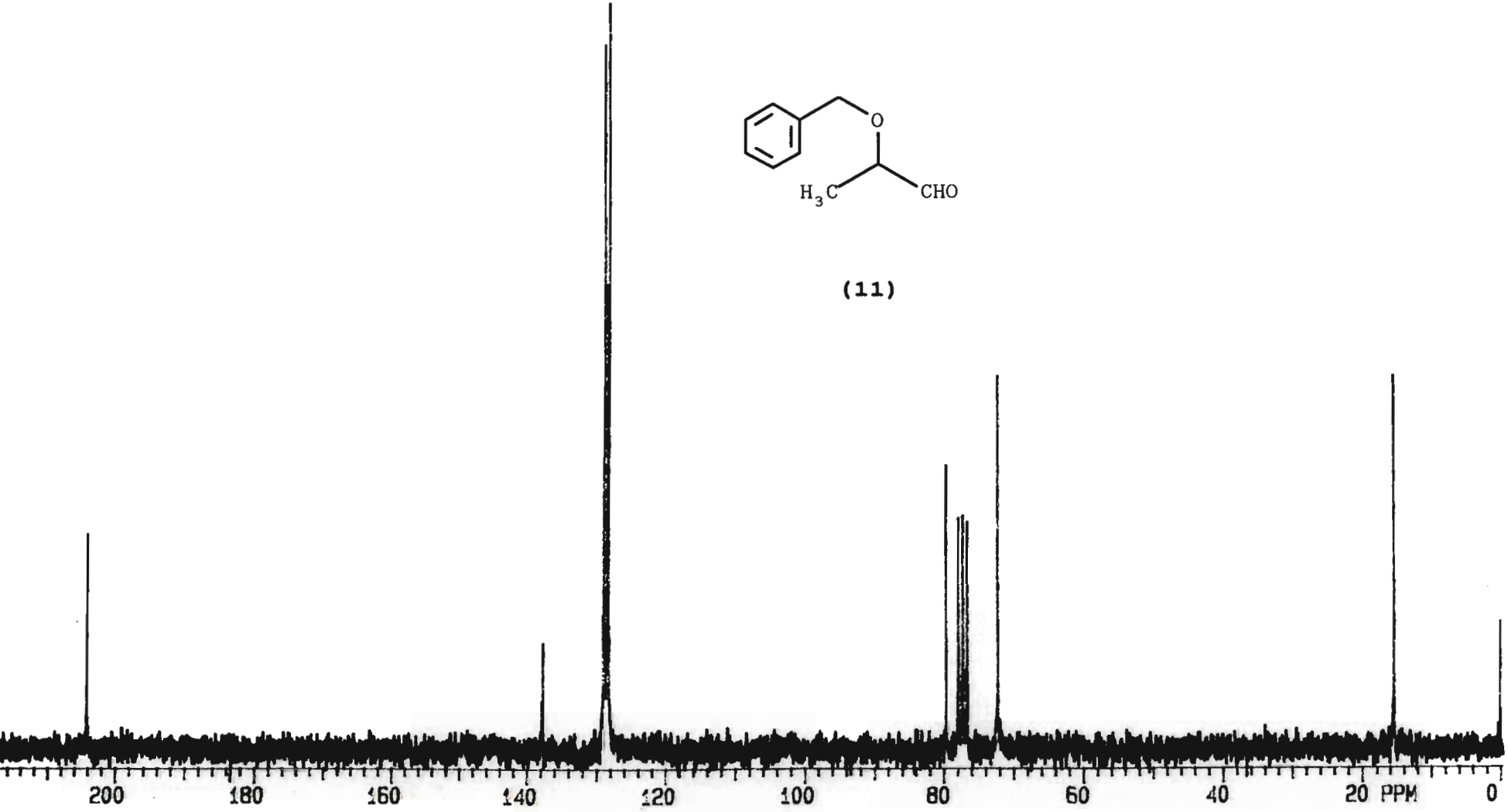
2. The corresponding TAI derivatives of diastereomeric mixtures are referred to as (X **T**), for the diastereomeric mixture (X).

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



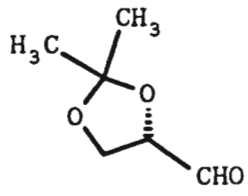
(11)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



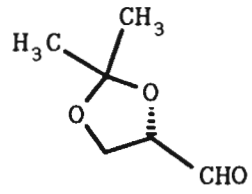
(11)

^{1}**H n.m.r.** spectrum (60 MHz; $CDCl_3$/TMS)

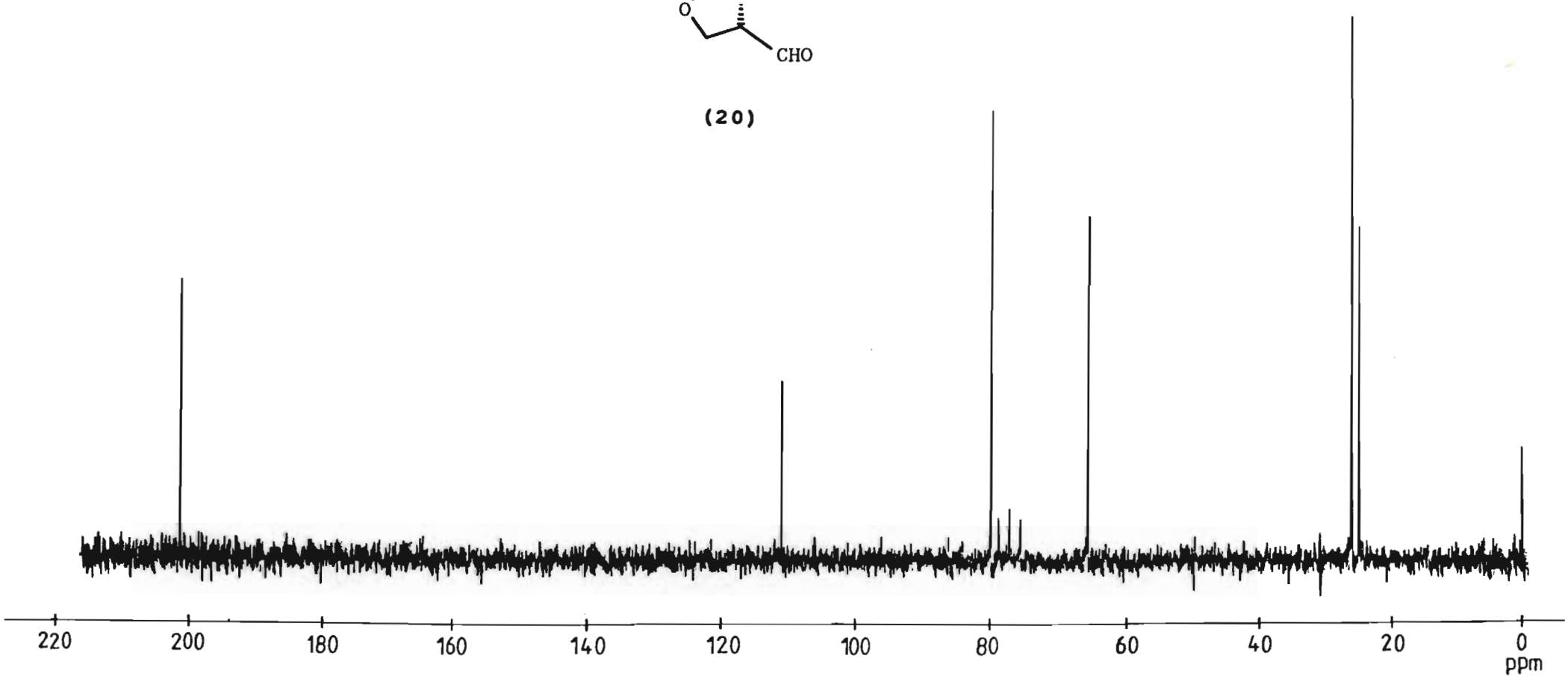


(20)

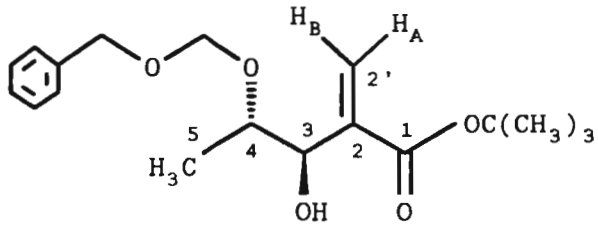
^{13}C **n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)



(20)

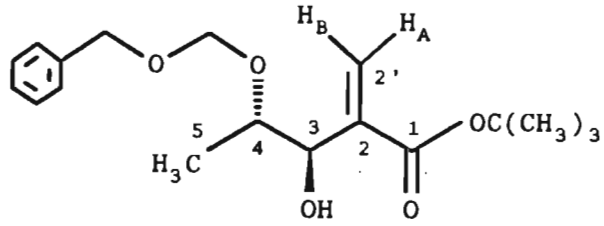


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

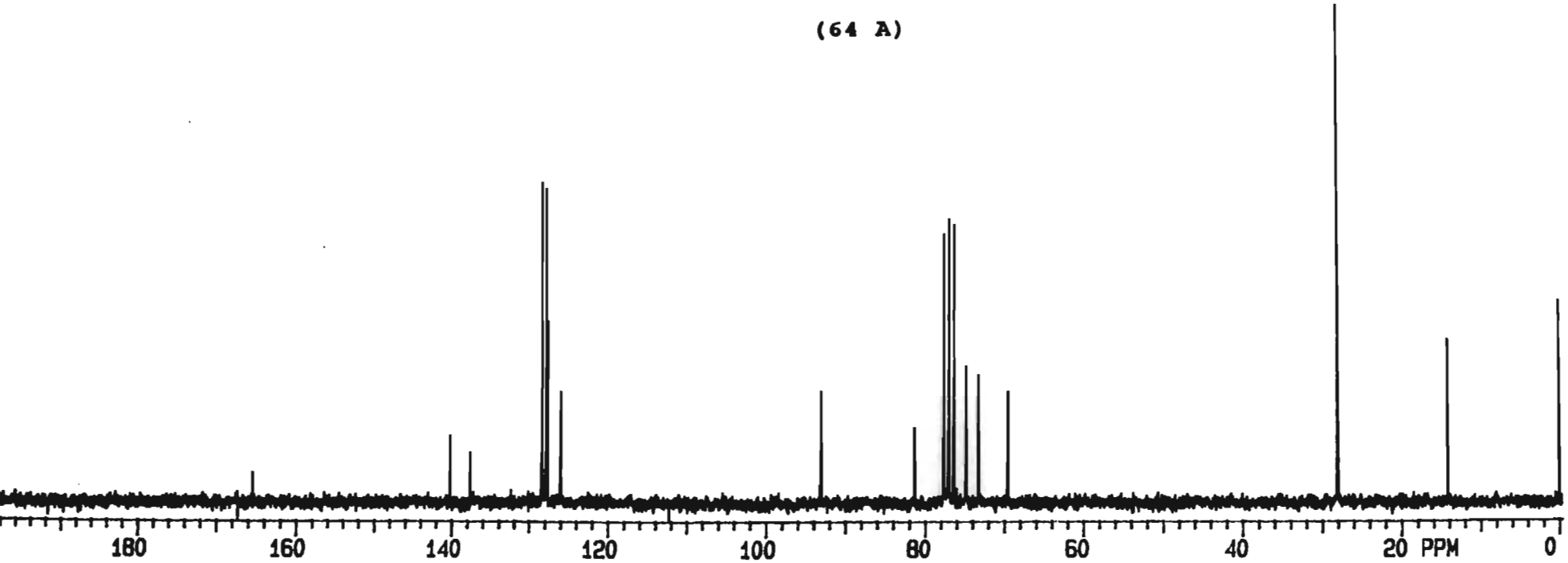


(64 A)

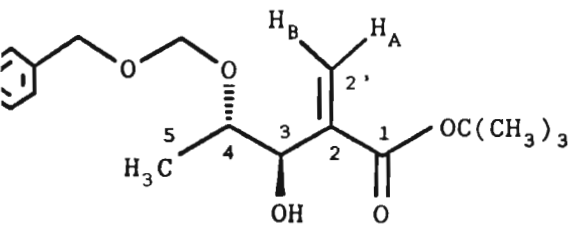
^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



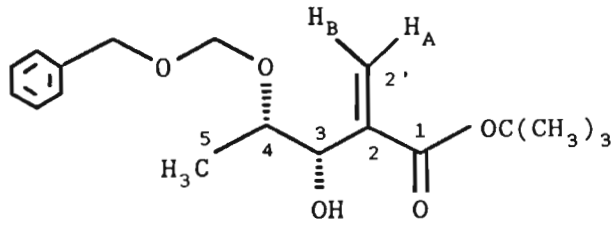
(64 A)



^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

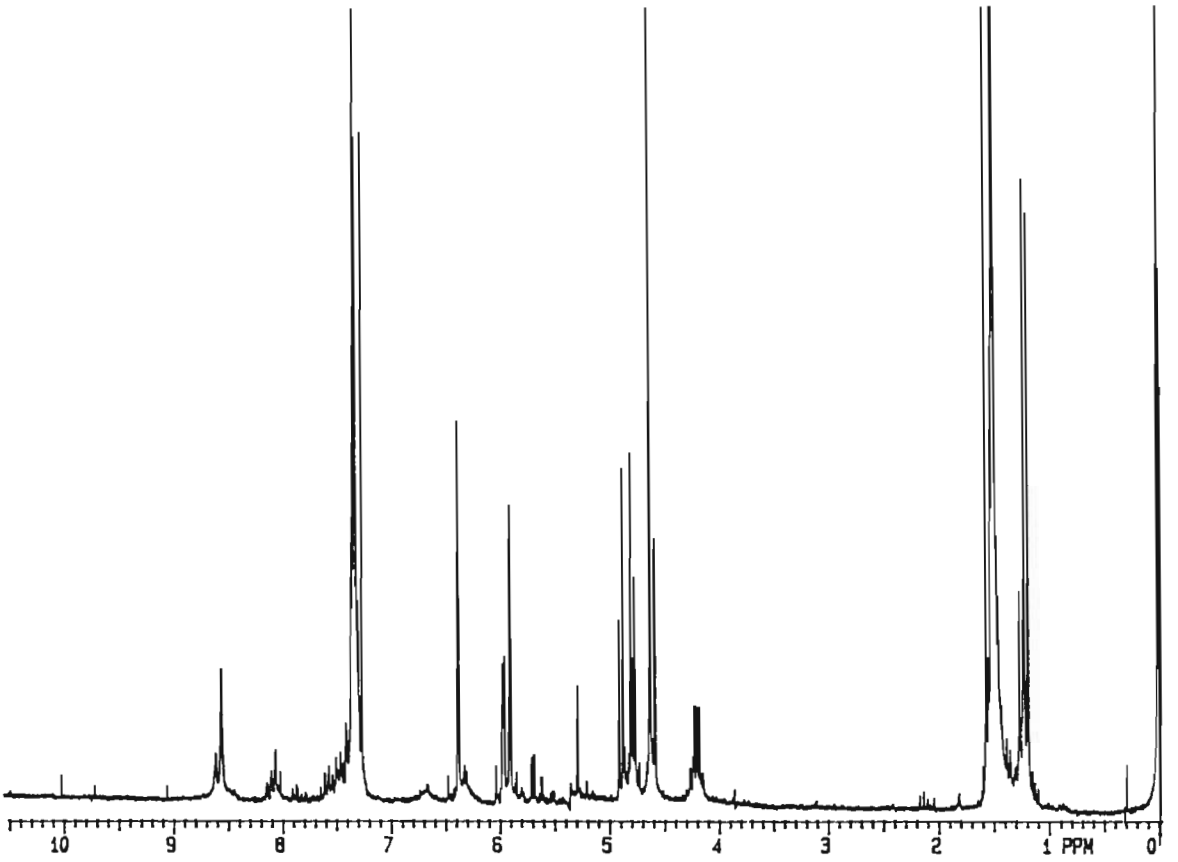


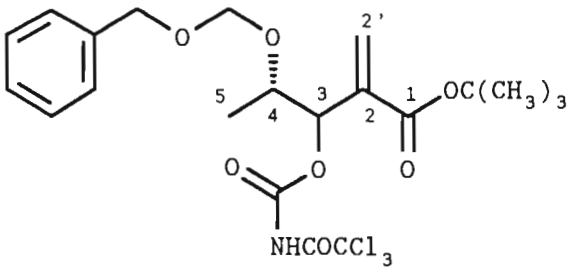
(64 A)



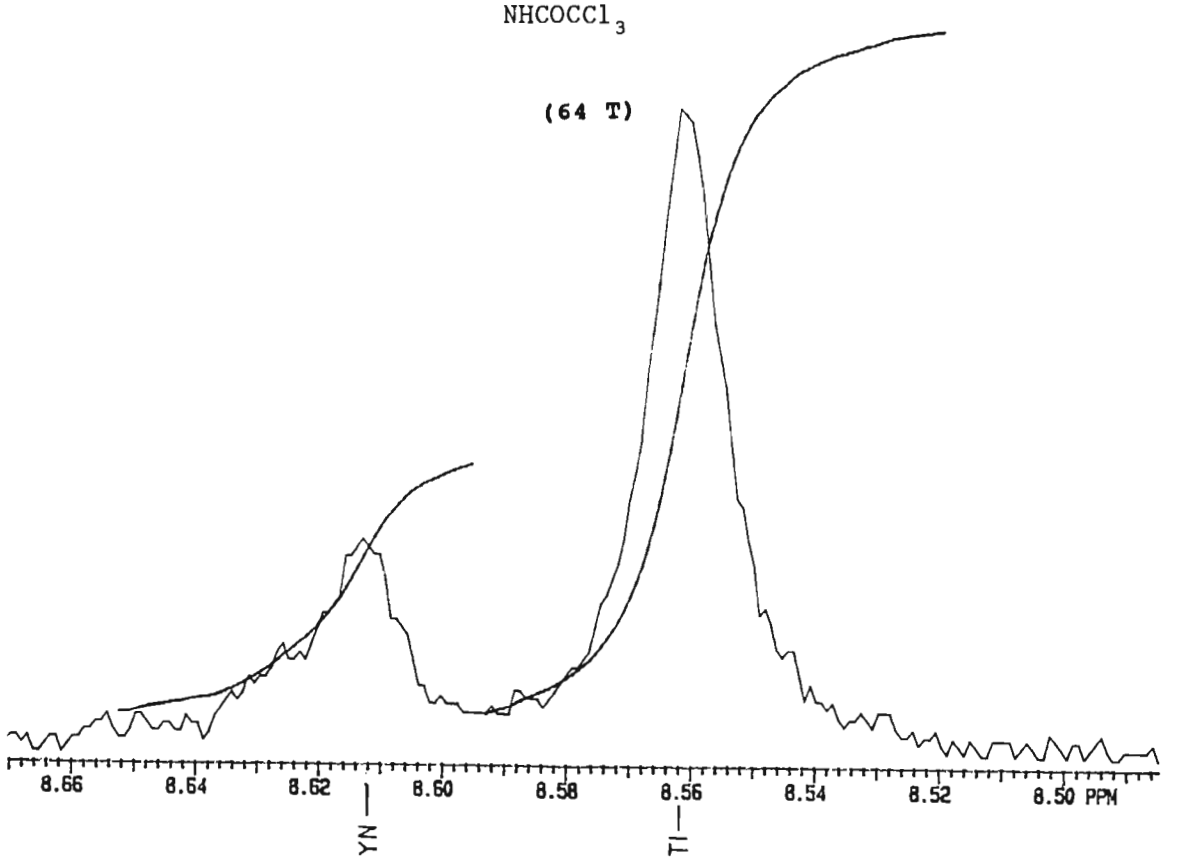
(64 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(64)**, showing expanded *carbamate* region.

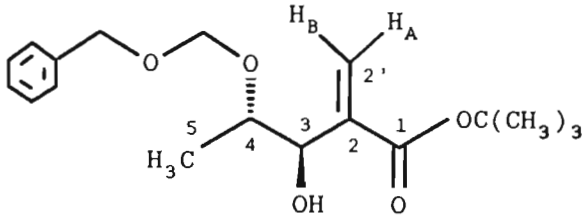




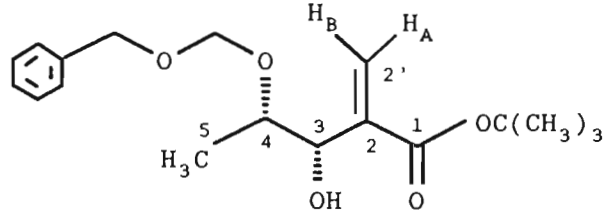
(64 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

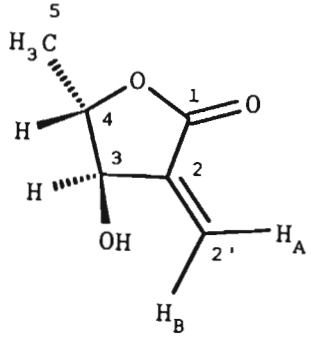


(64 A)

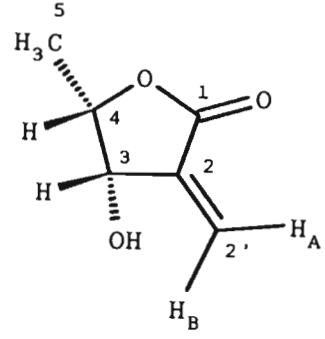


(64 B)

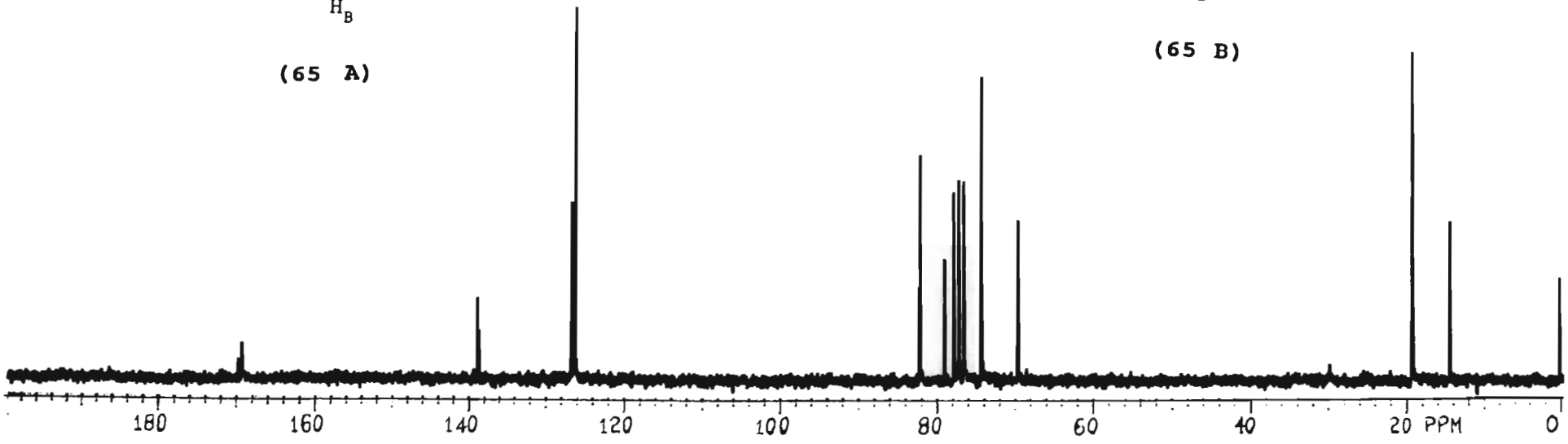
^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



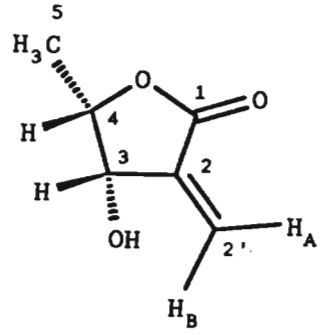
(65 A)



(65 B)

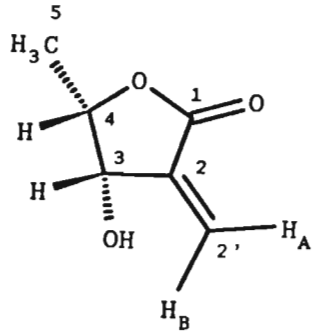


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



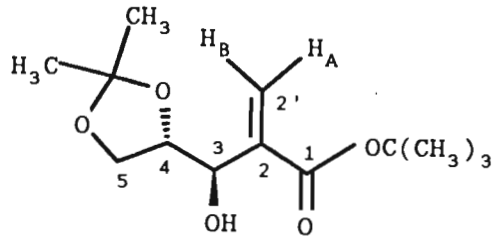
(65 B)

^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



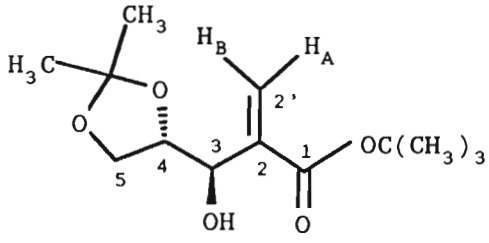
(65 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



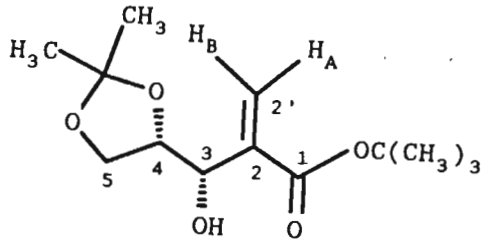
(66 A)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



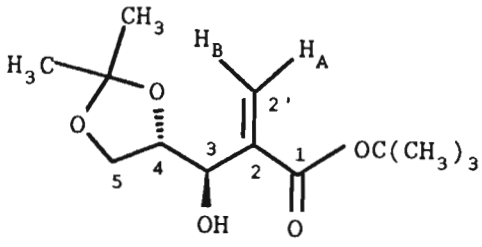
(66 A)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

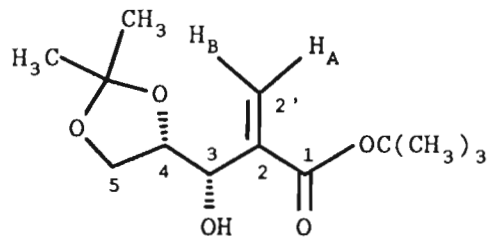


(66 B)

^{13}C **n.m.r. (PND)** spectrum (200 MHz; $CDCl_3$/TMS)

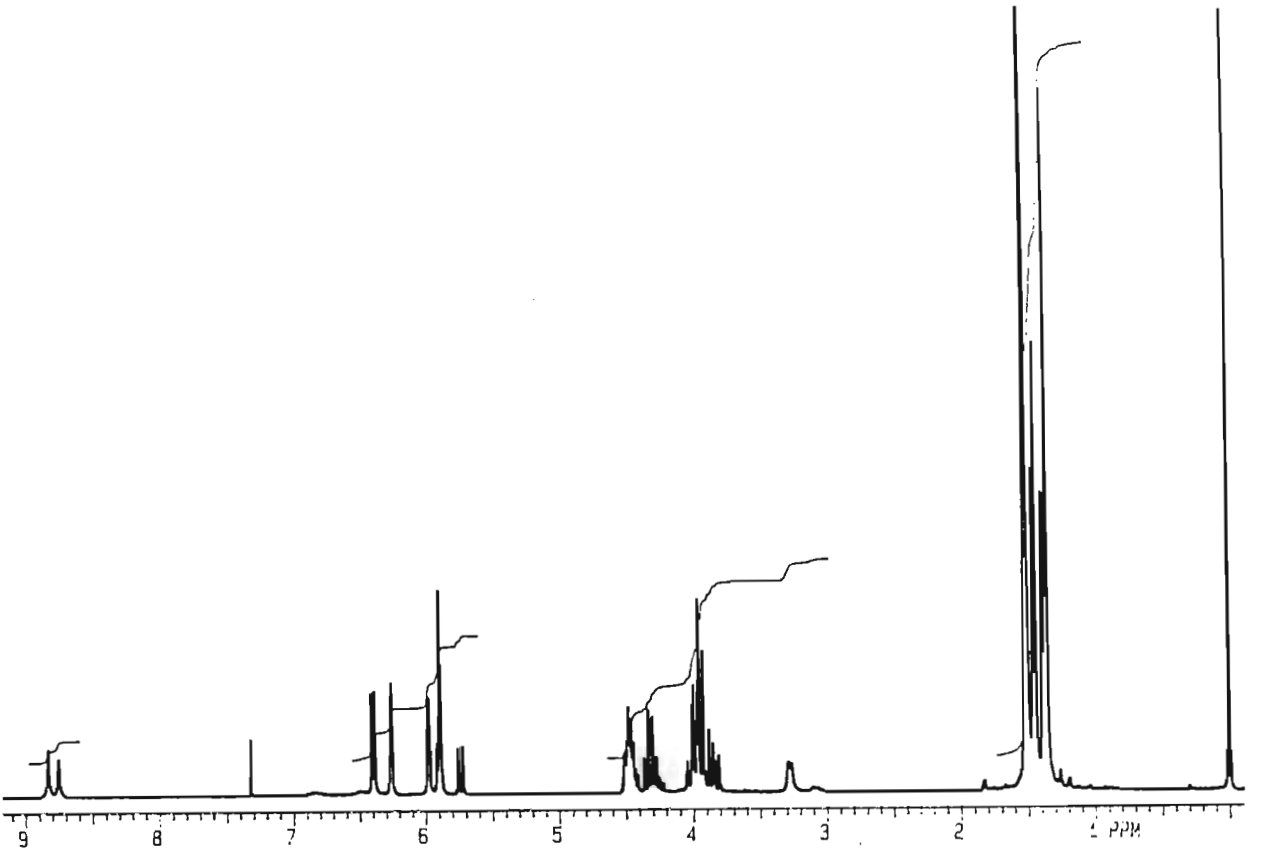


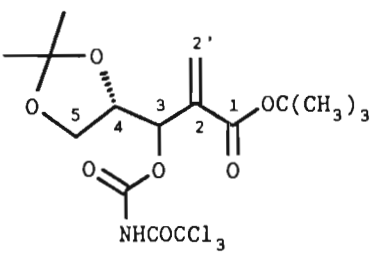
(66 A)



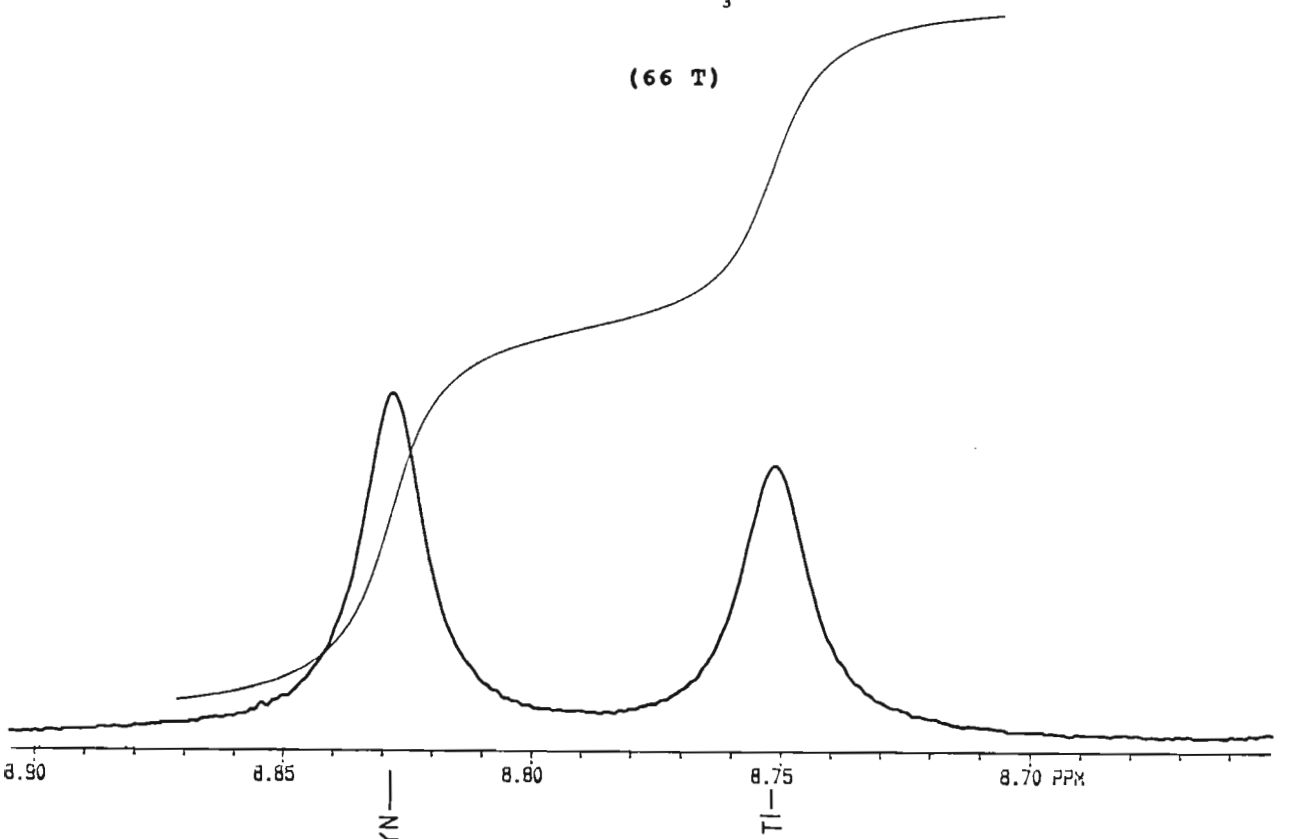
(66 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(66)**, showing expanded *carbamate* region.

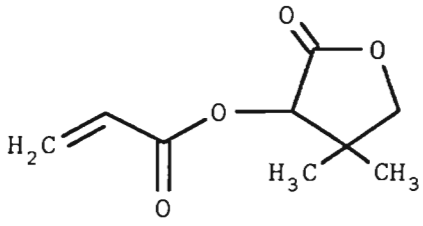




(66 T)

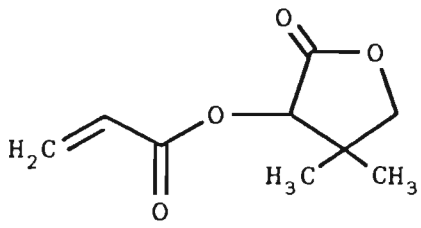


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



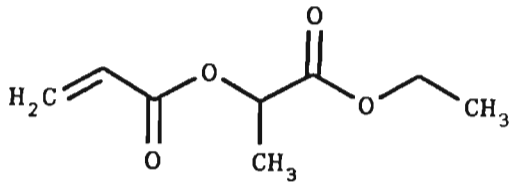
(78)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



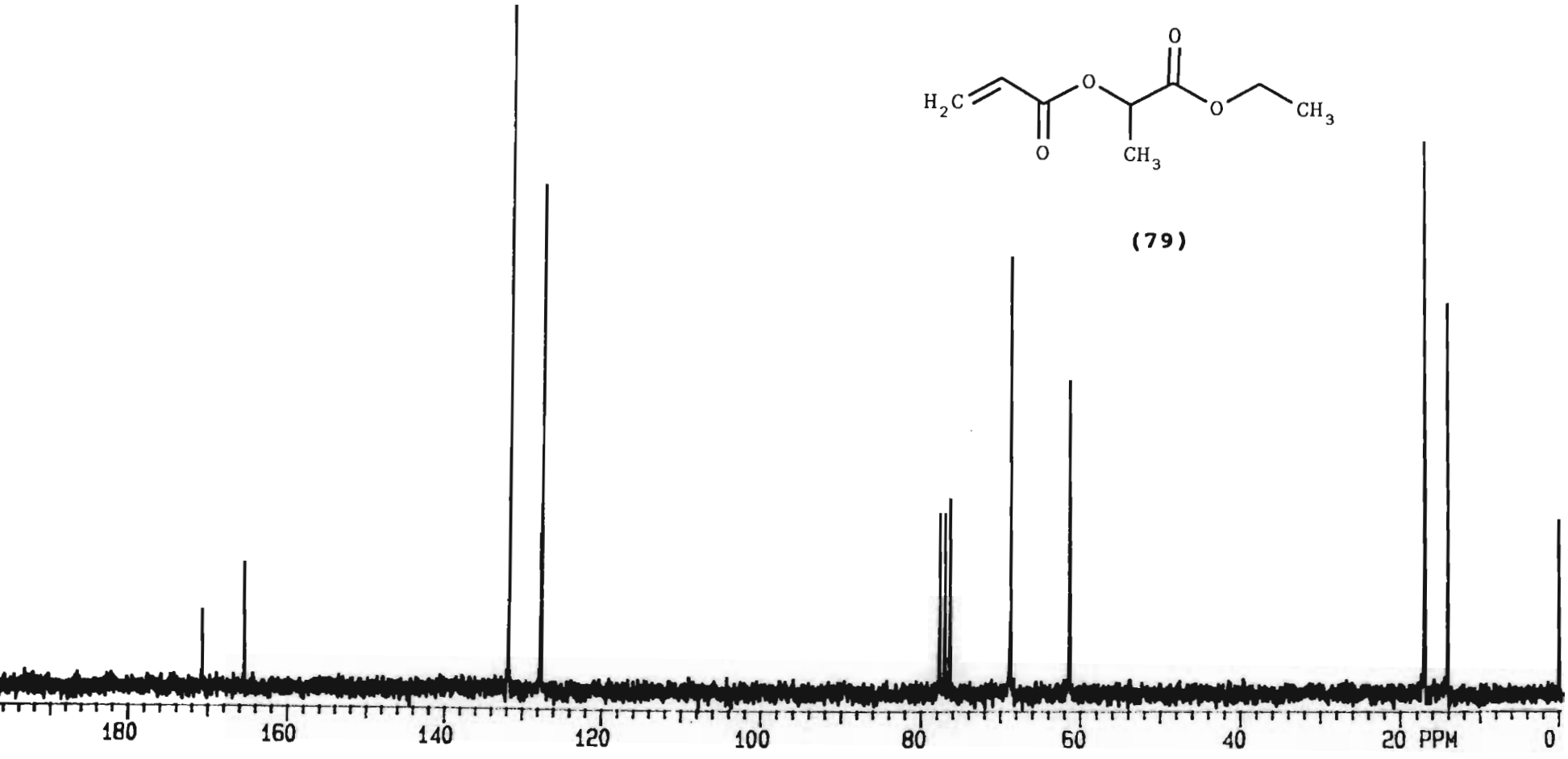
(78)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



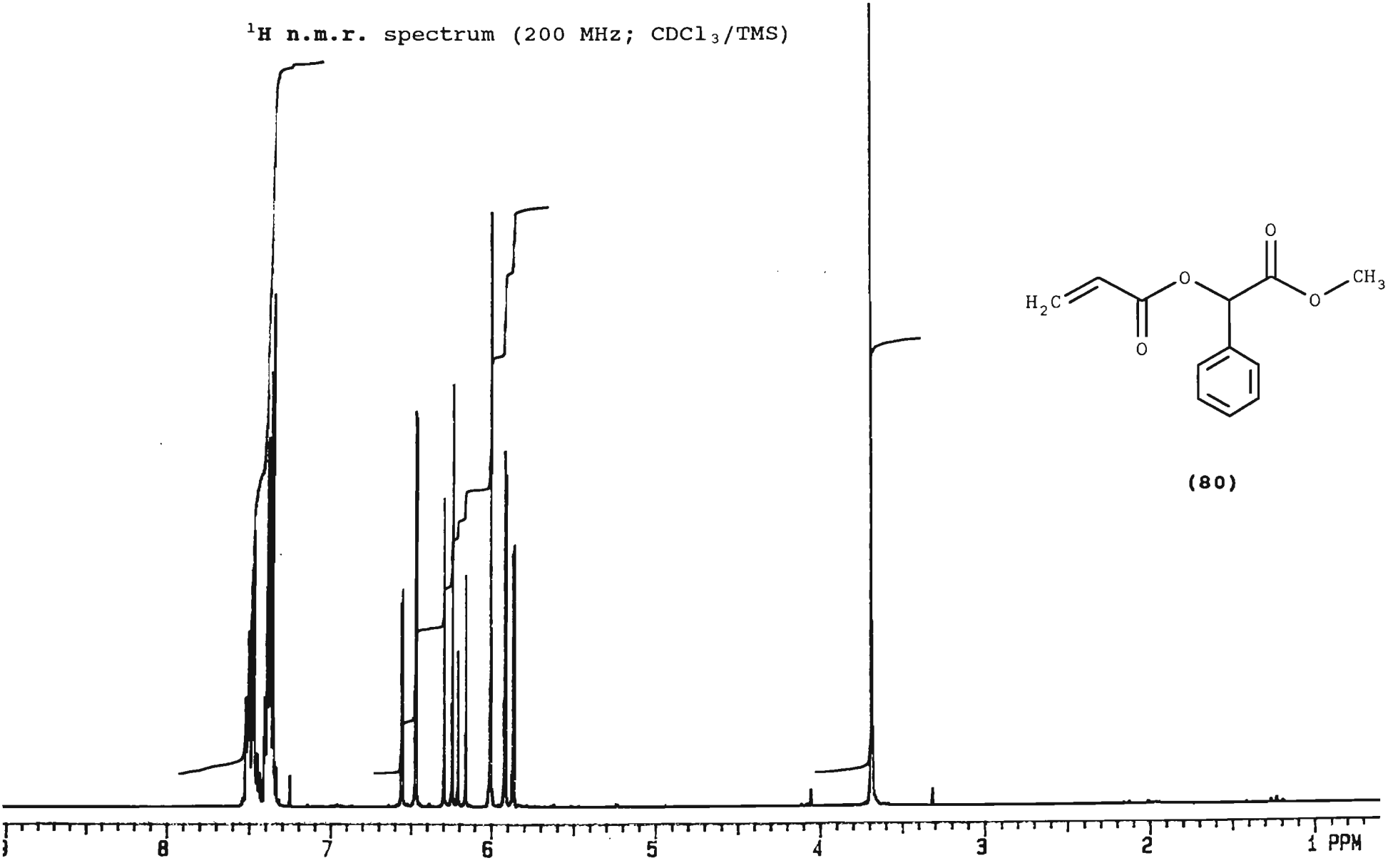
(79)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



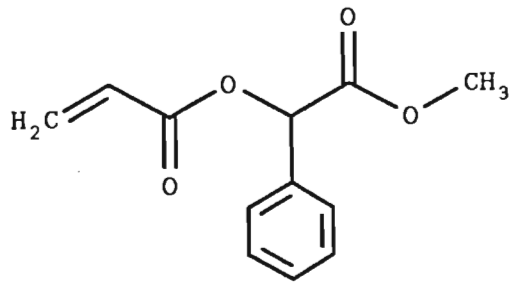
(79)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



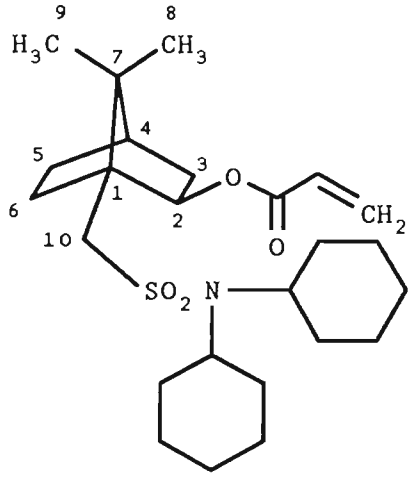
(80)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



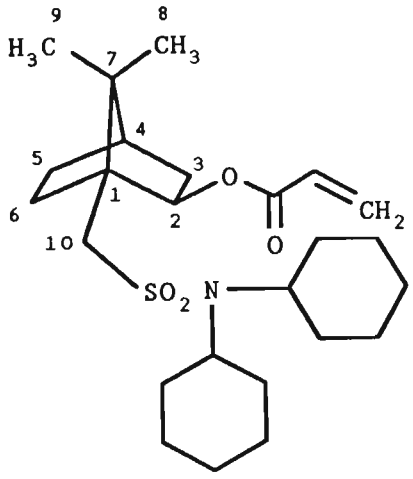
(80)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



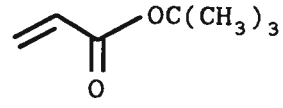
(81b)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



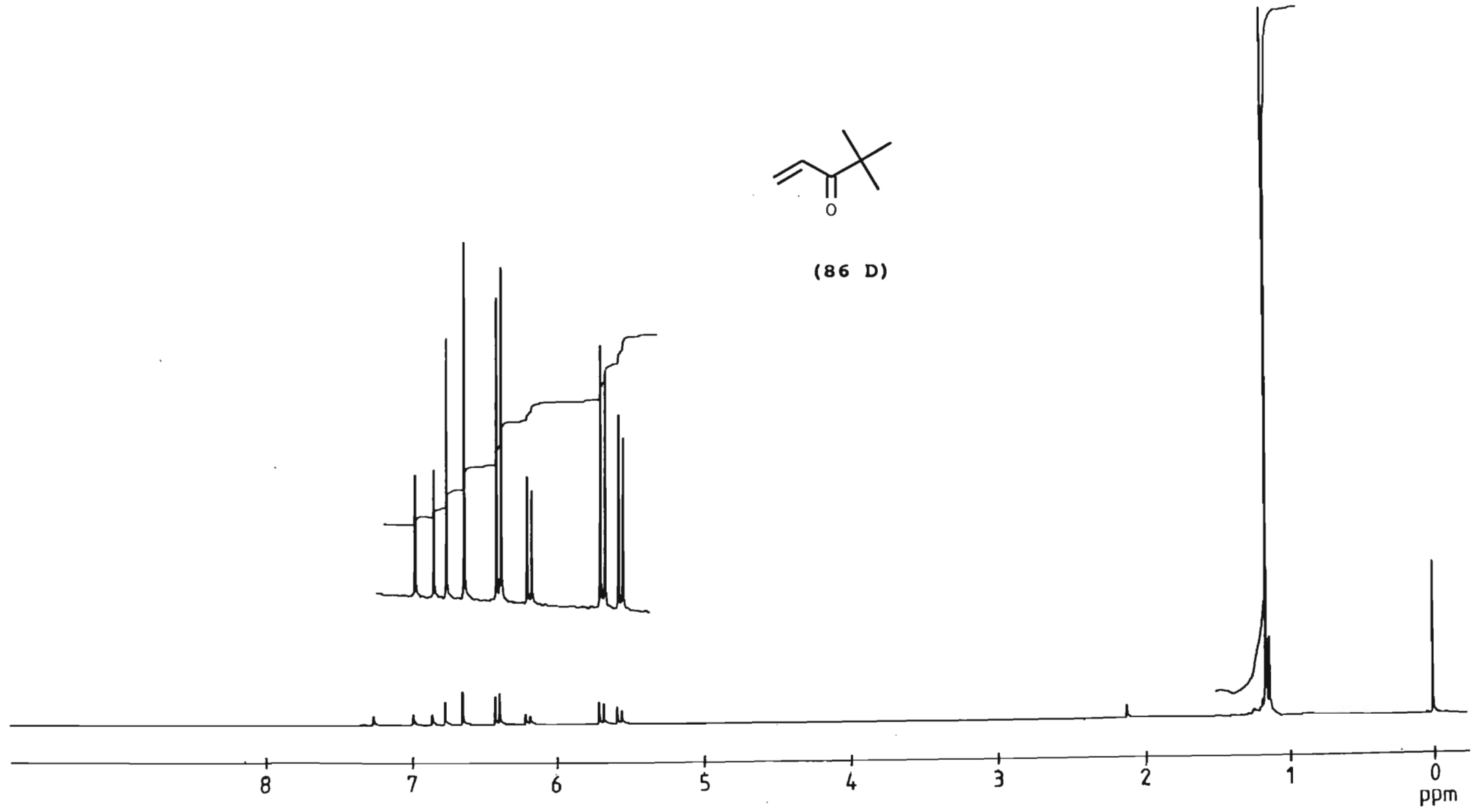
(81b)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



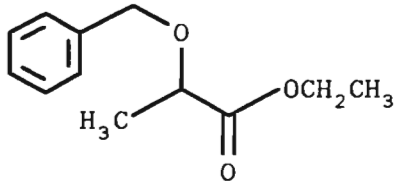
(86 C)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

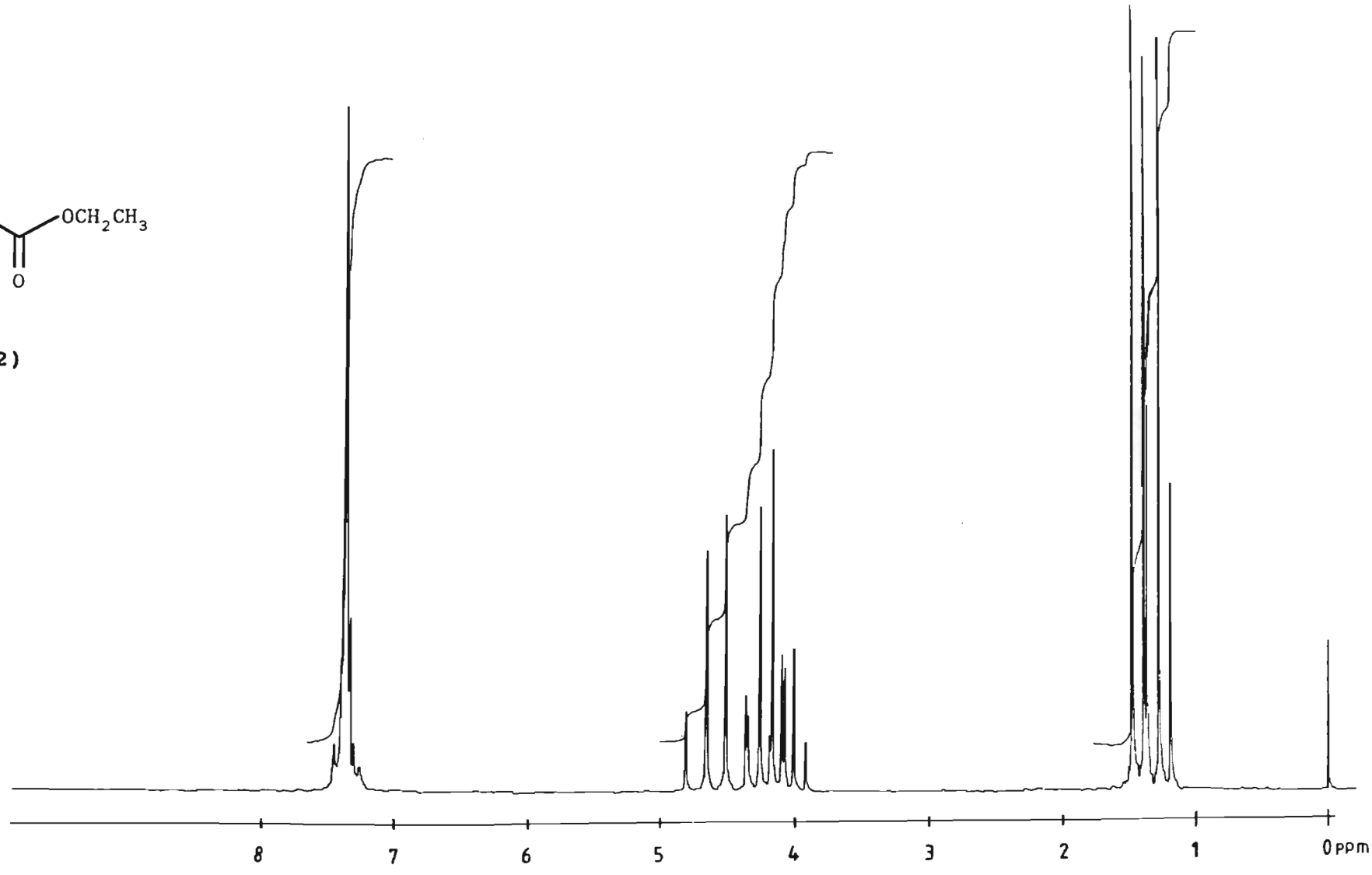


(86 D)

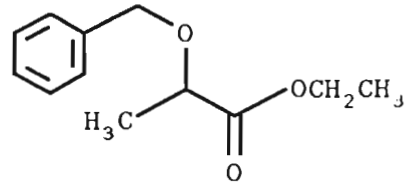
^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



(92)

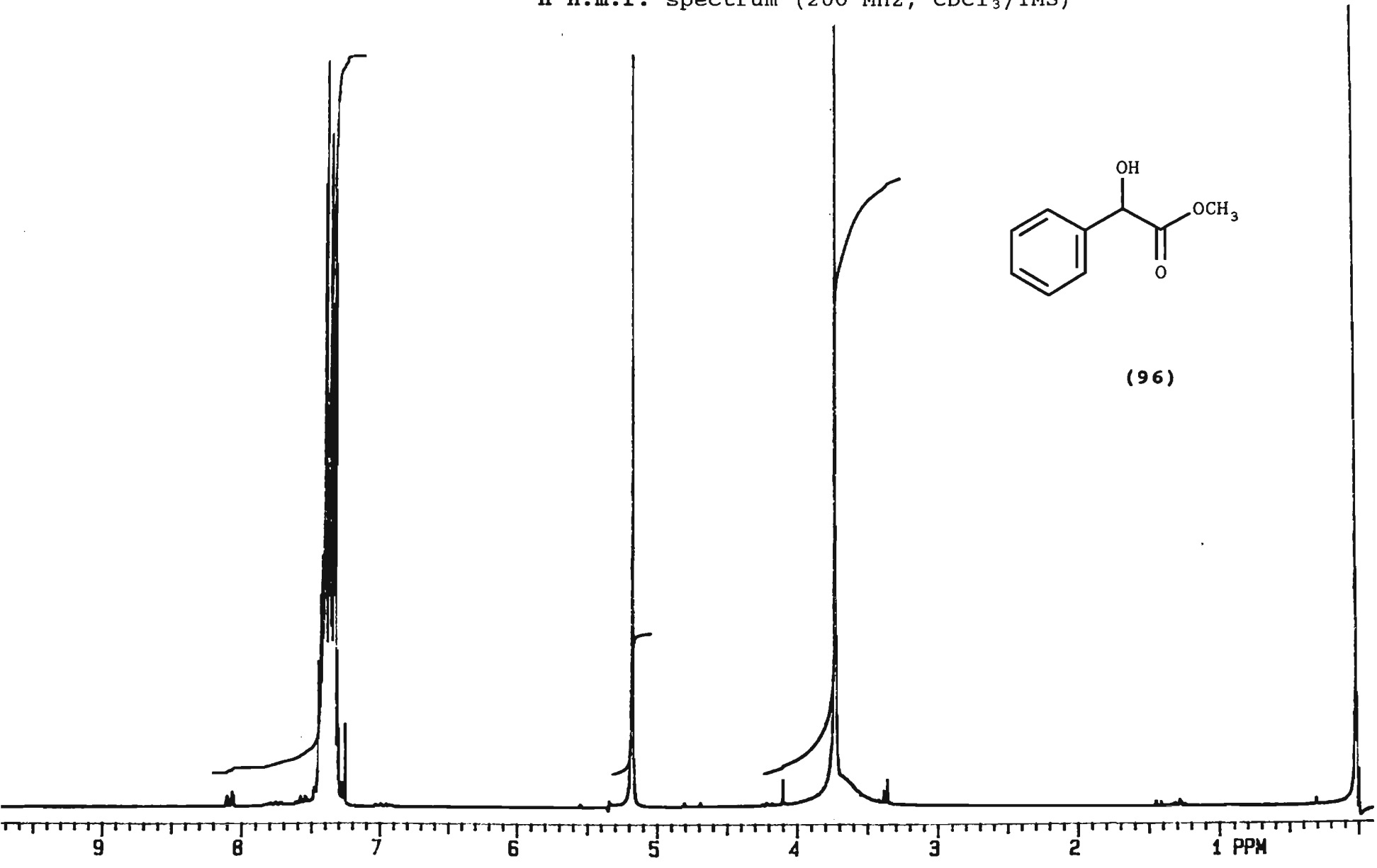


^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



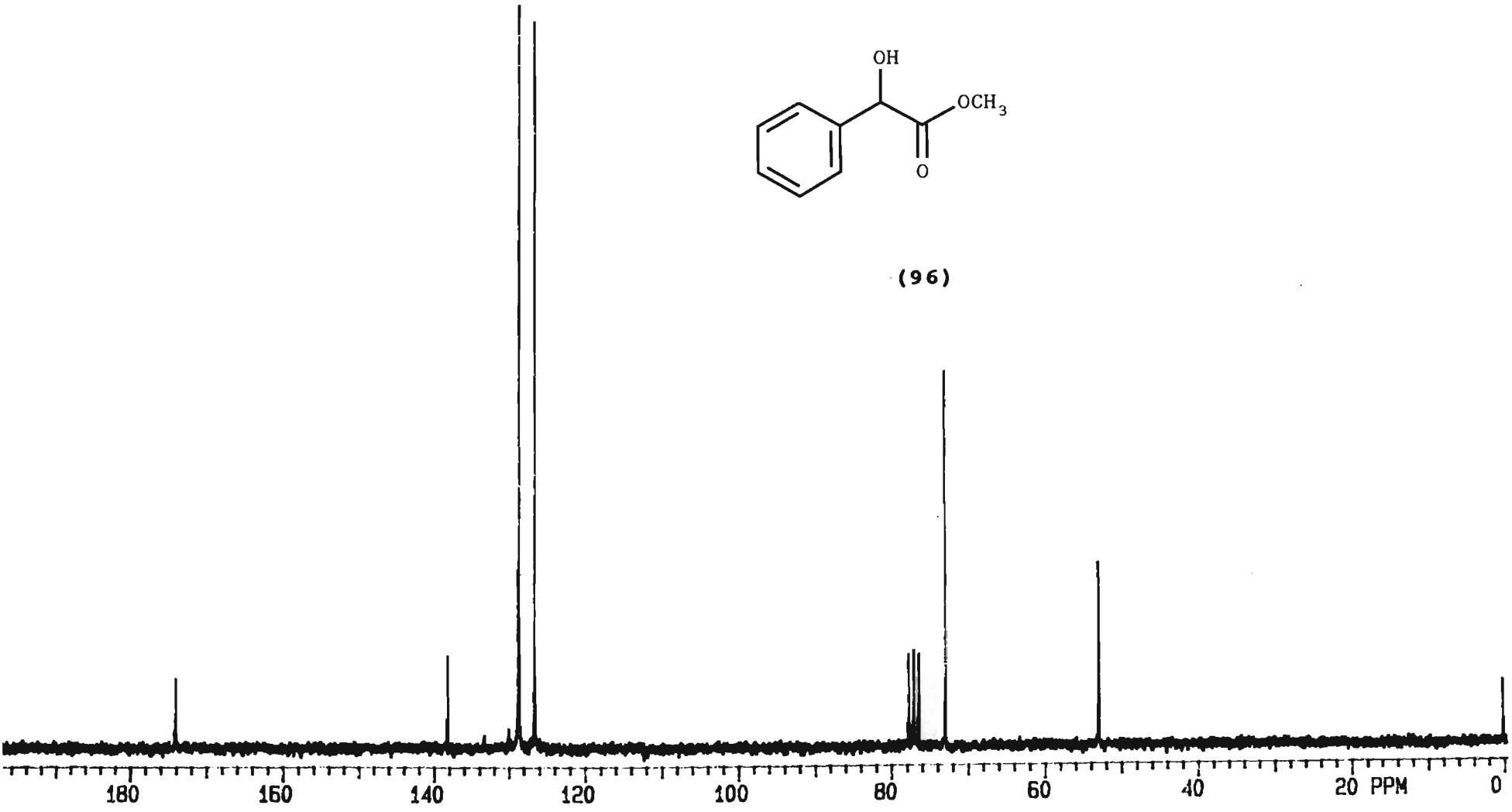
(92)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



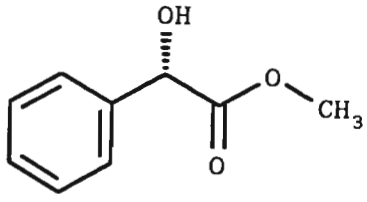
(96)

^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



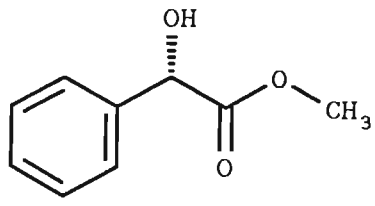
(96)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



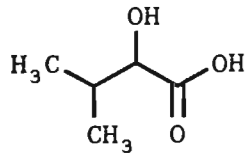
(96a)

^{13}C n.m.r. (PND) spectrum (20 MHz; $CDCl_3$/TMS)



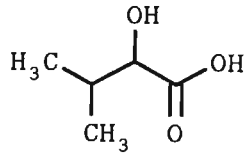
(96a)

^{1}**H n.m.r.** spectrum (200 MHz; CD_3OD/TMS)

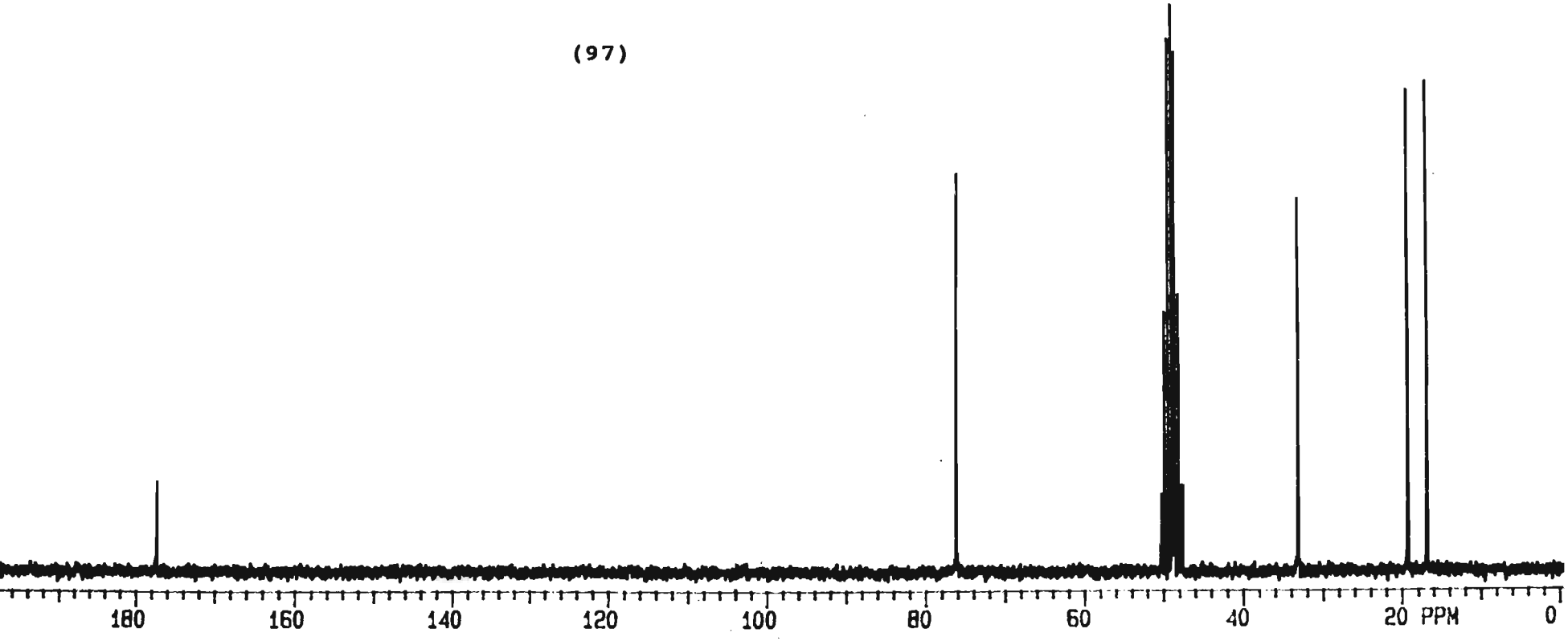


(97)

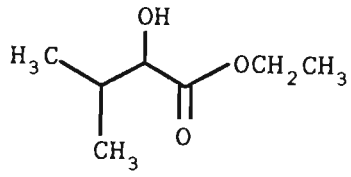
^{13}C **n.m.r. (PND)** spectrum (50 MHz; CD_3OD/TMS)



(97)

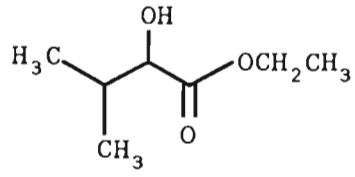


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



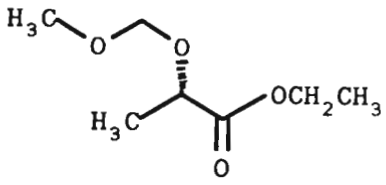
(98)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



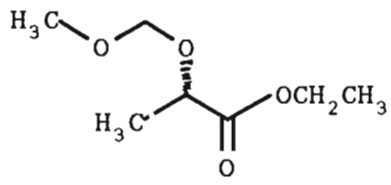
(98)

^{1}H n.m.r. spectrum (80 MHz; $CDCl_3$/TMS)



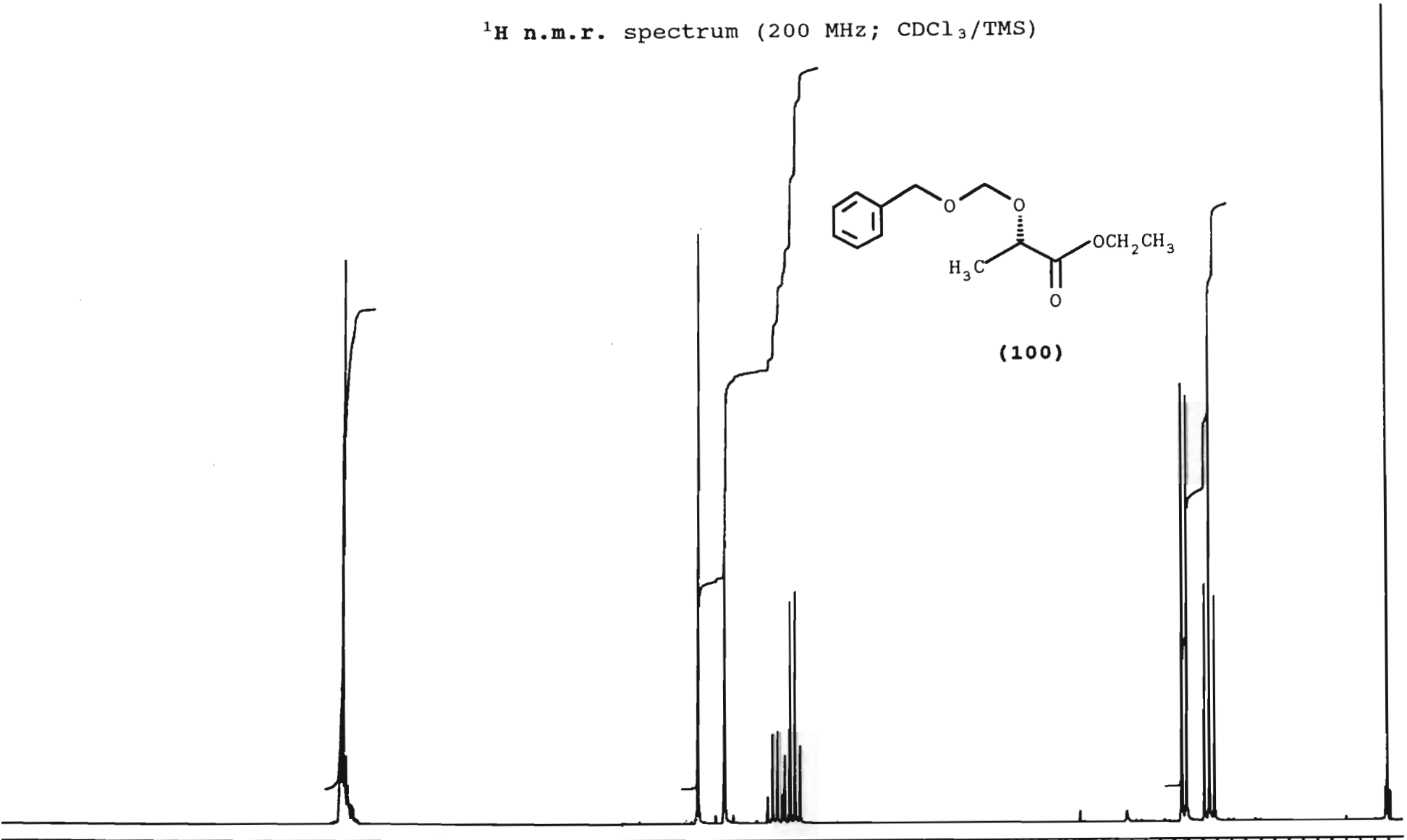
(99)

^{13}C **n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)



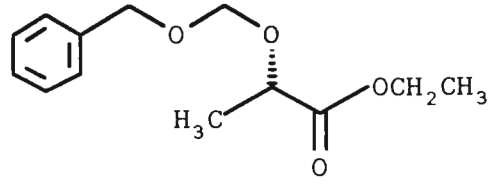
(99)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



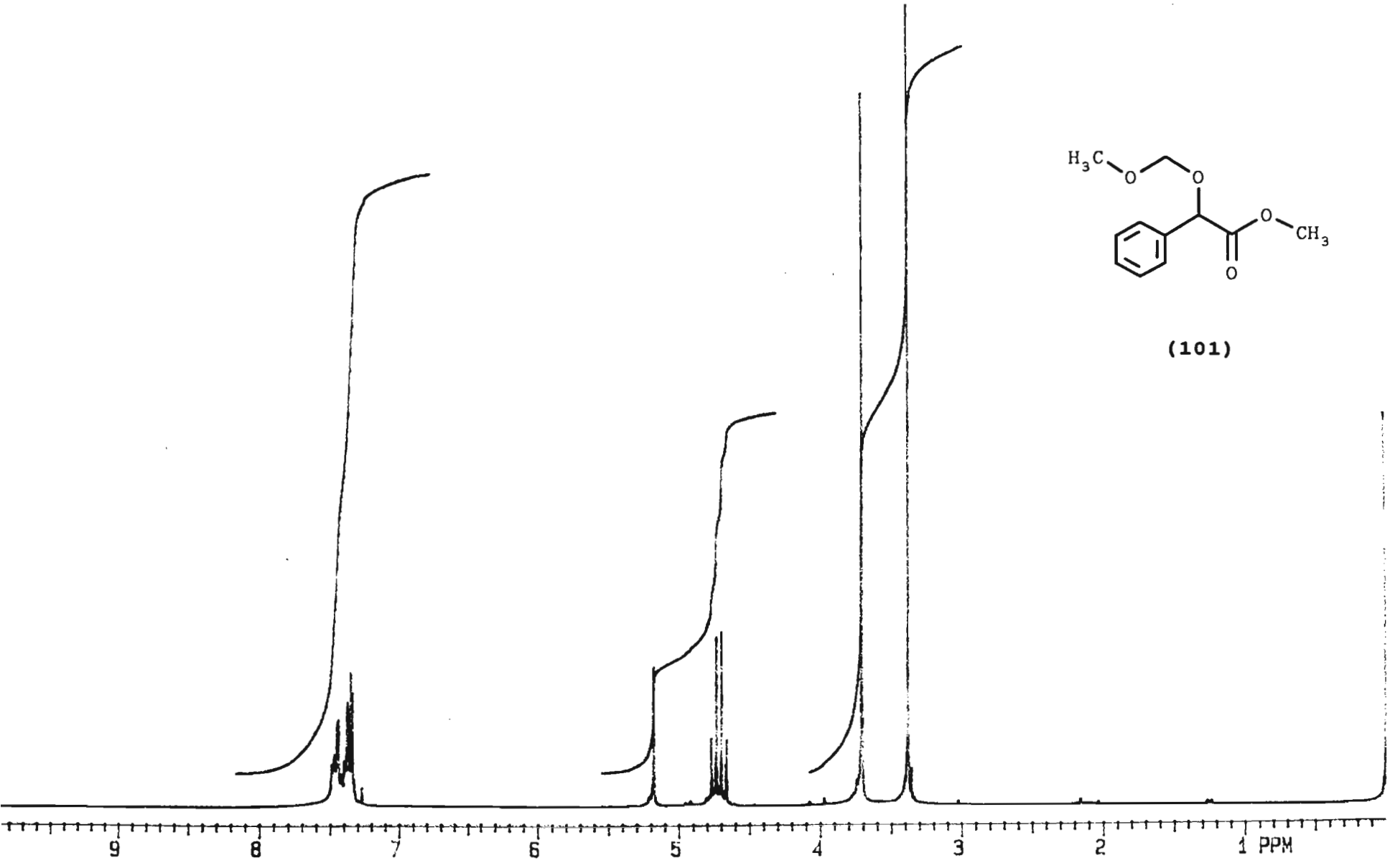
(100)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



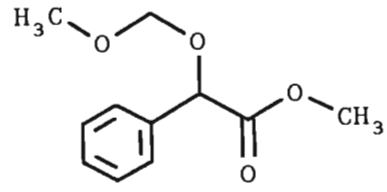
(100)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



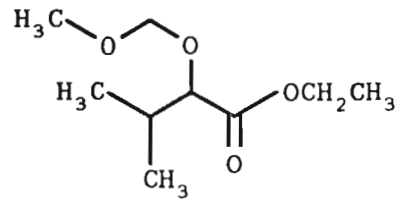
(101)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



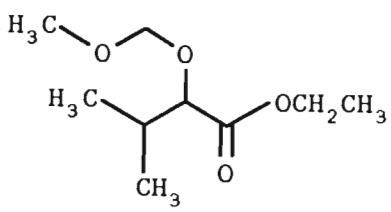
(101)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



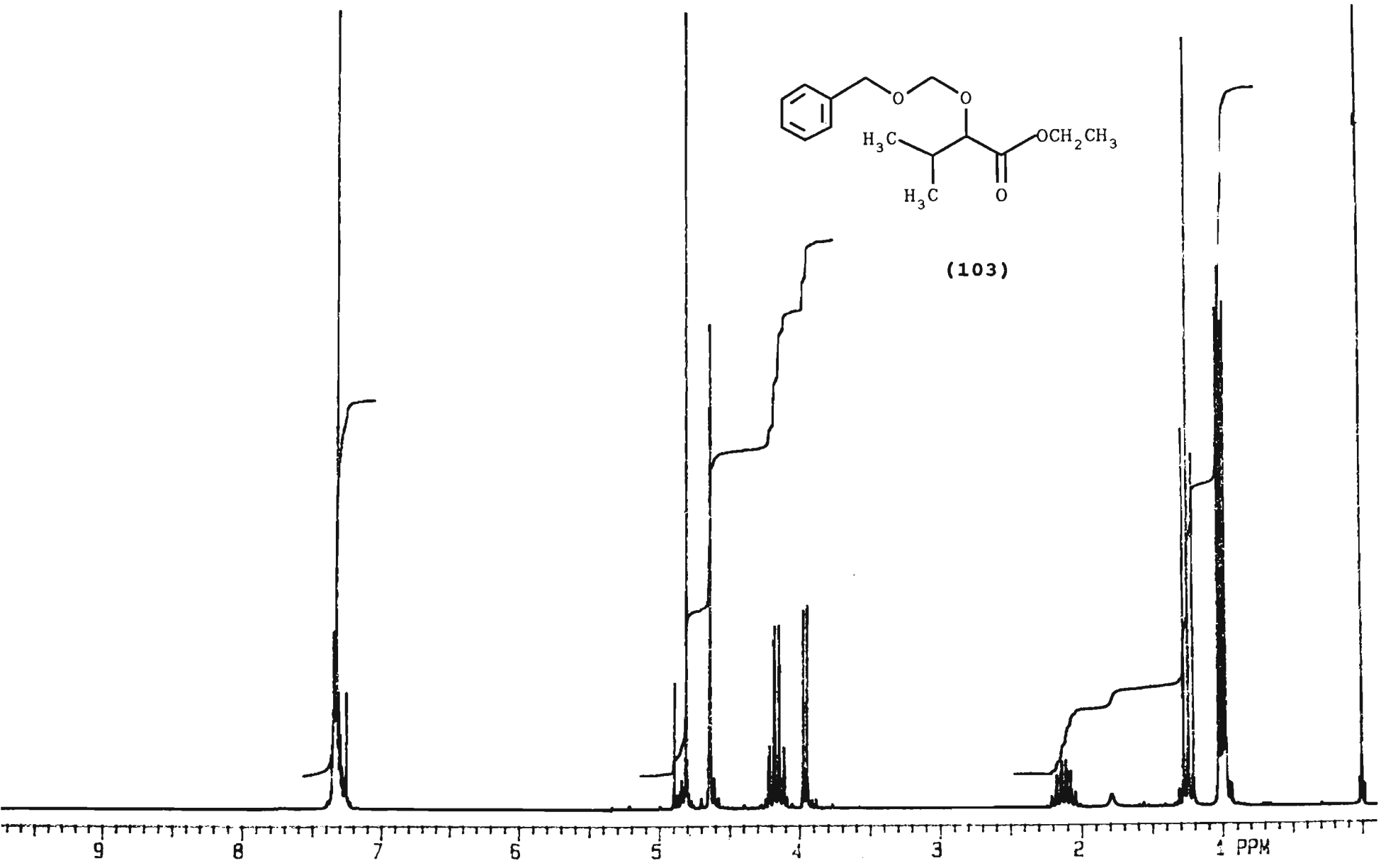
(102)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



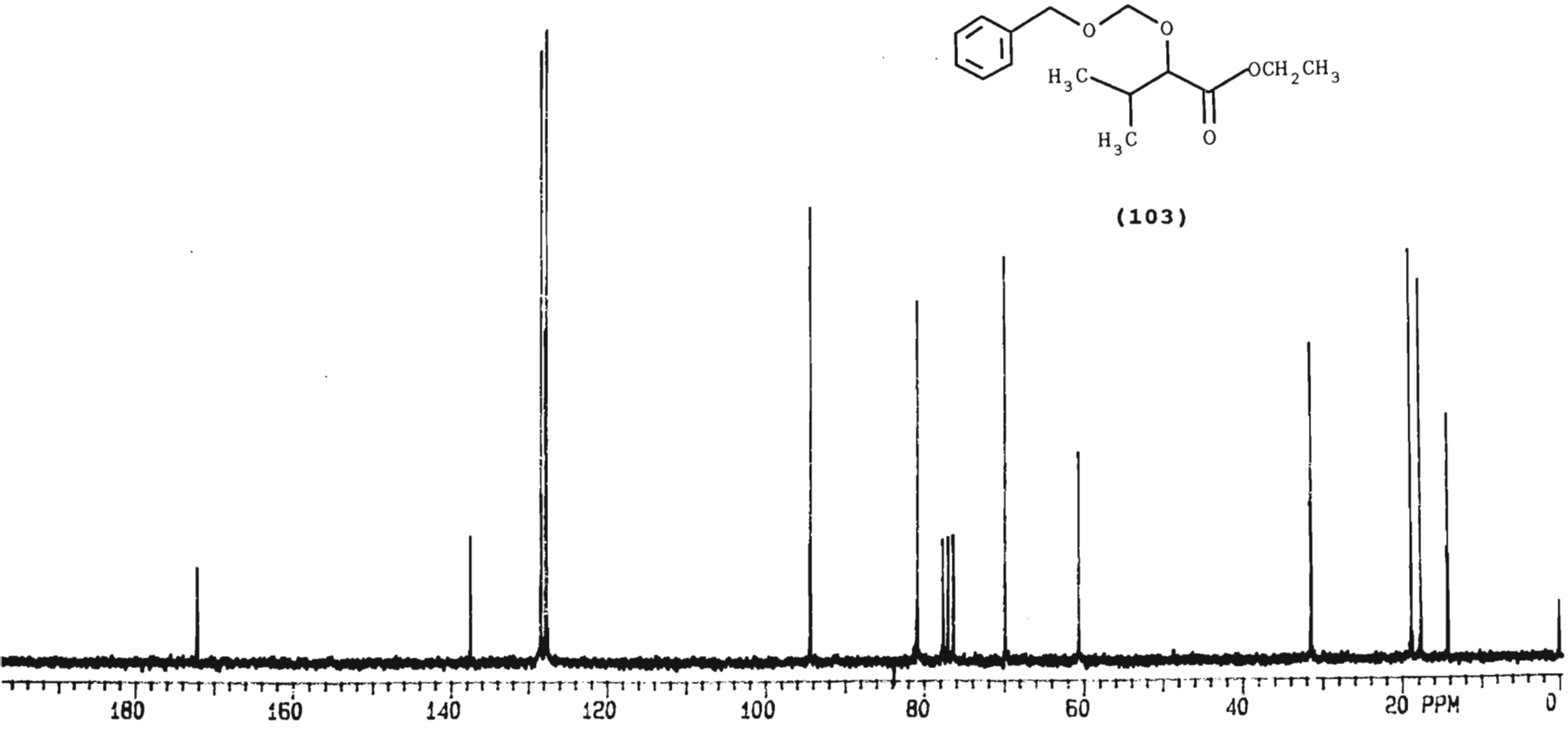
(102)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



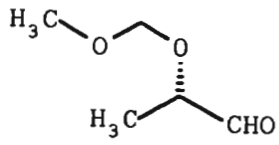
(103)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



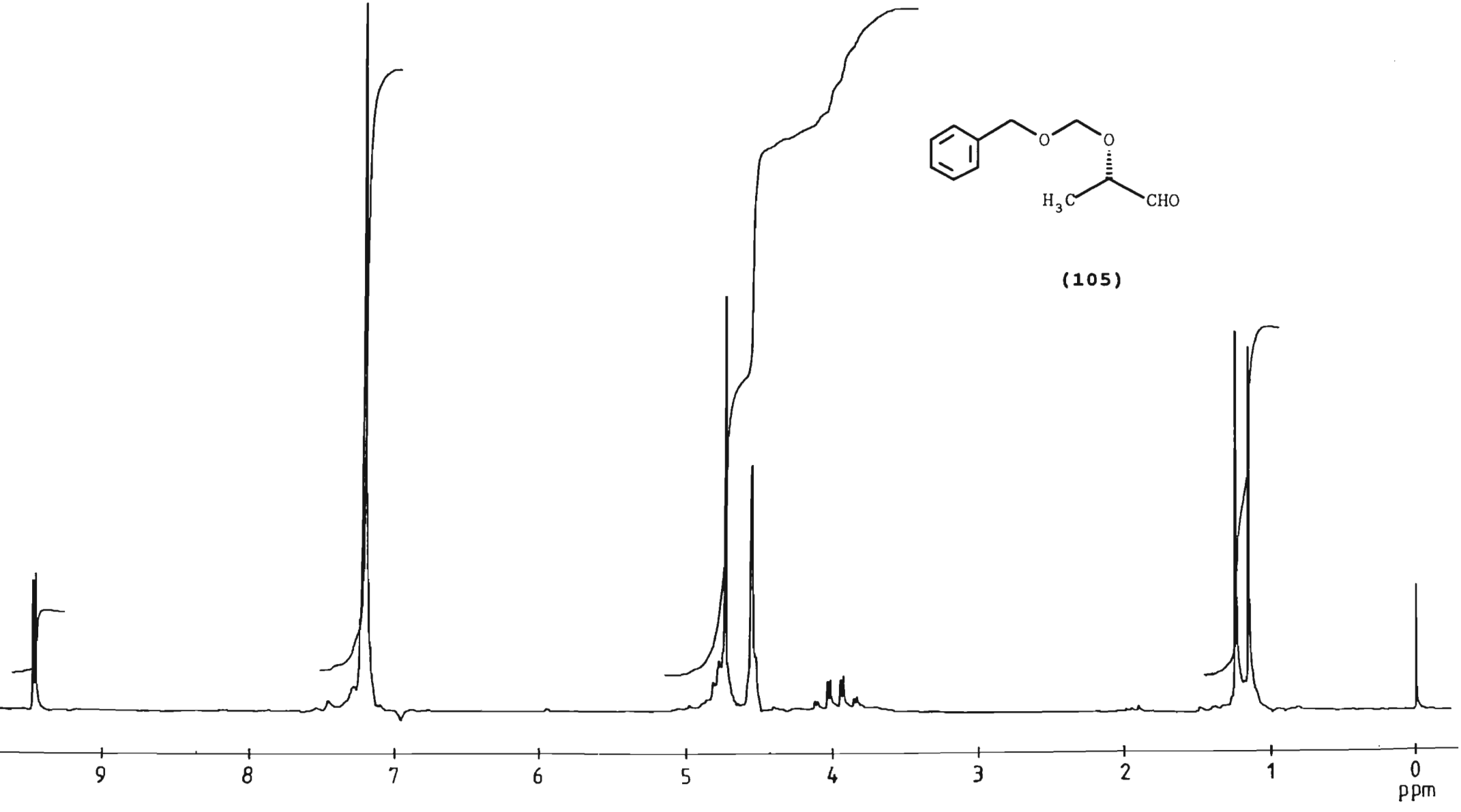
(103)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



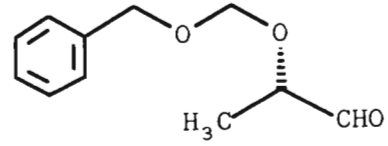
(104)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

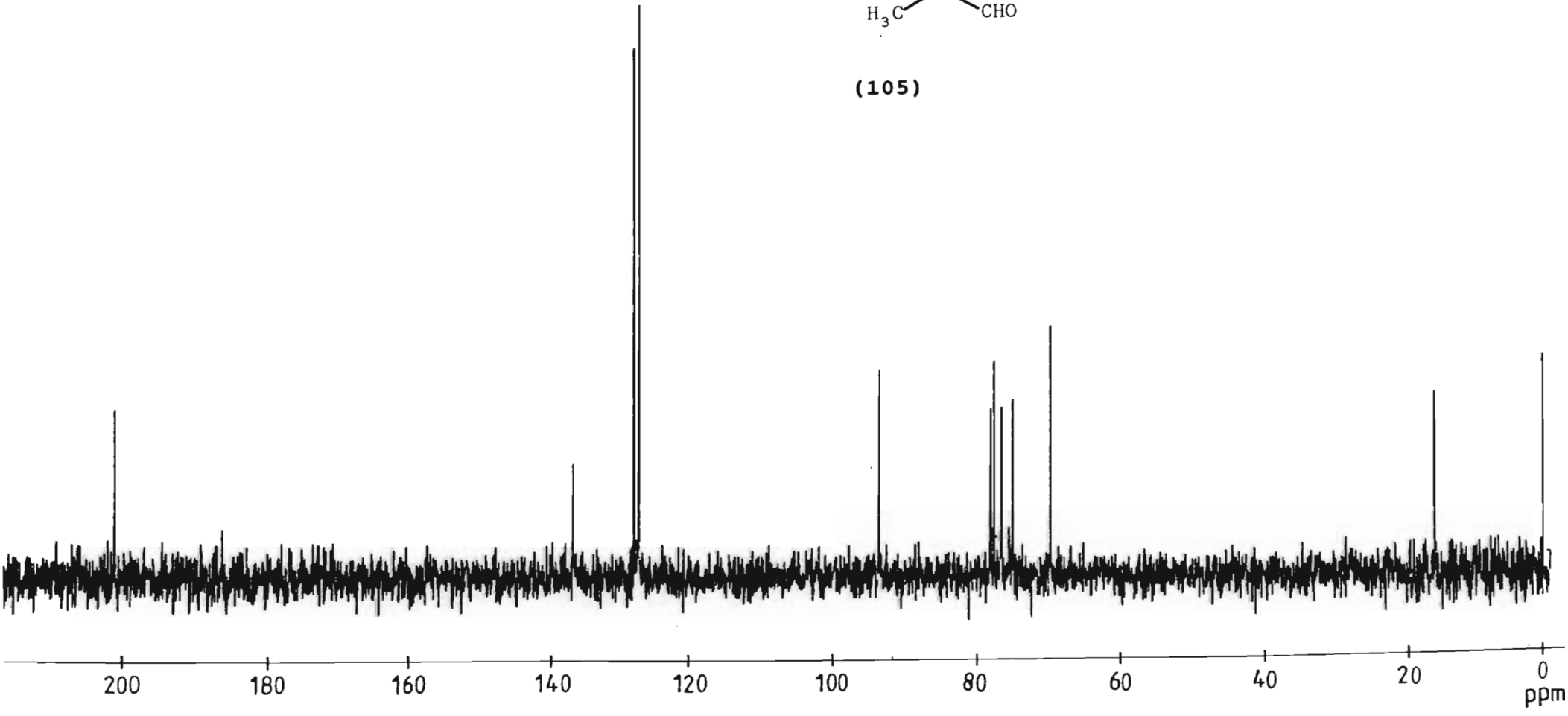


(105)

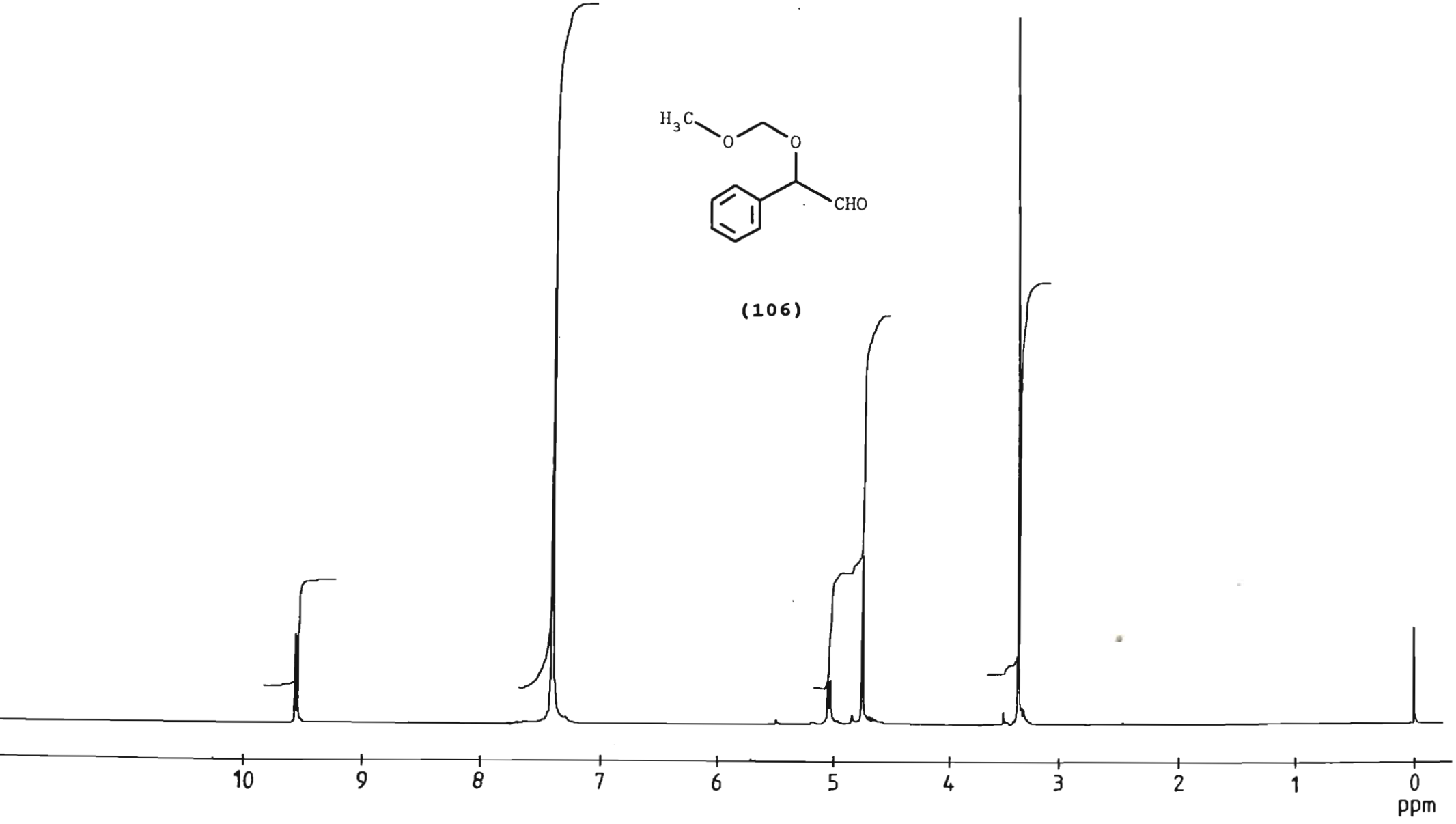
^{13}C **n.m.r. (PND)** (20 MHz; $CDCl_3$/TMS)



(105)

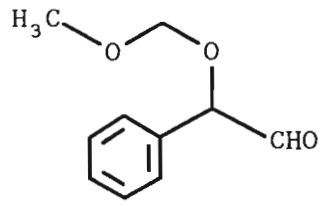


^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

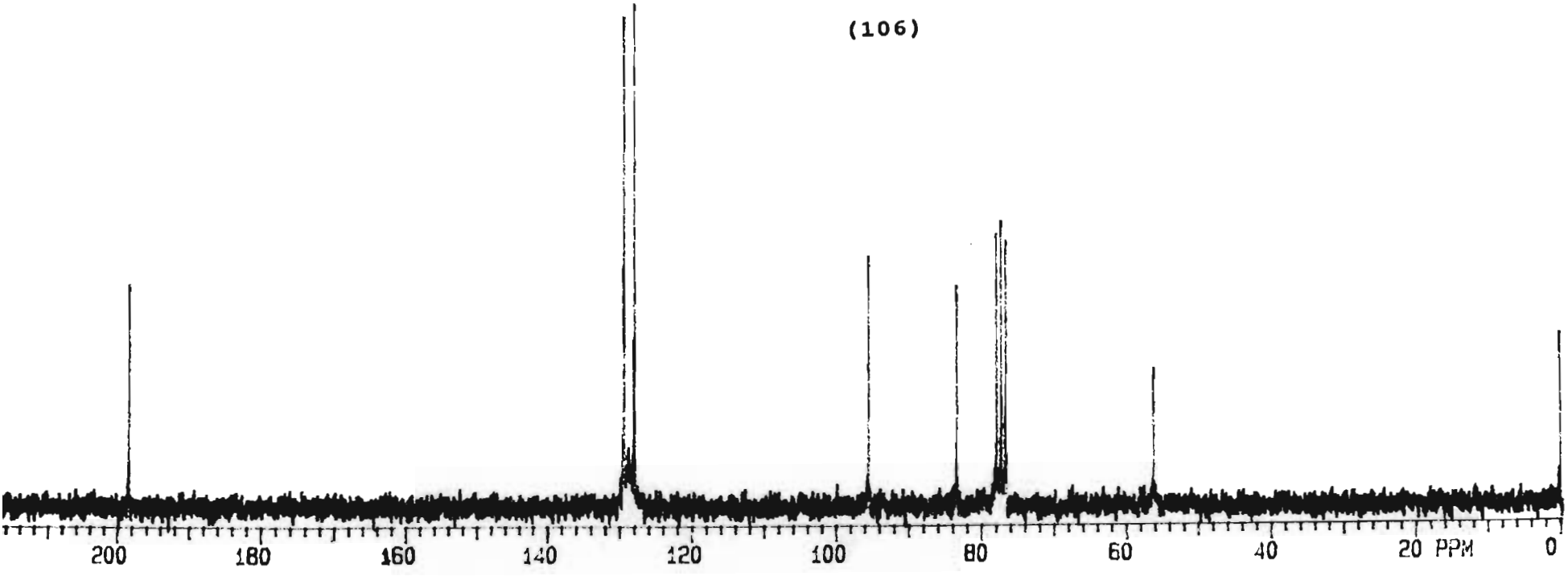


(106)

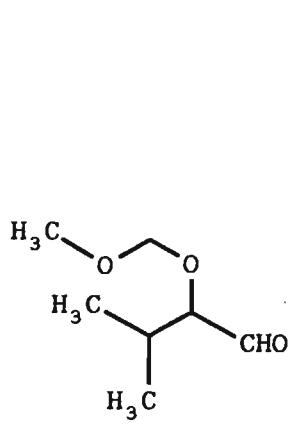
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(106)

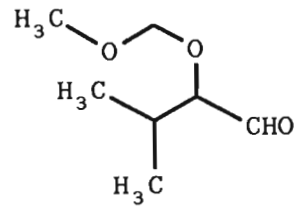


^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

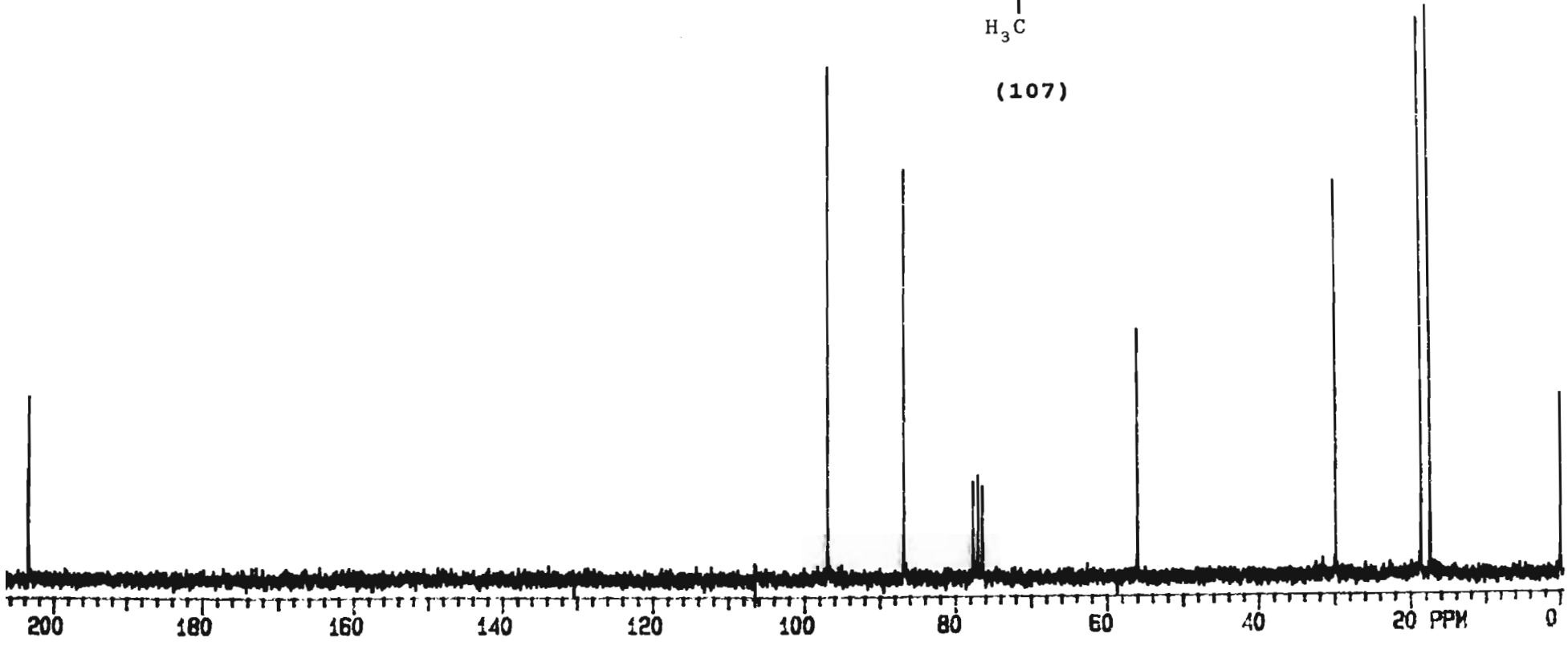


(107)

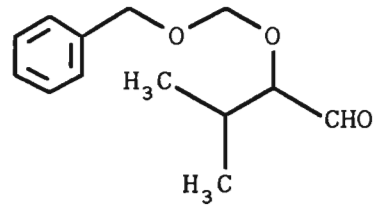
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(107)

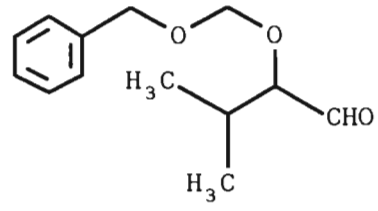


^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

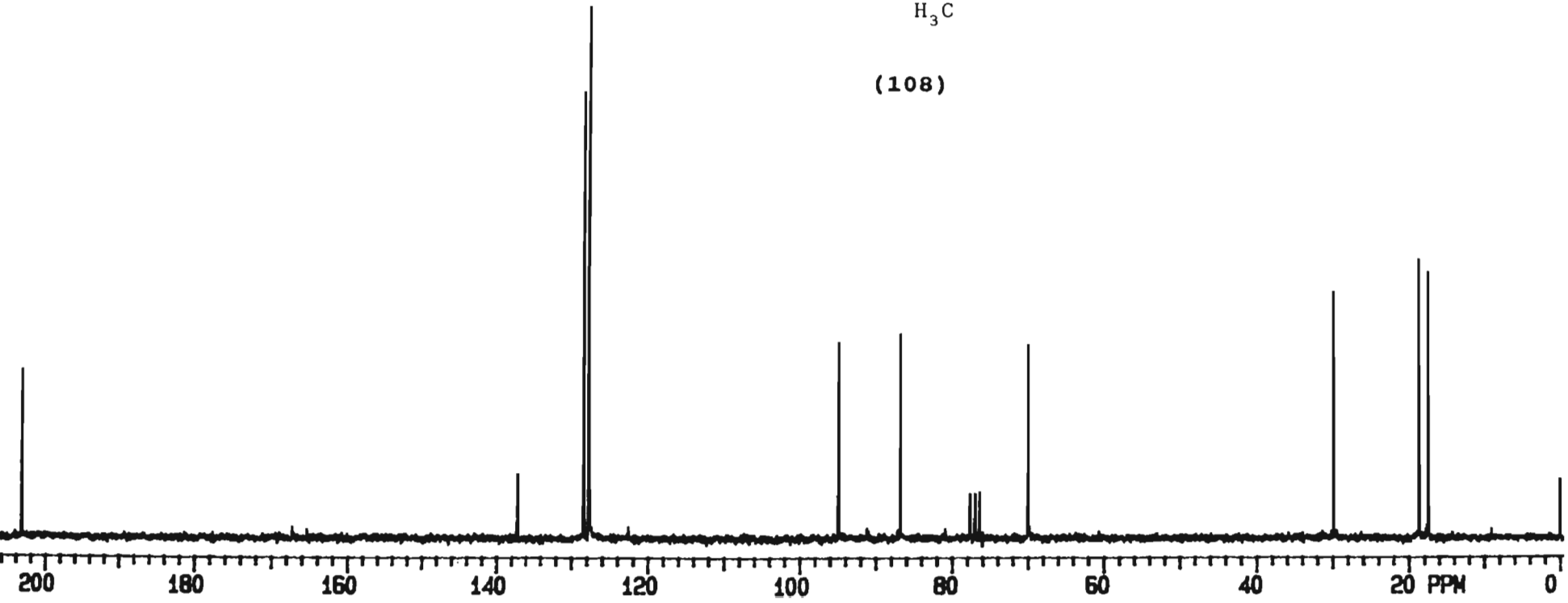


(108)

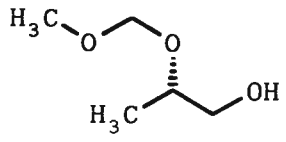
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(108)

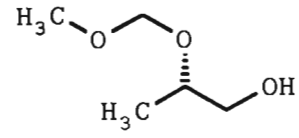


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

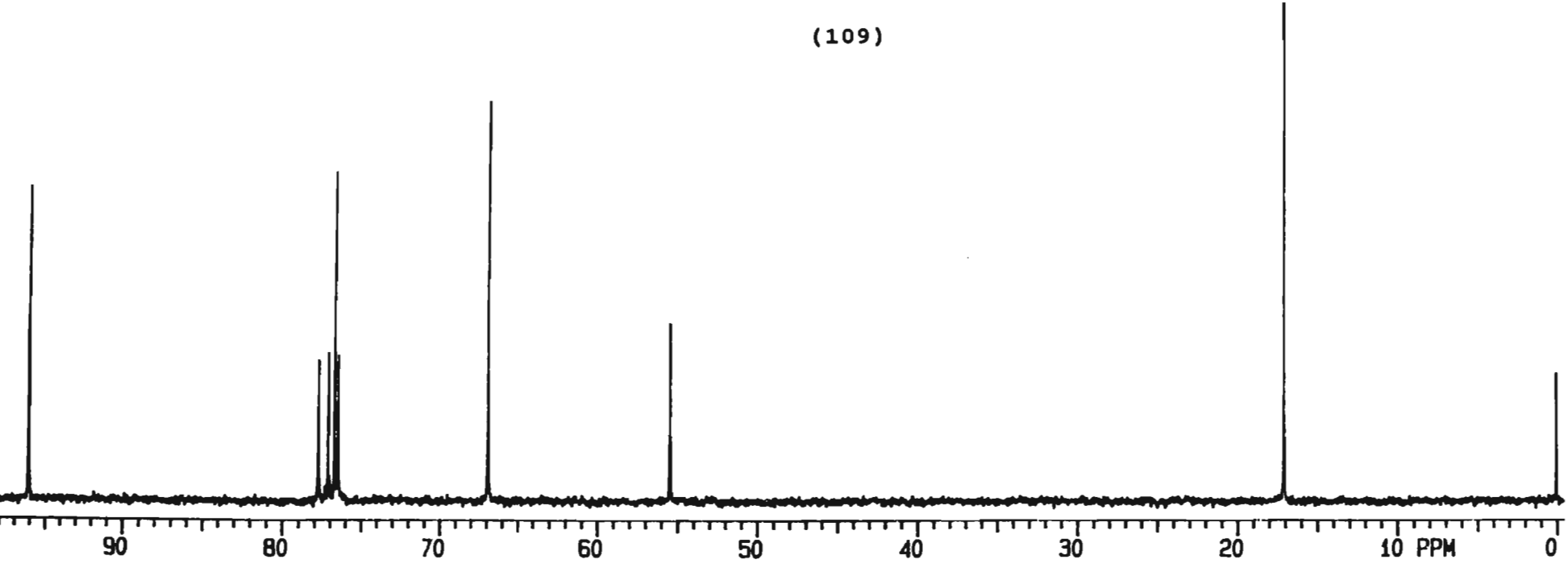


(109)

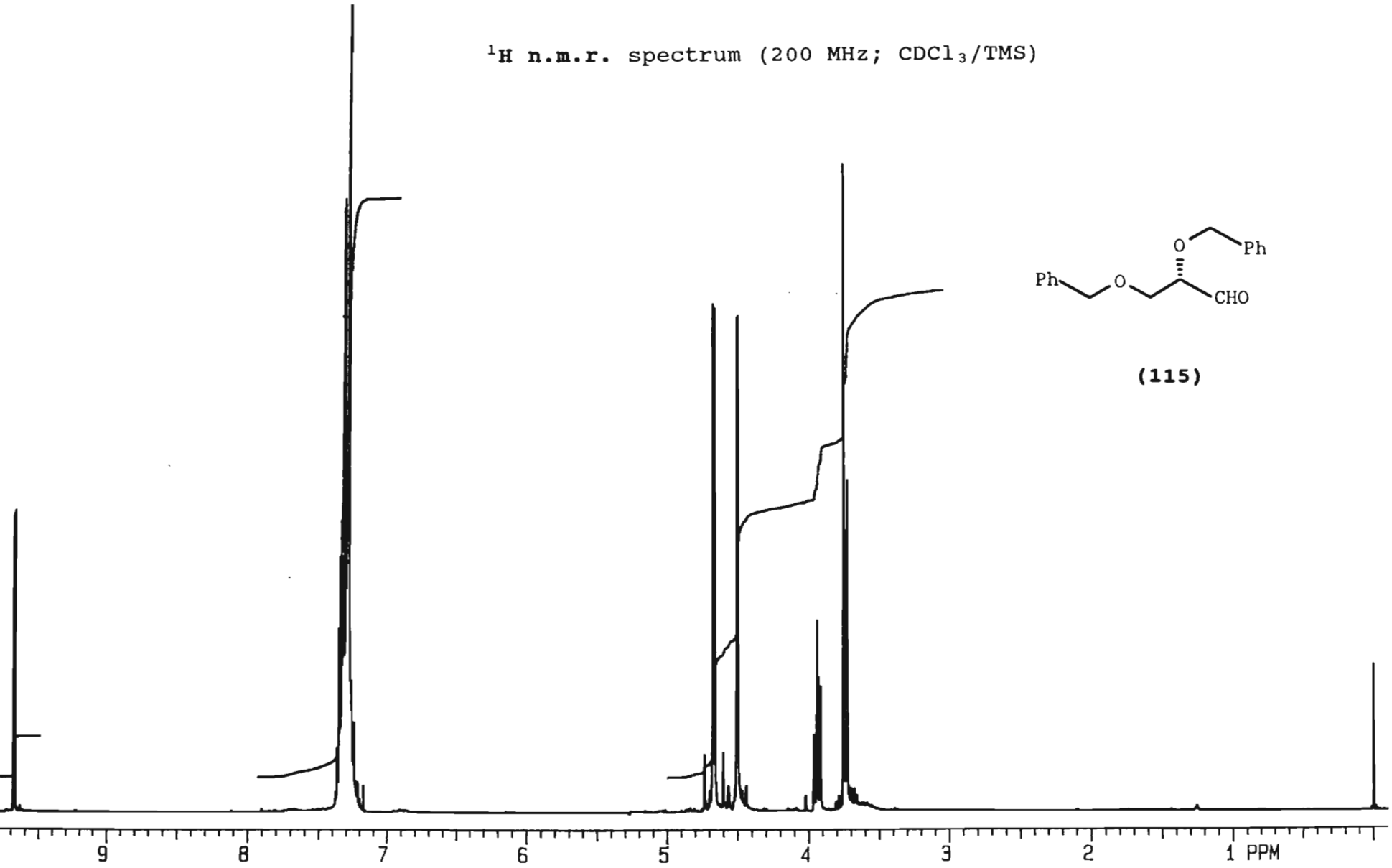
^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(109)

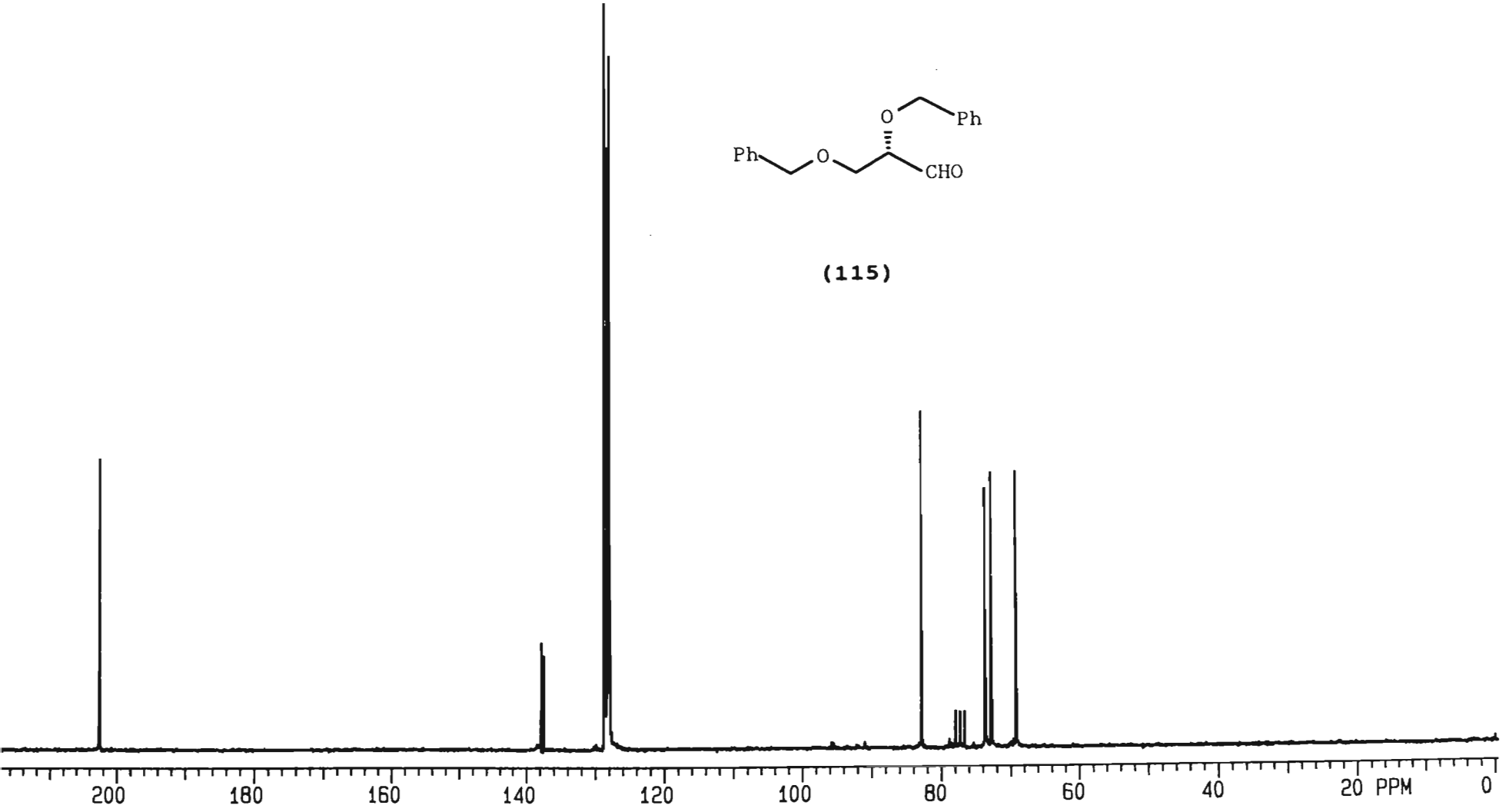


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



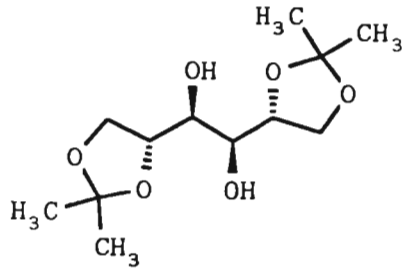
(115)

^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



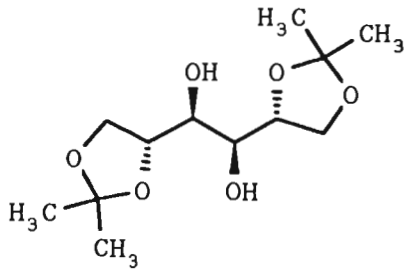
(115)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



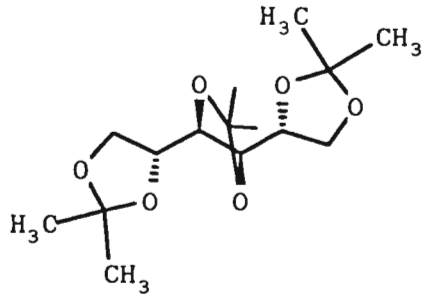
(117)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



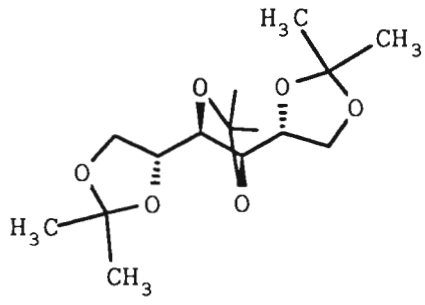
(117)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



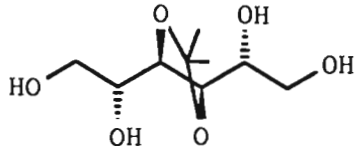
(118)

^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



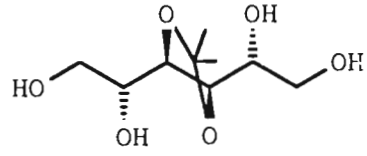
(118)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

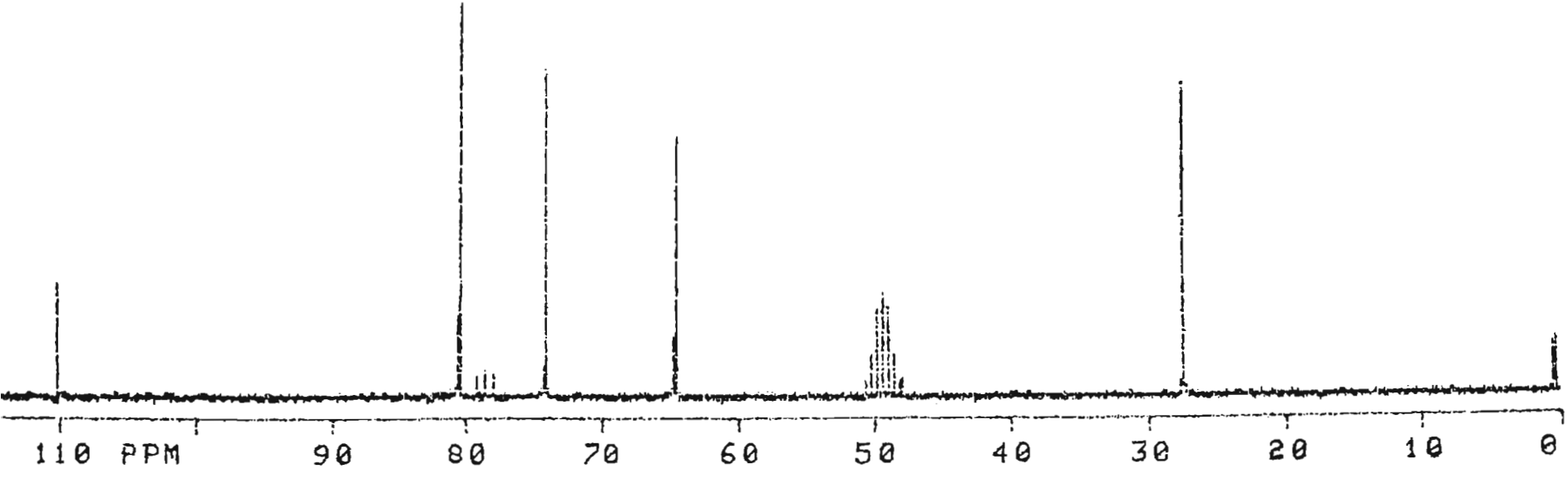


(119)

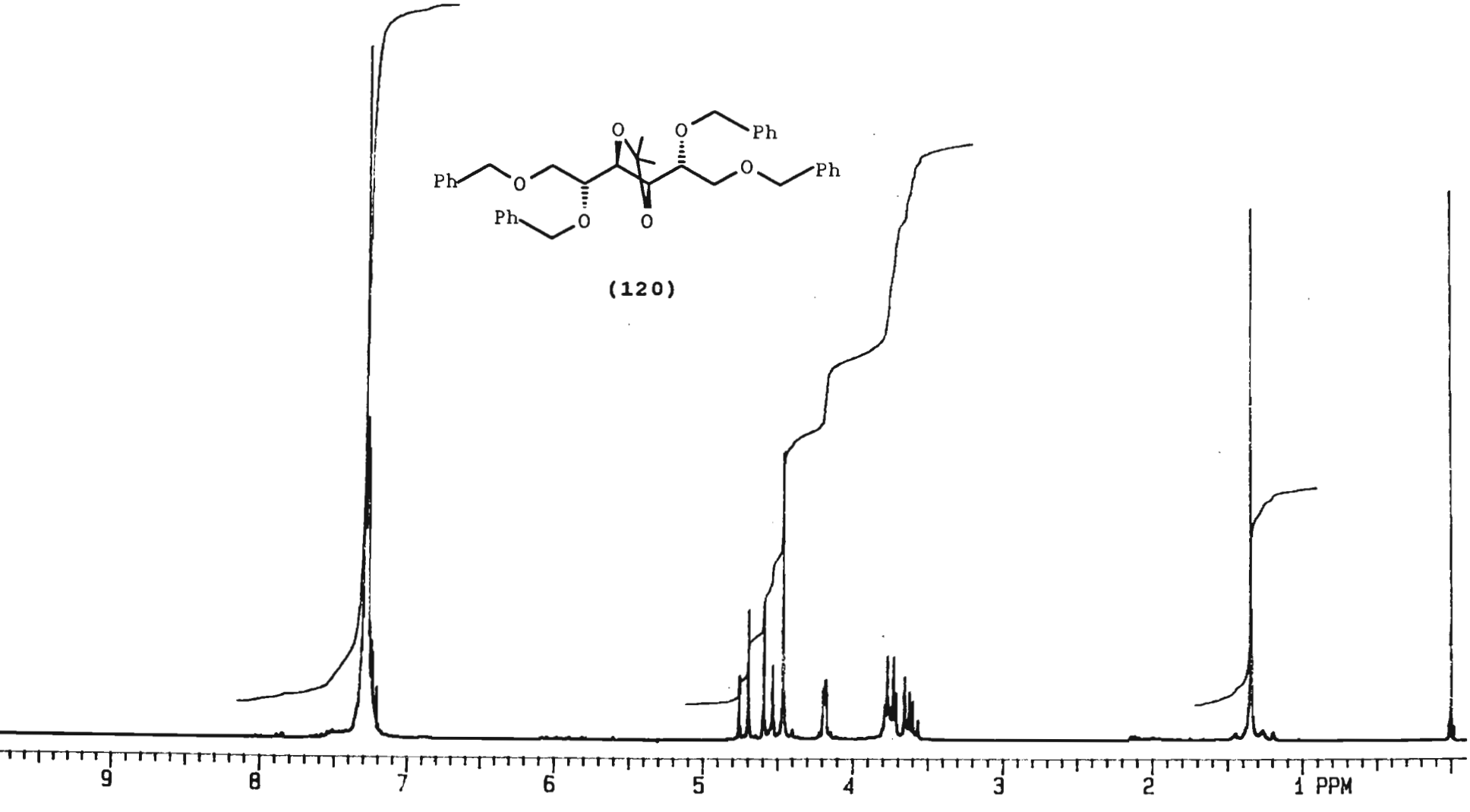
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(119)

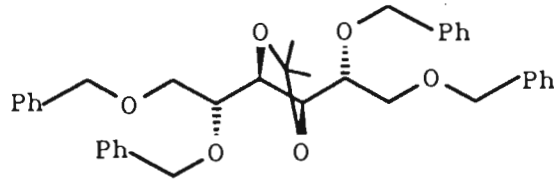


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

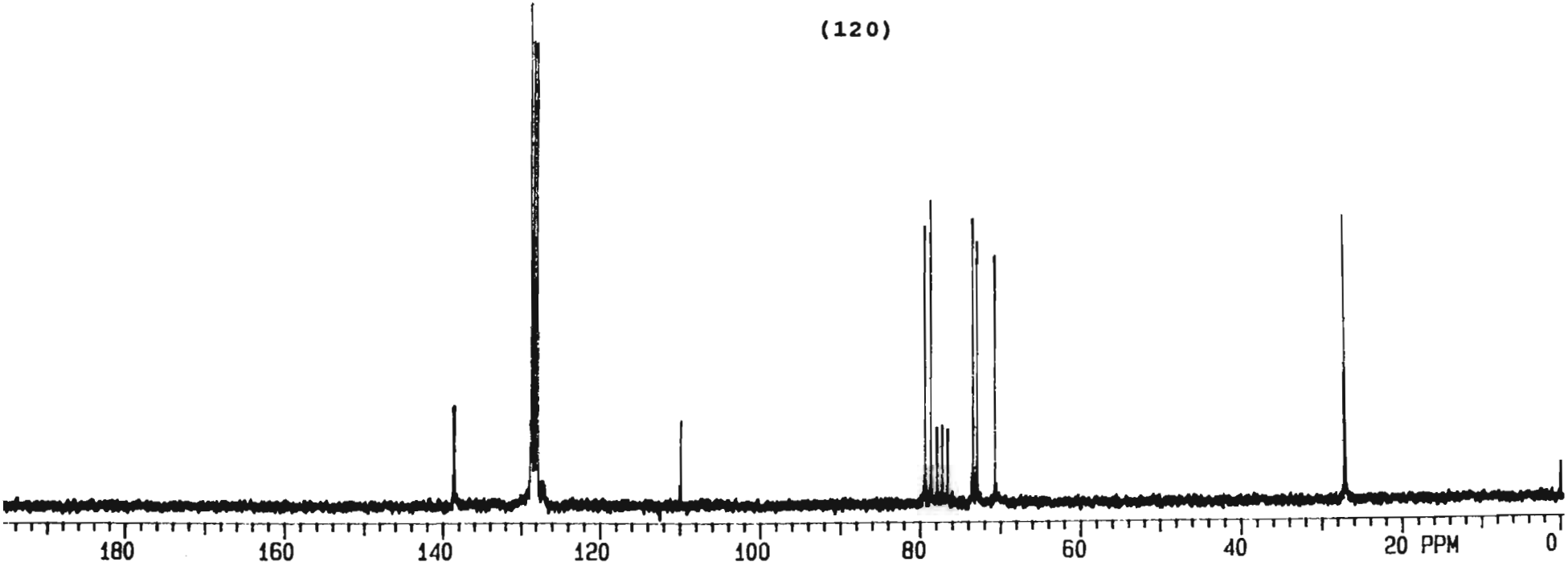


(120)

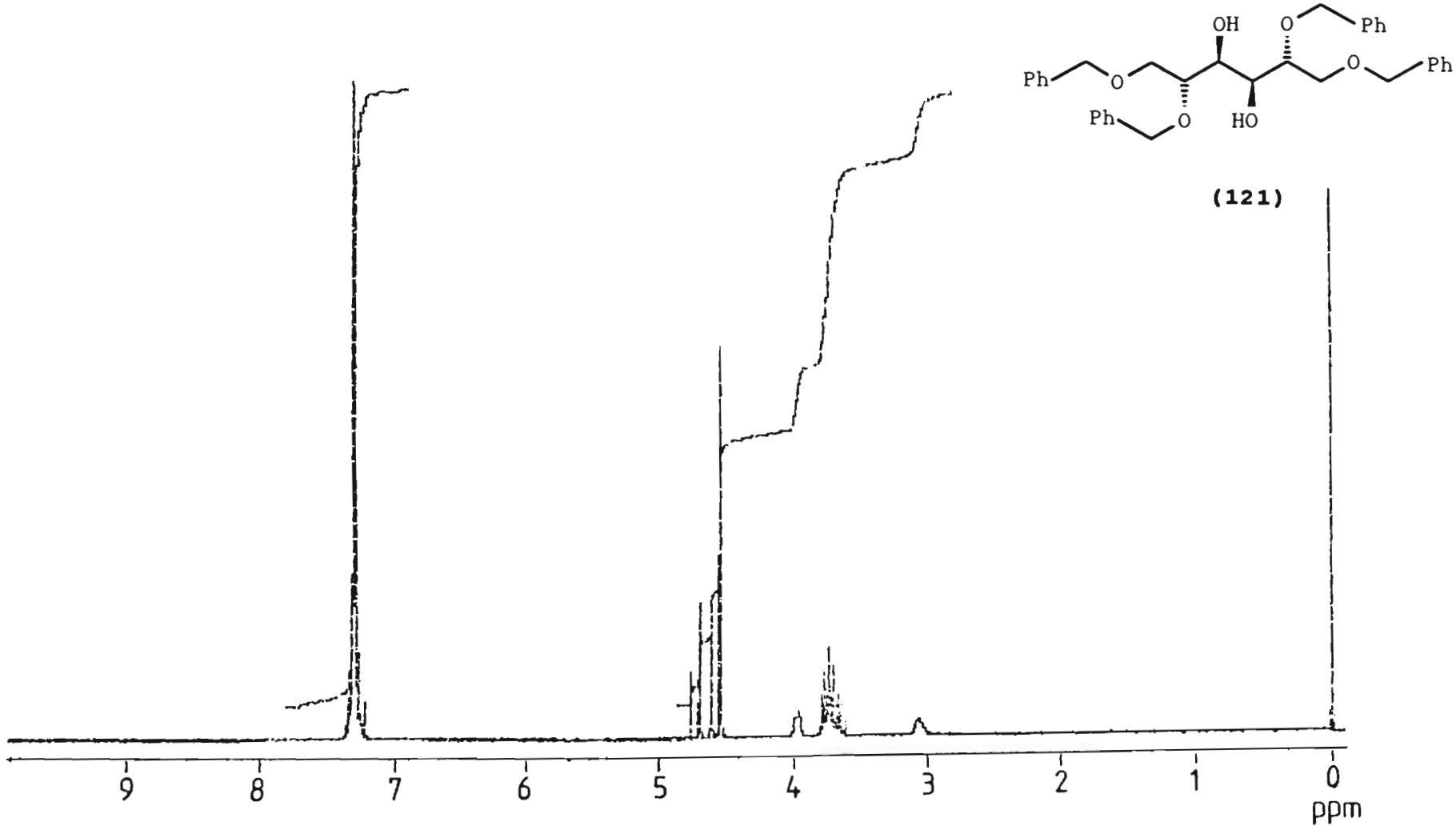
^{13}C **n.m.r. (PND)** spectrum: (50 MHz; $CDCl_3$/TMS)



(120)

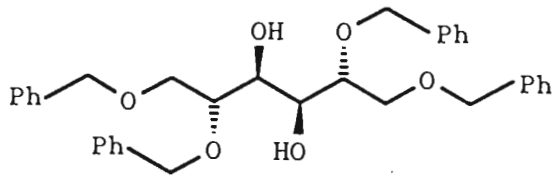


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



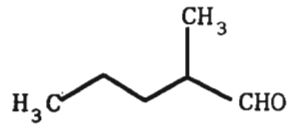
(121)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



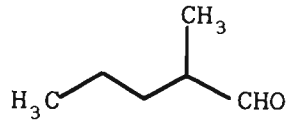
(121)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

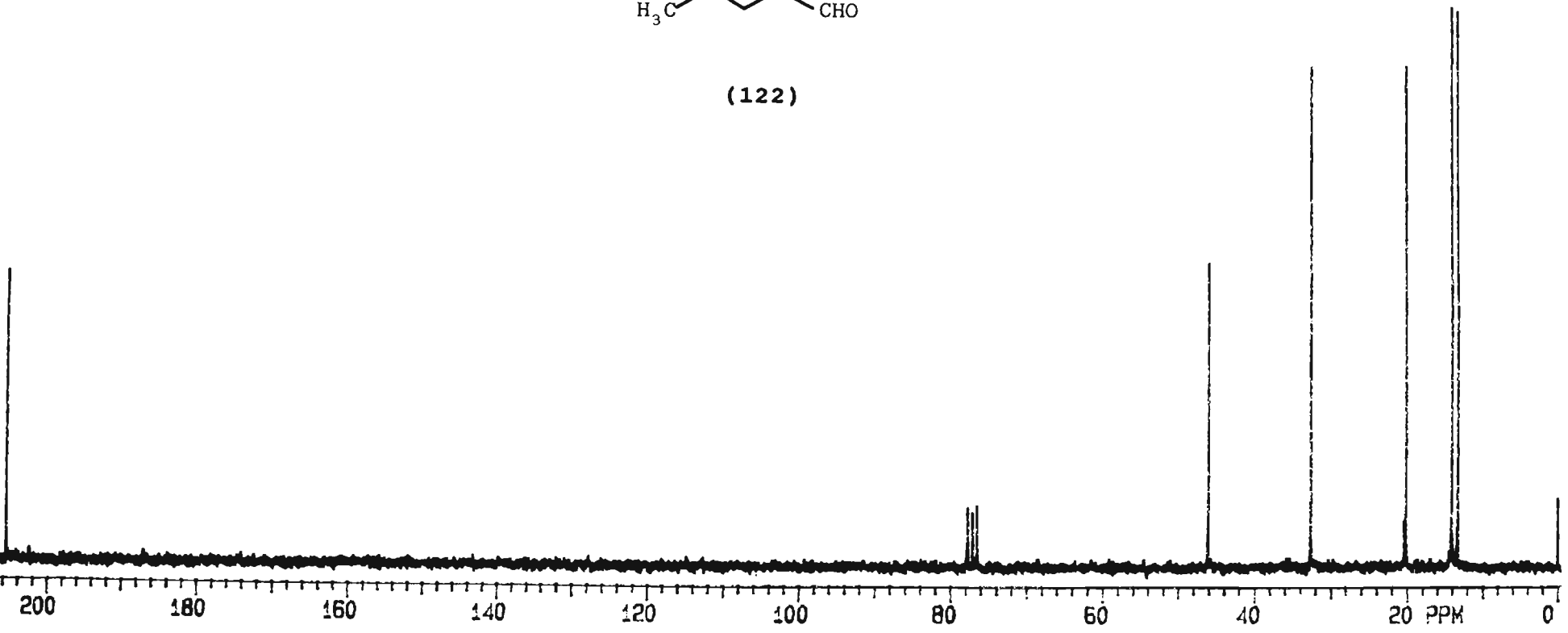


(122)

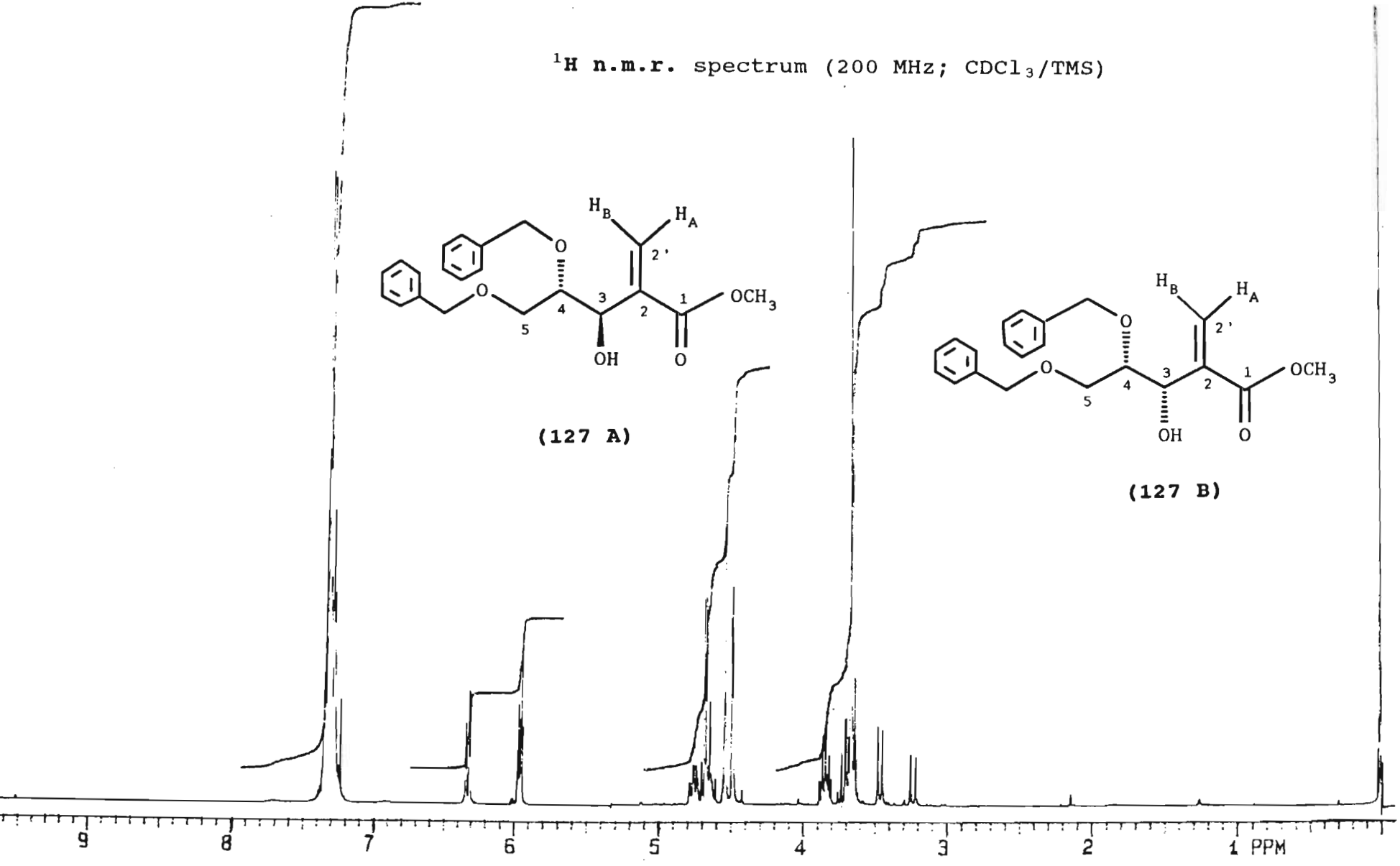
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(122)



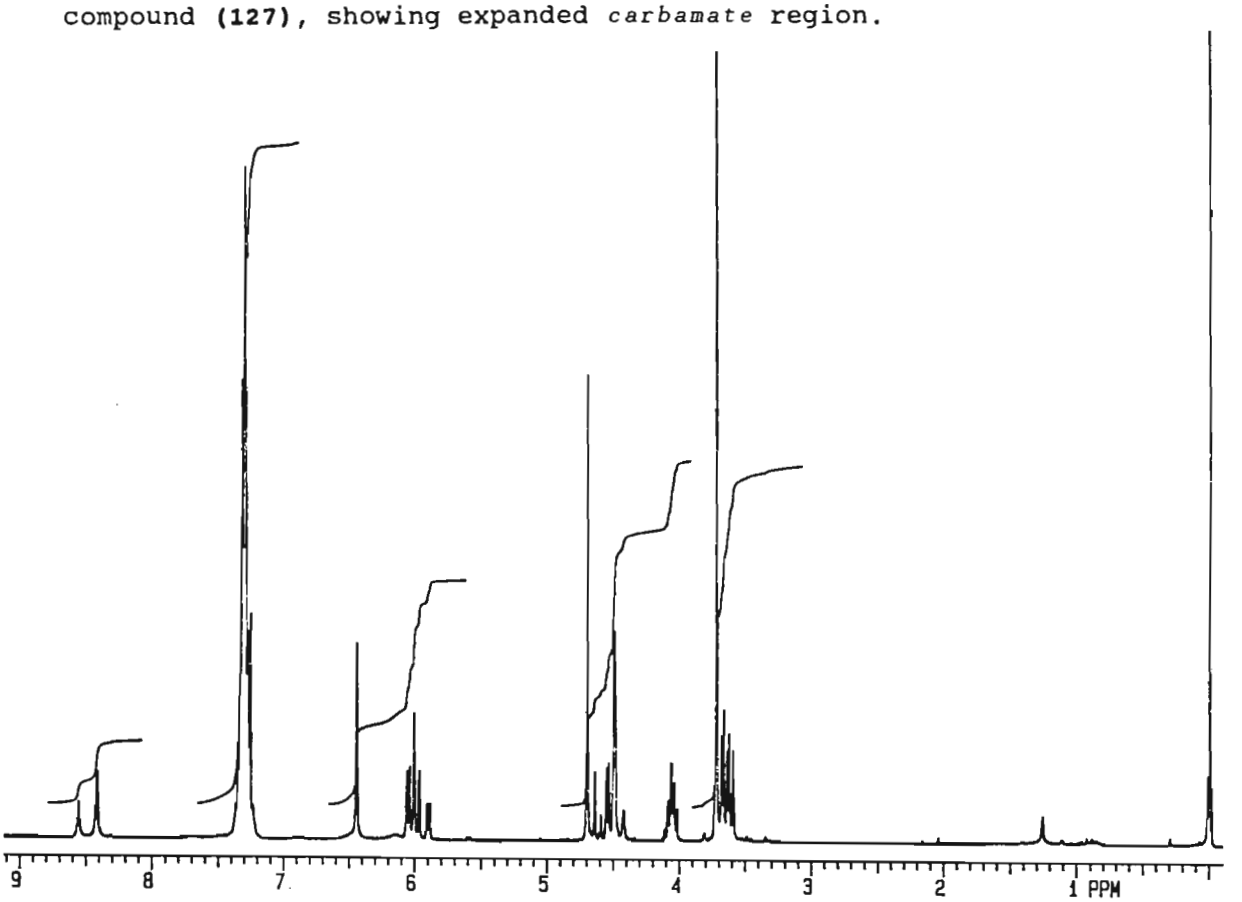
^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

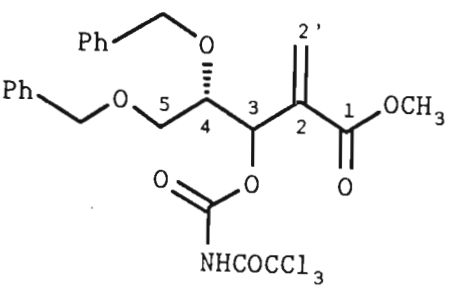


(127 A)

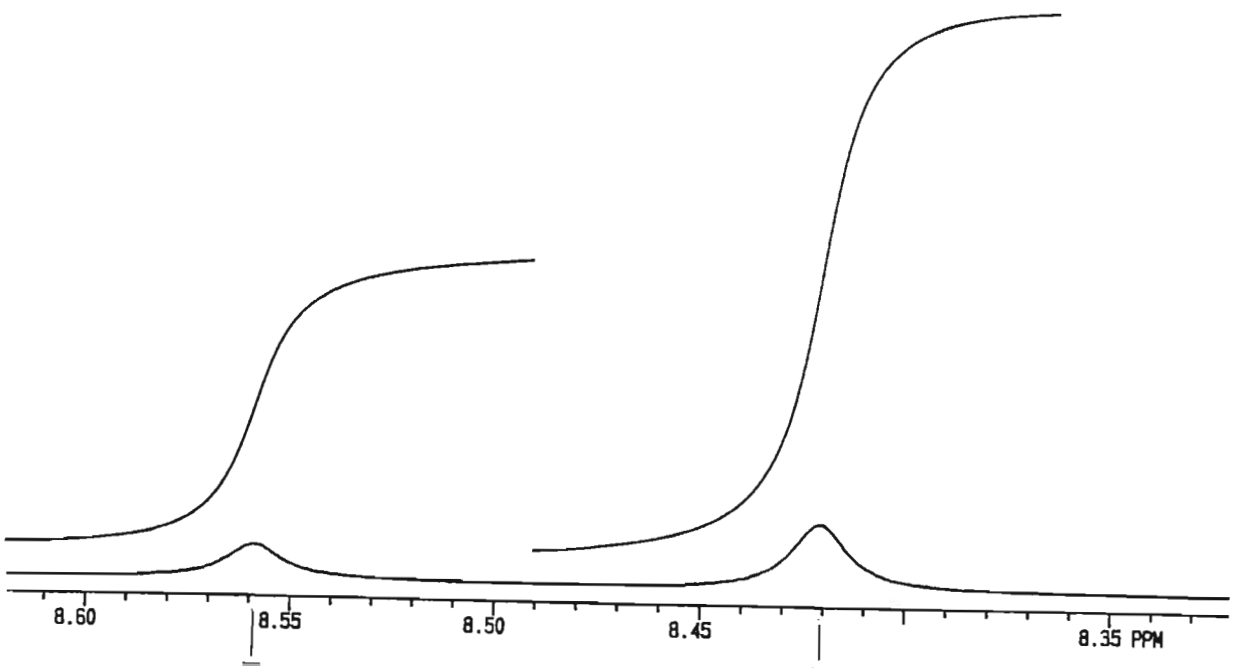
(127 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(127)**, showing expanded *carbamate* region.

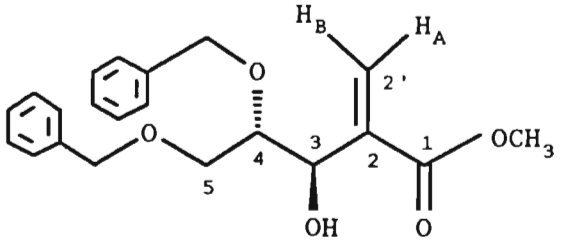




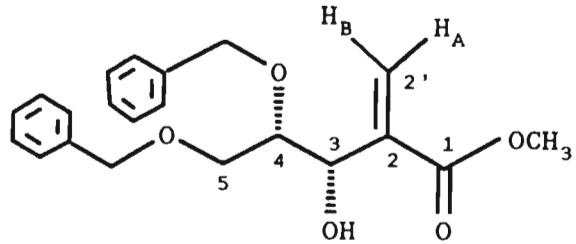
(127 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

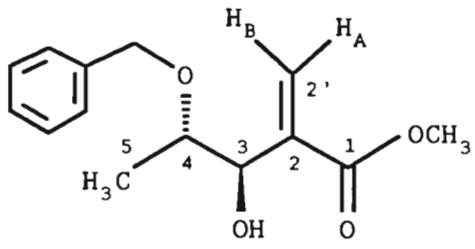


(127 A)



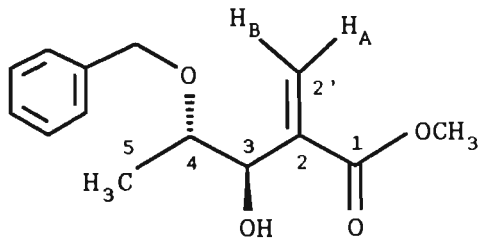
(127 B)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



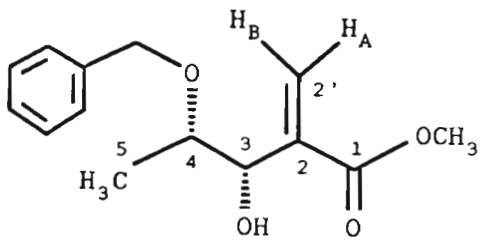
(130 A)

^{13}C **n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)

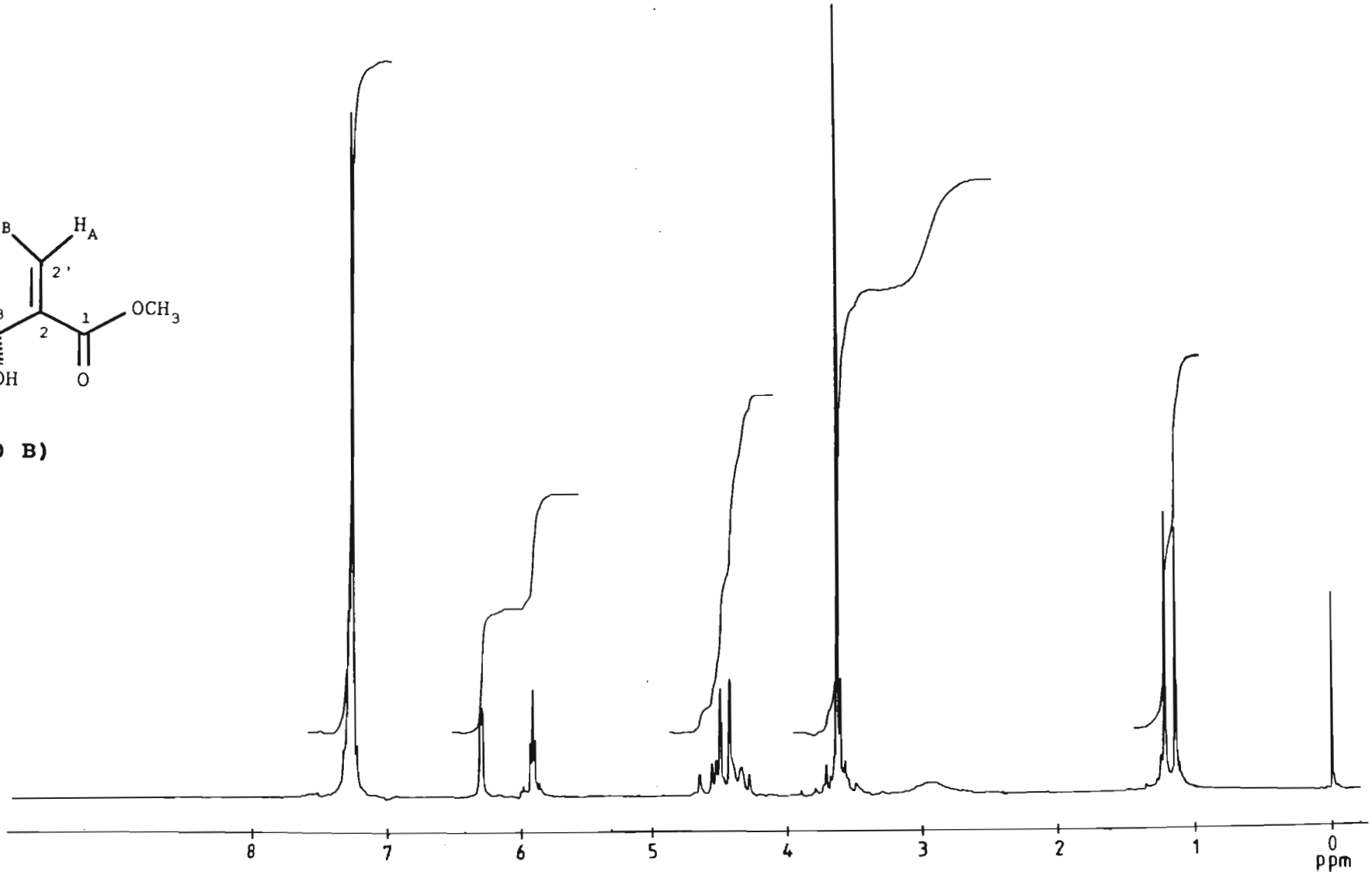


(130 A)

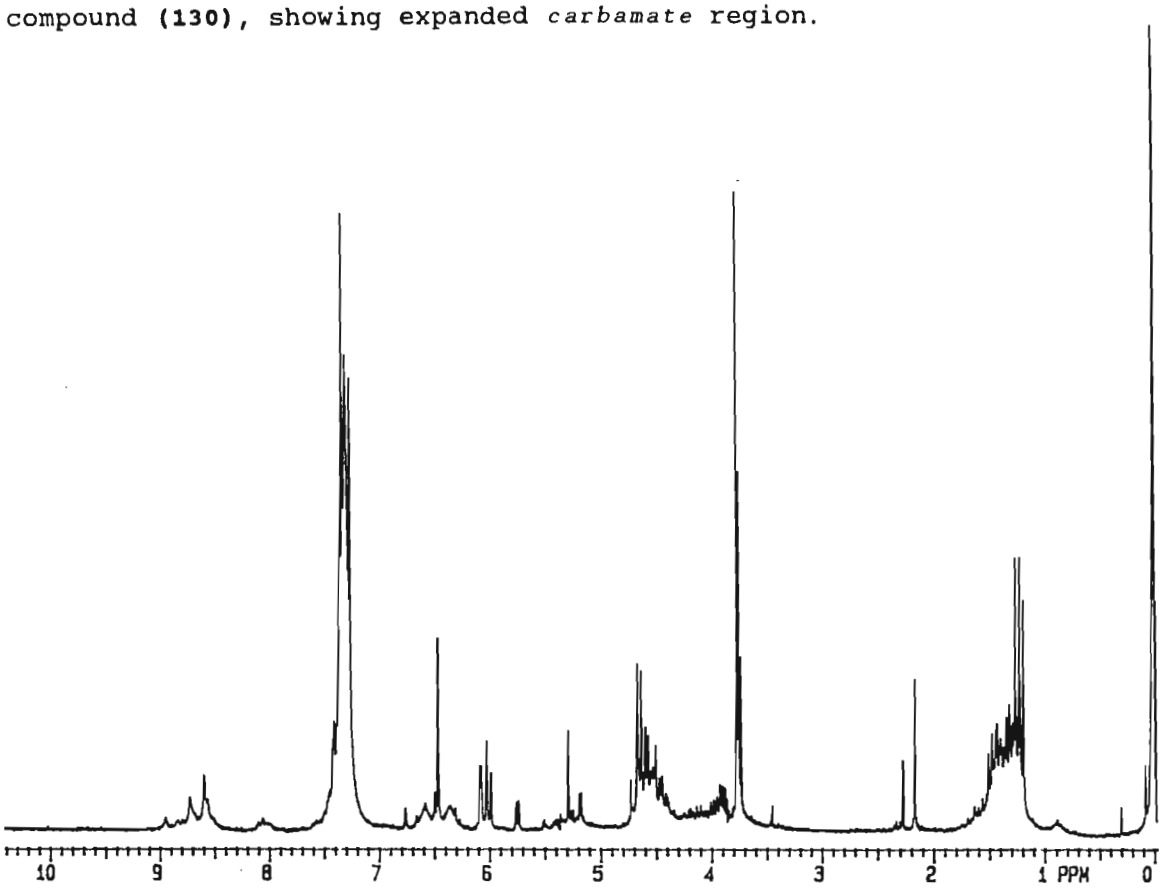
^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

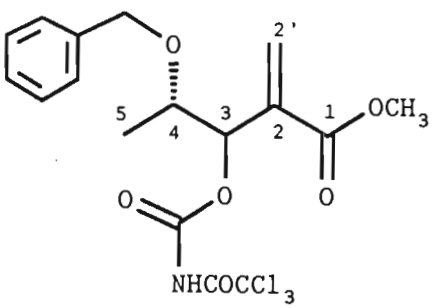


(130 B)

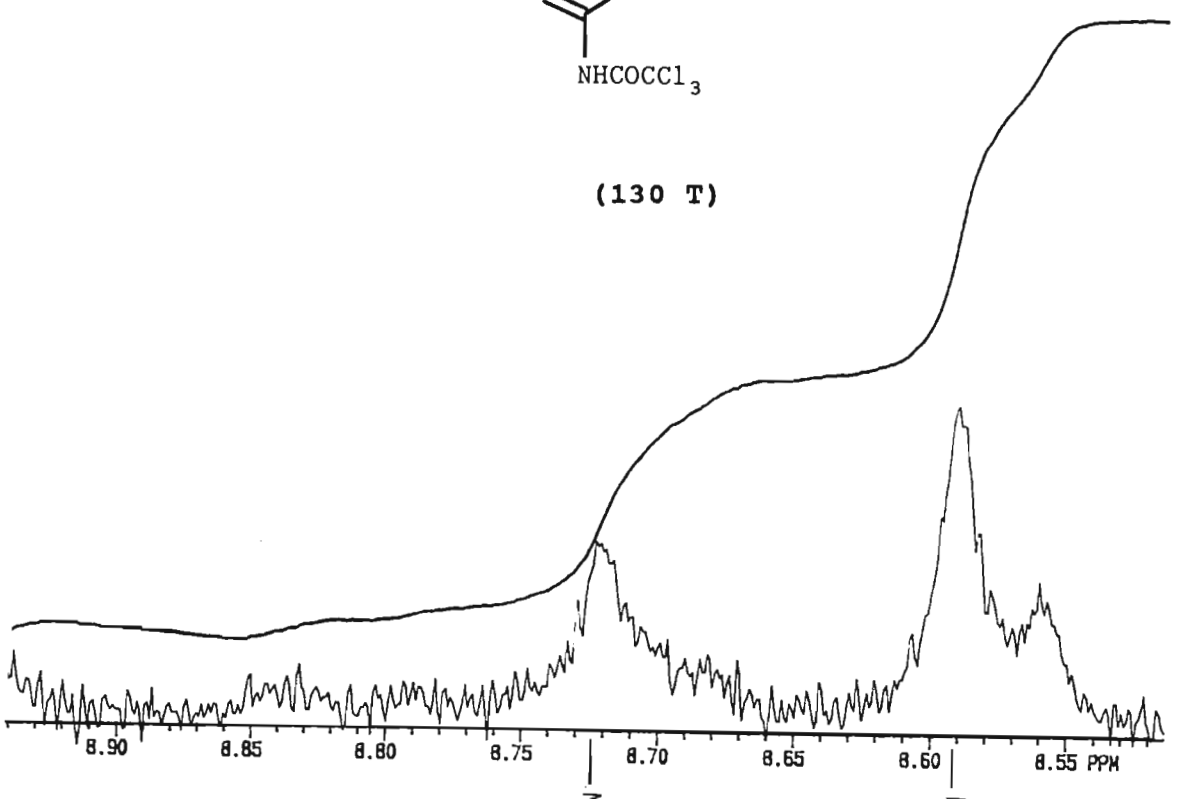


^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(130)**, showing expanded *carbamate* region.

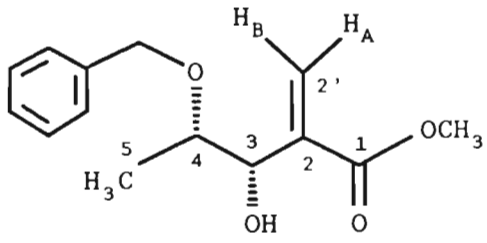




(130 T)

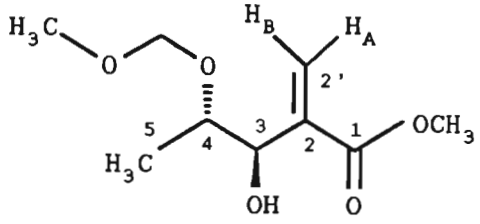


^{13}C **n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)



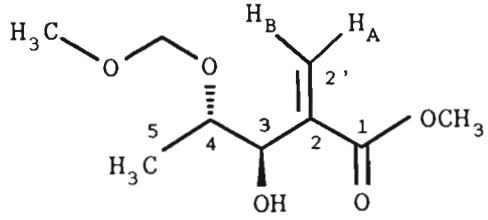
(130 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

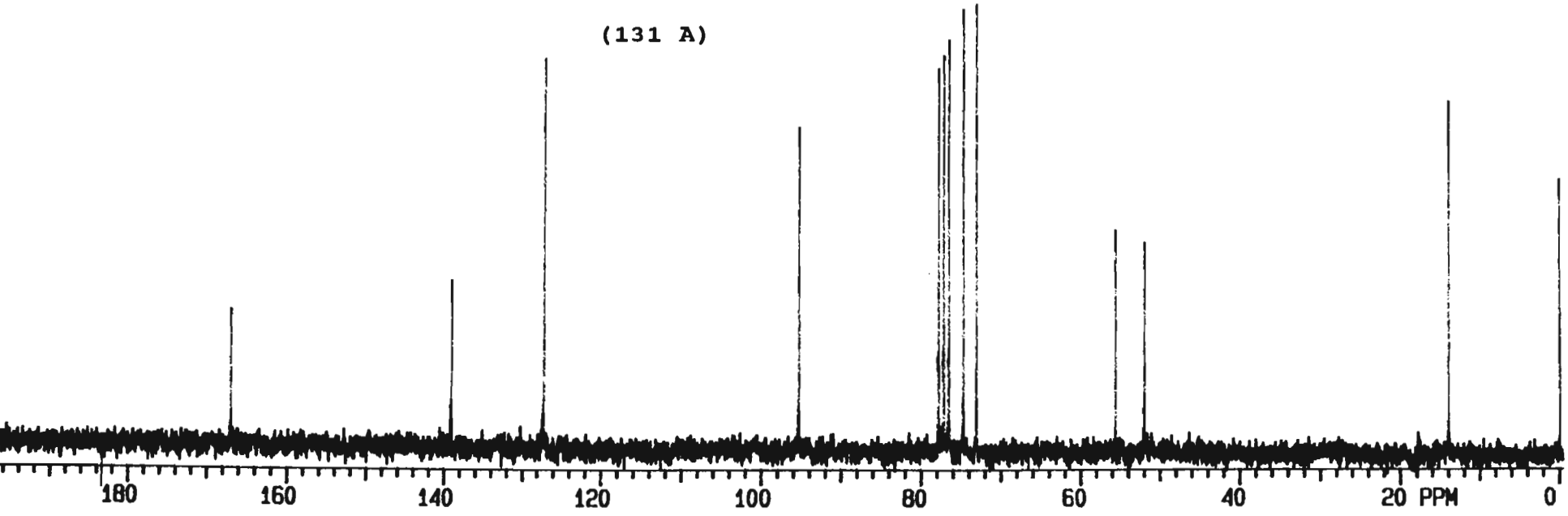


(131 A)

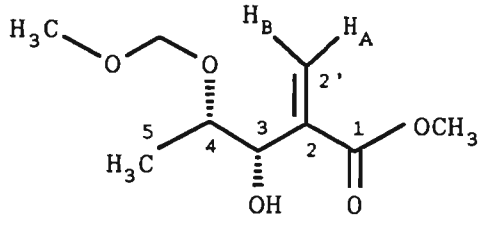
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(131 A)

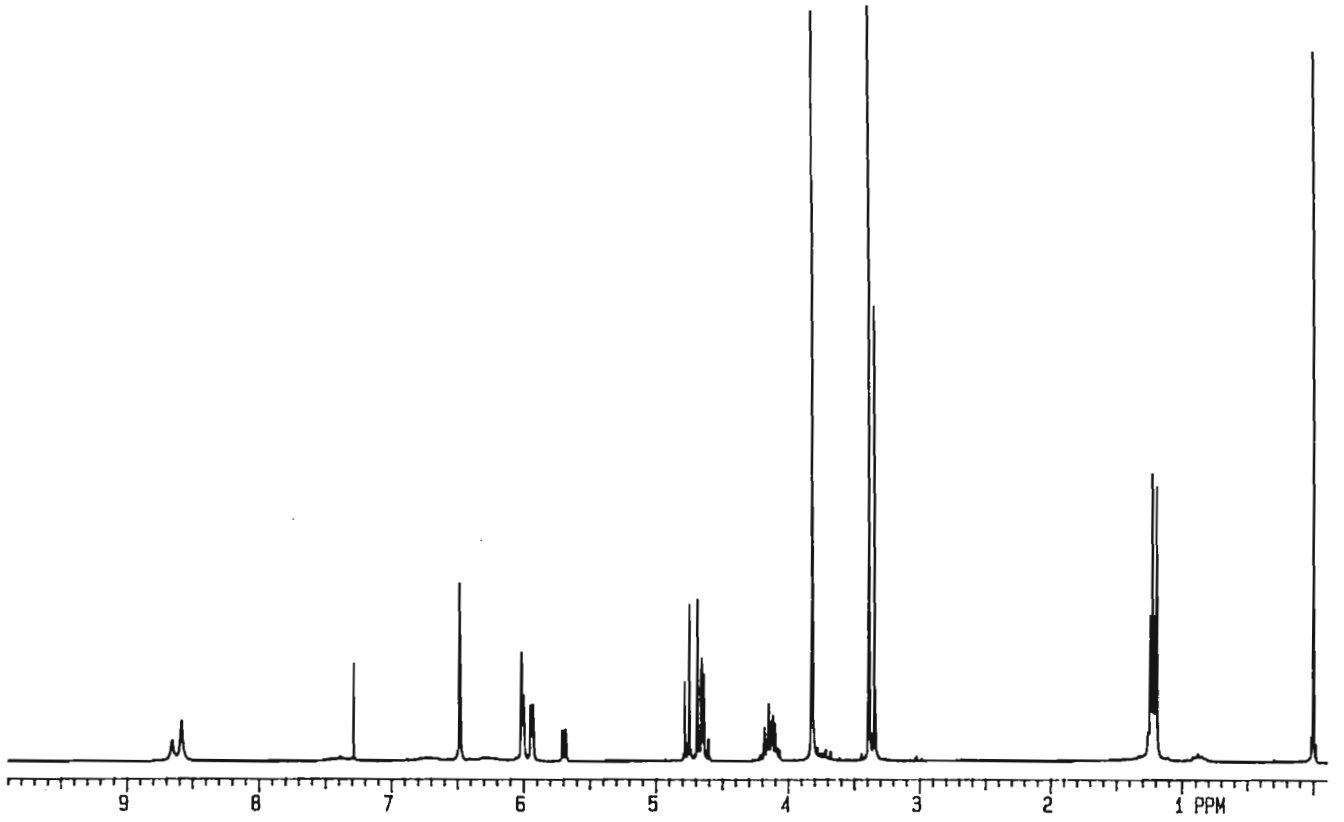


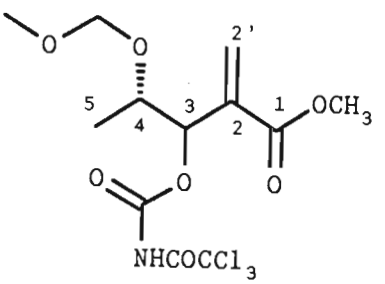
^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



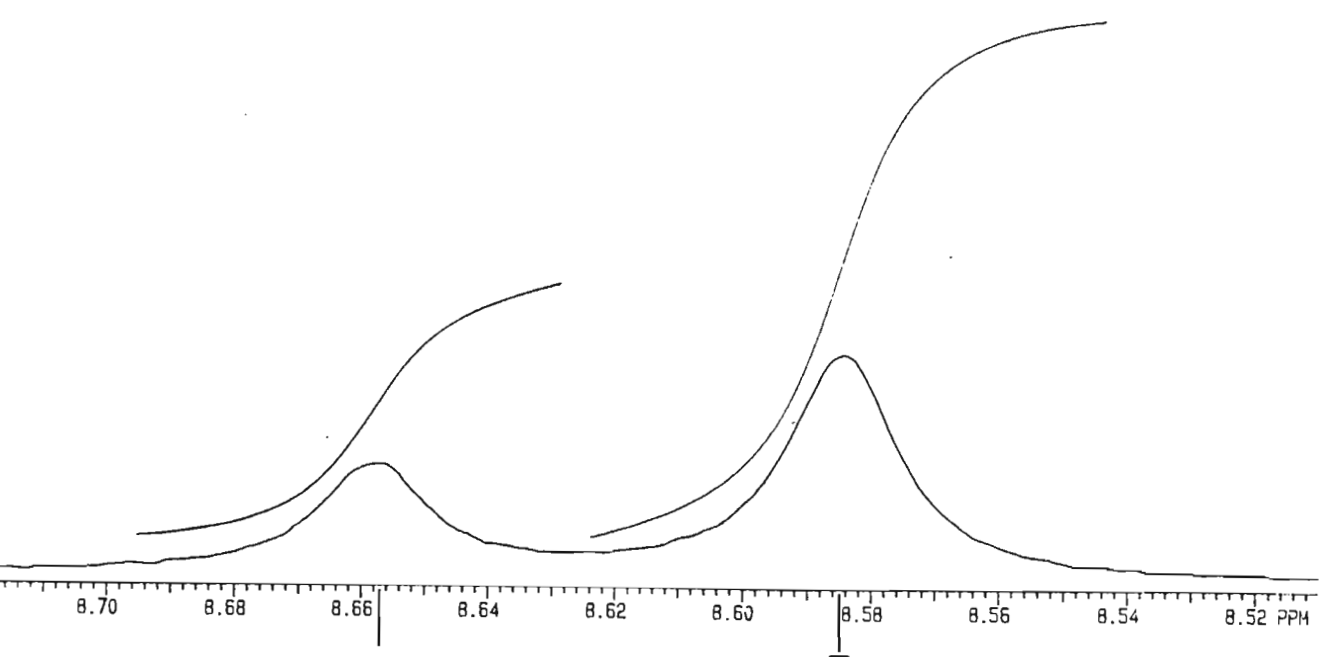
(131 B)

H^1 n.m.r. (TAI) spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(131)**, showing expanded *carbamate* region.

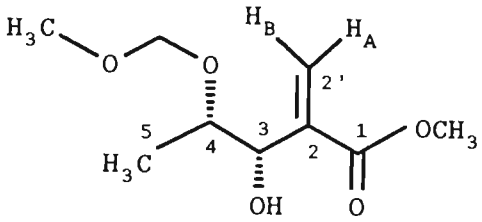




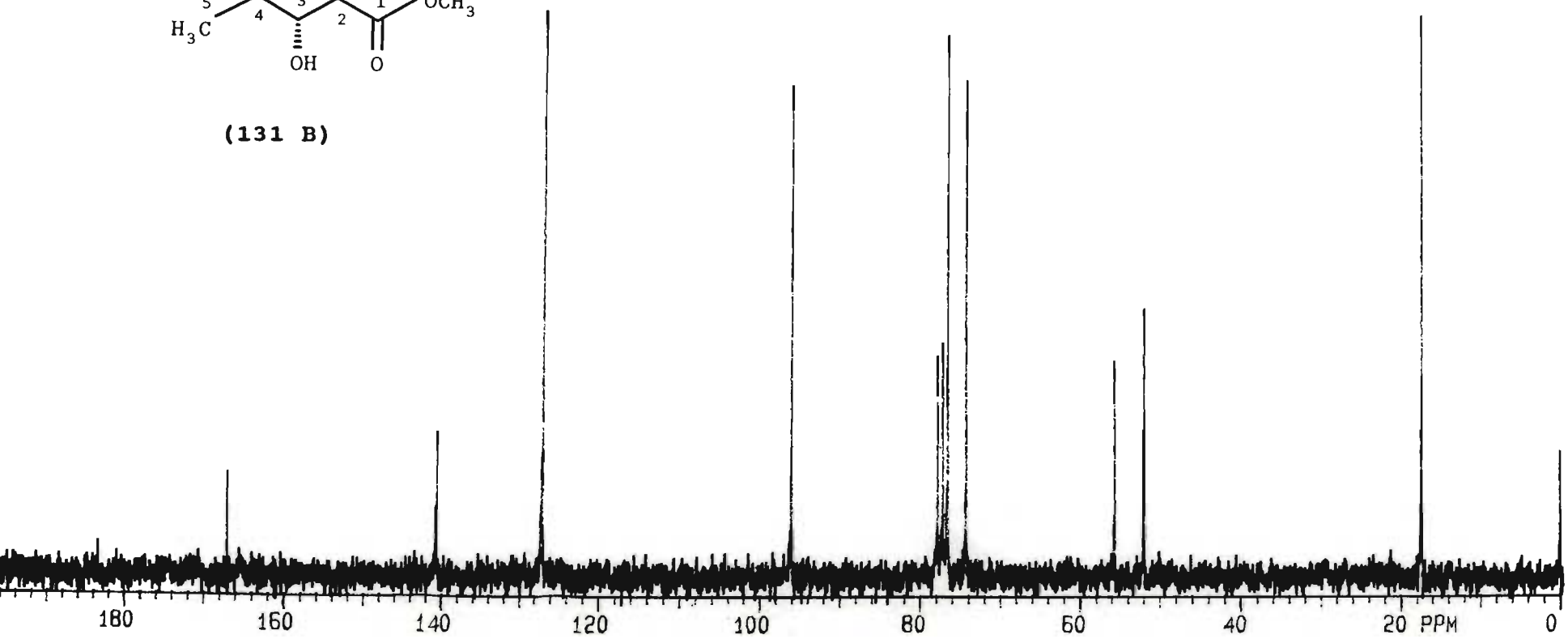
(131 T)



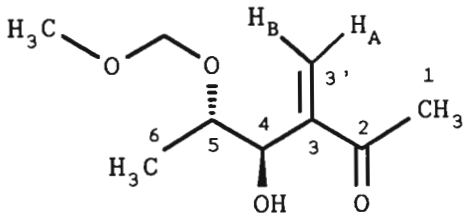
^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(131 B)

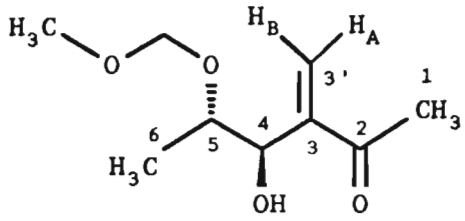


^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

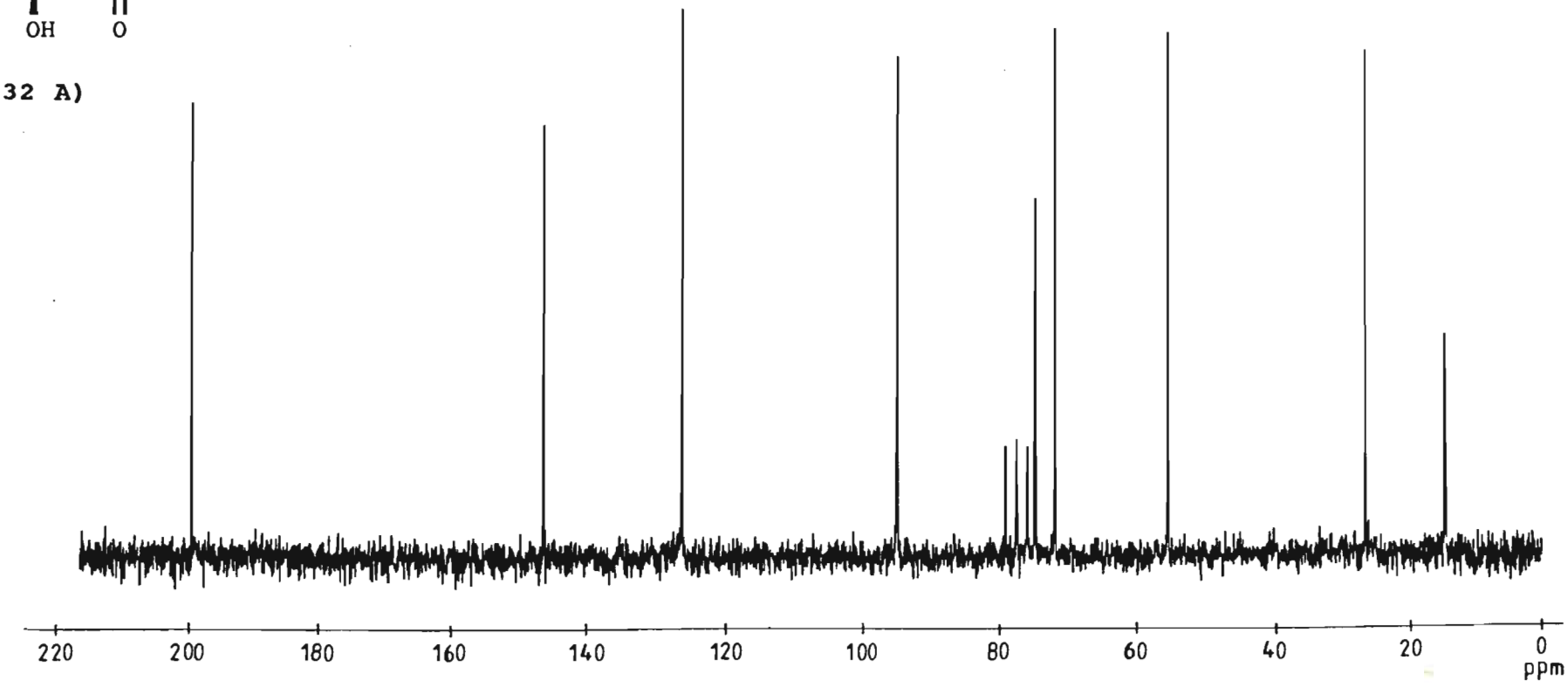


(132 A)

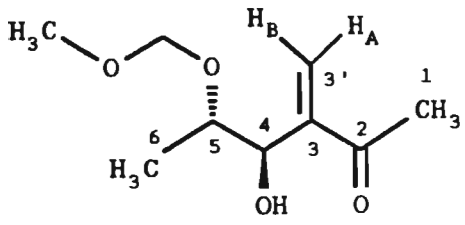
^{13}**C n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)



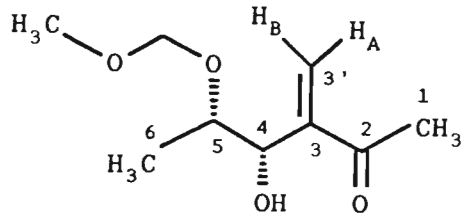
(132 A)



^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

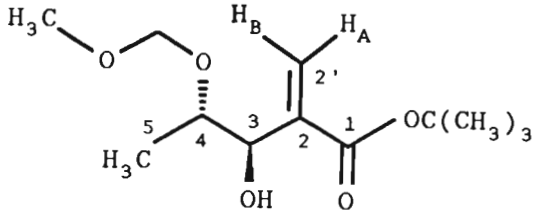


(132 A)

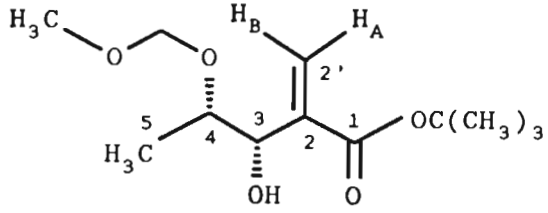


(132 B)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

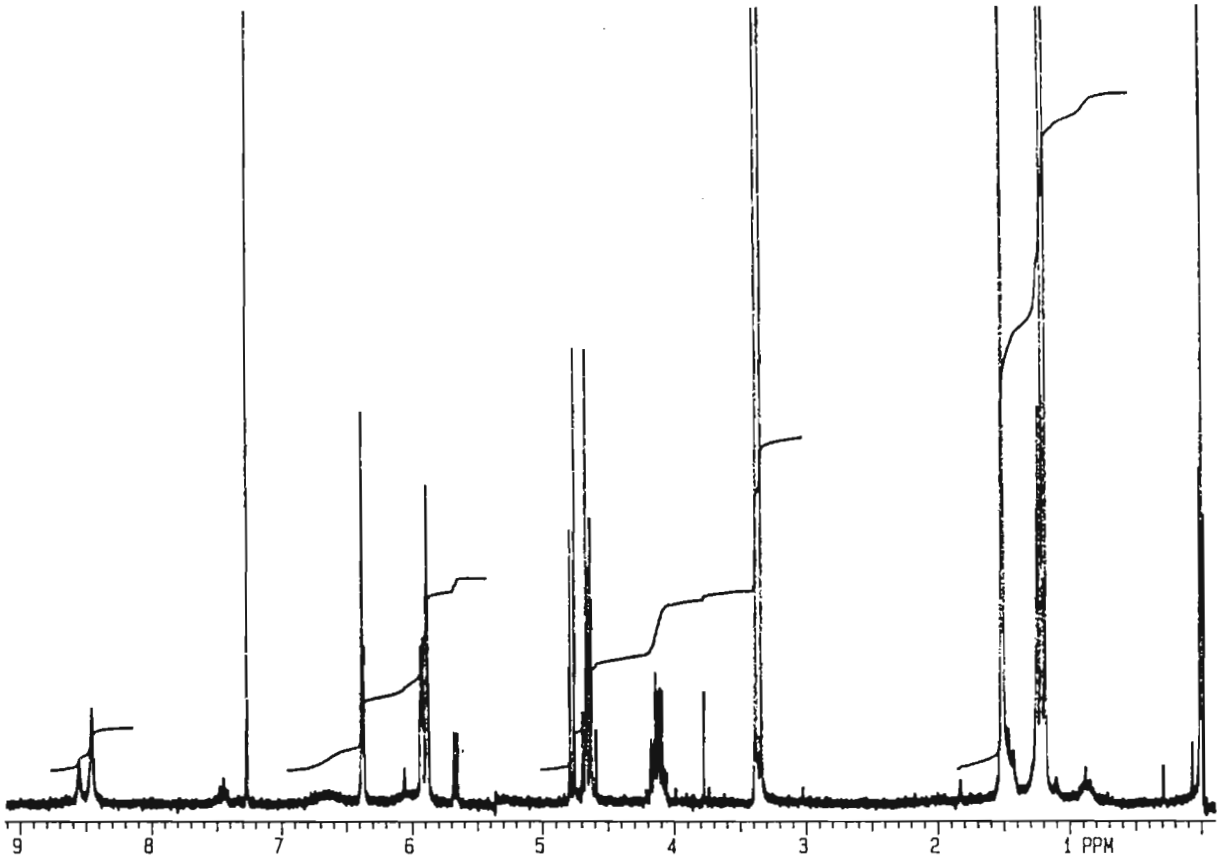


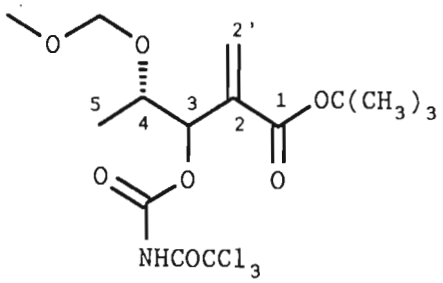
(133 A)



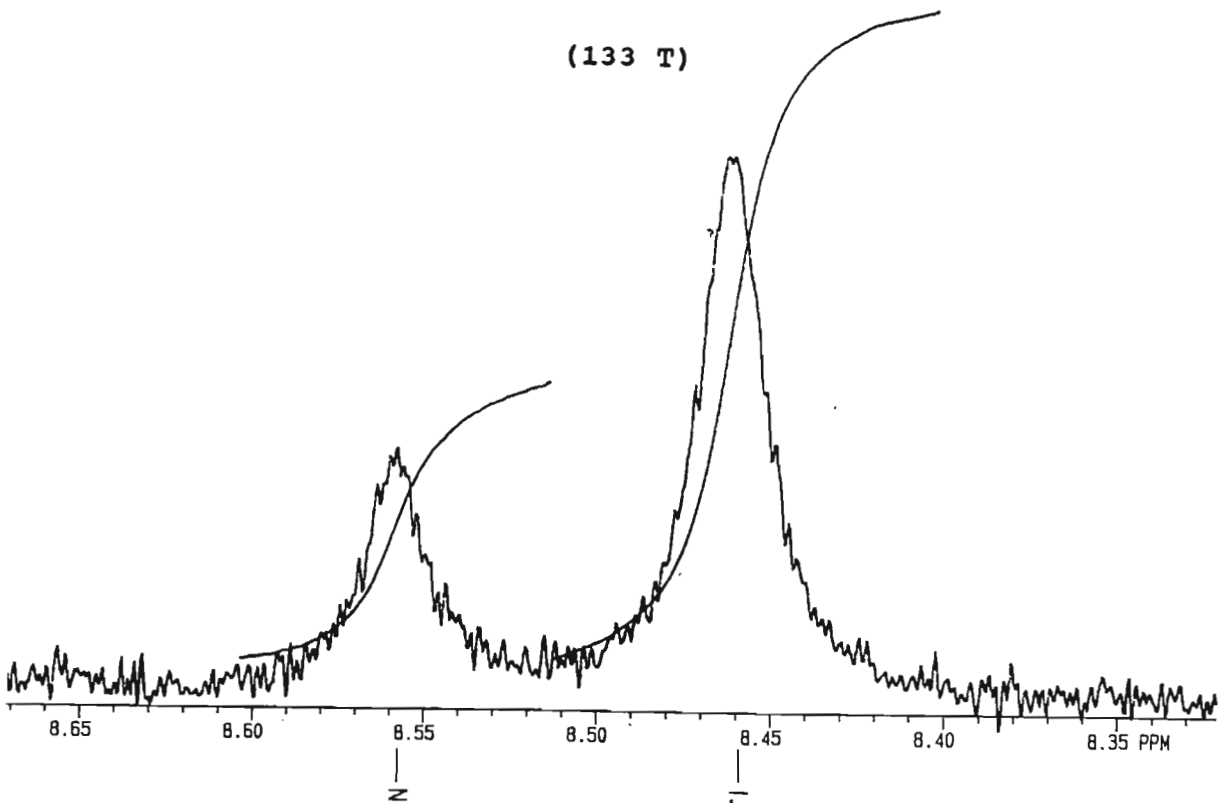
(133 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(133)**, showing expanded *carbamate* region.

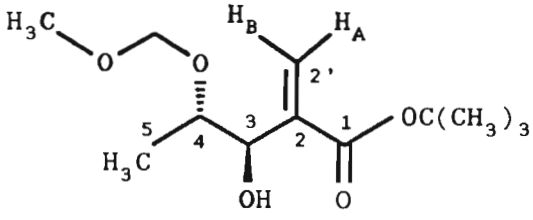




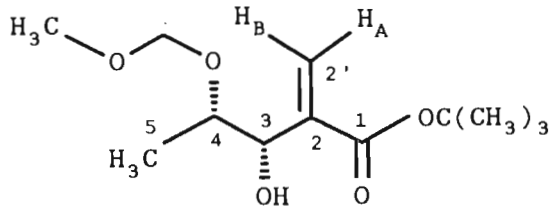
(133 T)



^{13}C n.m.r. (PND) spectrum (20 MHz; $CDCl_3$)

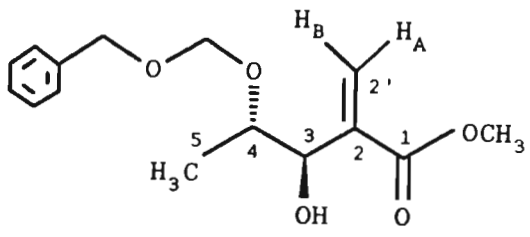


(133 A)



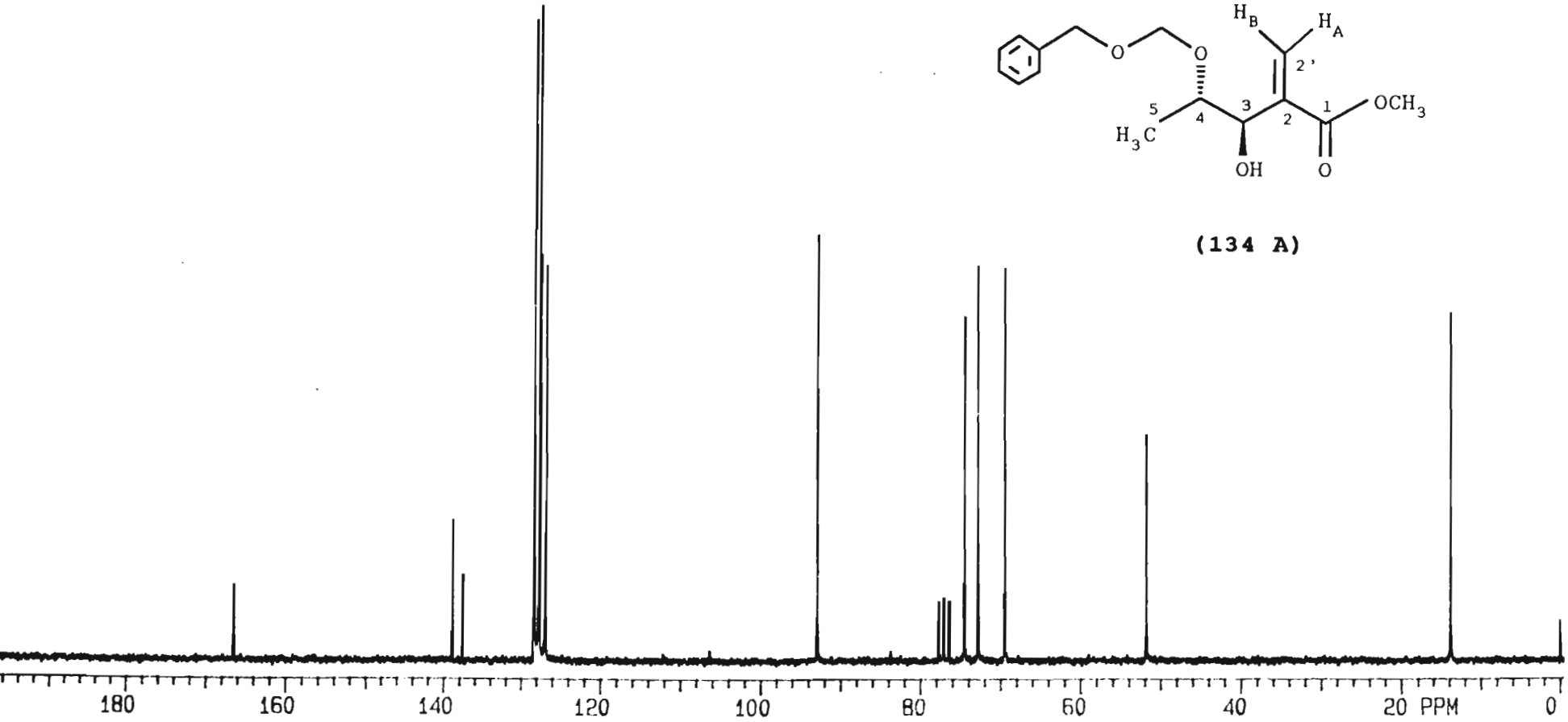
(133 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



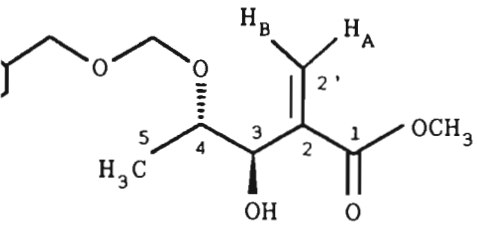
(134 A)

^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

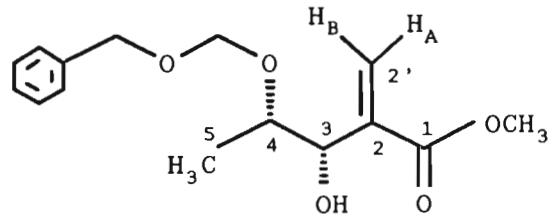


(134 A)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

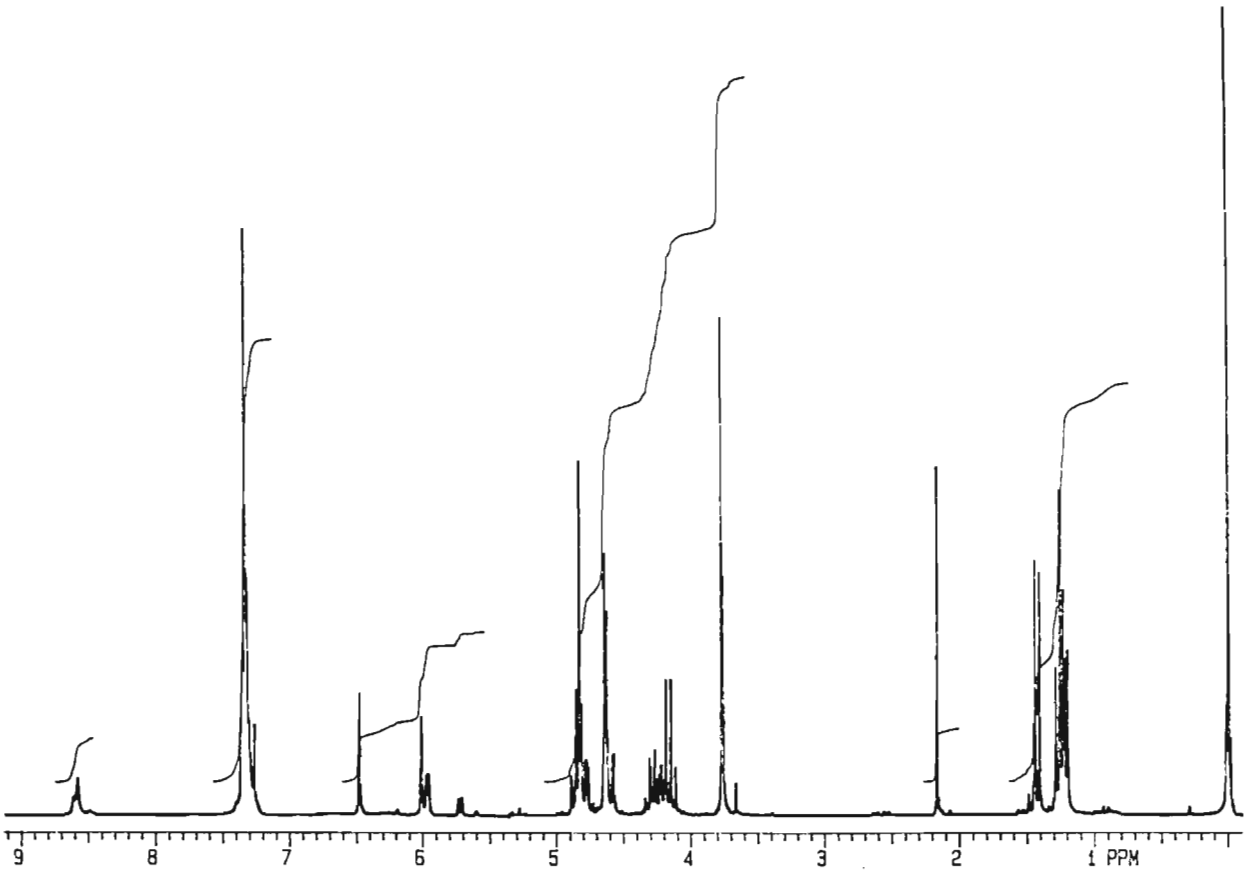


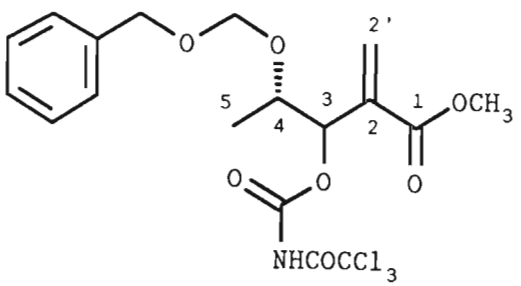
(134 A)



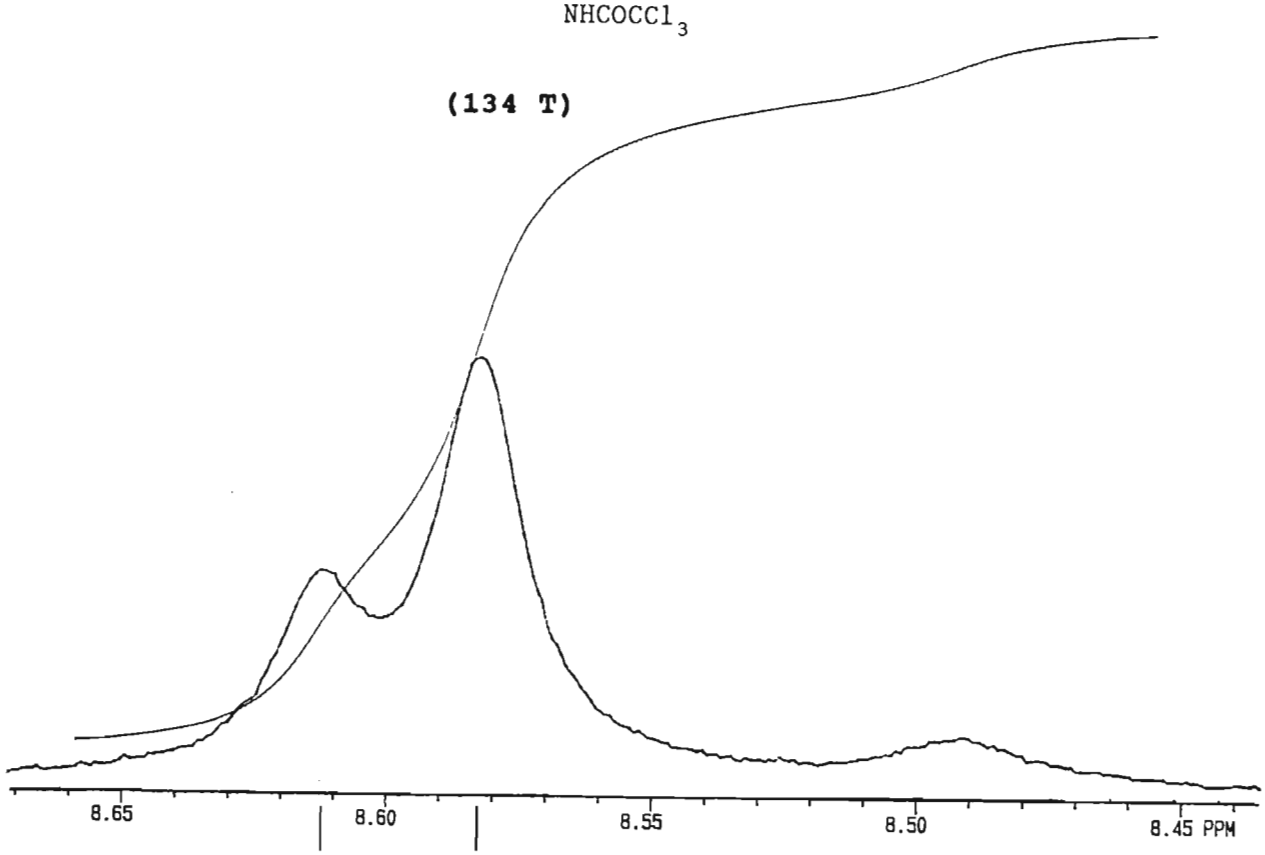
(134 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(134)**, showing expanded *carbamate* region.

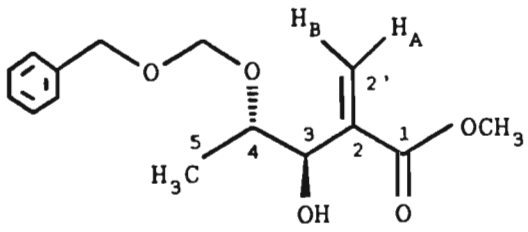




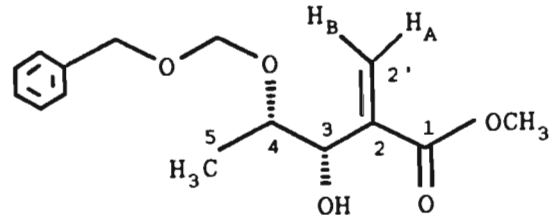
(134 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

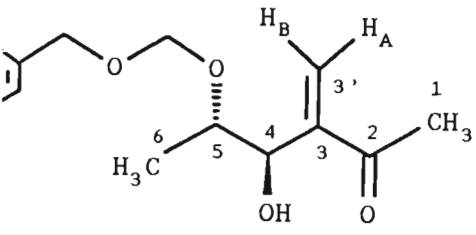


(134 A)



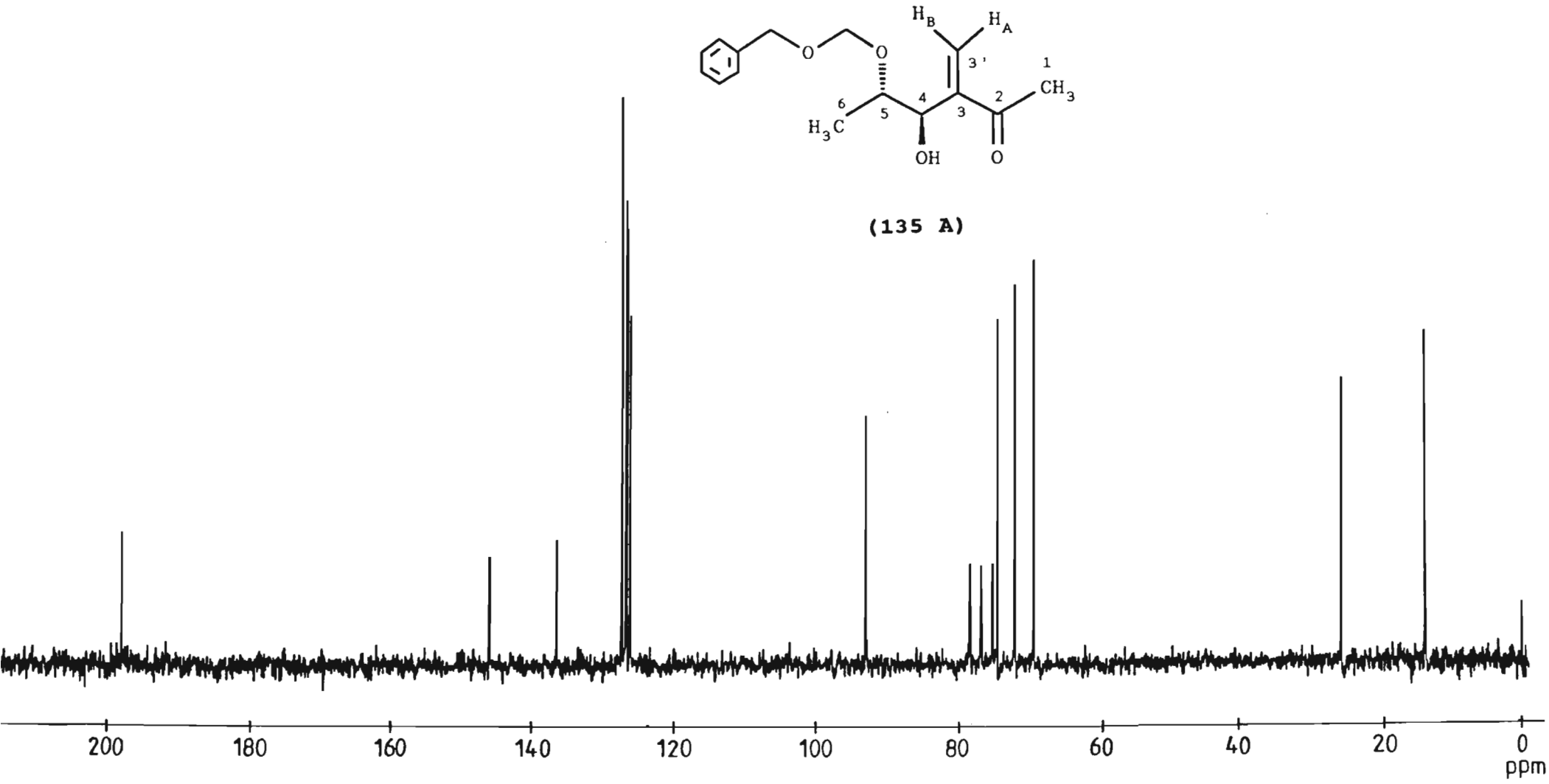
(134 B)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)



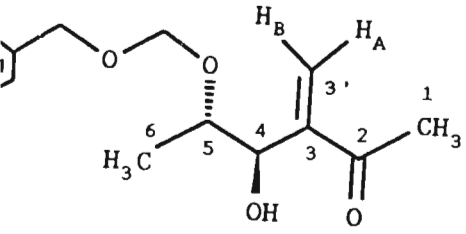
(135 A)

^{13}C **n.m.r. (PND)** spectrum (20 MHz; $CDCl_3$/TMS)

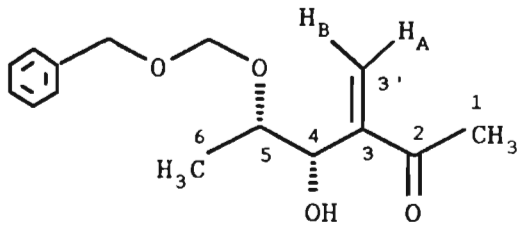


(135 A)

^{1}**H n.m.r.** spectrum (80 MHz; $CDCl_3$/TMS)

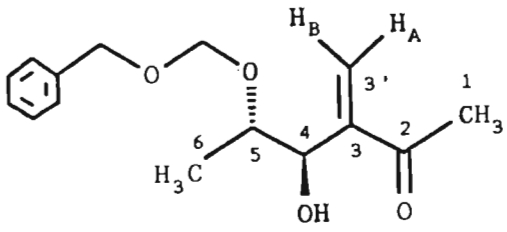


(135 A)

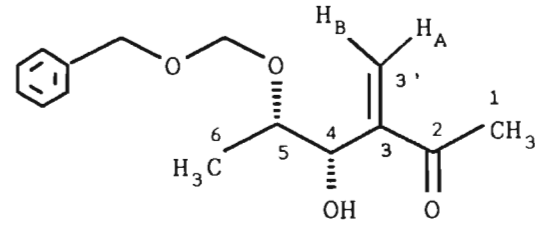


(135 B)

^{13}C n.m.r. (PND) spectrum (20 MHz; $CDCl_3$/TMS)

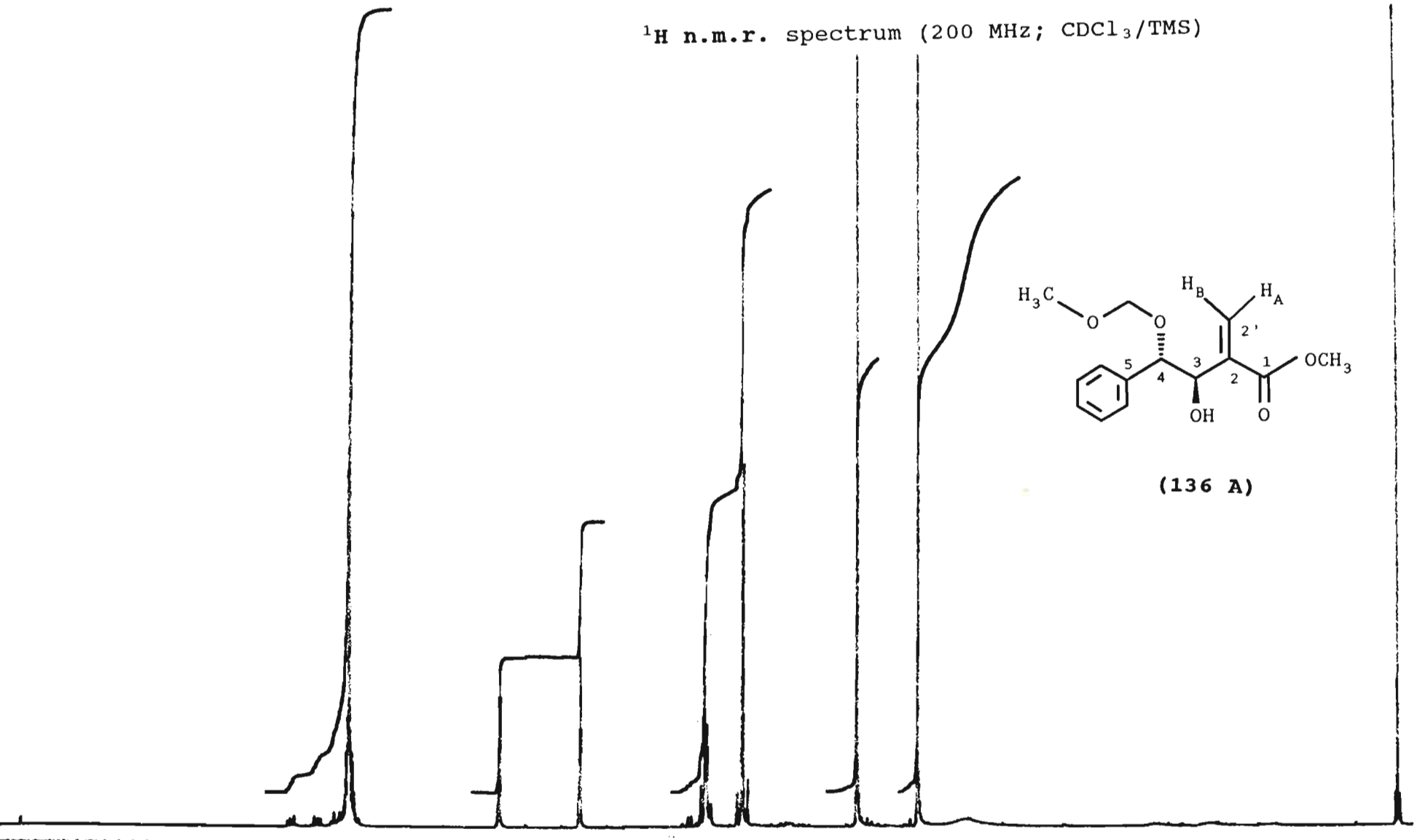


(135 A)



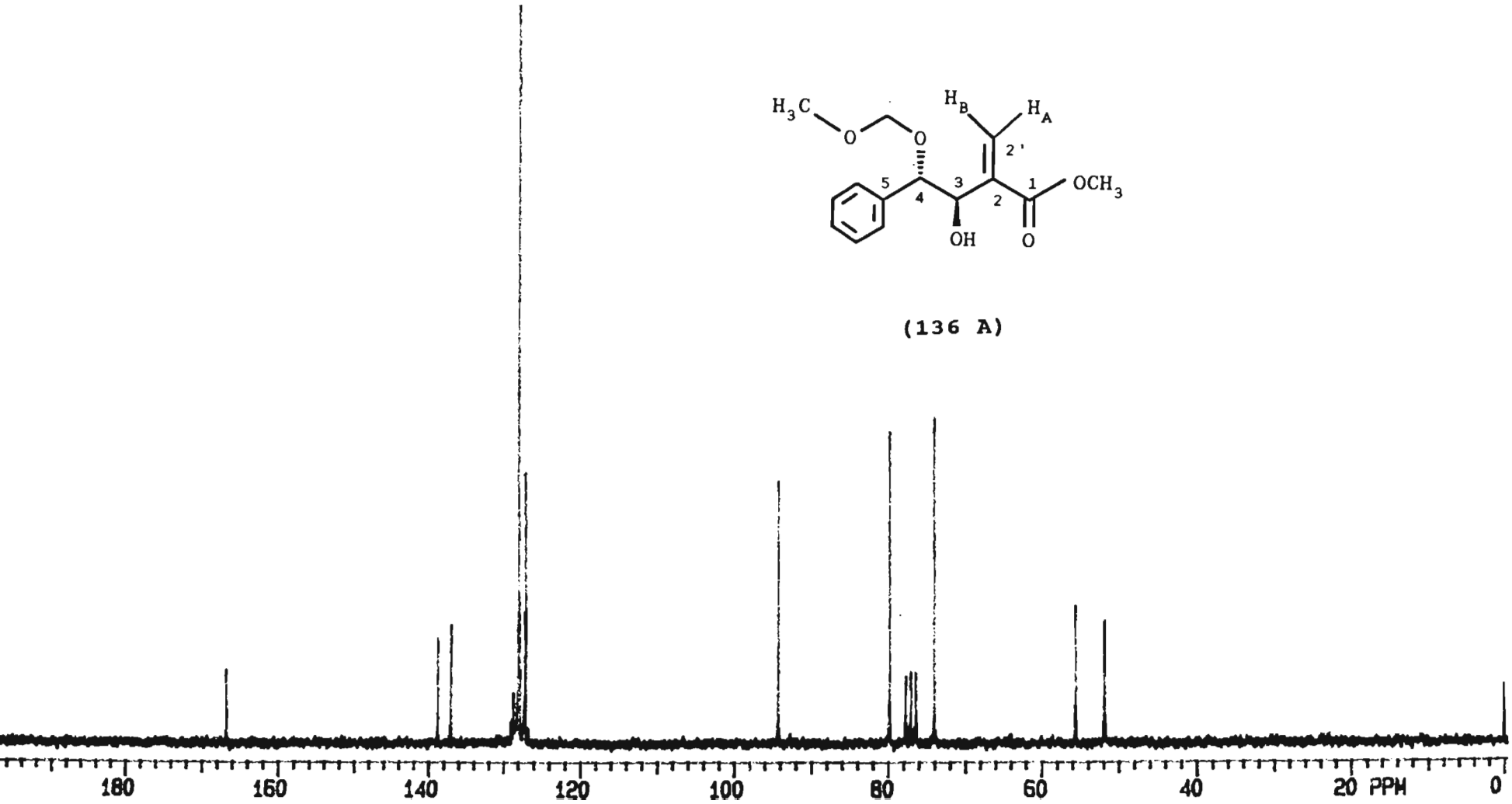
(135 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



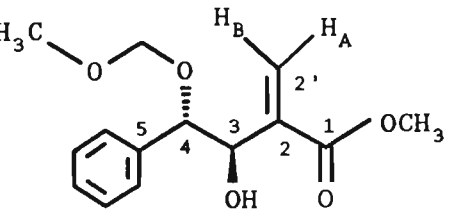
(136 A)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

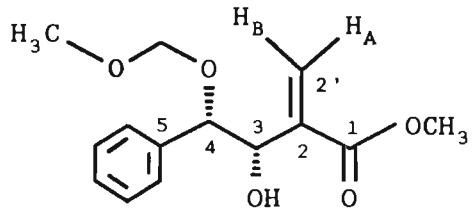


(136 A)

H^1 n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

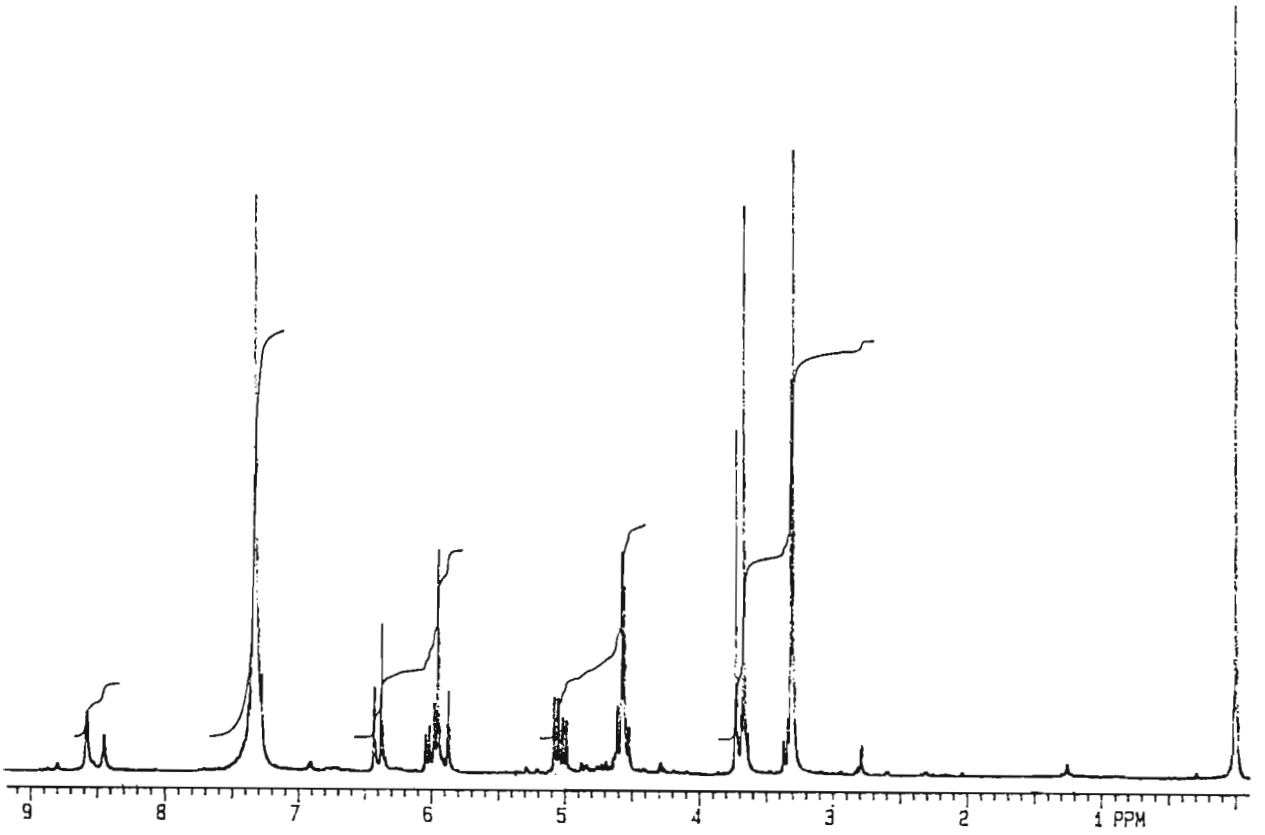


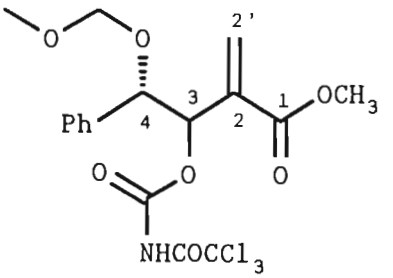
(136 A)



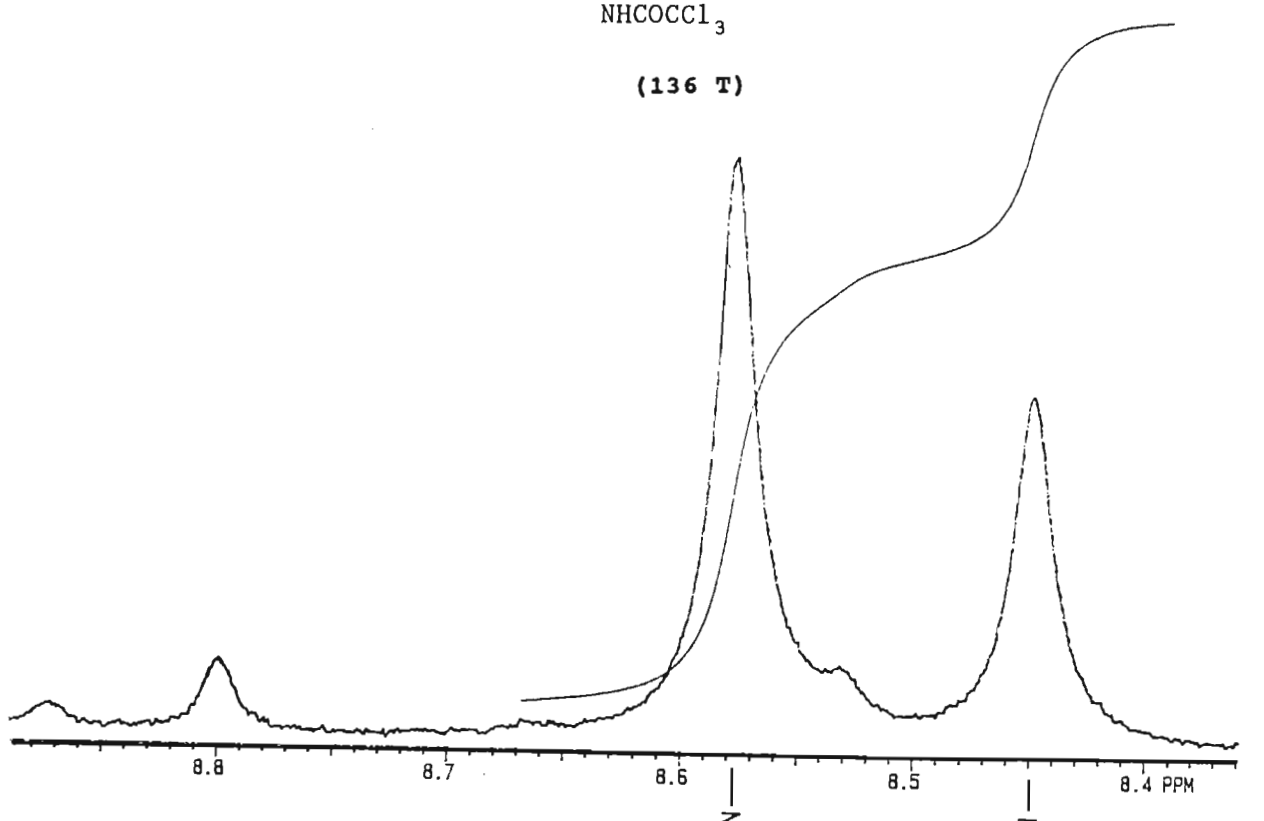
(136 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(136)**, showing expanded *carbamate* region.

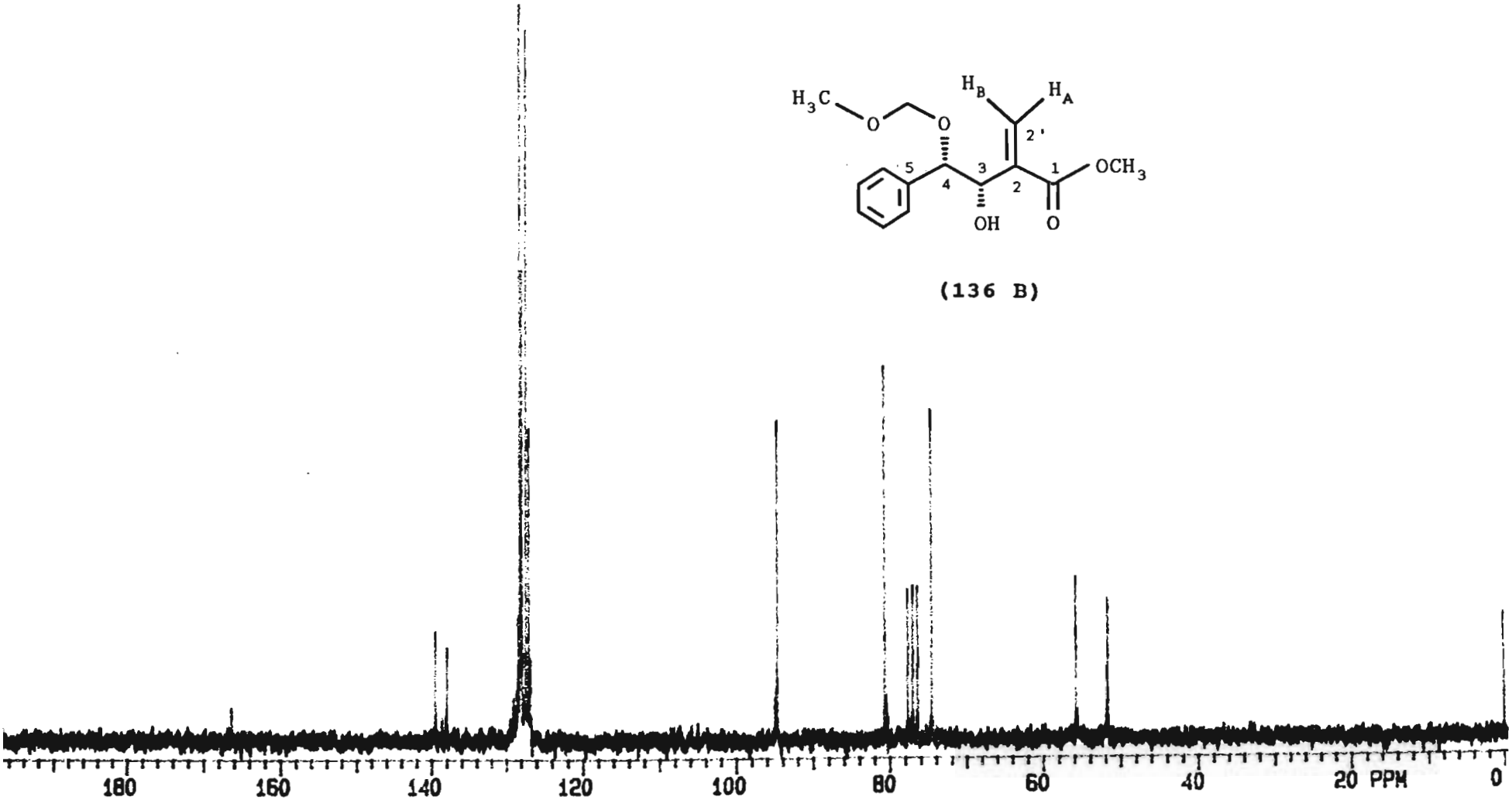




(136 T)

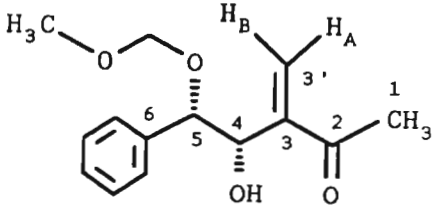


^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



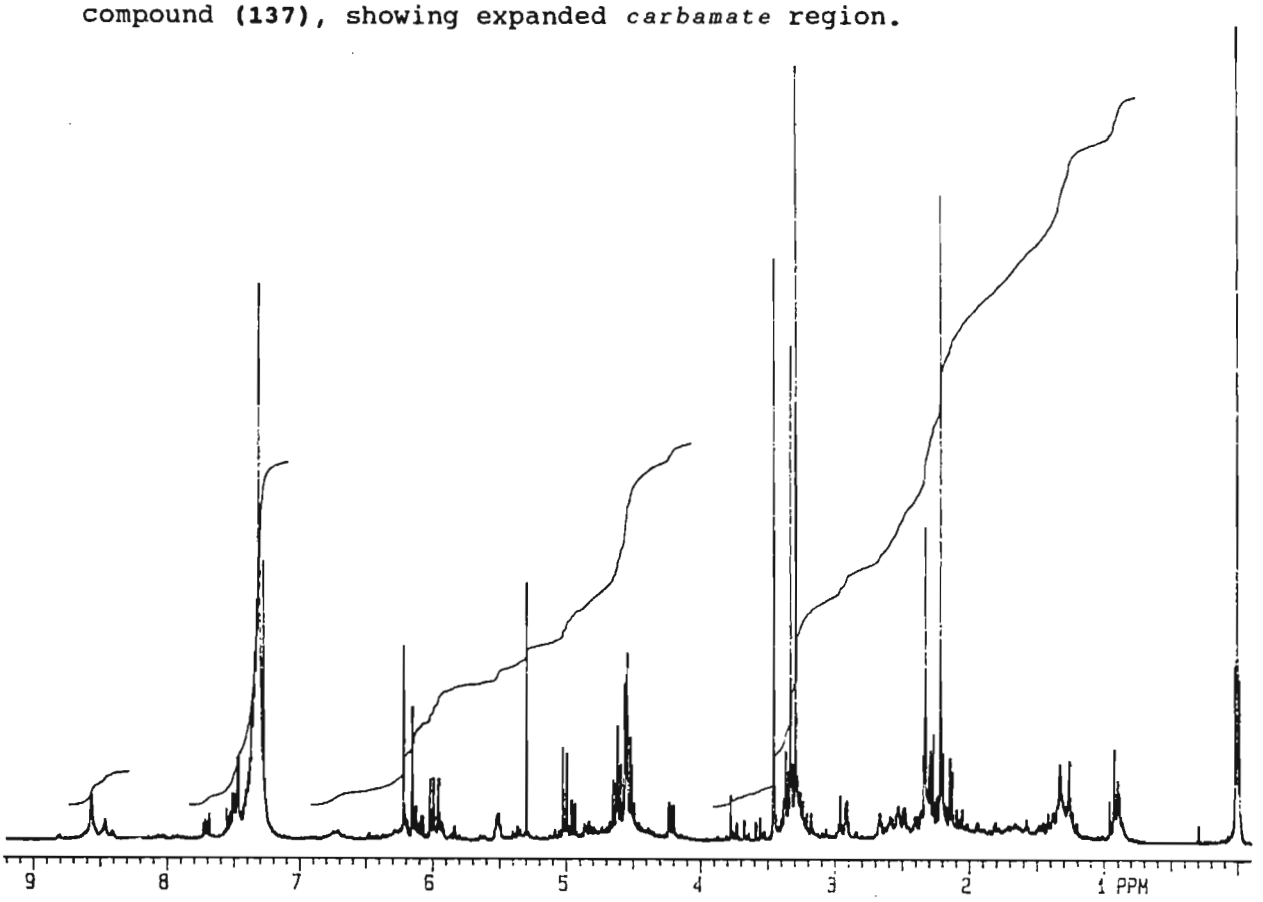
(136 B)

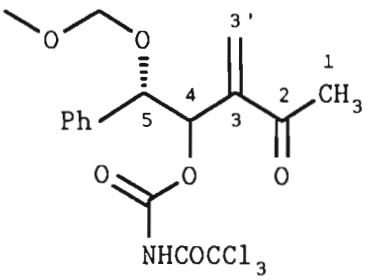
^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



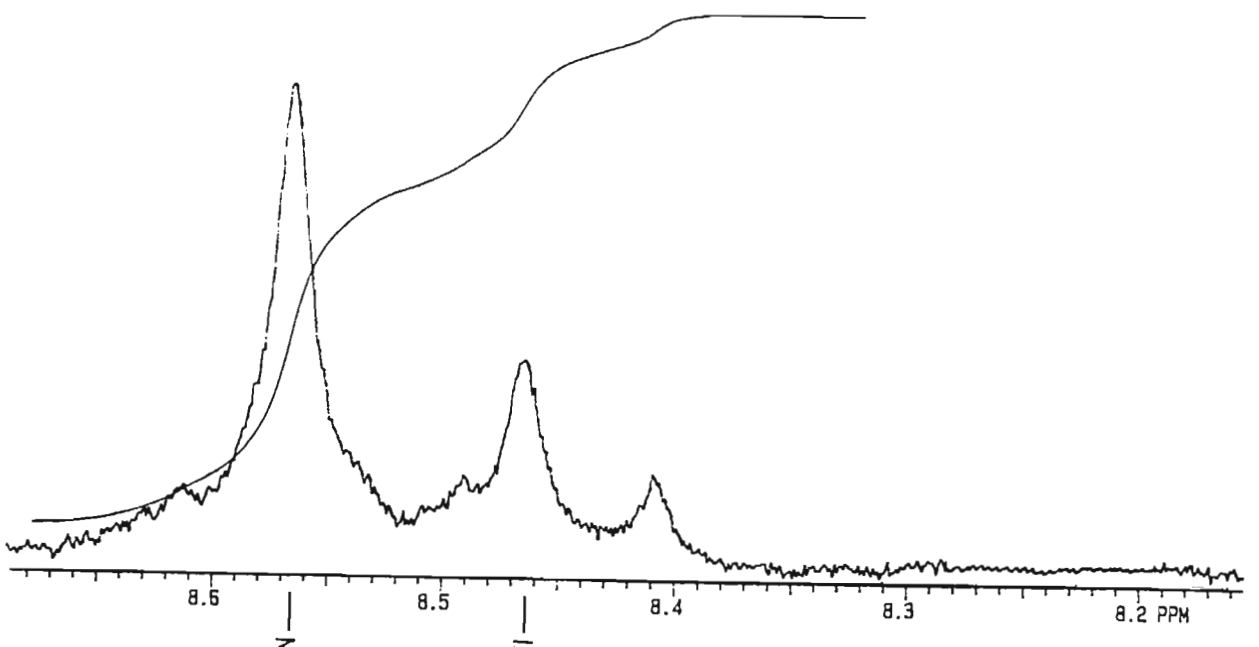
(137 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(137)**, showing expanded *carbamate* region.

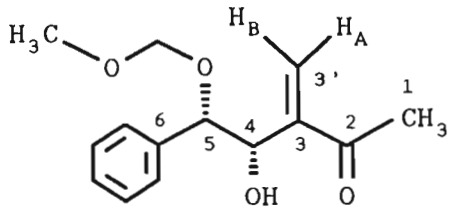




(137 T)

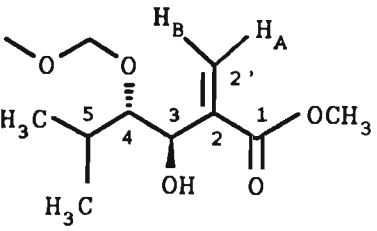


^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

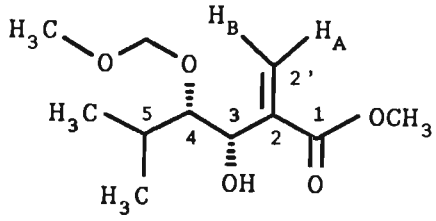


(137 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

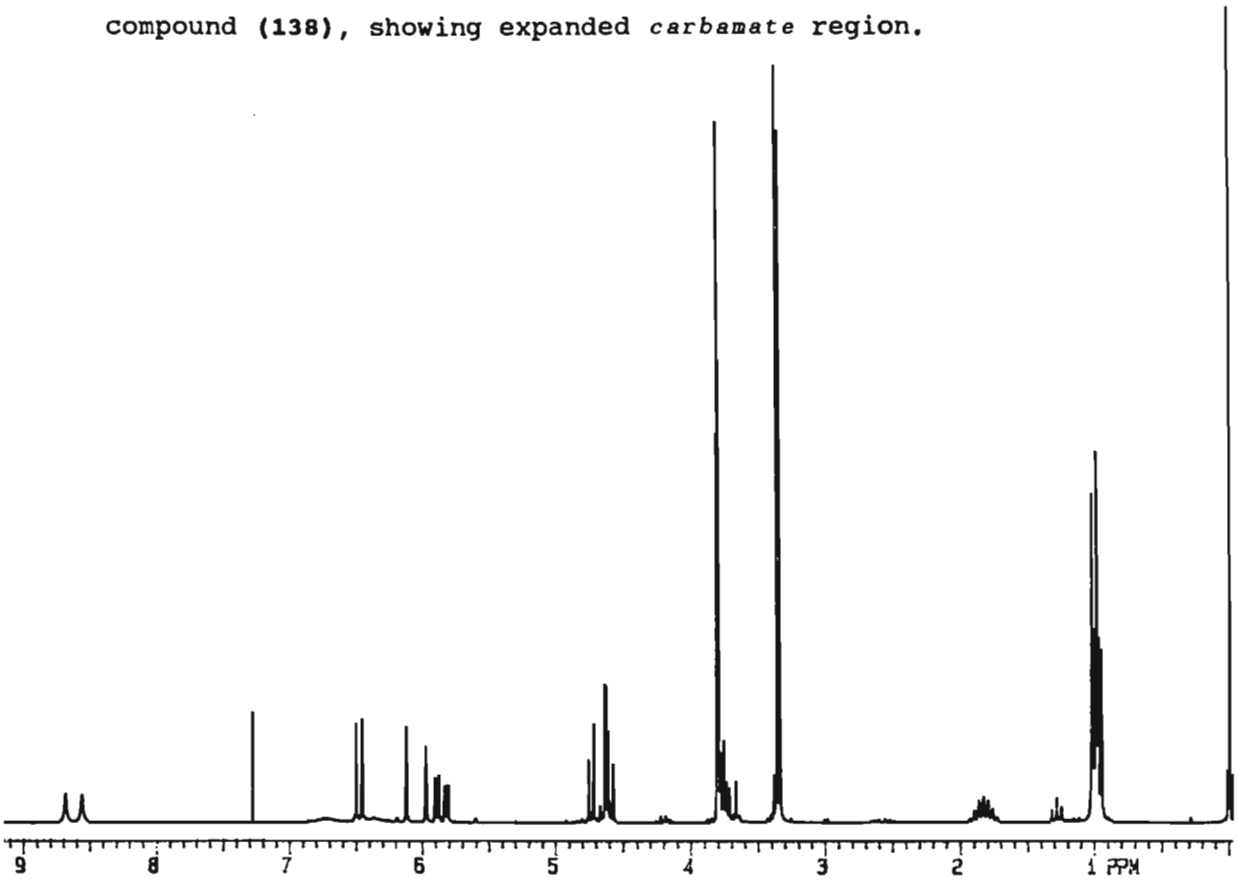


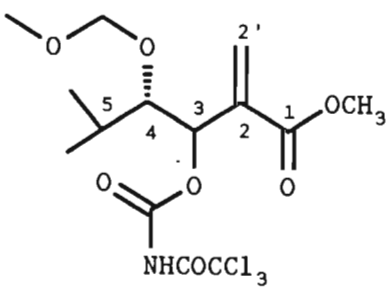
(138 A)



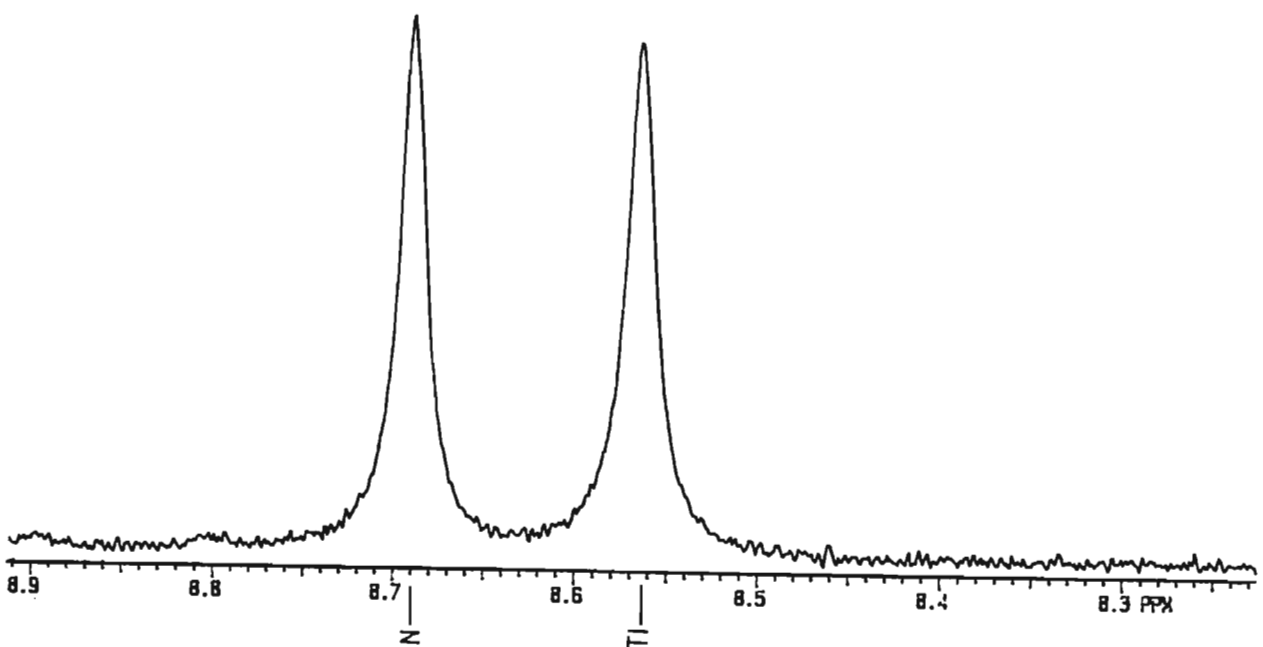
(138 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(138)**, showing expanded *carbamate* region.

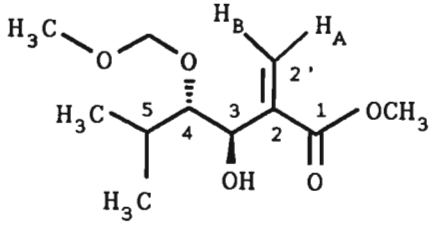




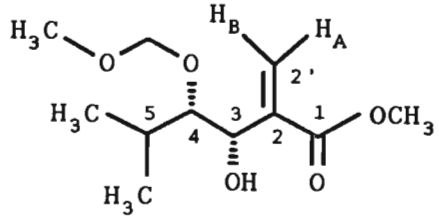
(138 T)



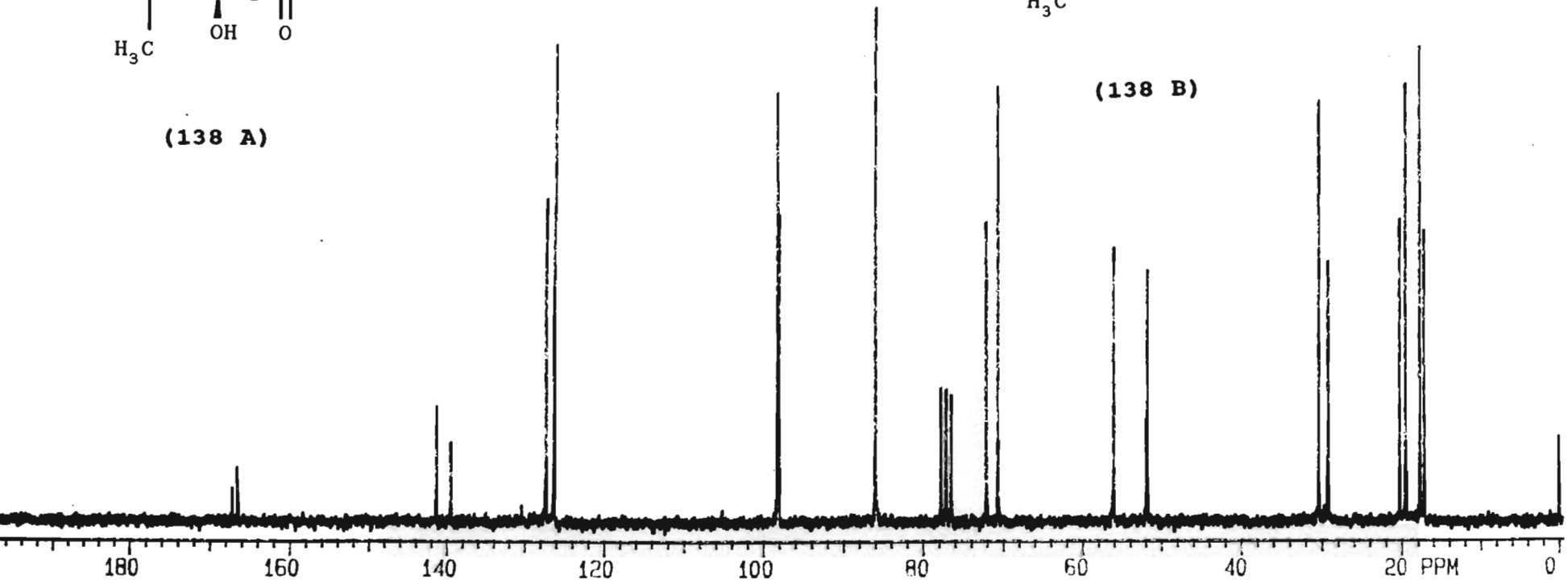
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



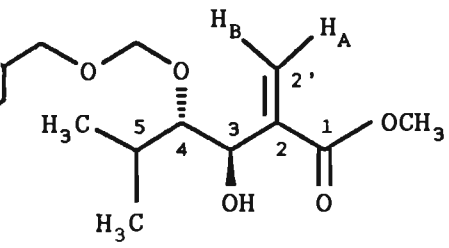
(138 A)



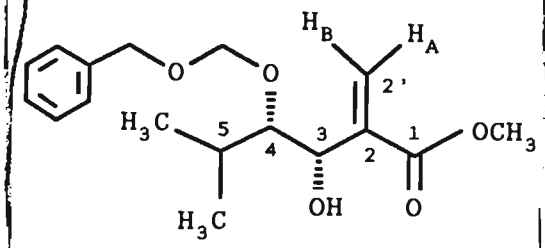
(138 B)



^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

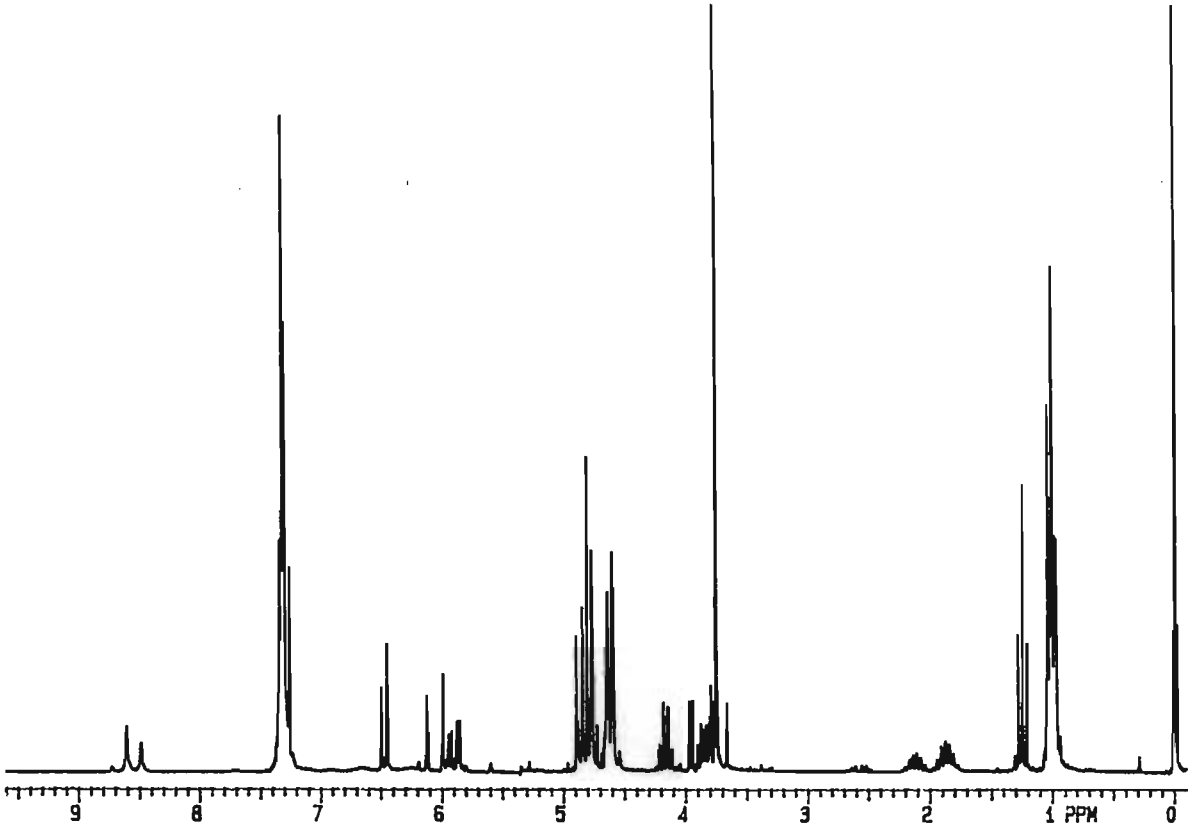


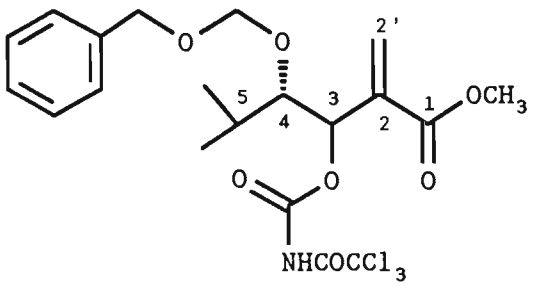
(139 A)



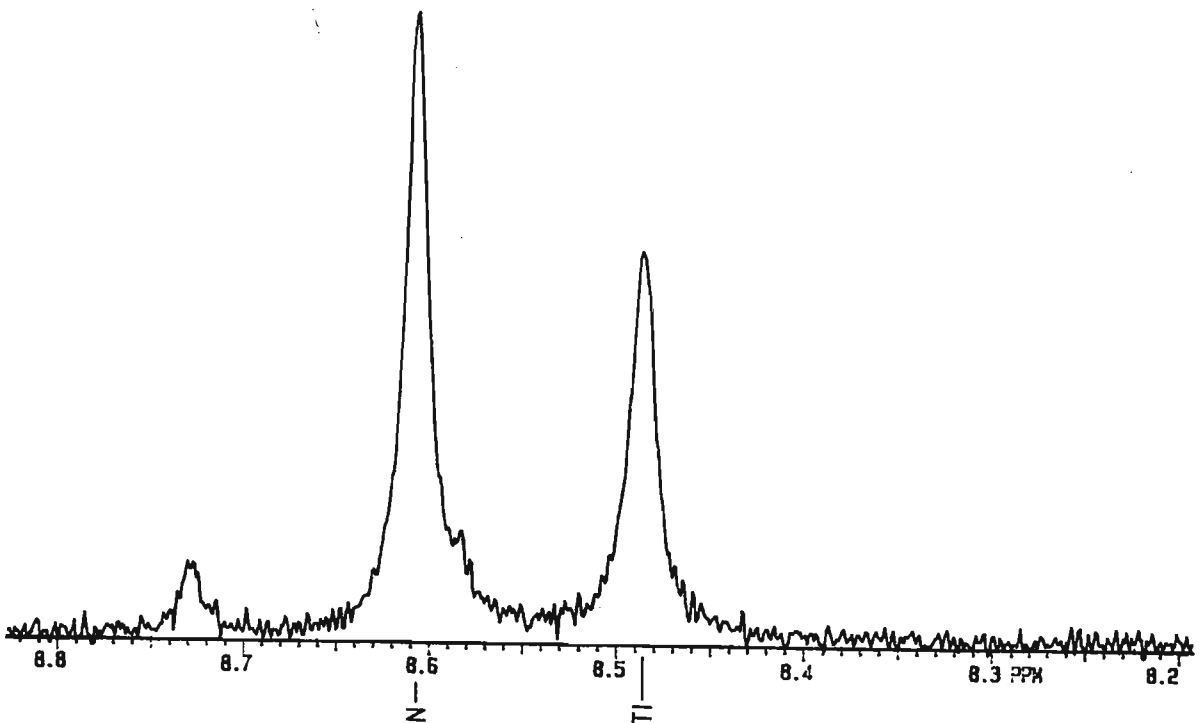
(139 B)

^{1}H n.m.r. (TAI) spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(139)**, showing expanded *carbamate* region.

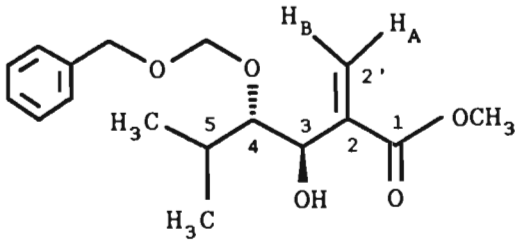




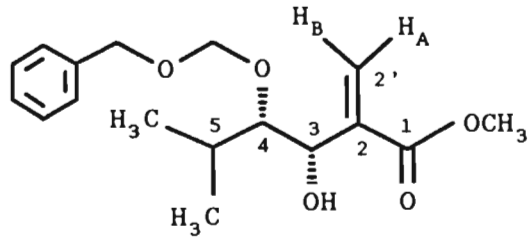
(139 T)



^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

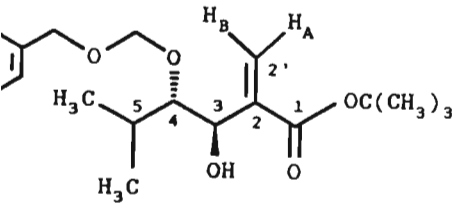


(139 A)

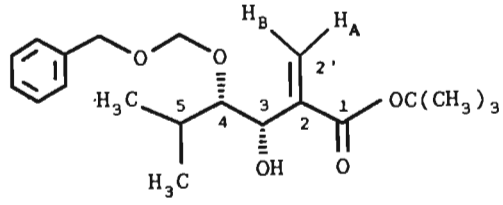


(139 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

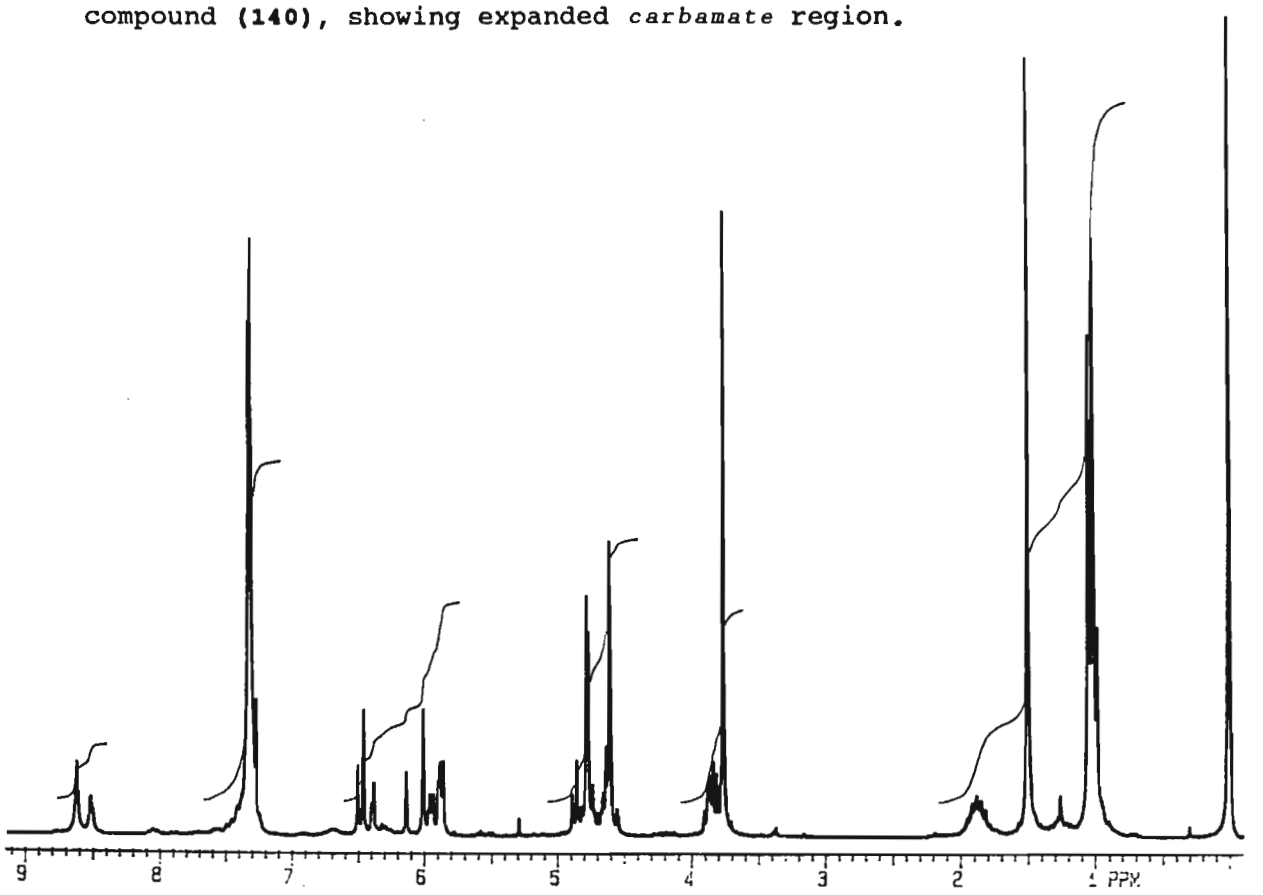


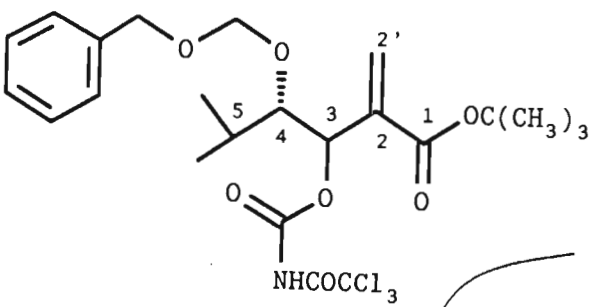
(140 A)



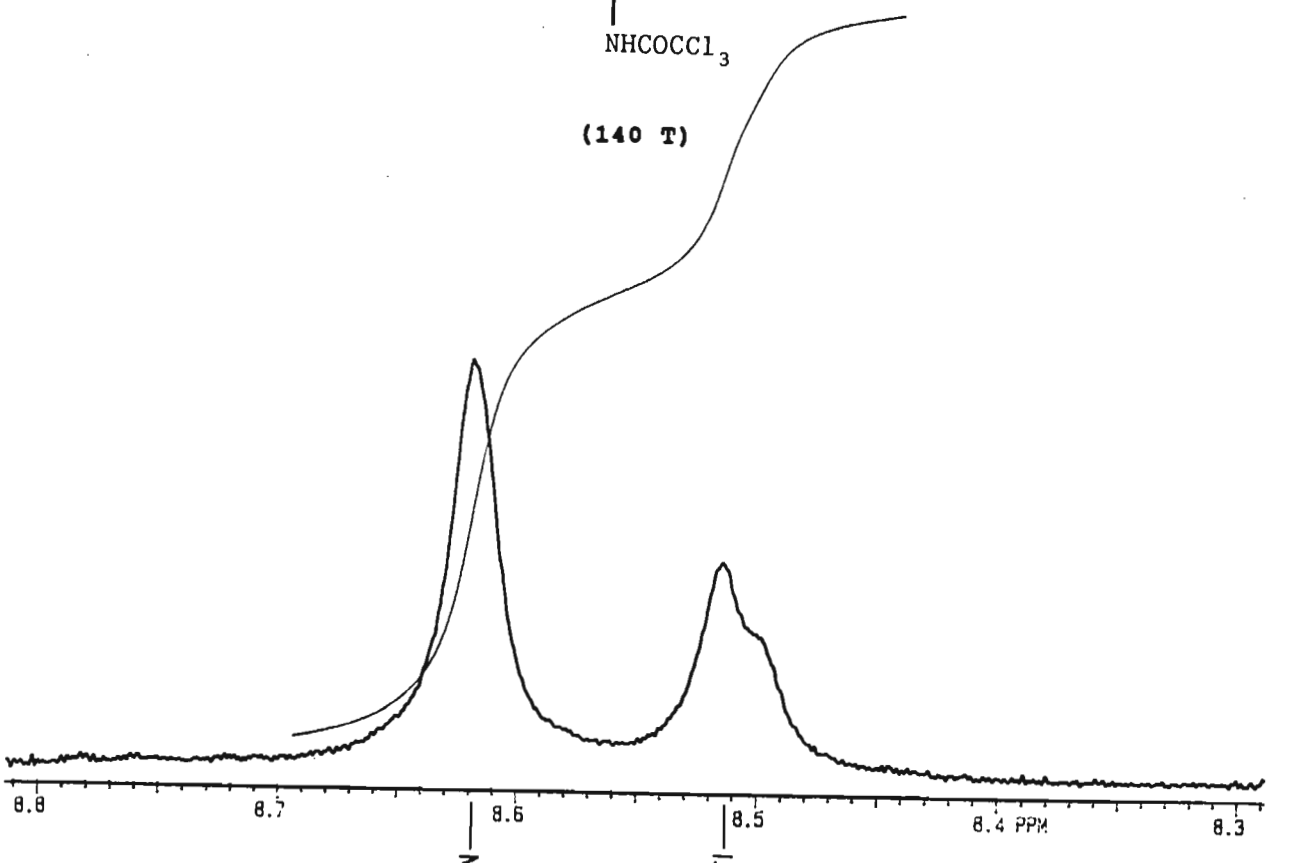
(140 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(140)**, showing expanded *carbamate* region.

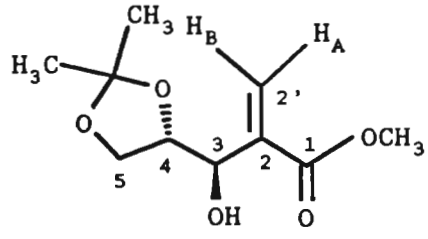




(140 T)

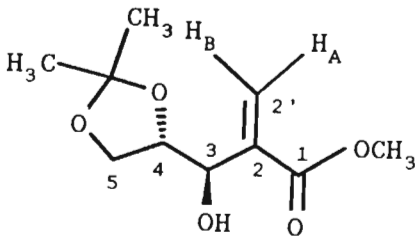


^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

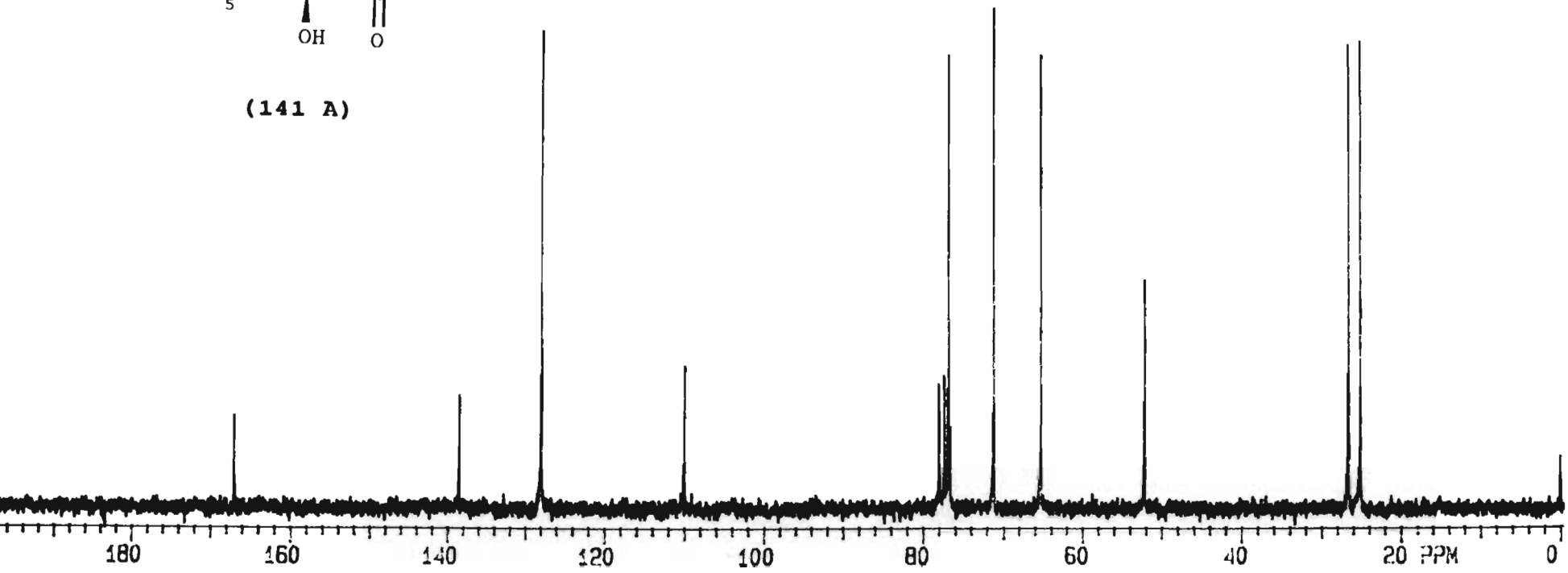


(141 A)

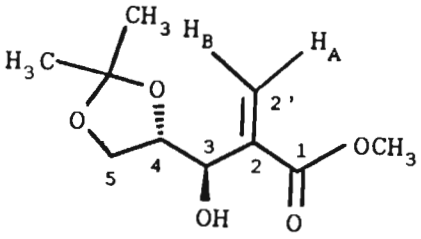
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



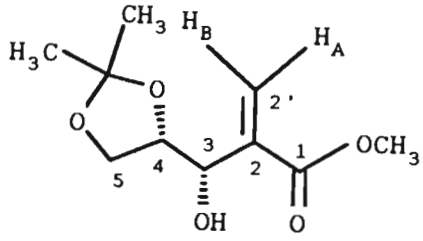
(141 A)



^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

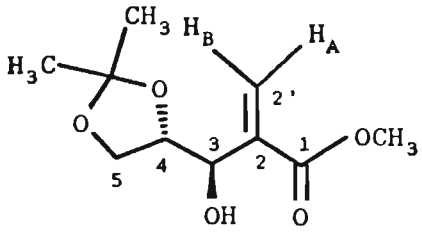


(141 A)

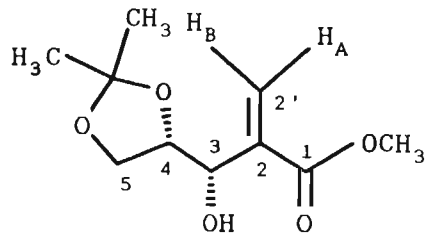


(141 B)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

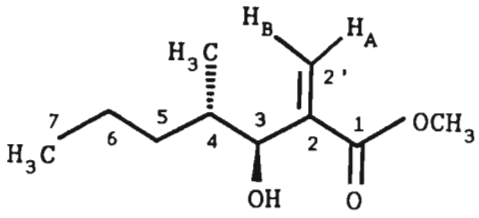


(141 A)

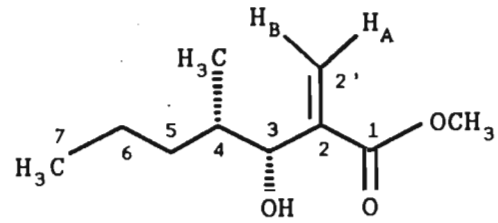


(141 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

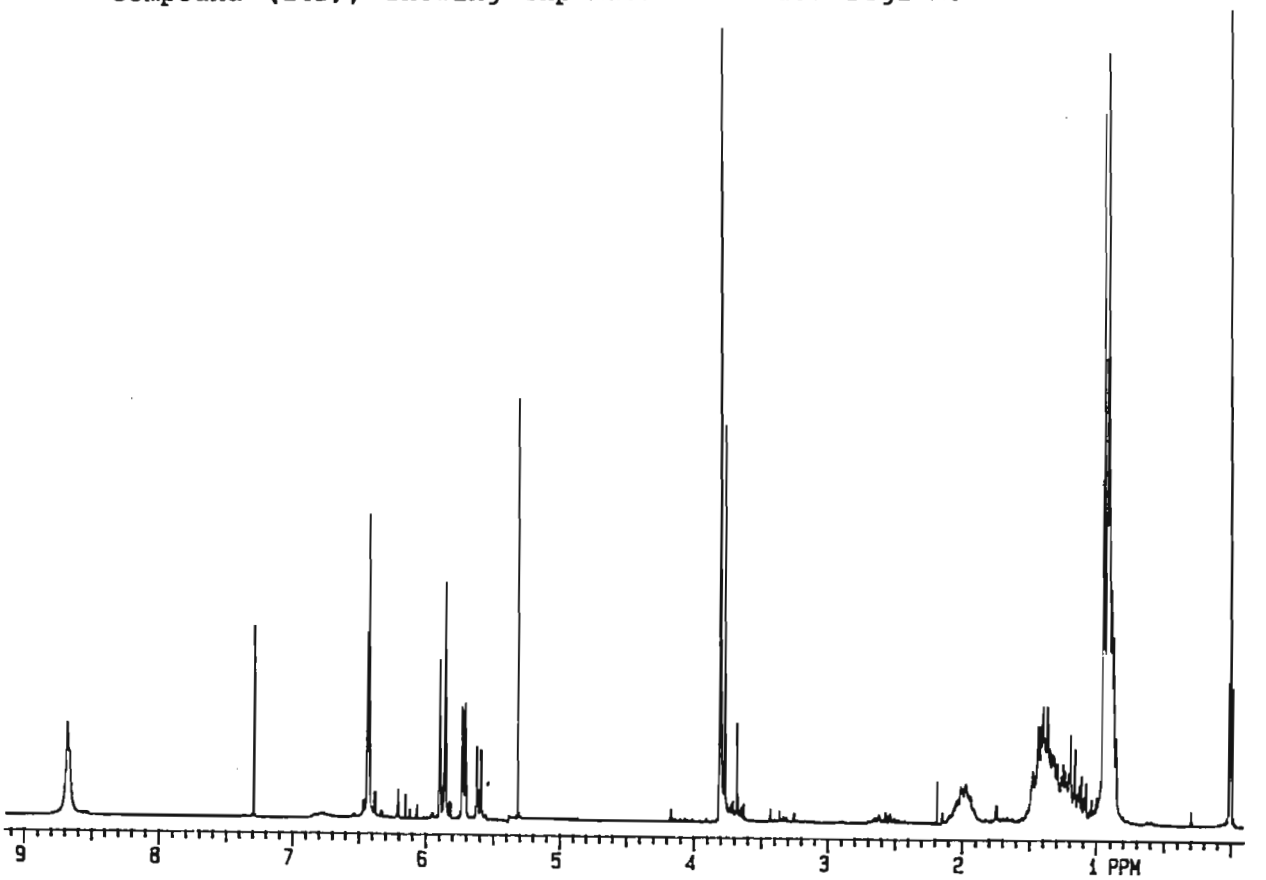


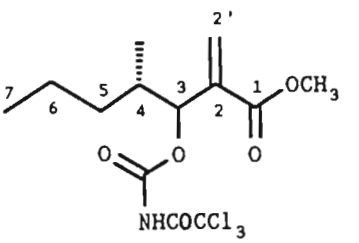
(142 A)



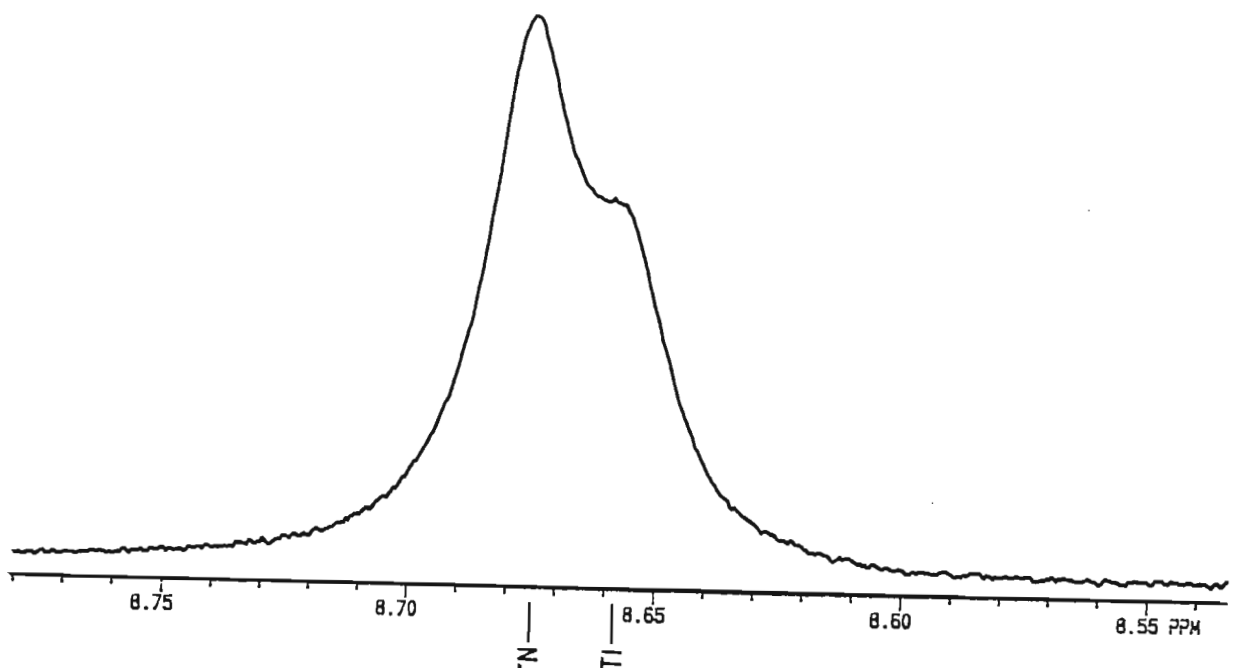
(142 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(142)**, showing expanded *carbamate* region.

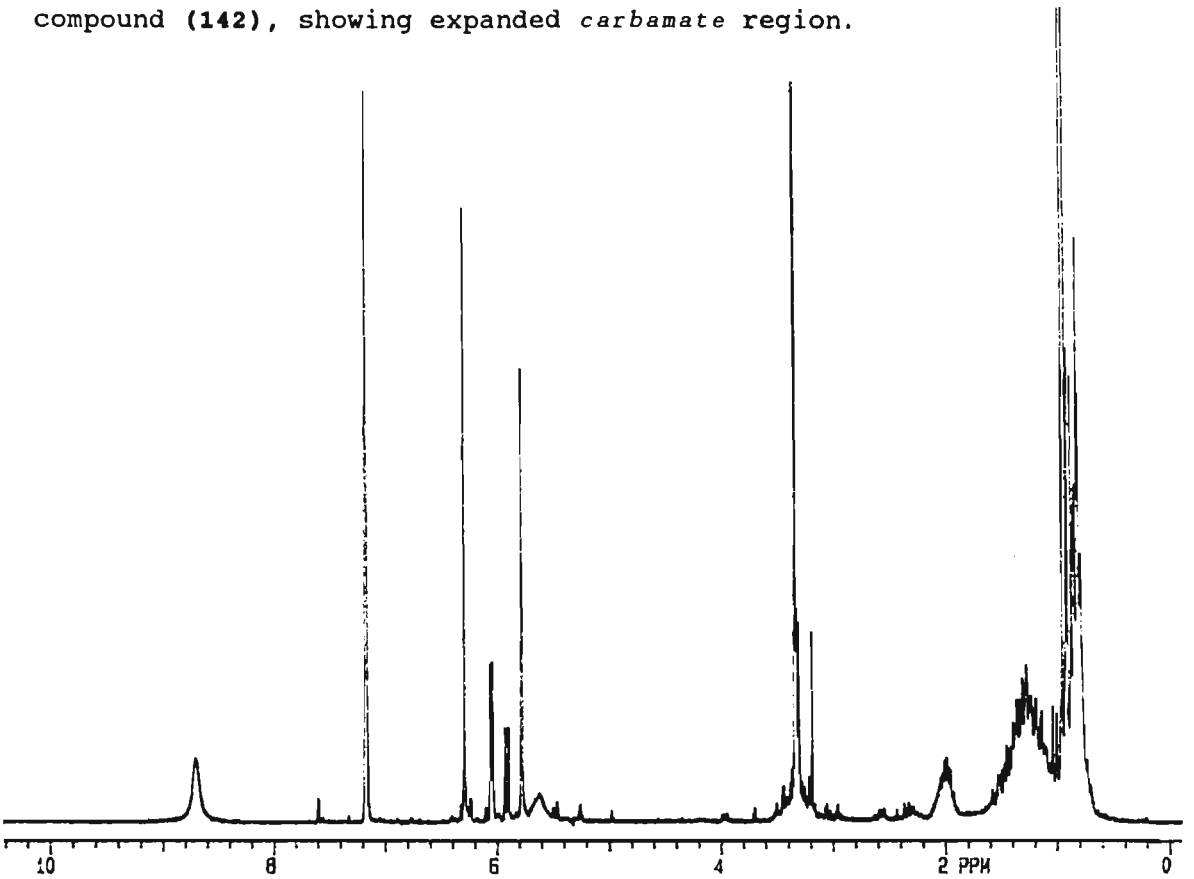


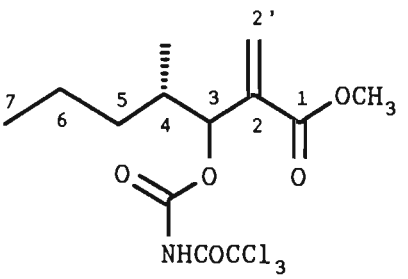


(142 T)

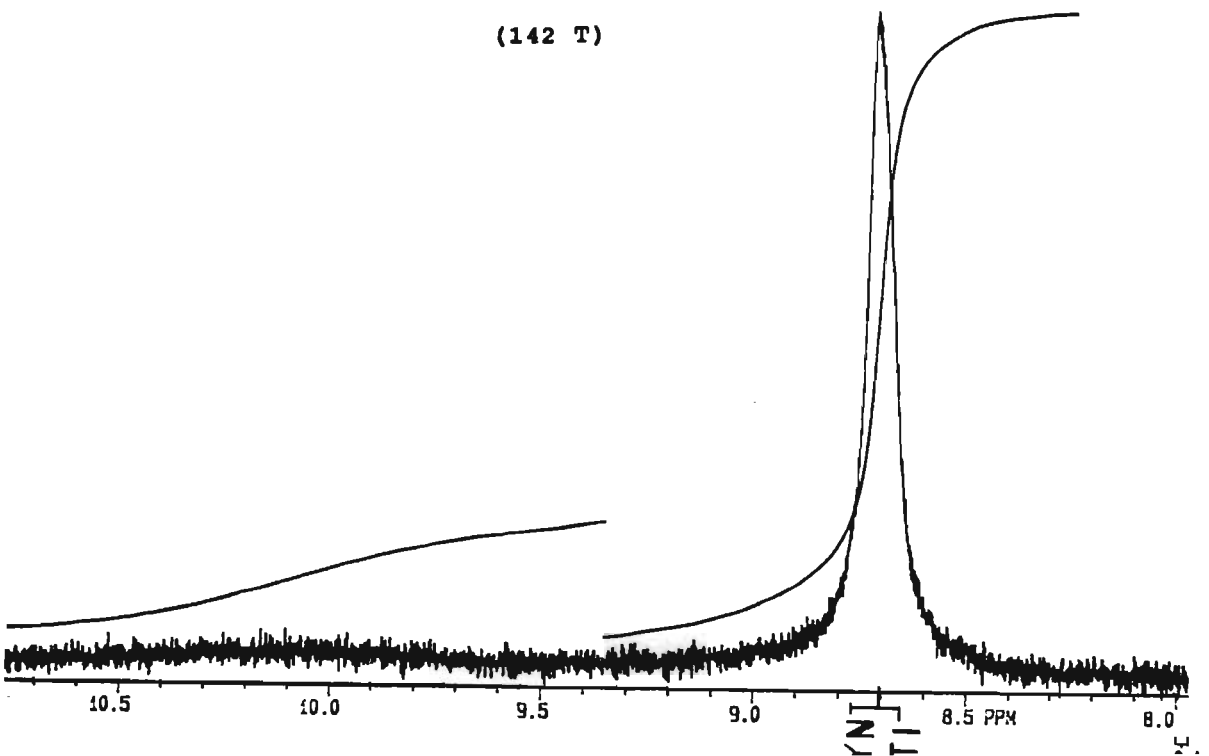


^{1}H **n.m.r. (TAI)** spectrum (200 MHz; C_6D_6 + *TAI*/TMS) of compound **(142)**, showing expanded *carbamate* region.

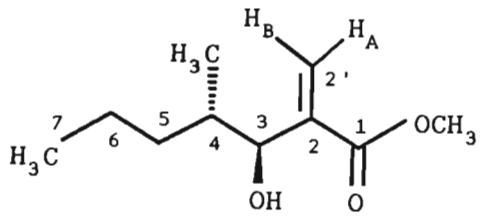




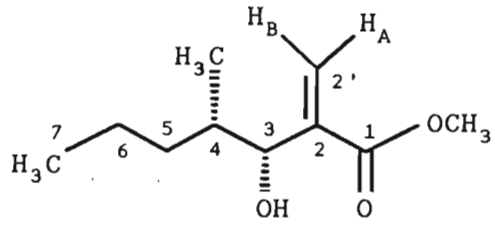
(142 T)



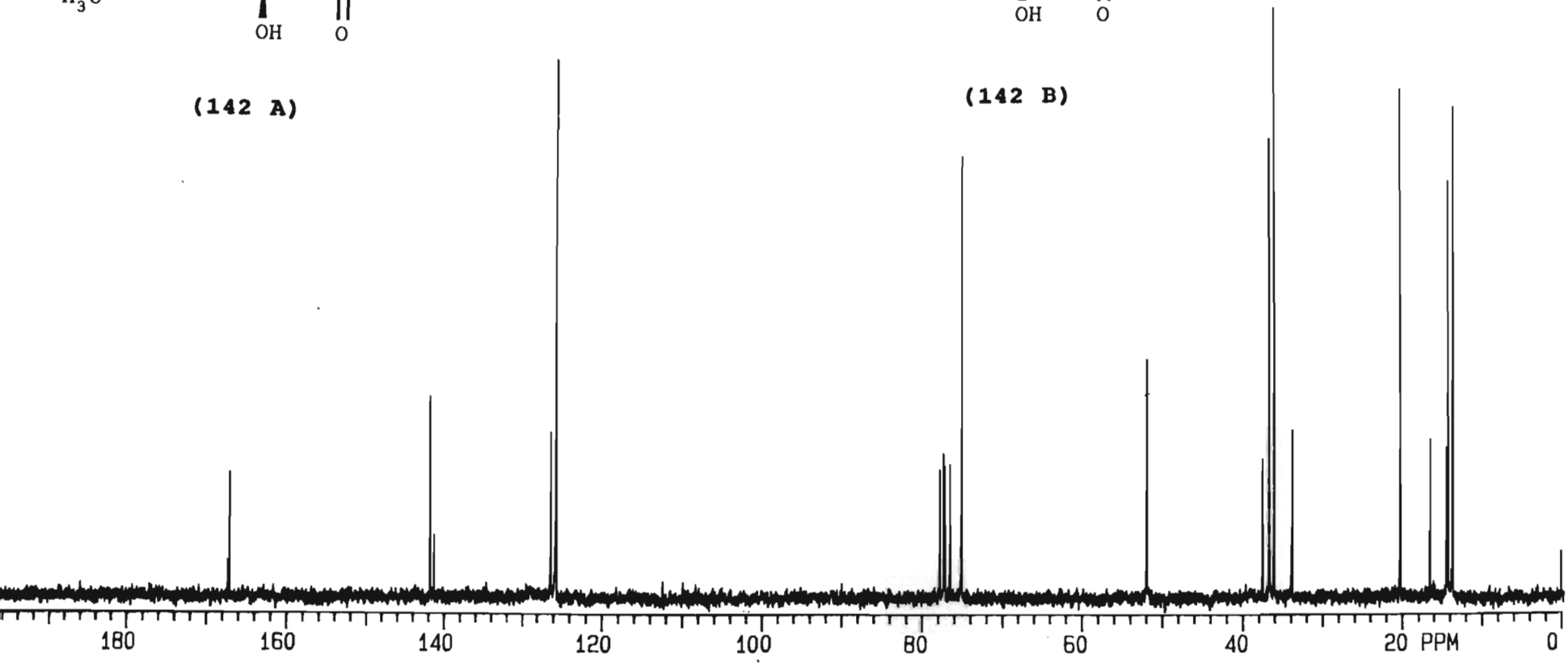
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



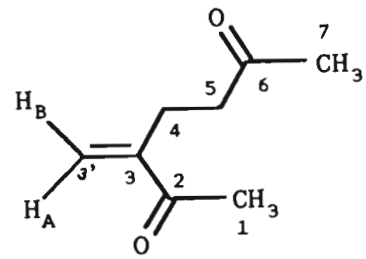
(142 A)



(142 B)

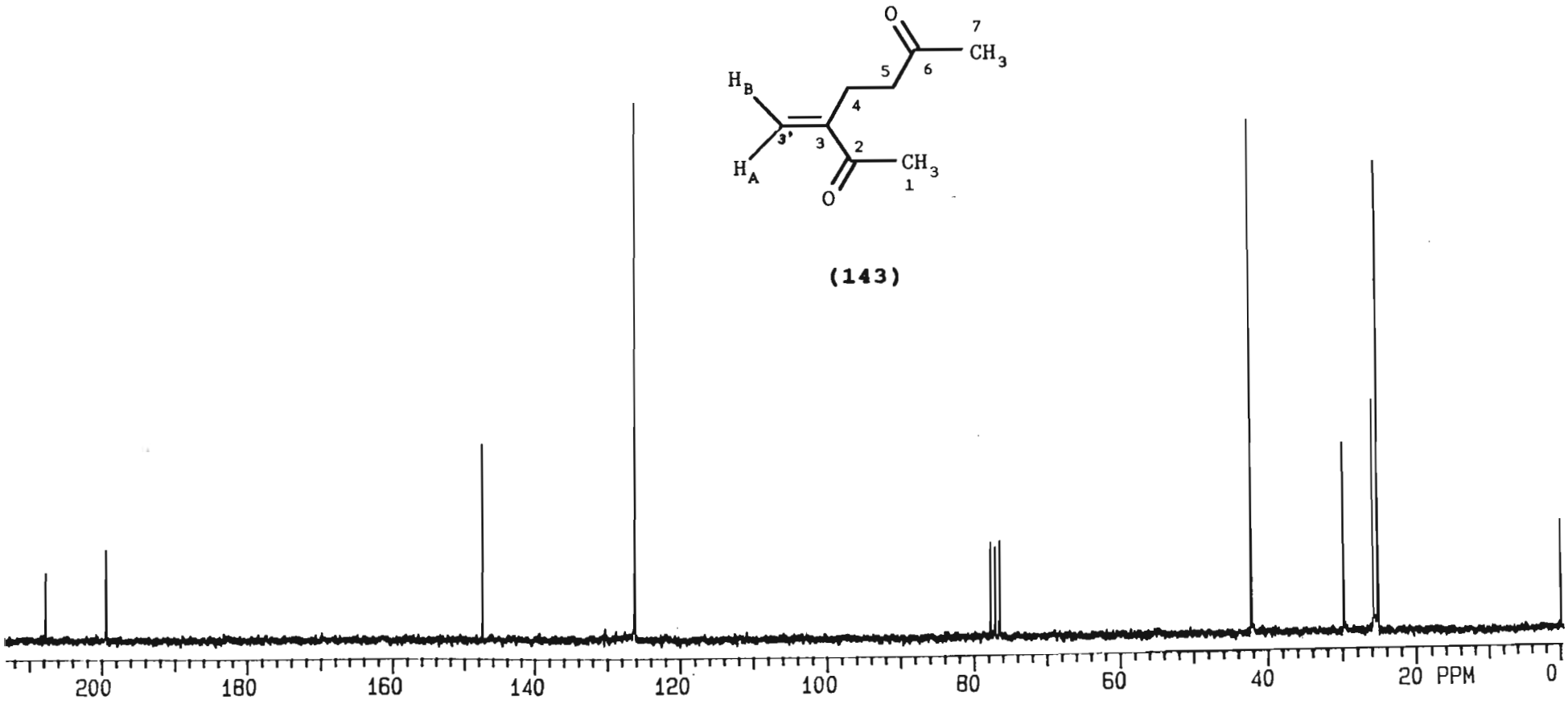


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



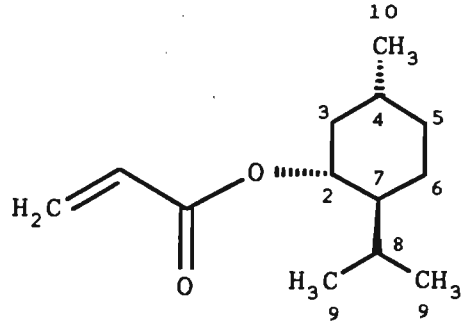
(143)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



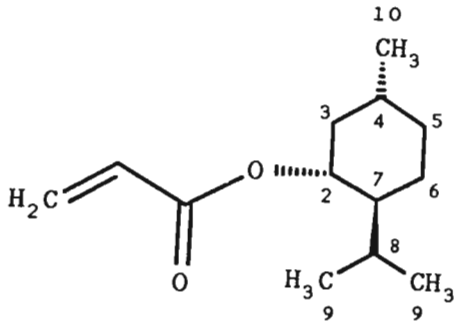
(143)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



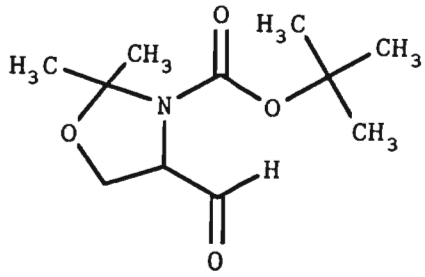
(151a)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



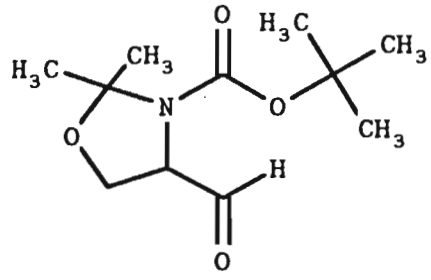
(151a)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



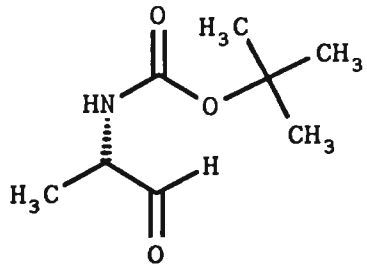
(175)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



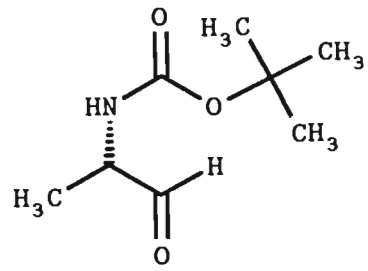
(175)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



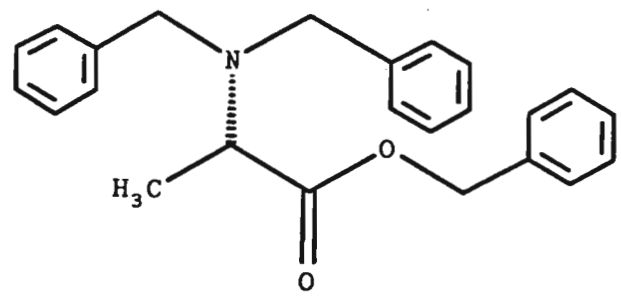
(179a)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



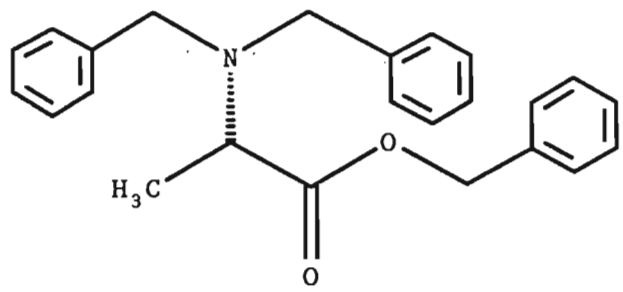
(179a)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



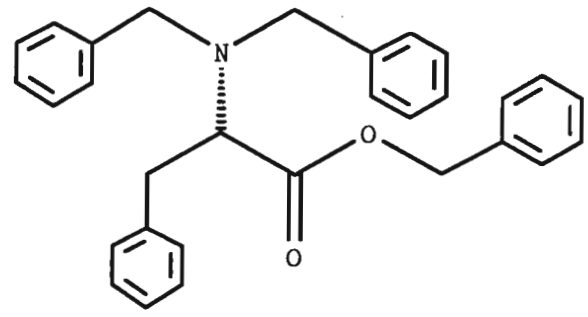
(182)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



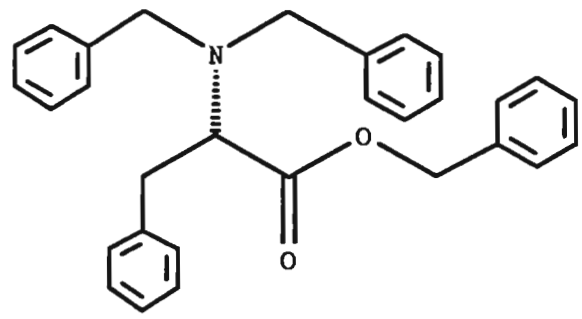
(182)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



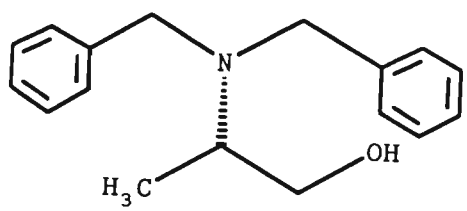
(183)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



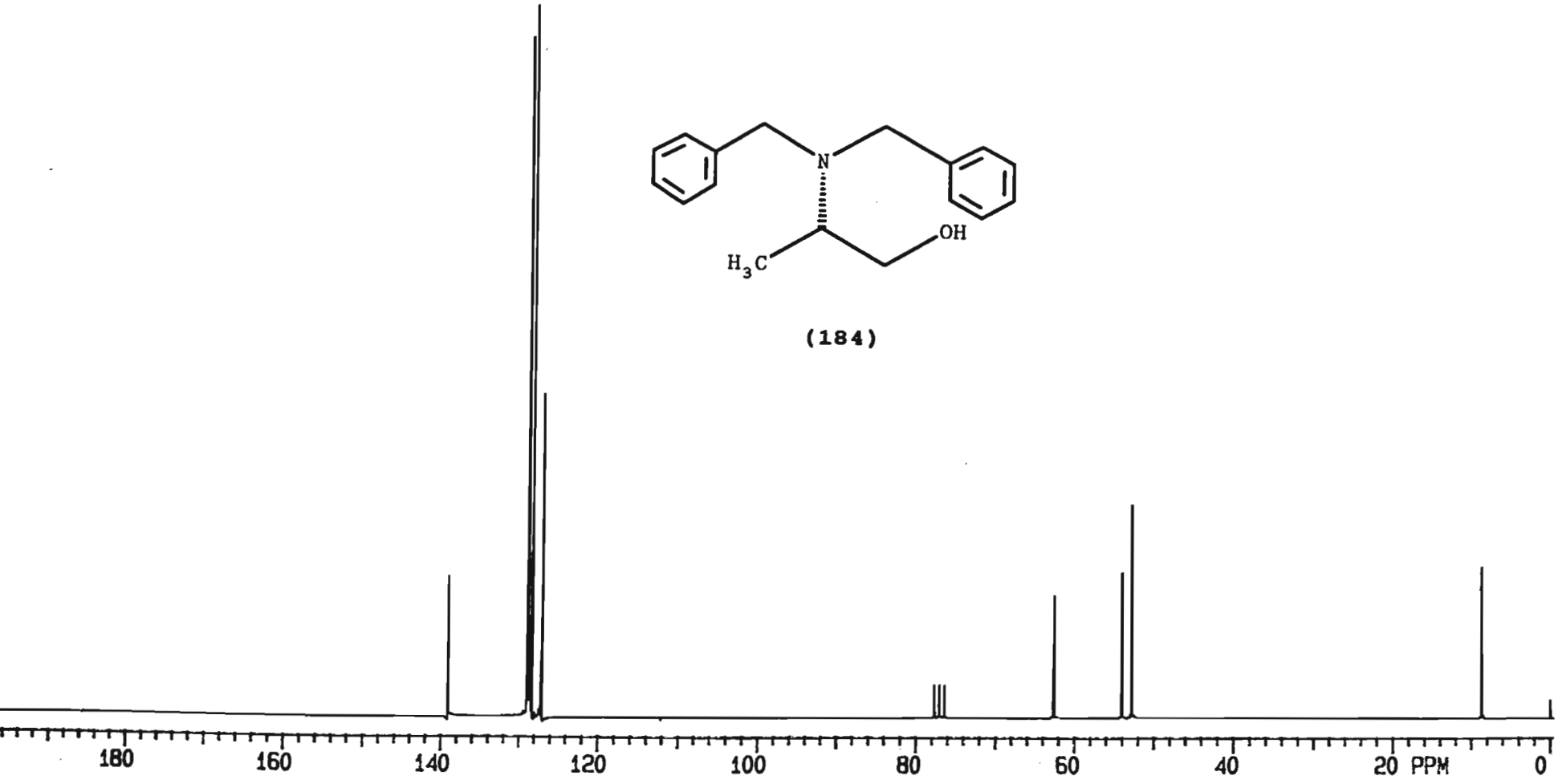
(183)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



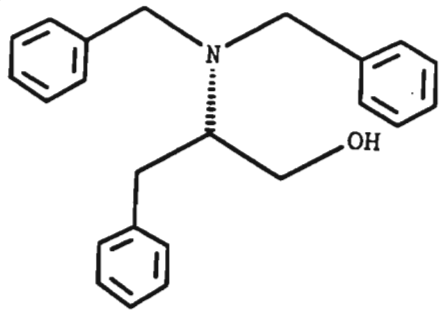
(184)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



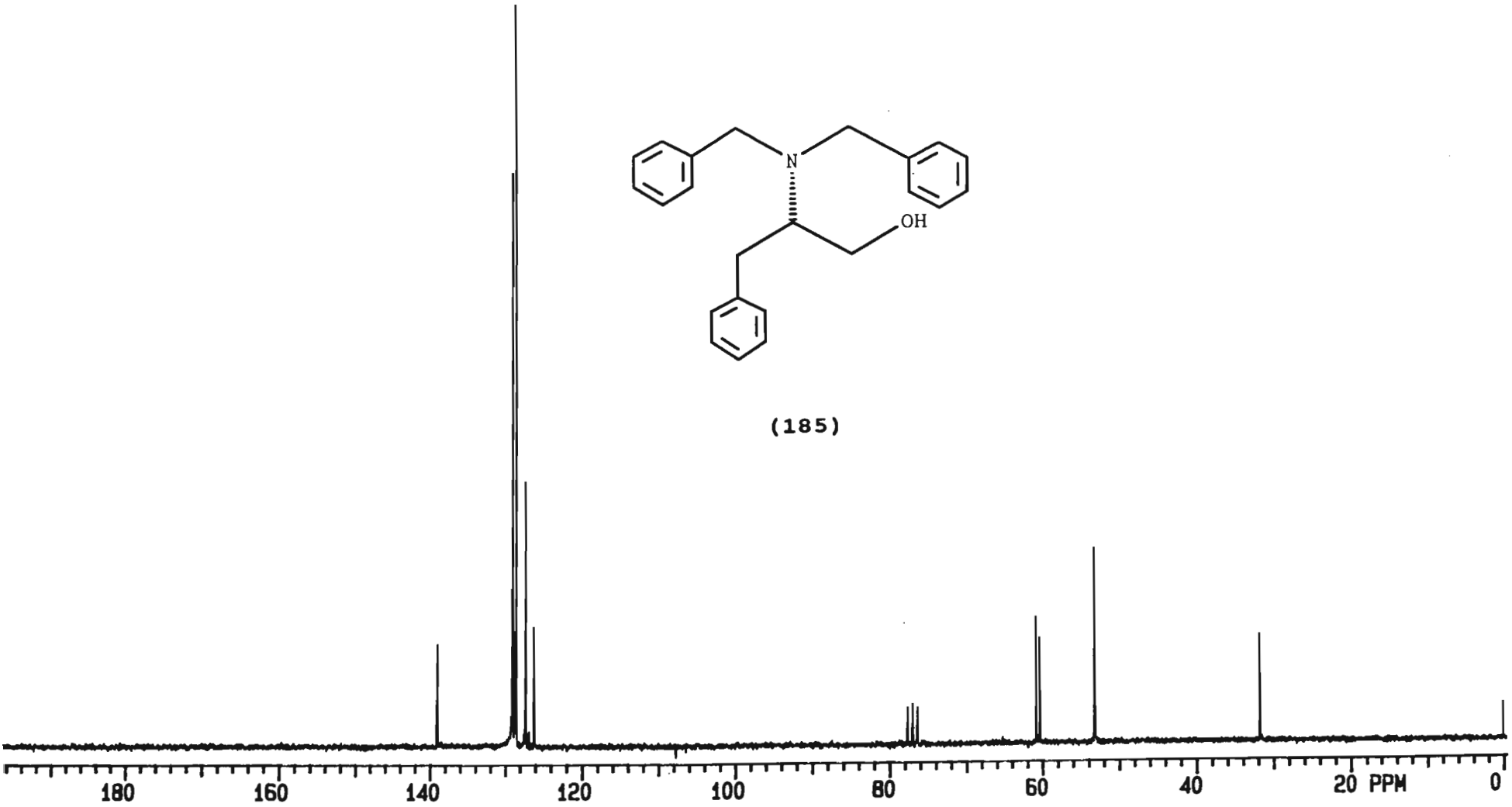
(184)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



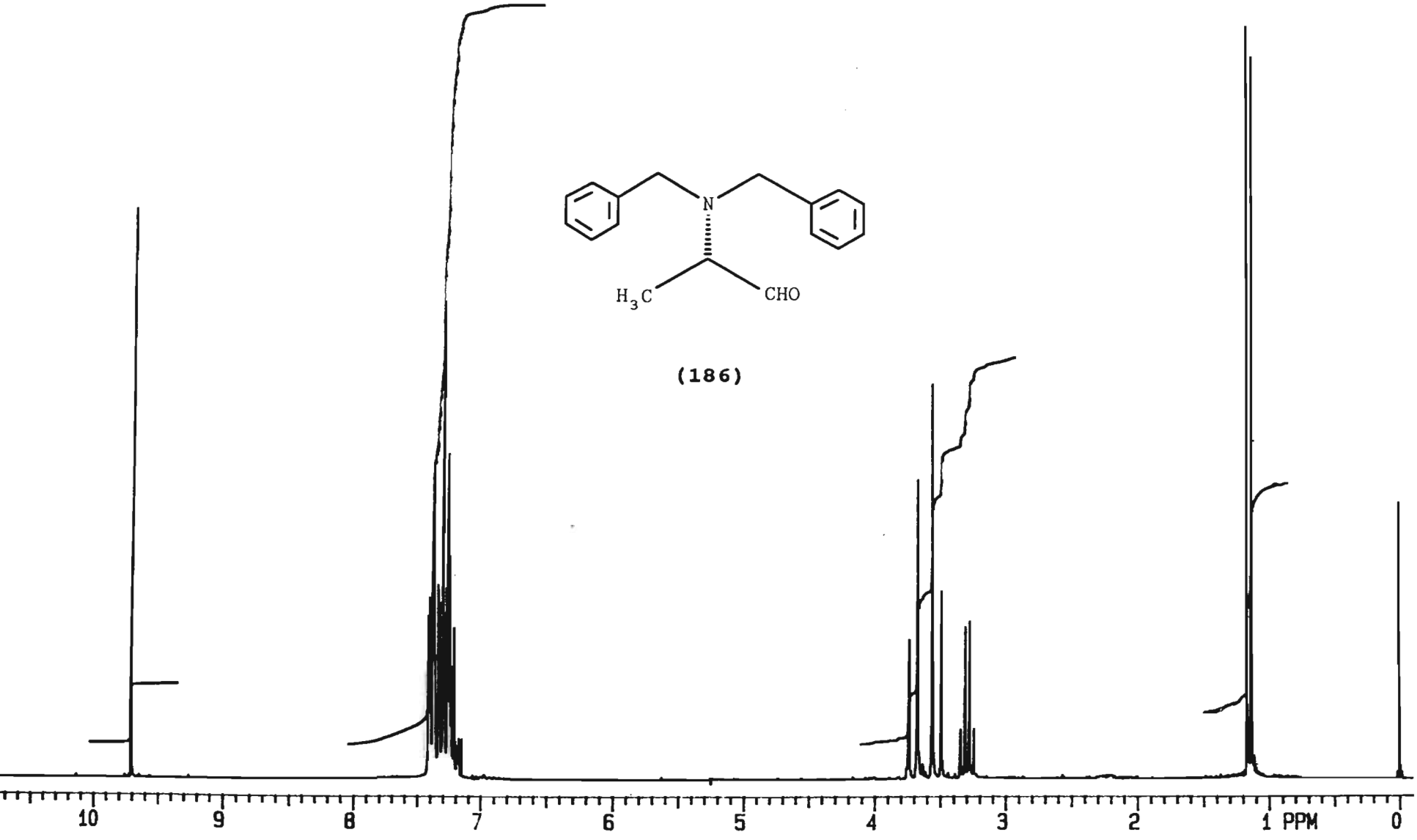
(185)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



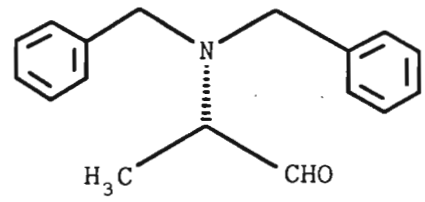
(185)

^{1}H **n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



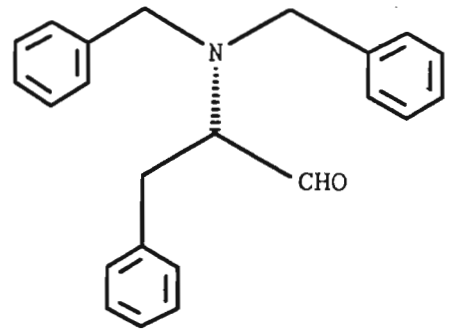
(186)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



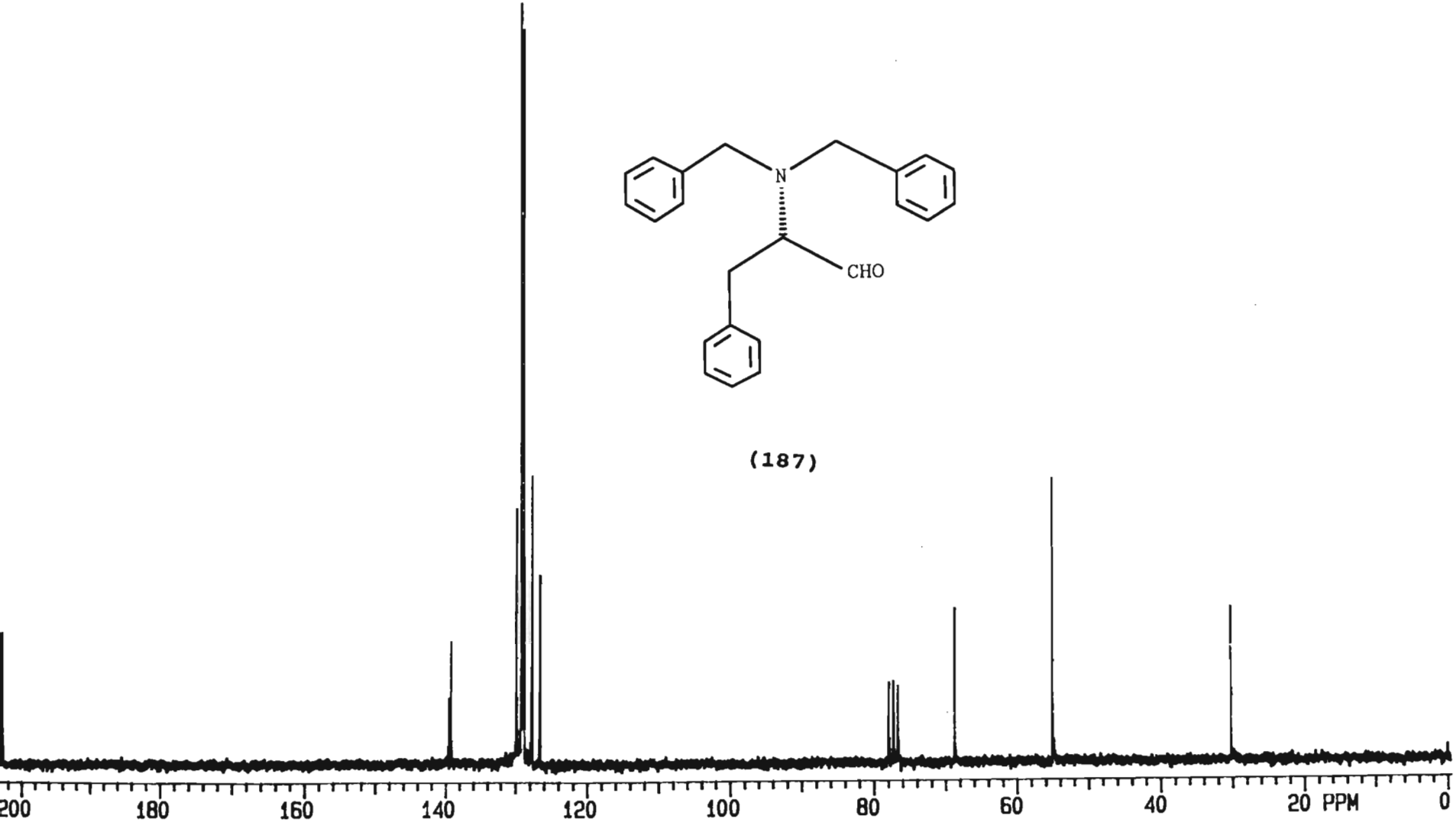
(186)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



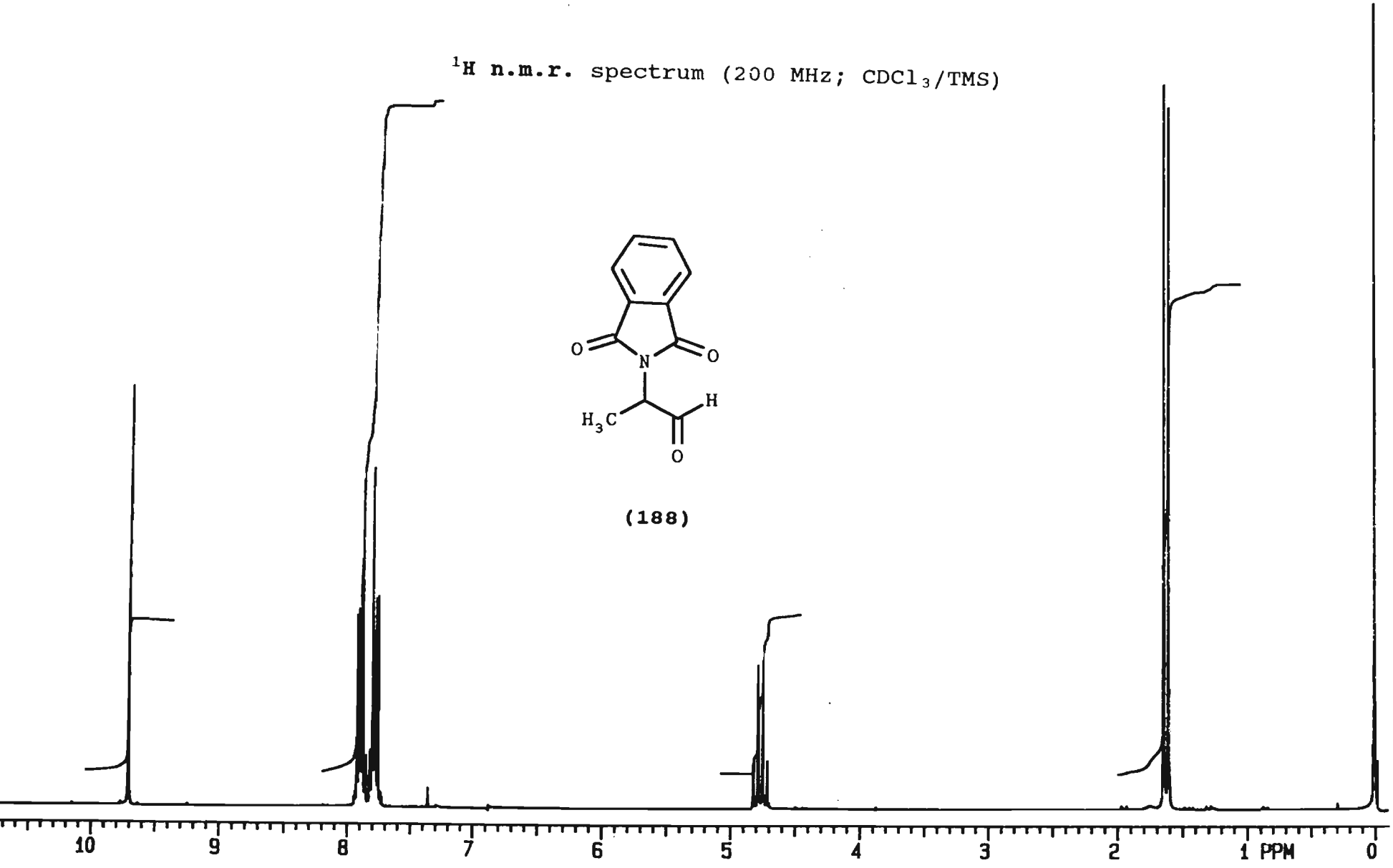
(187)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



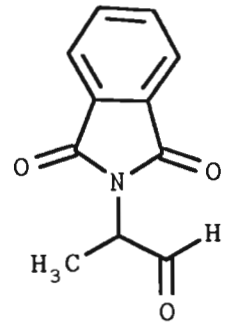
(187)

^{1}H **n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



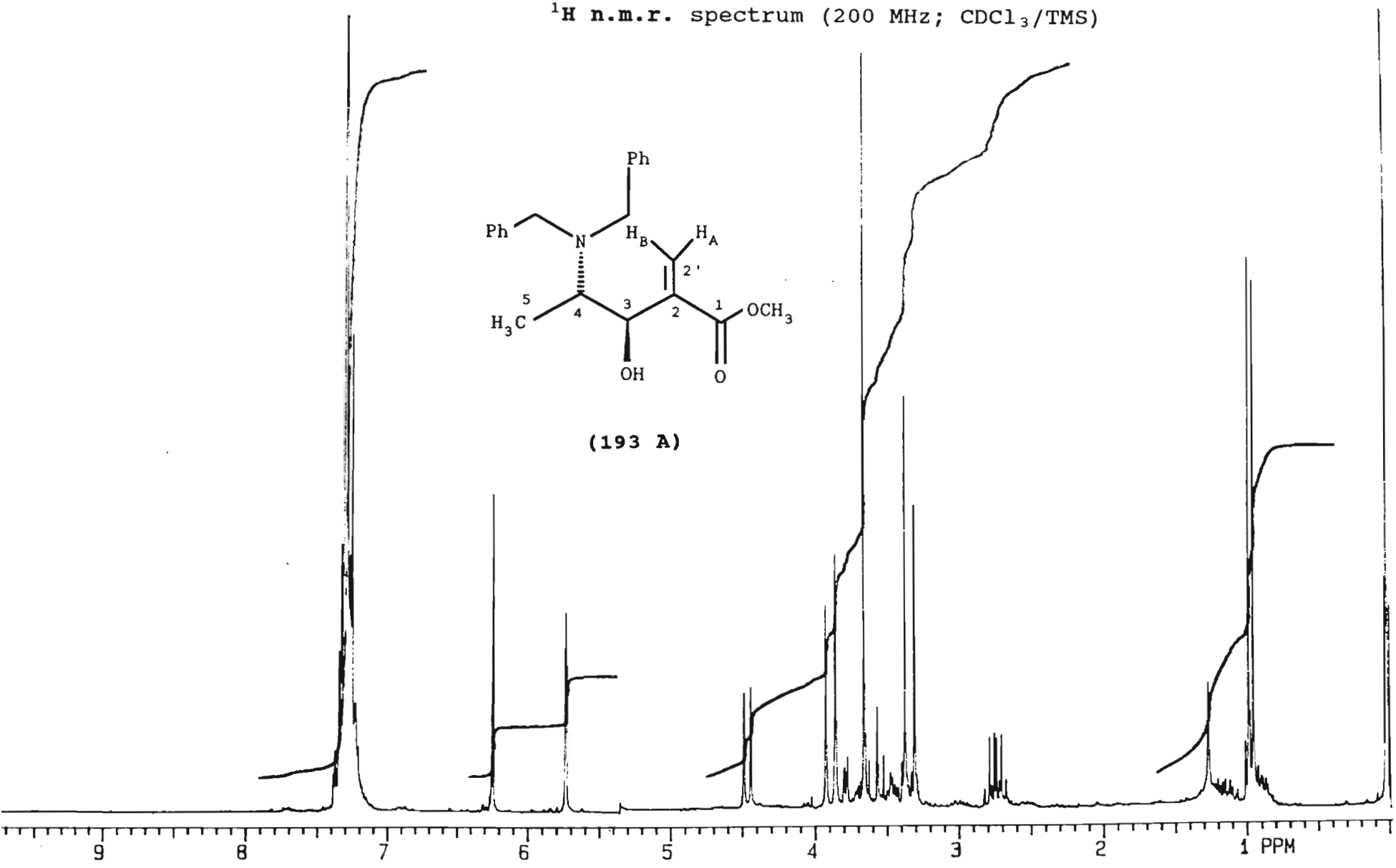
(188)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



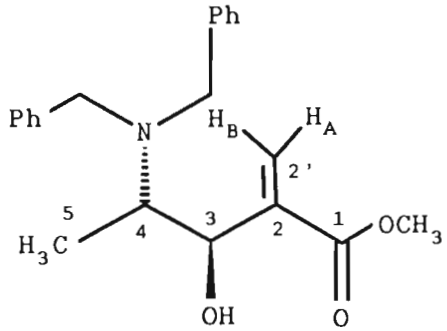
(188)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



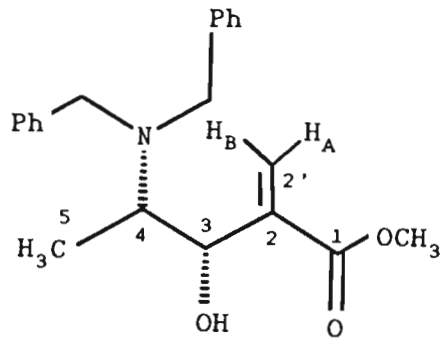
(193 A)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



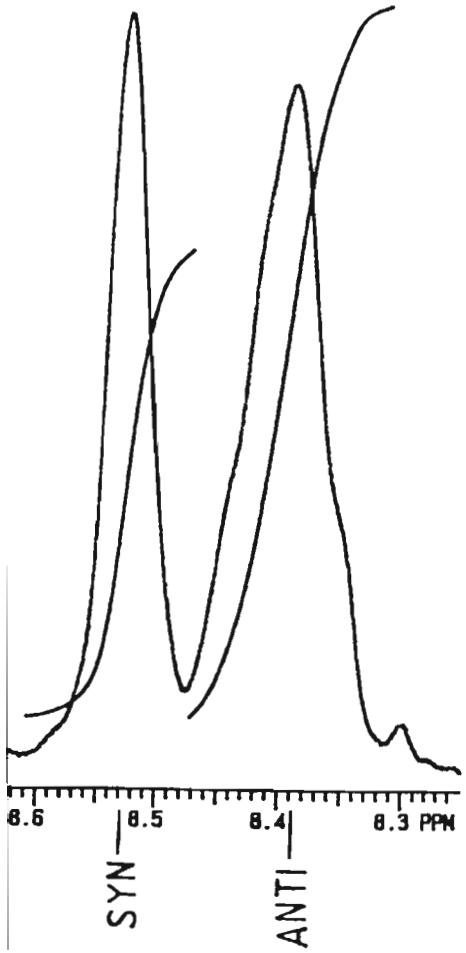
(193 A)

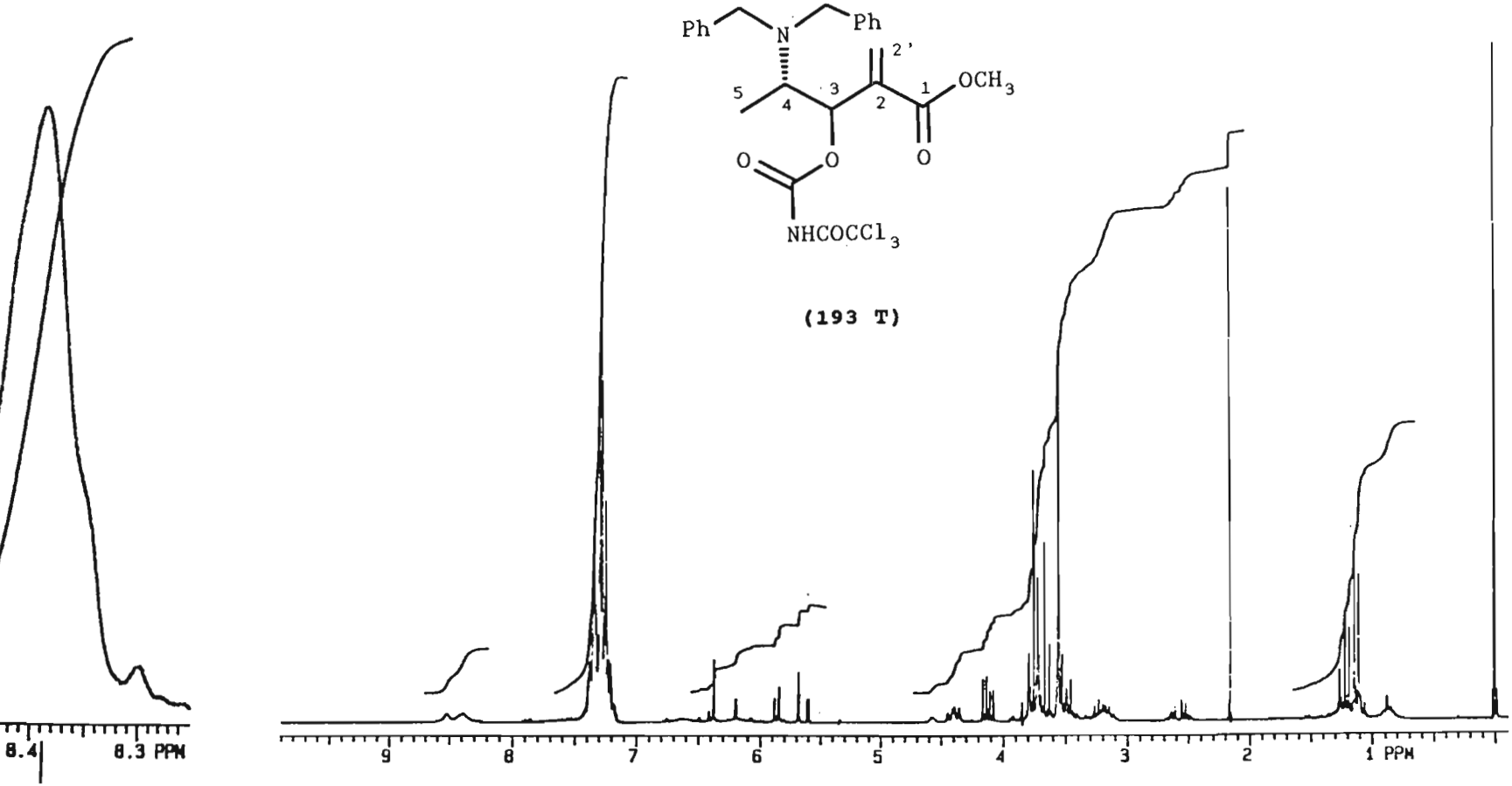
^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



(193 B)

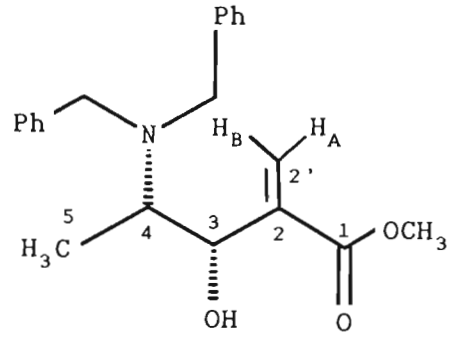
^{1}H n.m.r. (TAI) spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(193)**, showing expanded *carbamate* region.



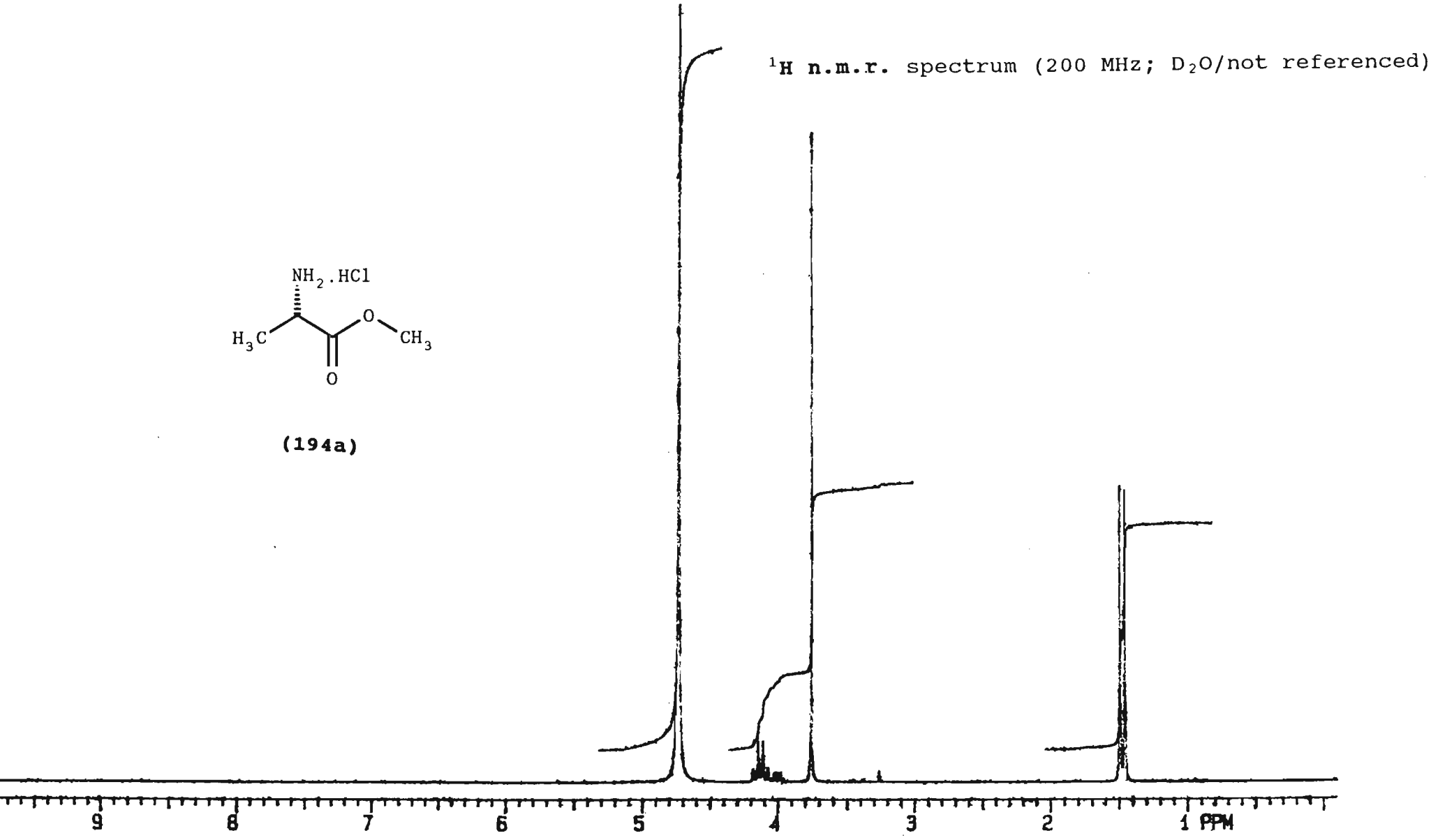


(193 T)

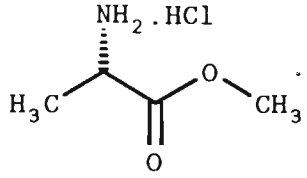
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



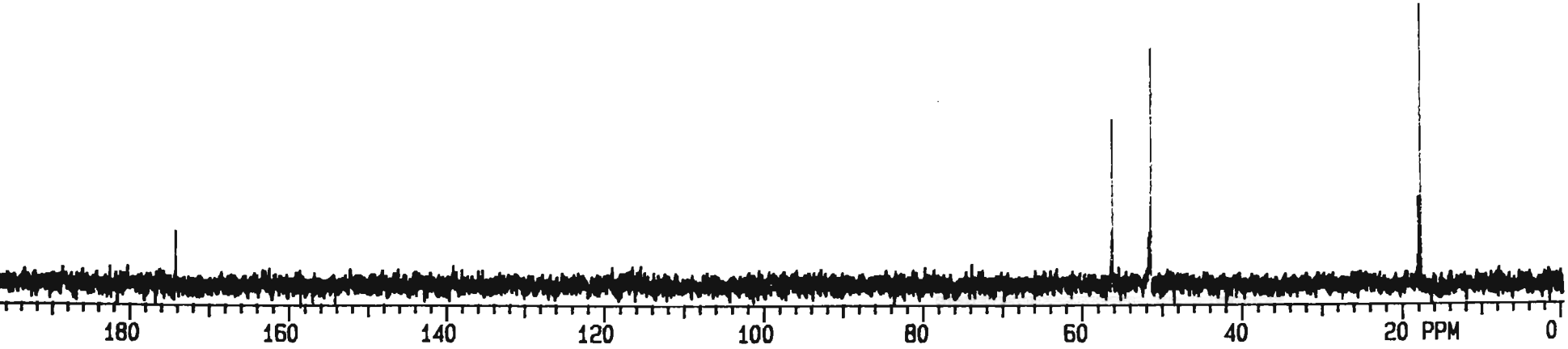
(193 B)


NH2.HCl
H3C
O
CH3
O
(194a)
1H n.m.r. spectrum (200 MHz; D2O/not referenced)
9
8
7
6
5
4
3
2
1 PPM

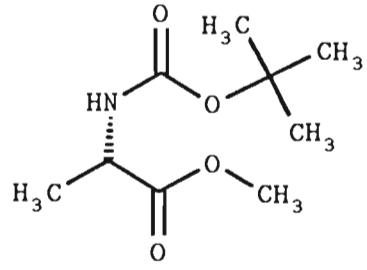
^{13}C n.m.r. (PND) (50 MHz; D_2O/not referenced)



(194a)

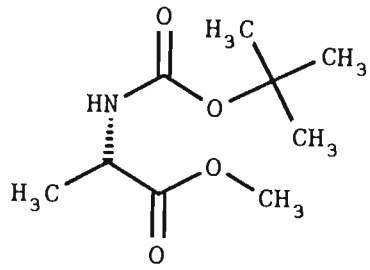


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



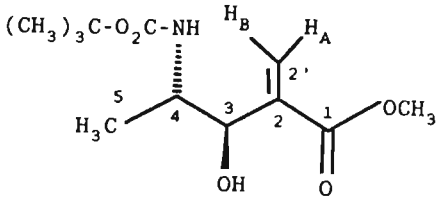
(195a)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

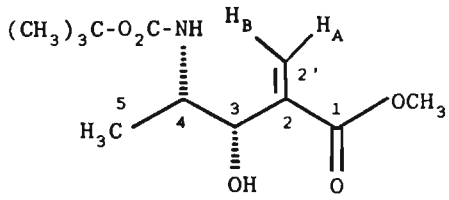


(195a)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

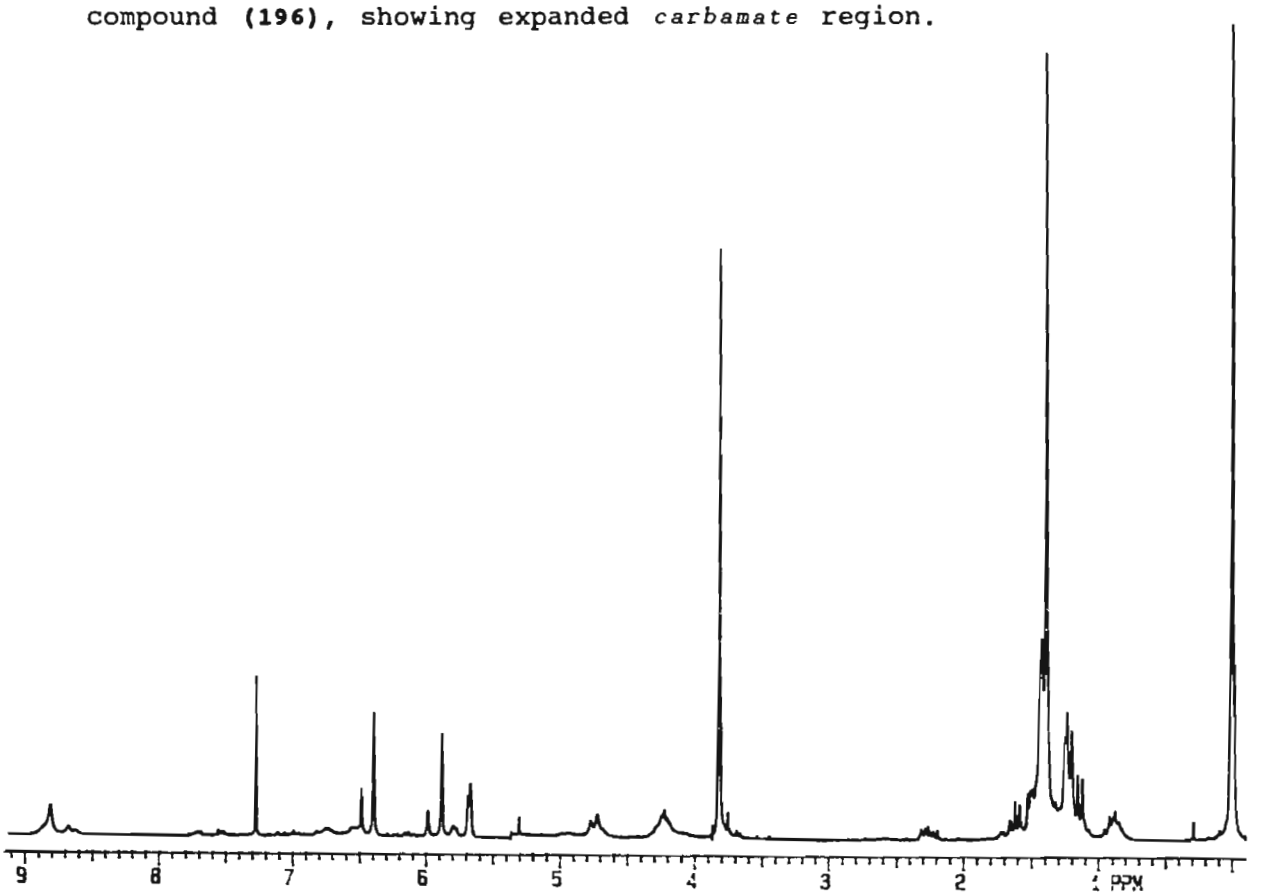


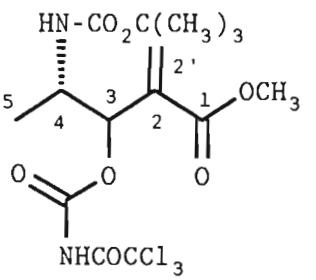
(196 A)



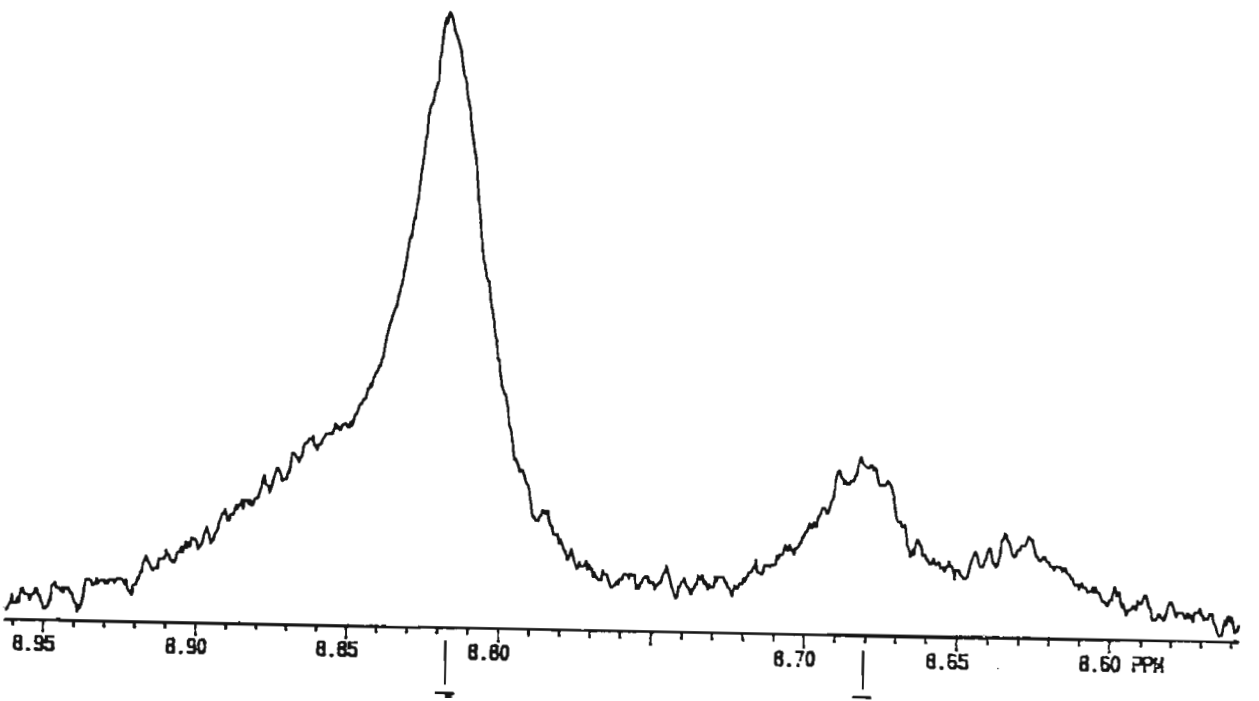
(196 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(196)**, showing expanded *carbamate* region.

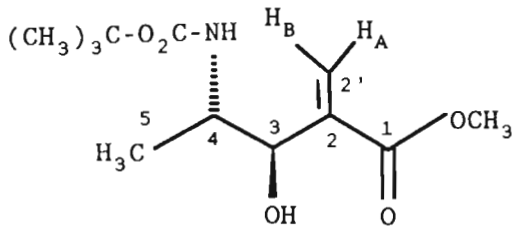




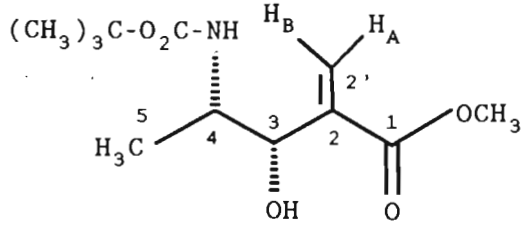
(196 T)



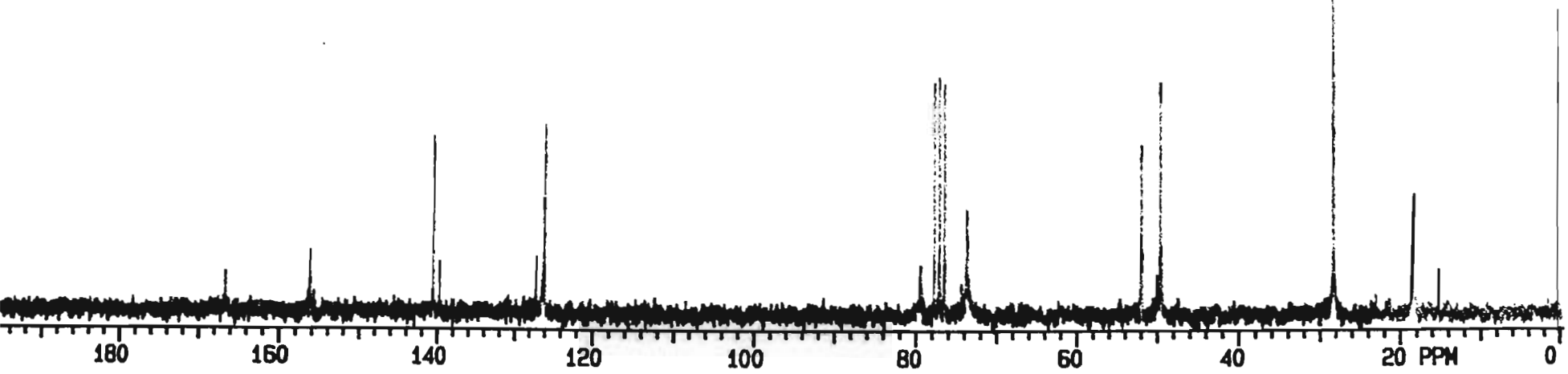
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



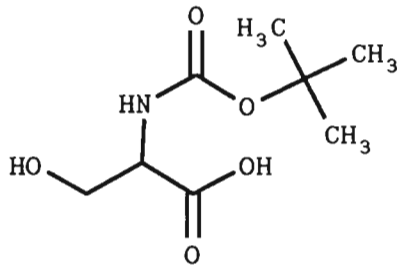
(196 A)



(196 B)

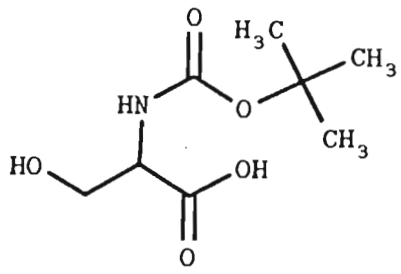


^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



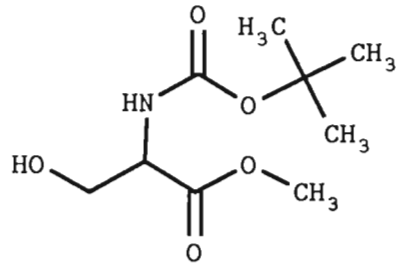
(198)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



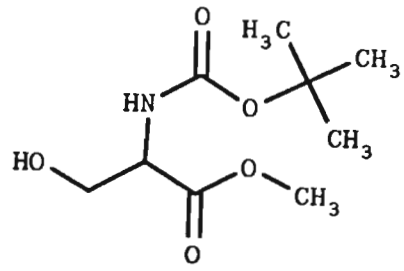
(198)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



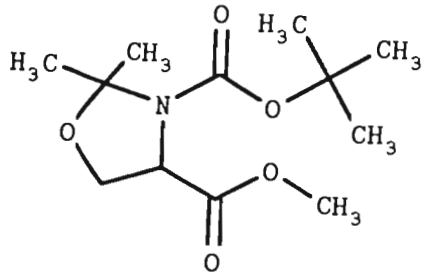
(199)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



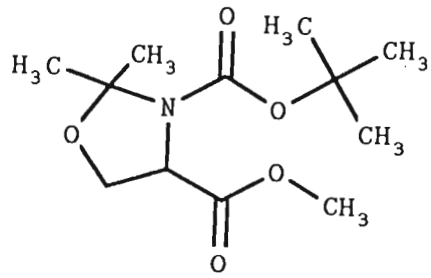
(199)

^{1}H **n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



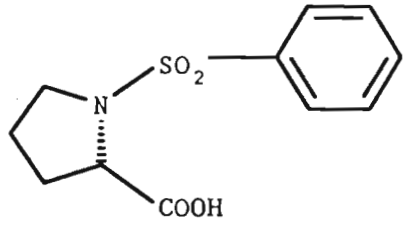
(200)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



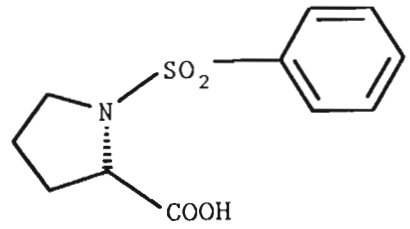
(200)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



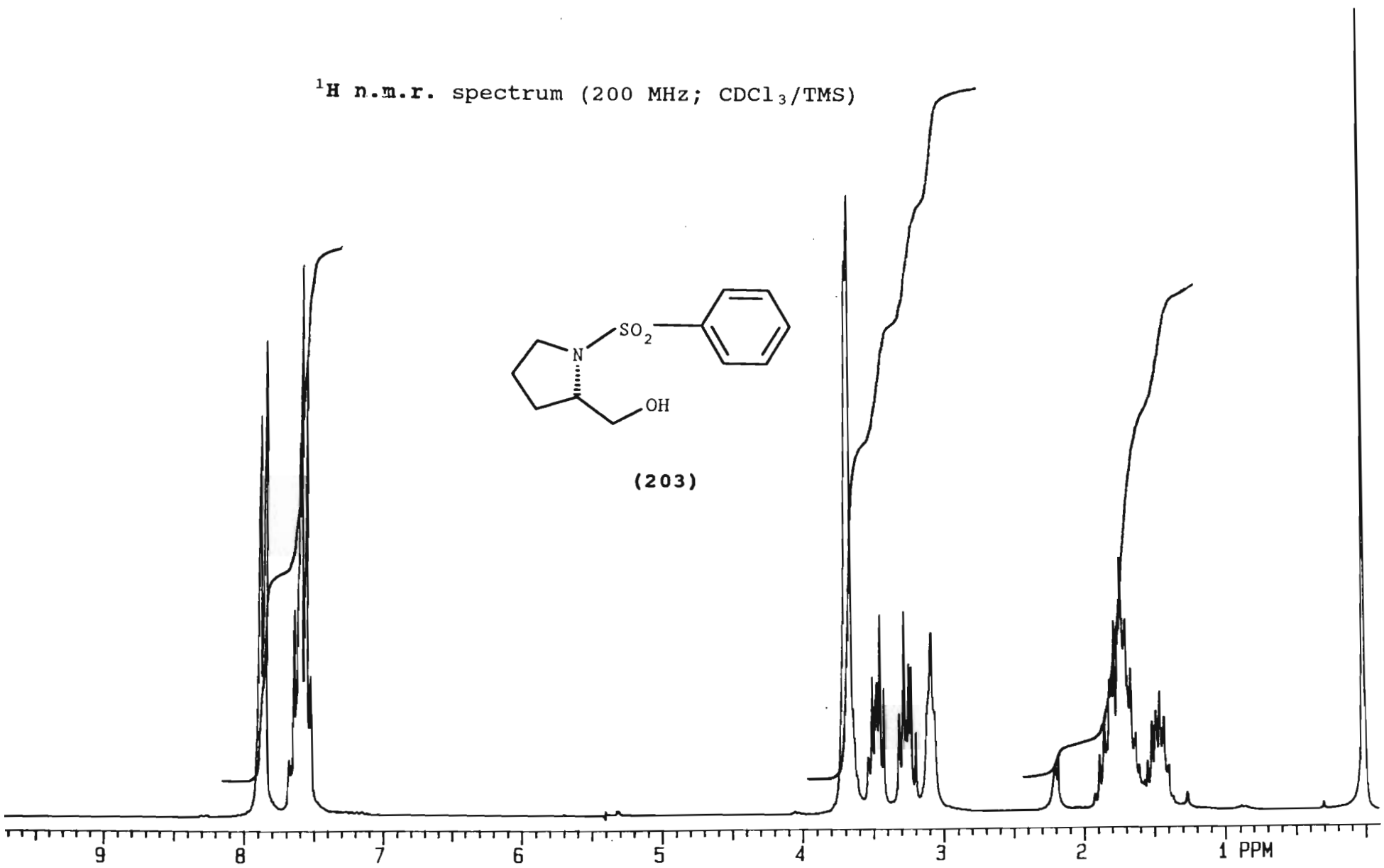
(202)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$)



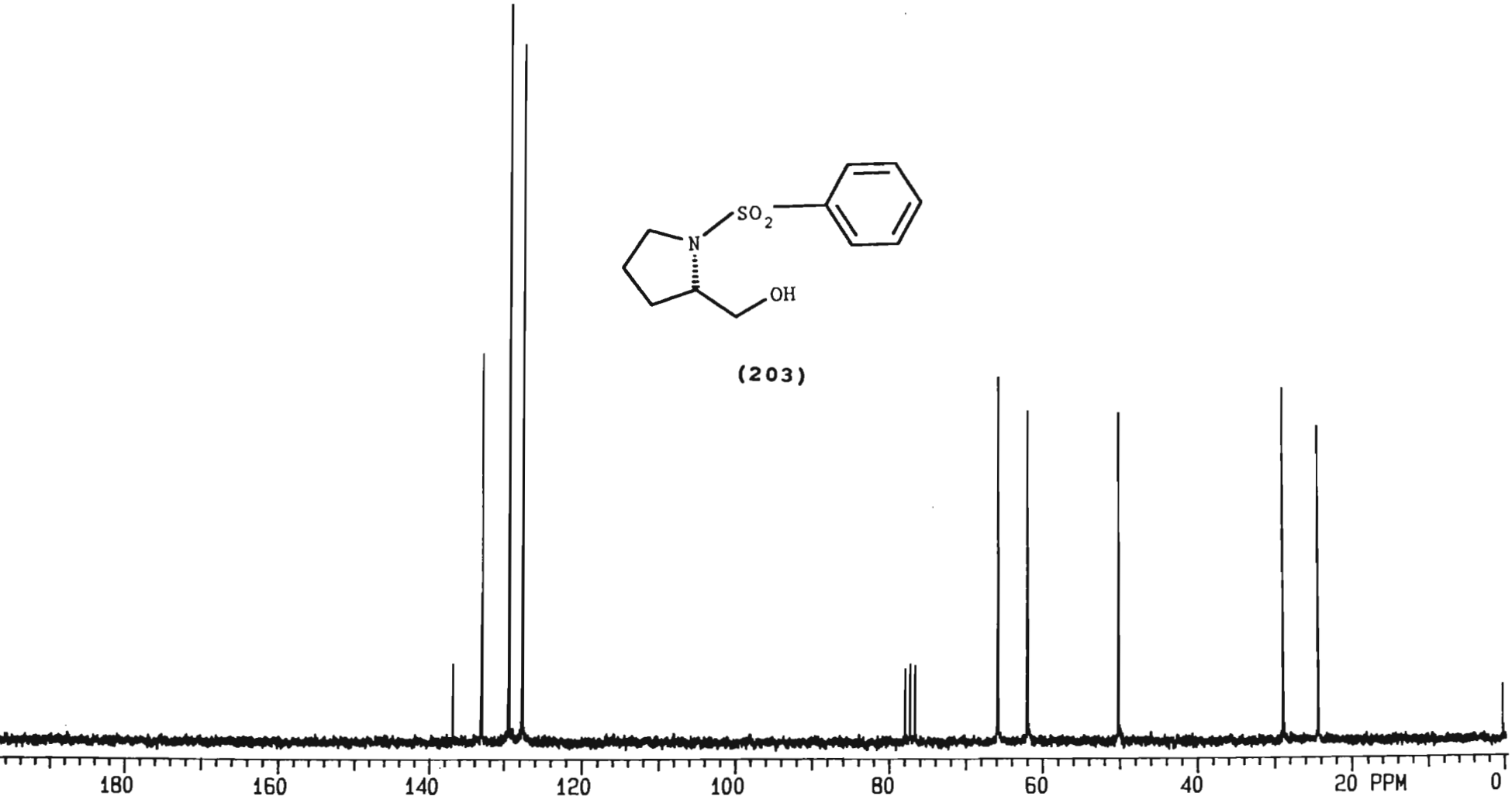
(202)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



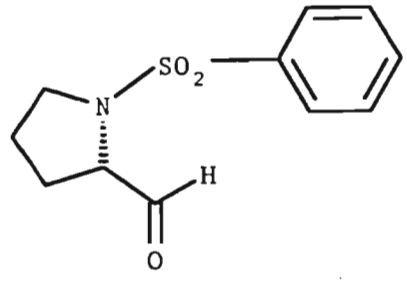
(203)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



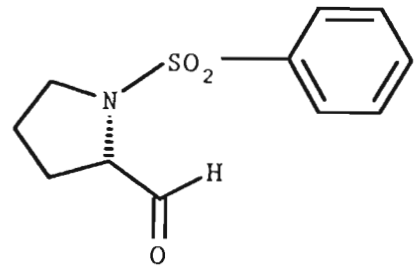
(203)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

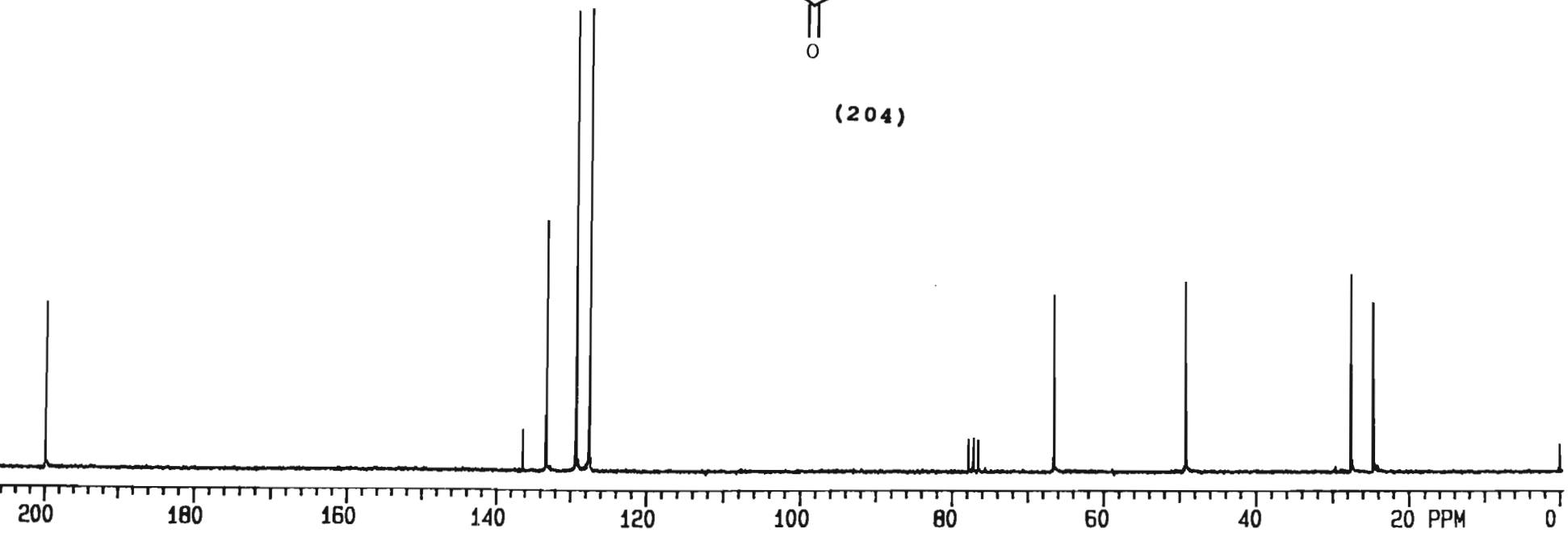


(204)

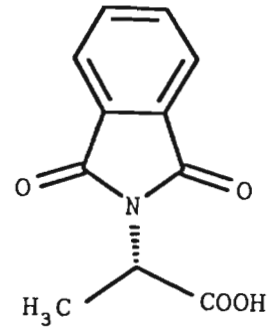
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(204)

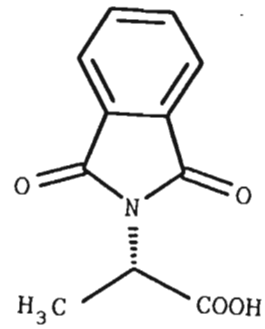


^{1}**H n.m.r.** (200 MHz; CD_3COCD_3/TMS)

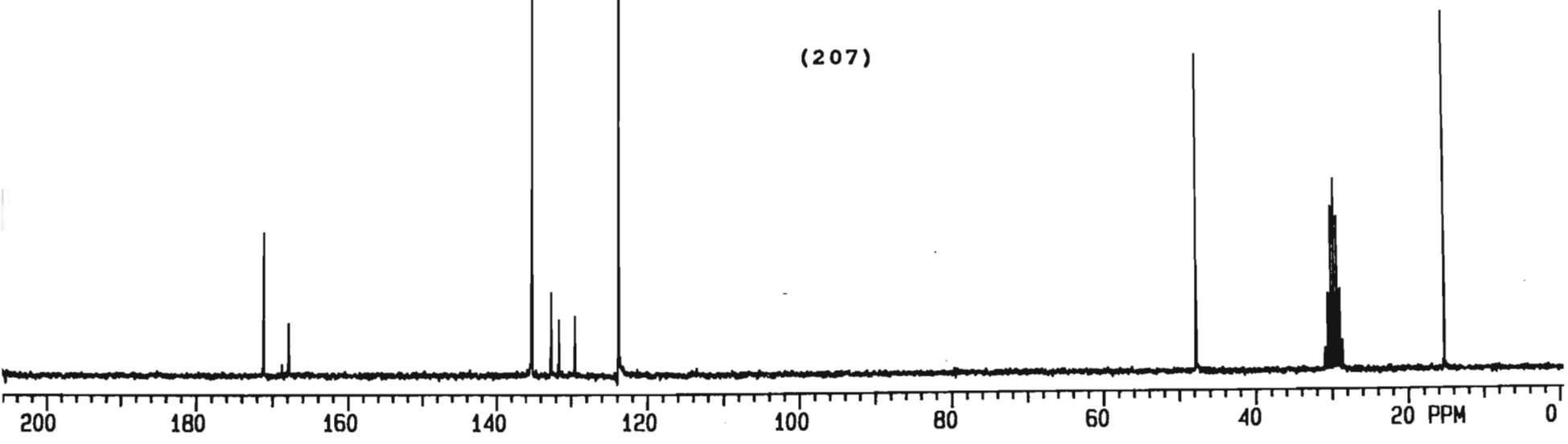


(207)

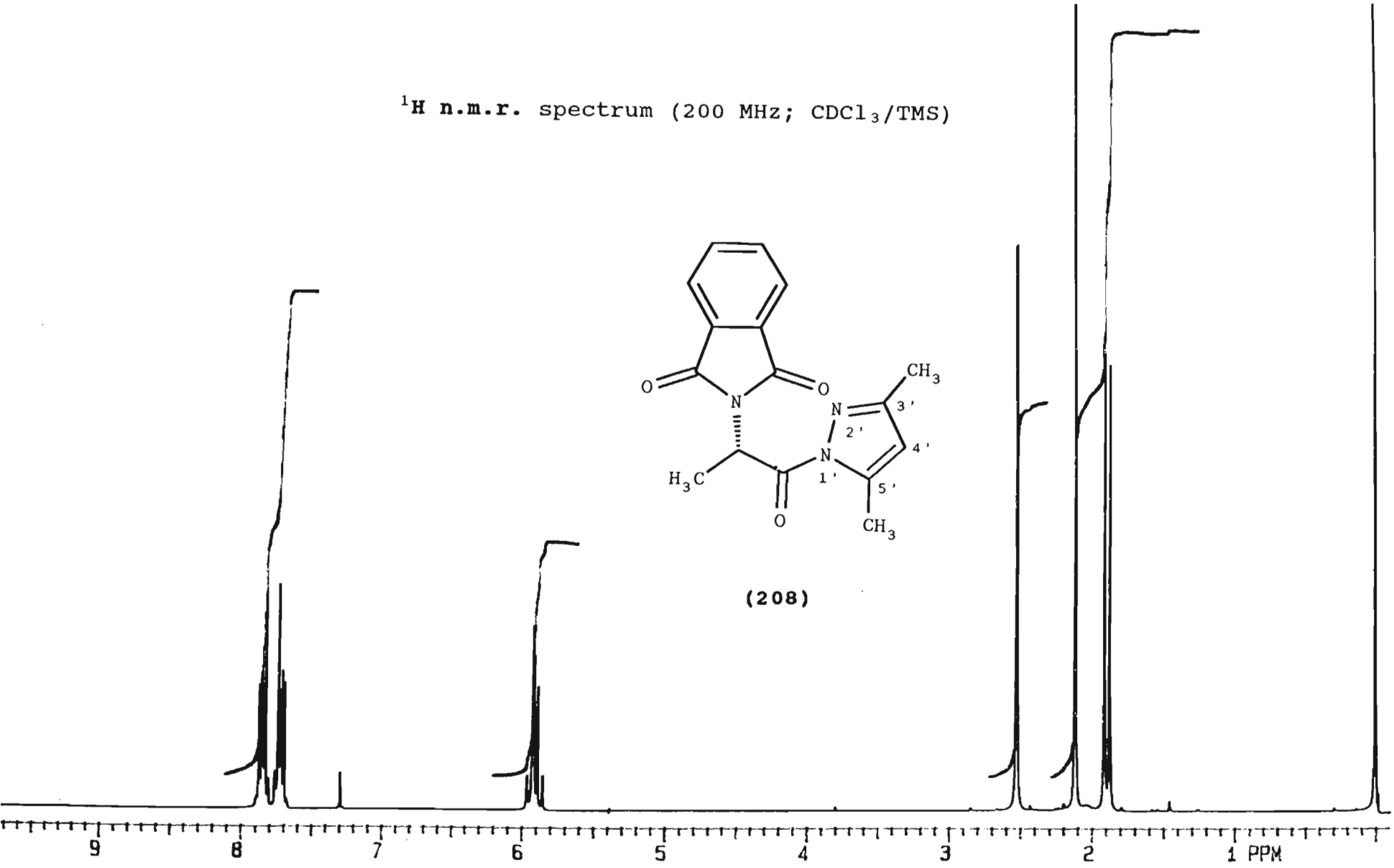
^{13}C n.m.r. (PND) (50 MHz; CD_3COCD_3/TMS)



(207)

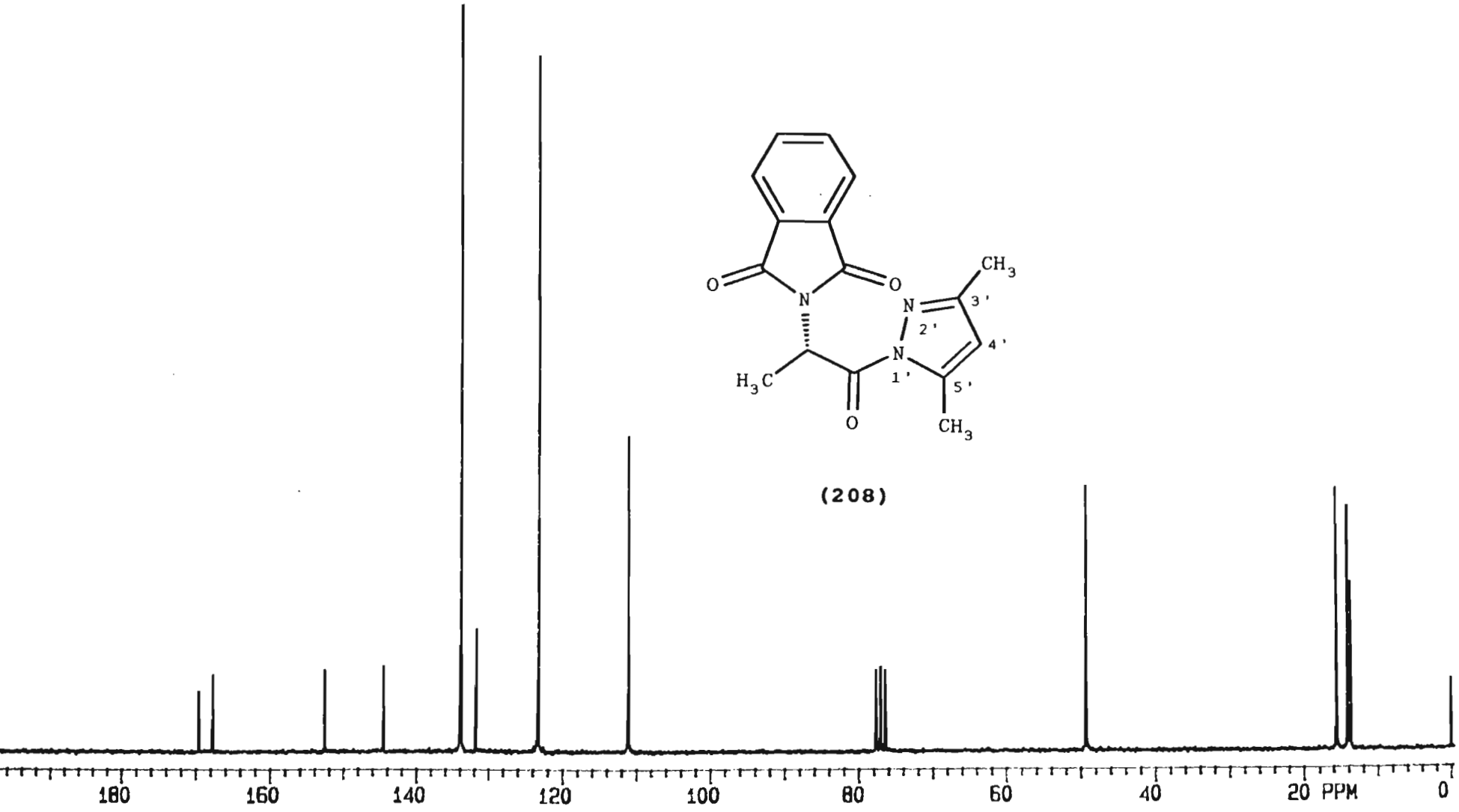


^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



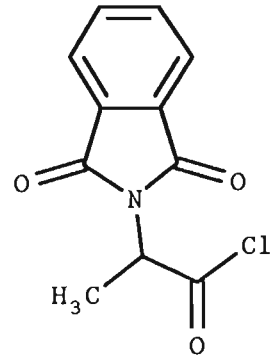
(208)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



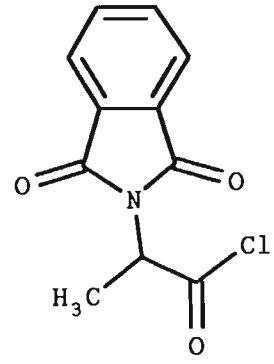
(208)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



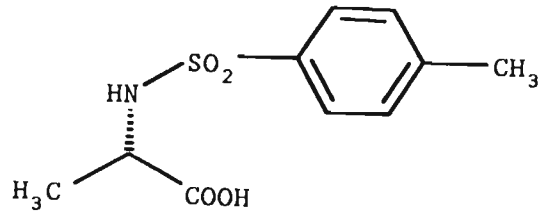
(209)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



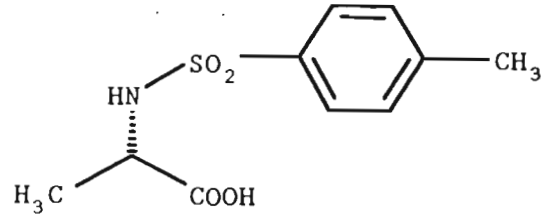
(209)

^{1}**H n.m.r.** spectrum (200 MHz; CD_3COCD_3/TMS)



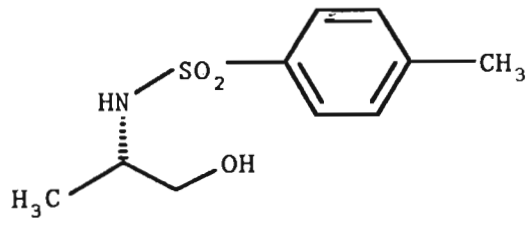
(210)

^{13}C **n.m.r. (PNDS)** spectrum (50 MHz; CD_3COCD_3/TMS)



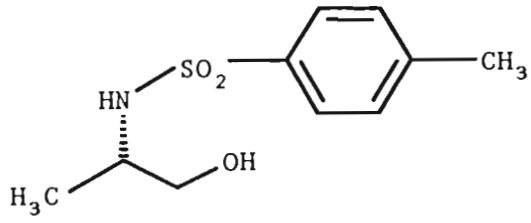
(210)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



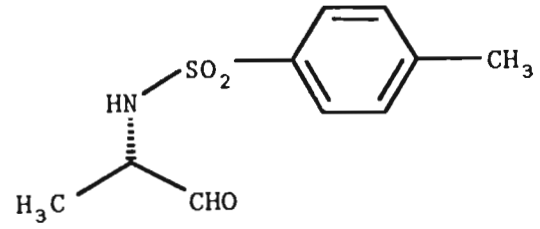
(211)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



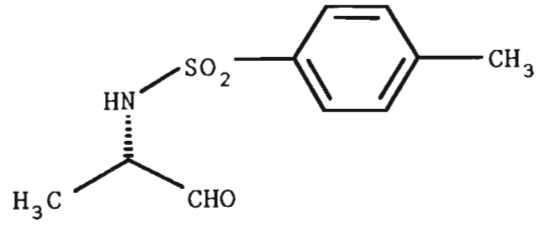
(211)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

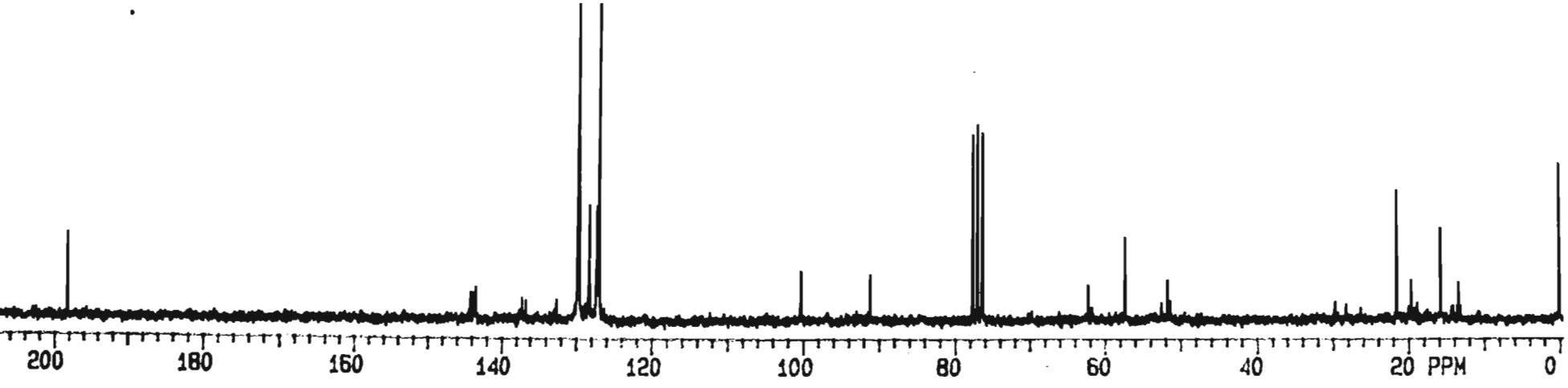


(212)

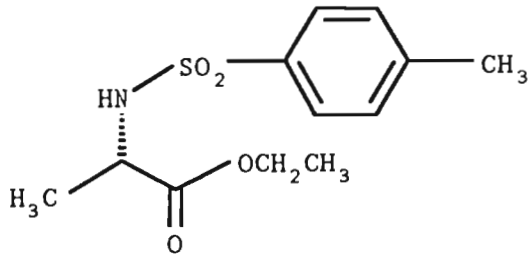
^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



(212)

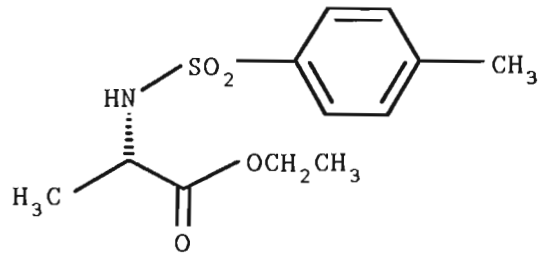


^{1}H **n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



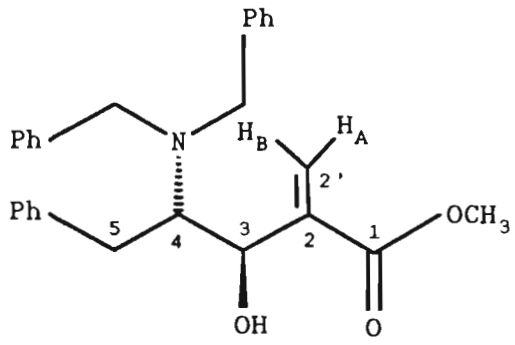
(215)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



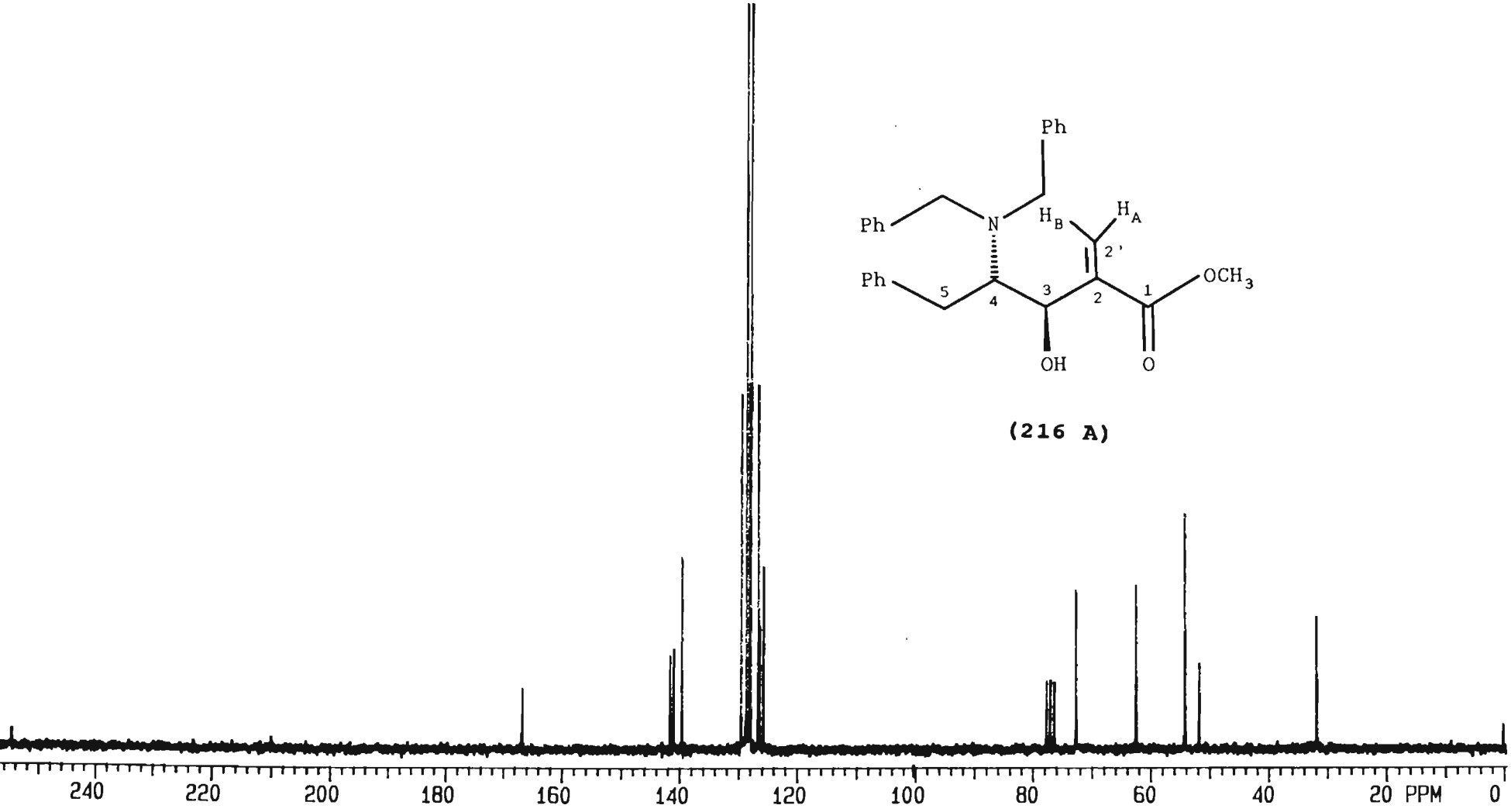
(215)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



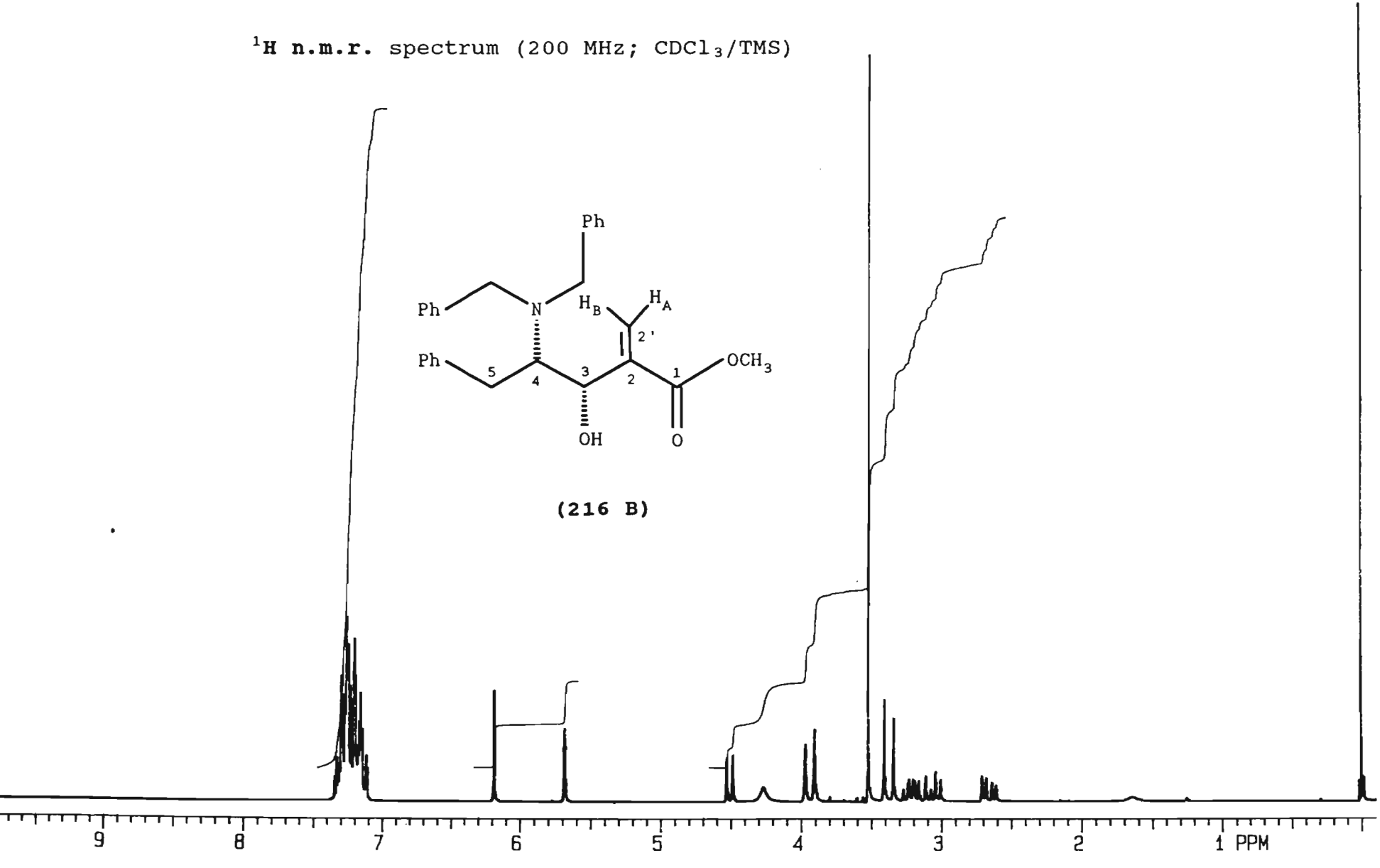
(216 A)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



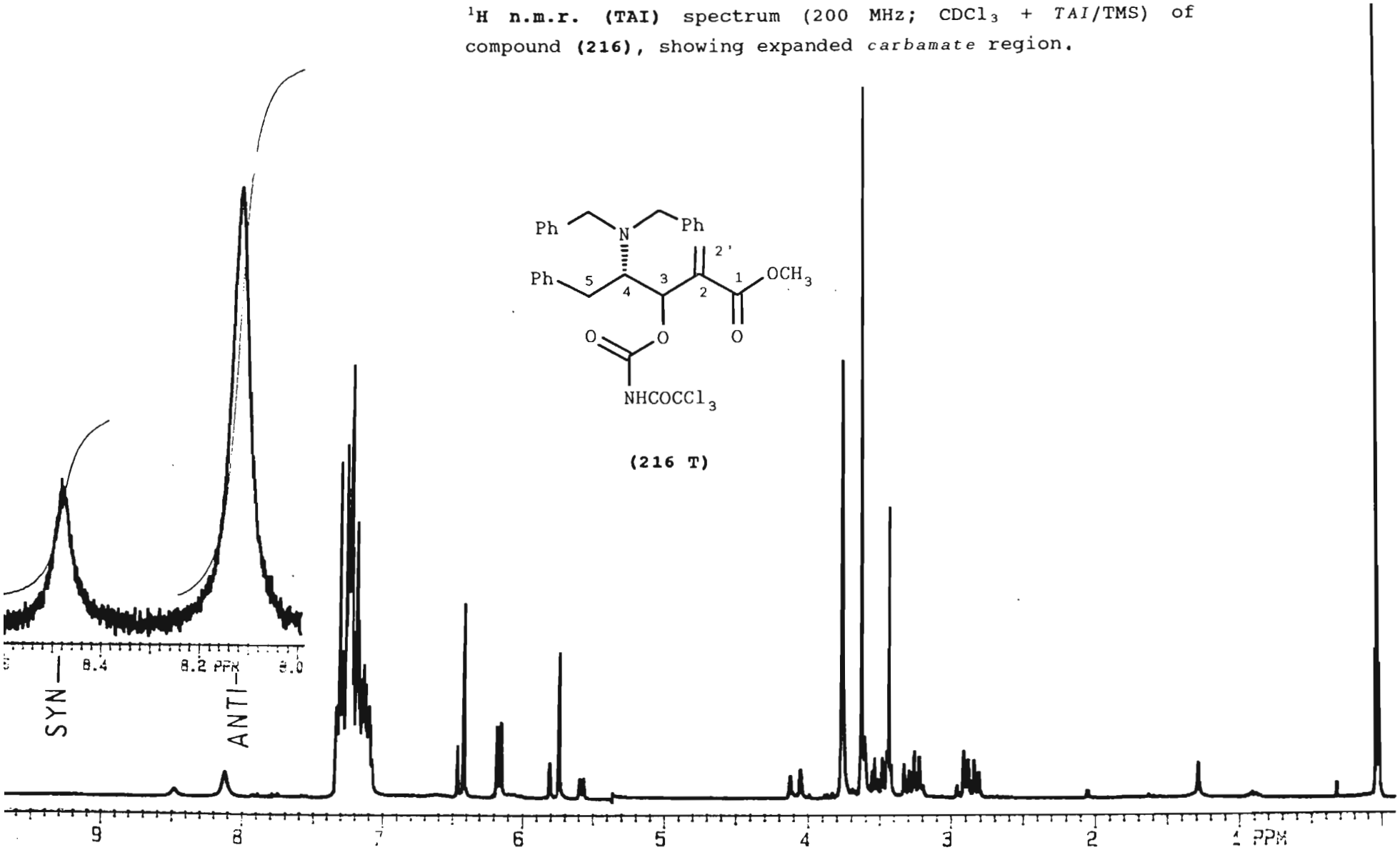
(216 A)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



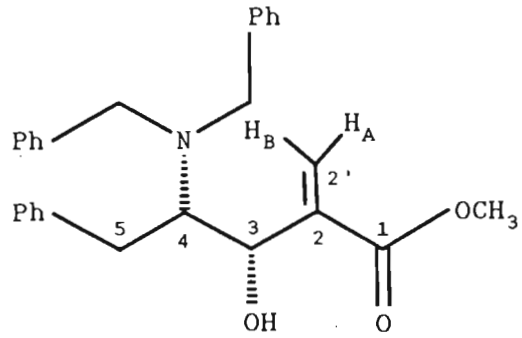
(216 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(216)**, showing expanded *carbamate* region.



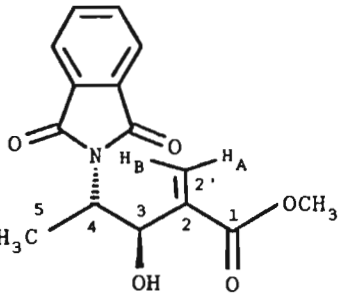
(216 T)

^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

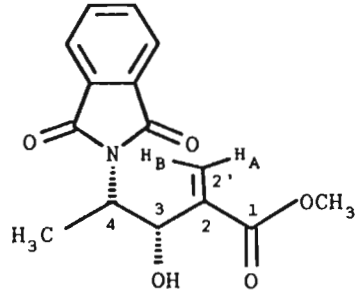


(216 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

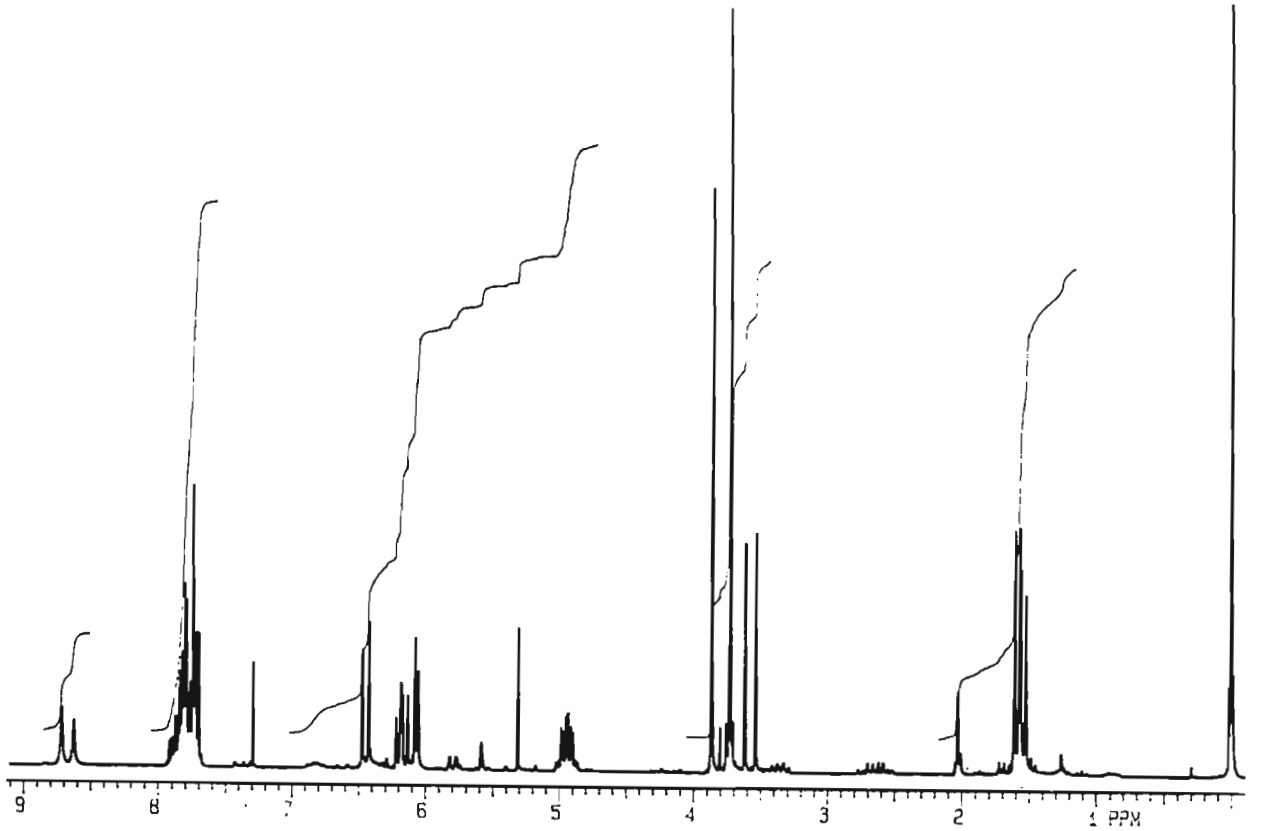


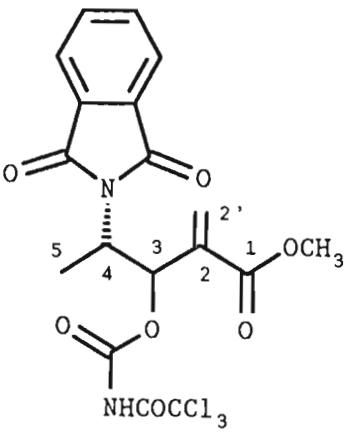
(217 A)



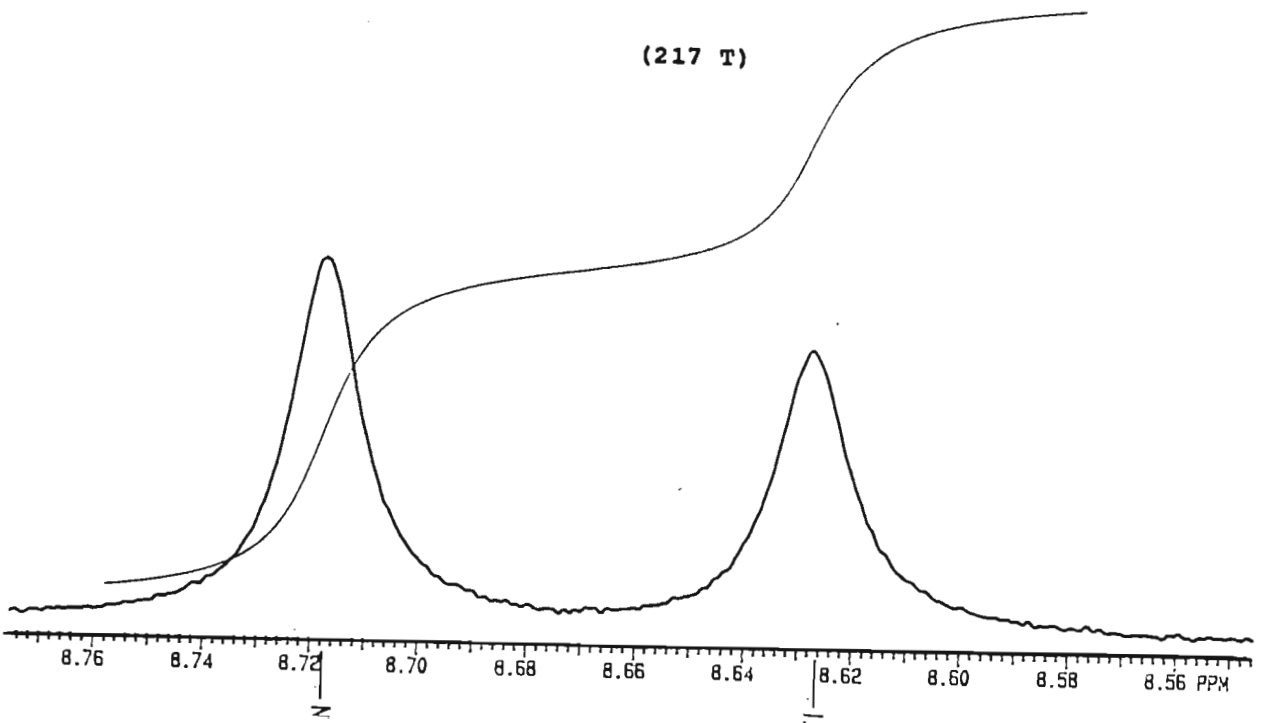
(217 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(217)**, showing expanded *carbamate* region.

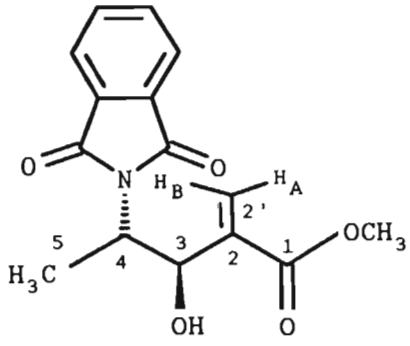




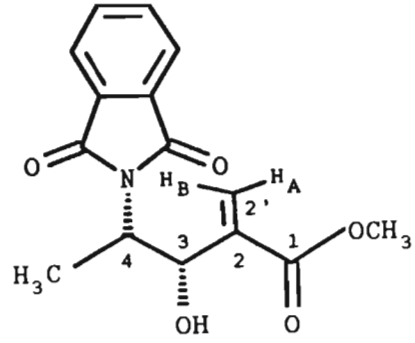
(217 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

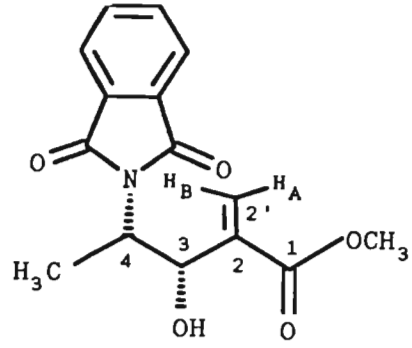


(217 A)



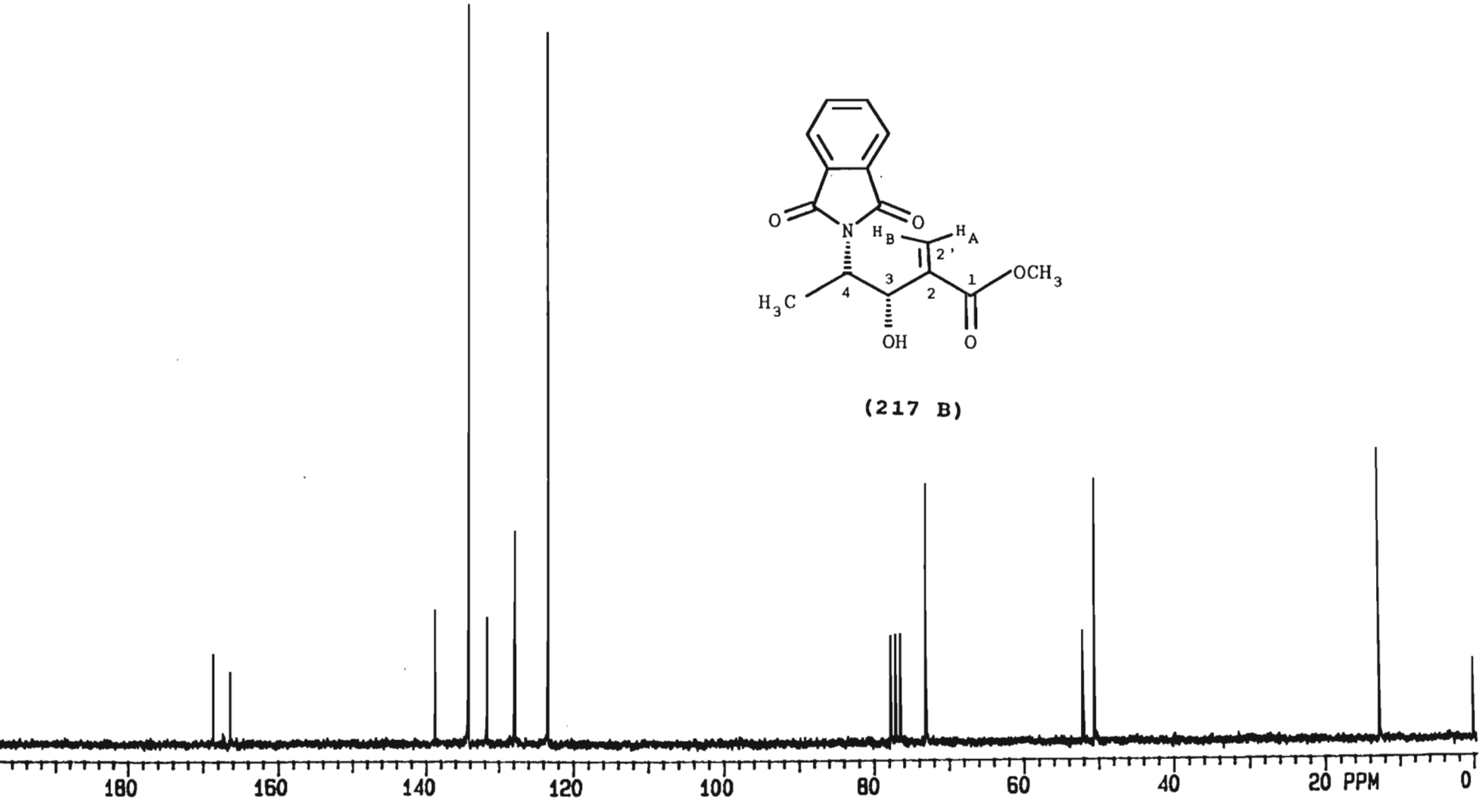
(217 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)



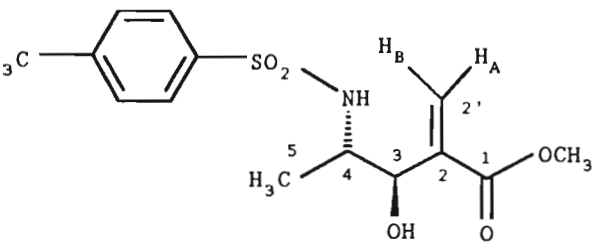
(217 B)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

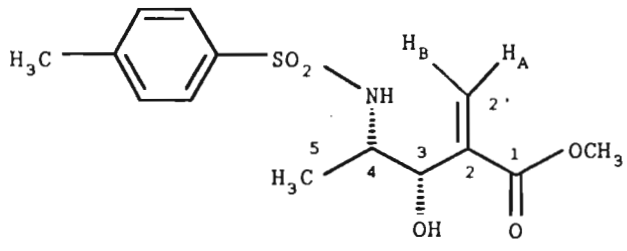


(217 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

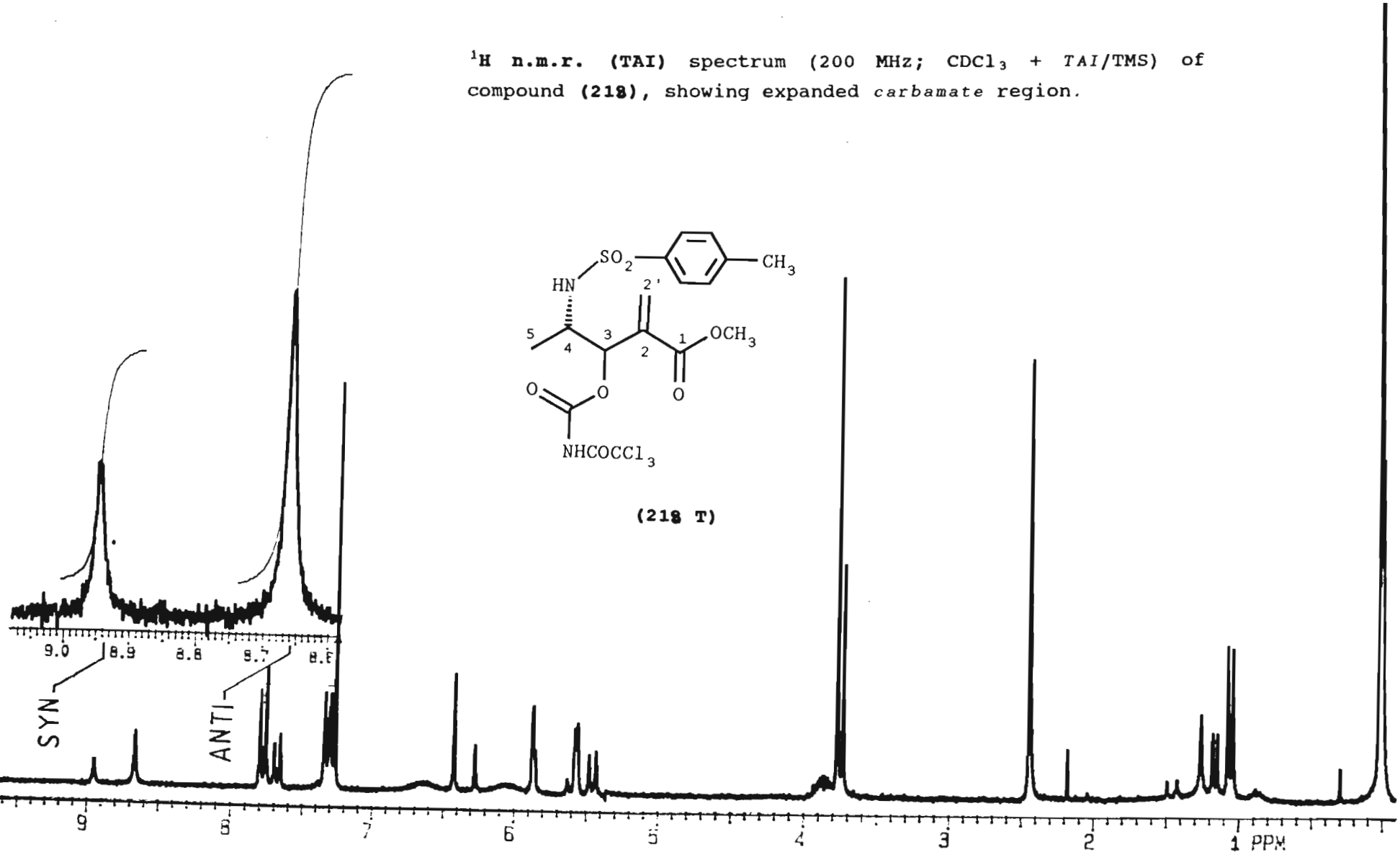


(218 A)



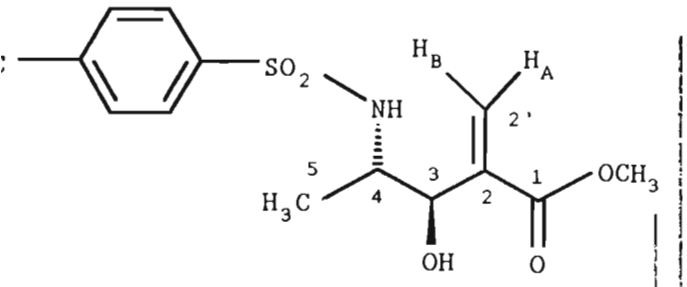
(218 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(218)**, showing expanded *carbamate* region.

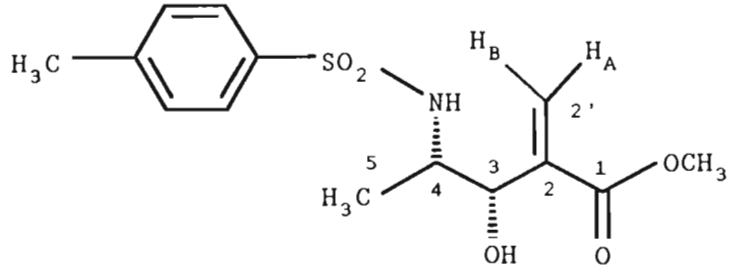


(218 T)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

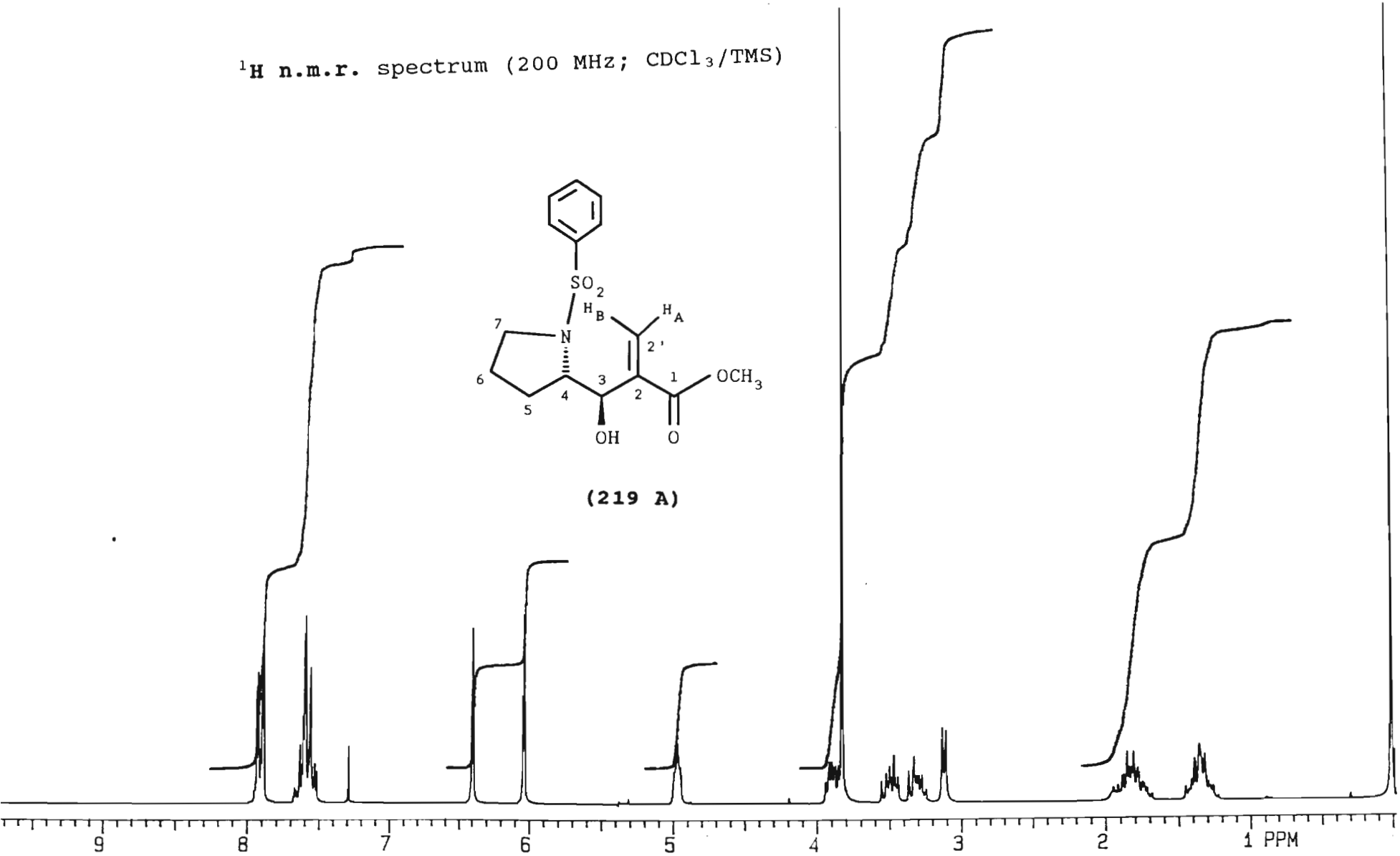


(218 A)



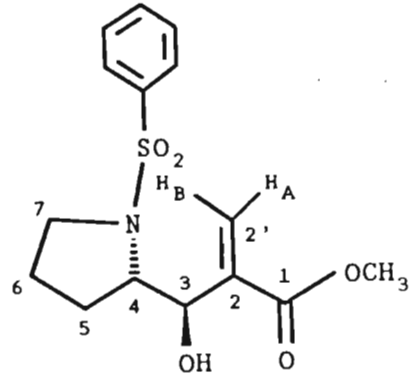
(218 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

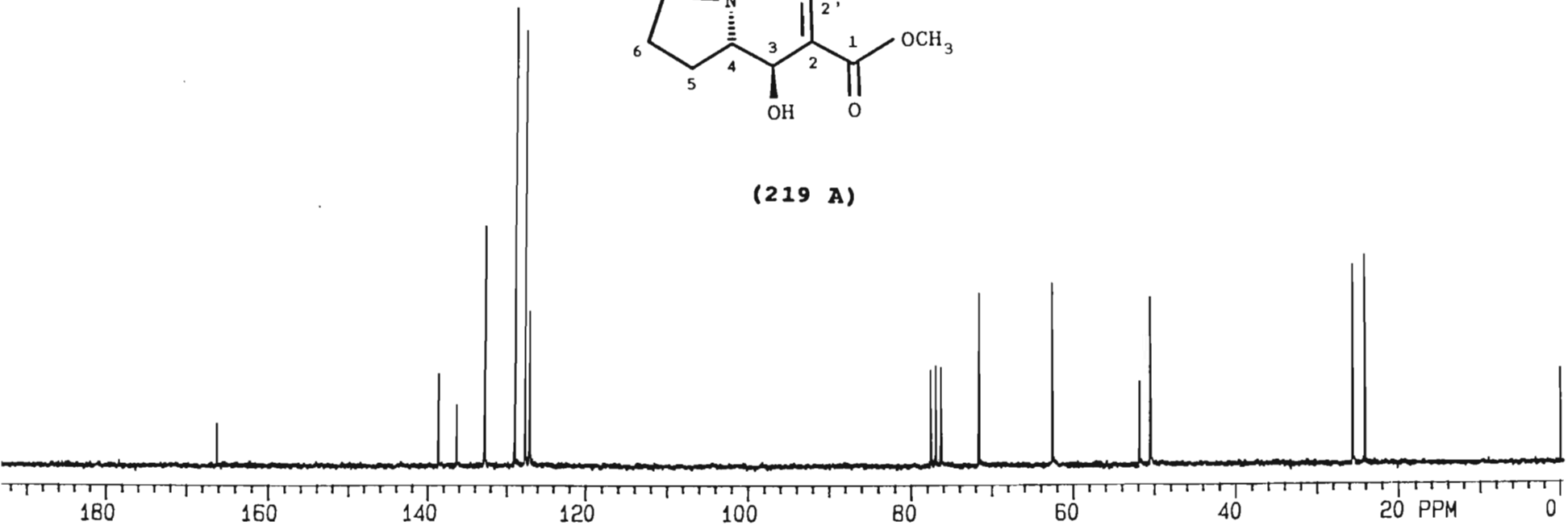


(219 A)

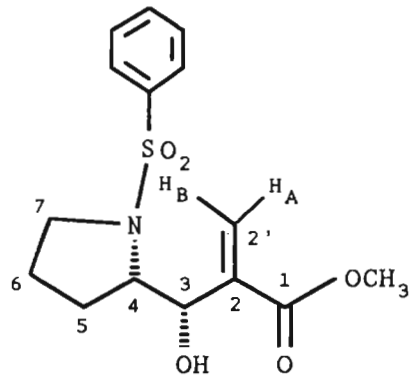
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



(219 A)

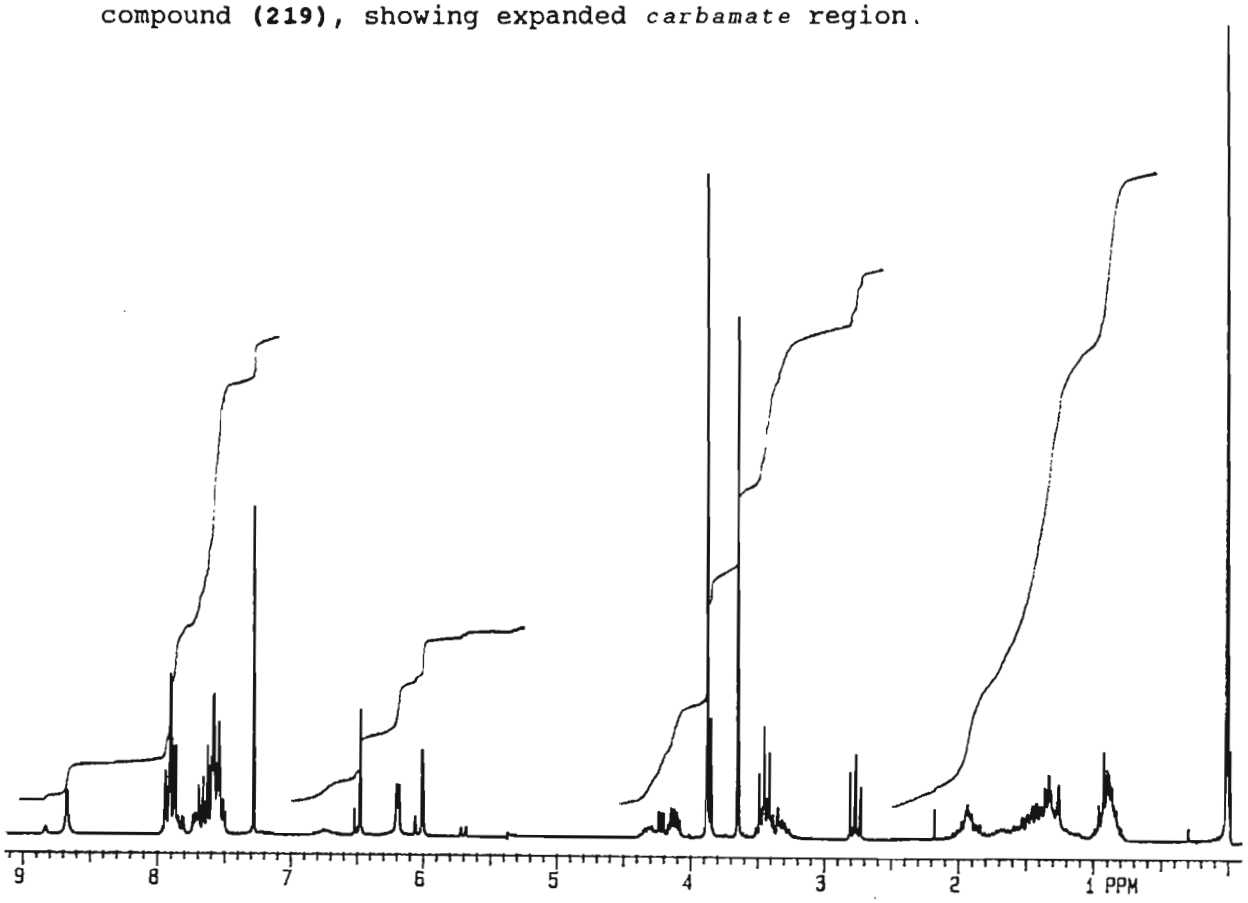


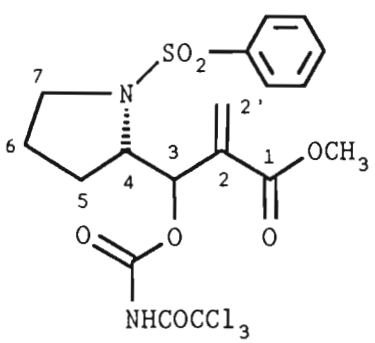
^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



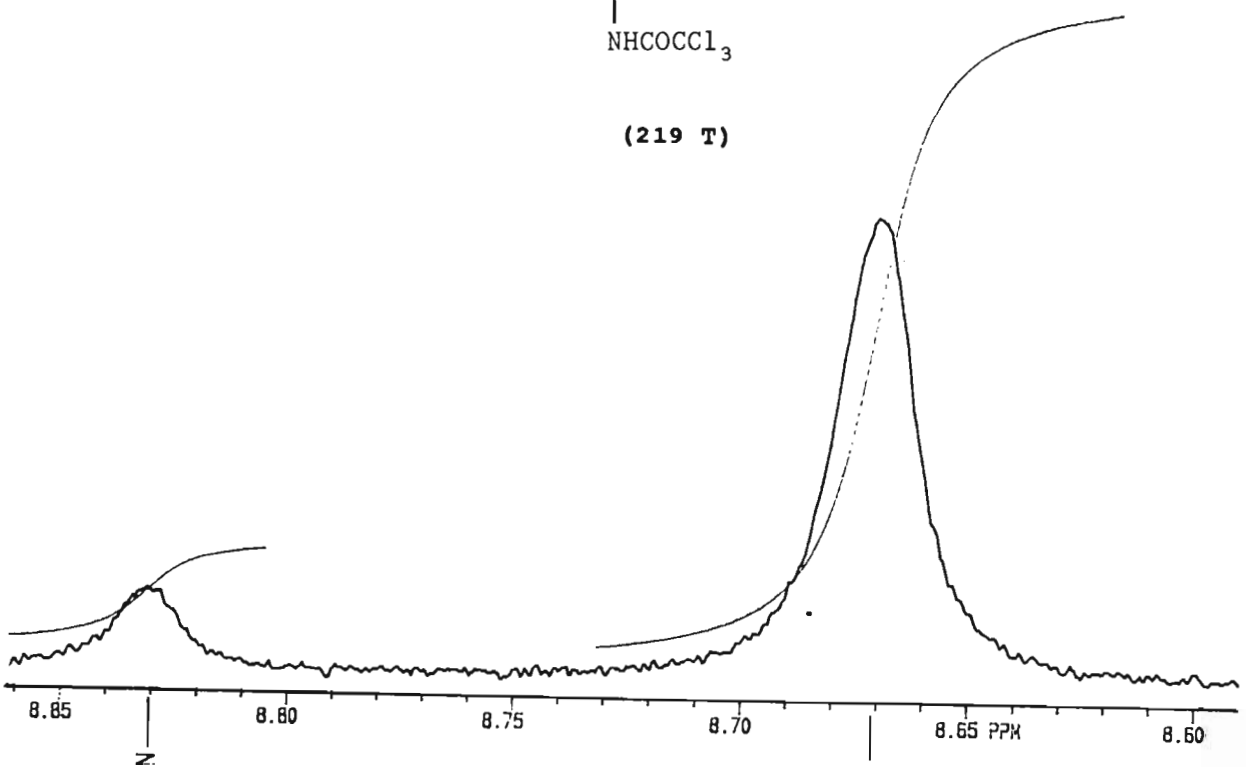
(219 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(219)**, showing expanded *carbamate* region.

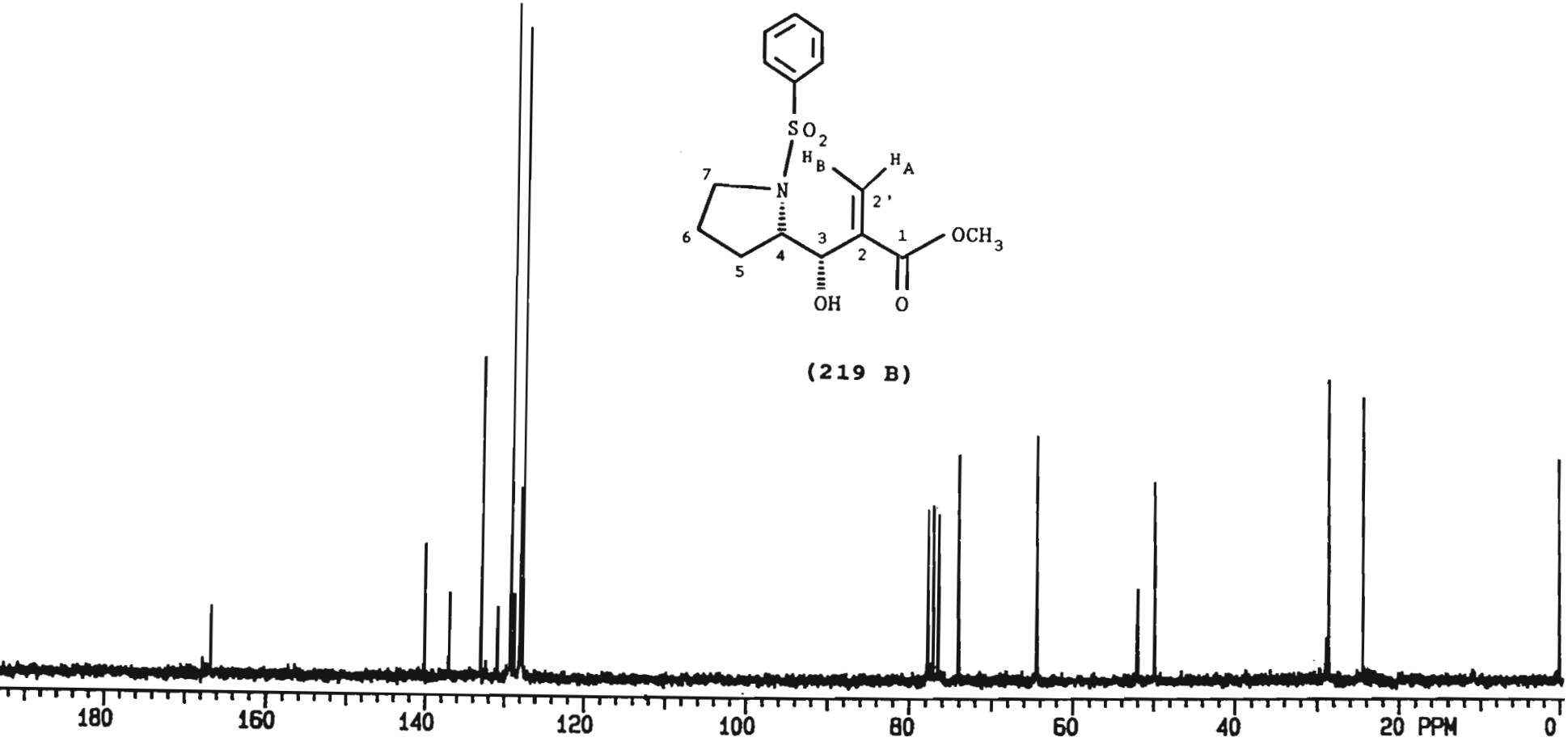




(219 T)

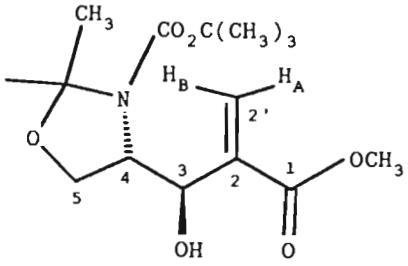


^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

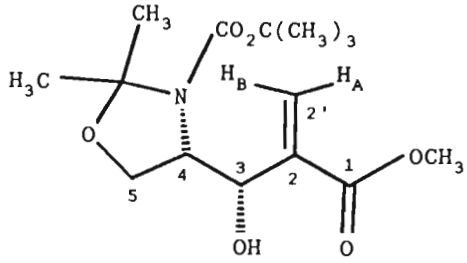


(219 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

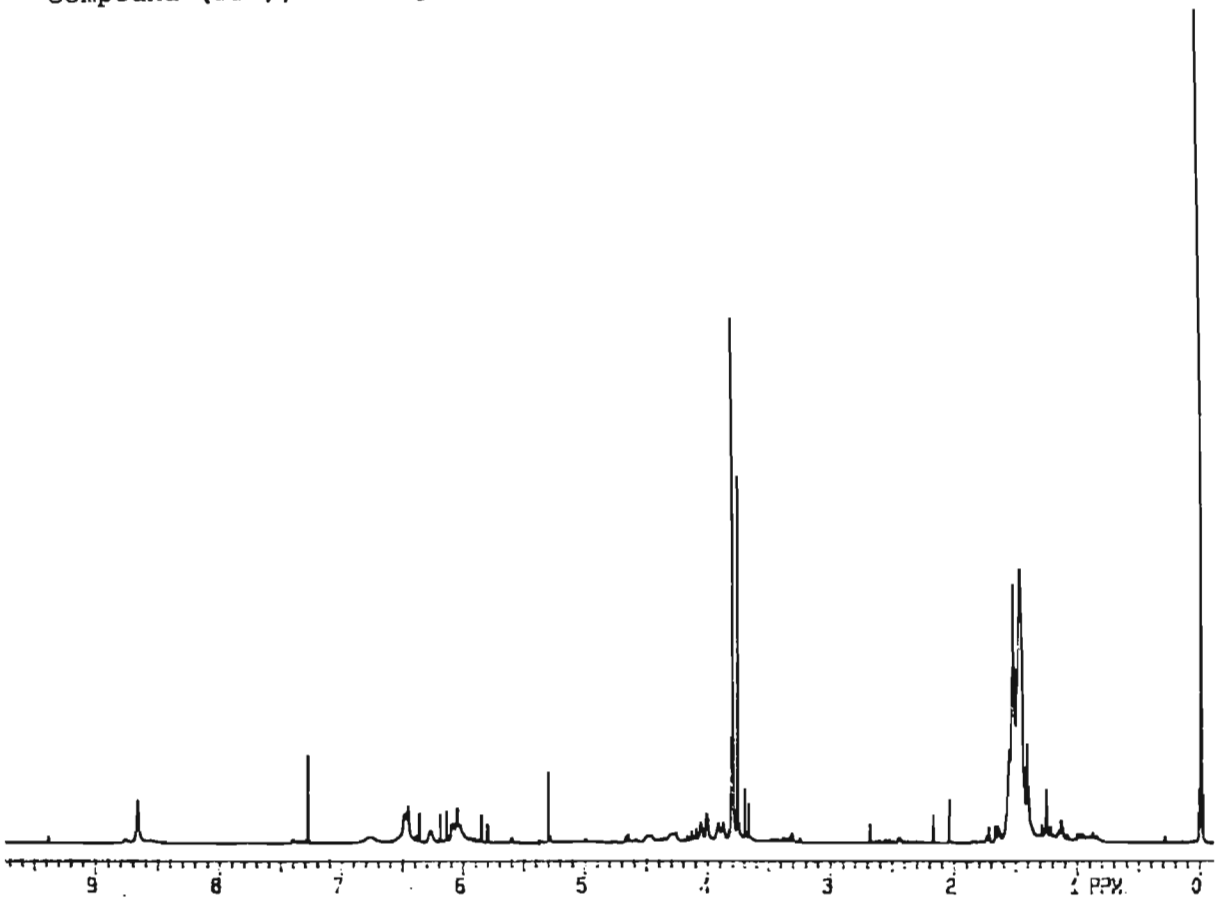


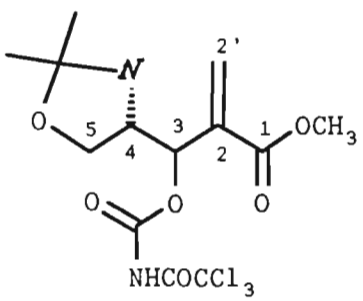
(220 A)



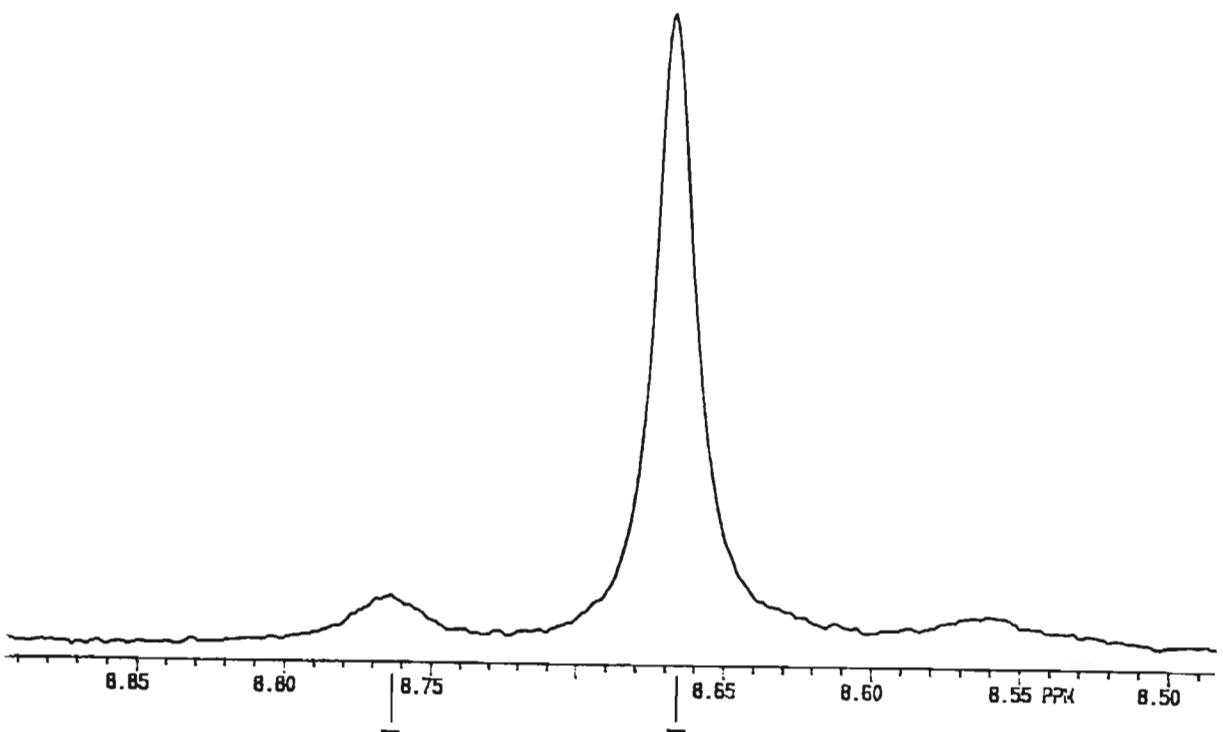
(220 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(220)**, showing expanded *carbamate* region.

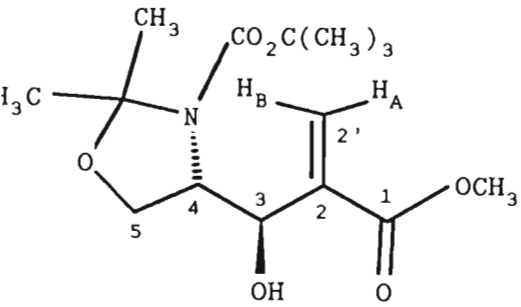




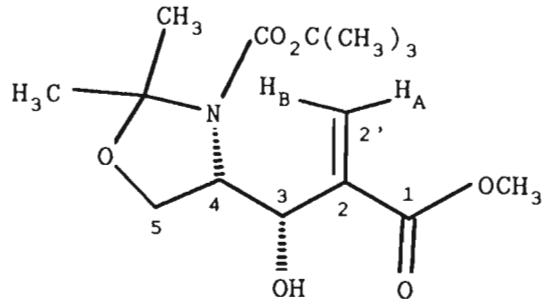
(220 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

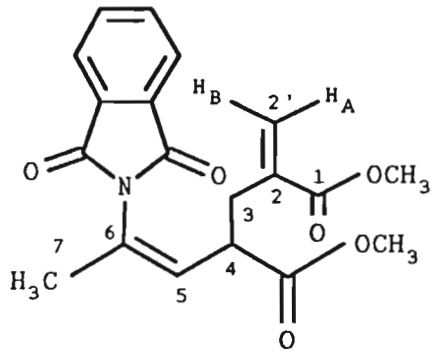


(220 A)



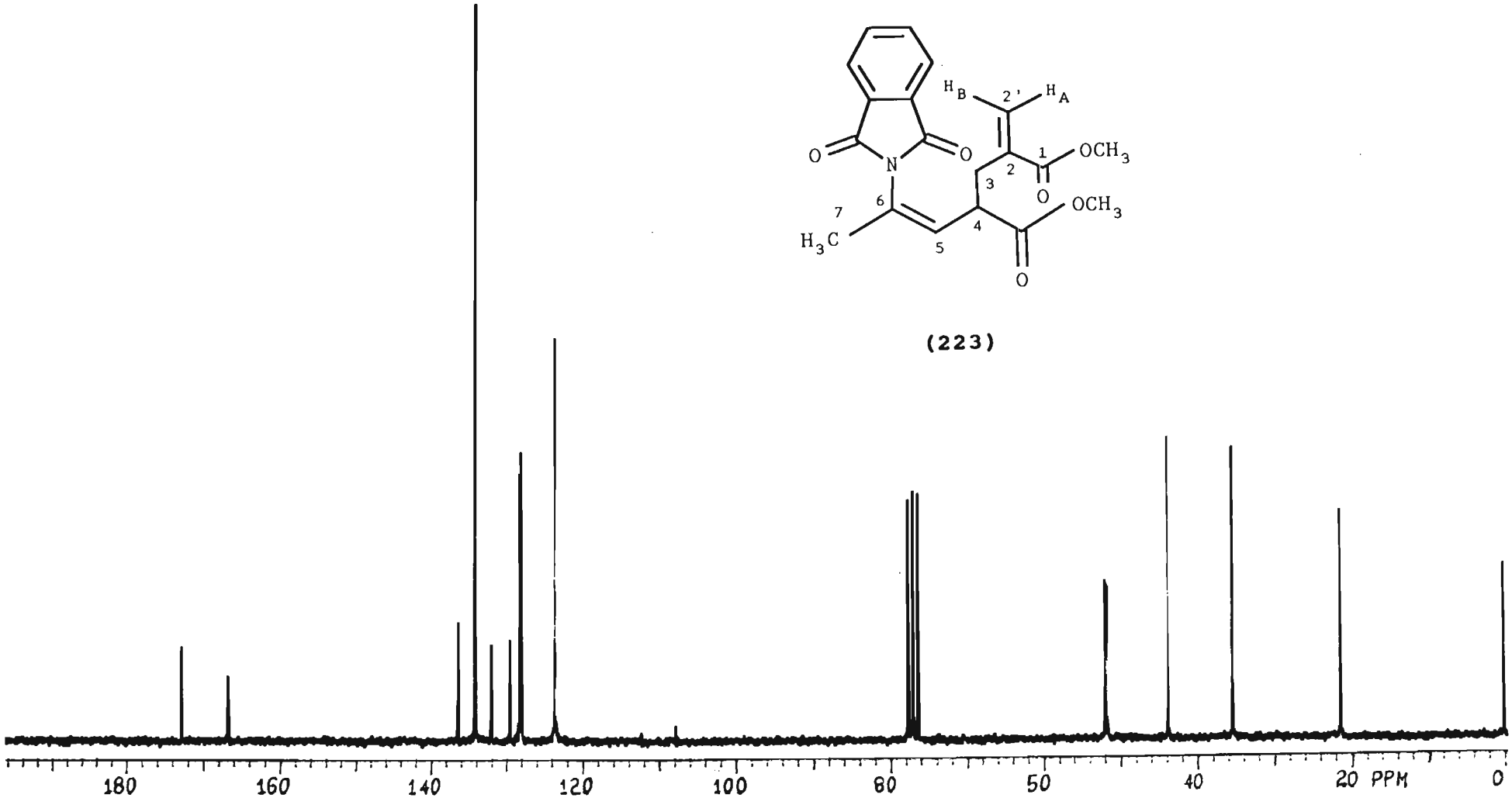
(220 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)



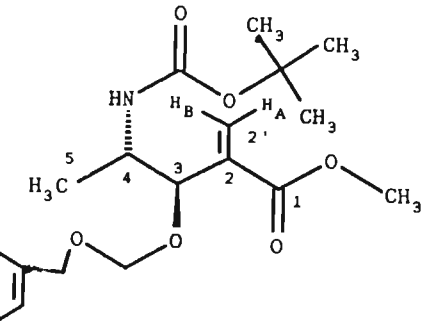
(223)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

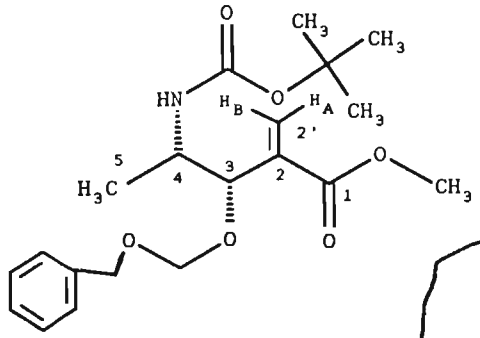


(223)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

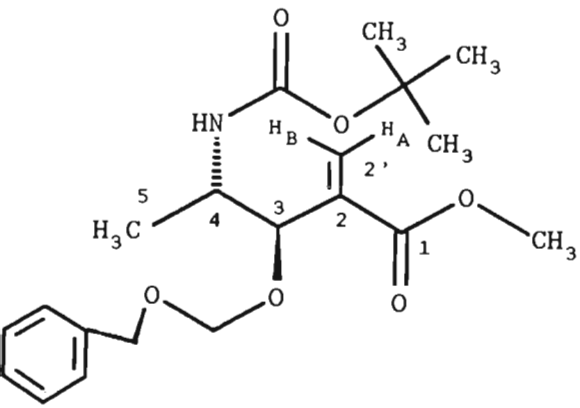


(237 A)

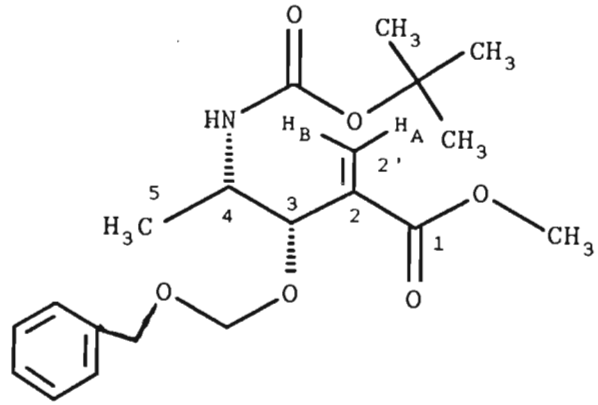


(237 B)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

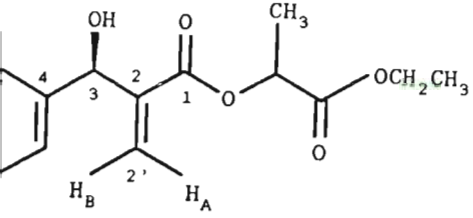


(237 A)

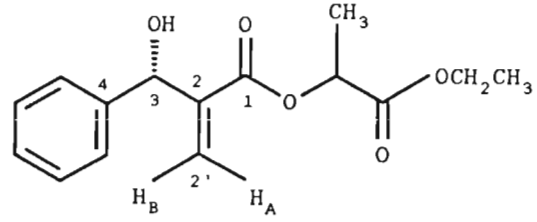


(237 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

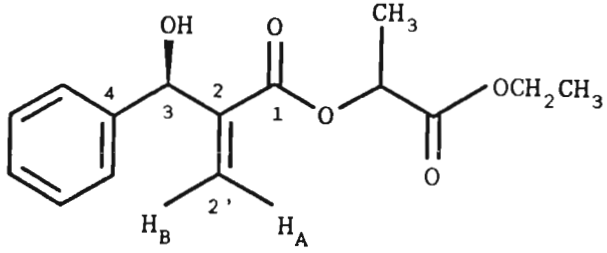


(245 A)

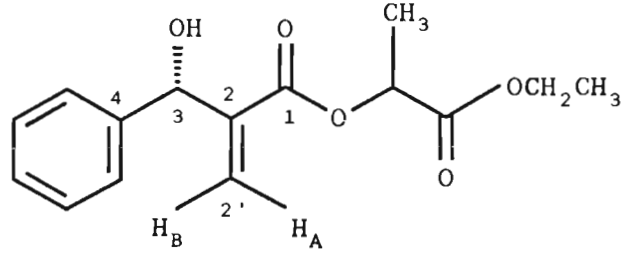


(245 B)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

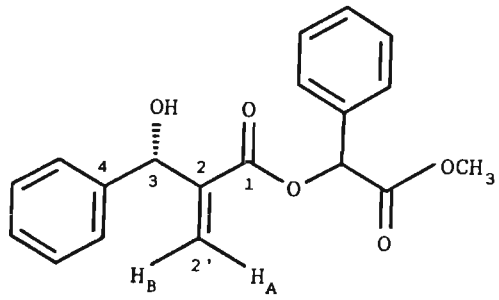


(245 A)

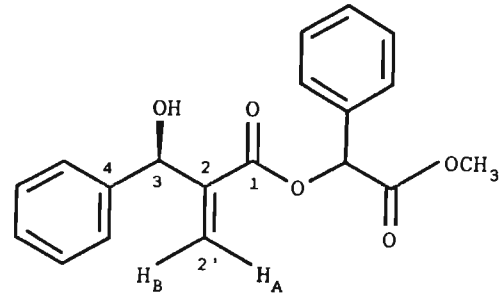


(245 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

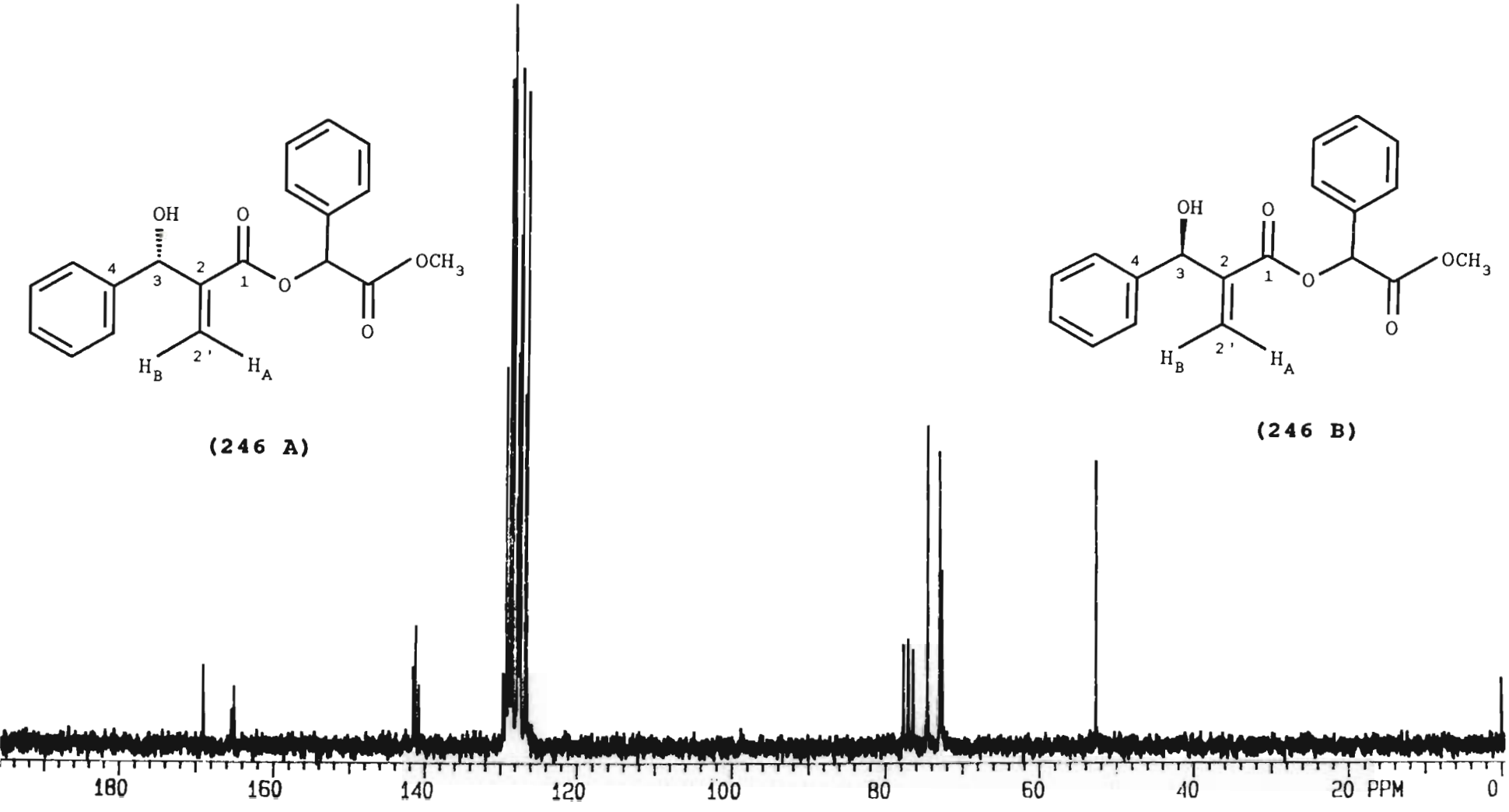


(246 A)



(246 B)

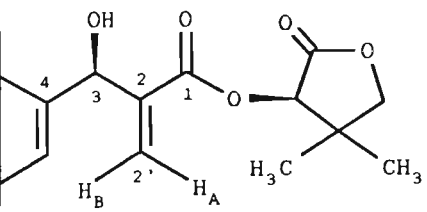
^{13}**C n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)



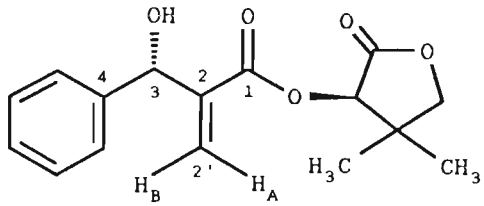
(246 A)

(246 B)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

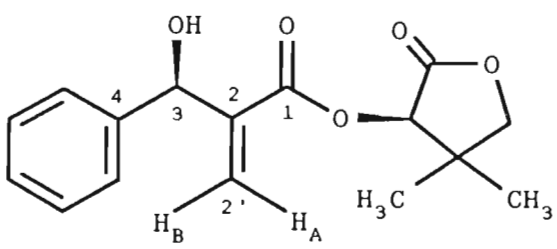


(247 A)

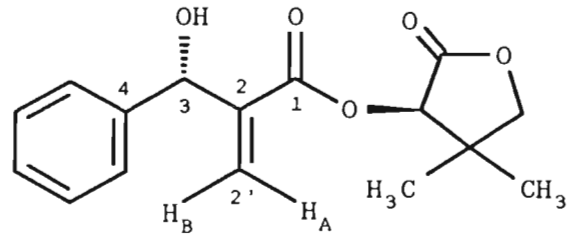


(247 B)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

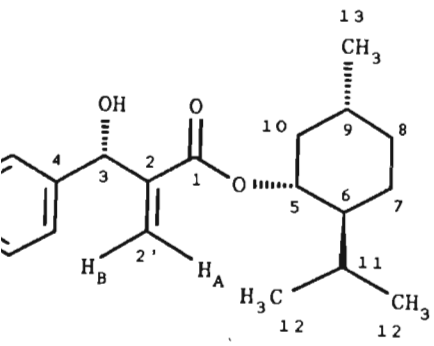


(247 A)

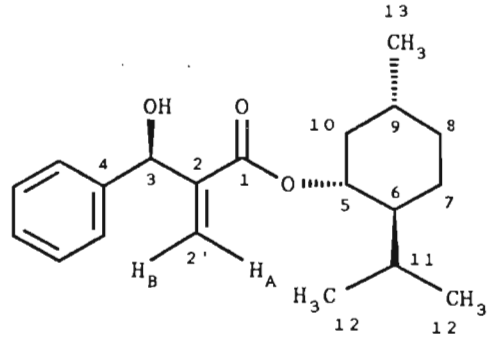


(247 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

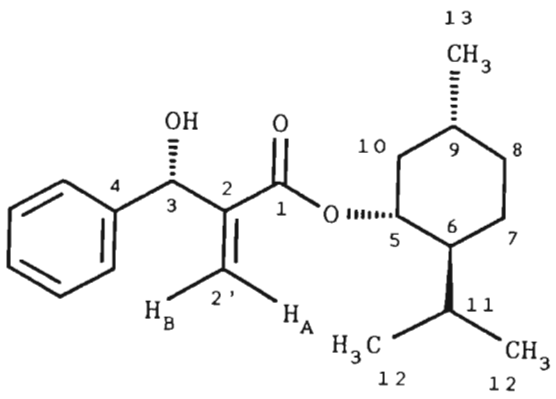


(248 A)

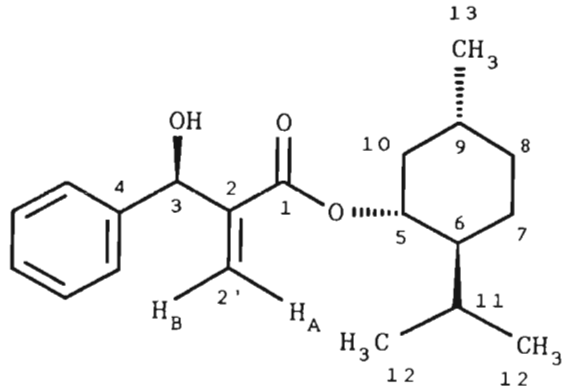


(248 B)

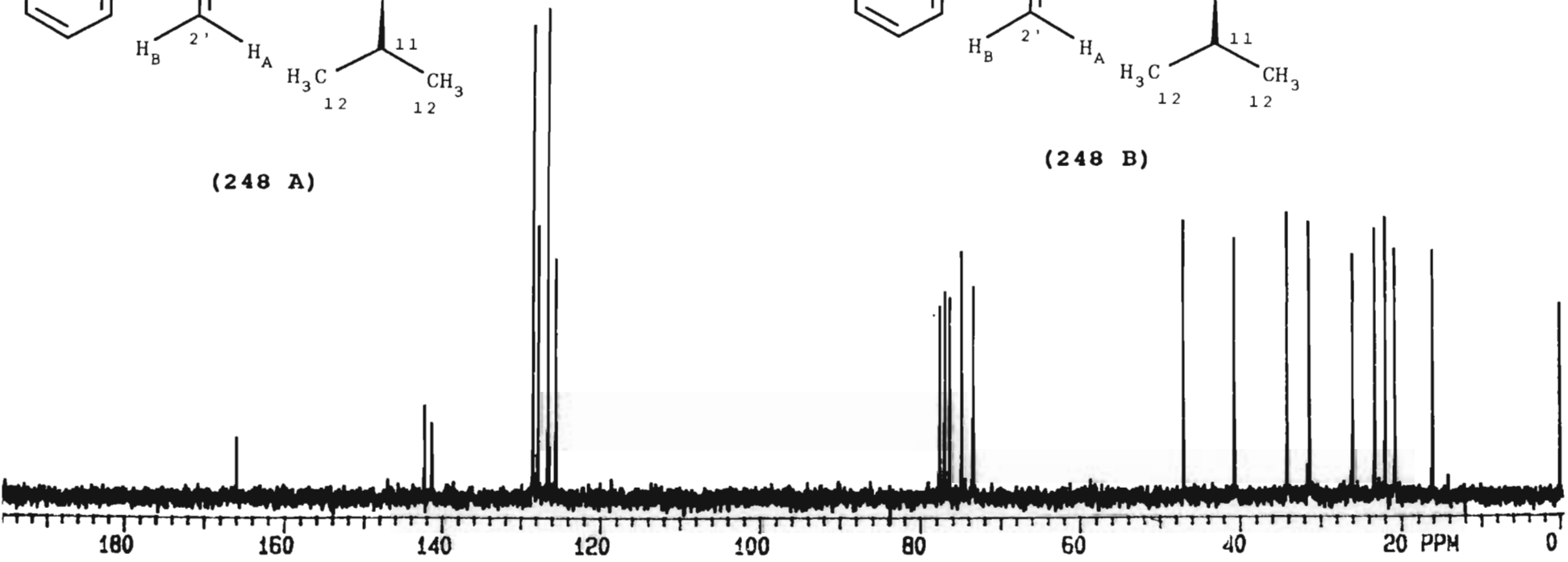
^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)



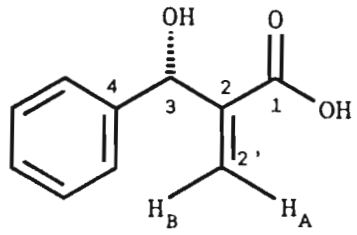
(248 A)



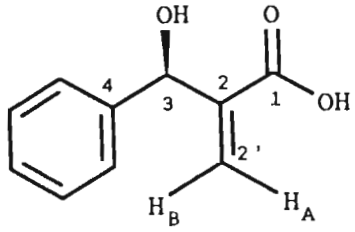
(248 B)



^{1}H **n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

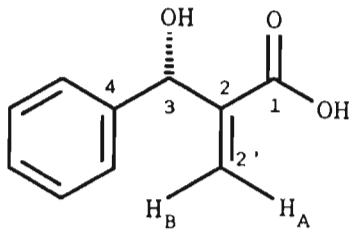


(250a)

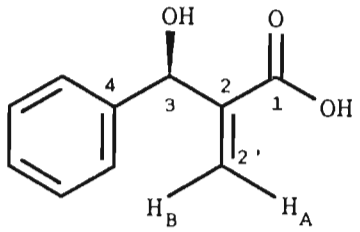


(250b)

^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

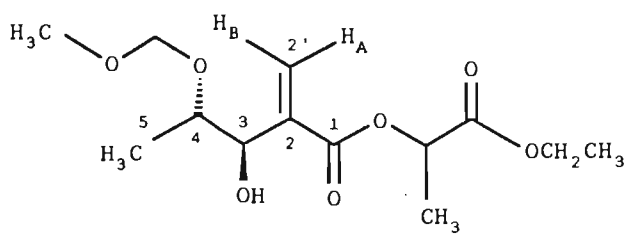


(250a)

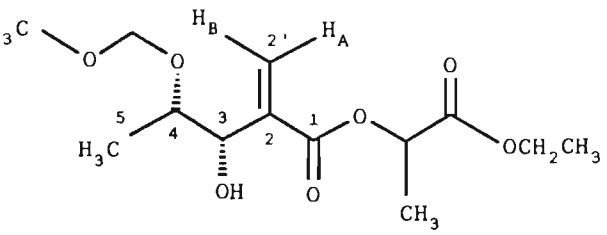


(250b)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

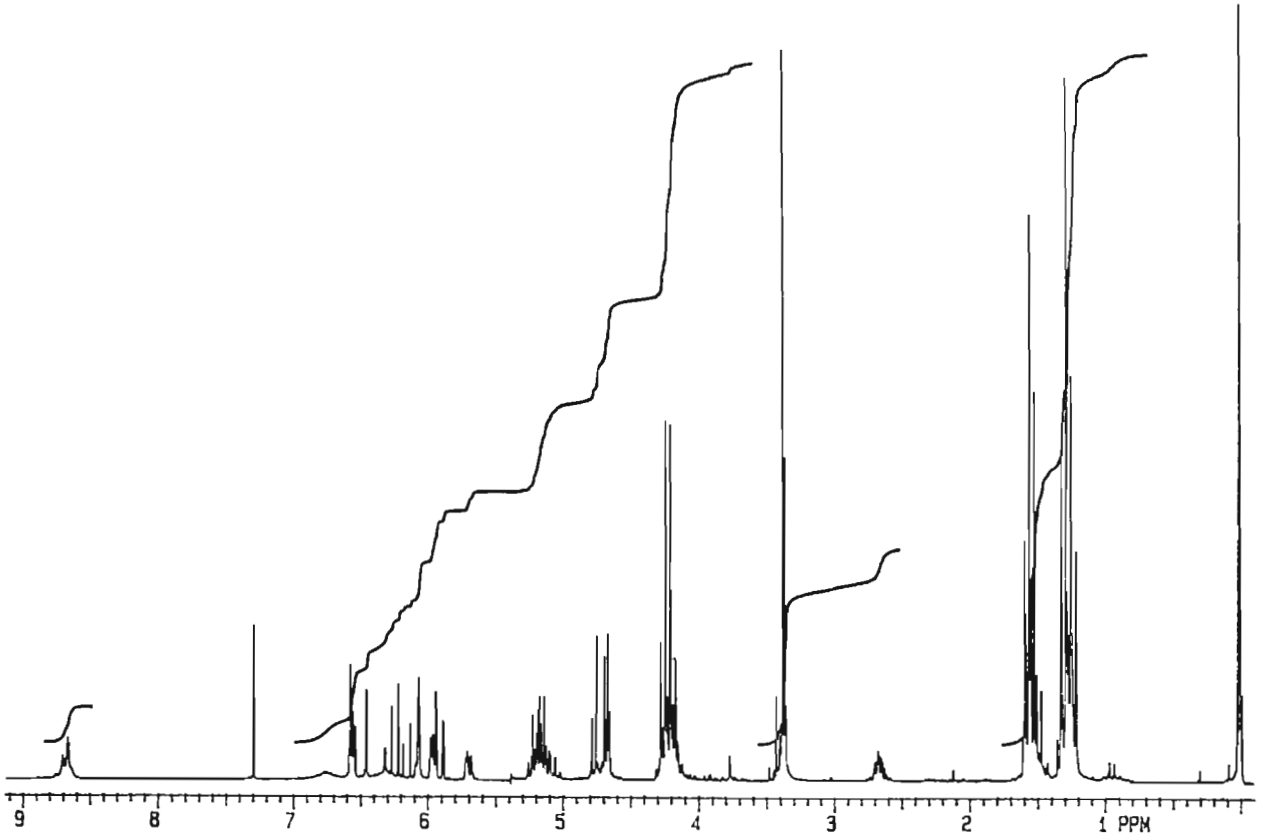


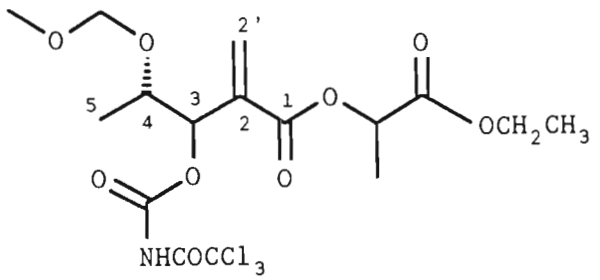
(251 A)



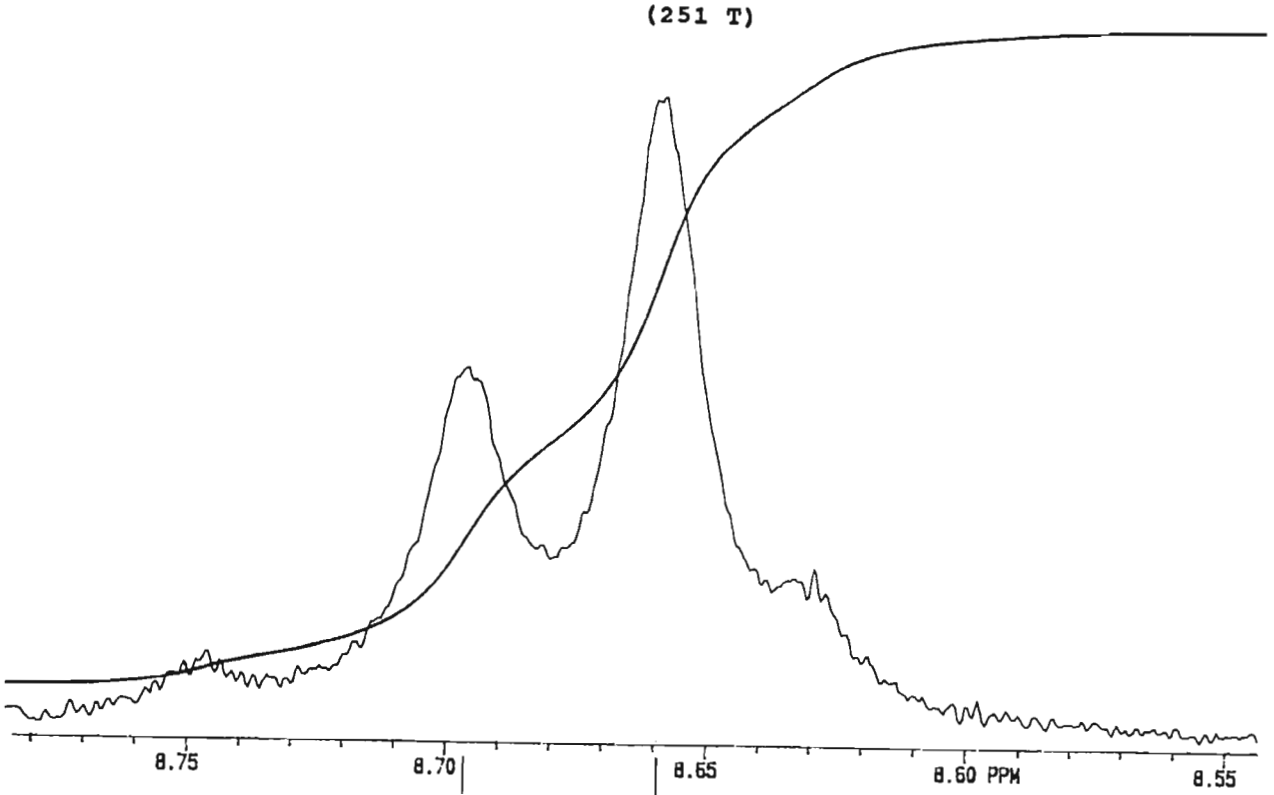
(251 B)

^{1}**H n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(251)**, showing expanded *carbamate* region.

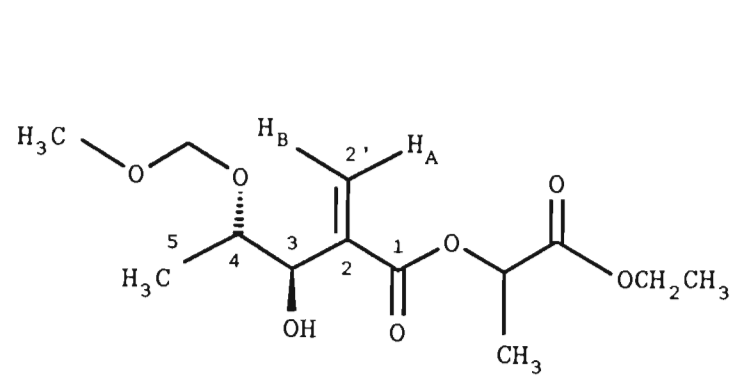




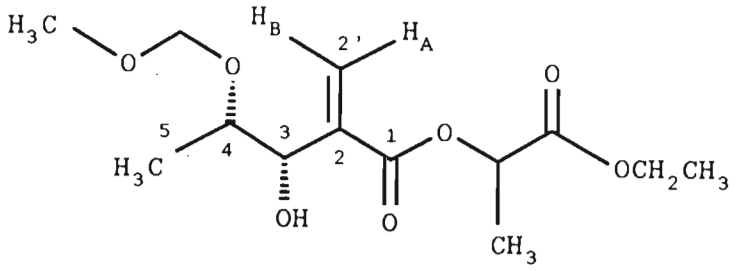
(251 T)



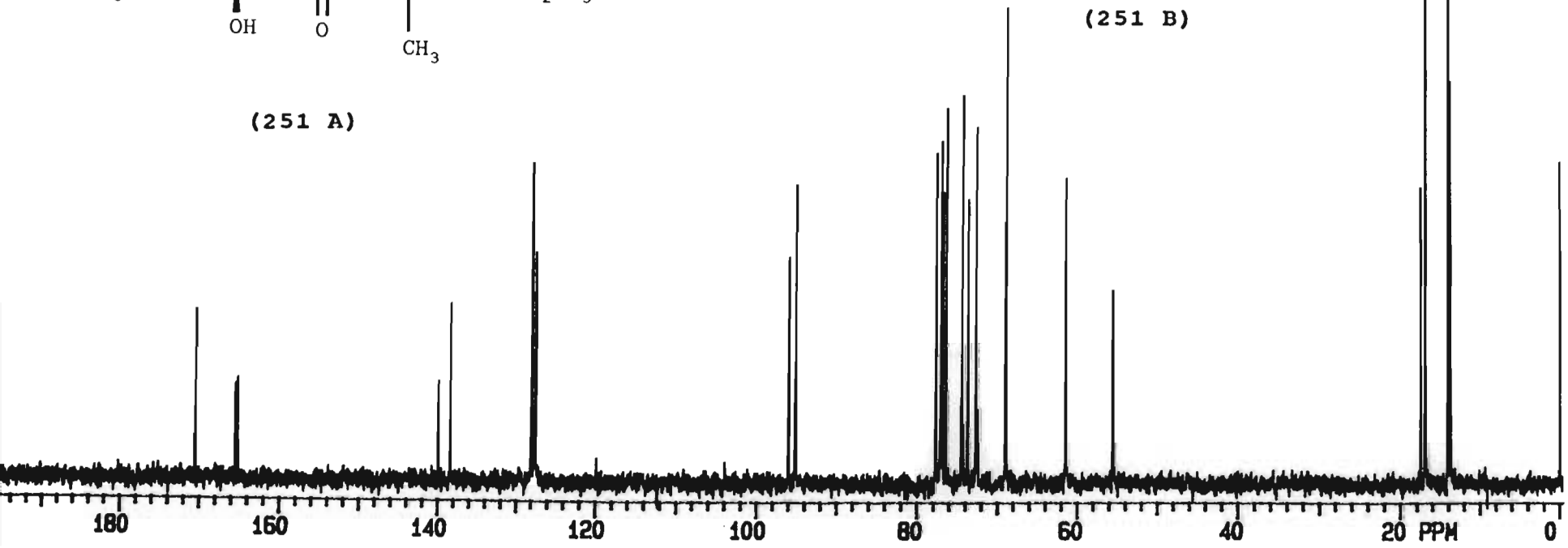
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

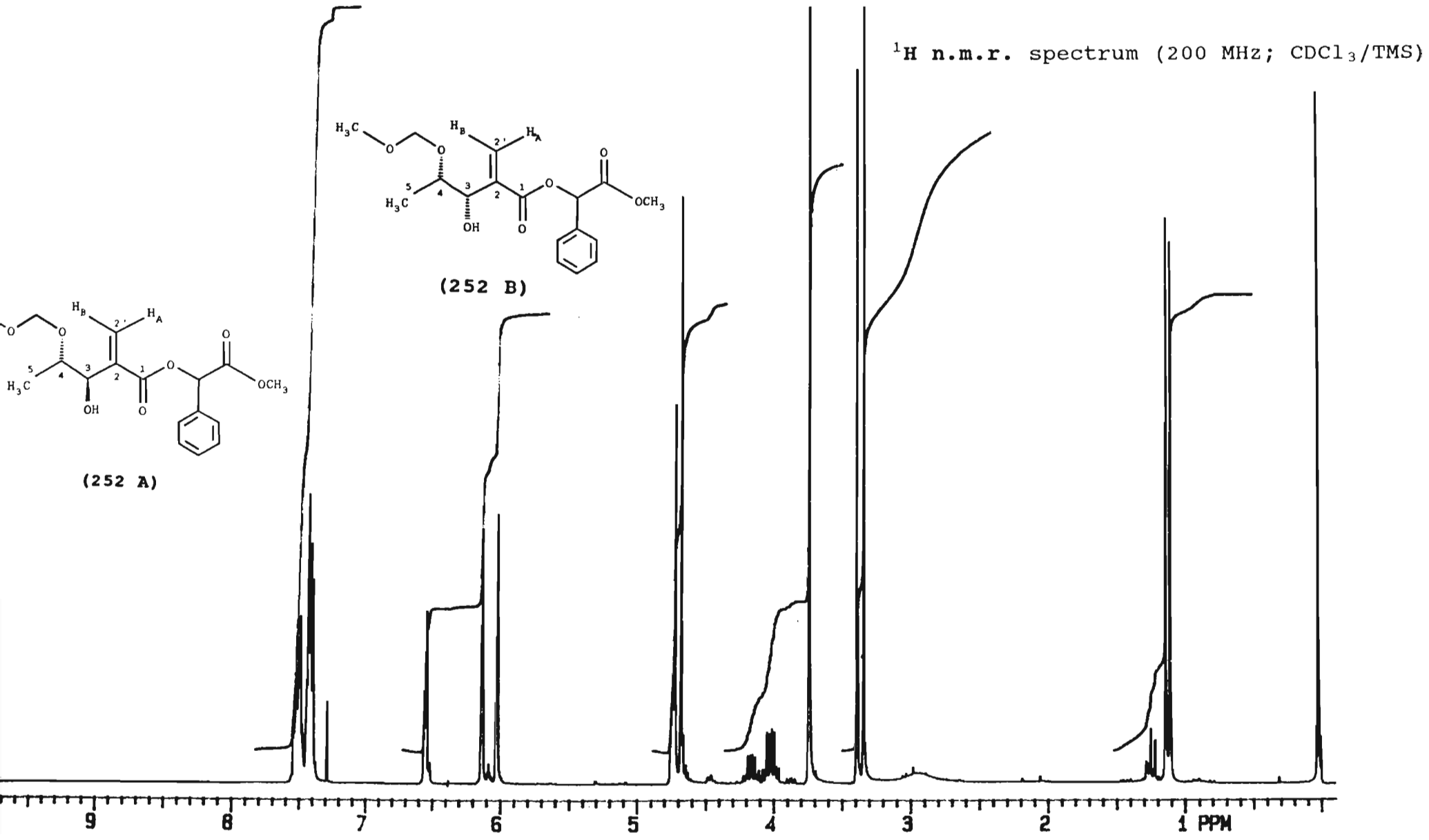


(251 A)



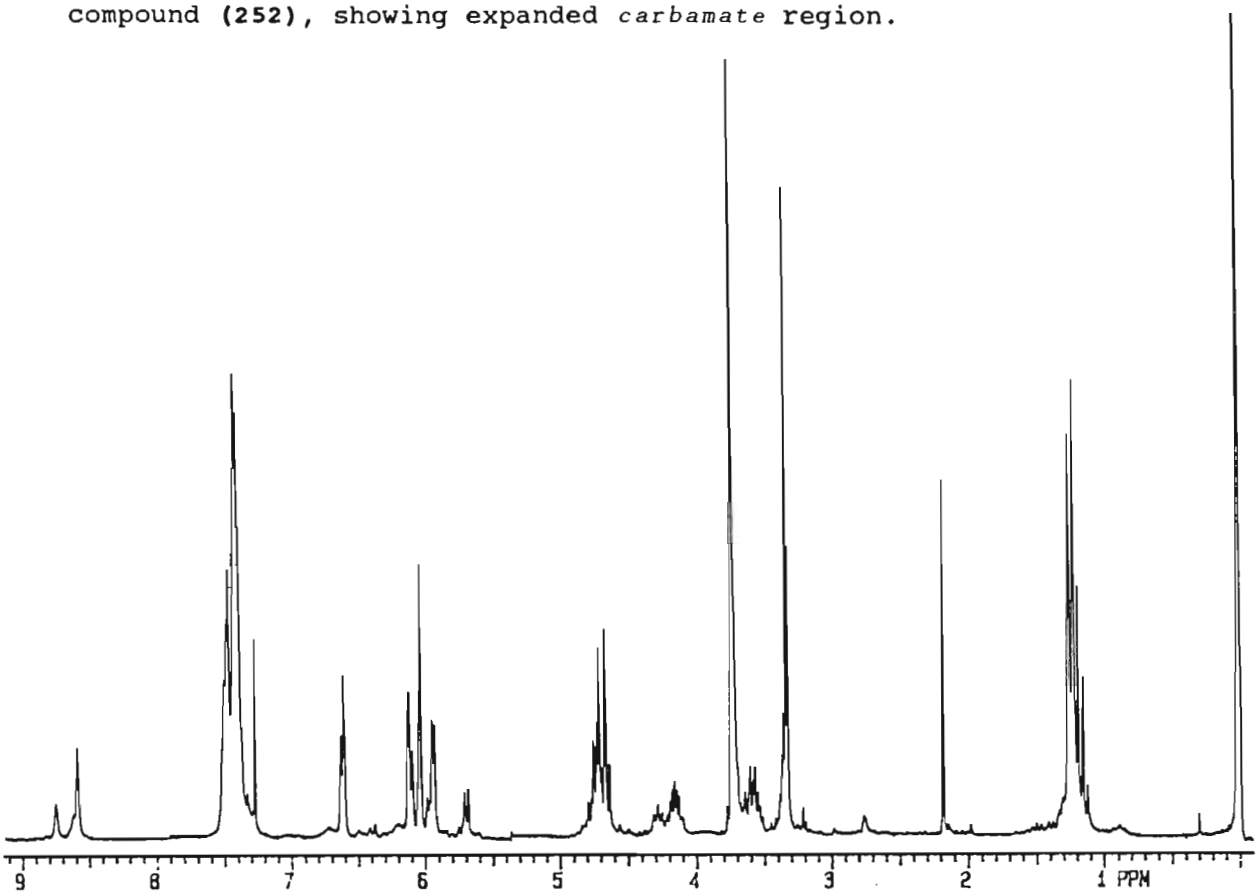
(251 B)

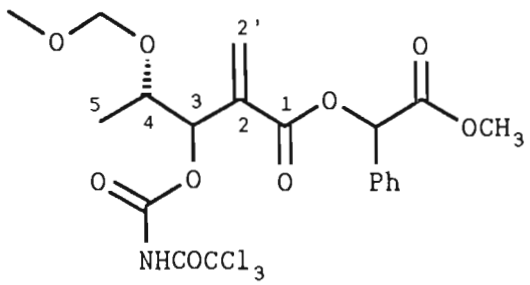




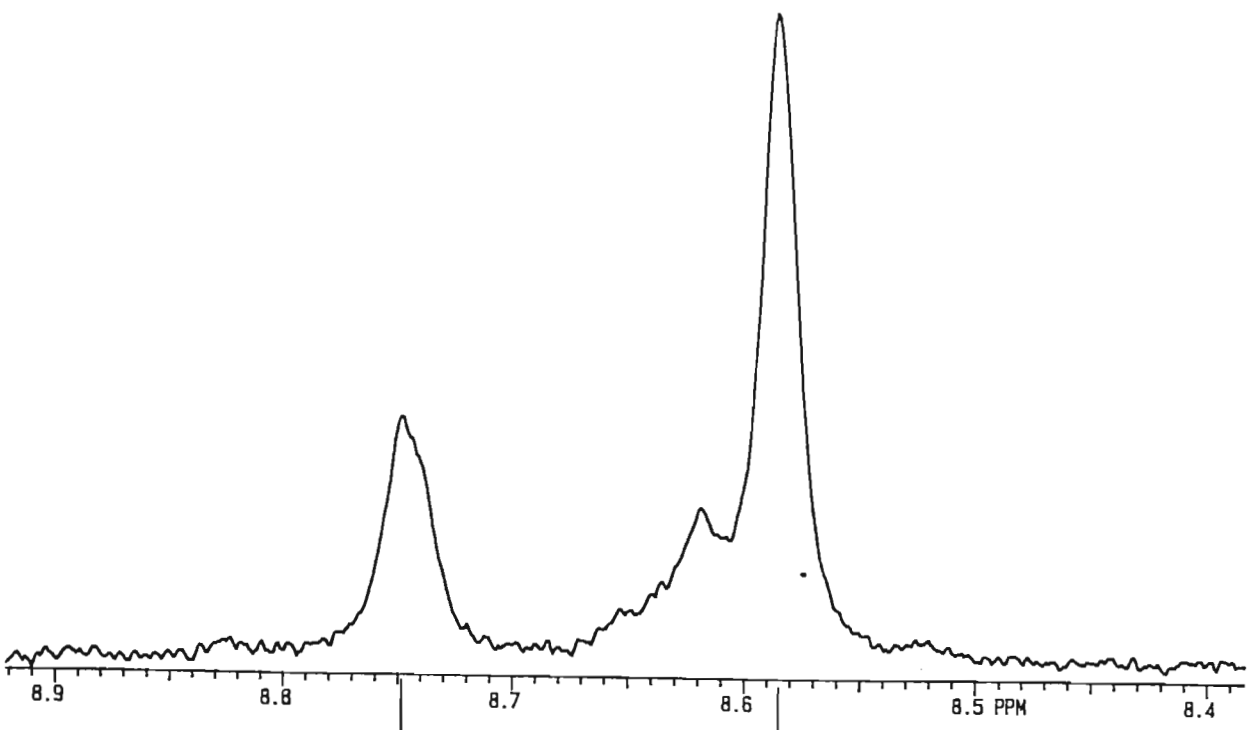
^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(252)**, showing expanded *carbamate* region.

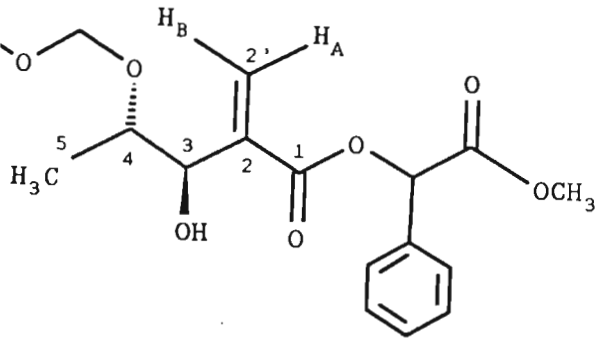




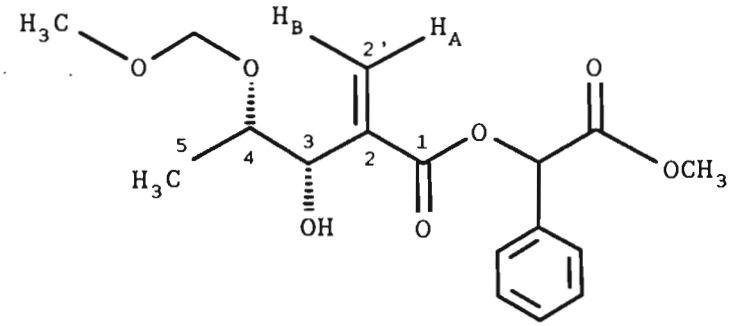
(252 T)



^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

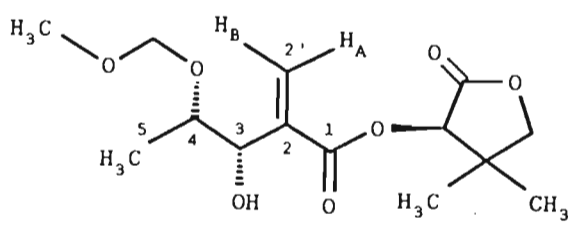


(252 A)

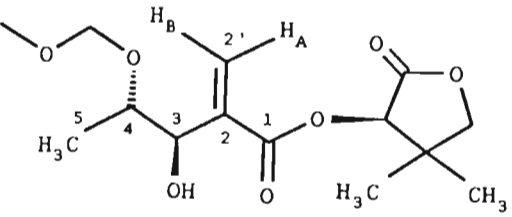


(252 B)

^{1}**H n.m.r.** spectrum (200 MHz; $CDCl_3$/TMS)

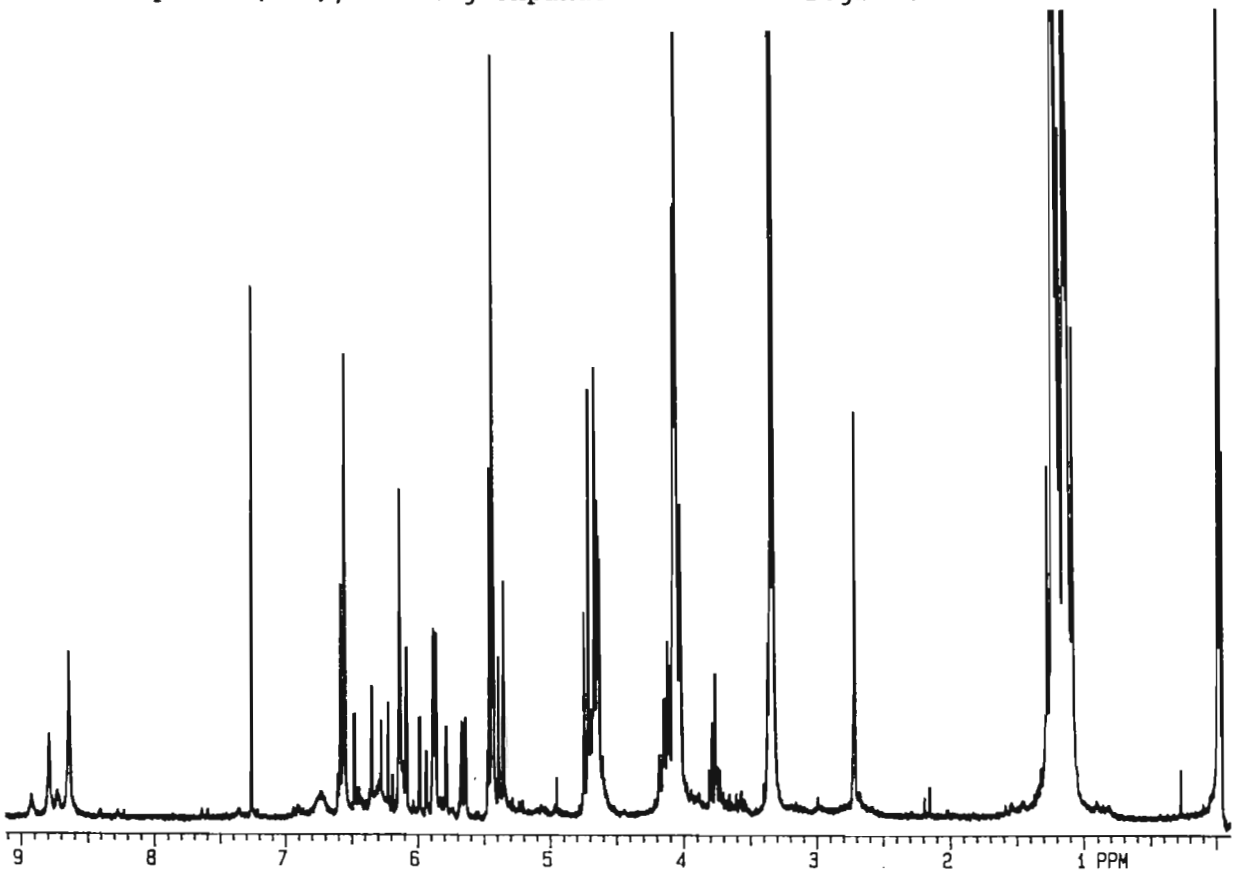


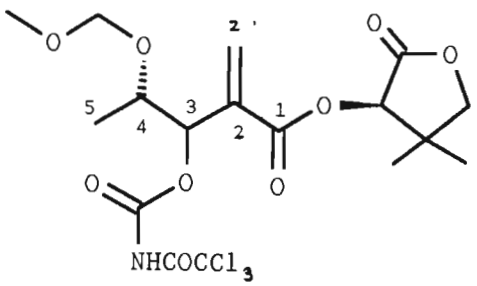
(253 B)



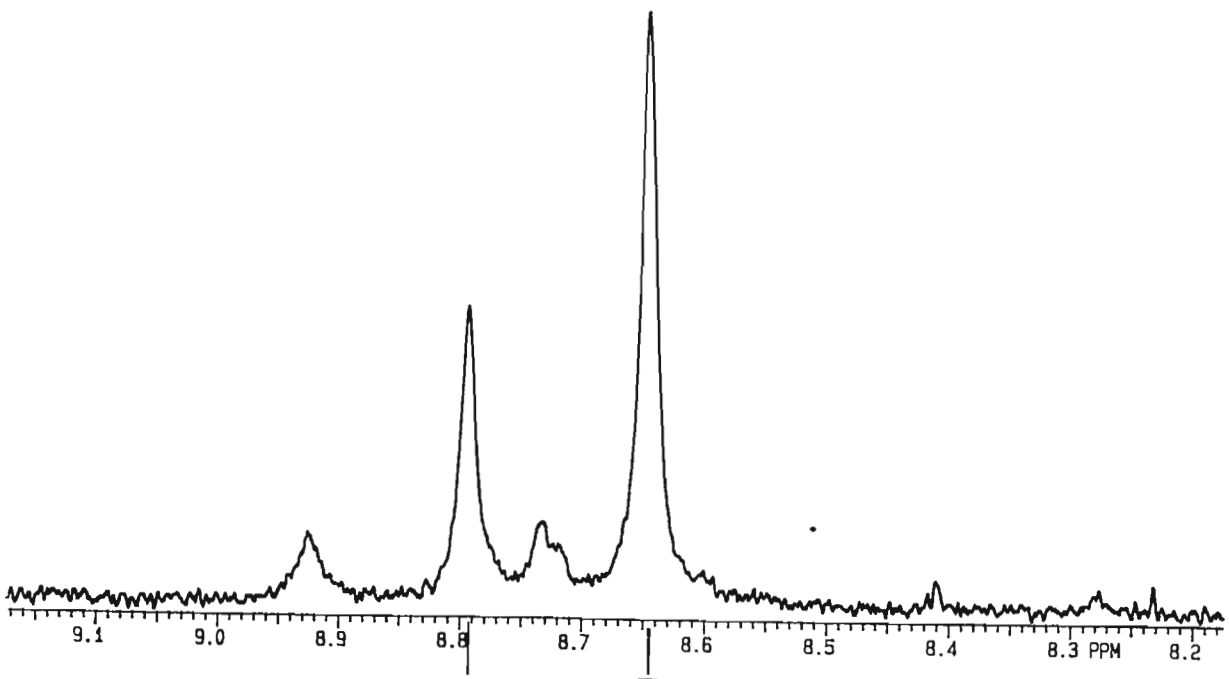
(253 A)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(253)**, showing expanded *carbamate* region.

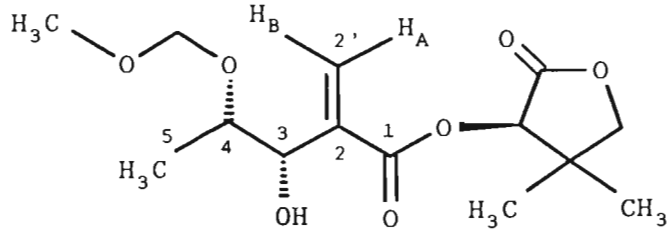




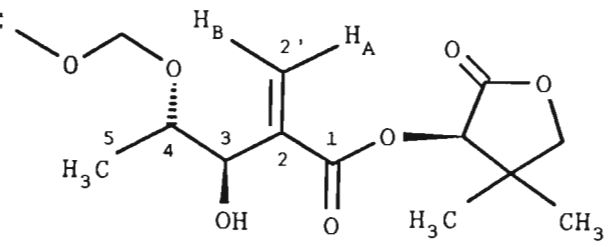
(253 T)



^{13}C n.m.r. (PND) spectrum (50 MHz; $CDCl_3$/TMS)

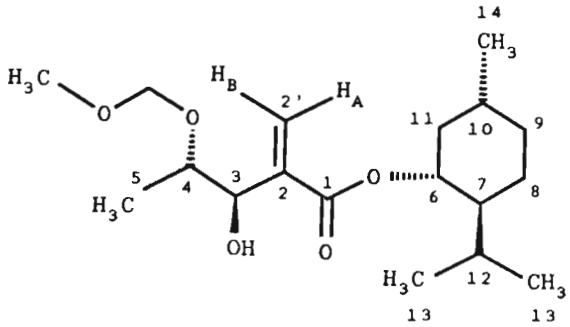


(253 B)

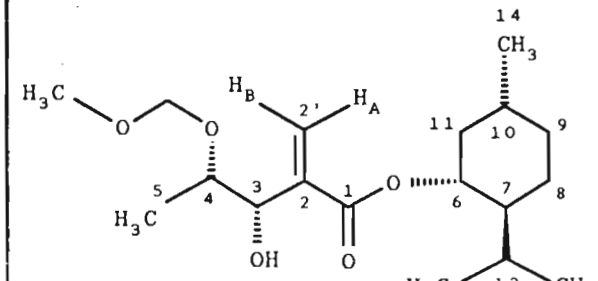


(253 A)

^{1}H n.m.r. spectrum (200 MHz; $CDCl_3$/TMS)

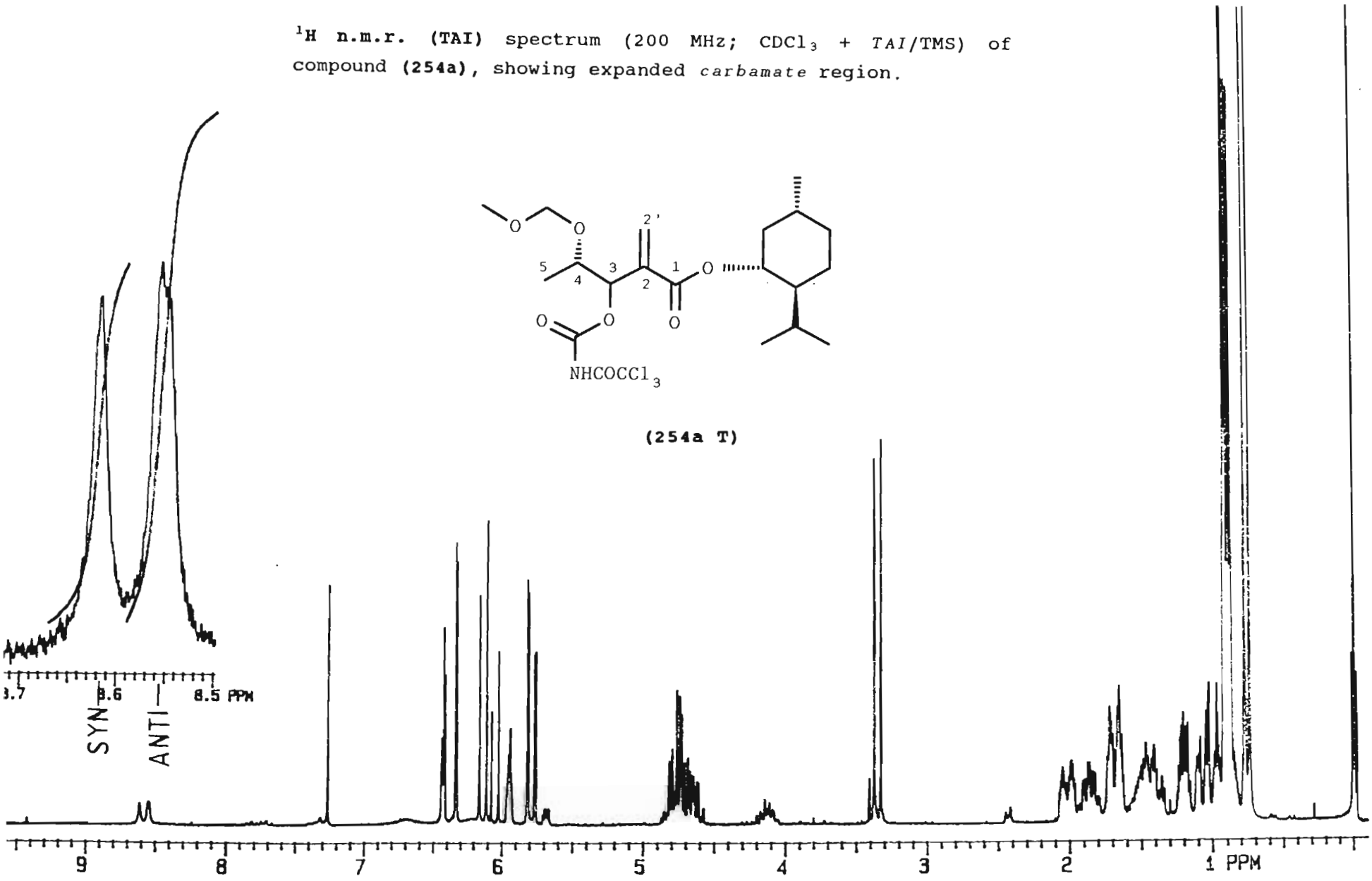


(254 A)



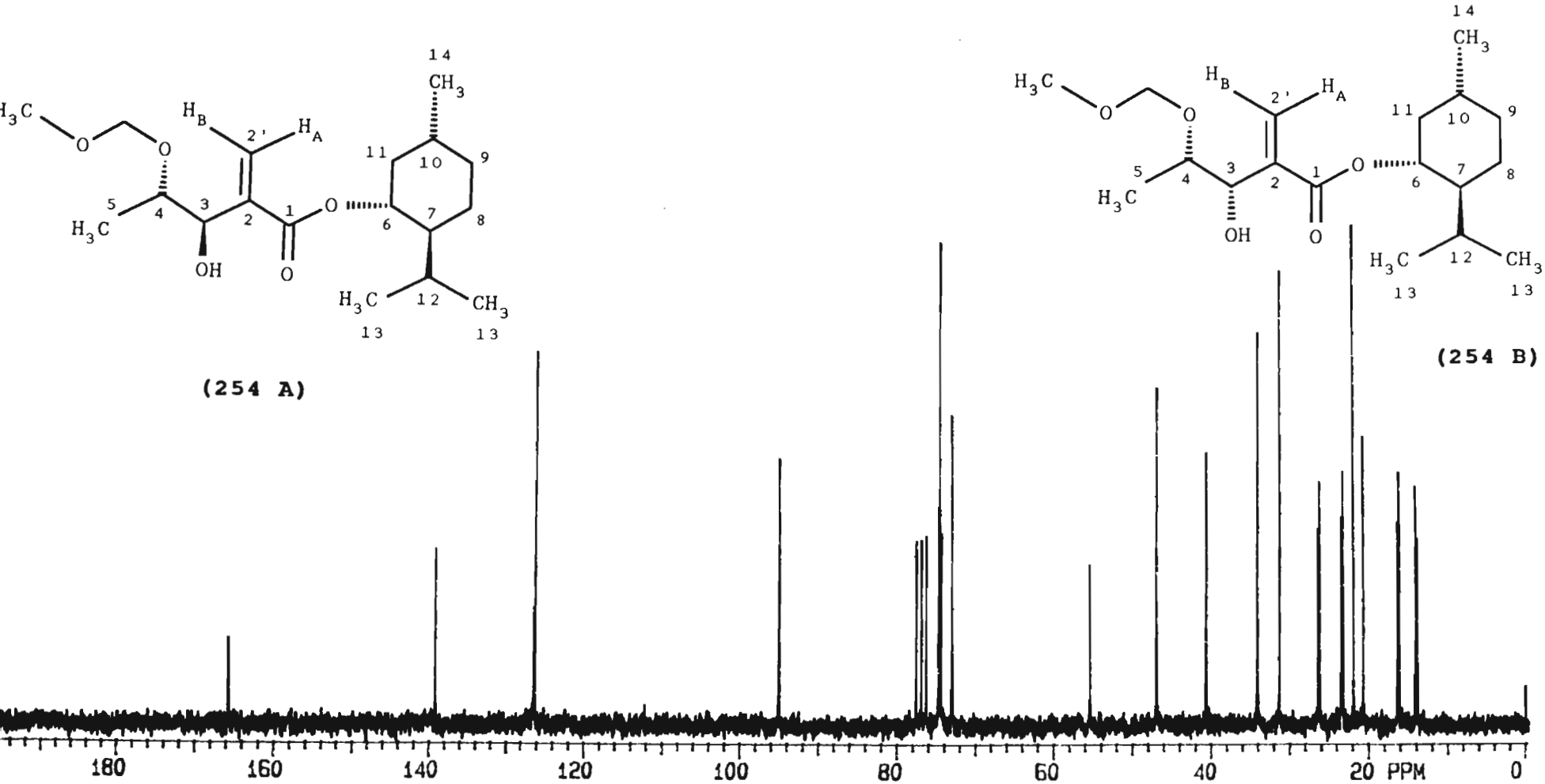
(254 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(254a)**, showing expanded *carbamate* region.



(254a T)

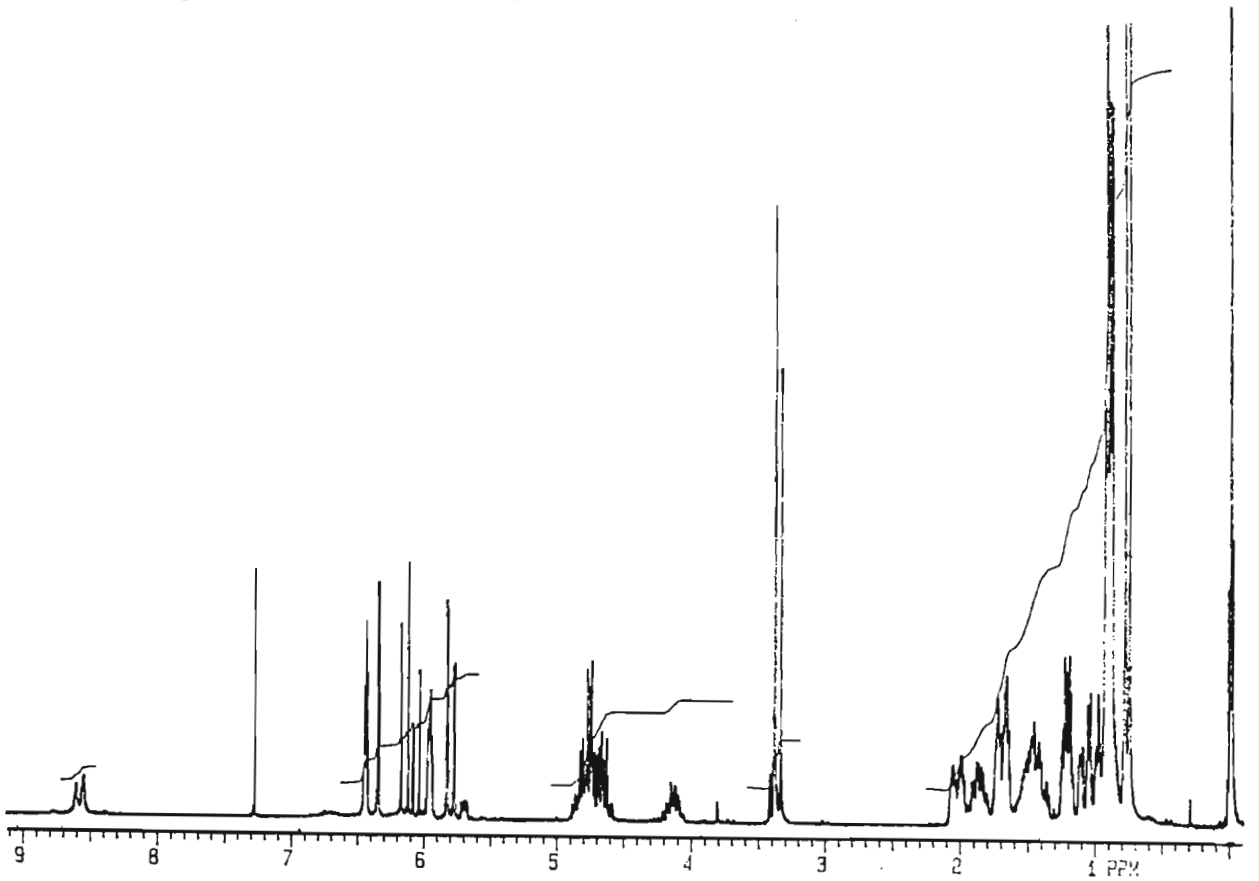
^{13}C **n.m.r. (PND)** spectrum (50 MHz; $CDCl_3$/TMS)

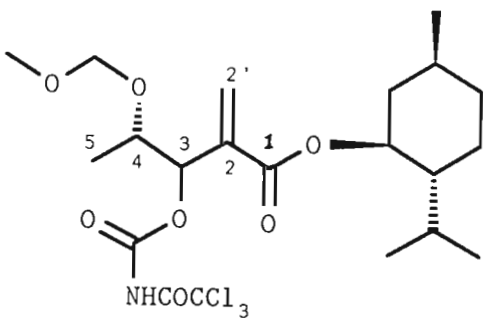


(254 A)

(254 B)

^{1}H **n.m.r. (TAI)** spectrum (200 MHz; $CDCl_3$ + *TAI*/TMS) of compound **(254b)**, showing expanded *carbamate* region.





(254b T)