

UNIVERSIDAD DE SEVILLA

FACULTAD DE FARMACIA

DEPARTAMENTO DE QUIMICA ORGANICA Y FARMACEUTICA

APENDICE

INMUNOCOADYUVANTES. SINTESIS DE ANALOGOS RIGIDOS
DE N-ACETILMURAMIL-L-ALANIL-D-ISOGLUTAMINA (MDP)

UNIVERSIDAD DE SEVILLA
SECRETARIA GENERAL

Queda registrada esta Tesis Doctoral
al folio 193 número 69 del libro
correspondiente. 10 MAR 1990
Sevilla:

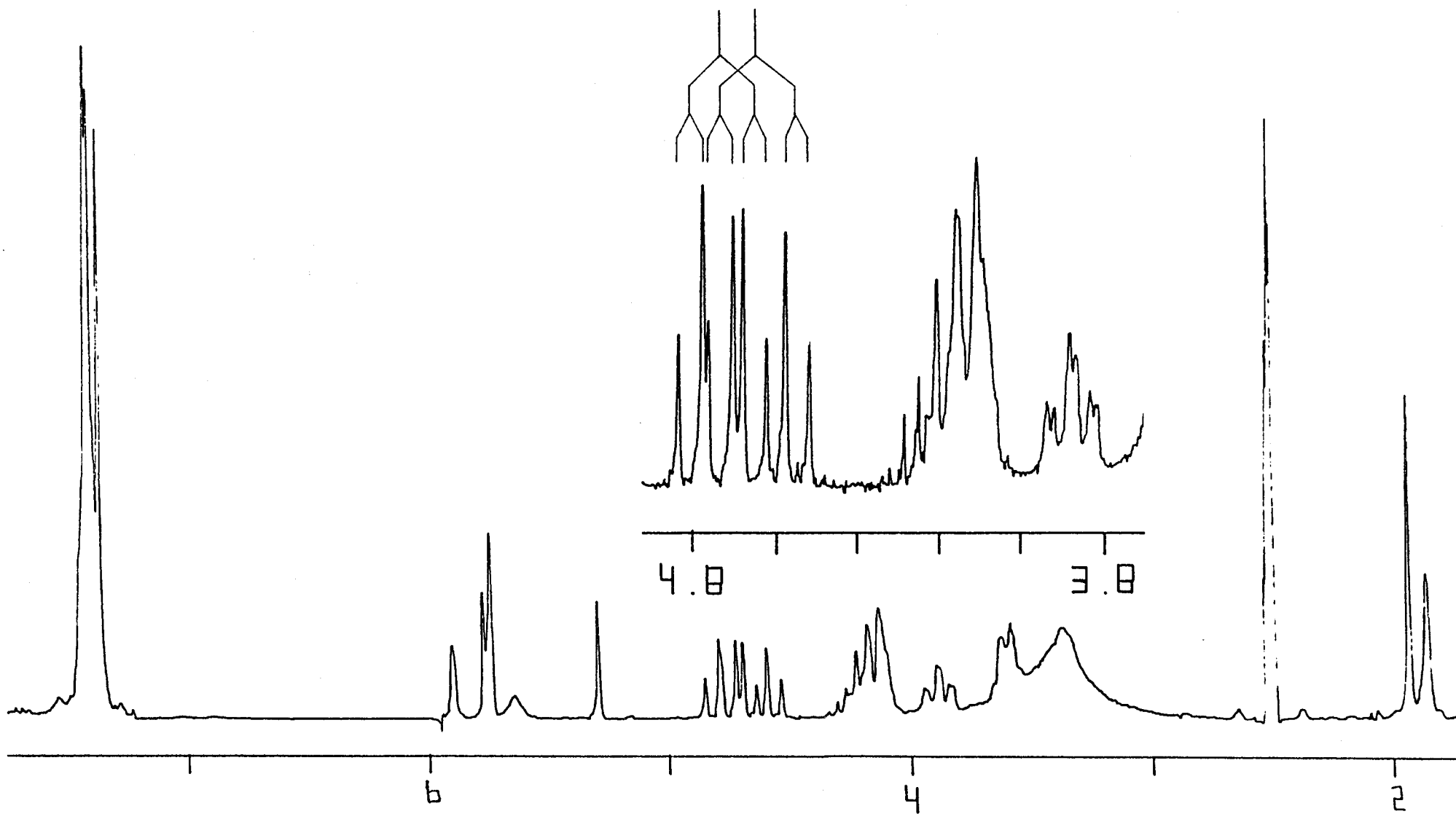
El Jefe del Negociado de Tesis,

Alcira Schiffré

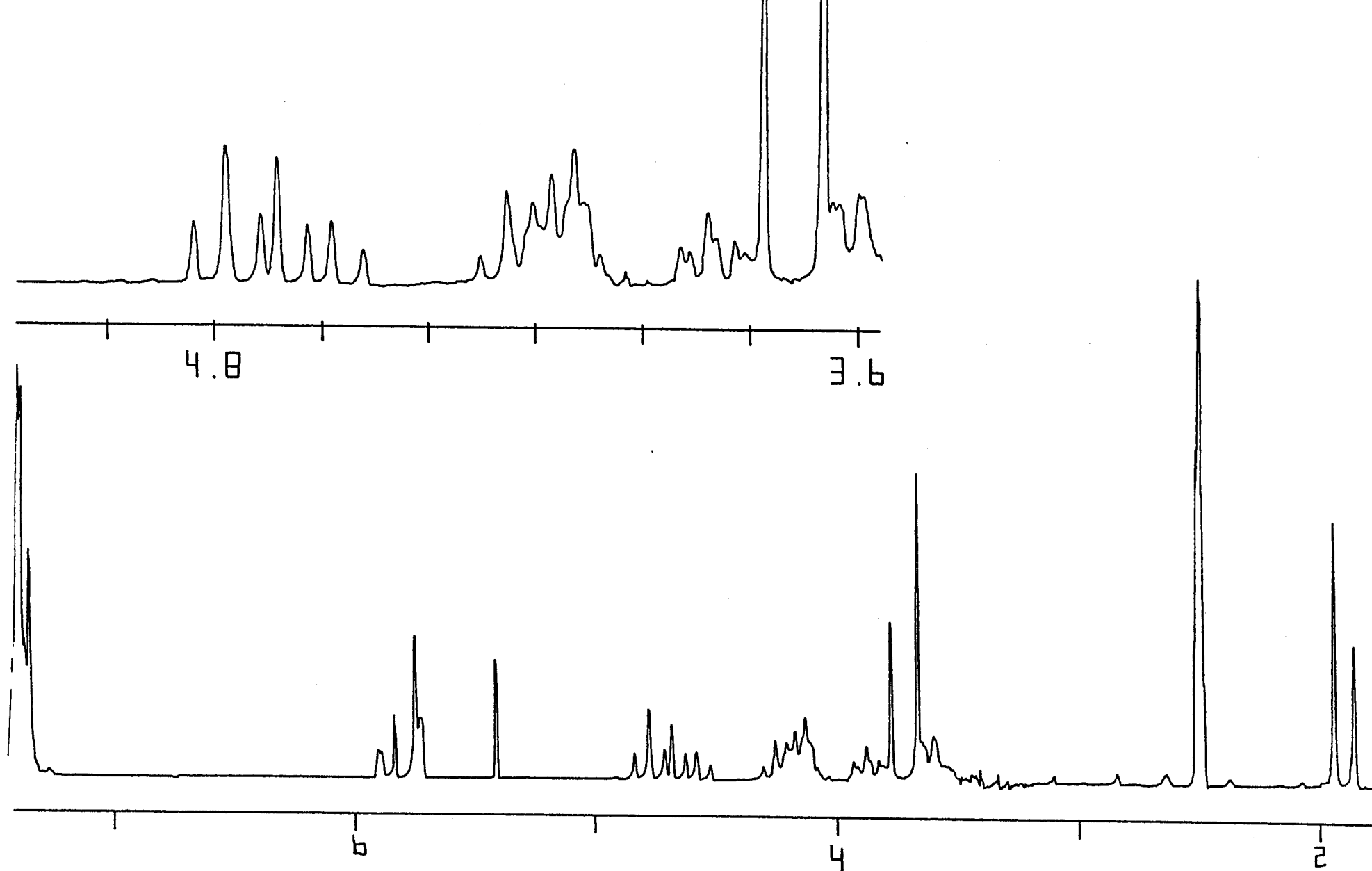


Memoria presentada por el Licenciado
Francisco José Ruiz Rodríguez para
optar al grado de Doctor en Farmacia

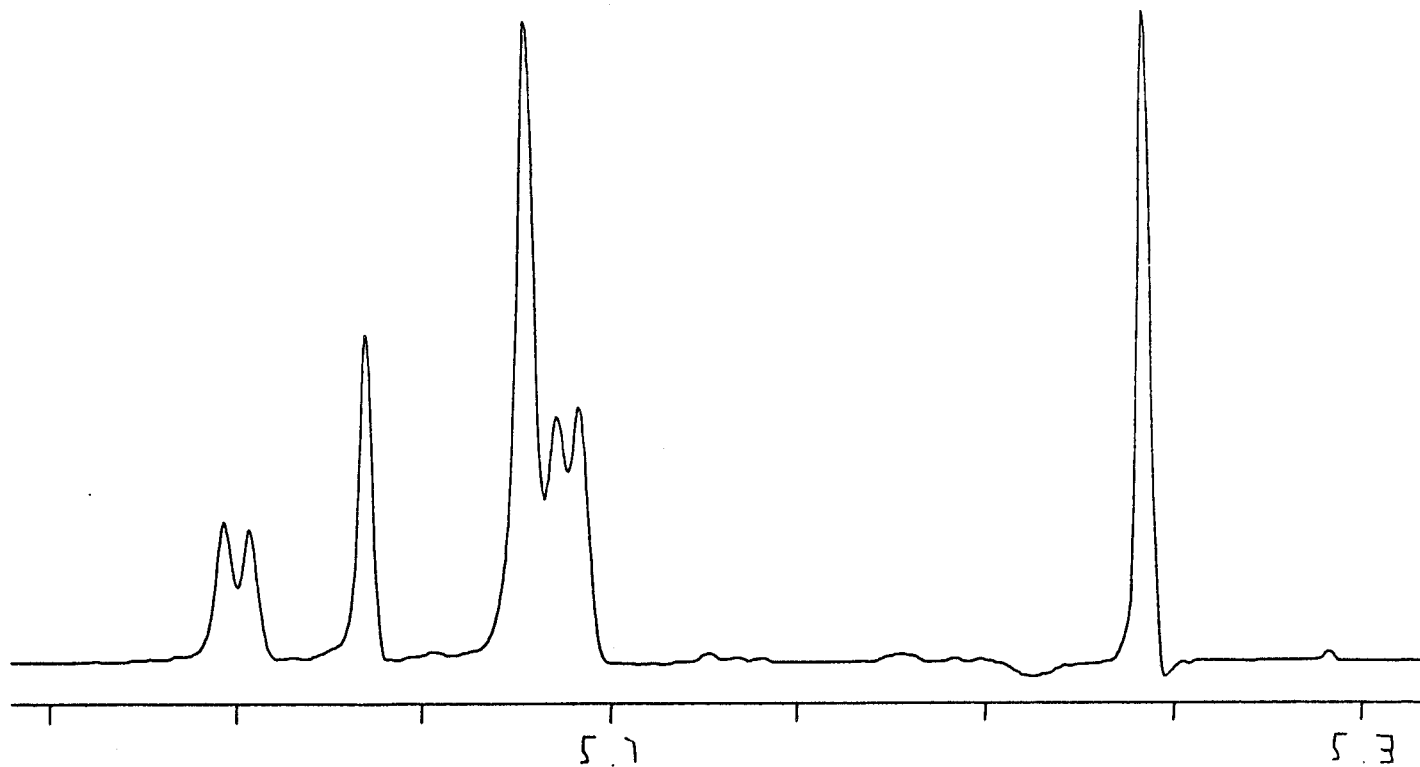
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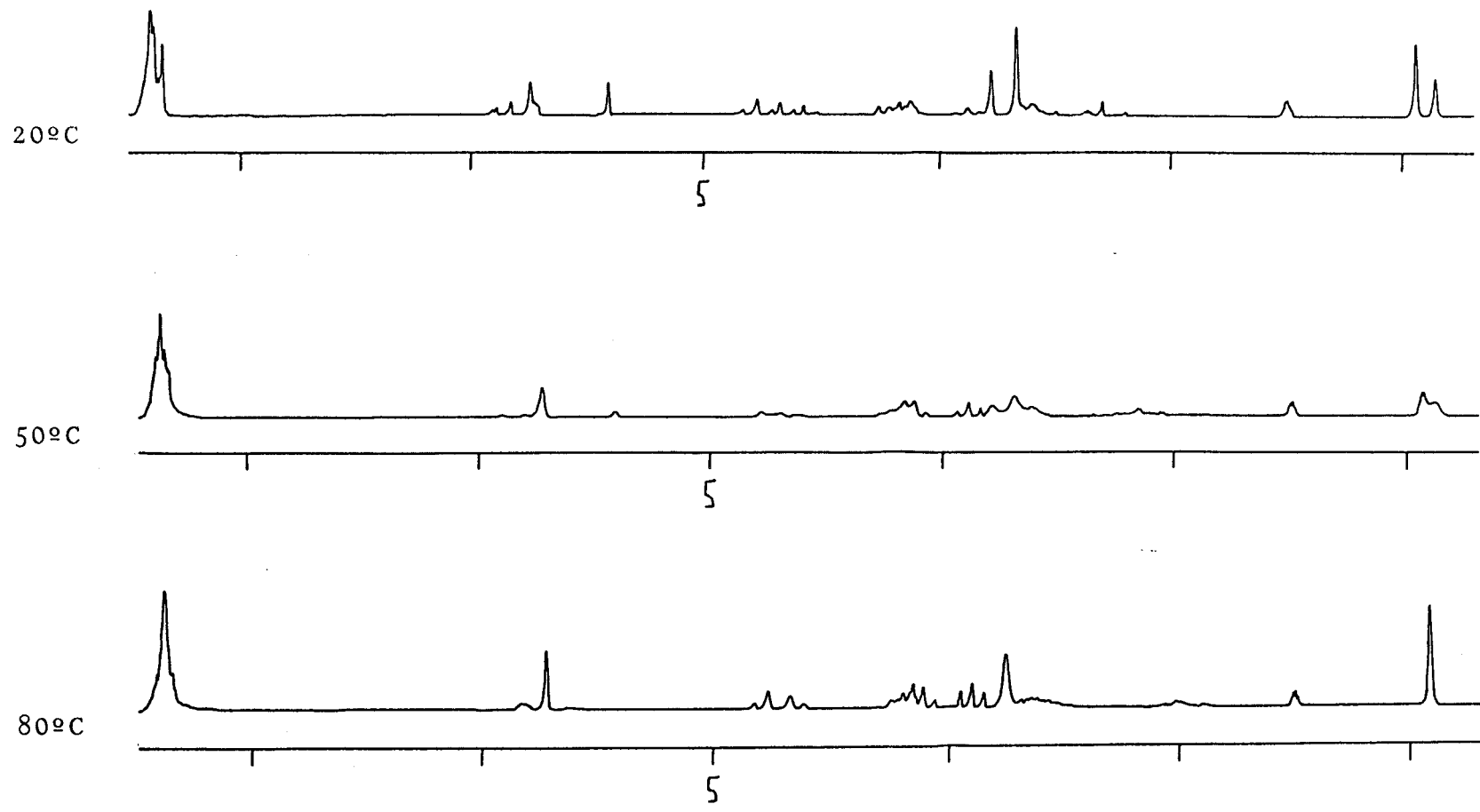
Espectro de $^1\text{H-NMR}$ de 3-acetil-2-carboxi-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (37) (DMSO-d_6 , 200 MHz, TMS)



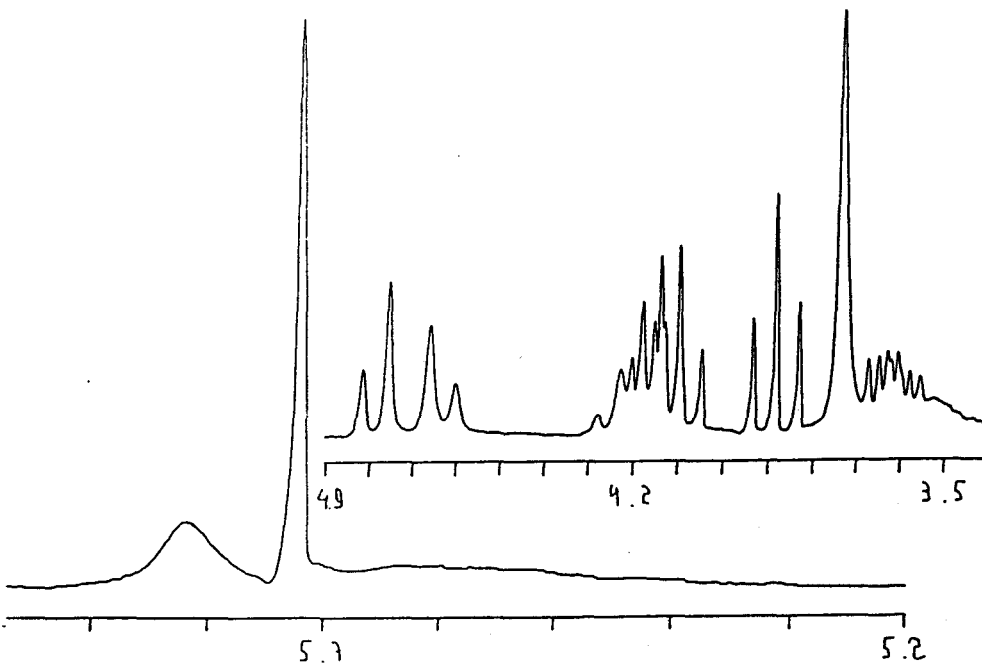
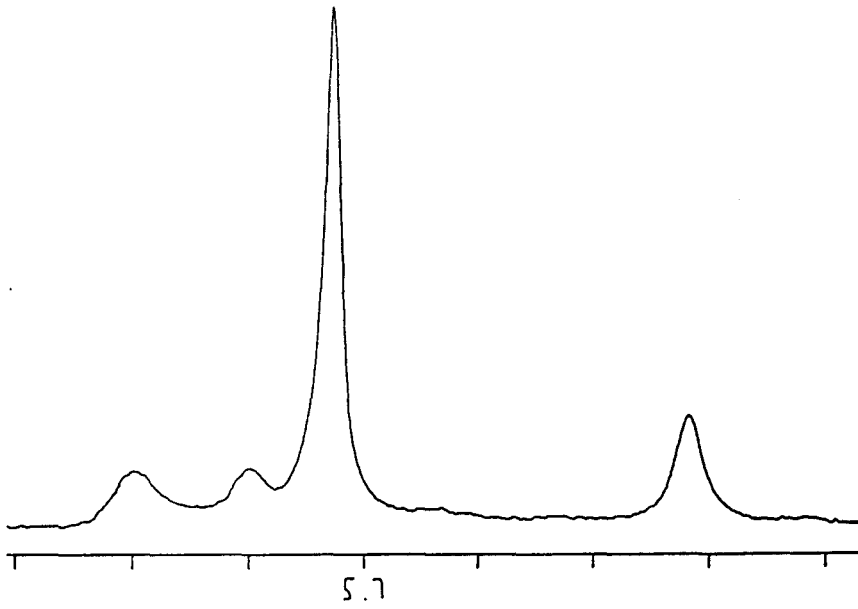
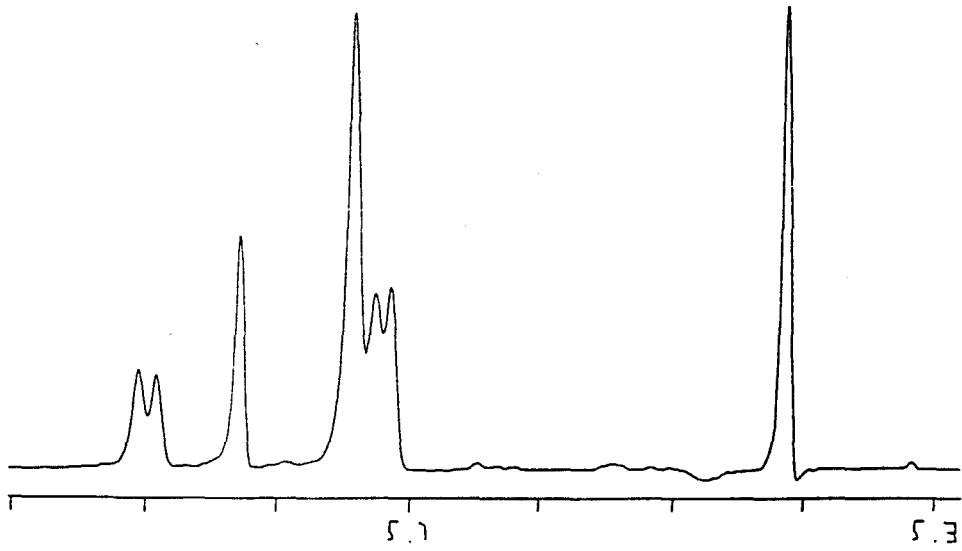
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi-
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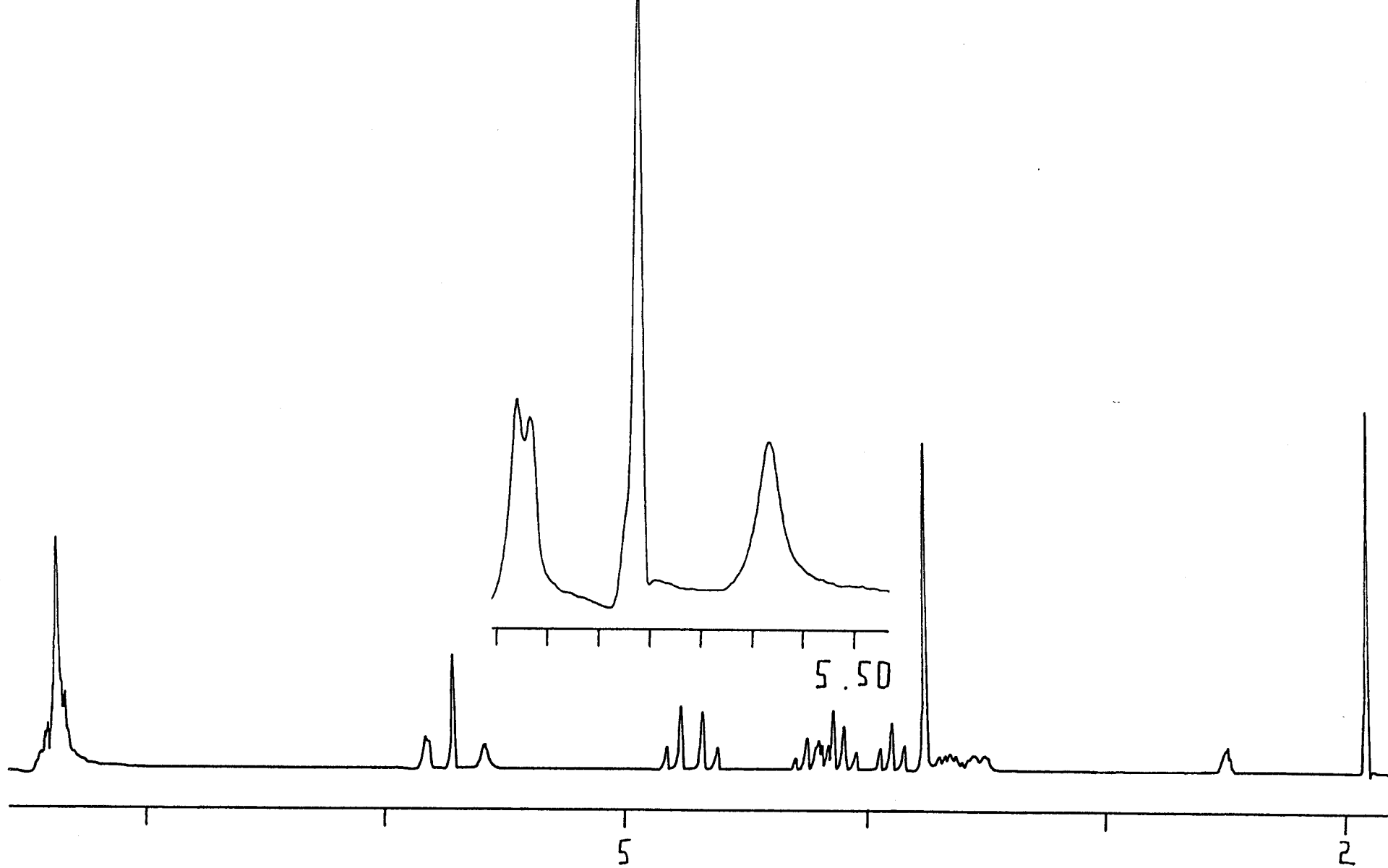
Ampliación del espectro de ^1H -RMN de la sustancia 40 (Figura 2-A)



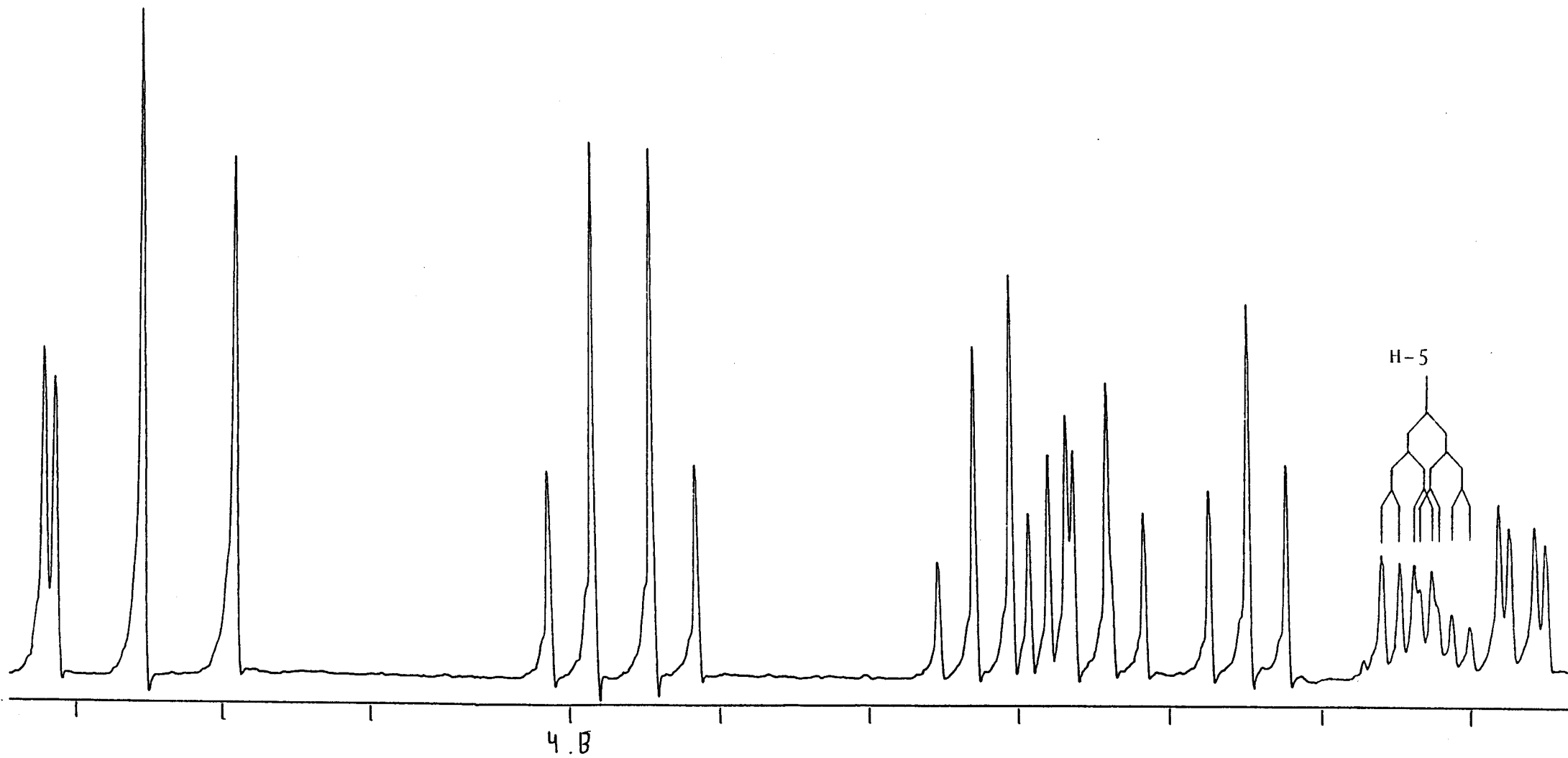
Secuencia de espectros de ¹H-RMN de la sustancia 40 a 20, 50 y 80°C (DMSO-d₆, 200MHz, TMS)



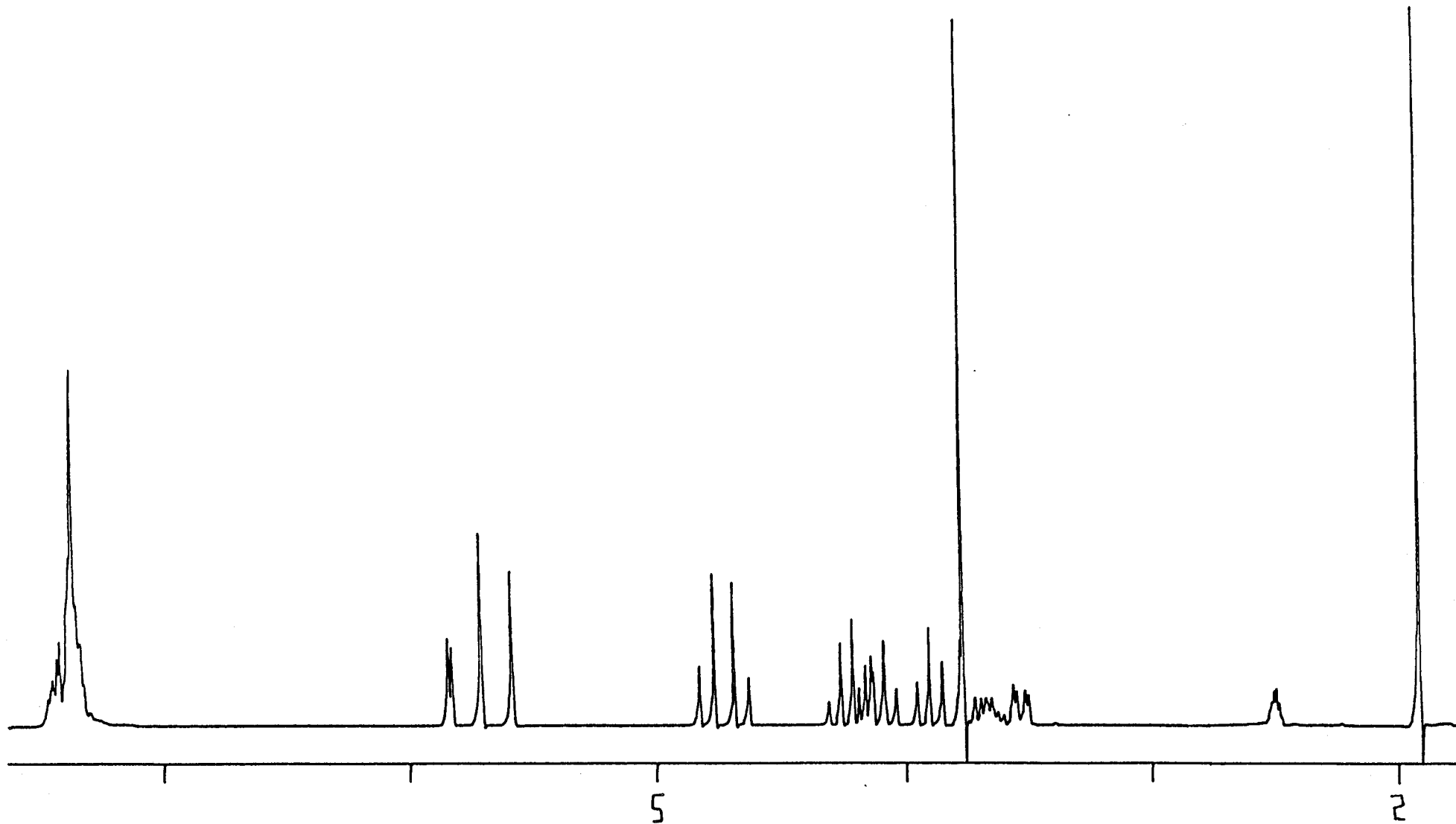
Ampliación de los espectros de la sustancia 40 a 20, 50 y 80°C



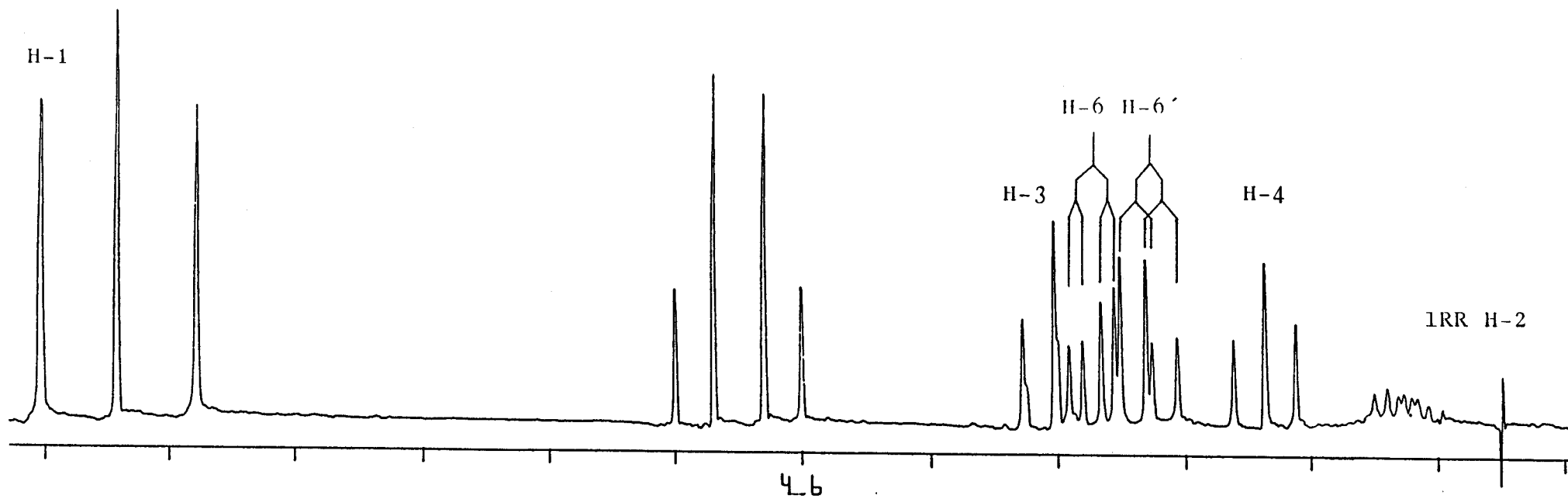
Espectro de ^1H -RMN de la sustancia 40 a 110°C



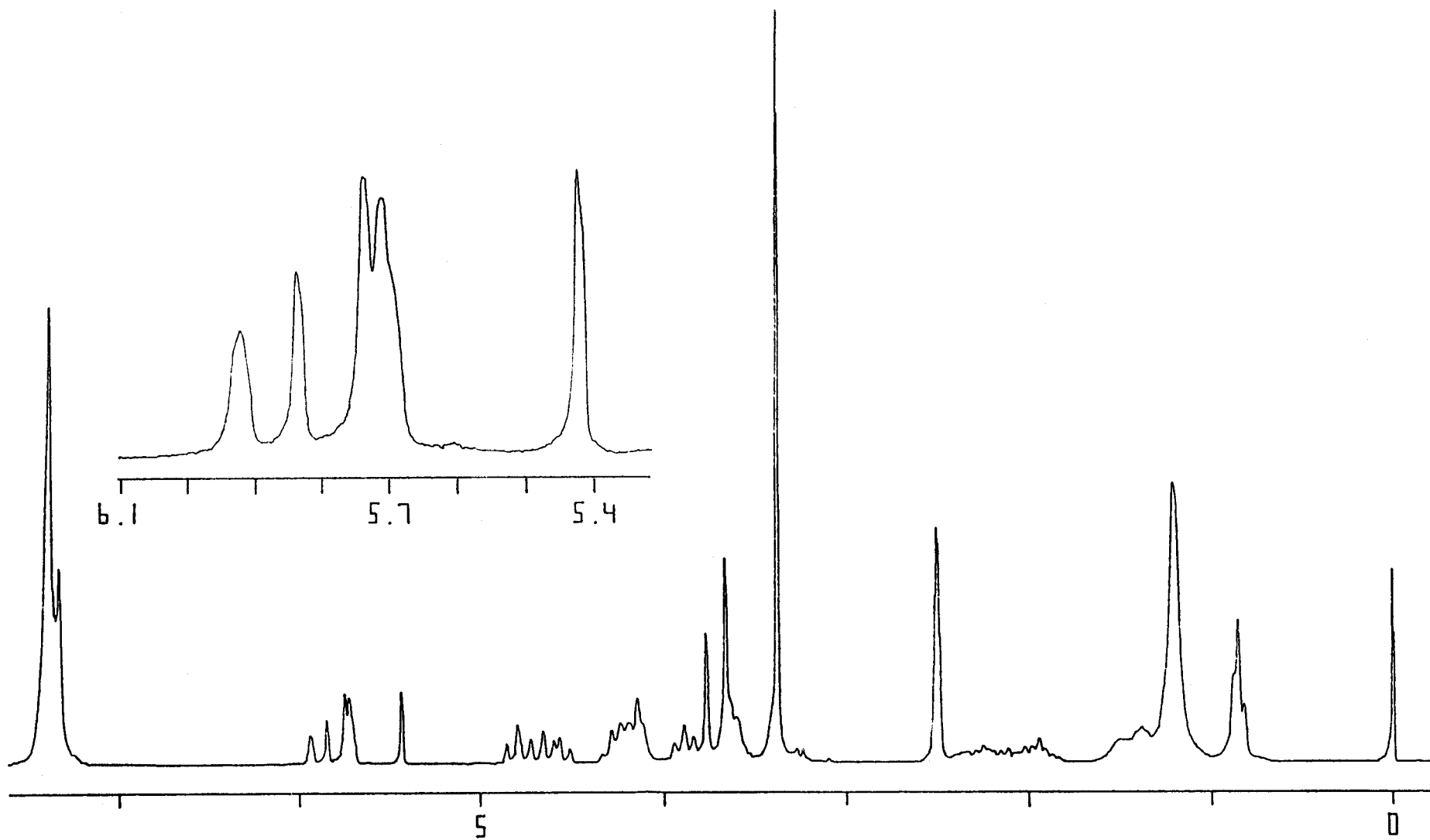
Espectro de ^1H -RMN de la sustancia 40 a 145°C



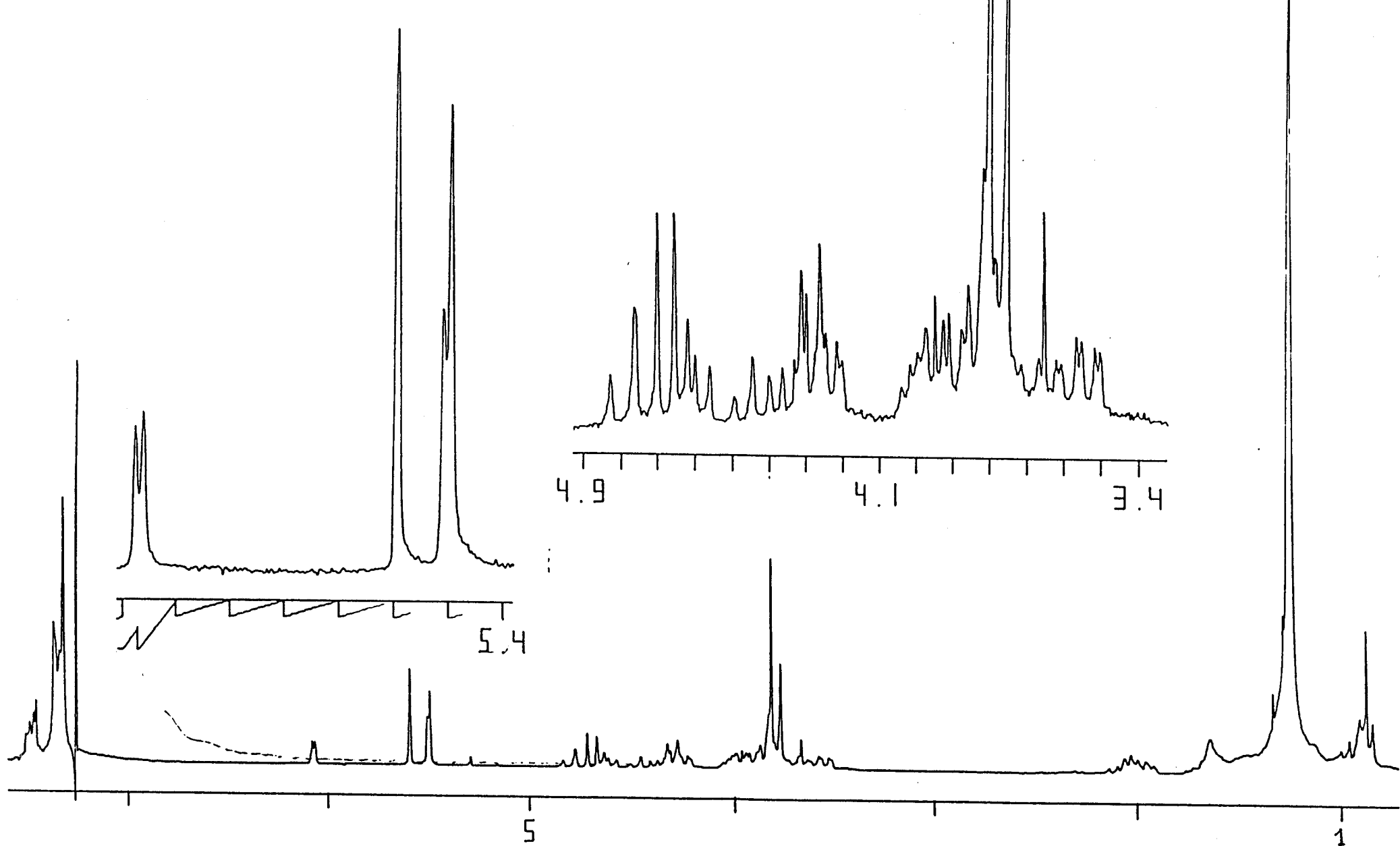
Espectro de ^1H -RMN de la sustancia 40 a 150°C



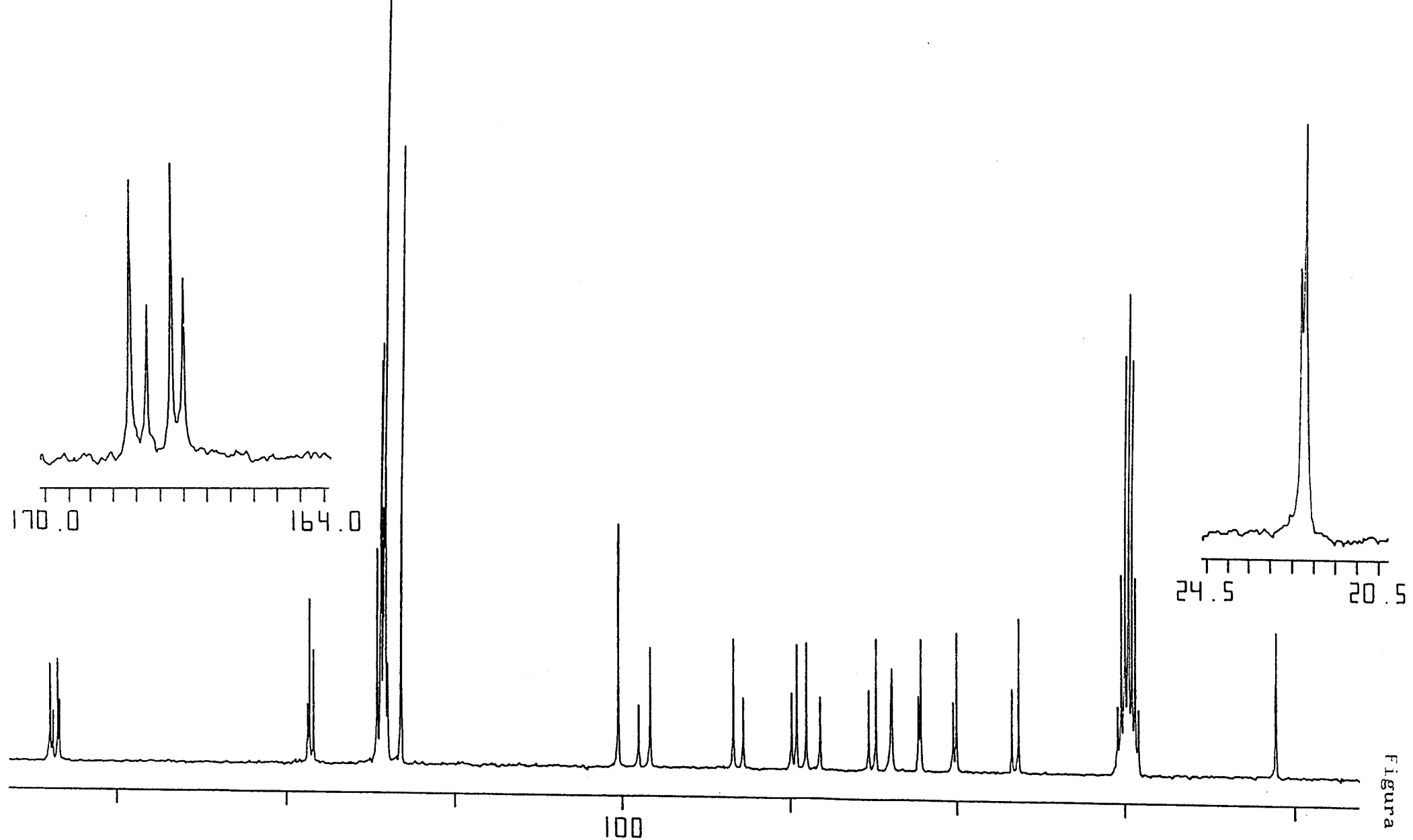
Irradiación de H-2 en la sustancia 40 a 145°C



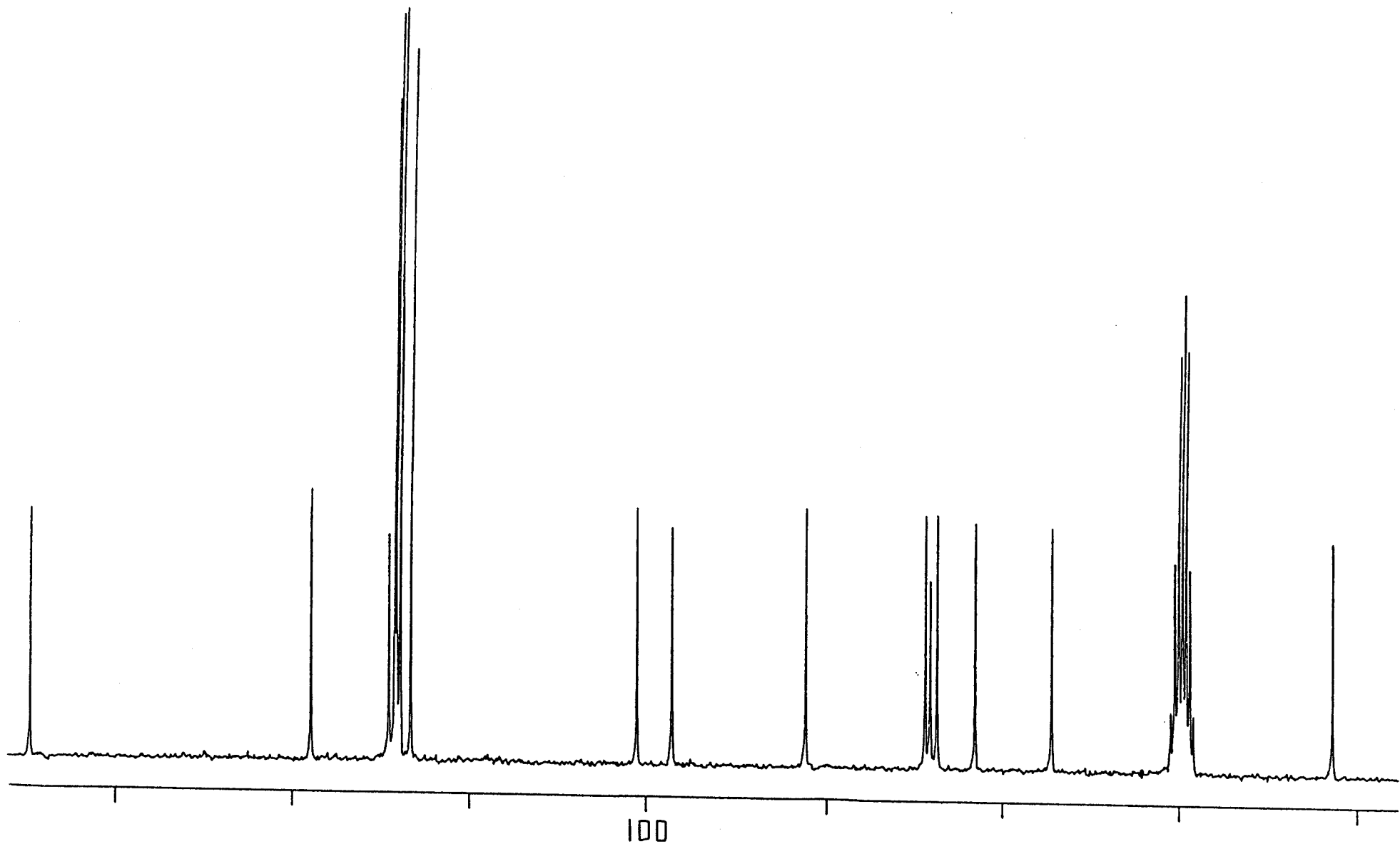
Espectro de ^1H -RMN de 2-metoxicarbonil-3-n-octanoil-(1-0-bencil-4,6-0-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (41) (DMSO- d_6 , 200 MHz, TMS)



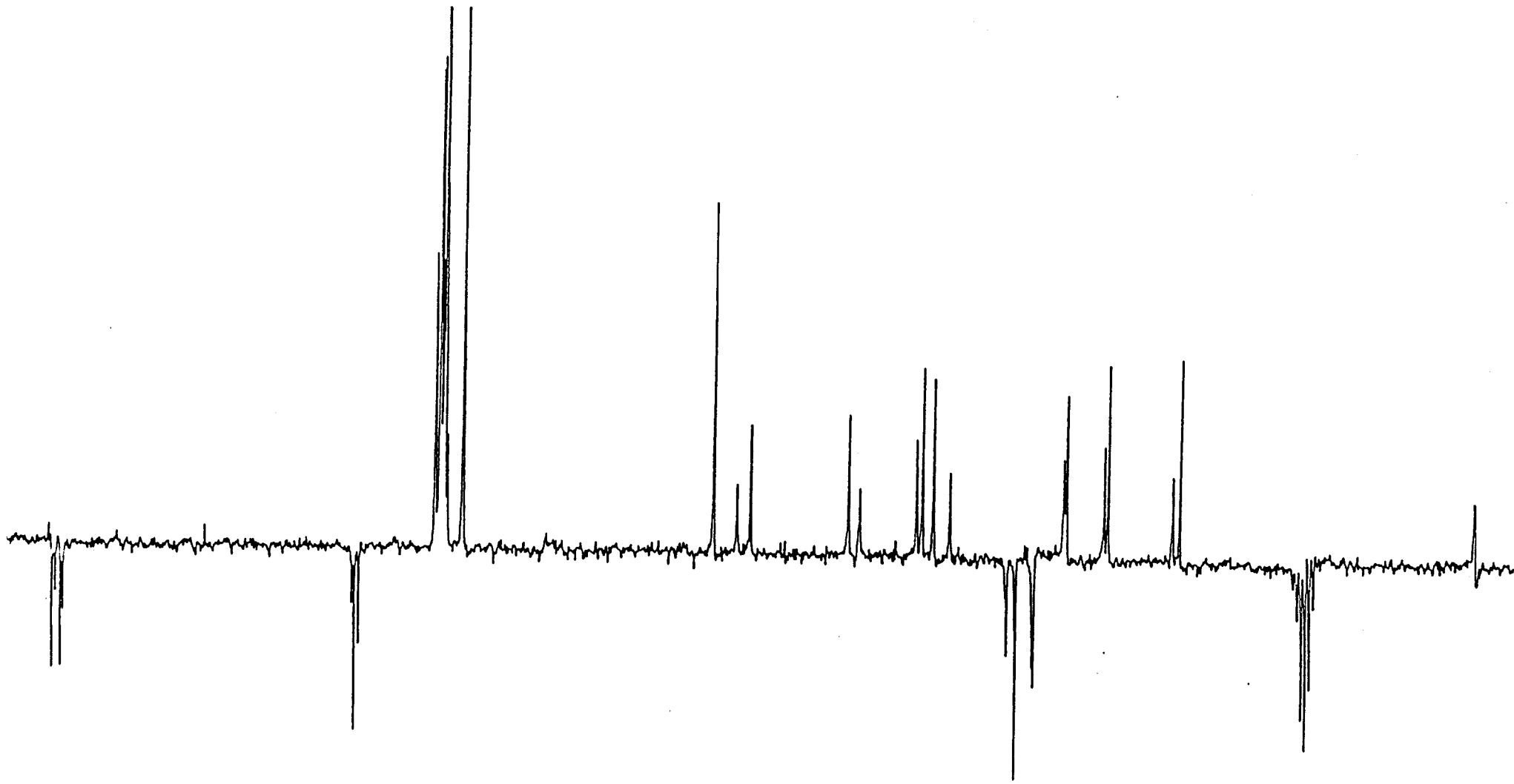
Espectro de $^1\text{H-RMN}$ de 2-metoxicarbonil-3-palmitoil-(1-O-bencil-4,6-O-bencilidén-2,3-dideso_xi- α -D-glucopirán)-[2,3-d]-oxazolidina (42) (Cl_3CD , 200 MHz, TMS)



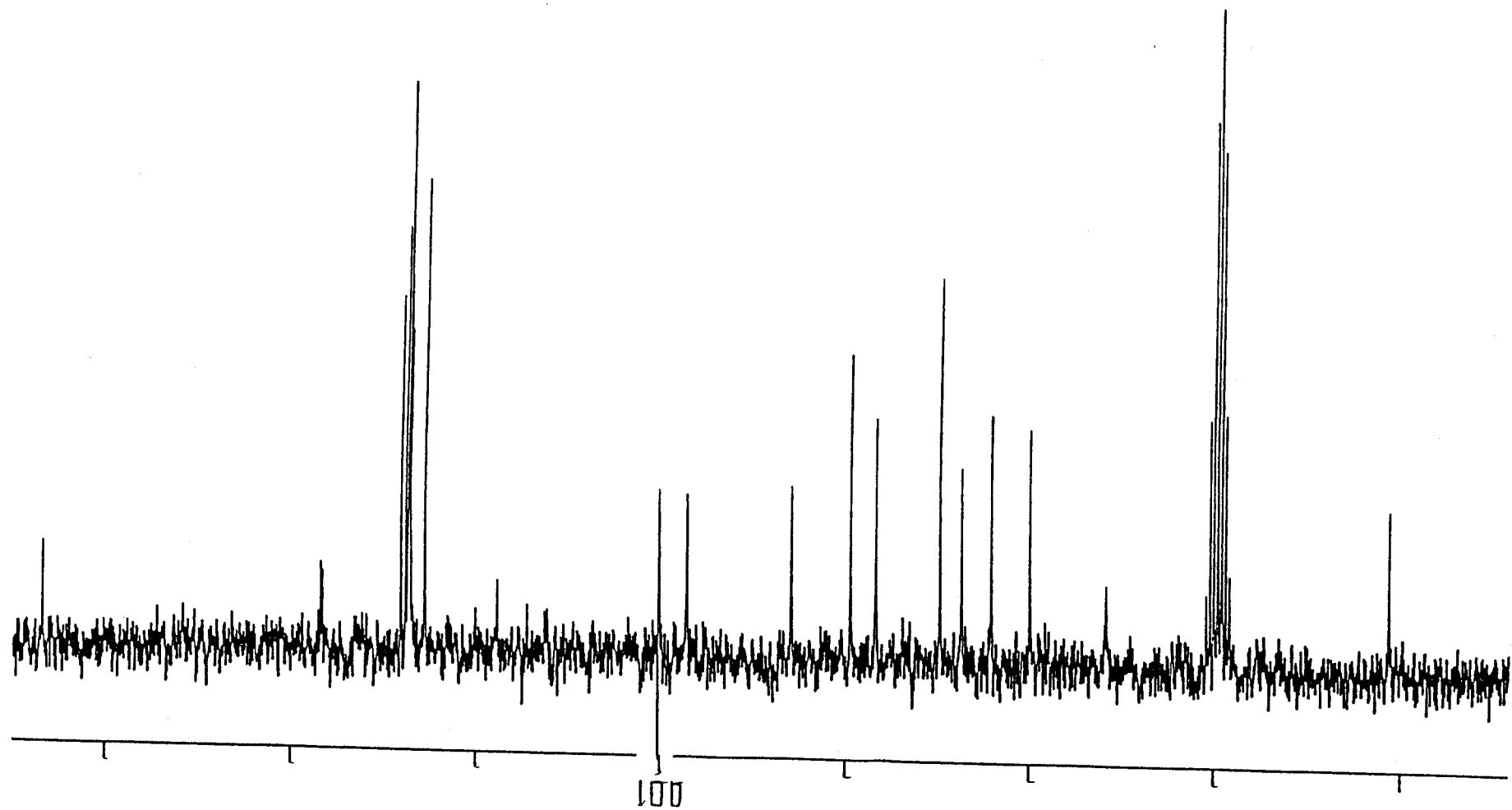
Espectro de ^{13}C -RMN de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (40) (DMSO- d_6 , 50 MHz, TMS)



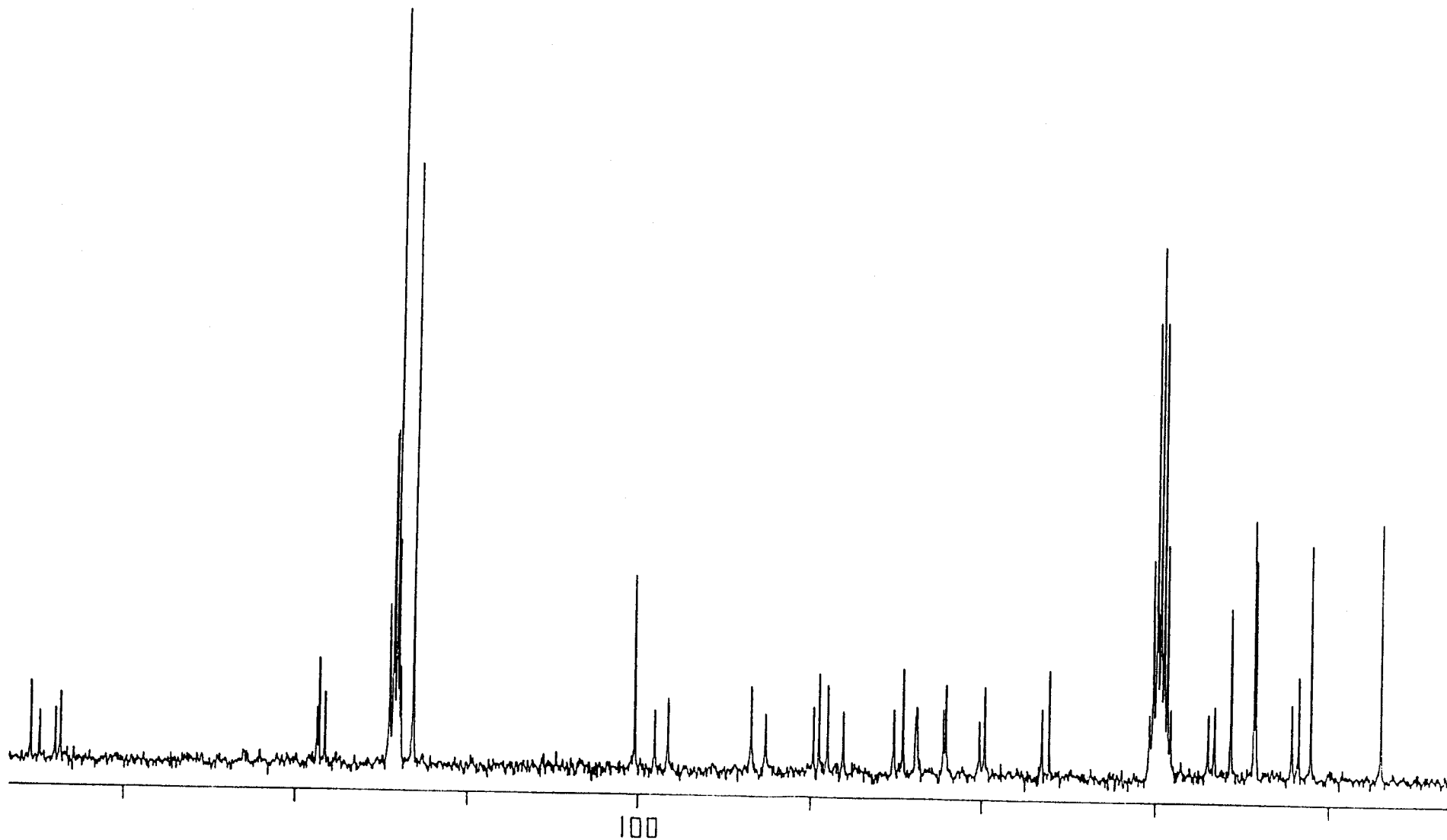
Espectro de ¹³C-RMN de bencil 2-acetamido-4,6-O-bencilidén-2-desoxi-α-D-glucopiranosido
(33) (DMSO-d₆, 50 MHz, TMS)



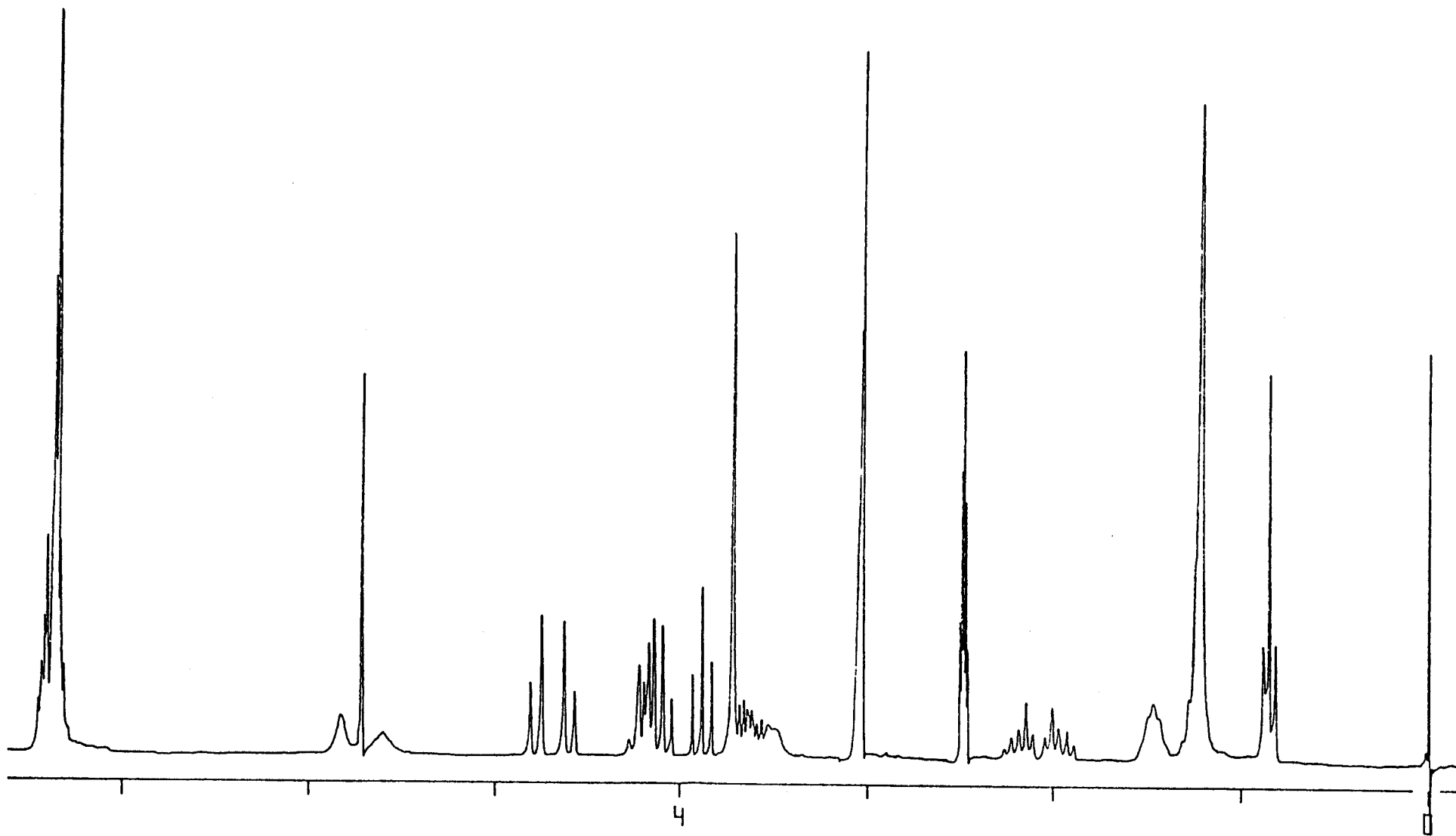
Registro de APT efectuado sobre la sustancia \sim 40 a 50 MHz



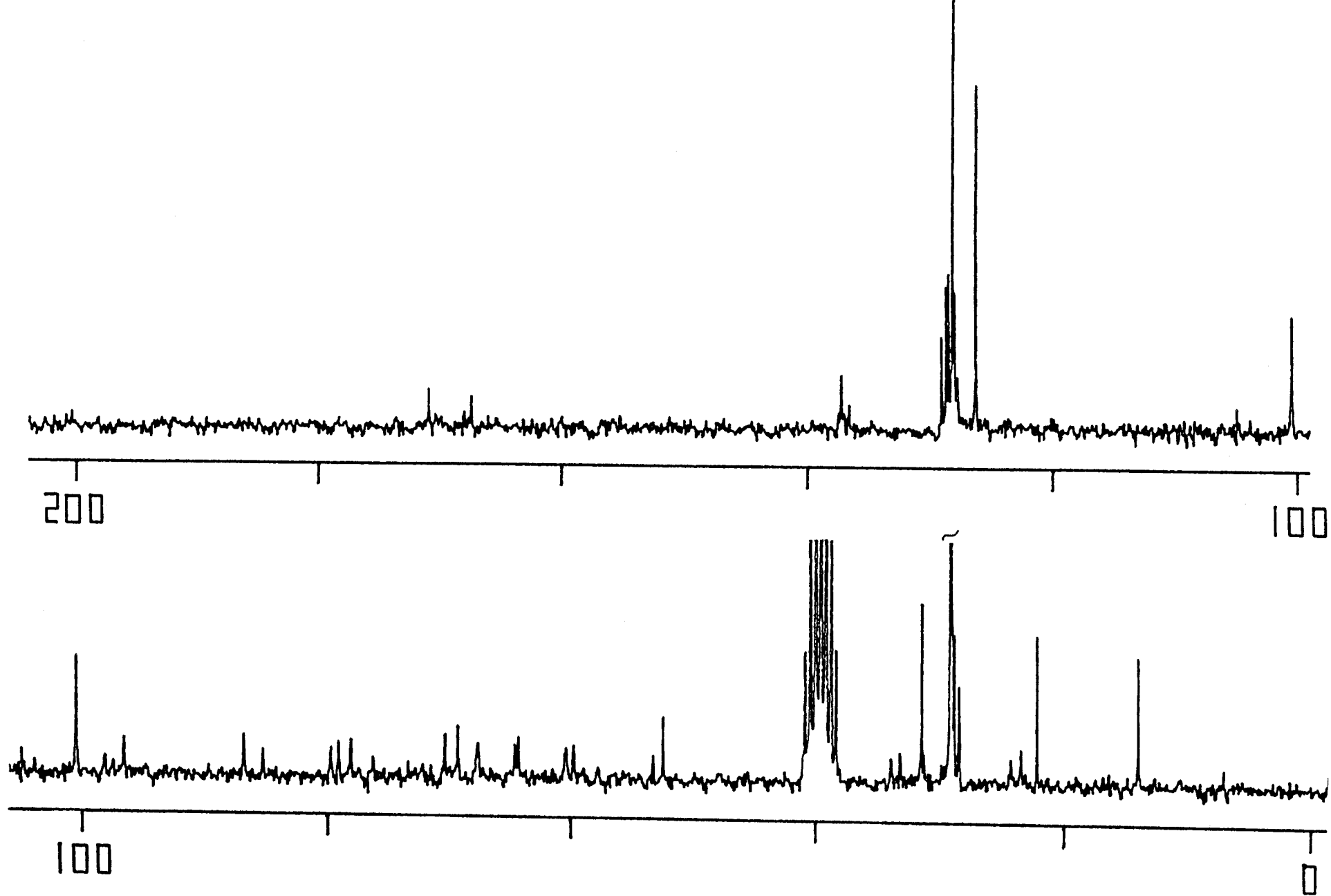
Espectro de ^{13}C -RMN de la sustancia 40 a 145°C (DMSO- d_6 , 50 MHz, TMS)



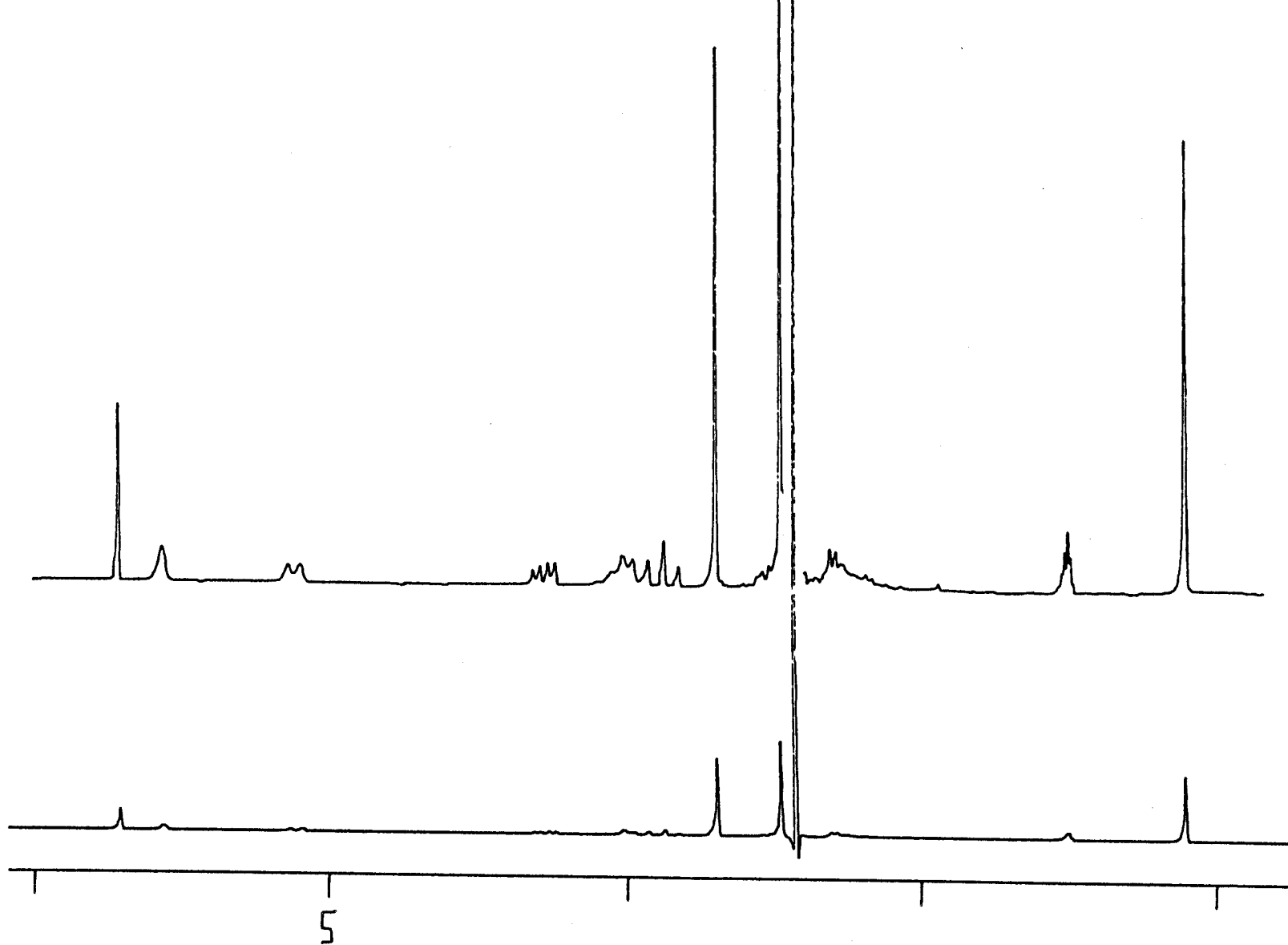
Espectro de ^{13}C -RMN de 2-metoxicarbonil-3-n-octanoil-(1-0-bencil-4,6-0-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (41) (DMSO- d_6 , 50 MHz, TMS)



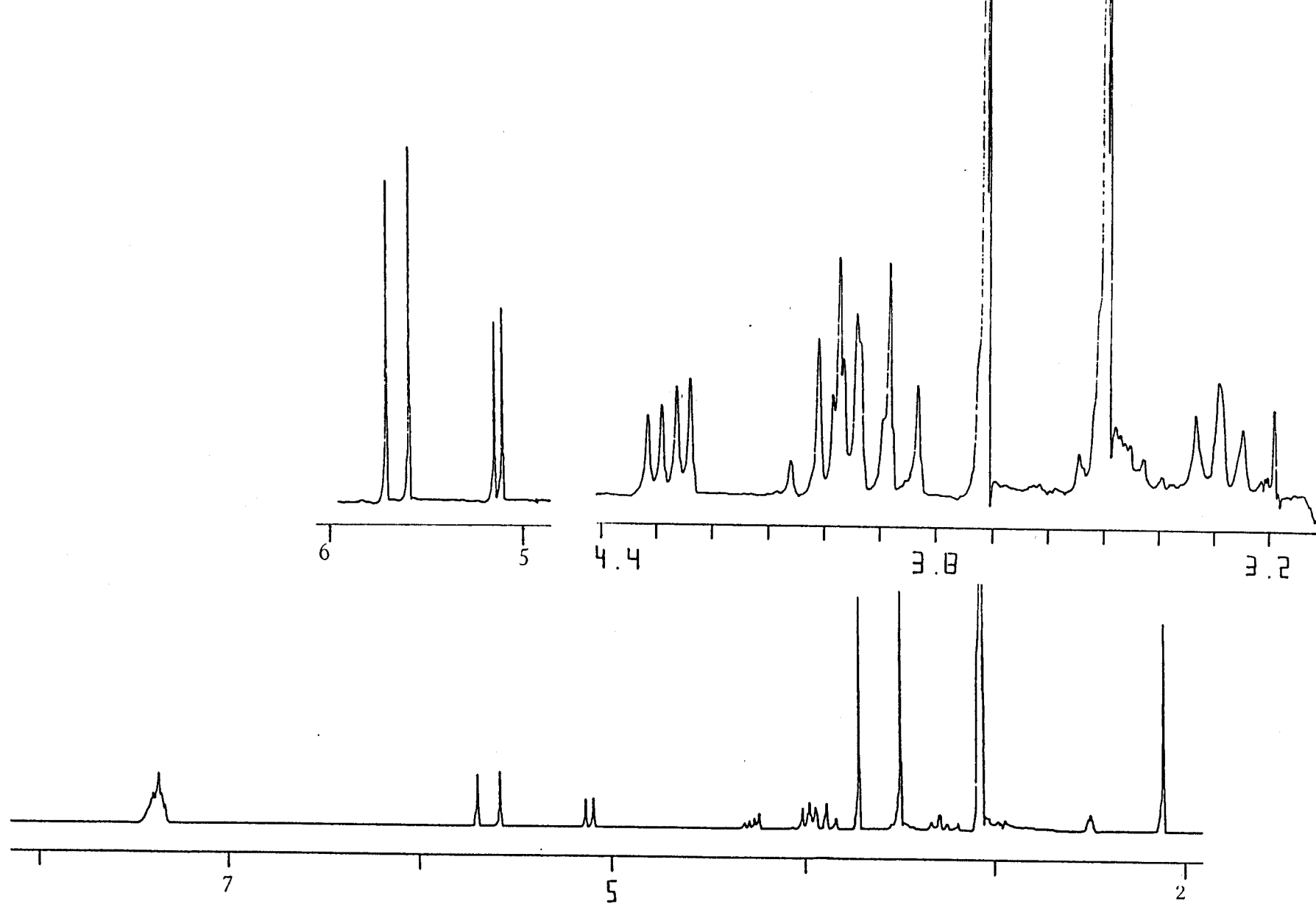
Espectro de ^1H -RMN a 200 MHz de la sustancia 41 a 90°C



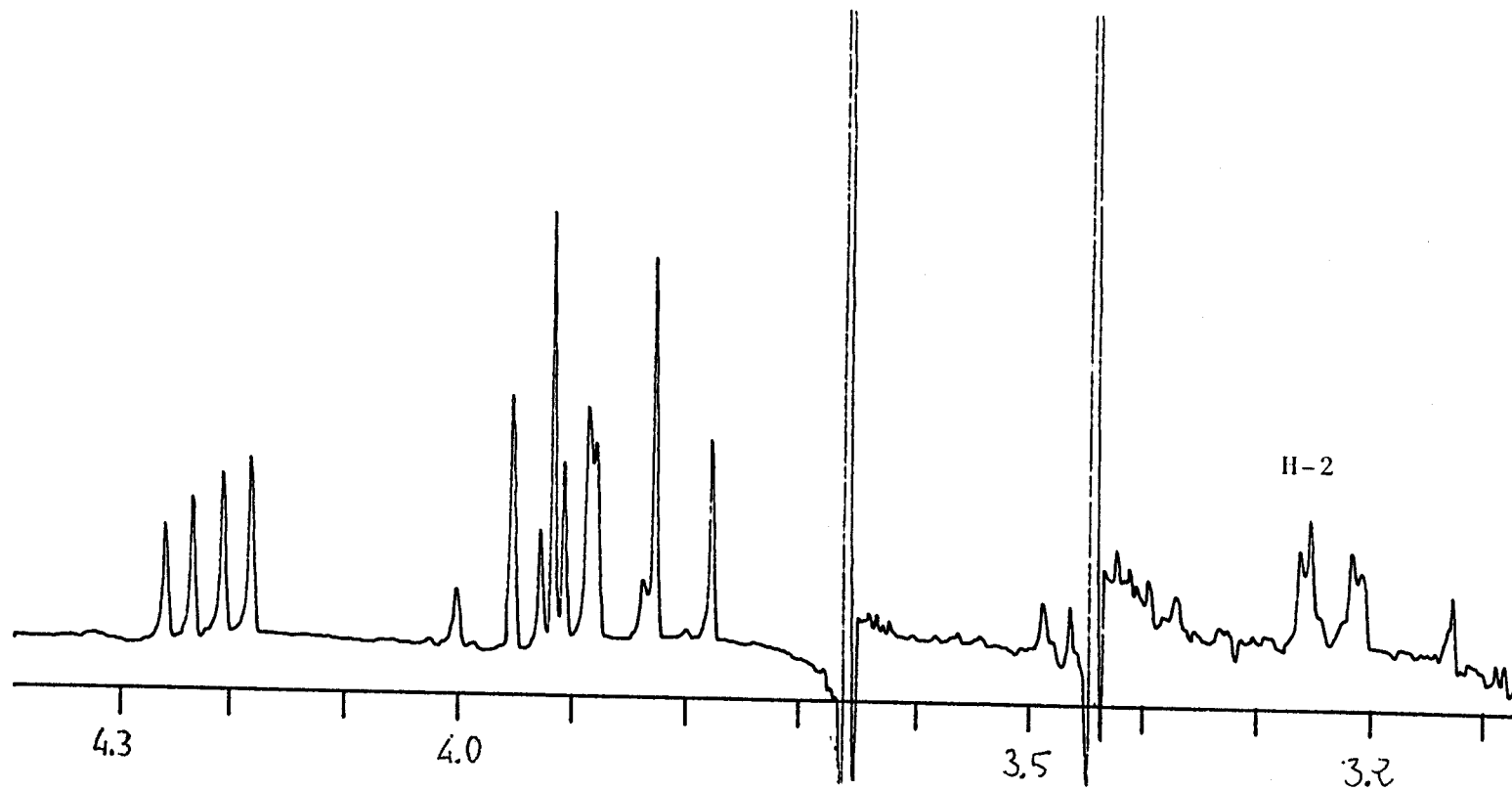
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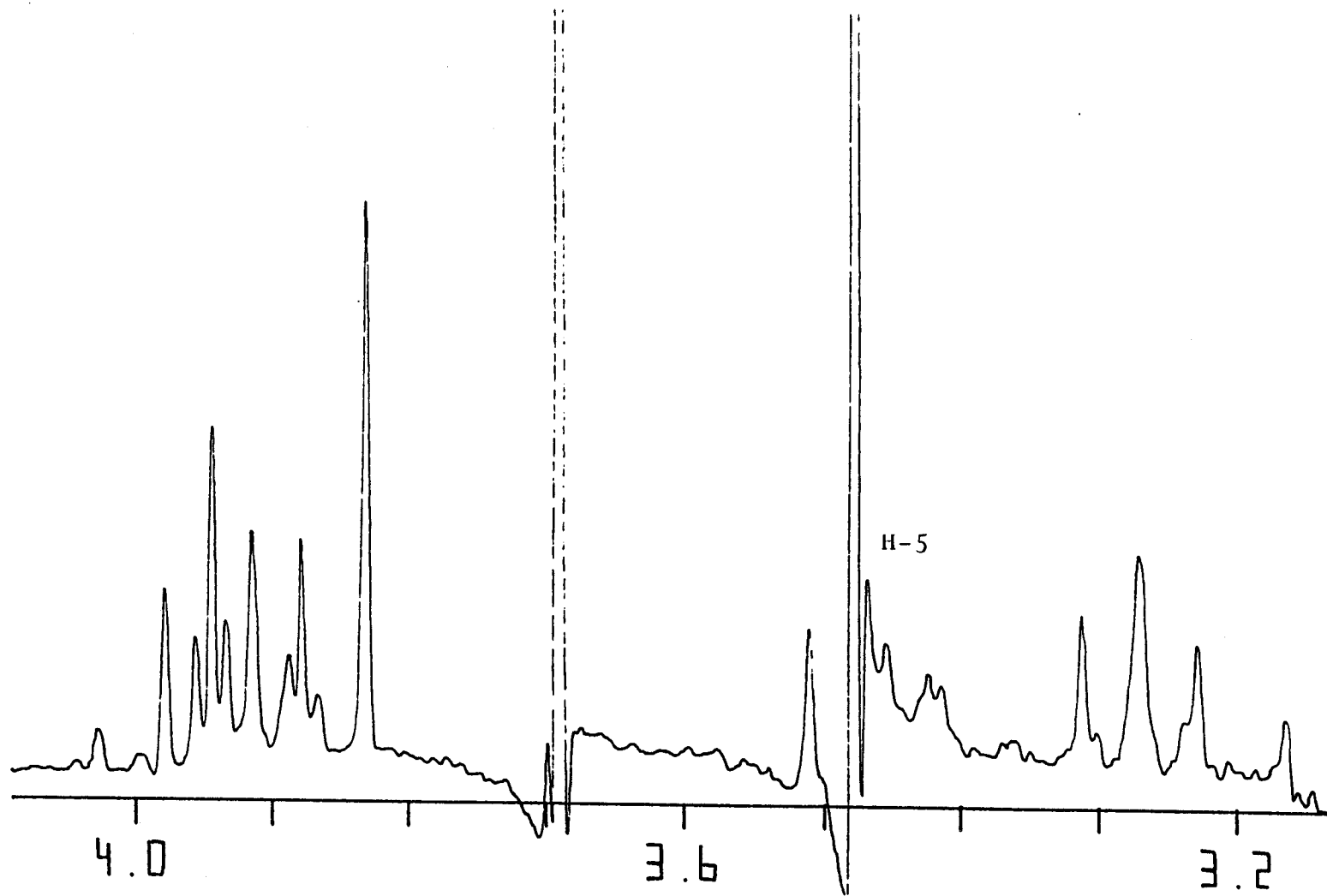
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil--
- β -D-glucopirán)-[2,3-d]-oxazolidina (69) (DMSO- d_6 , 200 MHz, TMS)



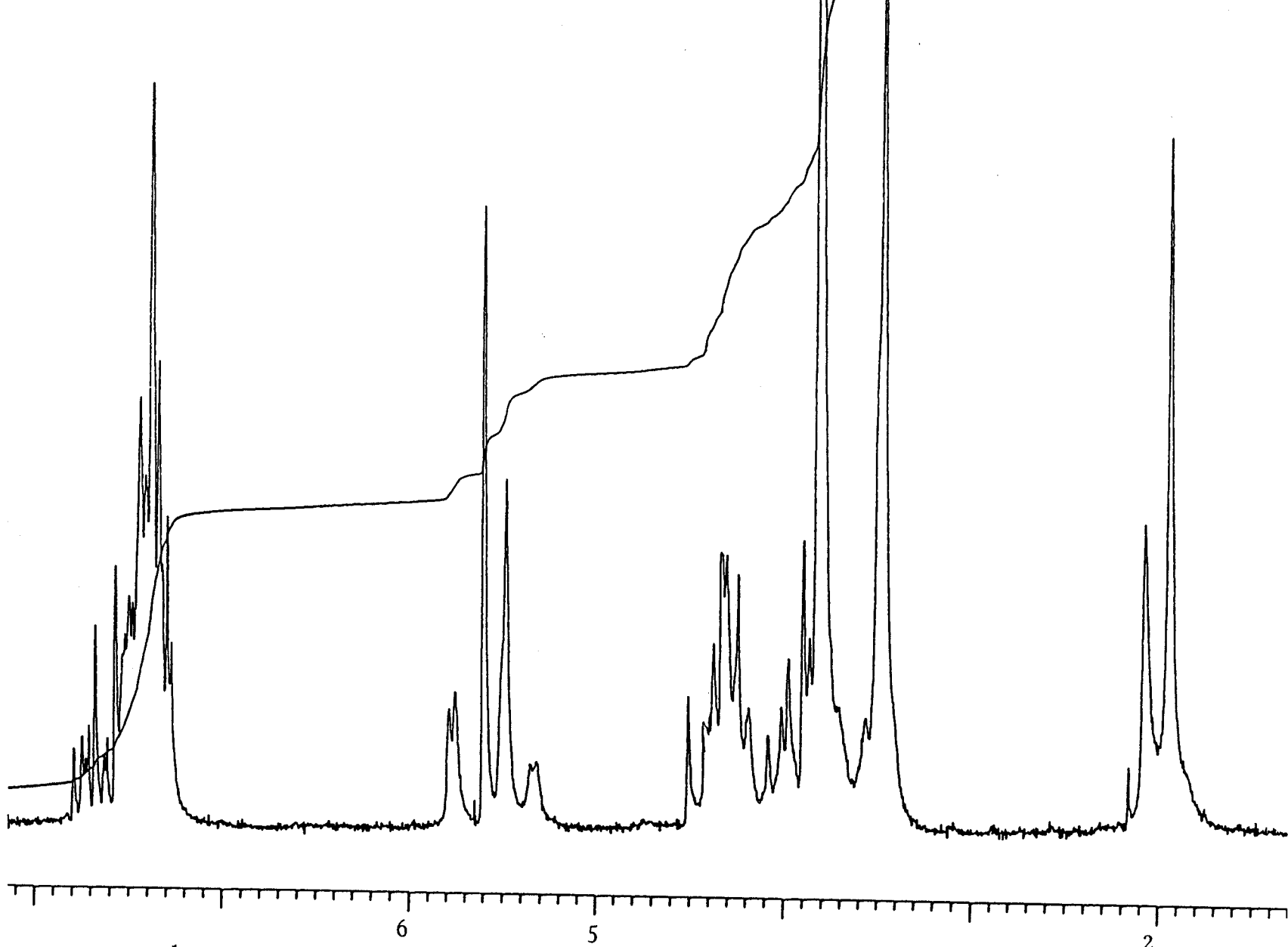
Espectro de ^1H -RMN de la sustancia 69 a 90°C



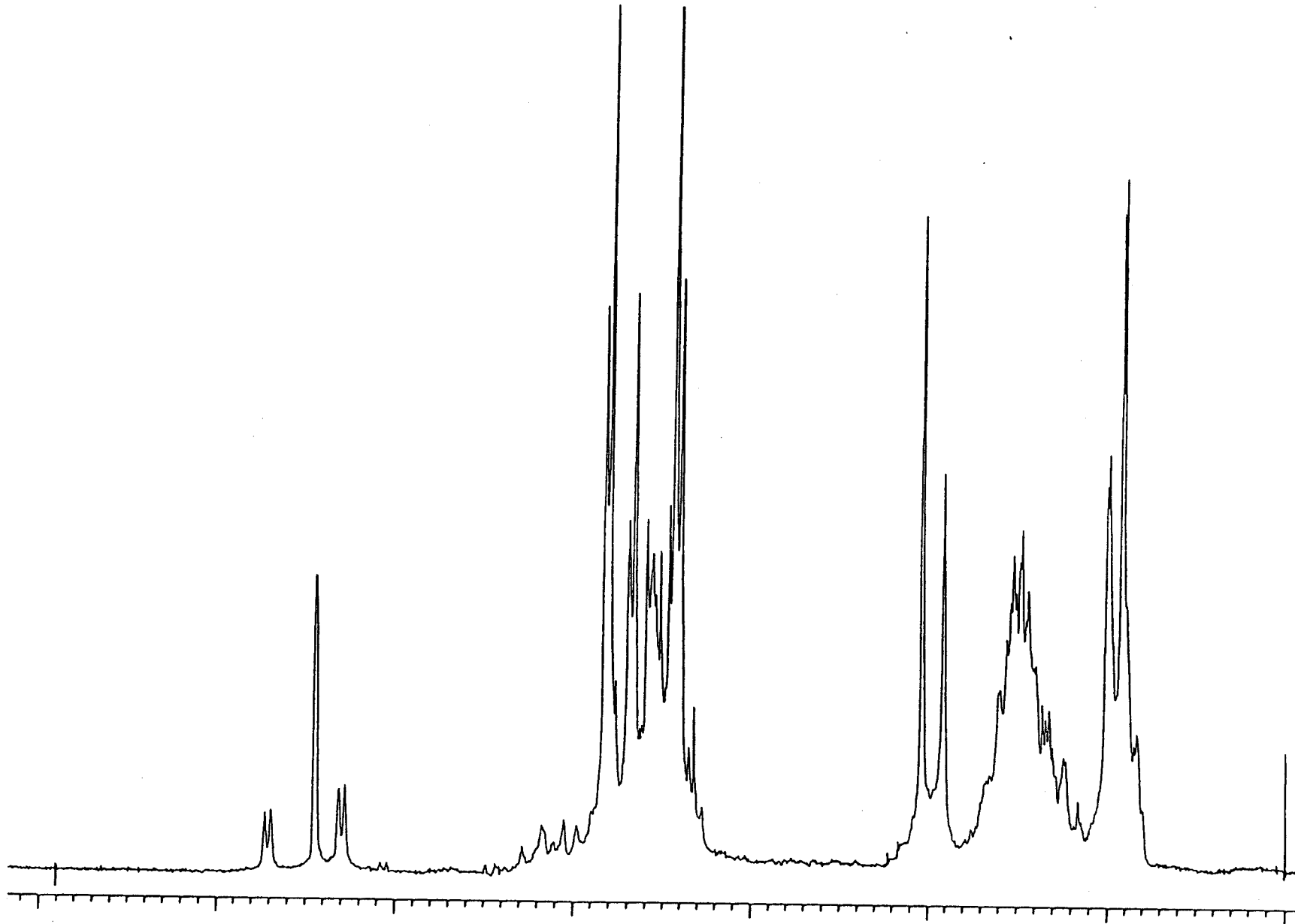
Irradiación de H-1 en la sustancia 69 a 90°C



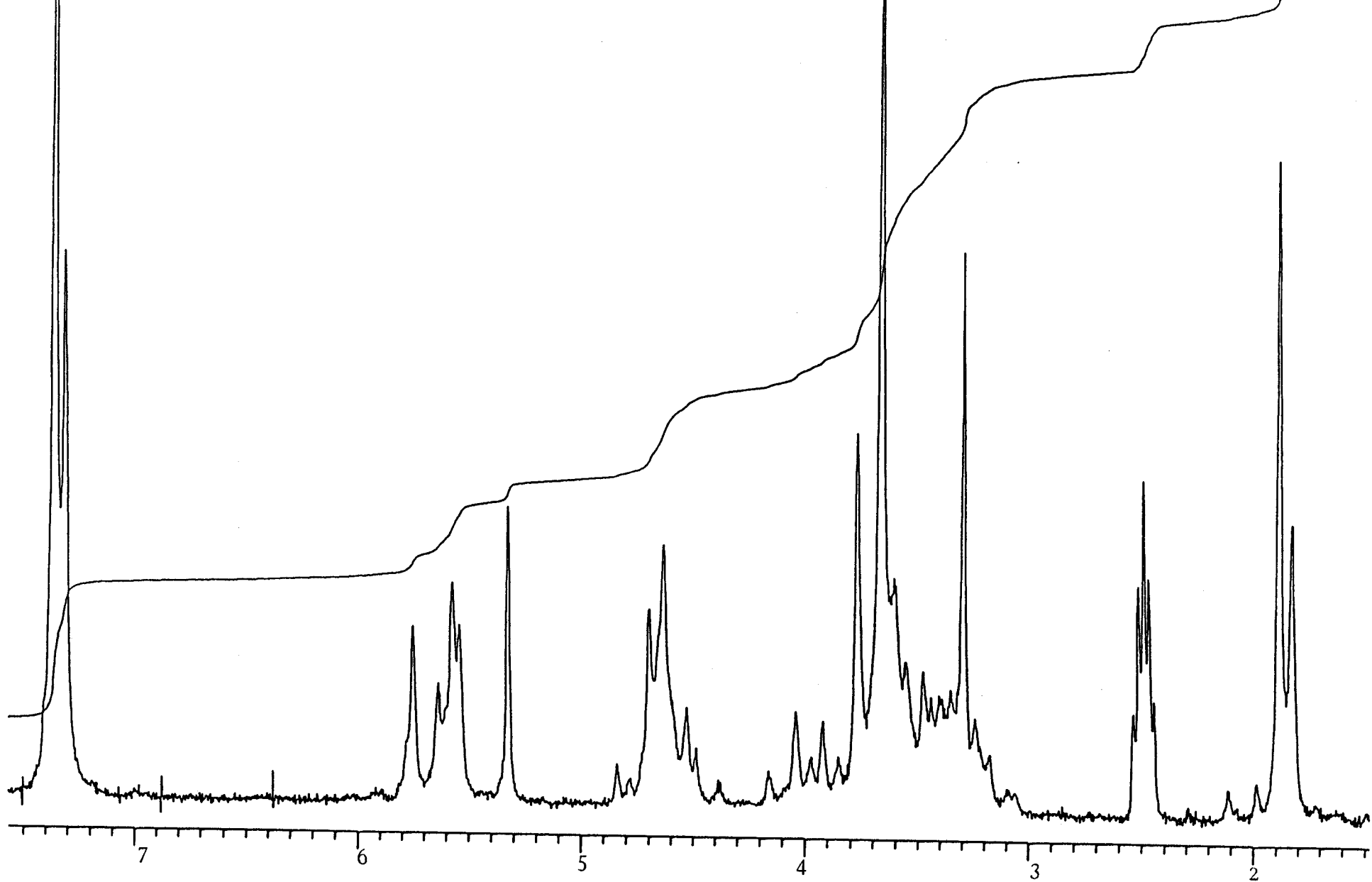
Irradiación de H-6 en la sustancia 69 a 90°C



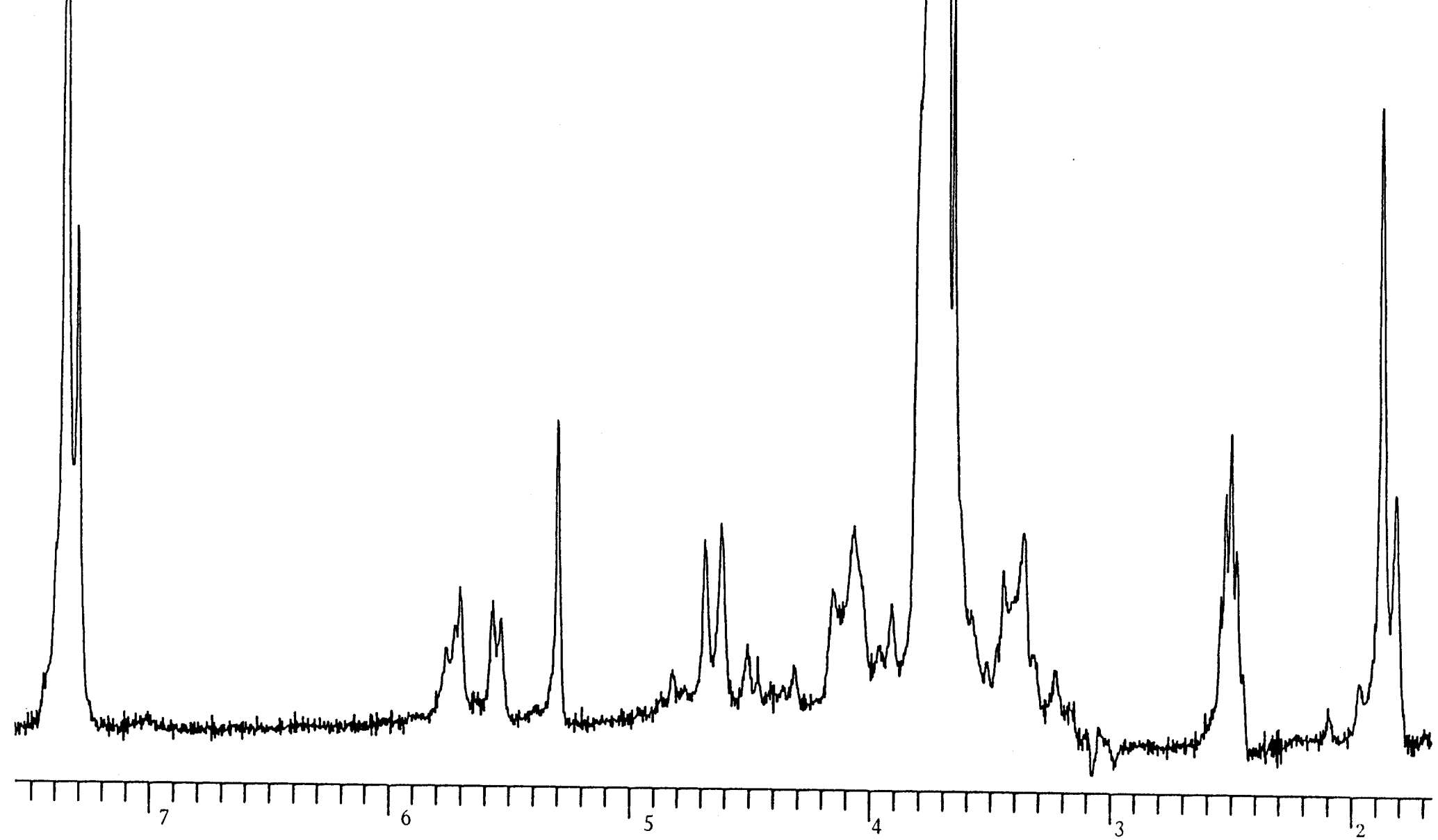
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil--
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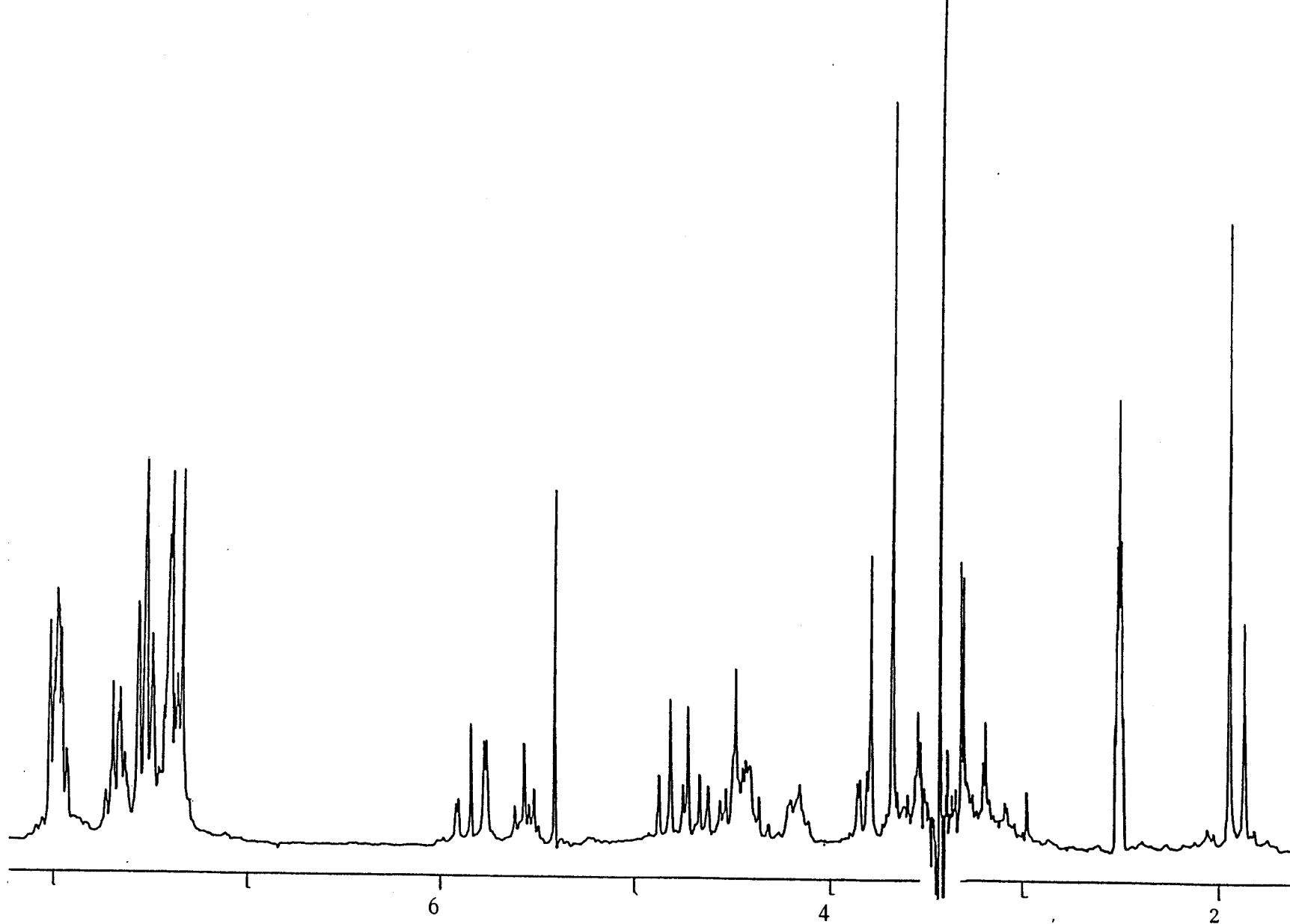
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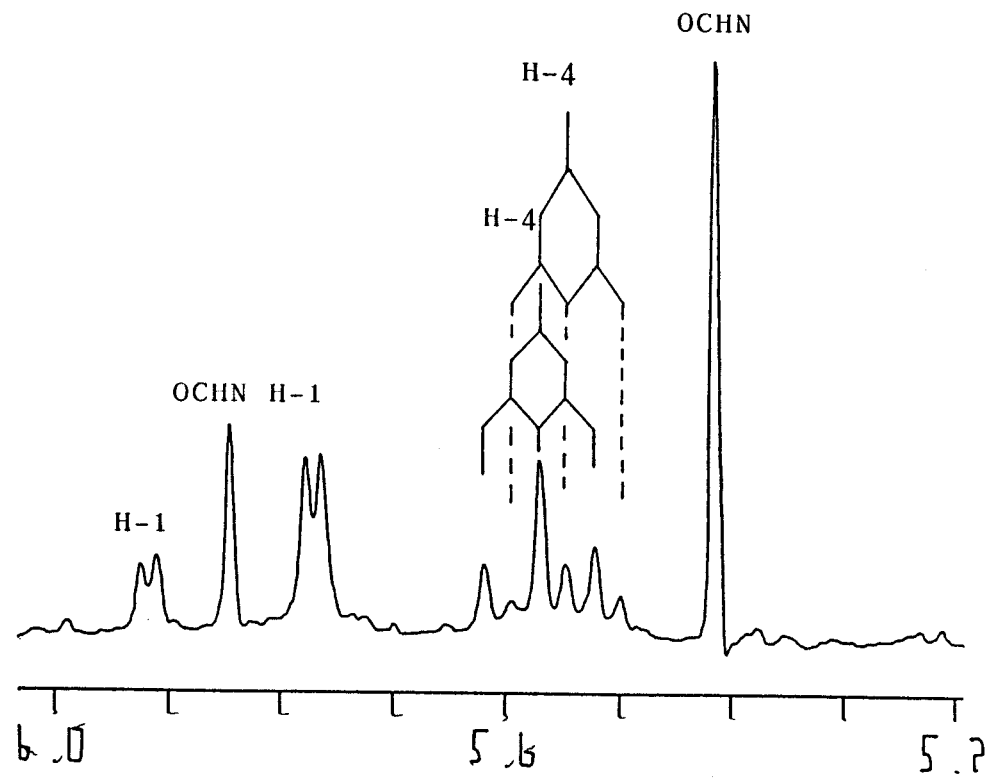
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-
-[2,3-d]-oxazolidina (55) (DMSO- d_6 , 80 MHz, TMS)



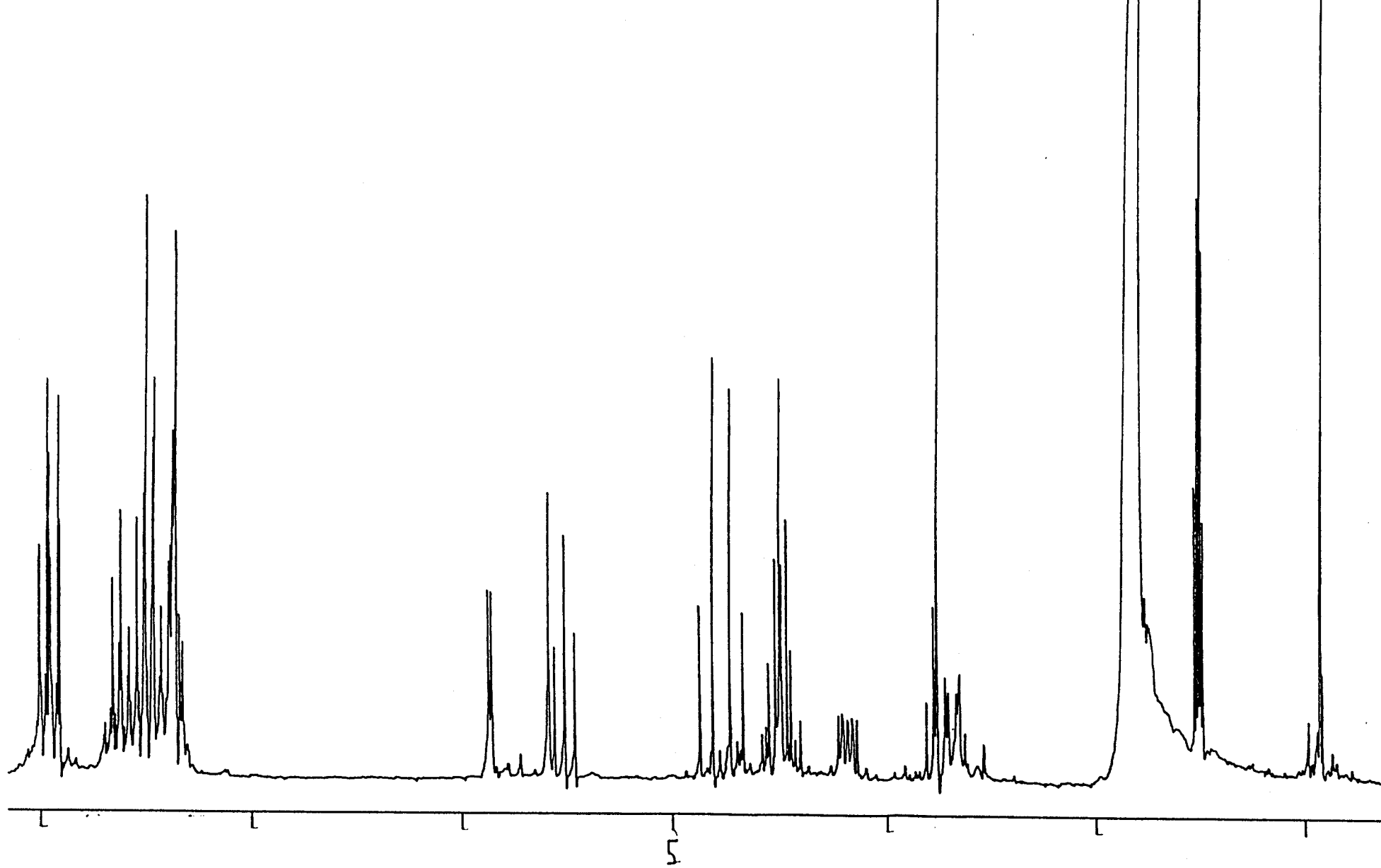
Intercambio con D_2O para la sustancia 55



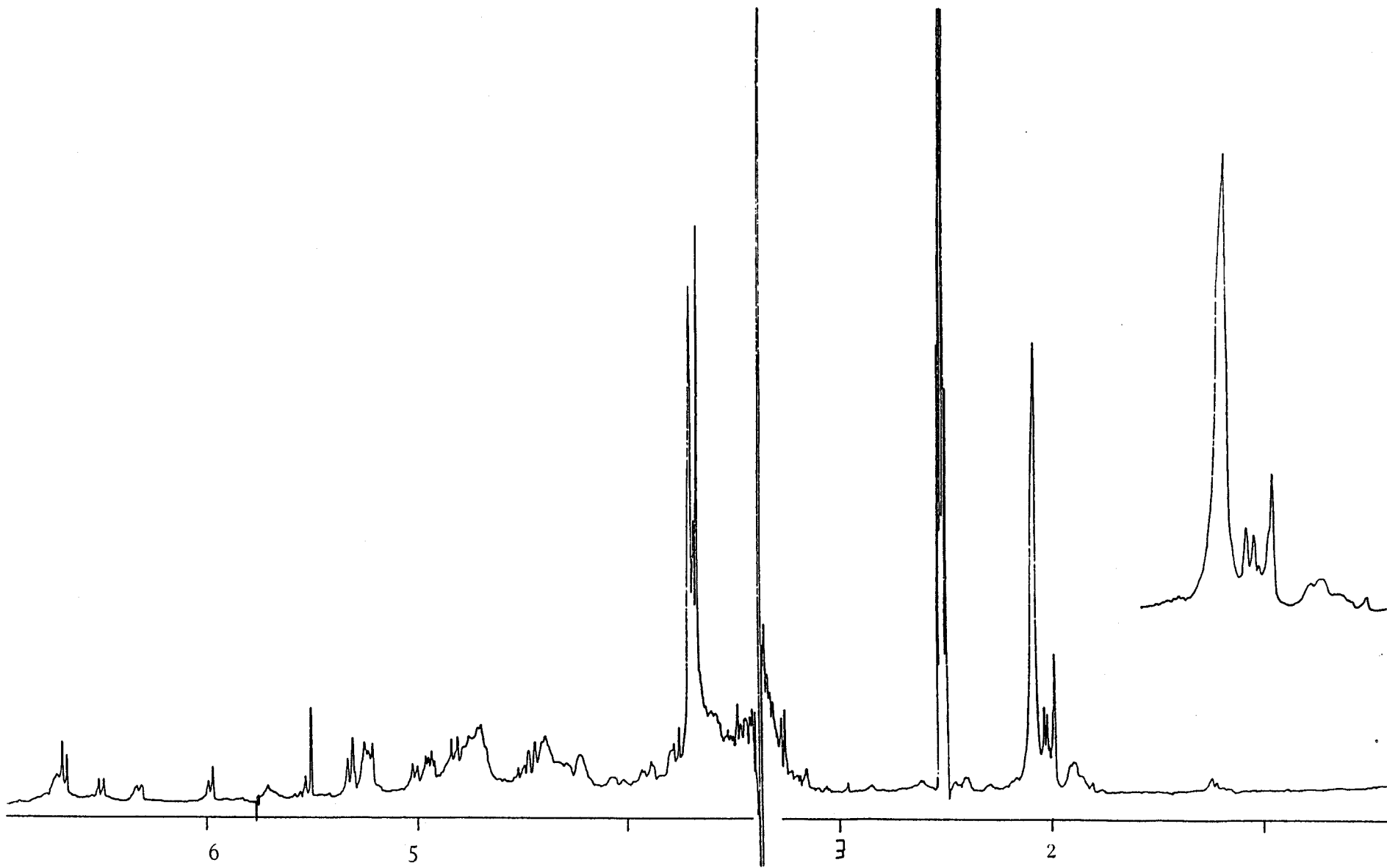
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-di-O-benzoil-2,3-didesoxi-
- α -D-glucopirán)-|2,3-d|-oxazolidina (57) (DMSO- d_6 , 200 MHz, TMS)



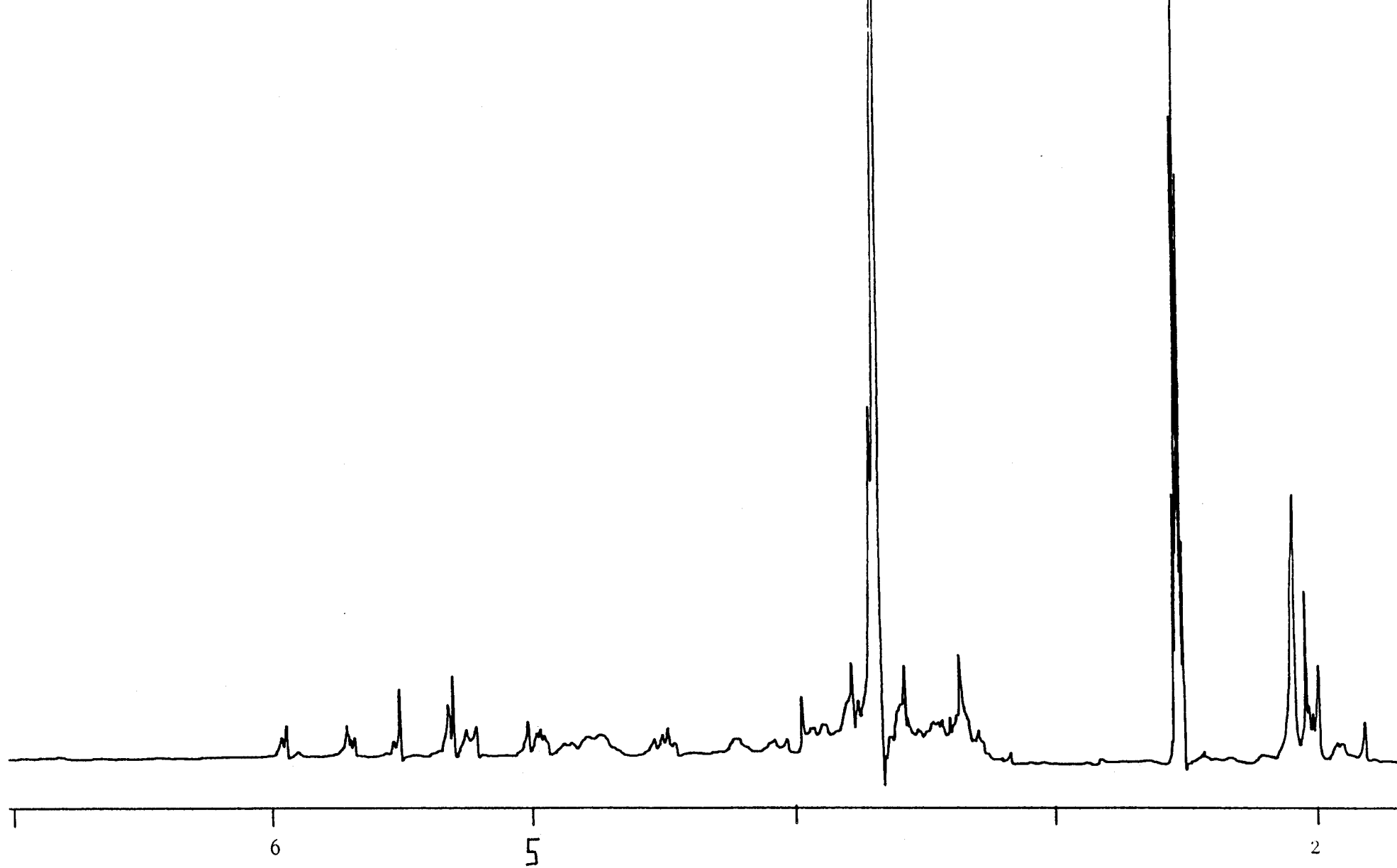
Ampliación del espectro de ^1H -RMN de la sustancia 57



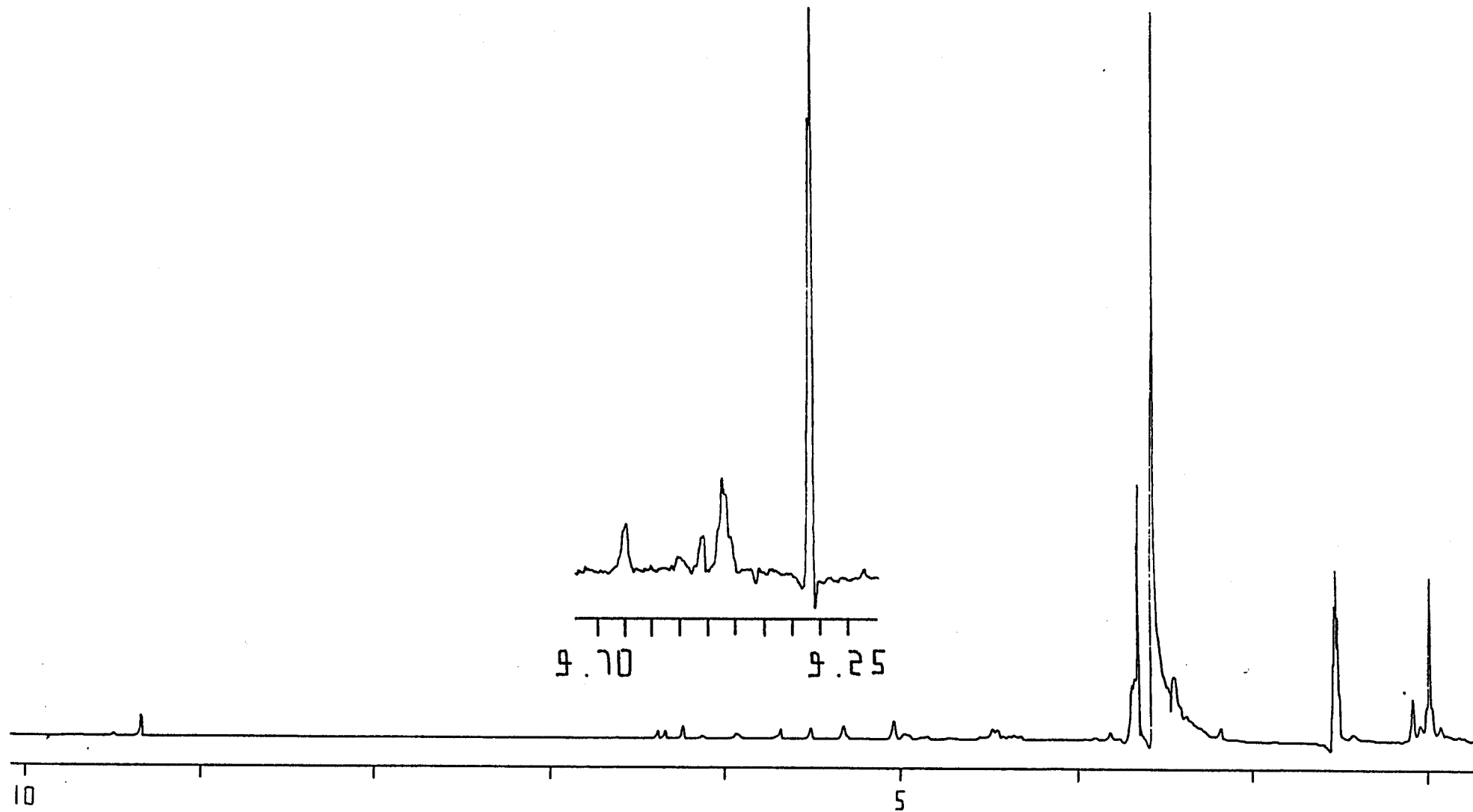
Espectro de ^1H -RMN de la sustancia 57 a 145°C



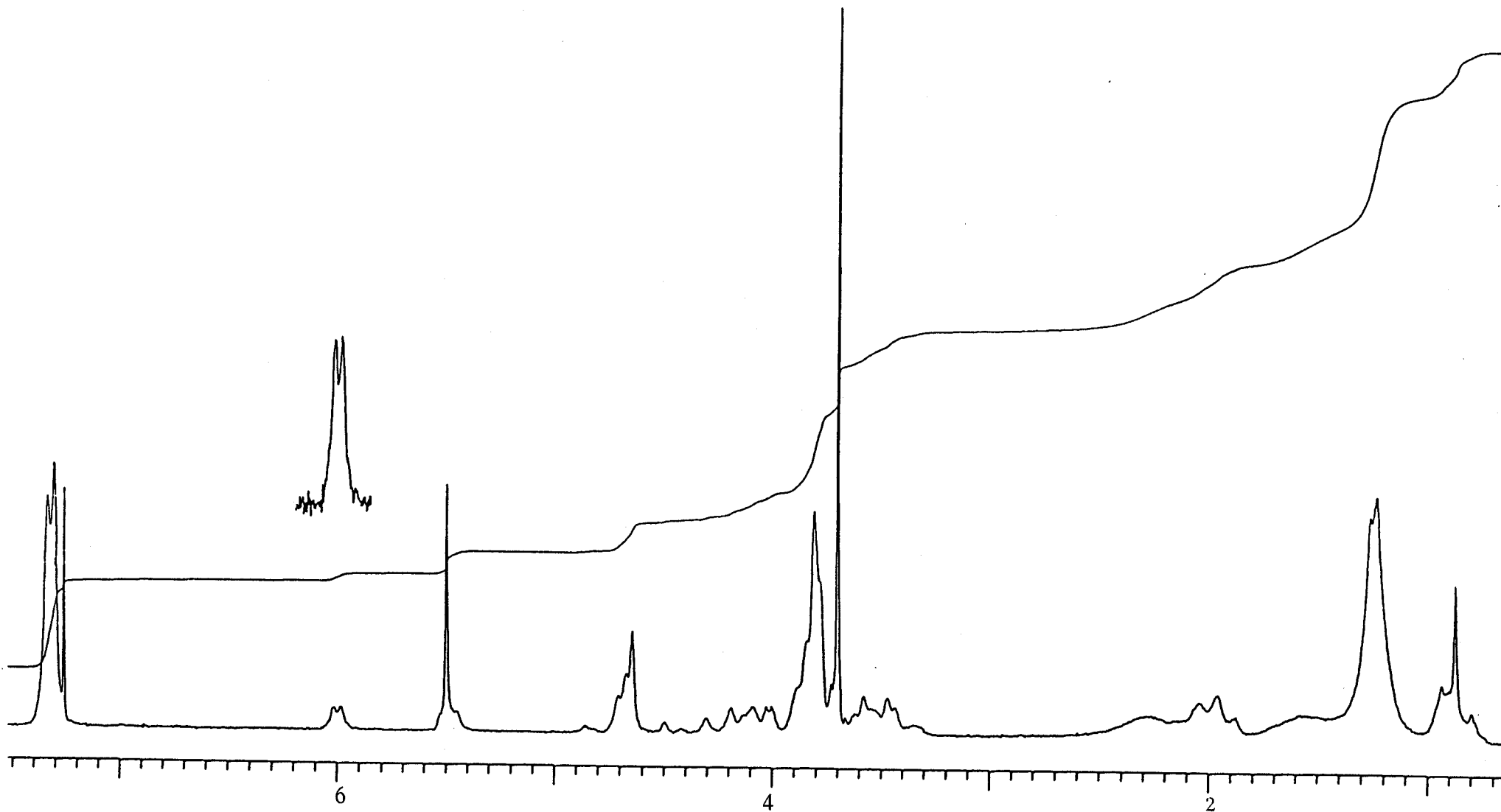
Espectro de ^1H -RMN de 3-acetil-2-metoxicarbonil-(2,3-dideoxi-D-glucopirán)-[2,3-d]-oxazolidina (58) (DMSO-d , 200 MHz, TMS)



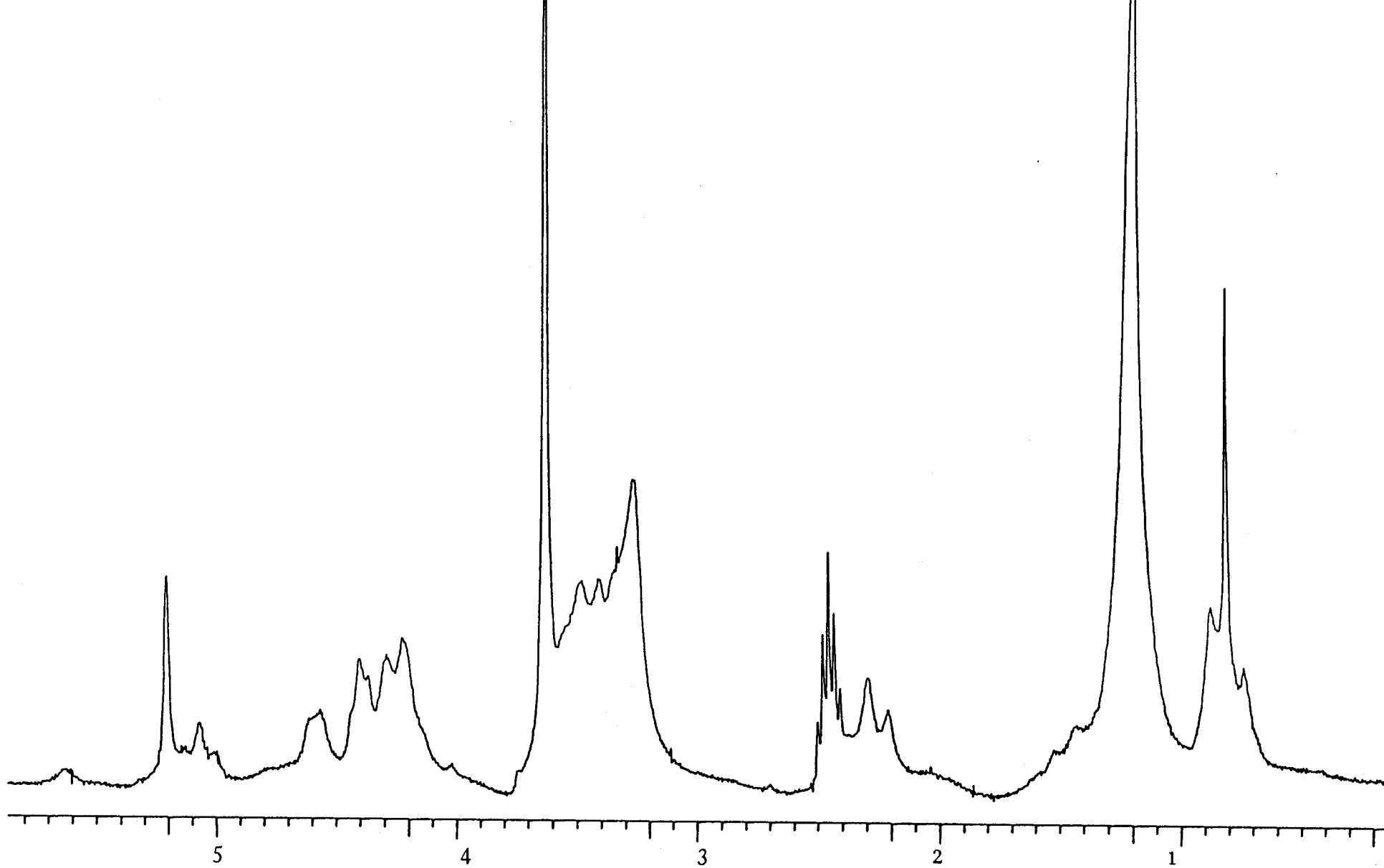
Intercambio con D_2O para la sustancia 58



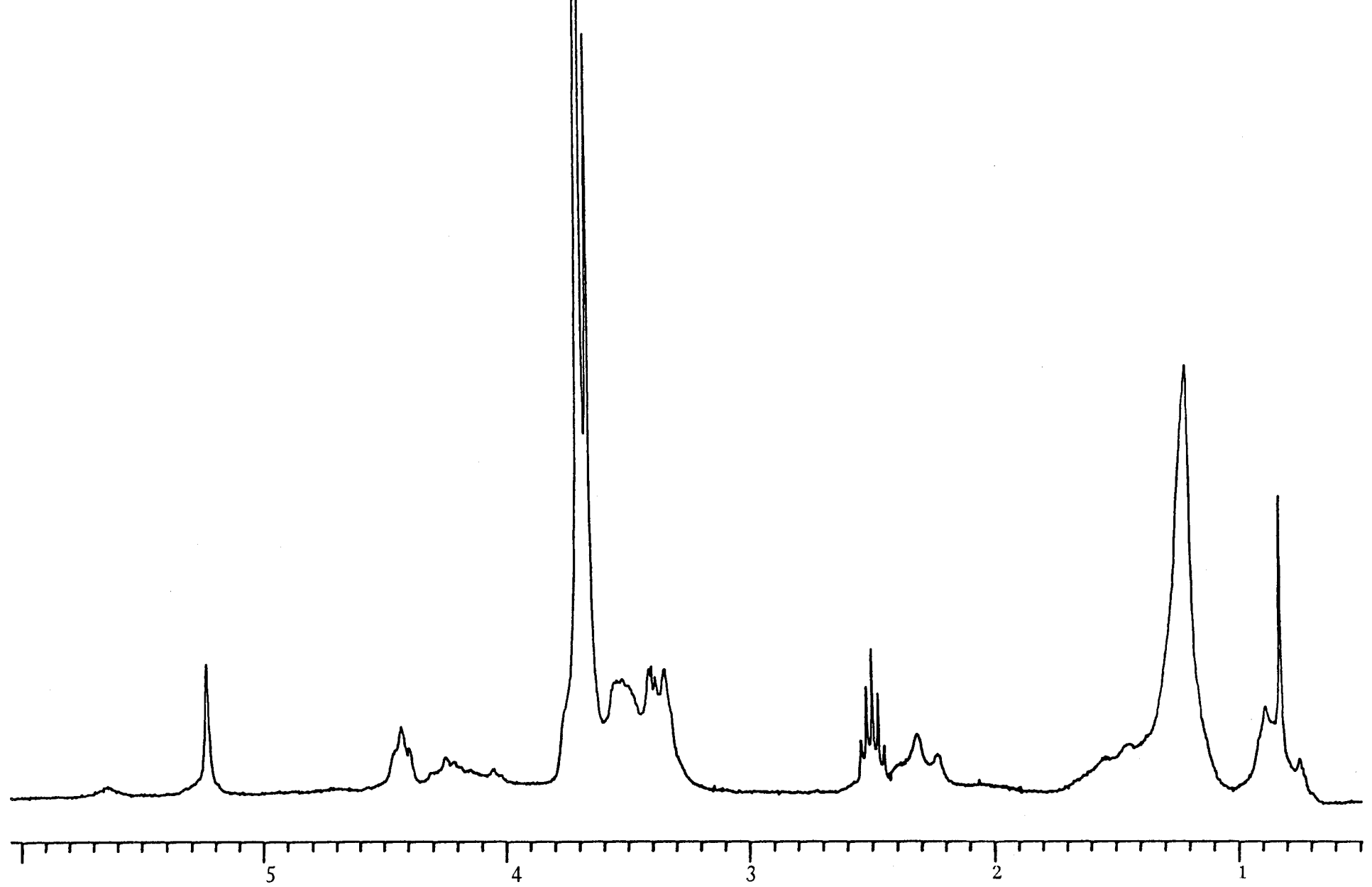
Espectro de ^1H -RMN de la sustancia 58 a 37°C



Espectro de ^1H -RMN de 2-metoxicarbonil-3-n-octanamido-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (56) (Cl_3CD , 80 MHz, TMS)

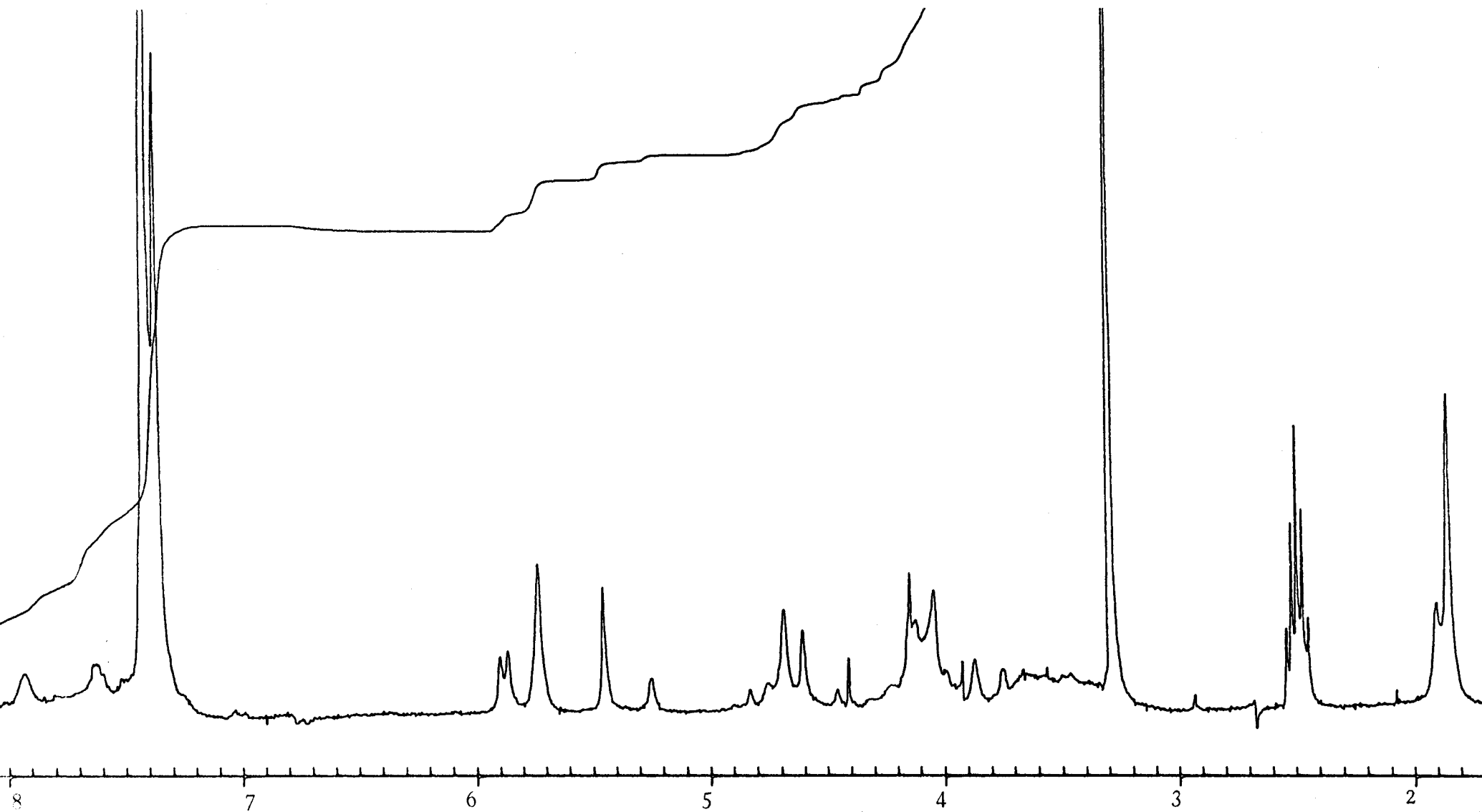


Espectro de ¹H-RMN de 2-metoxicarbonil-3-n-octanamido-(2,3-didesoxi-D-glucopirán)-[2,3-d]-oxazolidina (59) (DMSO-d₆, 80 MHz, TMS)



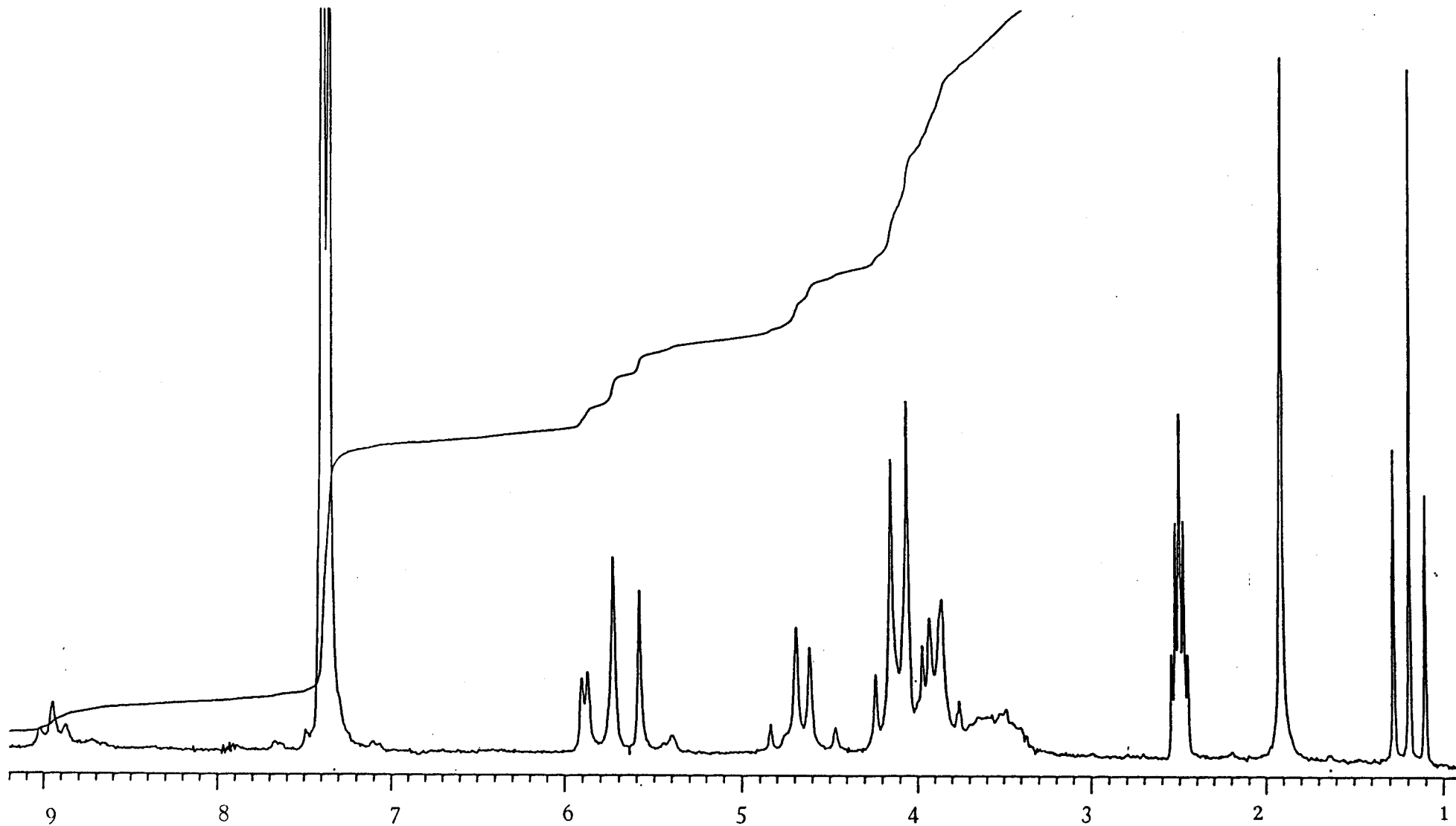
Intercambio con D_2O para la sustancia 59

Figura 35-A



Espectro de ^1H -RMN de 3-acetil-2-carboxamido-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -
-D-glucopirán)-[2,3-d]-oxazolidina (43) (DMSO- d_6 , 80 MHz, TMS)

Figura 36-A



Espectro de ¹H-RMN del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi-α-D-glucopirán)-[2,3-d]-Oxazolidín-2-carbonilglicina (44) (DMSO-d₆, 80 MHz, TMS)

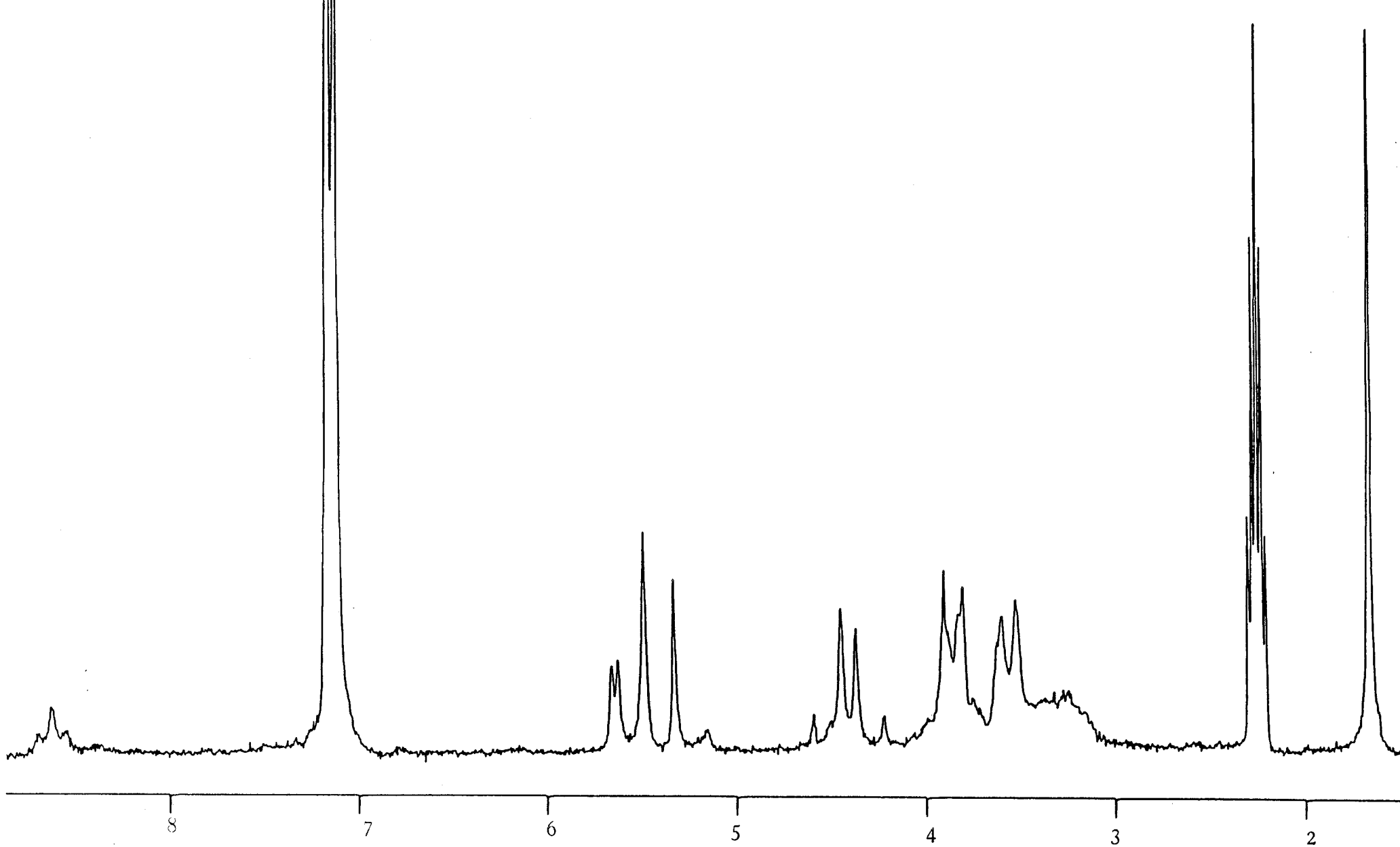
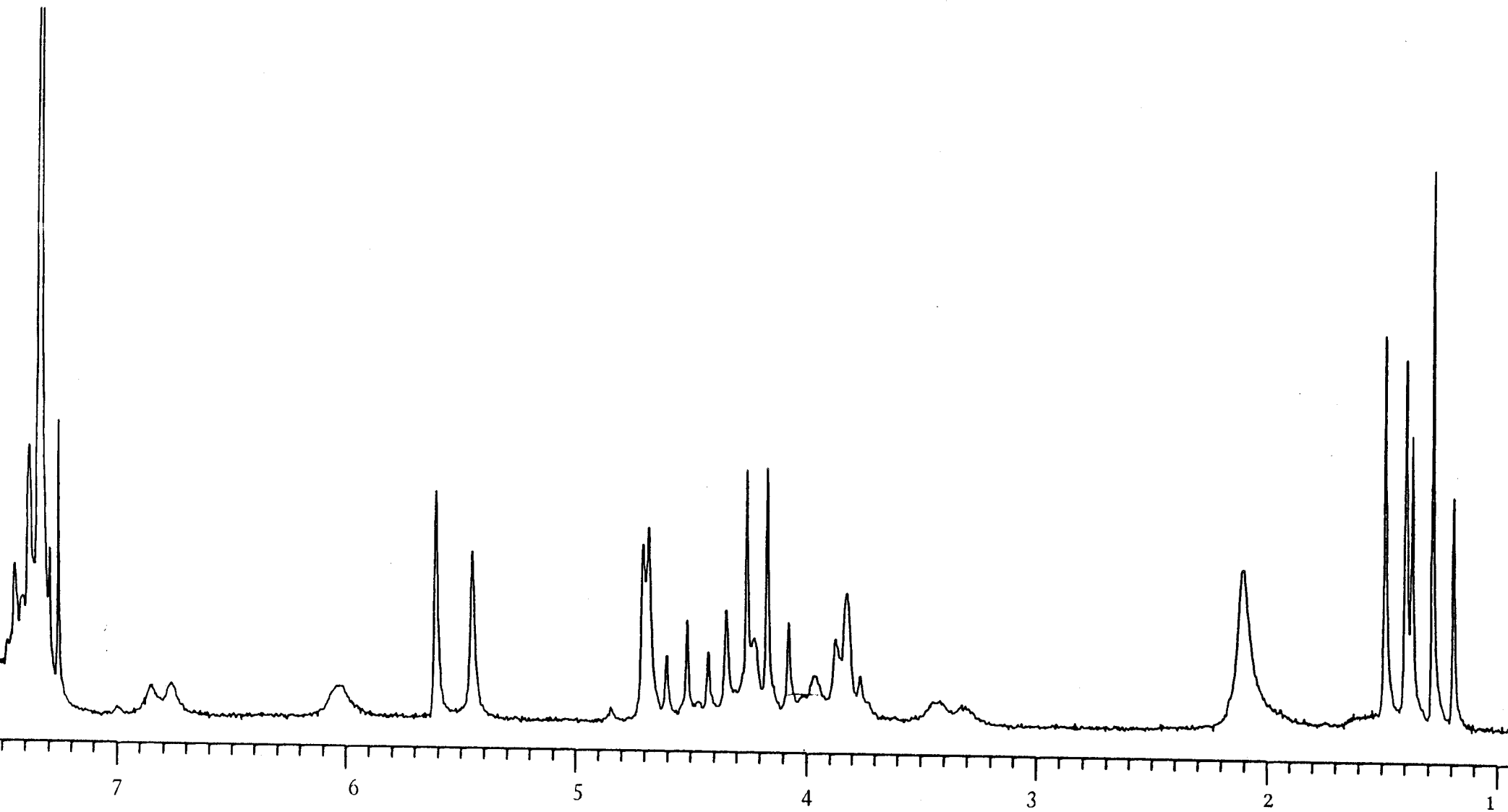


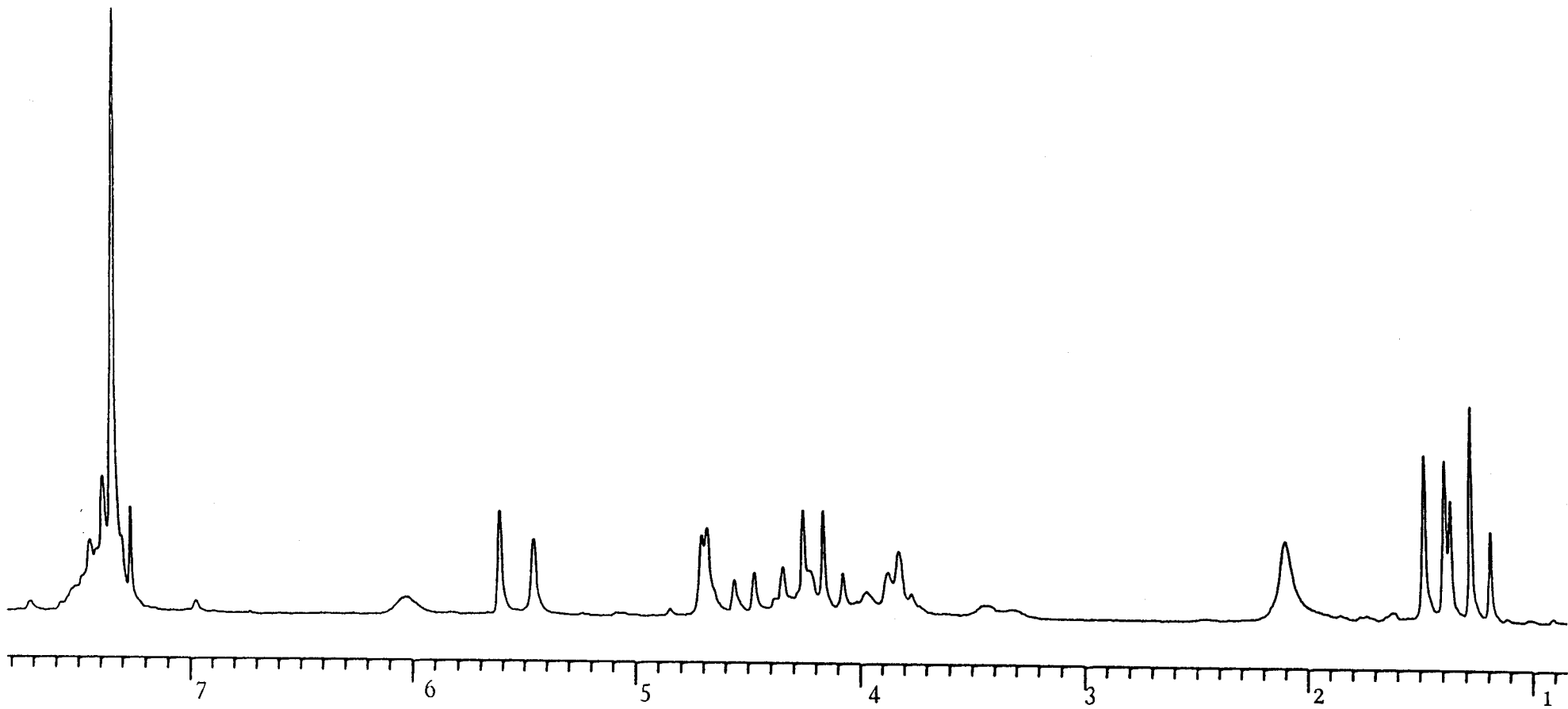
Figura 38-A

Espectro de ^1H -RMN de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-
-[2,3-d]-oxazolidín-2-carbonilglicina (50) (DMSO- d_6 , 80 MHz, TMS)

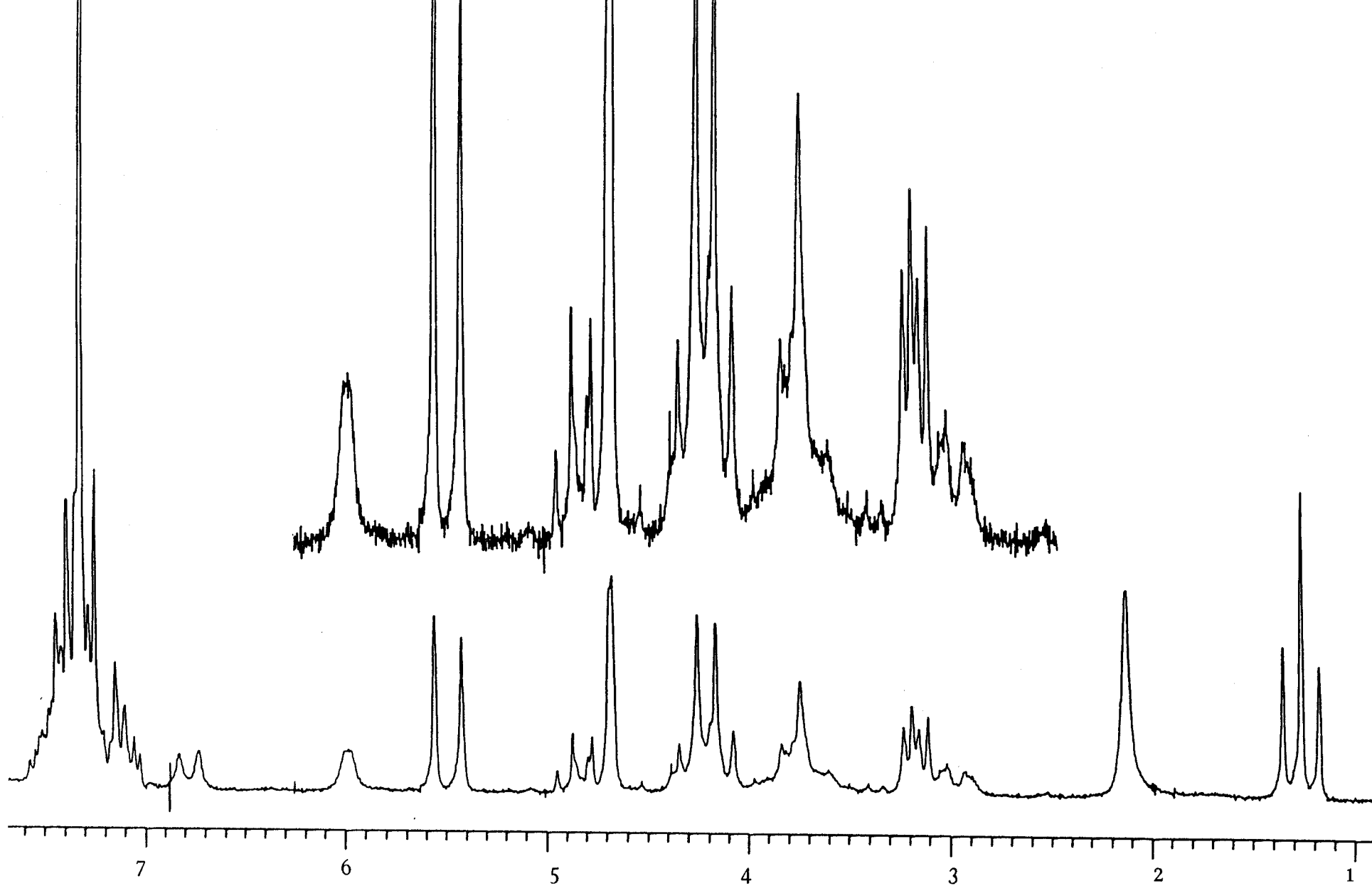


Espectro de ^1H -RMN del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanina (45) (Cl_3CD , 80 MHz, TMS)

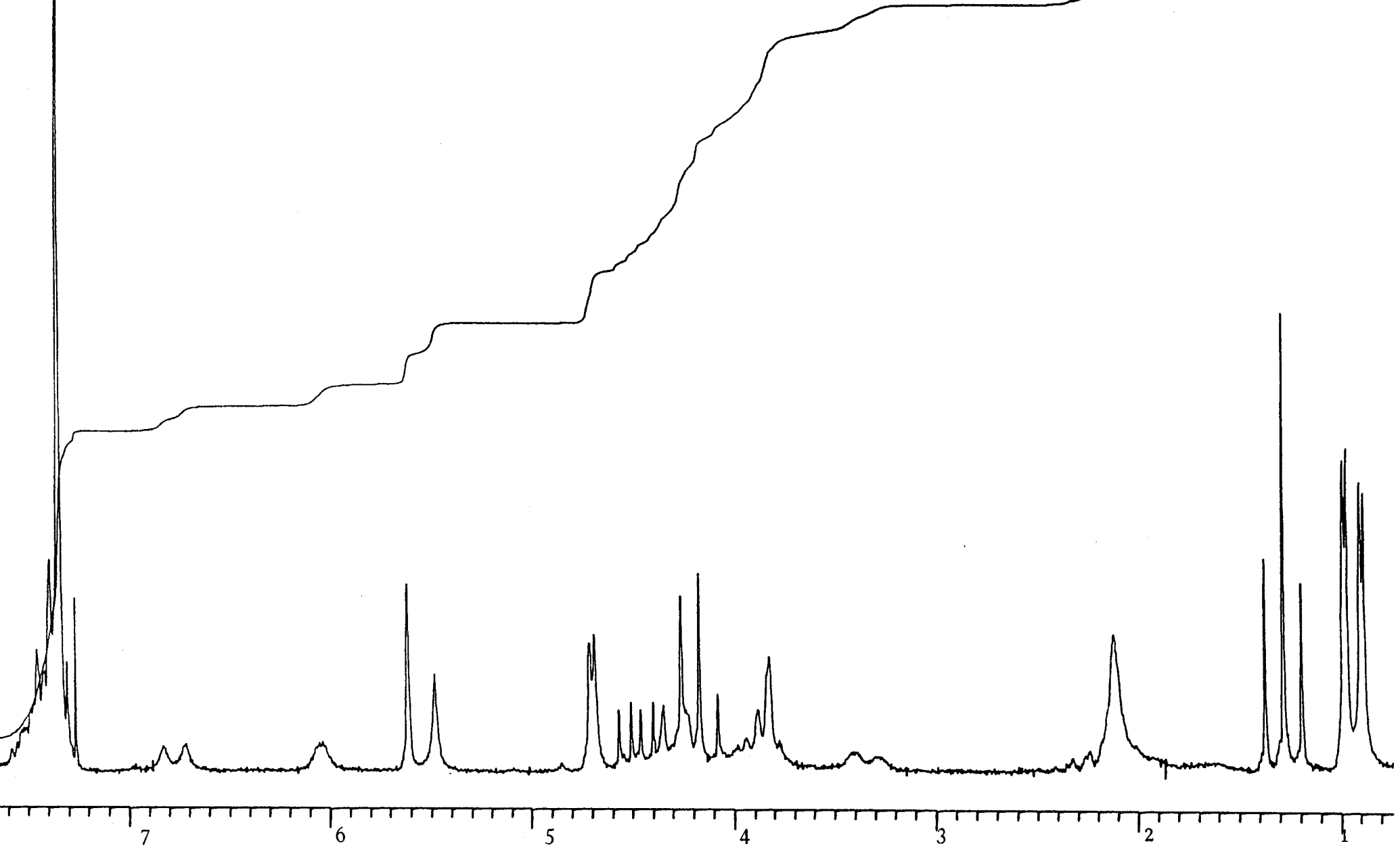
Figura 39-A



Intercambio con D_2O para la sustancia 45

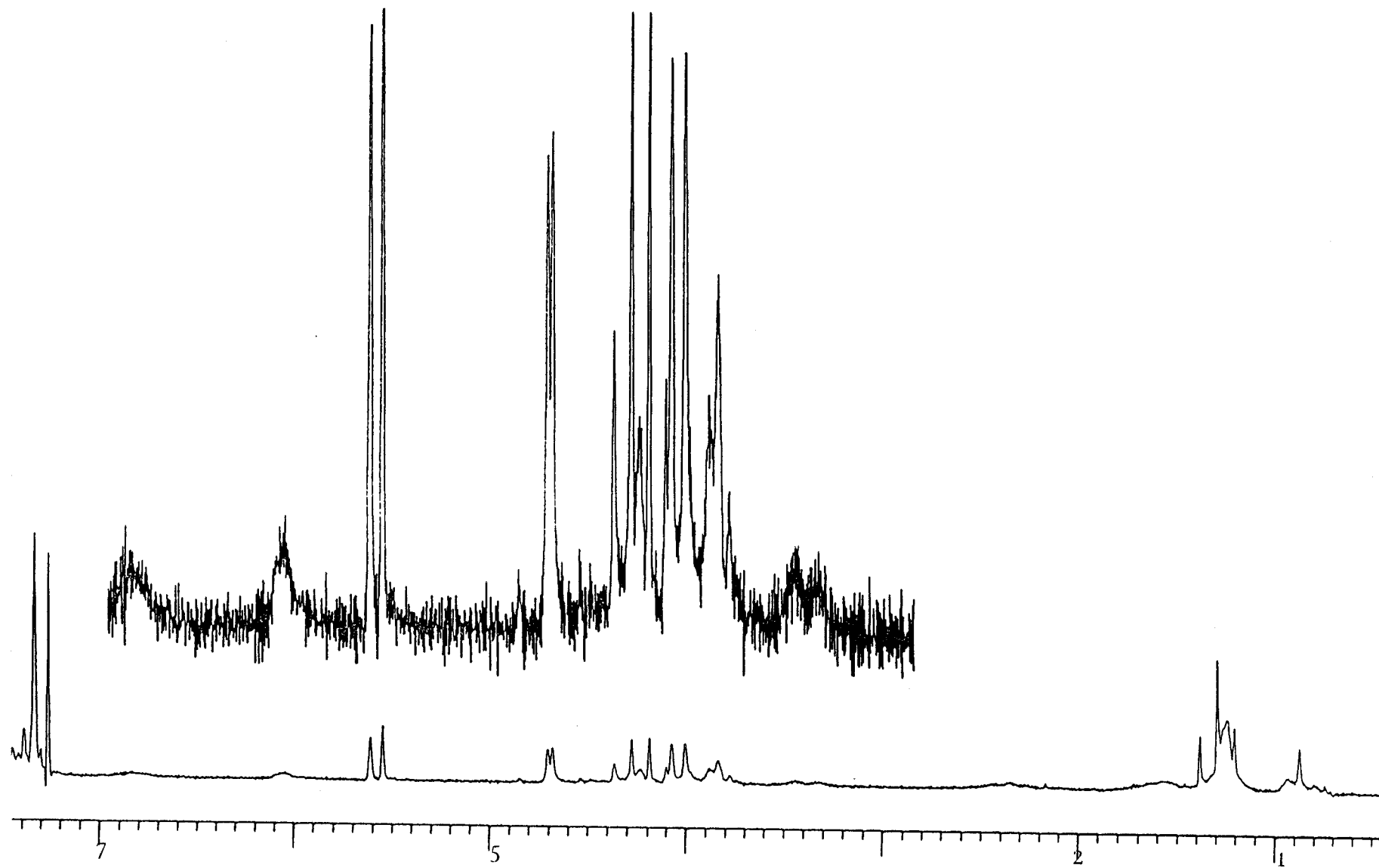


Espectro de ^1H -RMN del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-2,3-dioxazolidín-2-carbonil-L-fenilalanina (47) (Cl_3CD , 80 MHz, TMS)

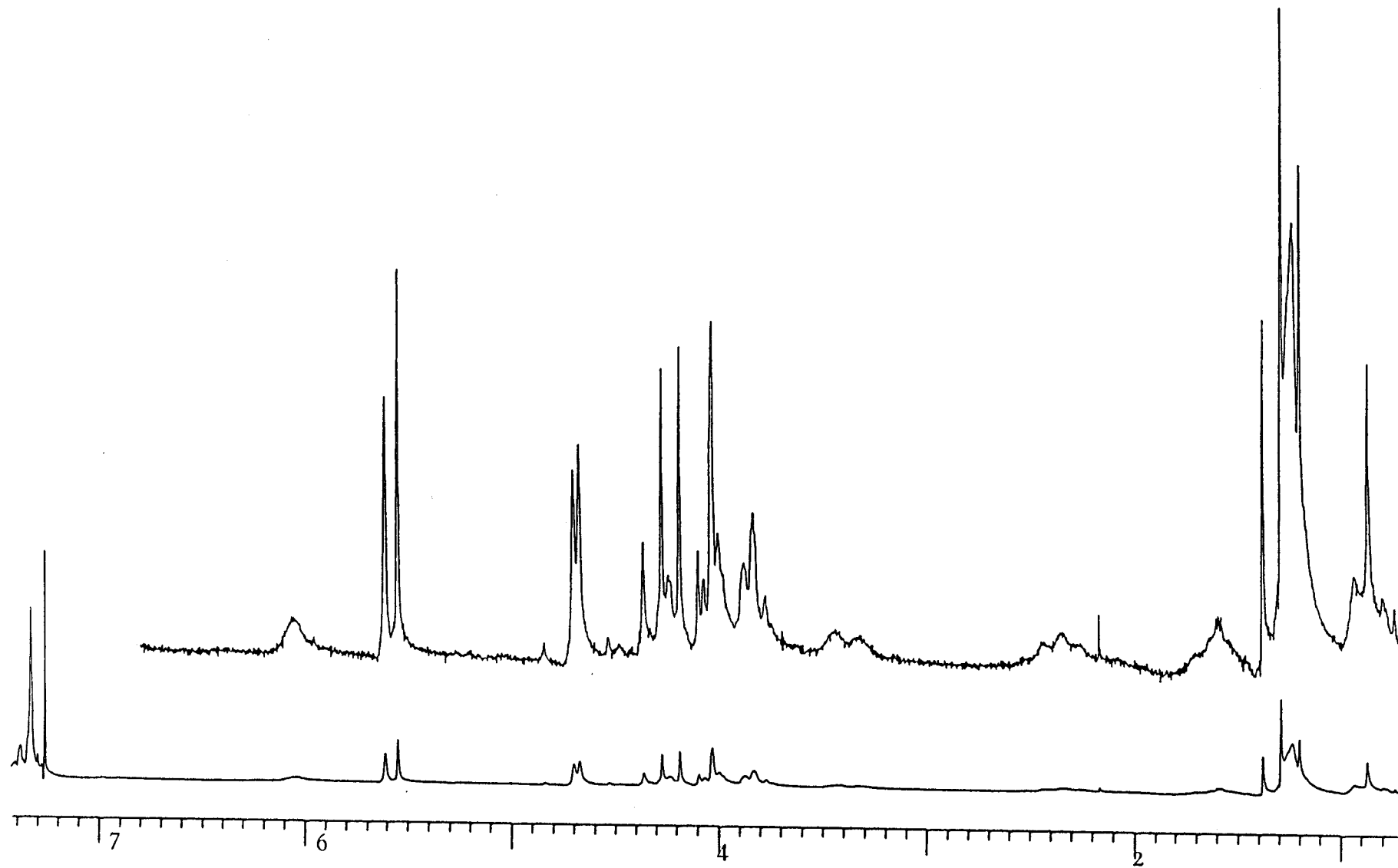


Espectro de ^1H -RMN del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-valina (46) (Cl_3CD , 80 MHz, TMS)

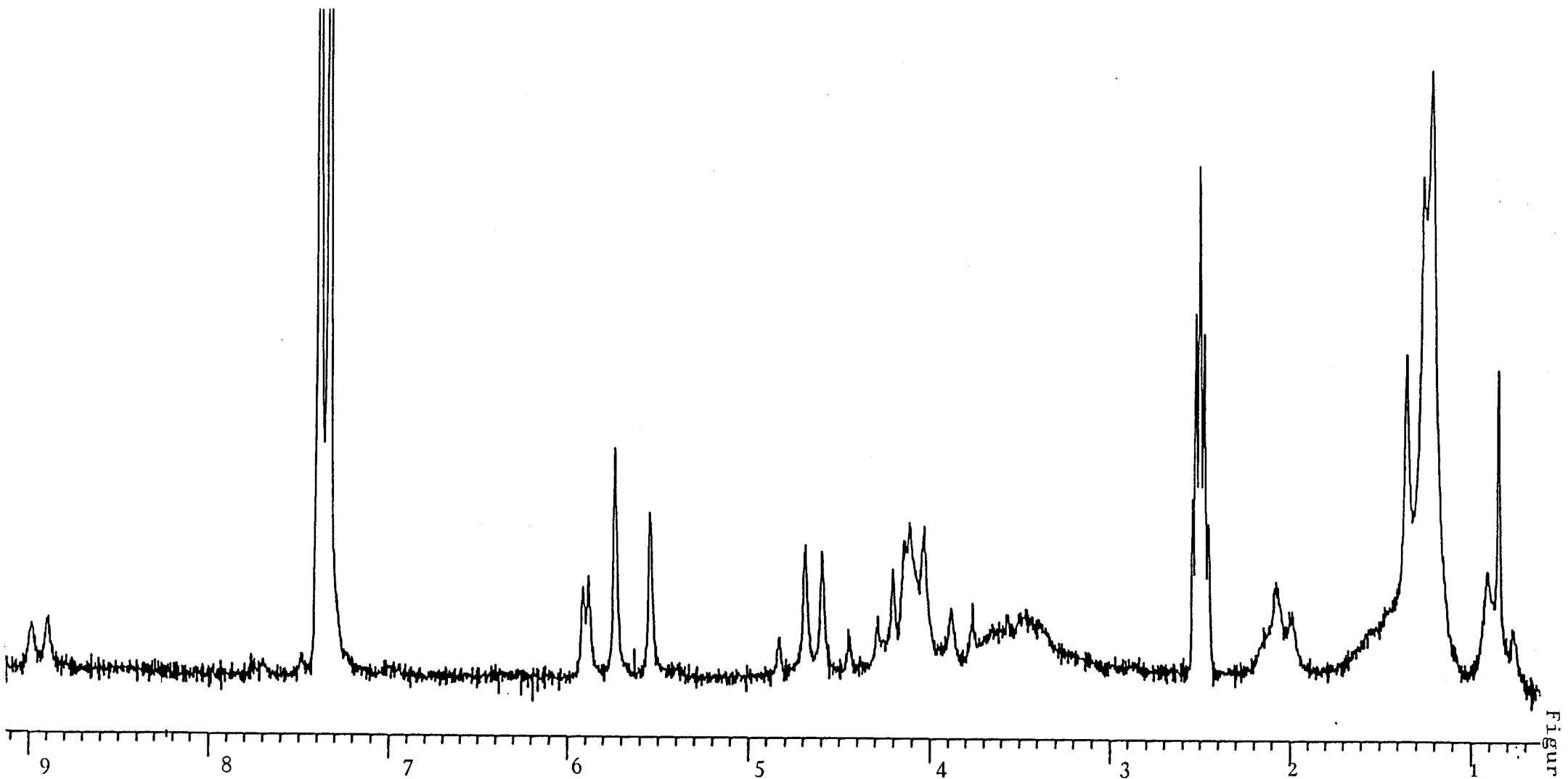
Figura 42-A



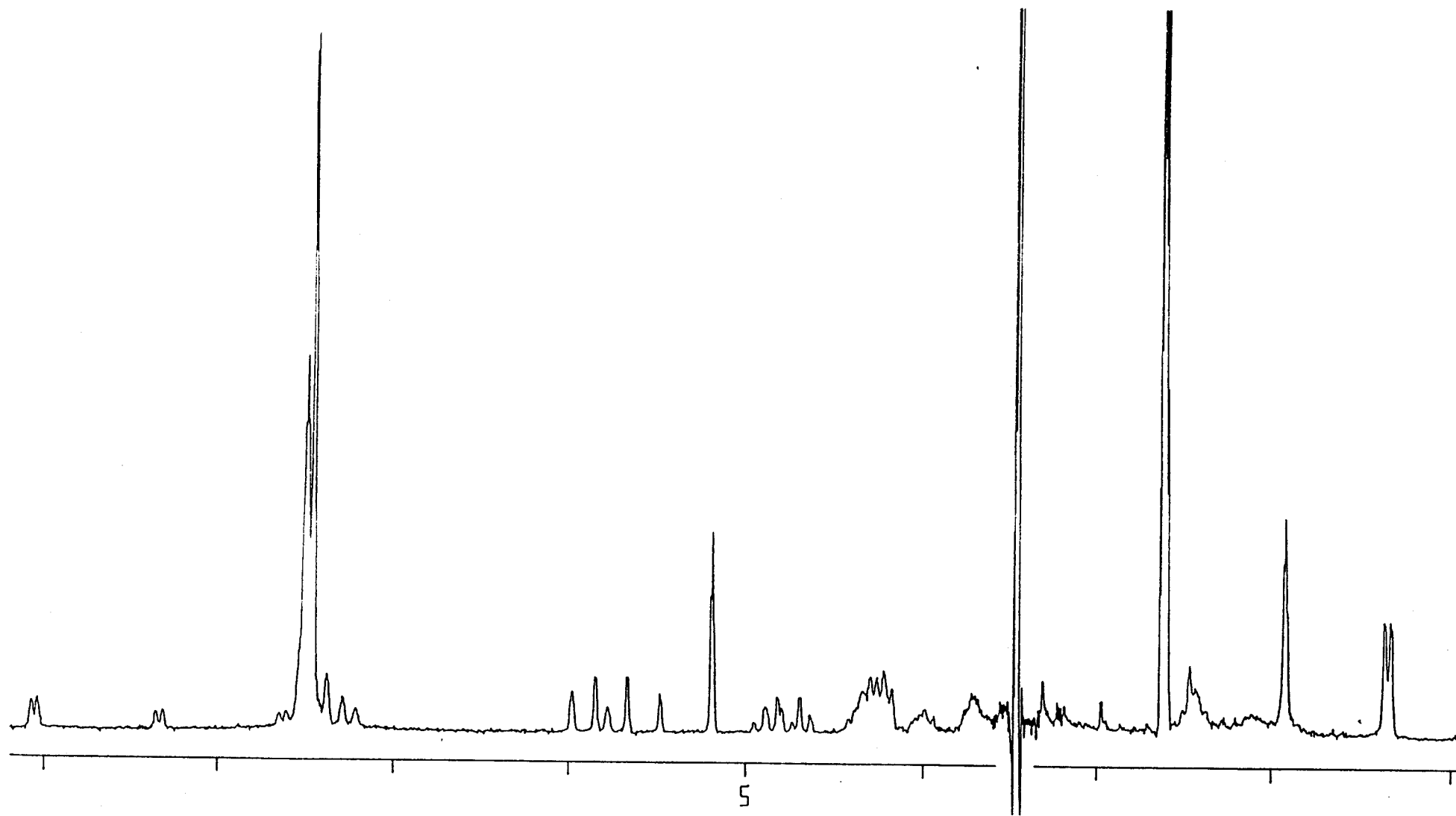
Espectro de ^1H -RMN del éster etílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonilglicina (48) (Cl_3CD , 80 MHz, TMS)



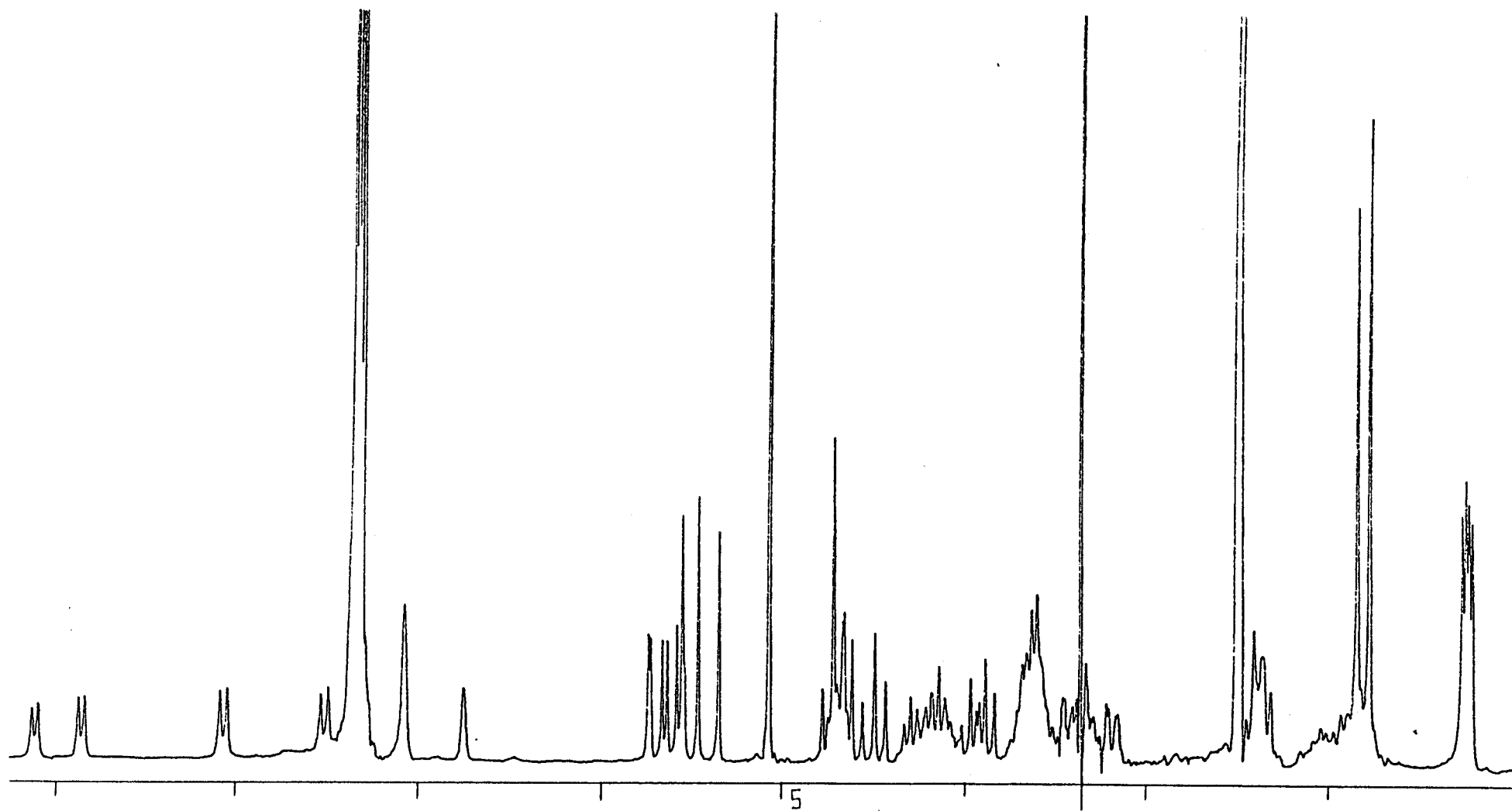
Intercambio con D_2O para la sustancia 48



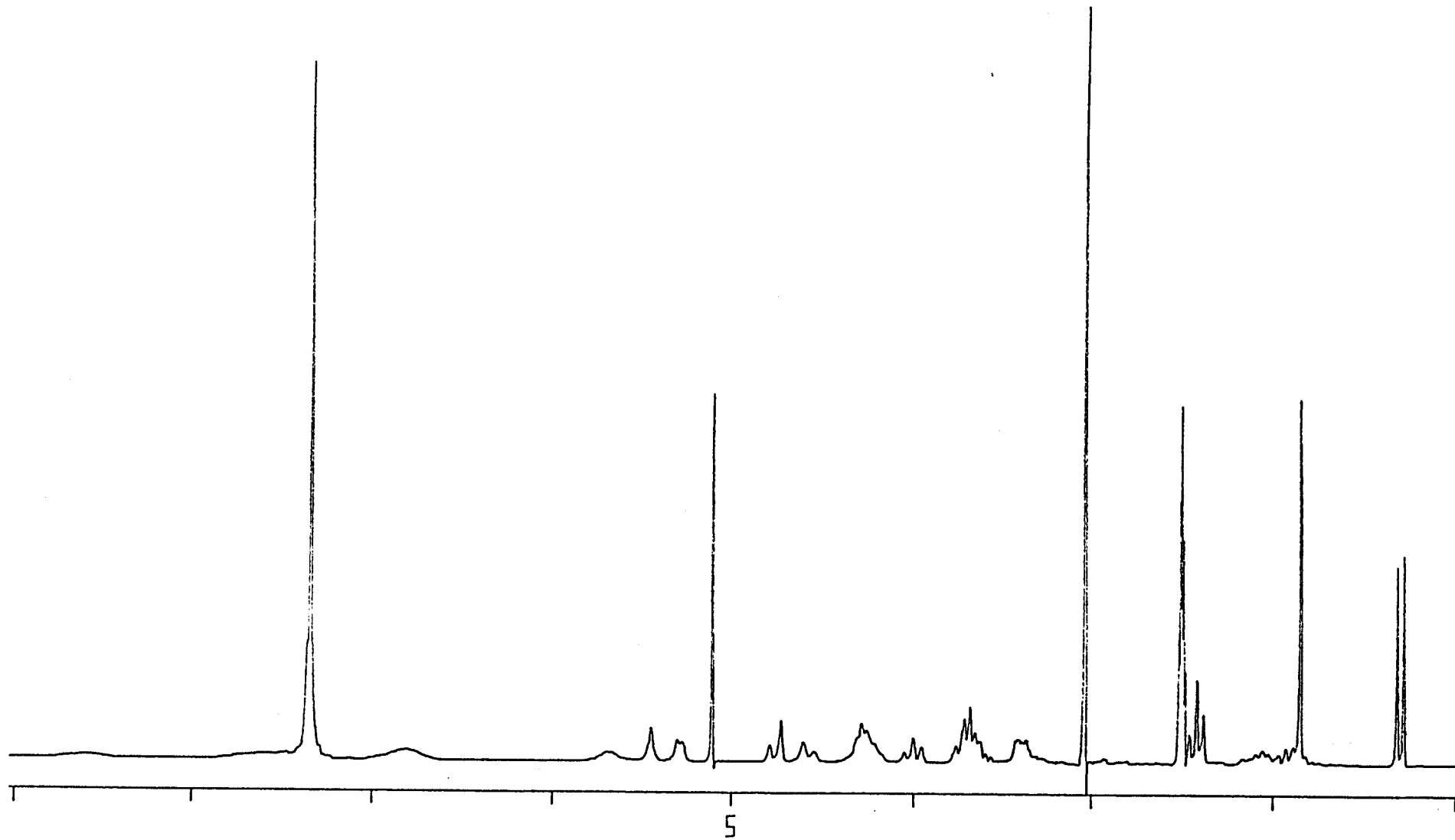
Espectro de ^1H -RMN de 3-n-octanoil-(1-0-bencil-4,6-0-bencilidén-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanina (51) (DMSO- d_6 , 80 MHz, TMS)



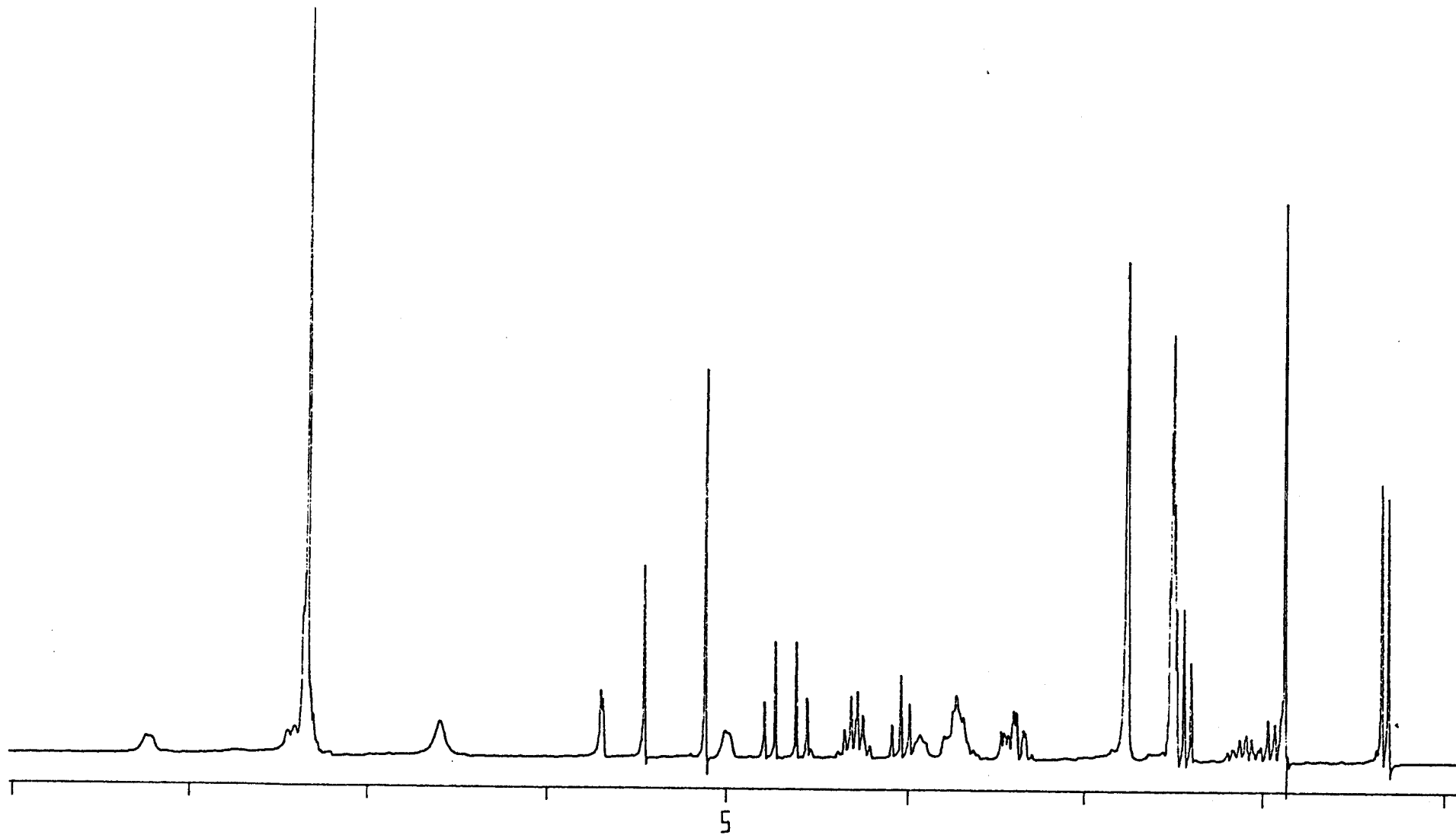
^1H -RMN del éster benílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (53) (DMSO- d_6 , 200 MHz, TMS)



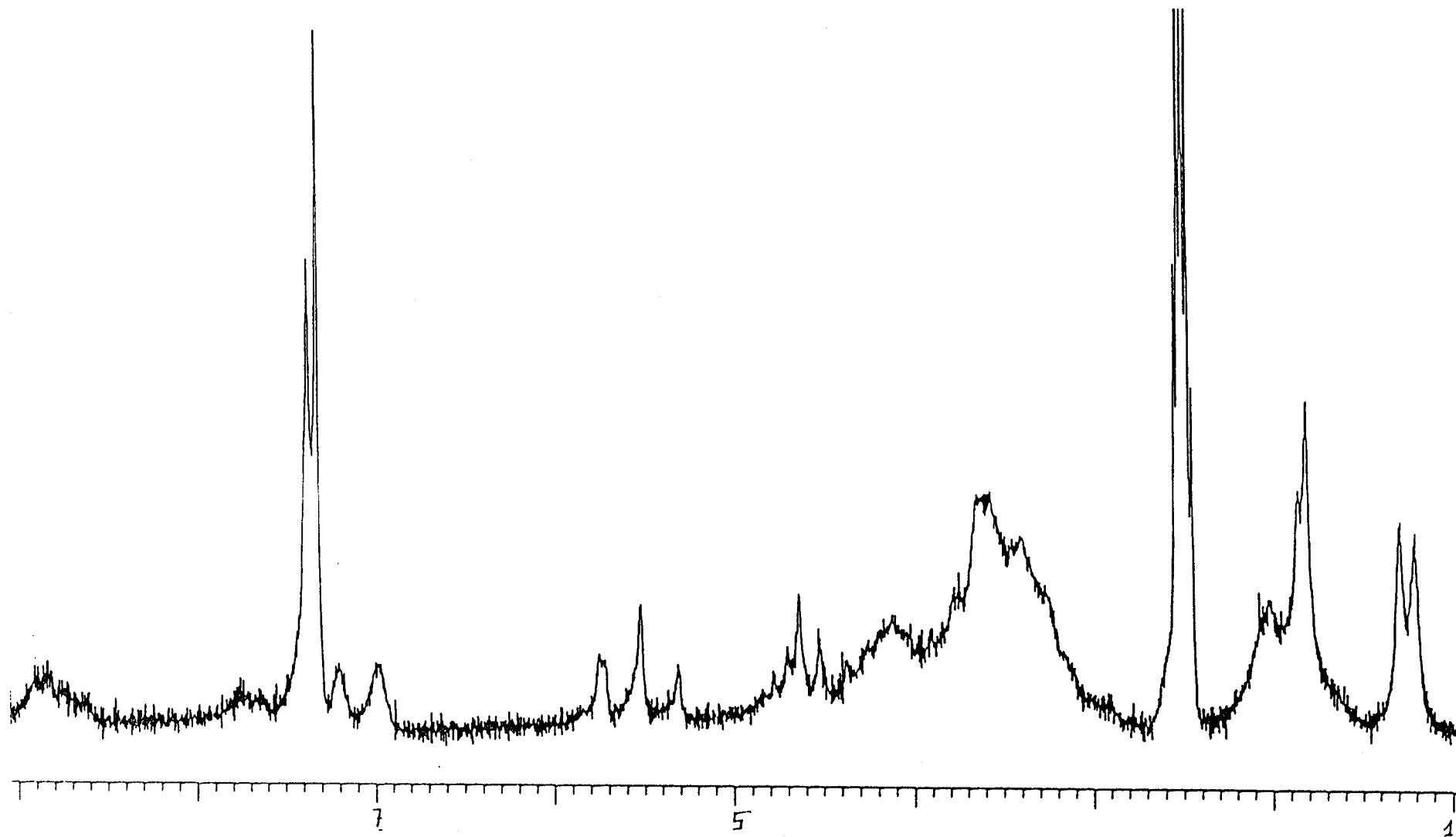
^1H -RMN del éster bencílico de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (61) (DMSO- d_6 , 200 MHz, TMS)



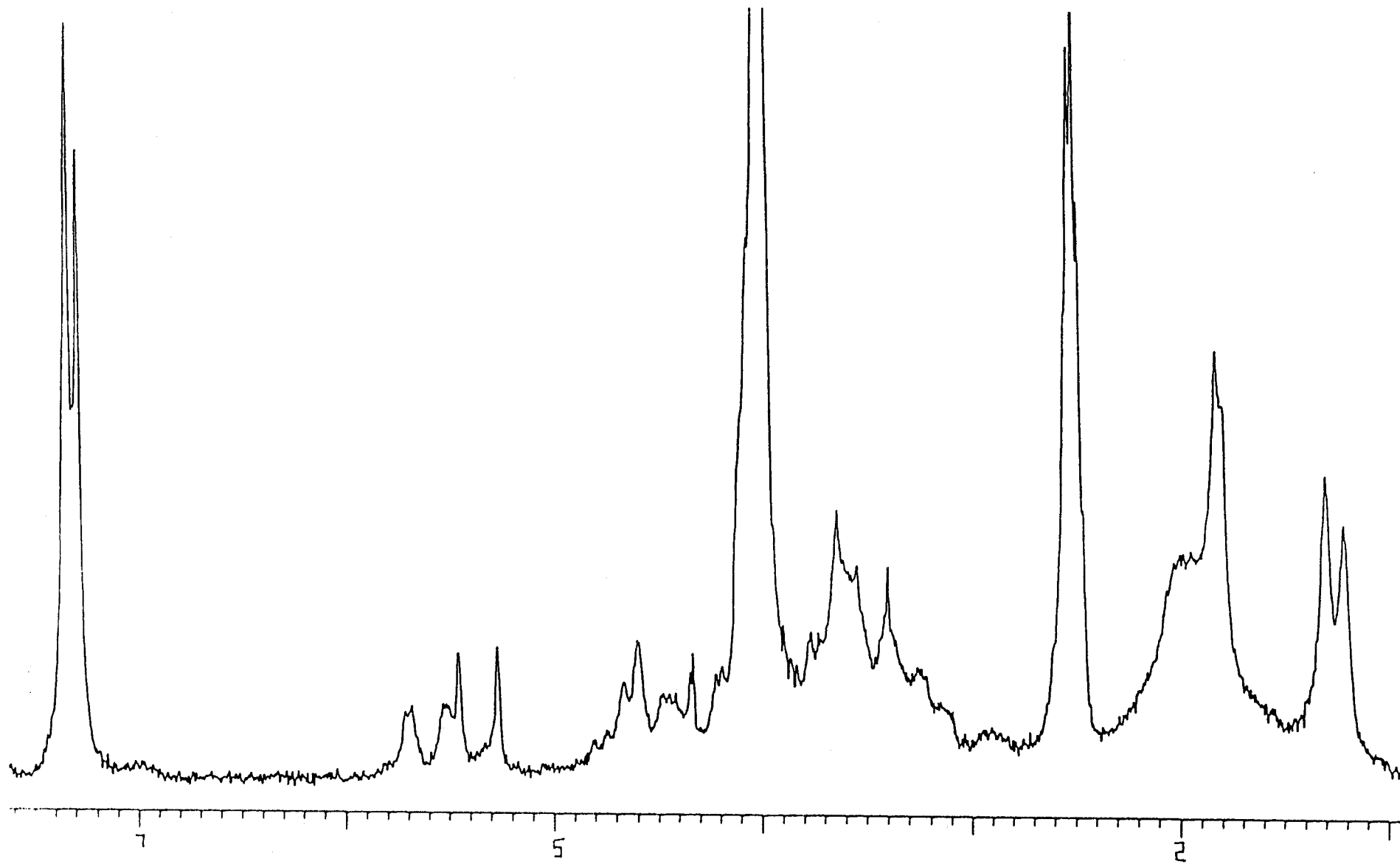
Espectro de ^1H -RMN de la sustancia 61 a 90°C



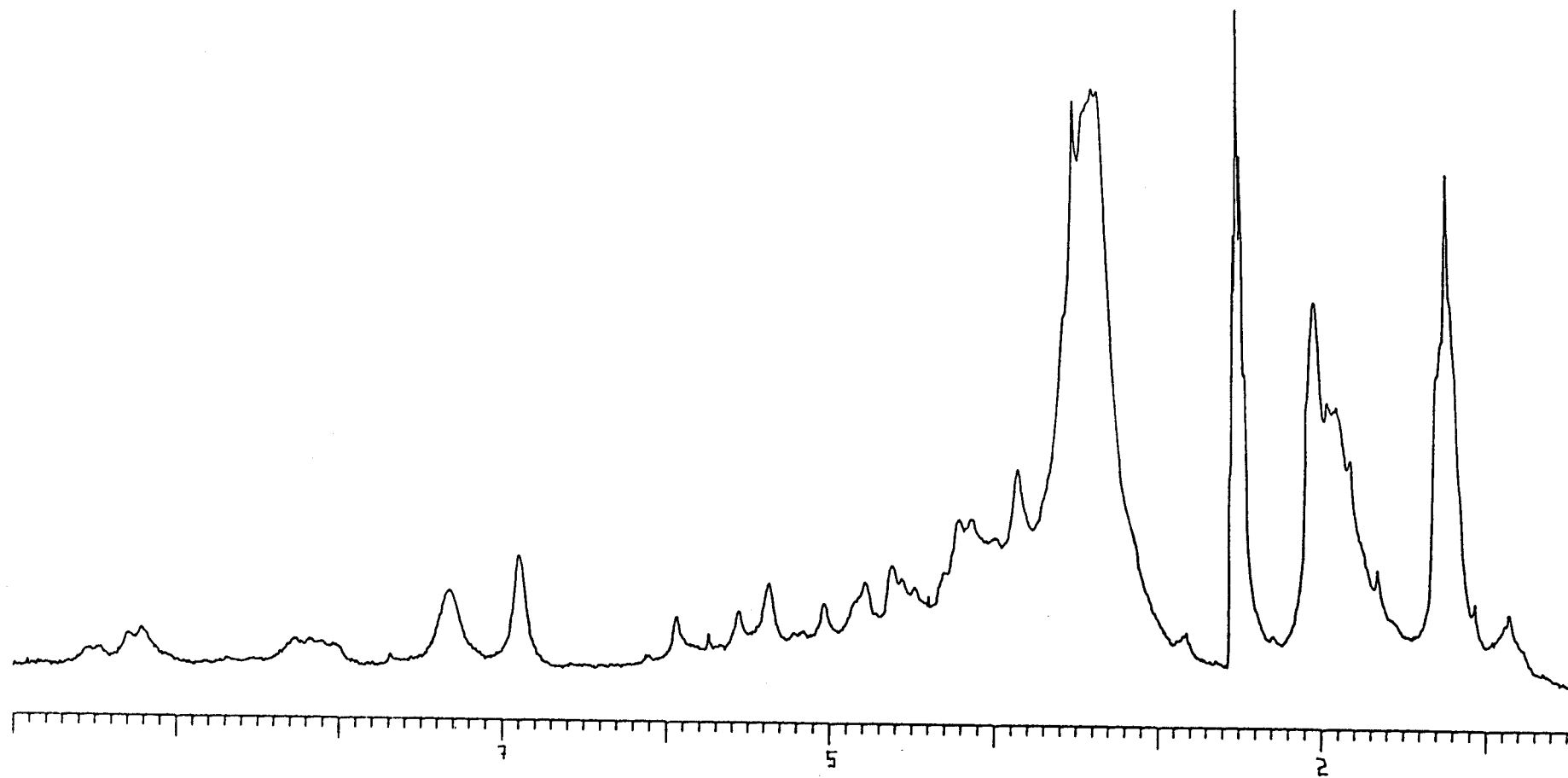
Espectro de ^1H -RMN de la sustancia 61 a 145°C



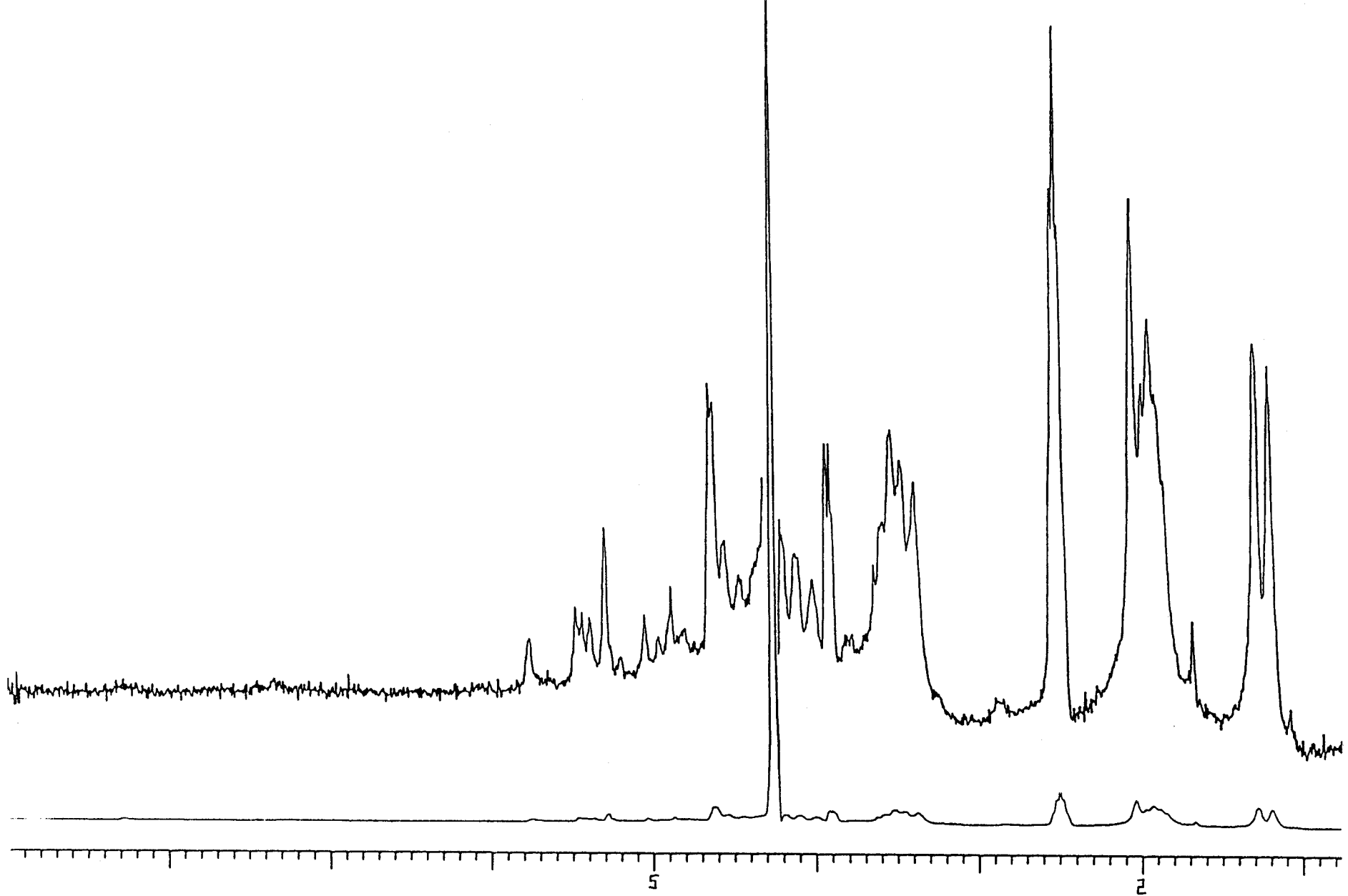
Espectro de ^1H -RMN de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (65) (DMSO- d_6 , 80 MHz, TMS)



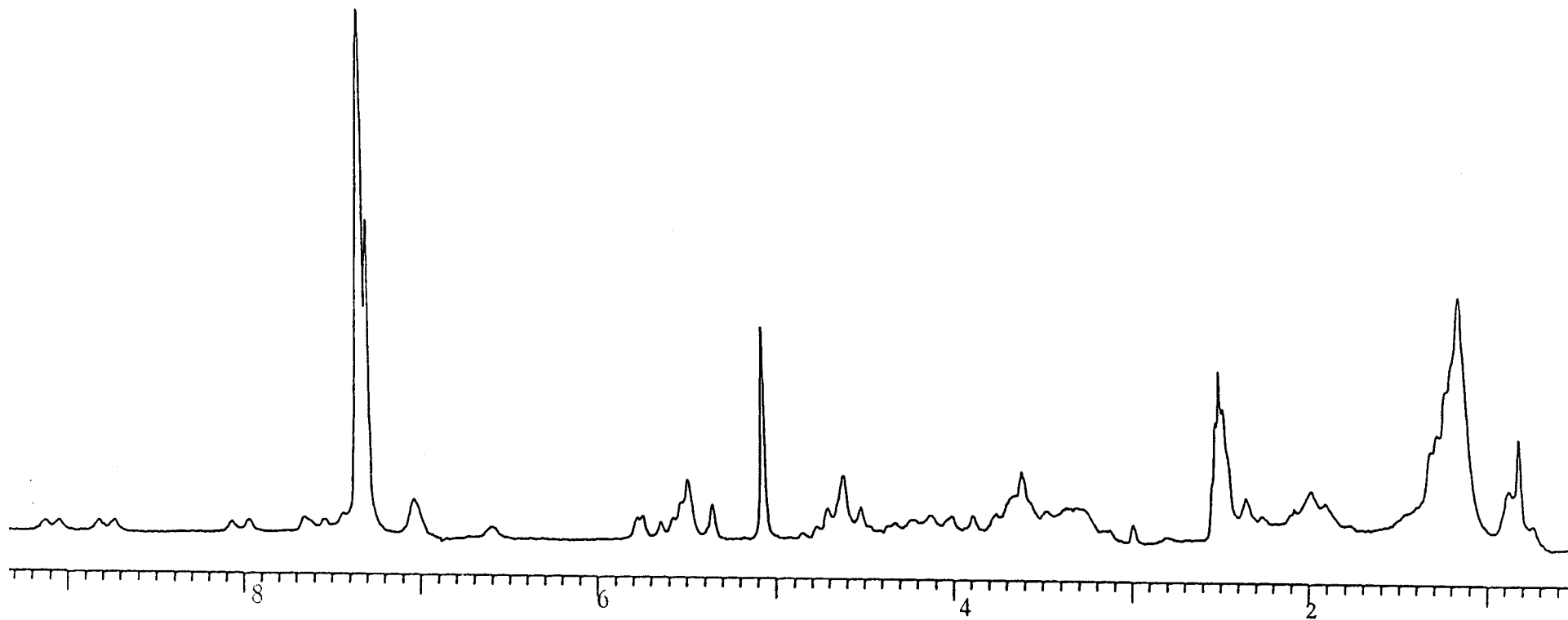
Intercambio con D_2O para la sustancia 65



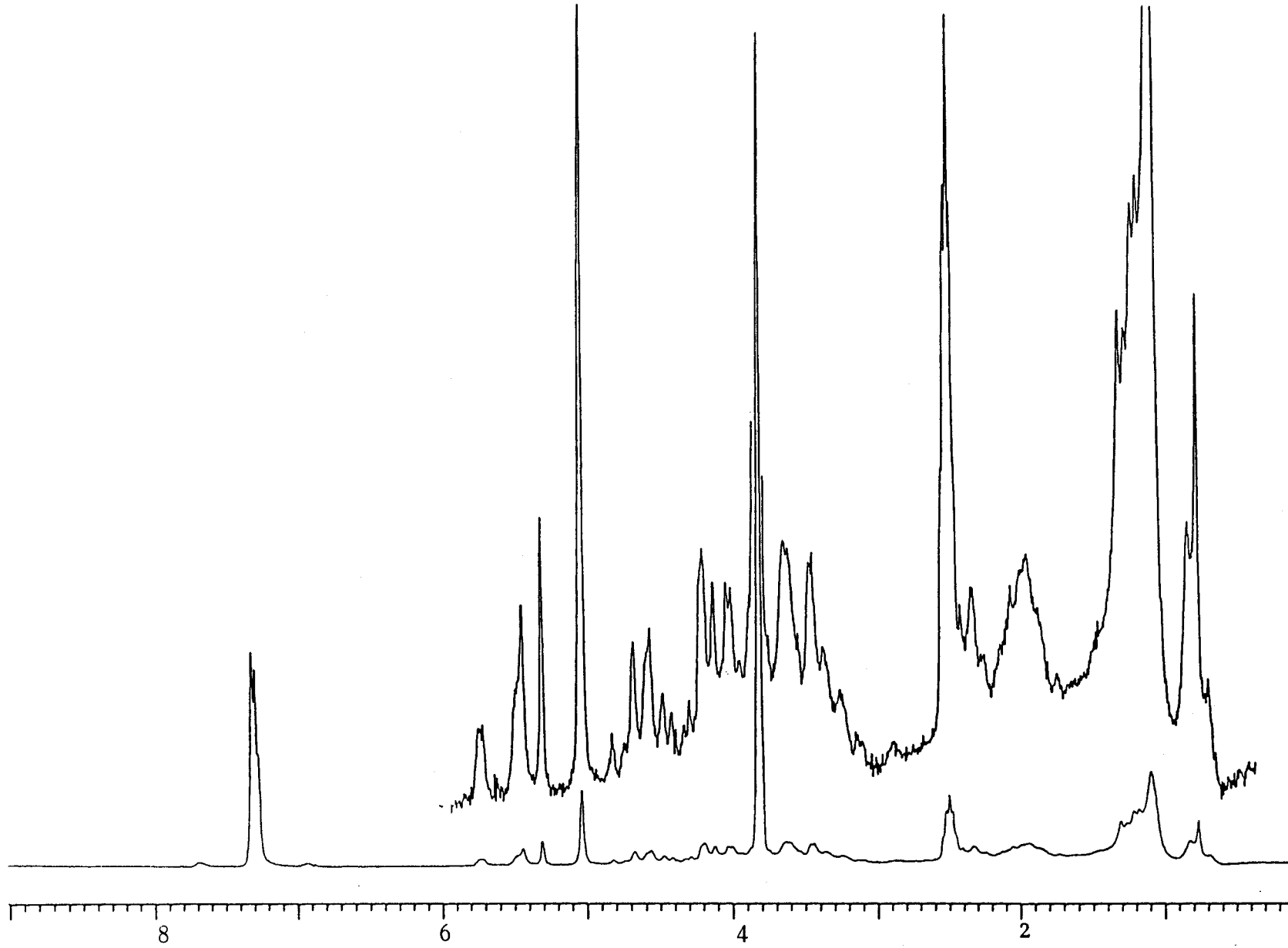
Espectro de ^1H -RMN de 3-acetil-(2,3-didesoxi-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (26) (DMSO- d_6 , 80 MHz, TMS)



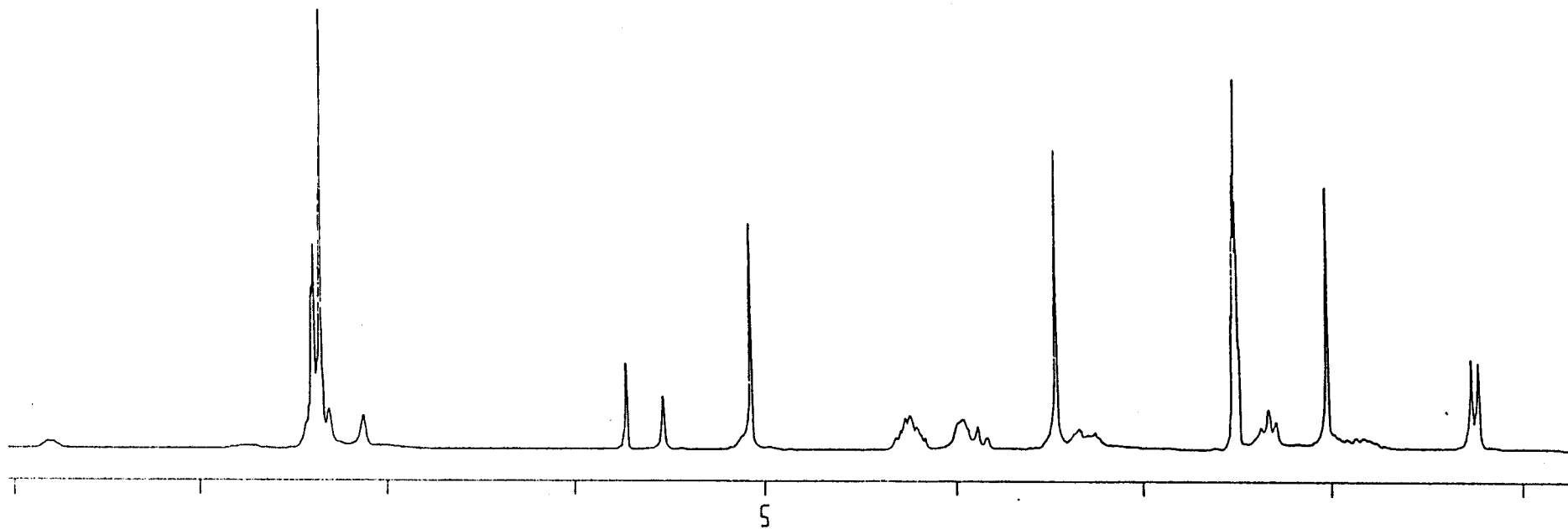
Intercambio con D_2O para la sustancia 26



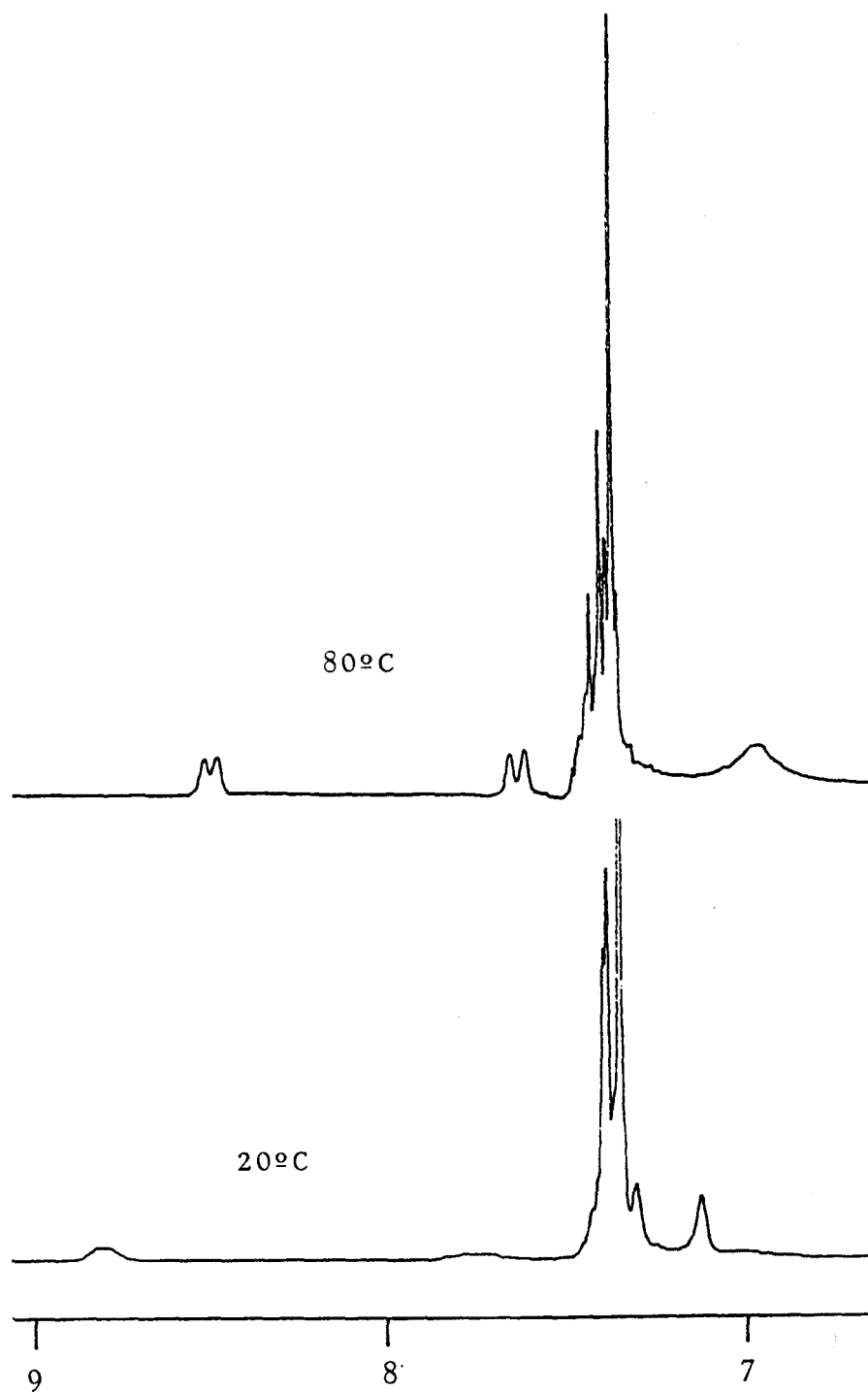
^1H -RMN del éster bencílico de 3-n-octanoil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]oxazolidín-2-carbonil-L-alanil-D-isoglutamina (64) (DMSO- d_6 , 80 MHz, TMS)



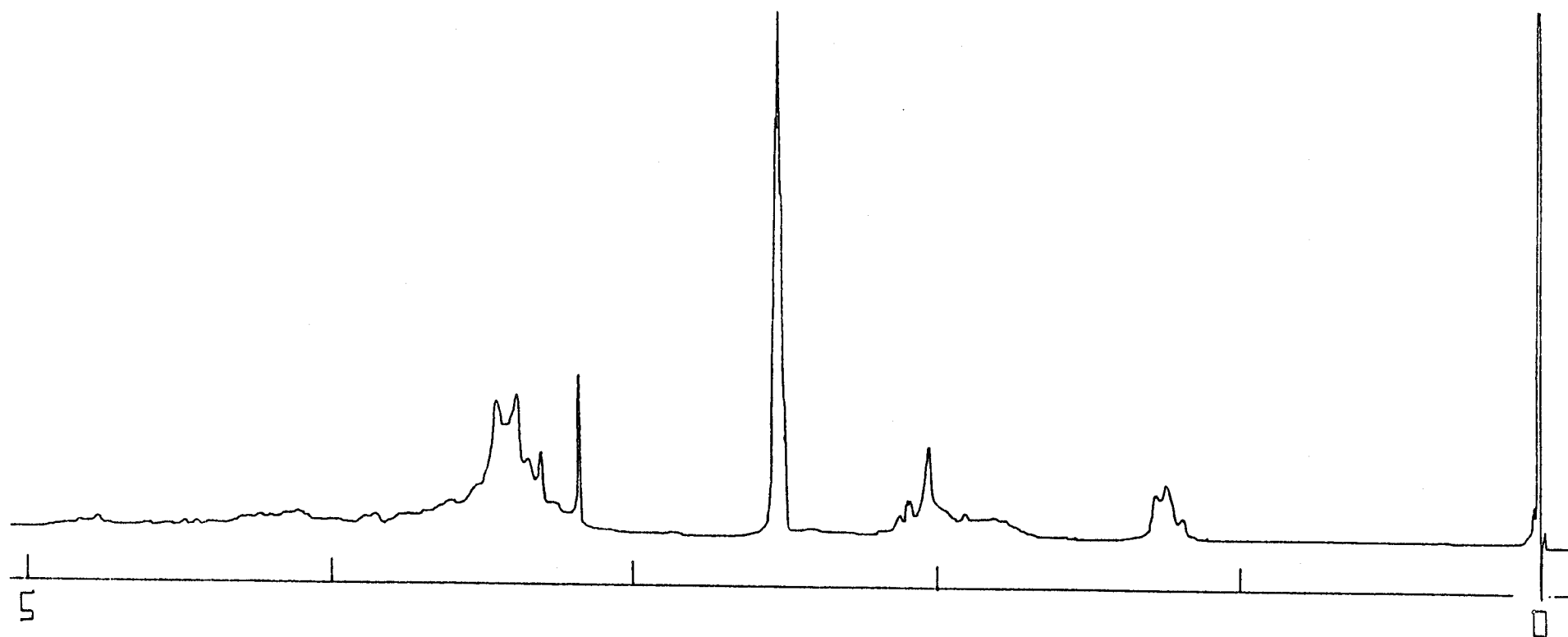
Intercambio con D_2O para la sustancia 64



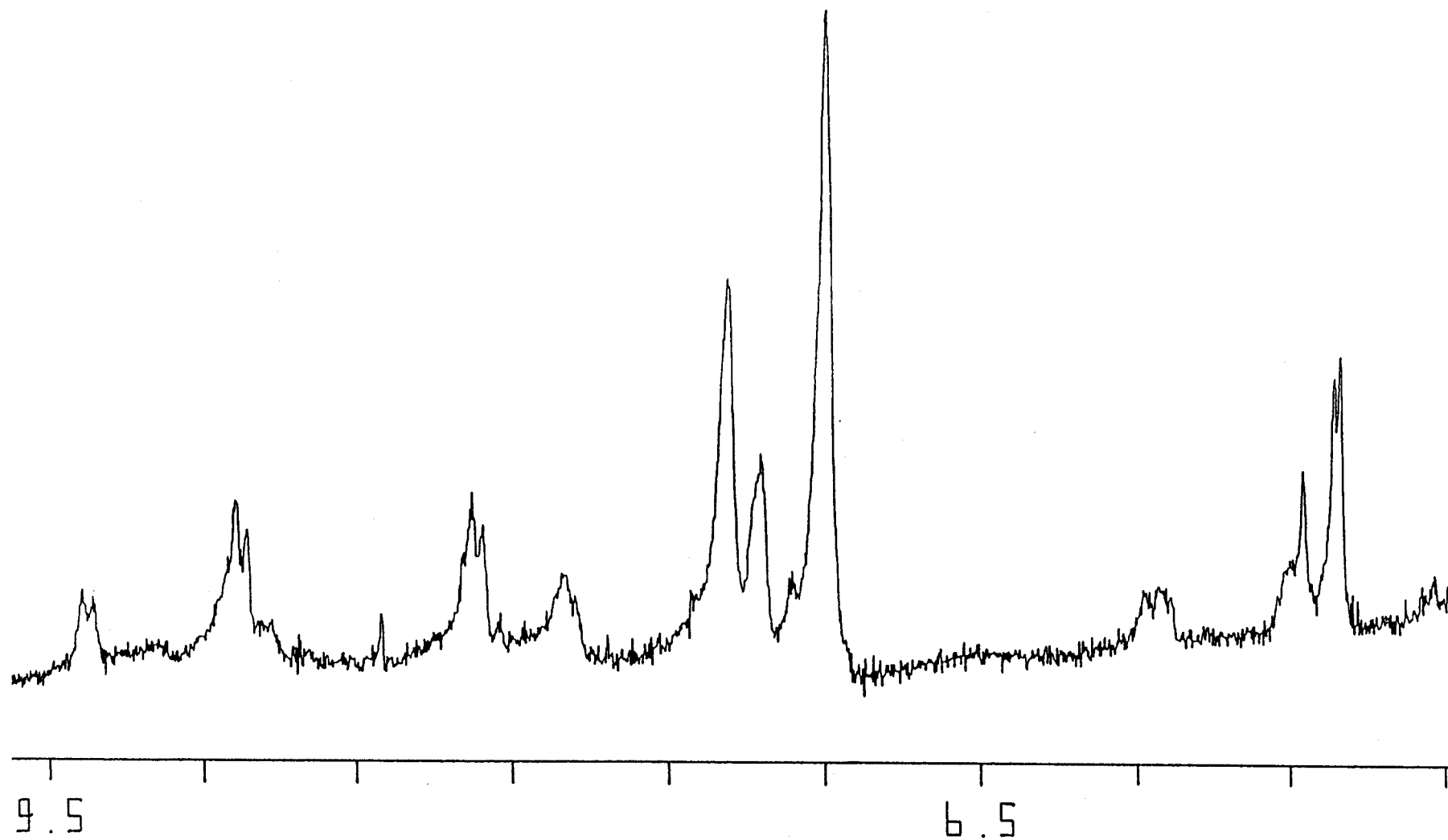
^1H -RMN del éster bencílico de 3-acetil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil- β -D-gluco-
pirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (70) (DMSO- d_6 , 200 MHz, TMS)



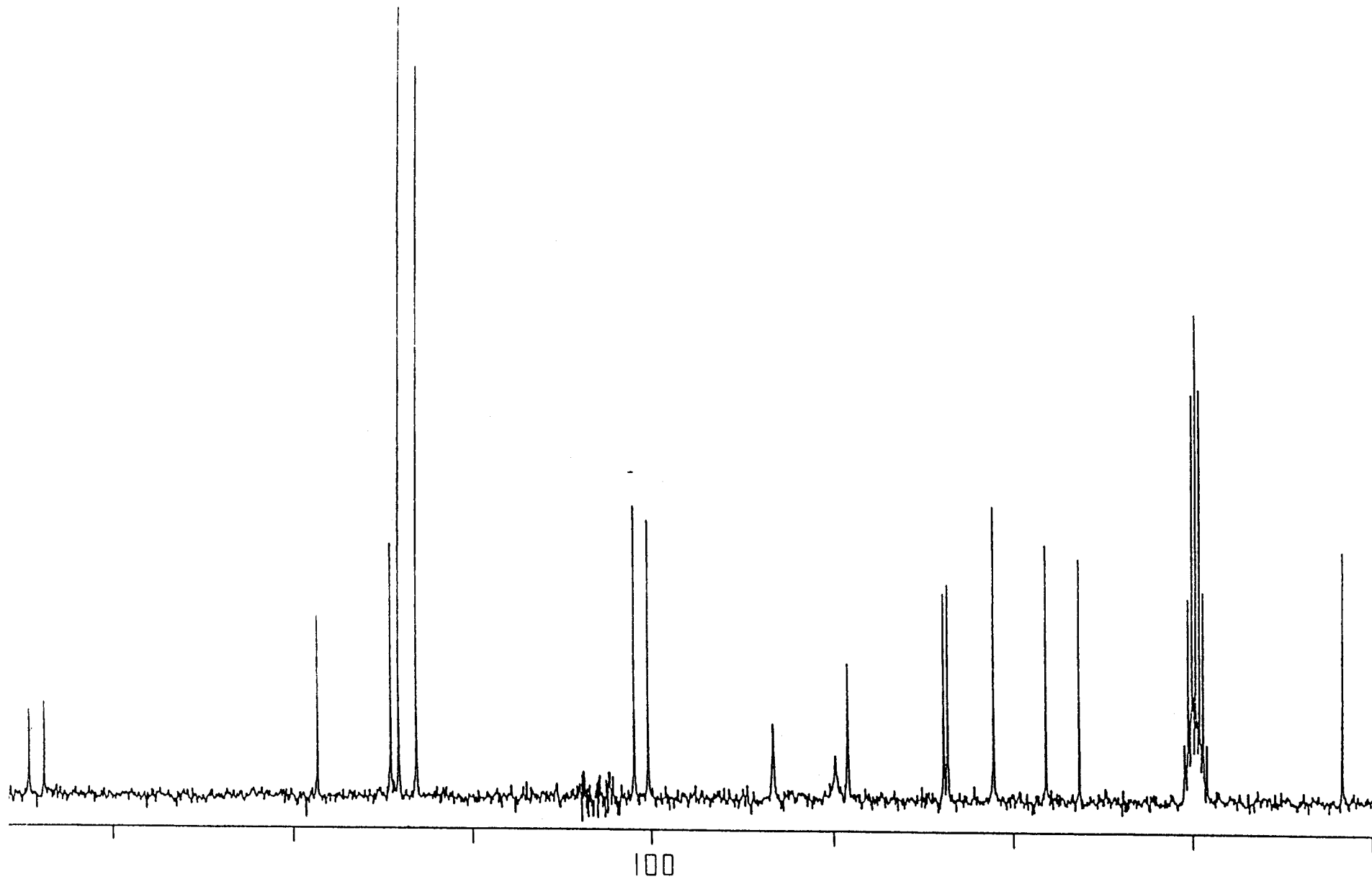
Protones de amida de la sustancia 70 a 20°C y 80°C



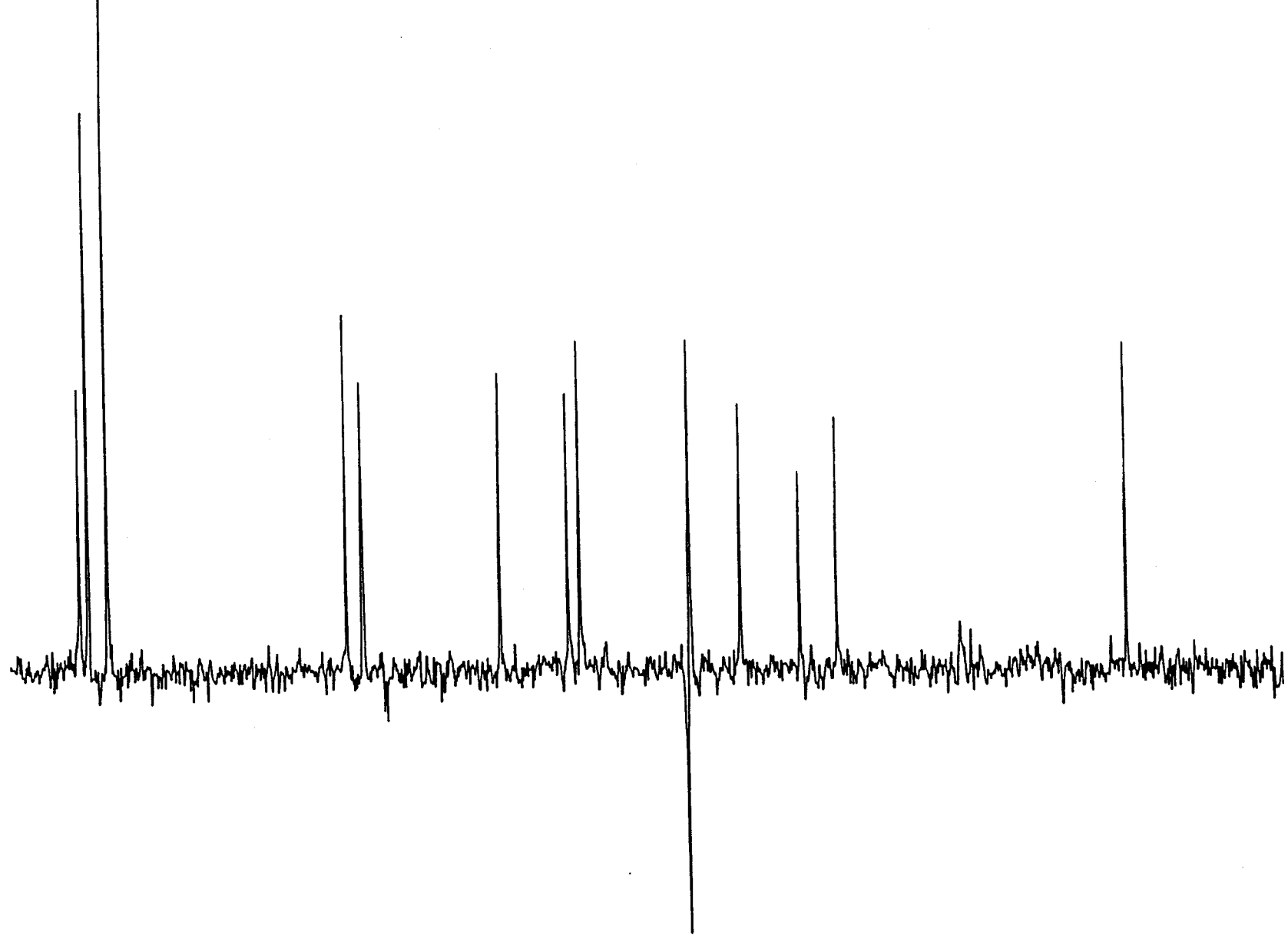
Espectro de ^1H -RMN de 3-acetil-(2,3-didesoxi-1-O-metil-β-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (28) (DMSO-d_6 , 200 MHz, TMS) (registro de 0 a 5 ppm)



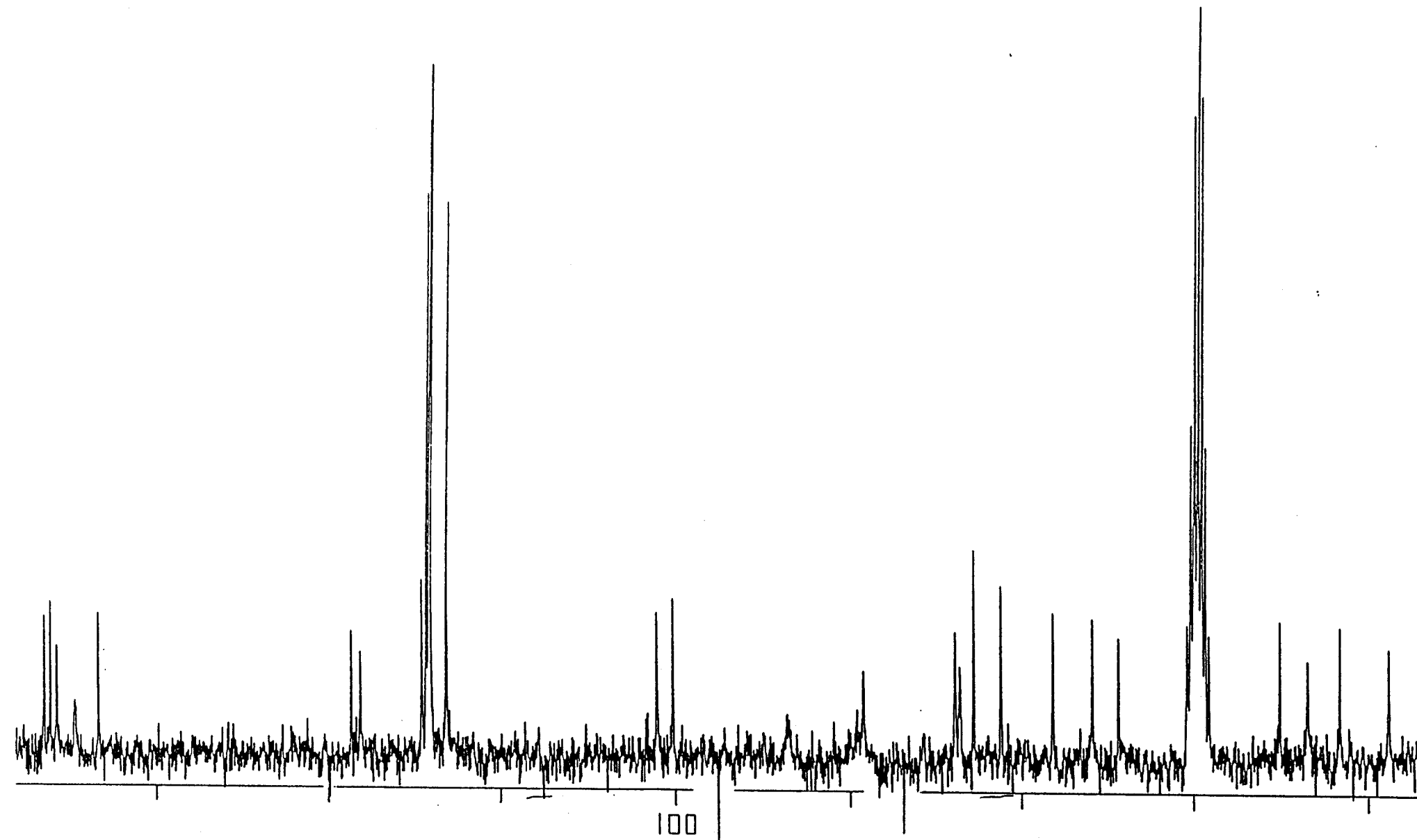
Espectro de ^1H -RMN de 3-acetil-(2,3-didesoxi-1-O-metil- β -D-glucopirán)-[2,3-d]-oxazolidín-
-2-carbonil-L-alanil-D-isoglutamina (28) (DMSO-d_6 , 200 MHz, TMS) (registro de 5 a 9,5 ppm)



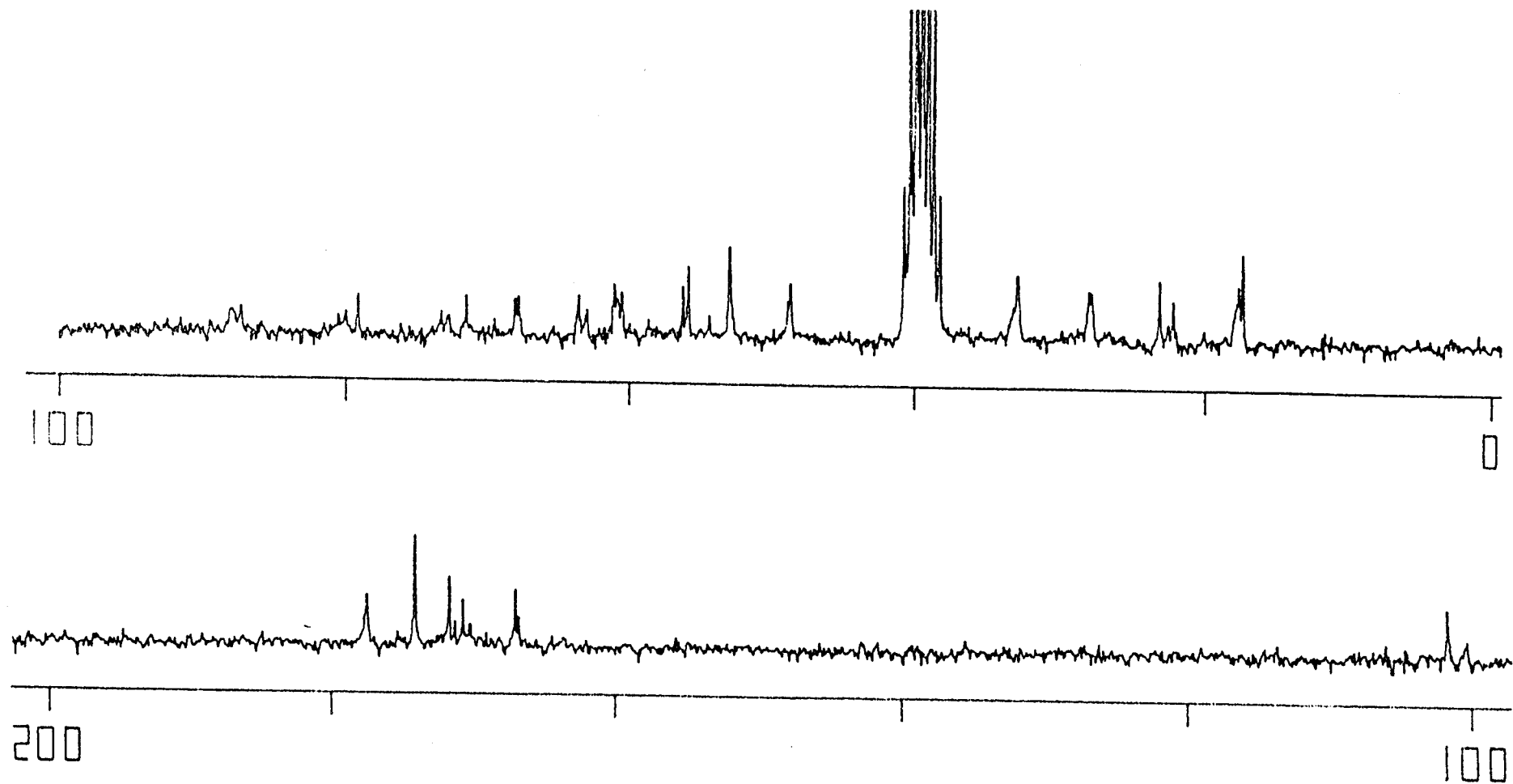
Espectro de ^{13}C -RMN de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-β-D-glucopirán)-[2,3-d]-oxazolidina (69) (DMSO- d_6 , 50 MHz, TMS)



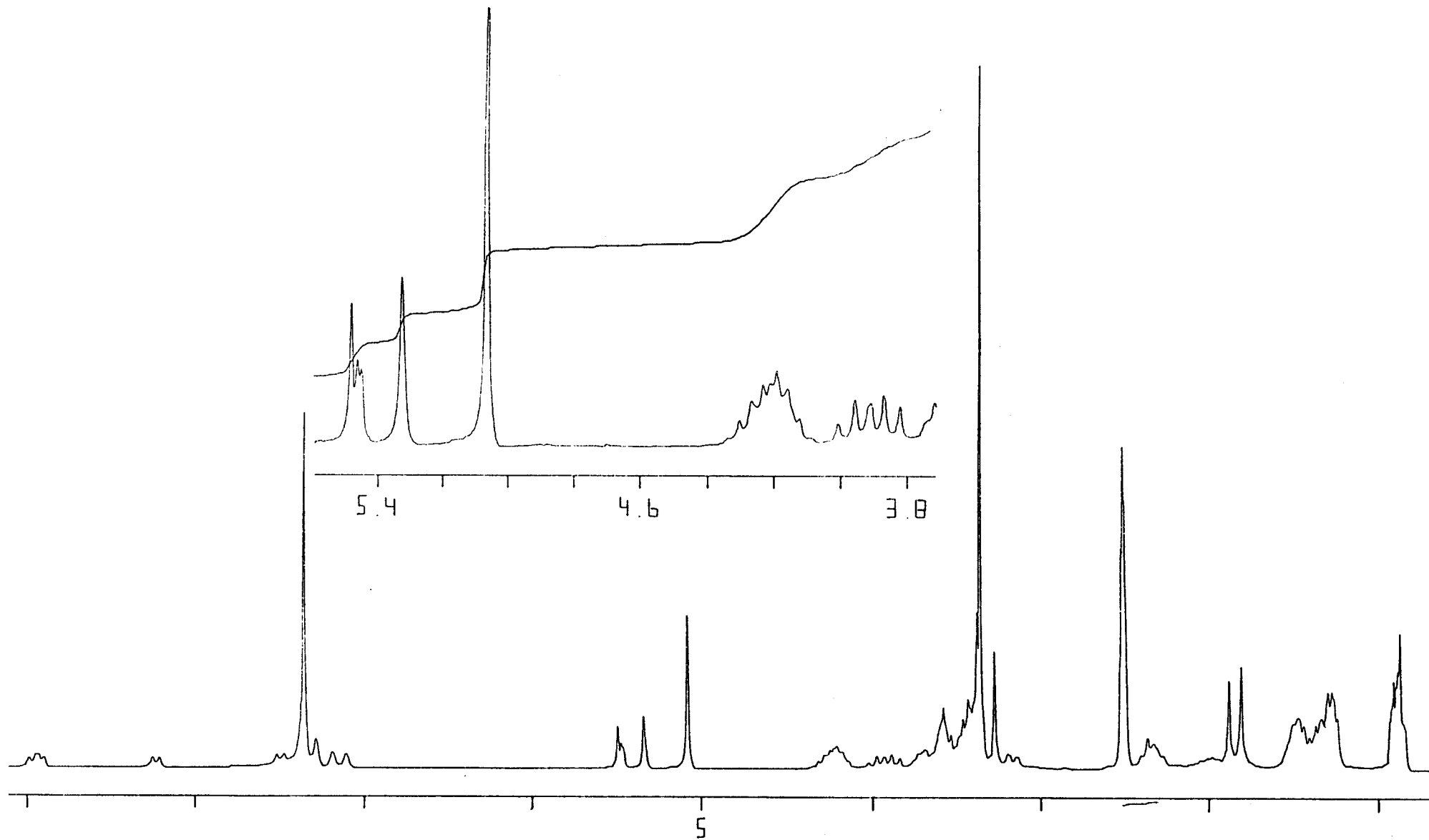
Registro de DEPT de la sustancia 69 a 50 MHz



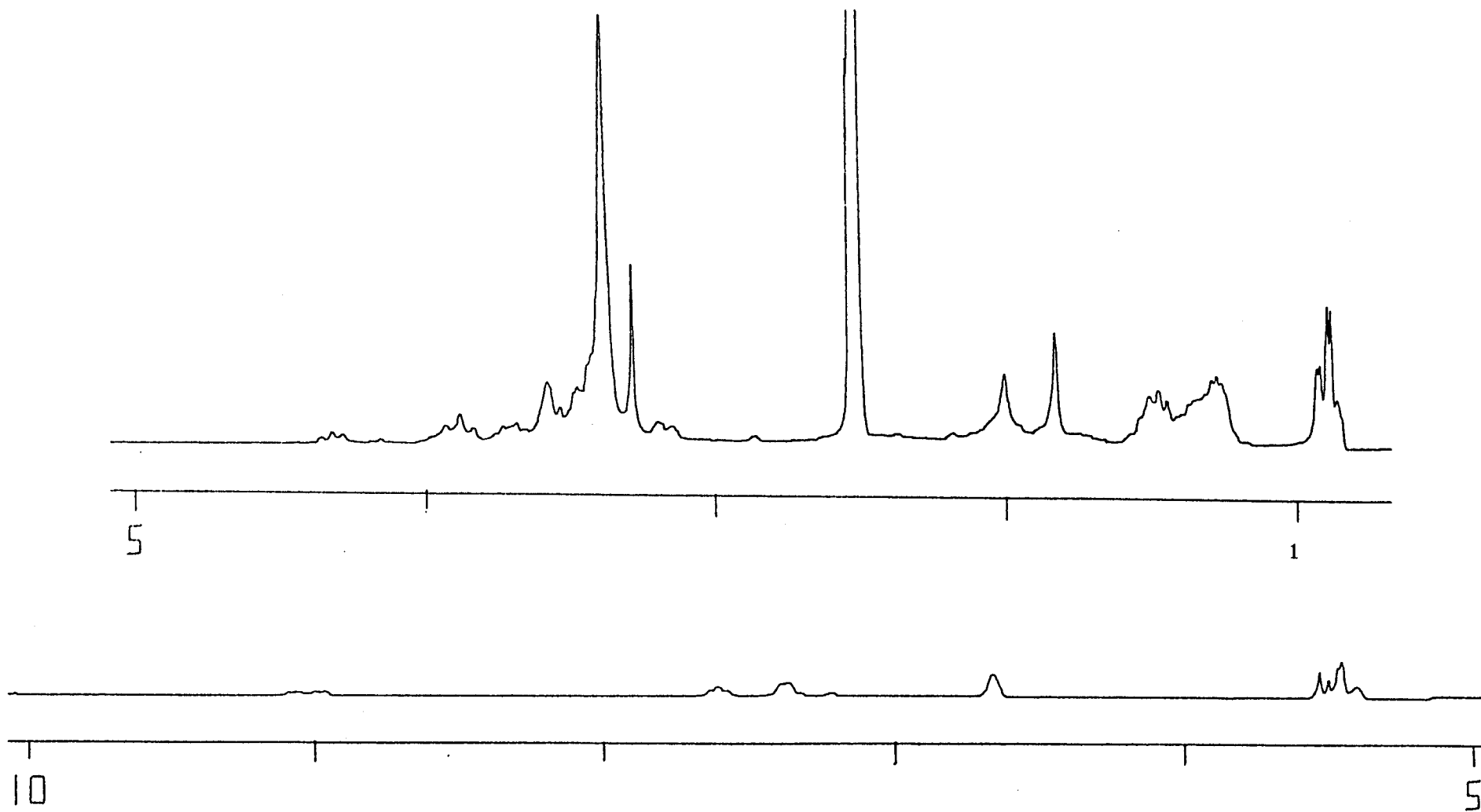
^{13}C -RMN del éster bencílico de 3-acetil-(4,6-O-bencilidén-2,3-didesoxi- β -D-glucopirán)--
|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (70) (DMSO- d_6 , 50 MHz, TMS)



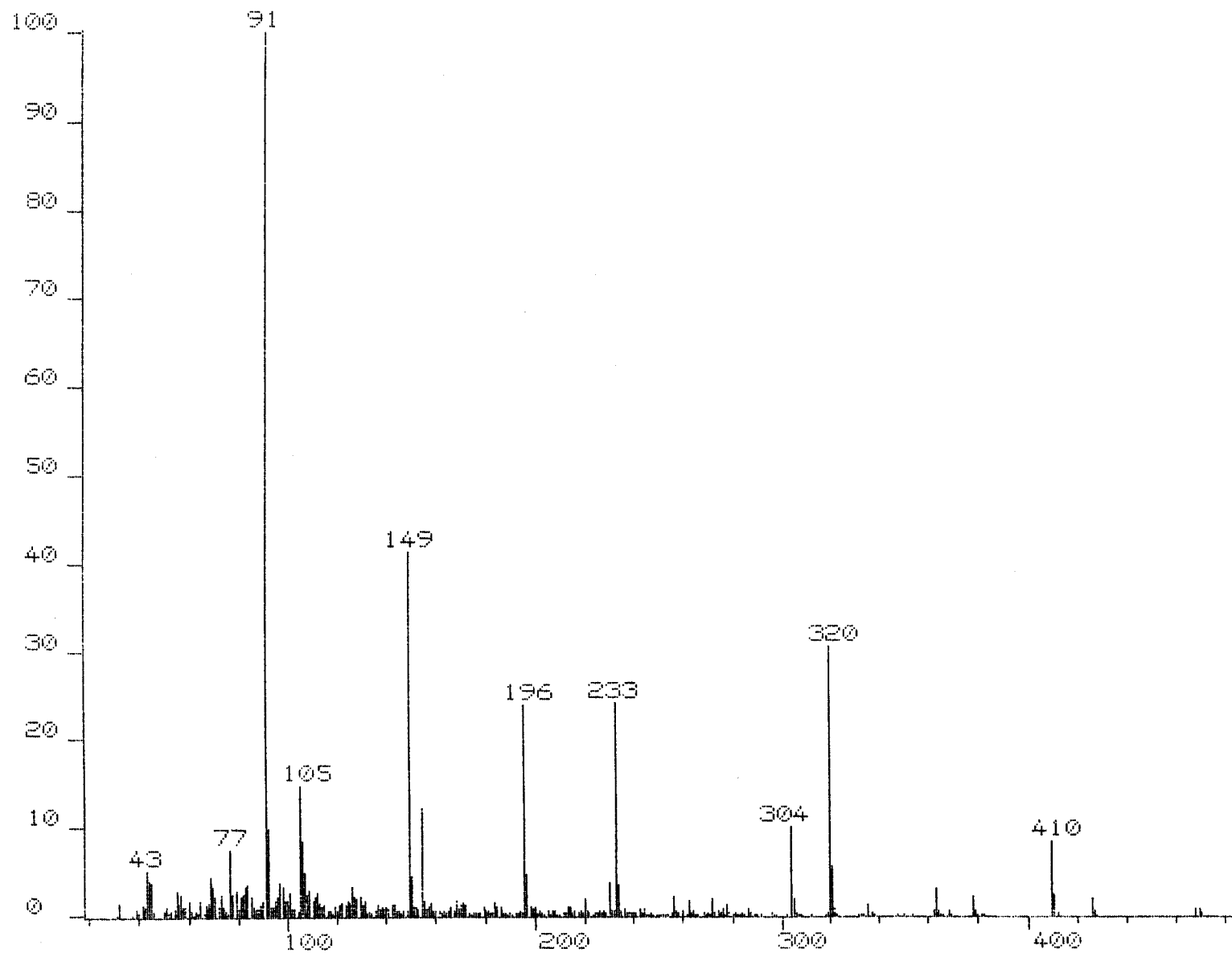
Espectro de ^{13}C -RMN de 3-acetil-(2,3-didesoxi-1-O-metil- β -D-glucopirán)-[2,3-d]-oxazolidín
 -2-carbonil-L-alanil-D-isoglutamina (28) (DMSO- d_6 , 50 MHz, TMS)



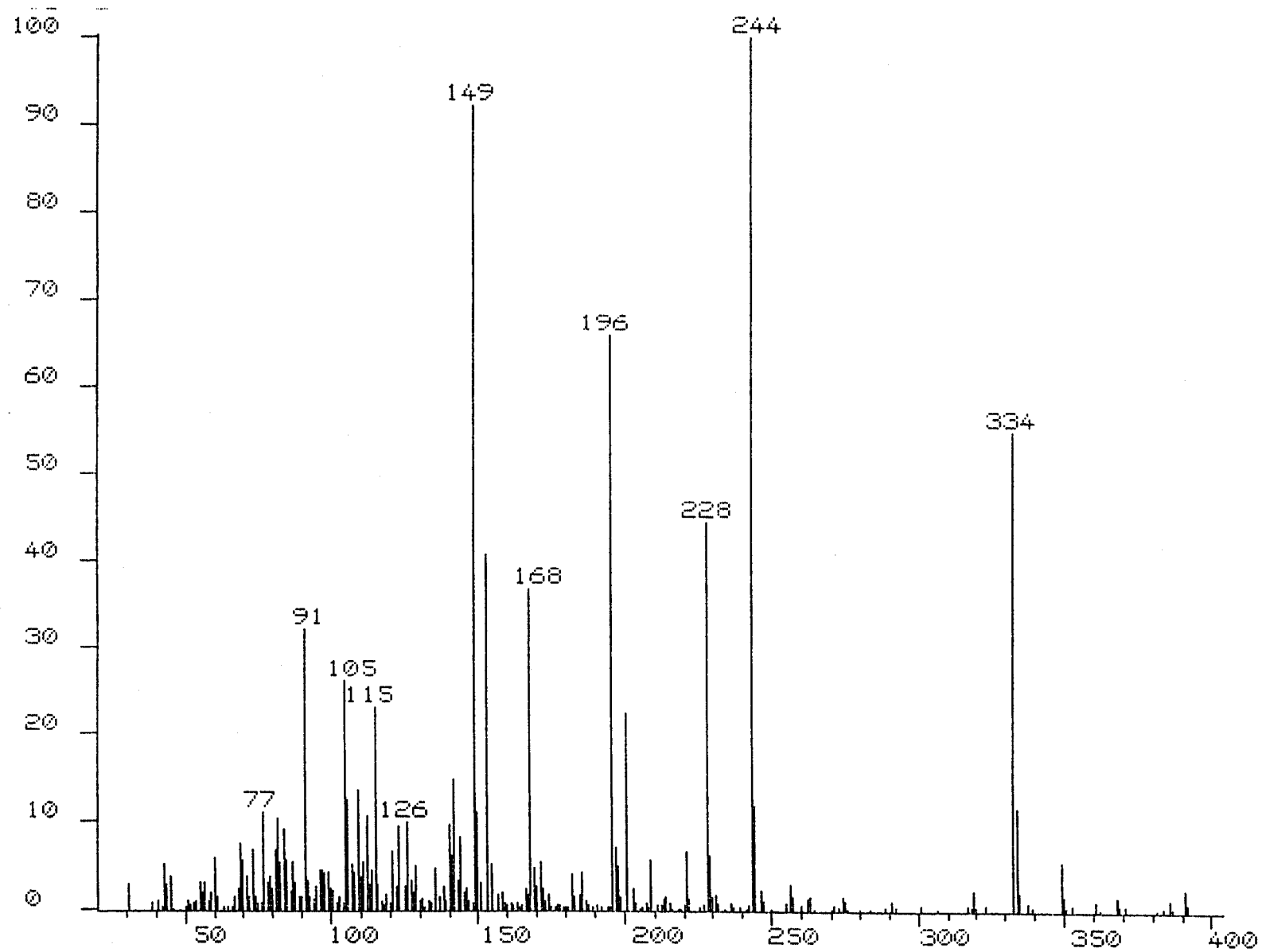
¹H-RMN del éster bencílico de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (79) (DMSO-d₆, 200 MHz, TMS)



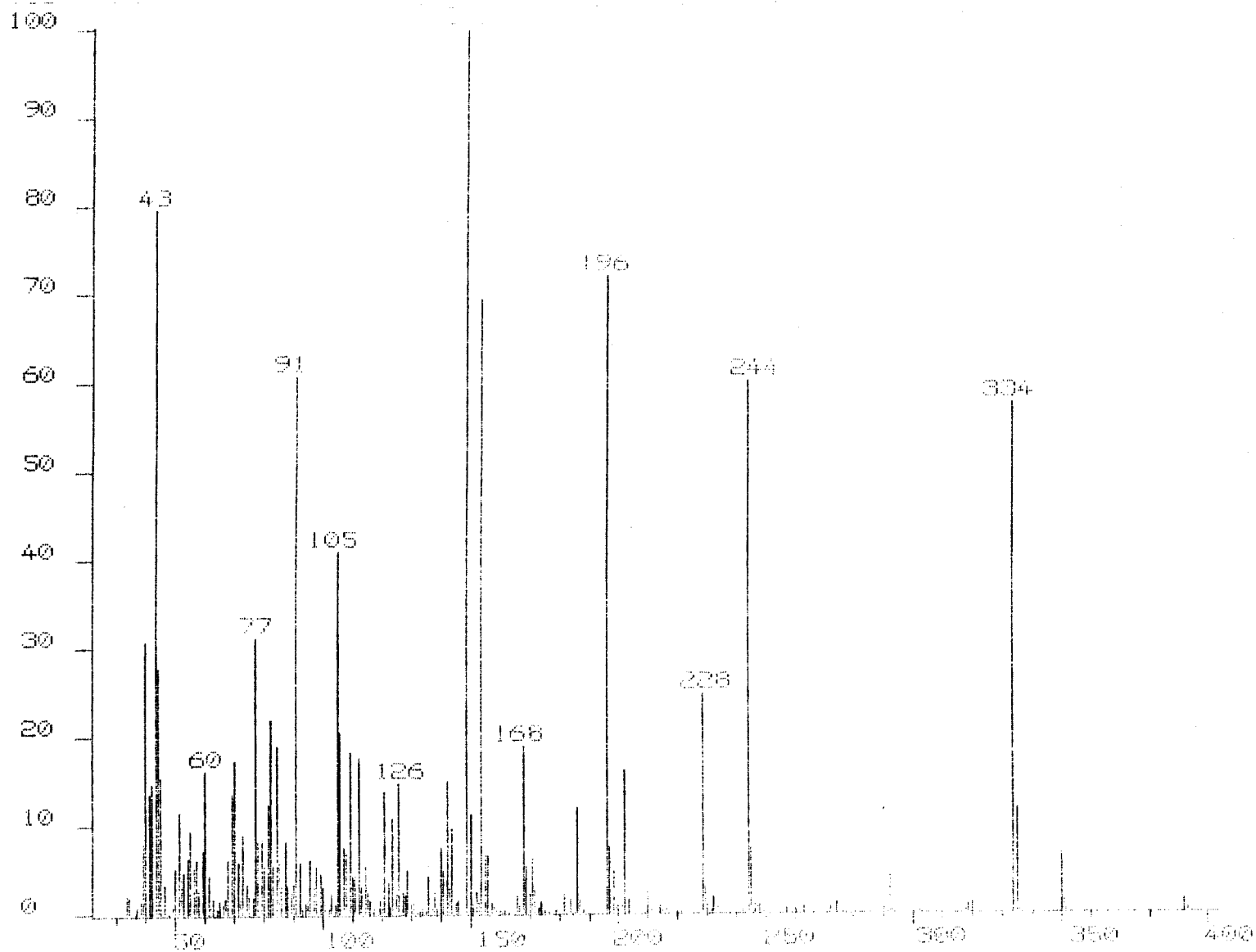
Espectro de ^1H -RMN de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (29) (DMSO- d_6 , 200 MHz, TMS)



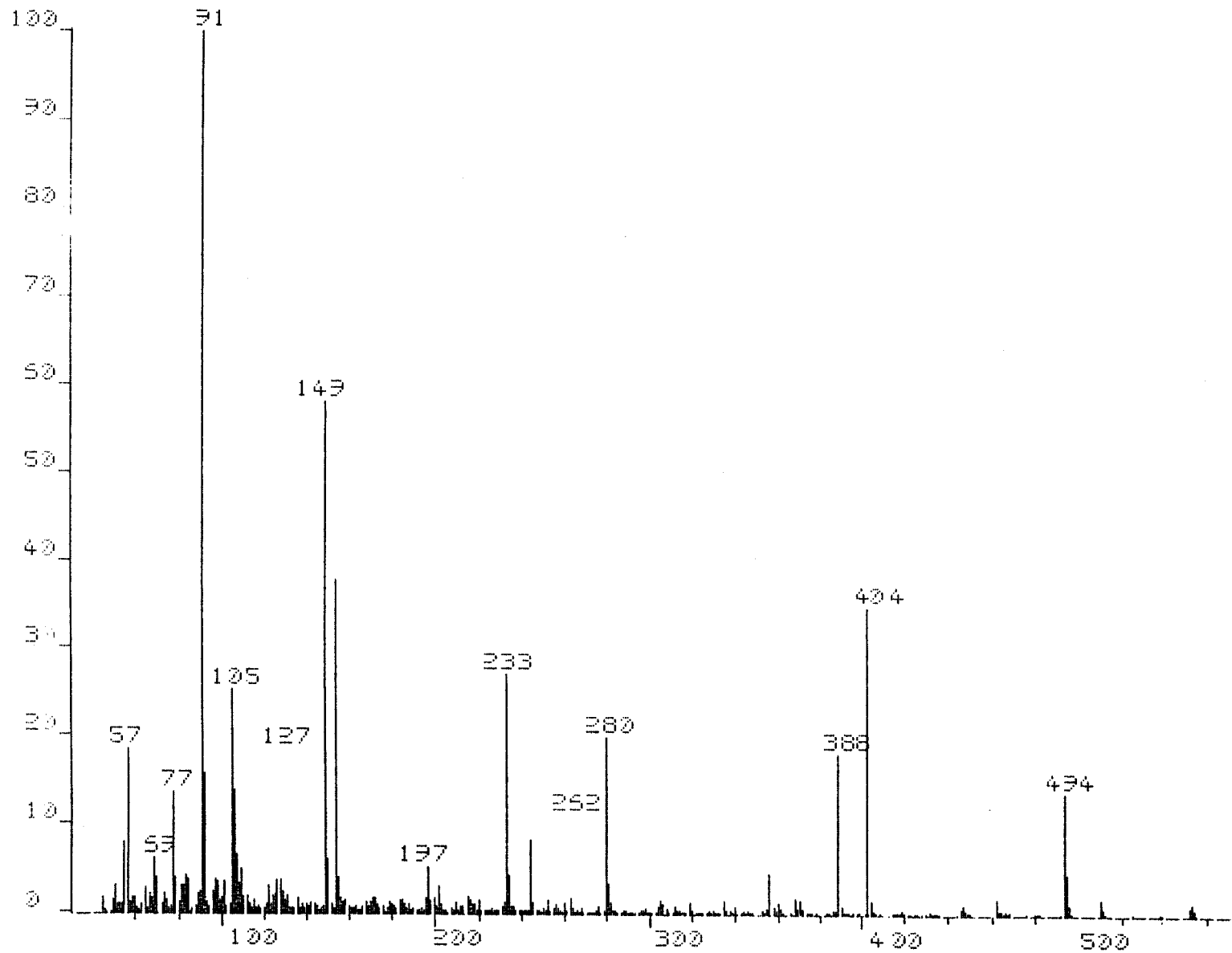
Espectro de masas (EI) de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-O-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (40)



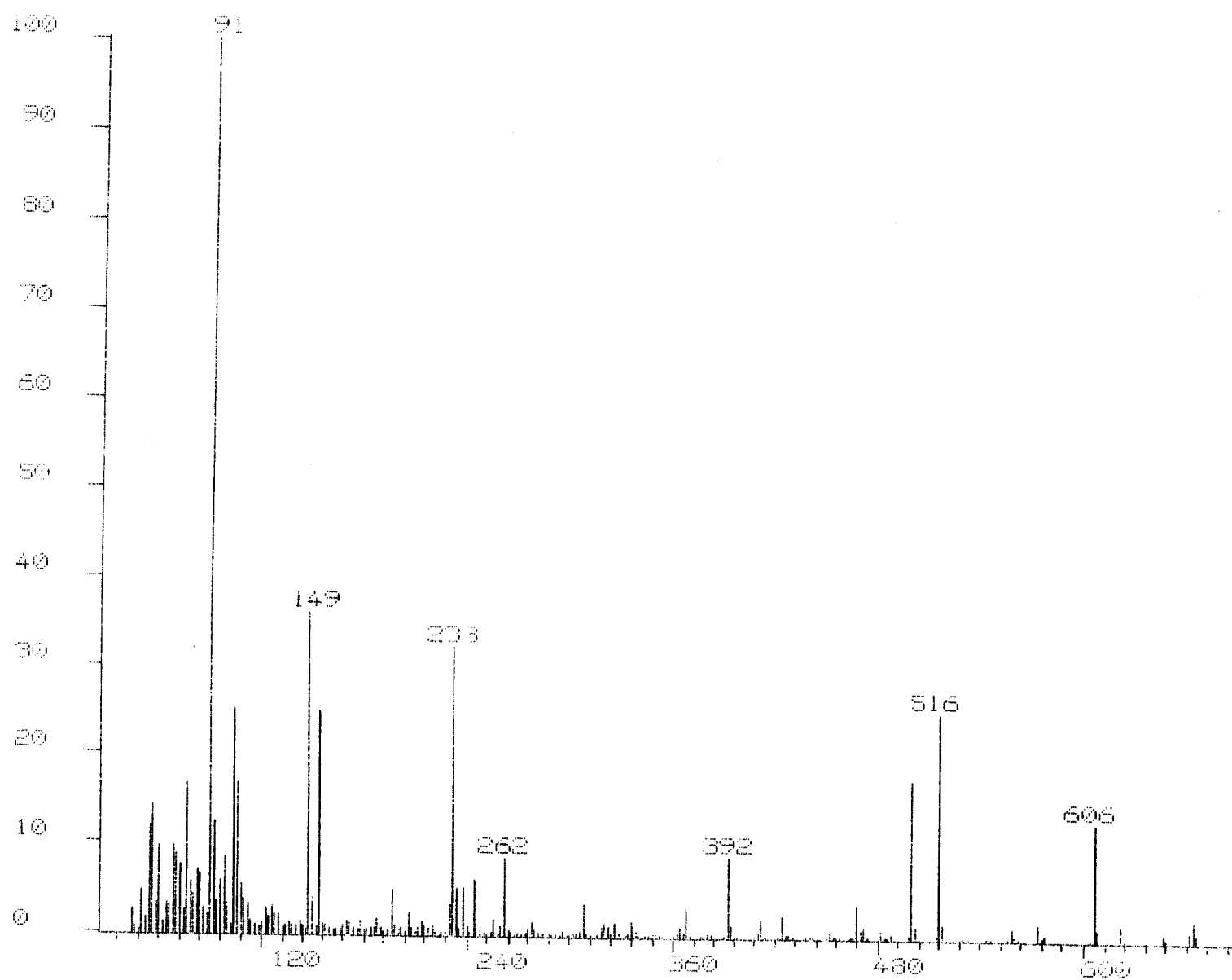
Espectro de masas (EI) de 3-acetil-2-metoxycarbonil-(4,6-O-bencilidén-2,3-dideso-
xi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidina (81)



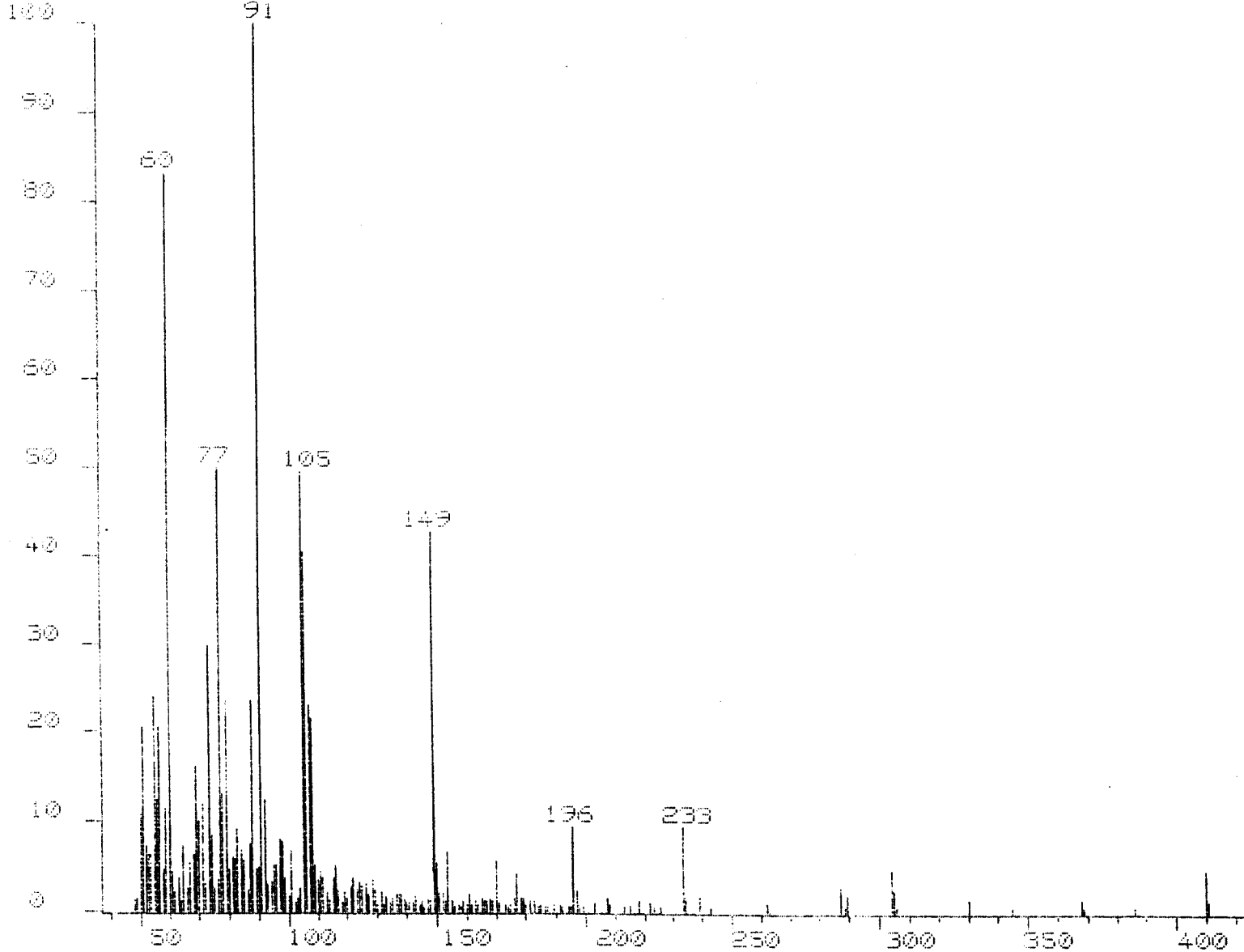
Espectro de masas (EI) de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil- β -D-glucopirán)-[2,3-d]-oxazolidina (69)



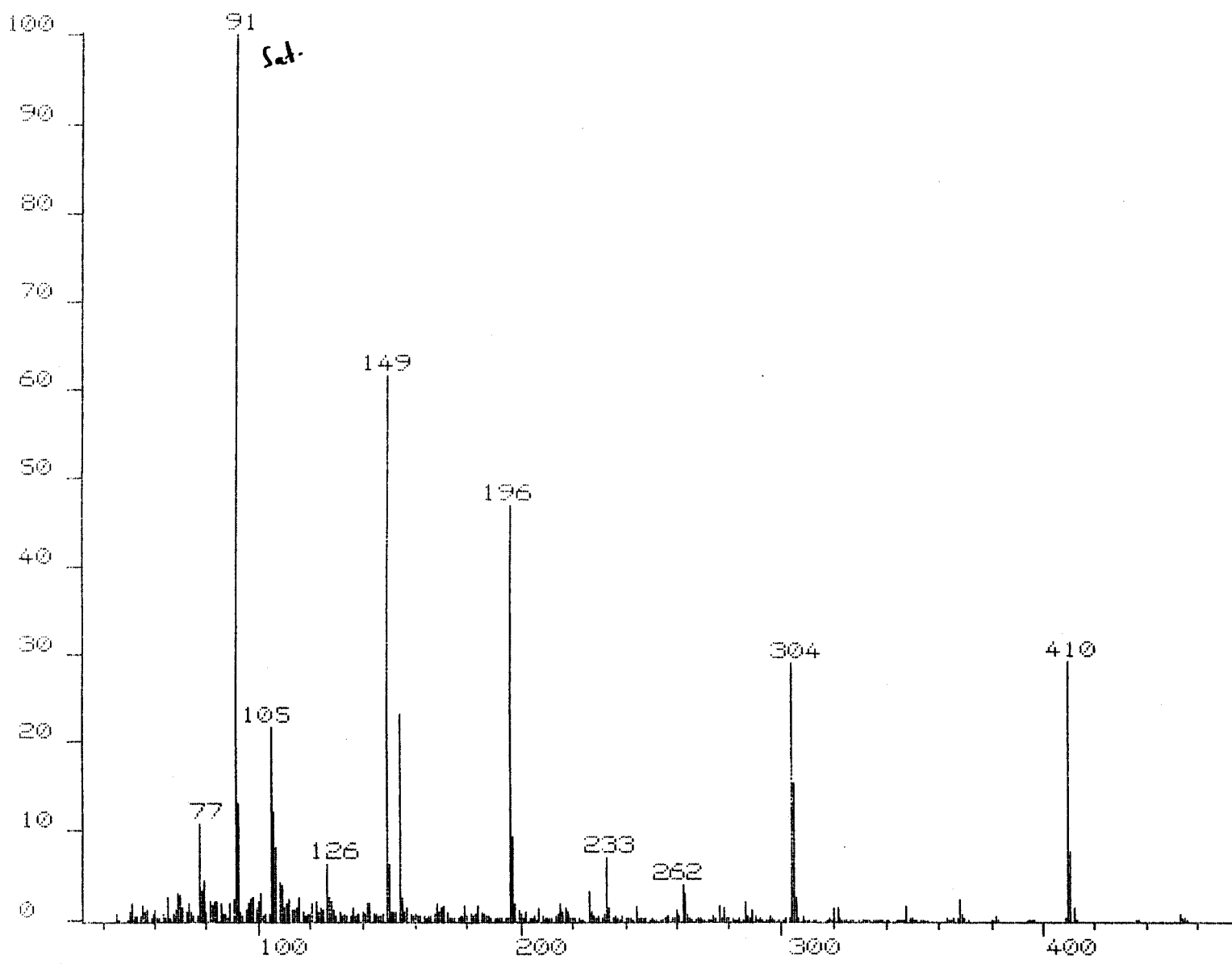
Espectro de masas (EI) de 2-metoxicarbonil-3-n-octanoil-(1-O-bencil-4,6-O-benzilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (41)



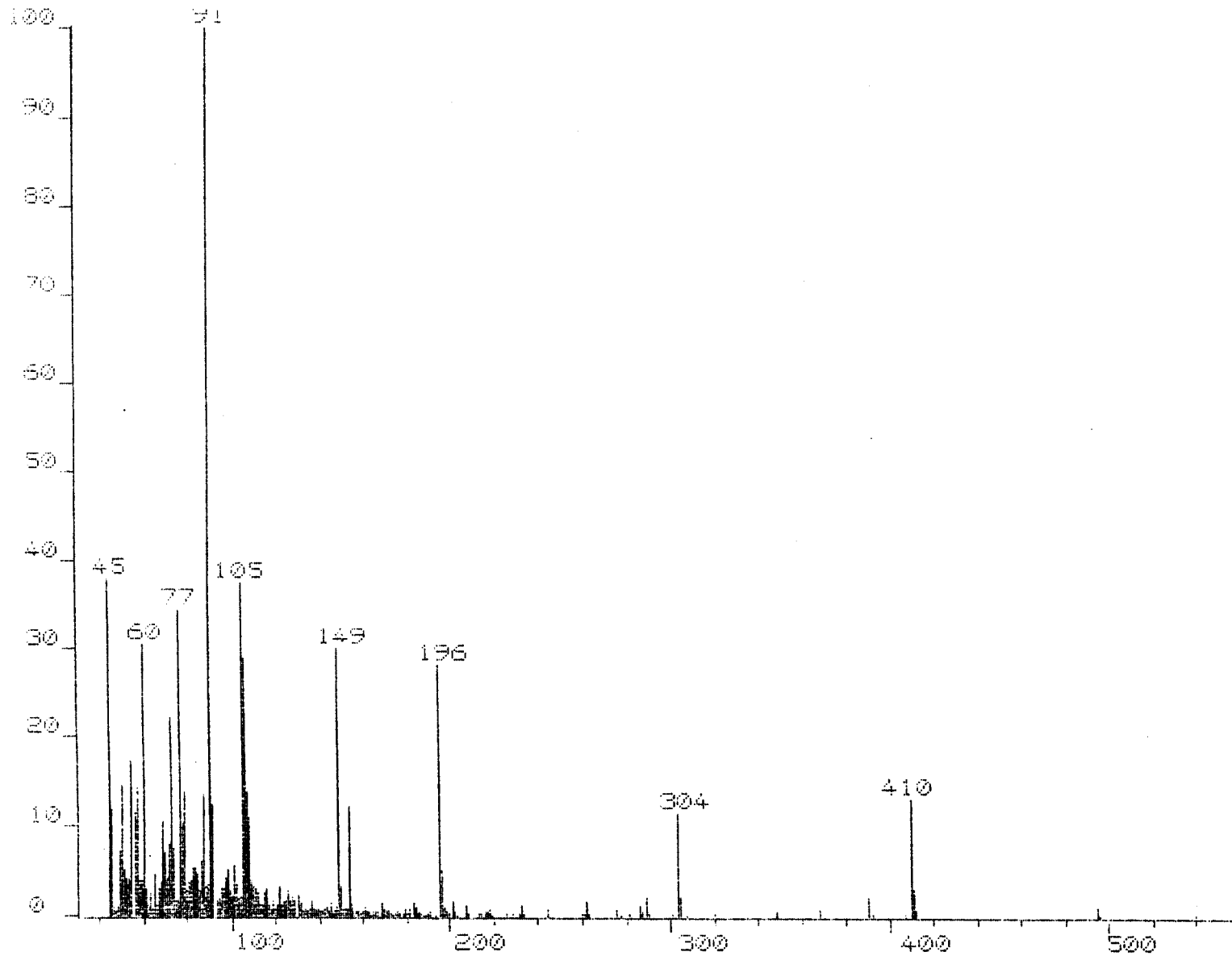
Espectro de masas (EI) de 2-metoxicarbonil-3-palmitoil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (42)



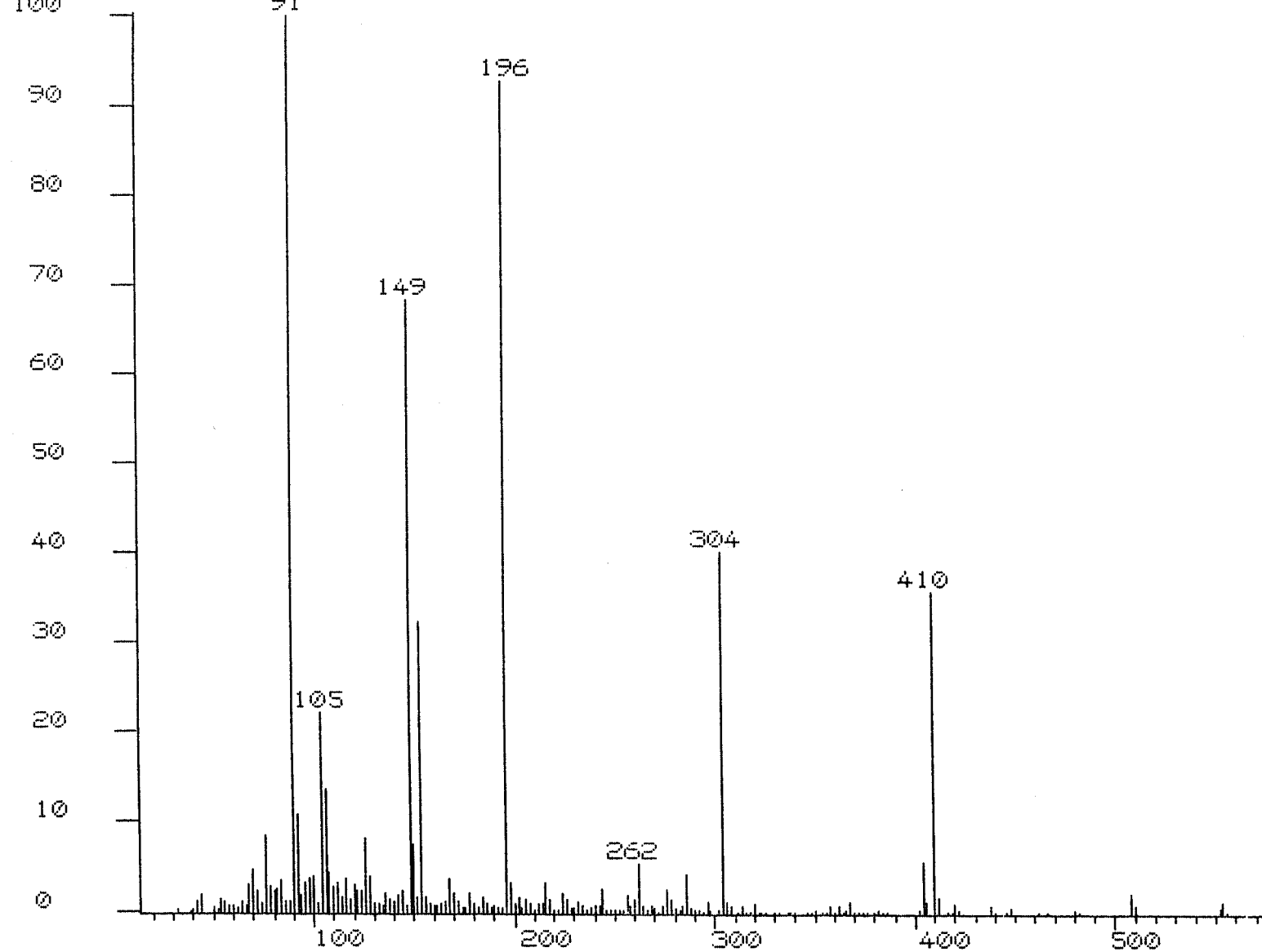
Espectro de masas (EI) de 3-acetil-2-carboxamido-(1-O-bencil-4,6-O-bencilidén-
-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (43)



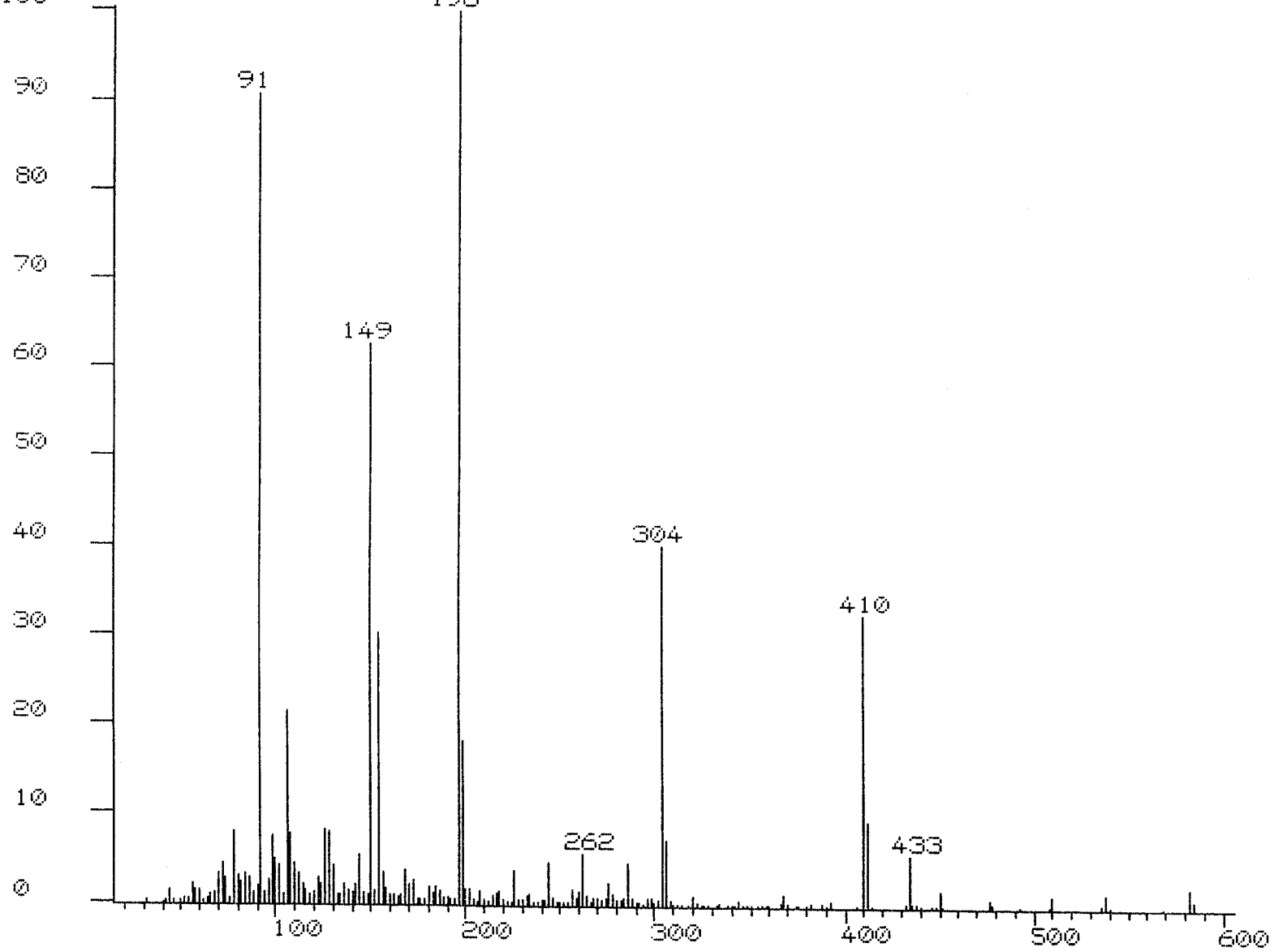
Espectro de masas (EI) de la sustancia 43 con el pico base saturado



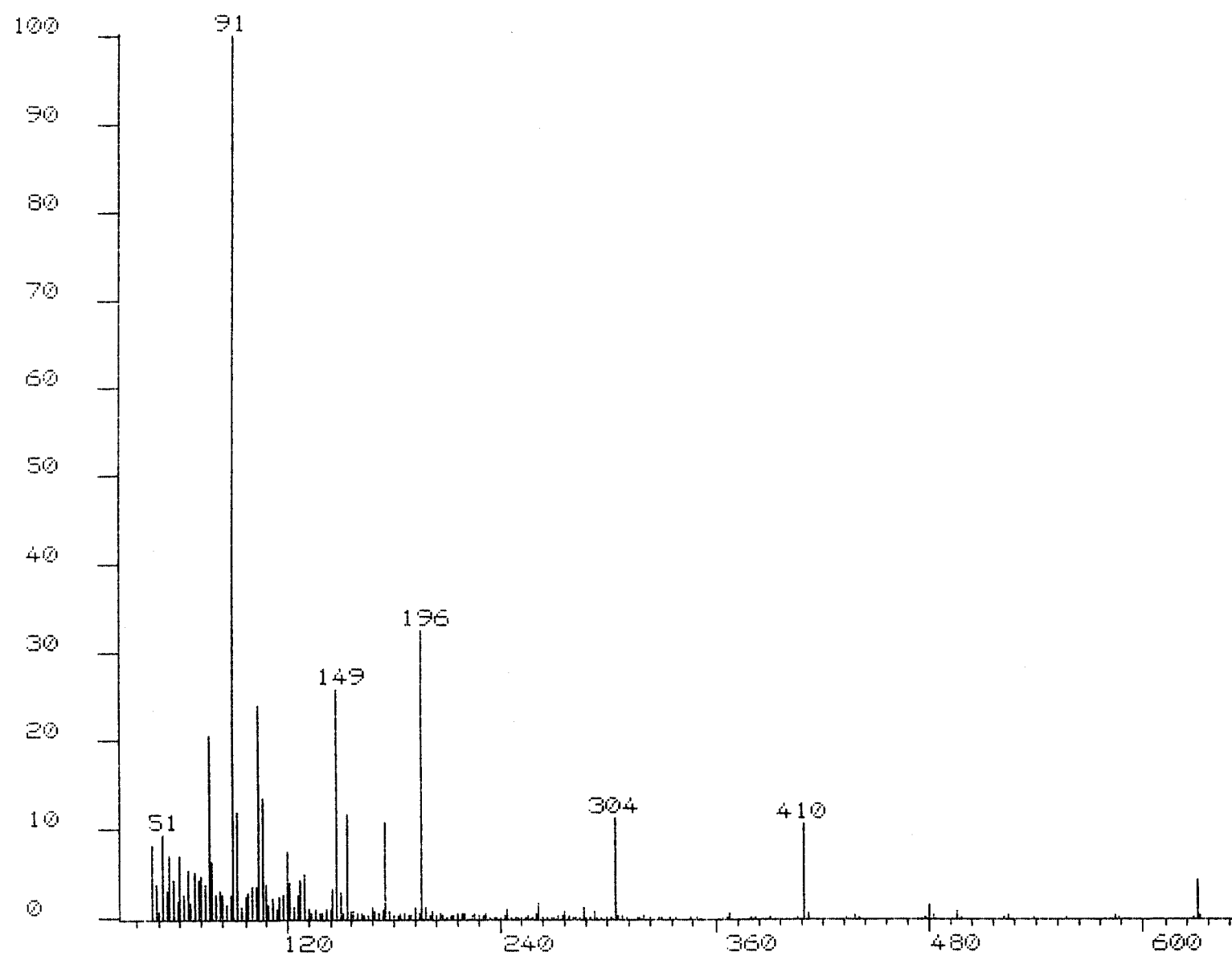
Espectro de masas (EI) del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonilglicina (44)



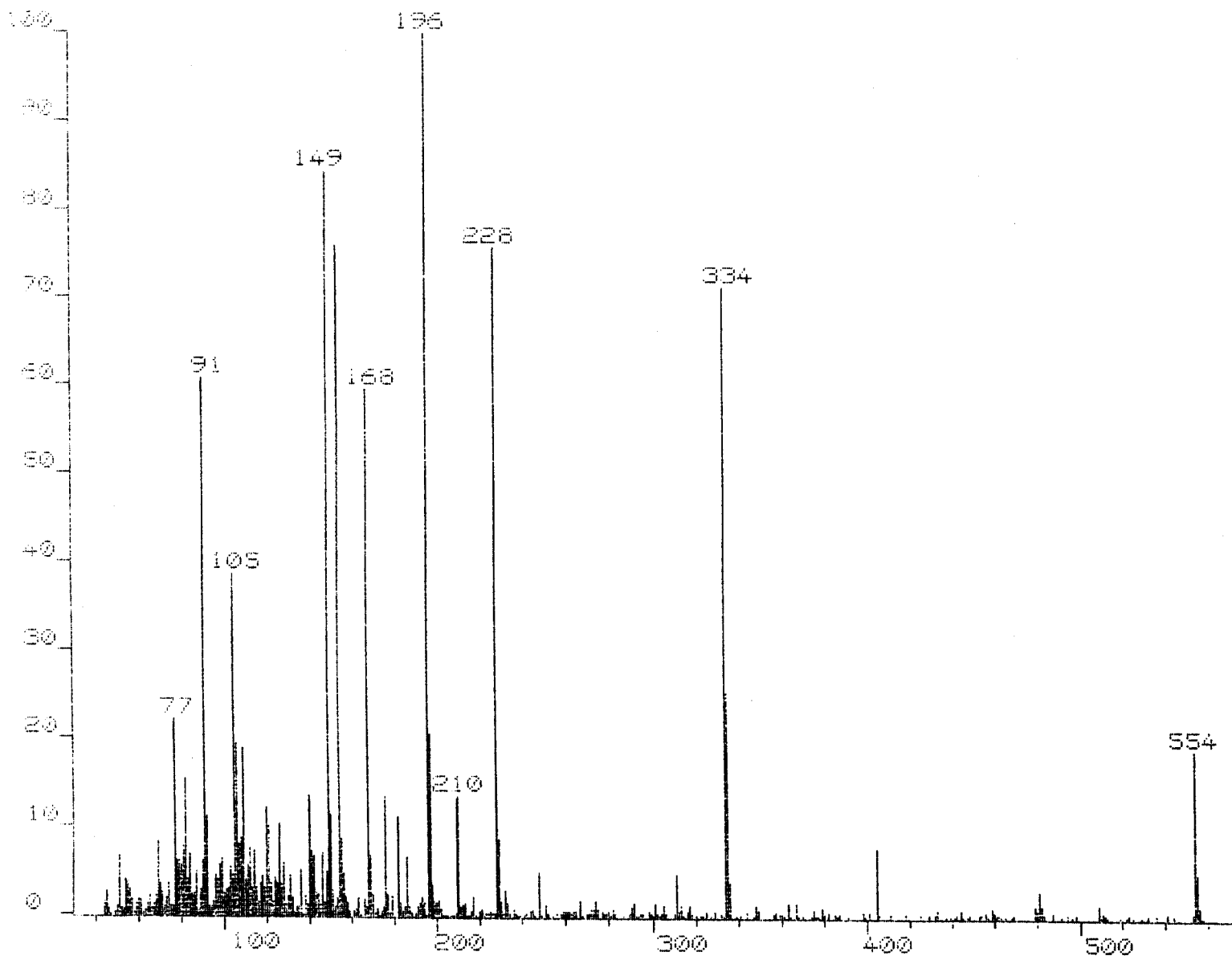
Espectro de masas (EI) del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanina (45)



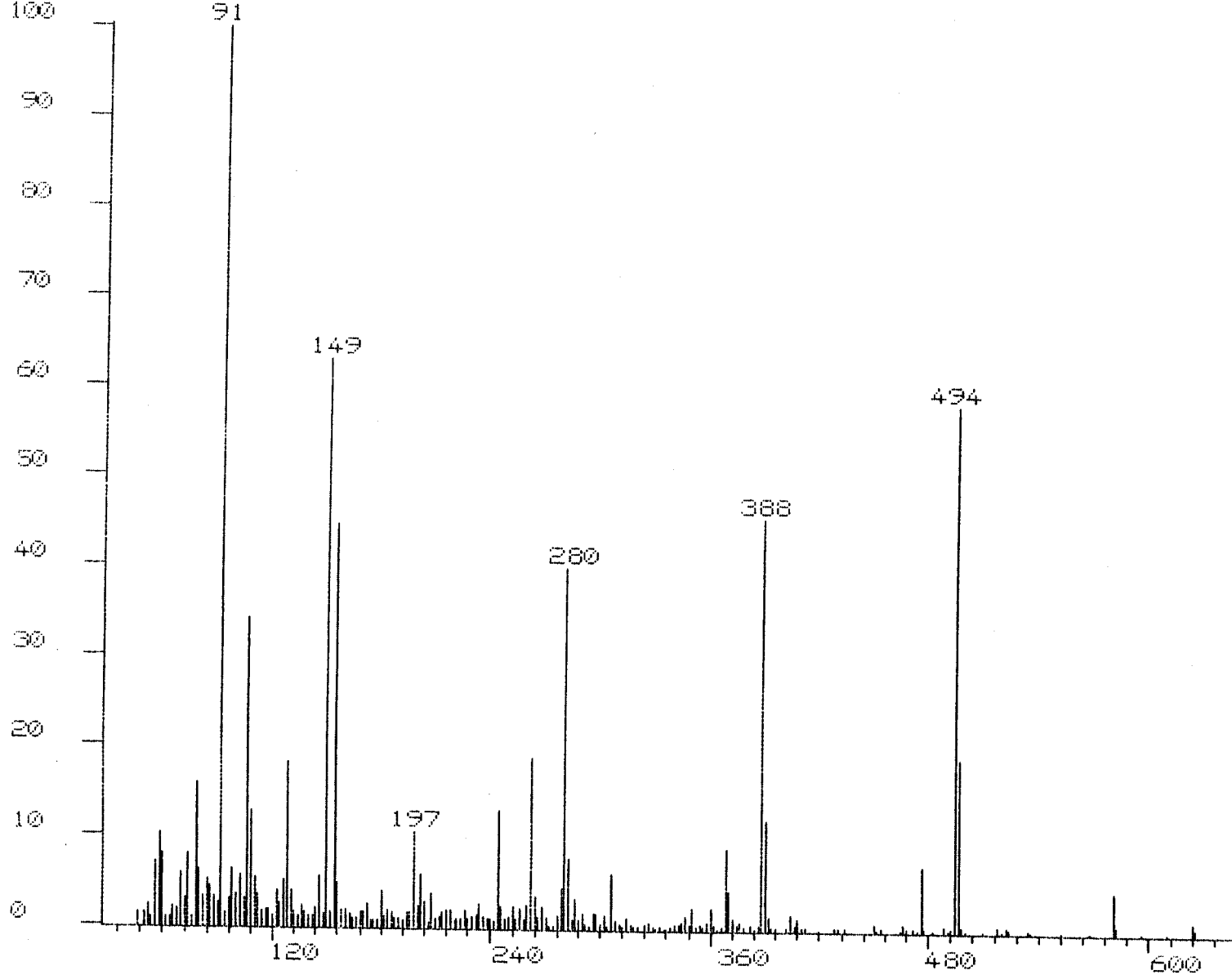
Espectro de masas (EI) del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-valina (46)



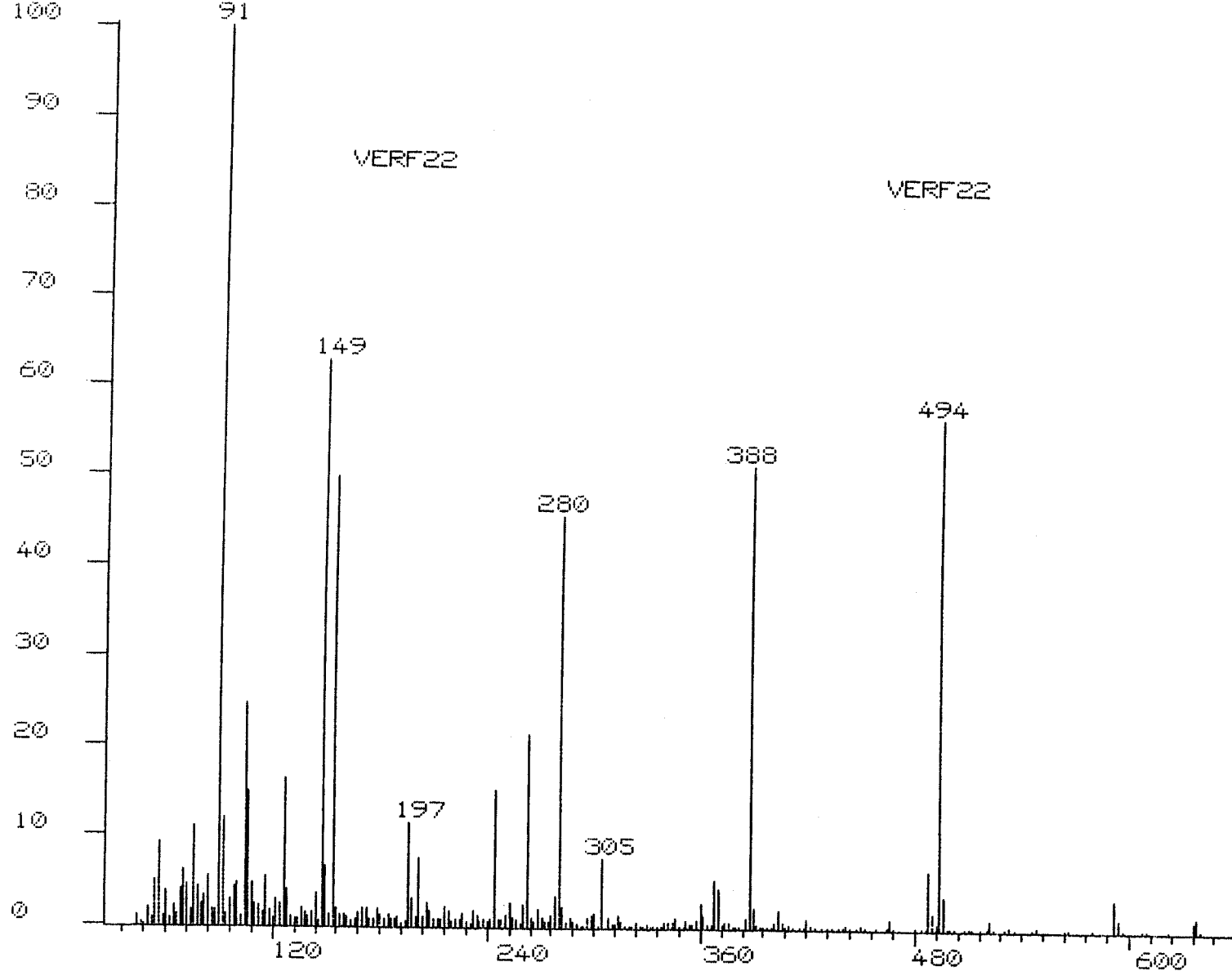
Espectro de masas (EI) del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-(2,3-d)-oxazolidín-2-carbonil-L-fenilalanina (47)



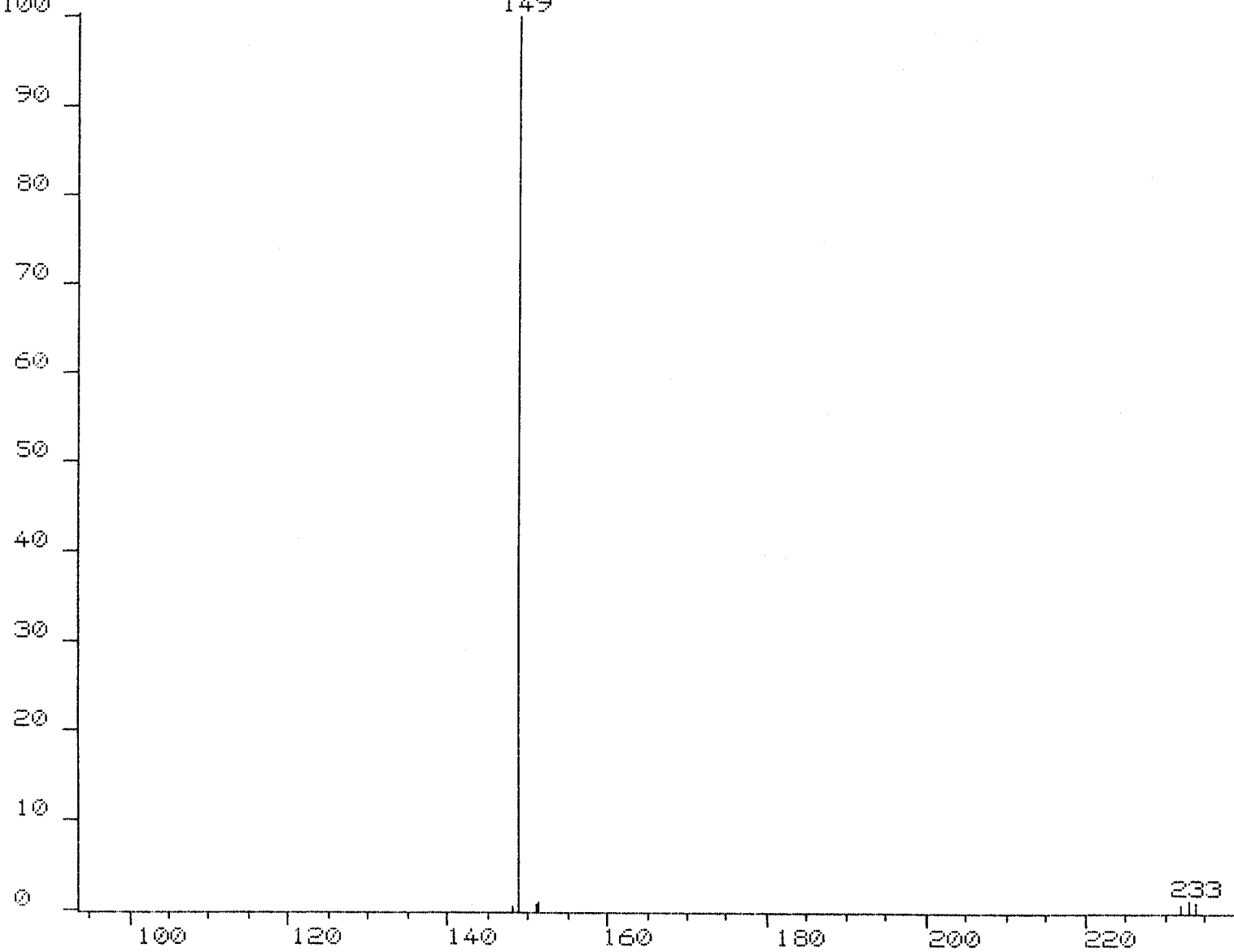
Espectro de masas (EI) del éster etílico de 3-acetil-(4,6-O-bencilidén-2,3-dideoxido-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-fenilalanina (82)



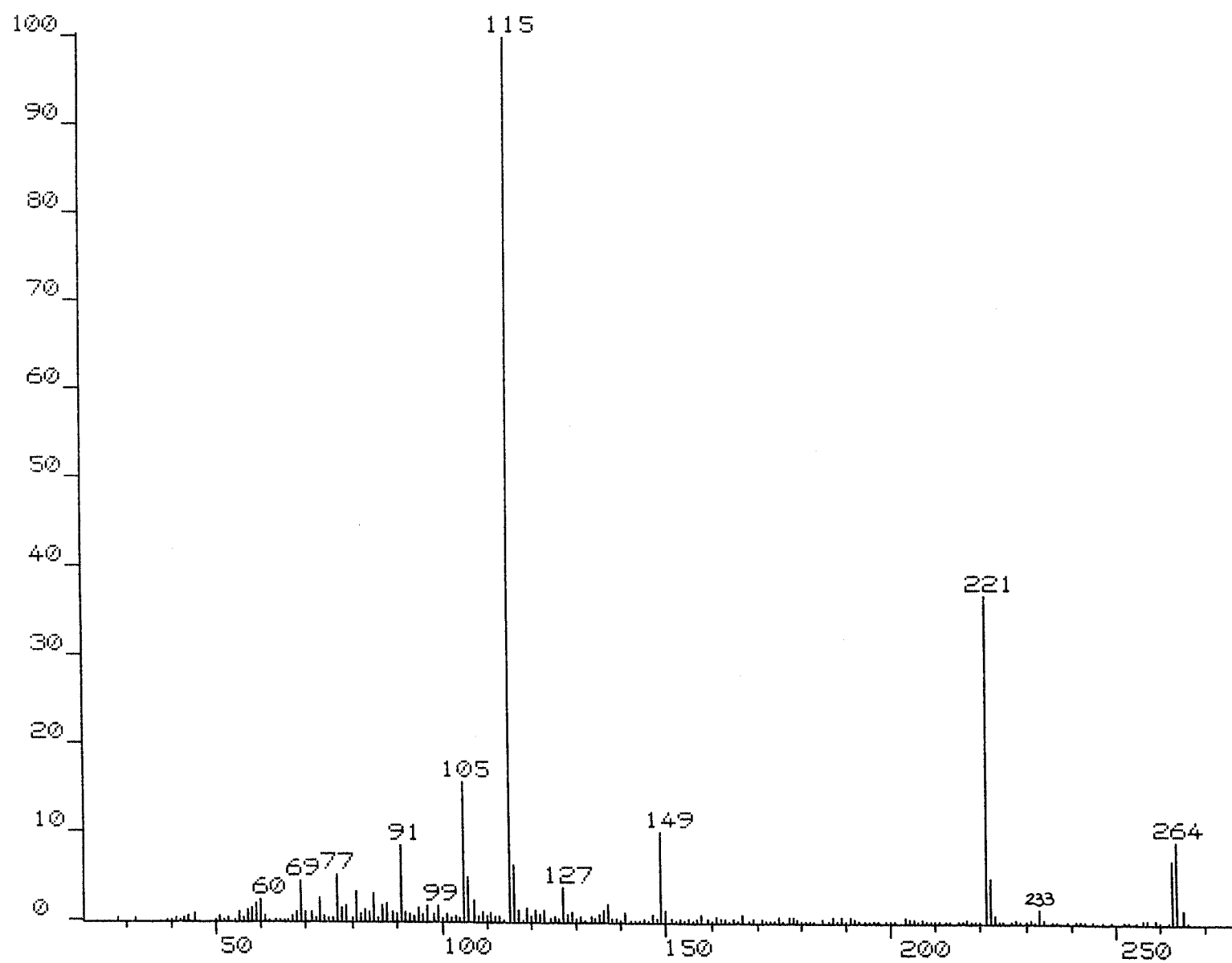
Espectro de masas (EI) del éster etílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonilglicina (48)



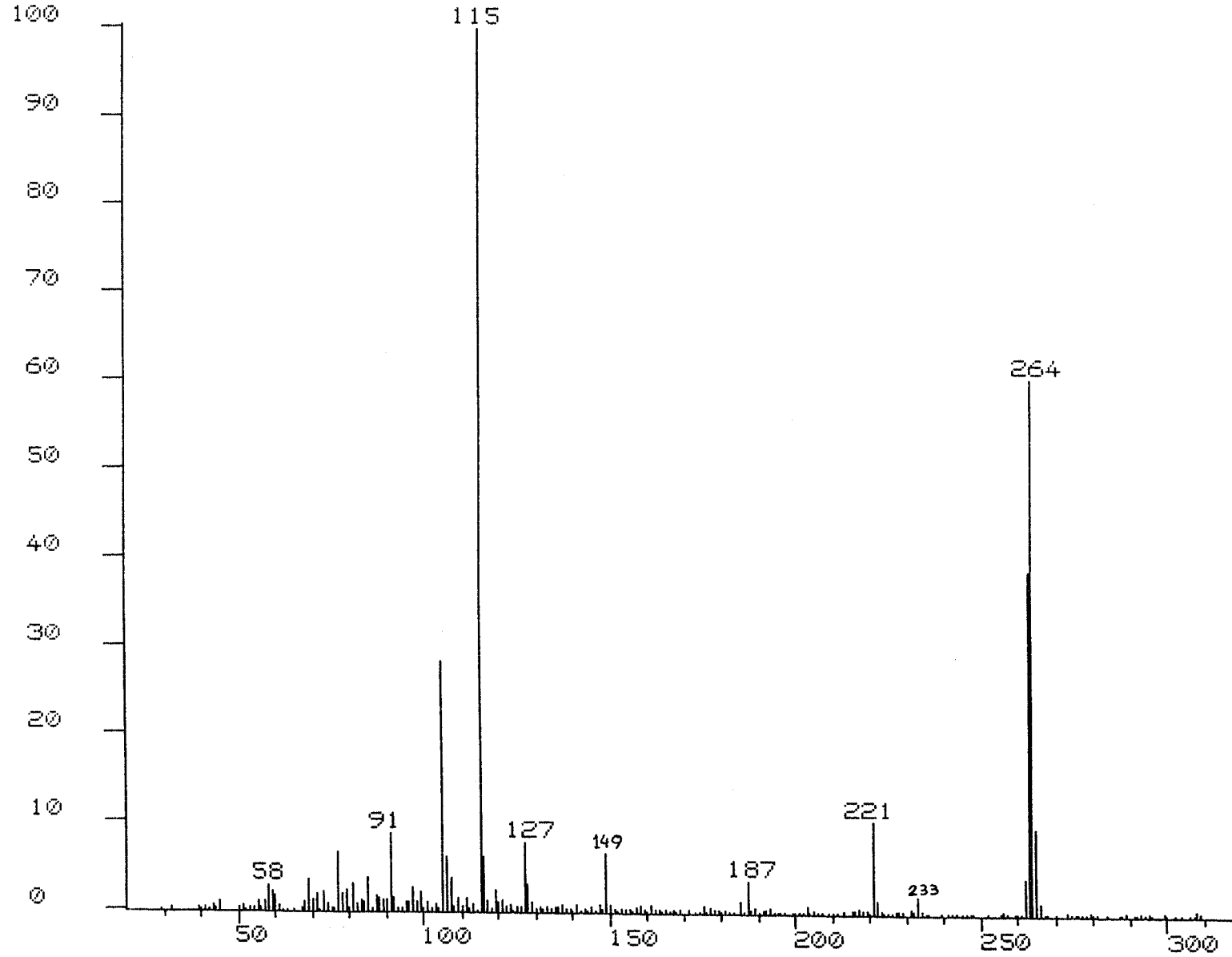
Espectro de masas (EI) del éster etílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanina (49)



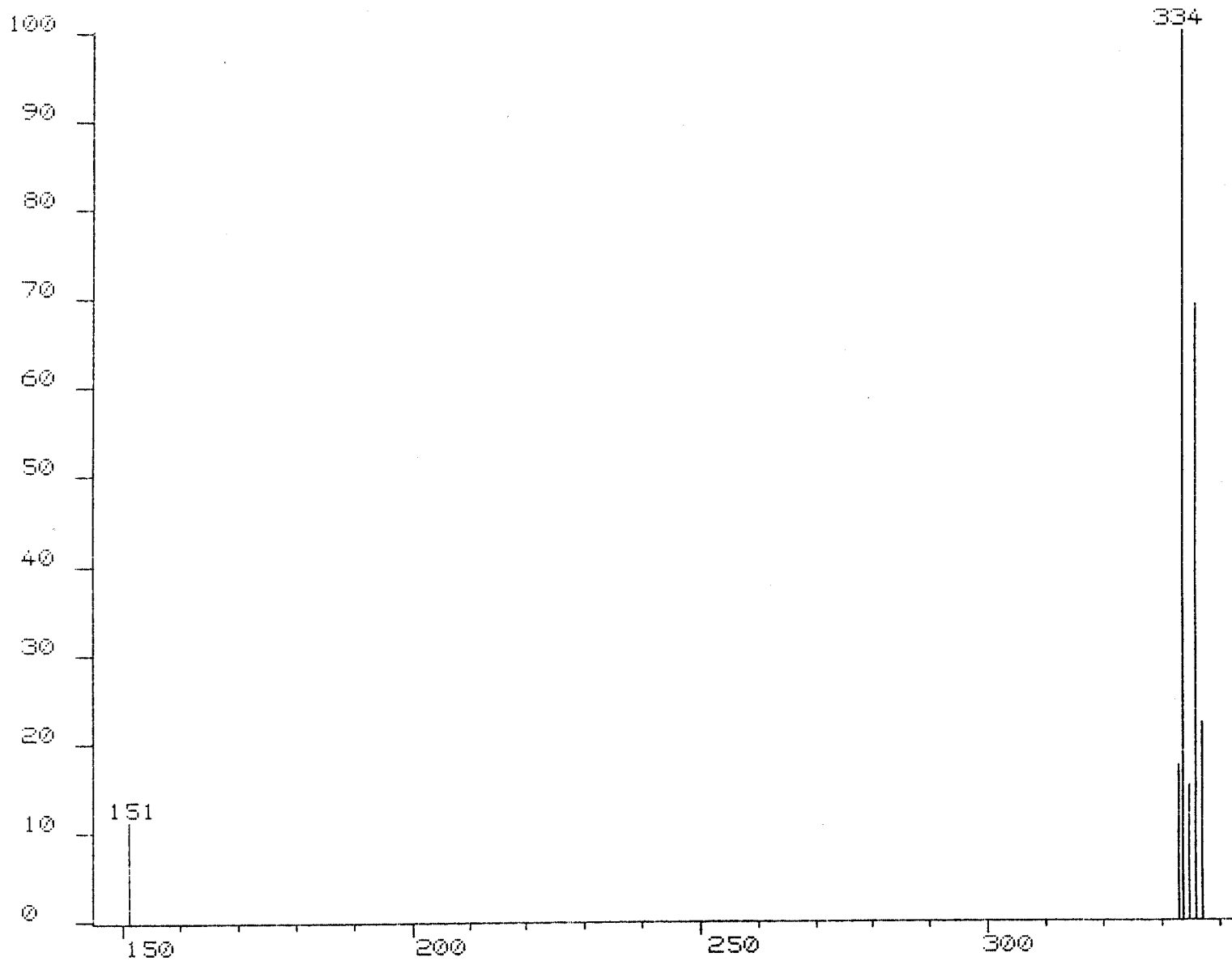
Estudio de iones-padre para el ión a m/z 91 en la sustancia 40



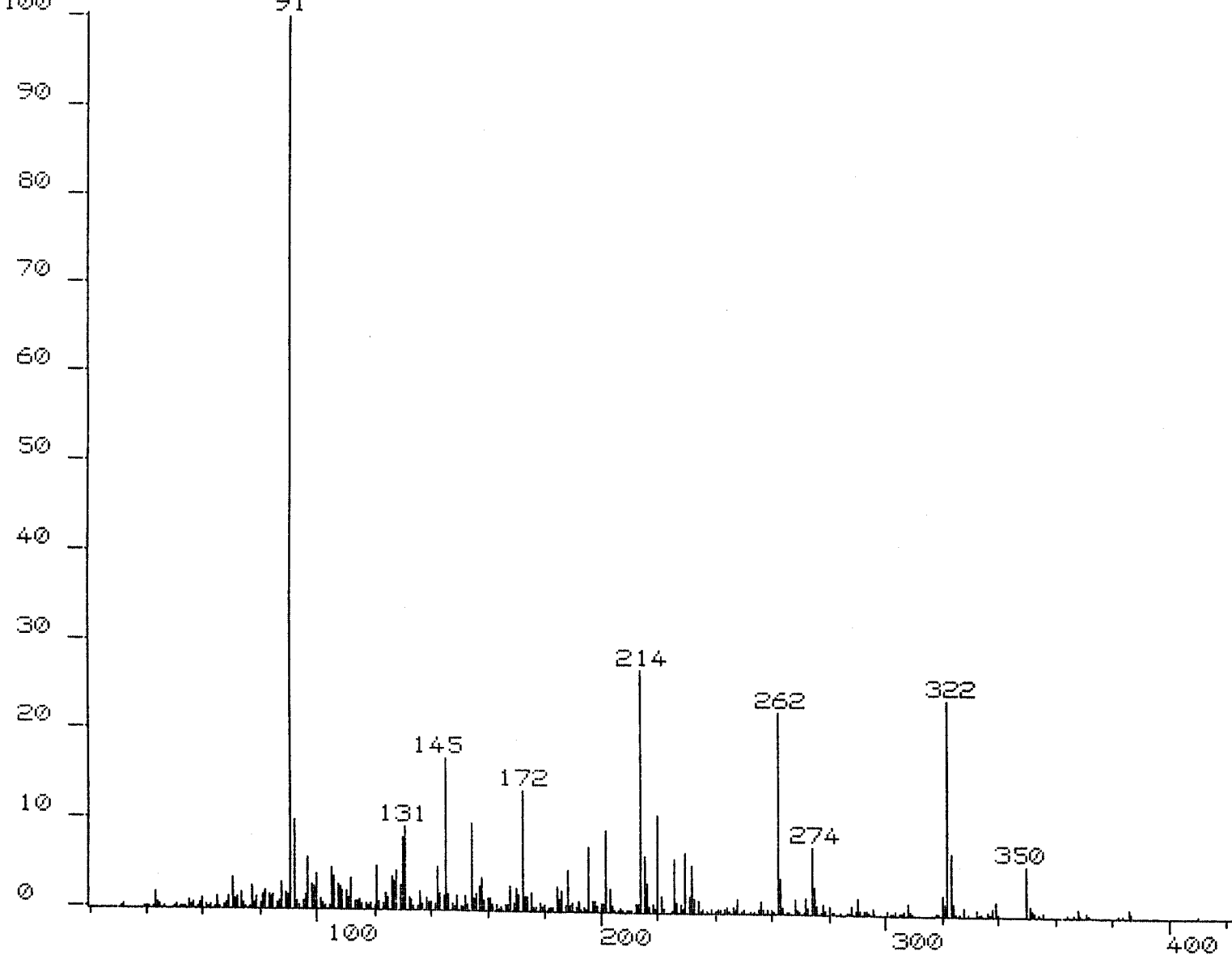
Espectro de masas (EI) de metil 2,3-anhidro-4,6-O-bencilidén-2,3-didesoxi- α -D-mano piranósido



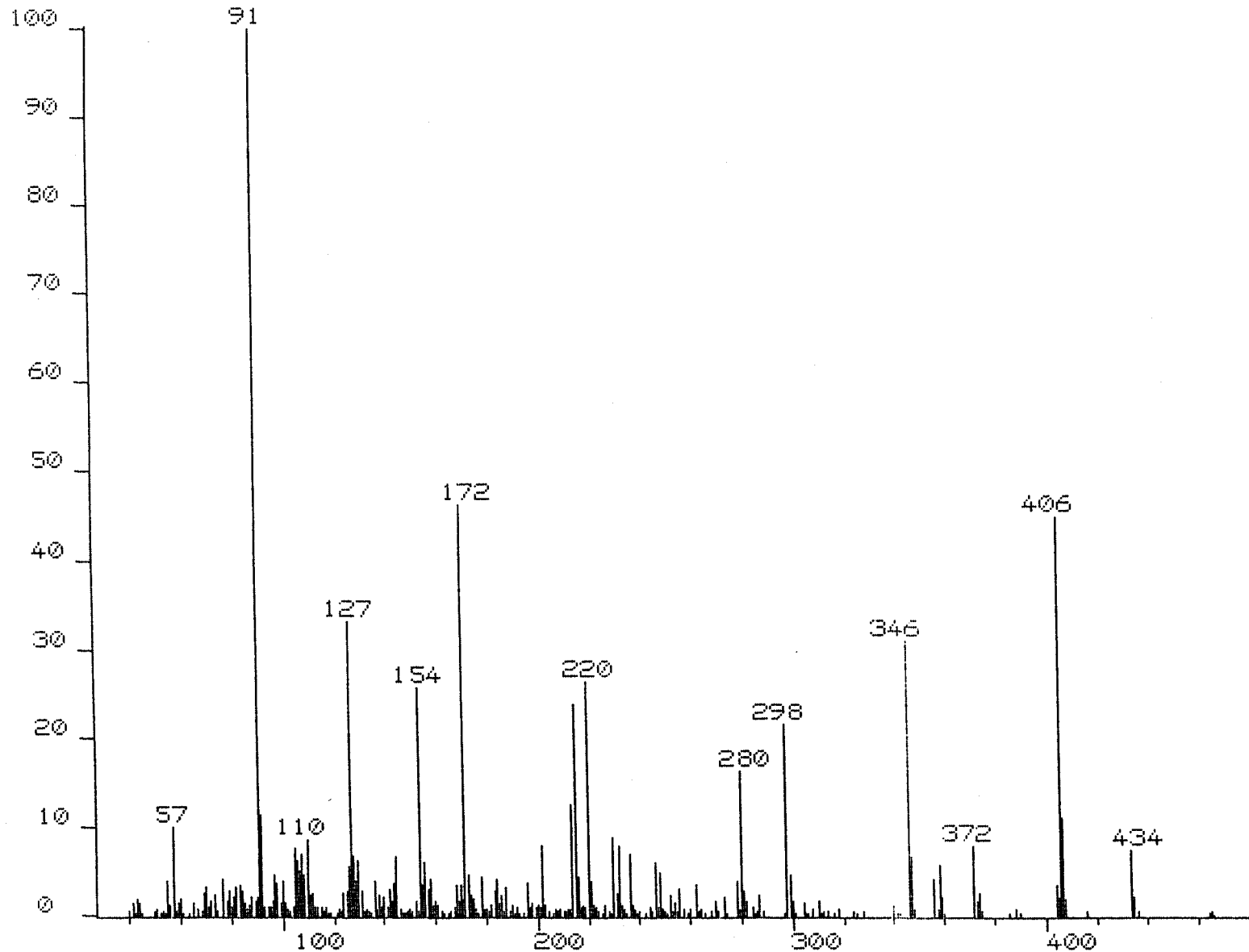
Espectro de masas (EI) de metil 2,3-anhidro-4,6-O-bencilidén-2,3-didesoxi- α -D-allo-piranósido



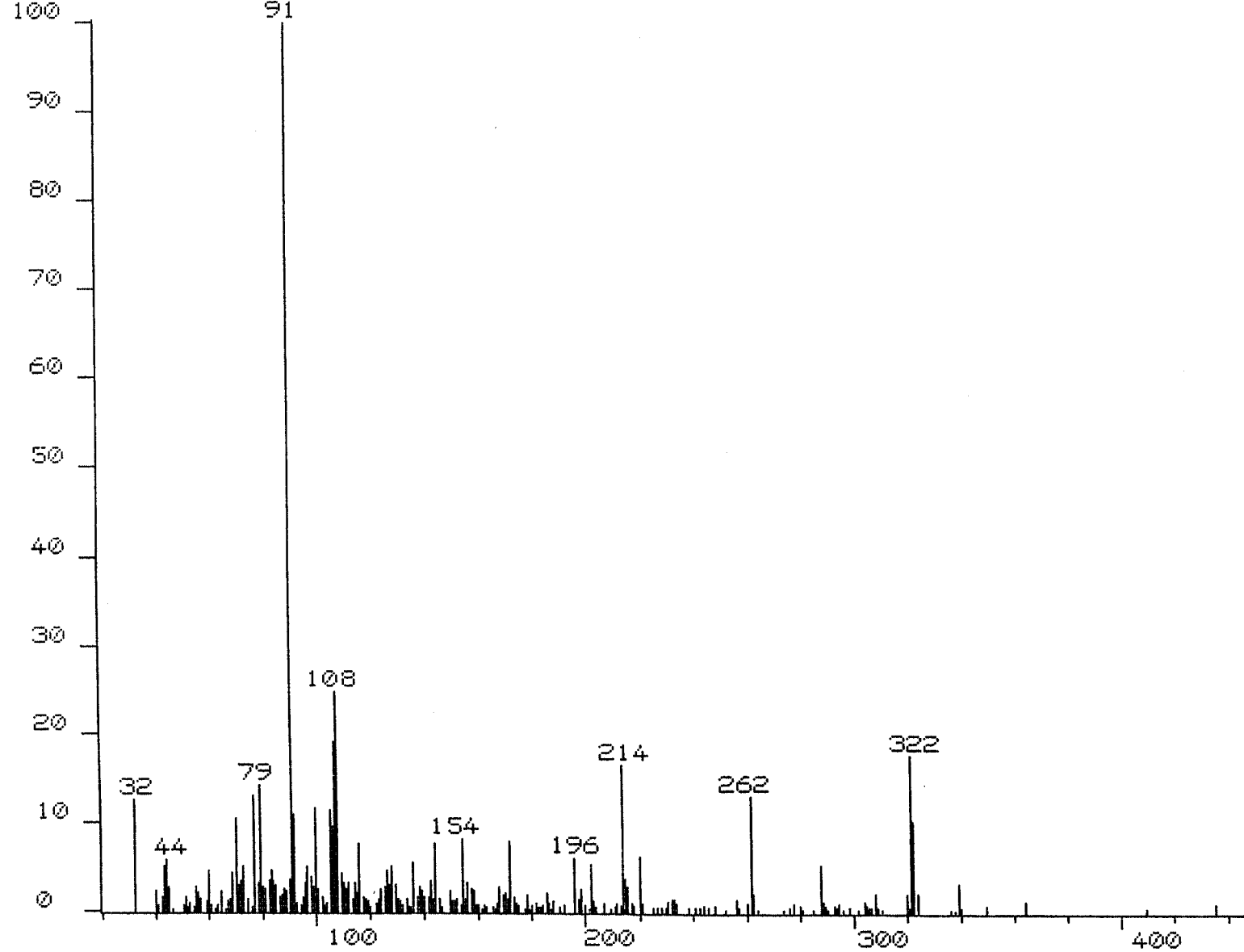
Estudio de iones-padre para el ión a m/z 149 en la sustancia 69



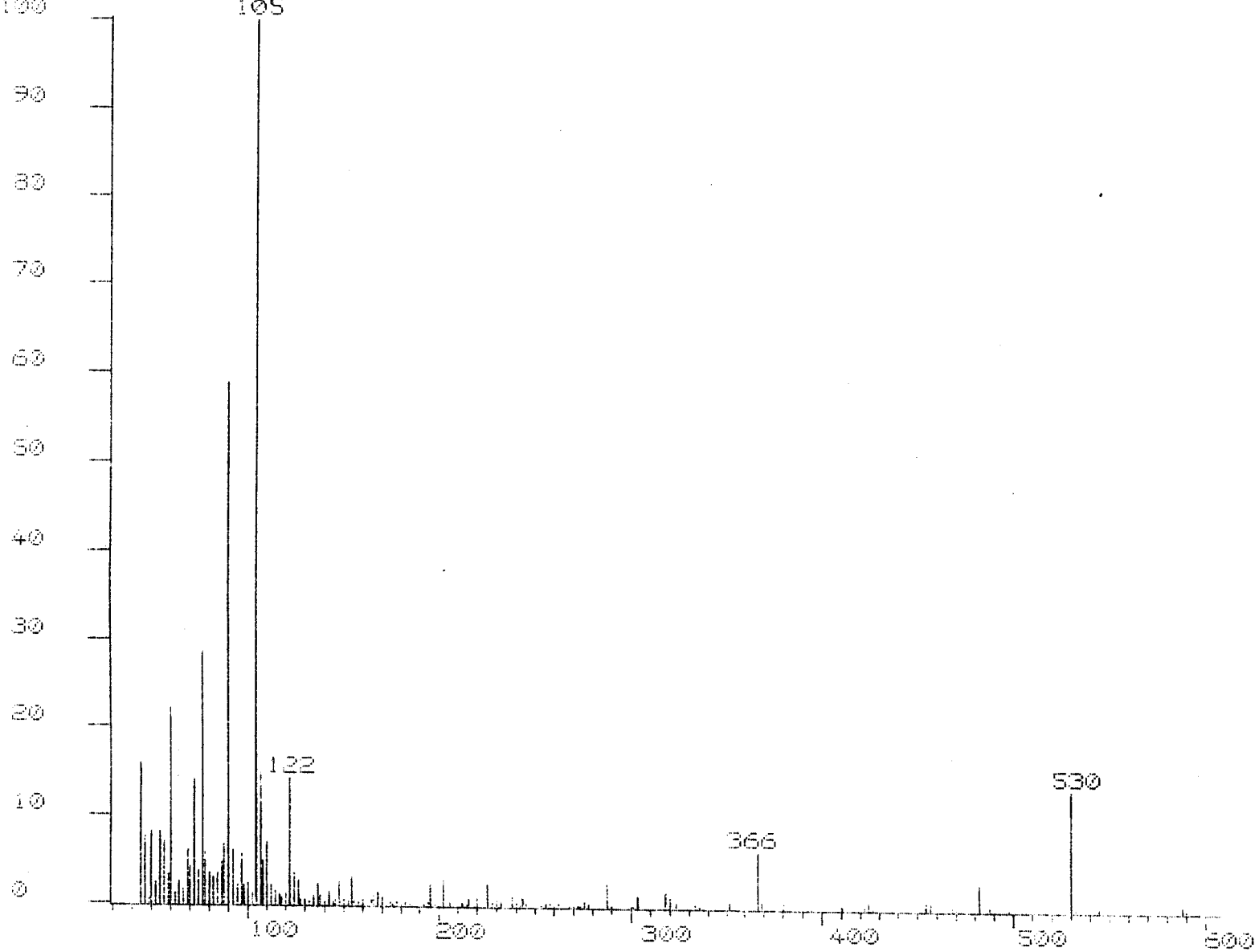
Espectro de masas (EI) de 3-acetil-2-metoxicarbonil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (55)



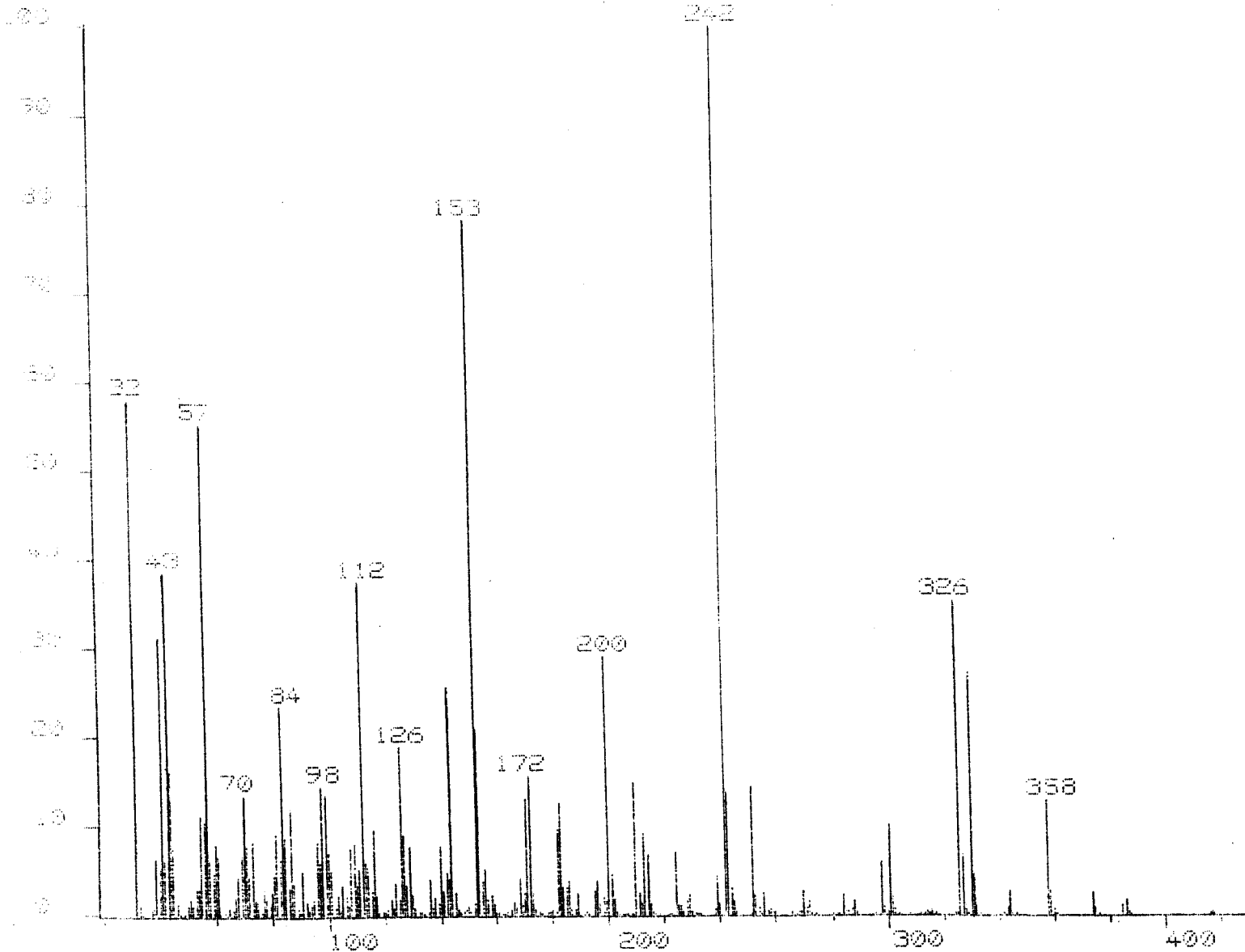
Espectro de masas (EI) de 2-metoxycarbonil-3-n-octanoil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (56)



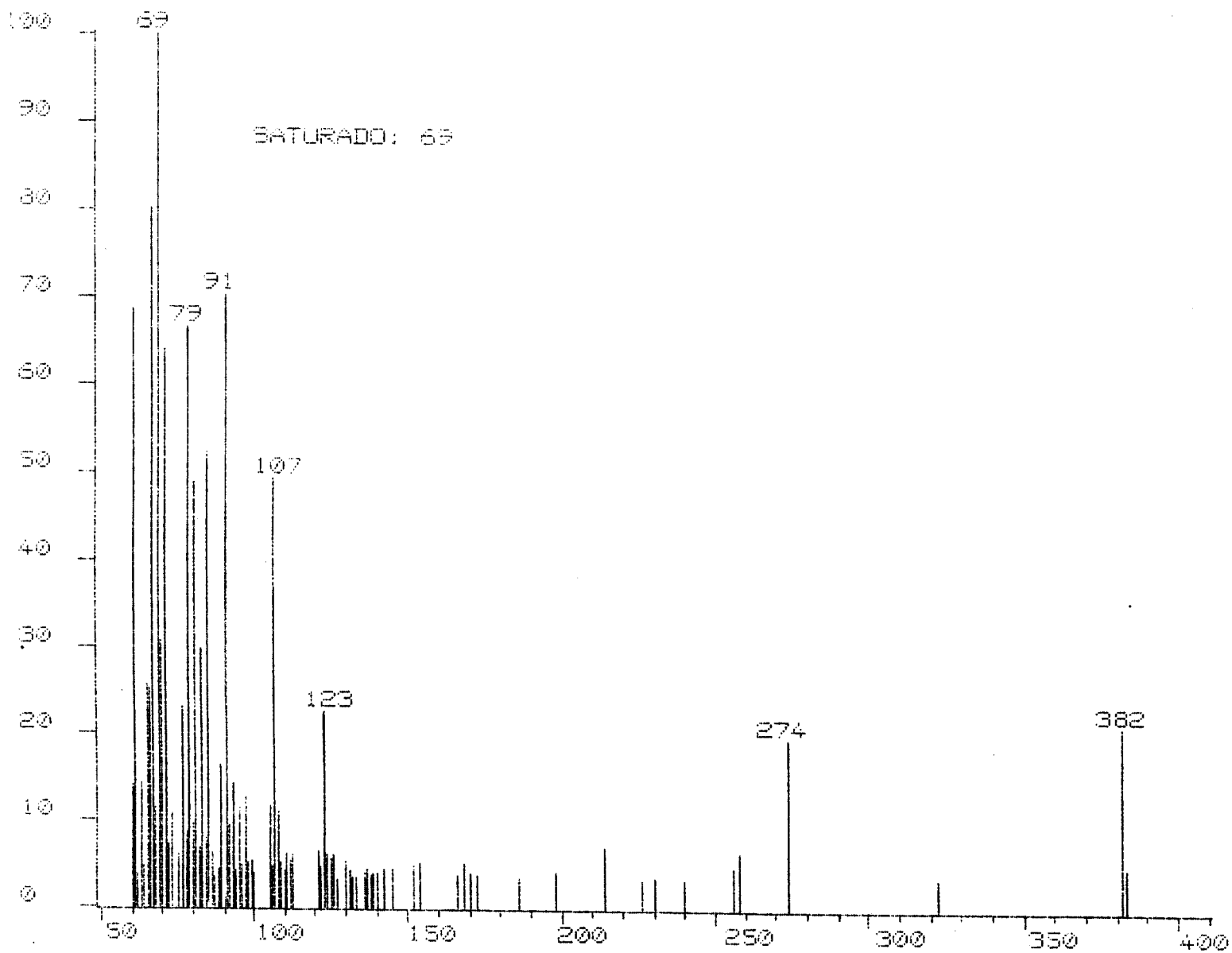
Espectro de masas (EI) del éster etílico de 3-acetil-(1-O-bencil-2,3-didesoxi- α -
-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanina (60)



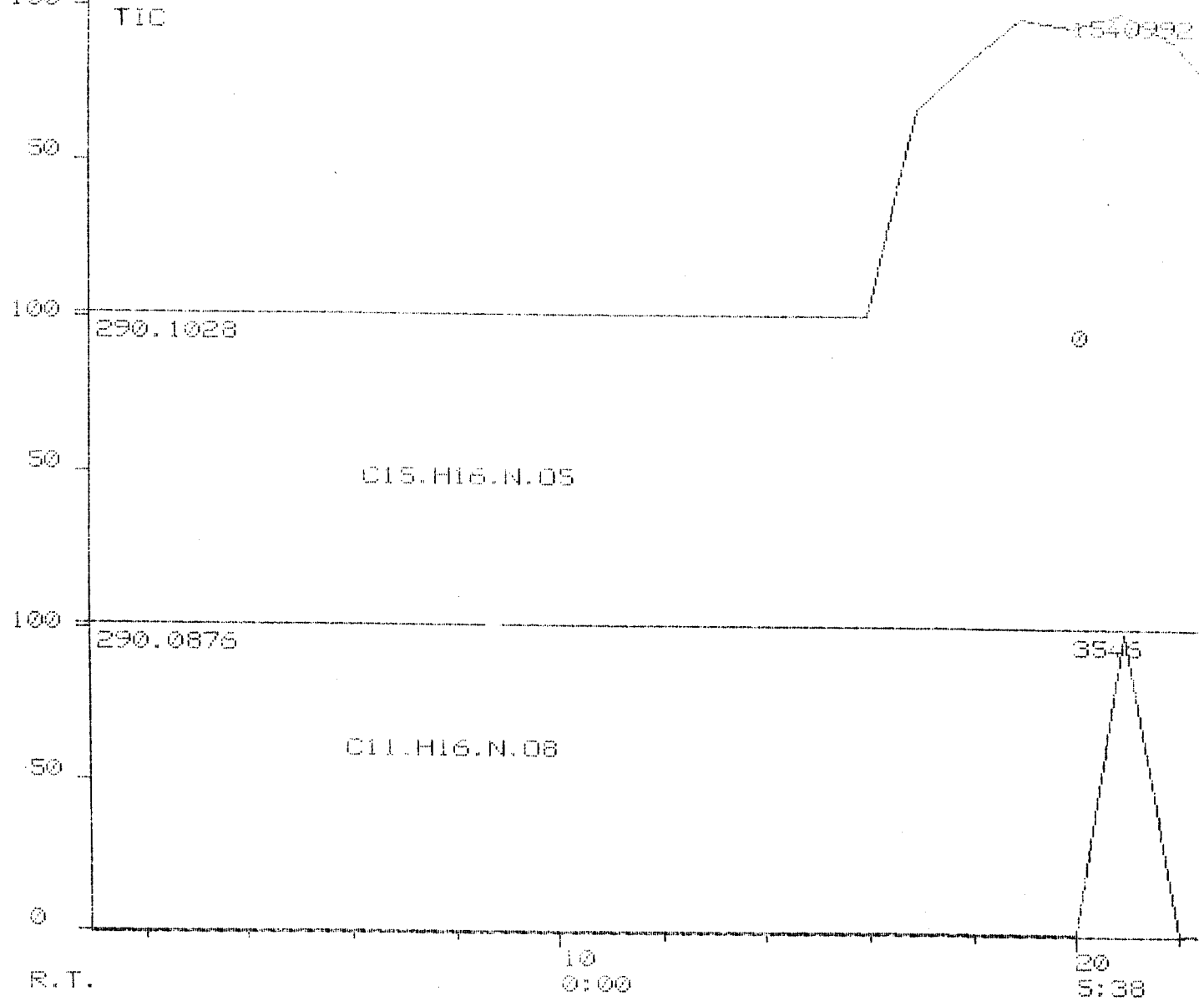
Espectro de masas (EI) de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-di-O-benzoil-
-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (57)



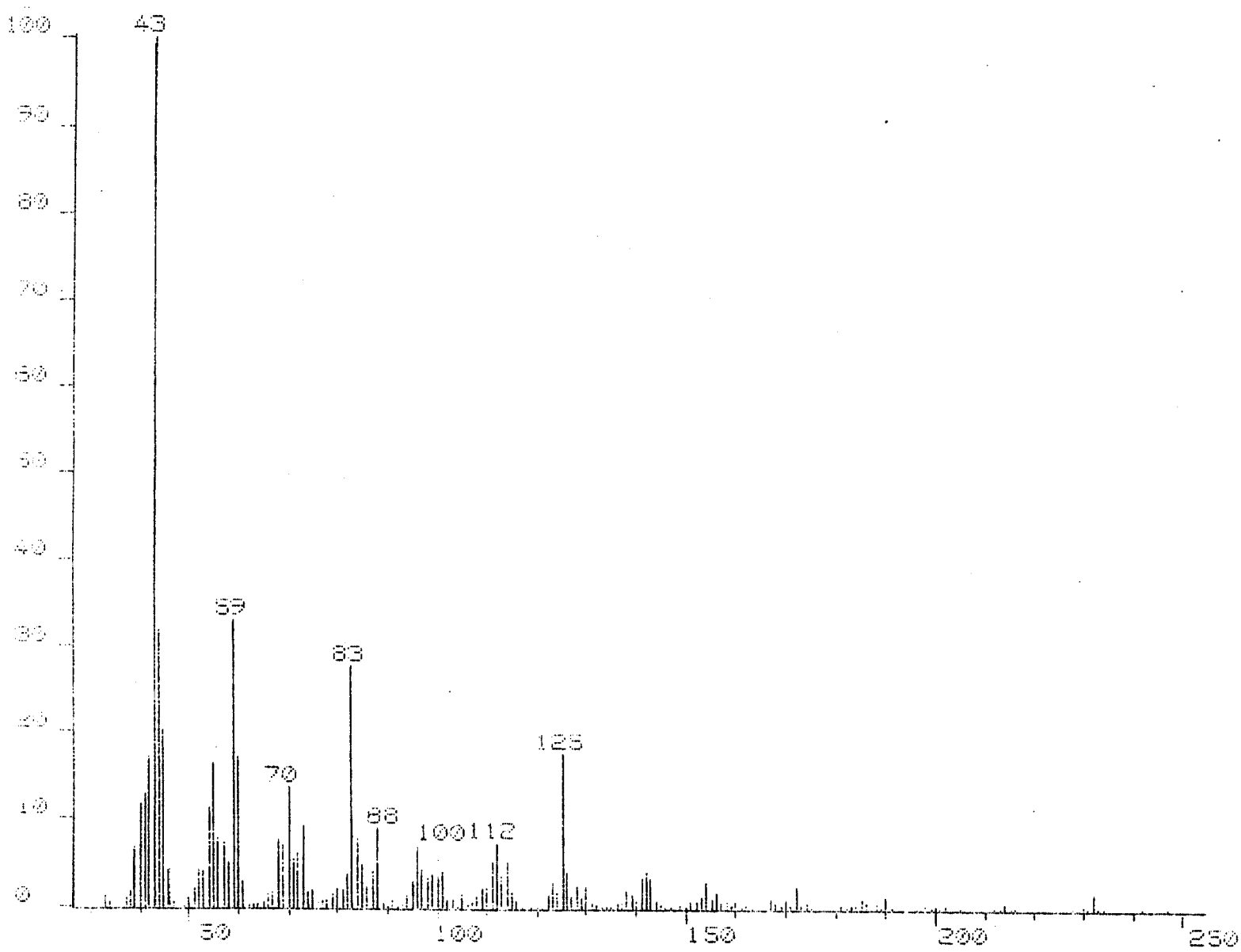
Espectro de masas (EI) de 3-acetil-2-metoxycarbonil-(4,6-di-O-n-butil-2,3-didesoxi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidina (78)



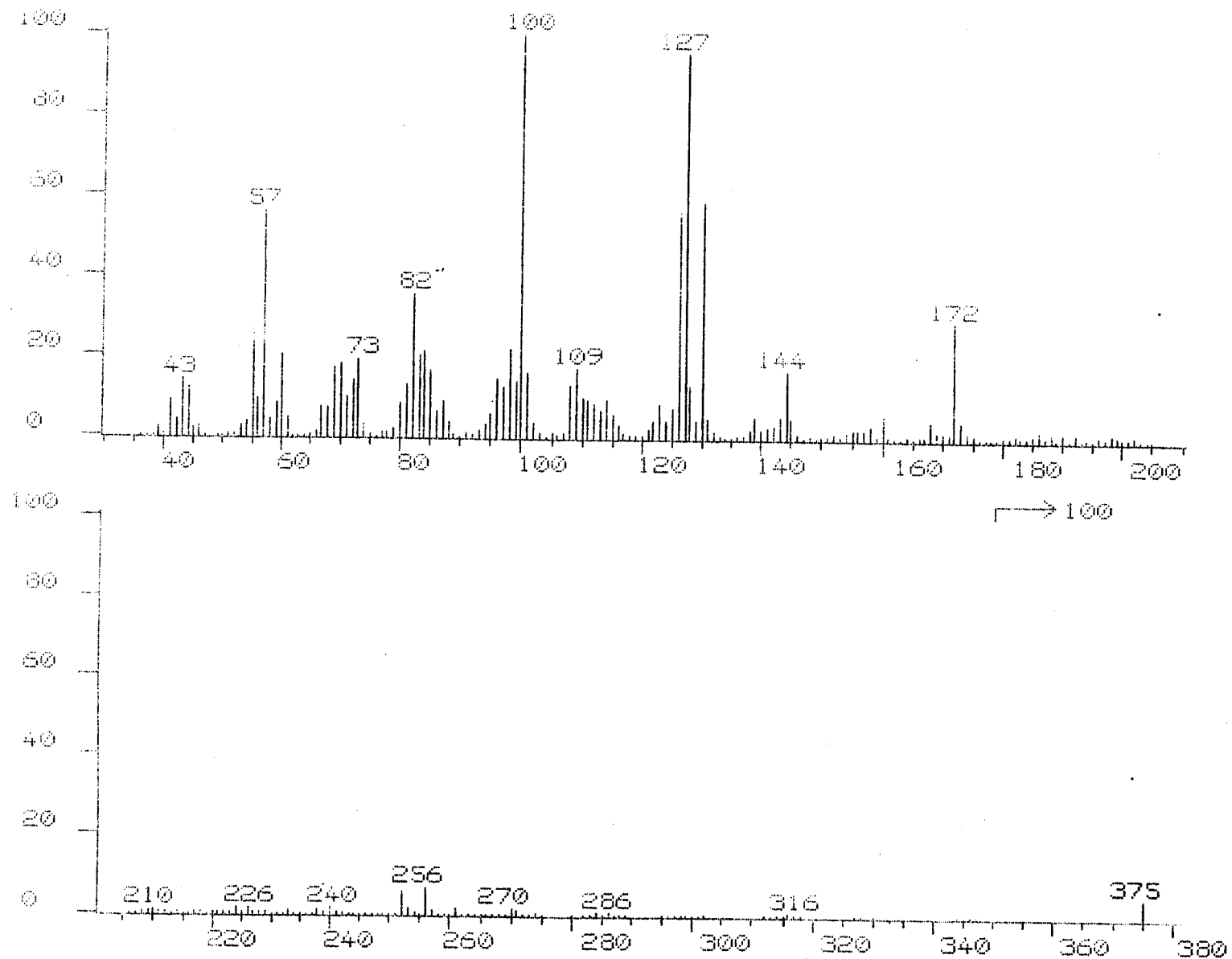
Espectro de masas (CI) de la sustancia (55)



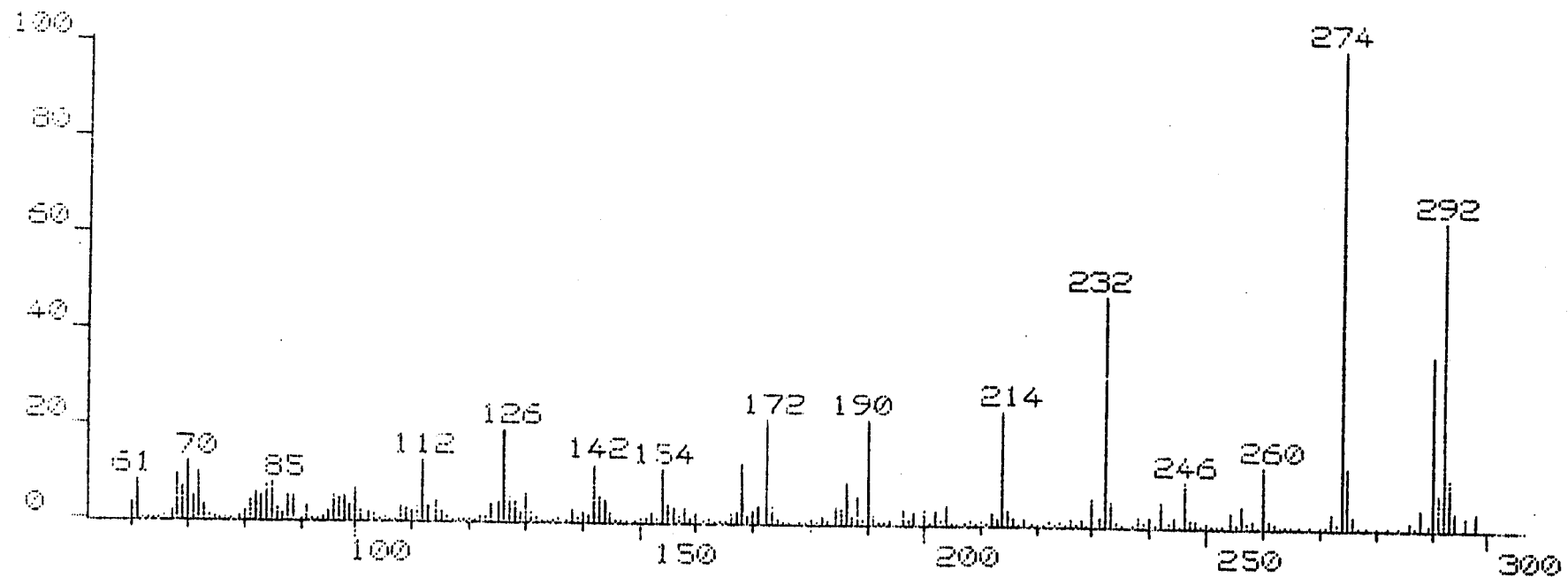
EM alta resolución para C15.H16.N.05 y C11.H16.N.08 para la sustancia 55 con una desviación inferior a 5ppm.



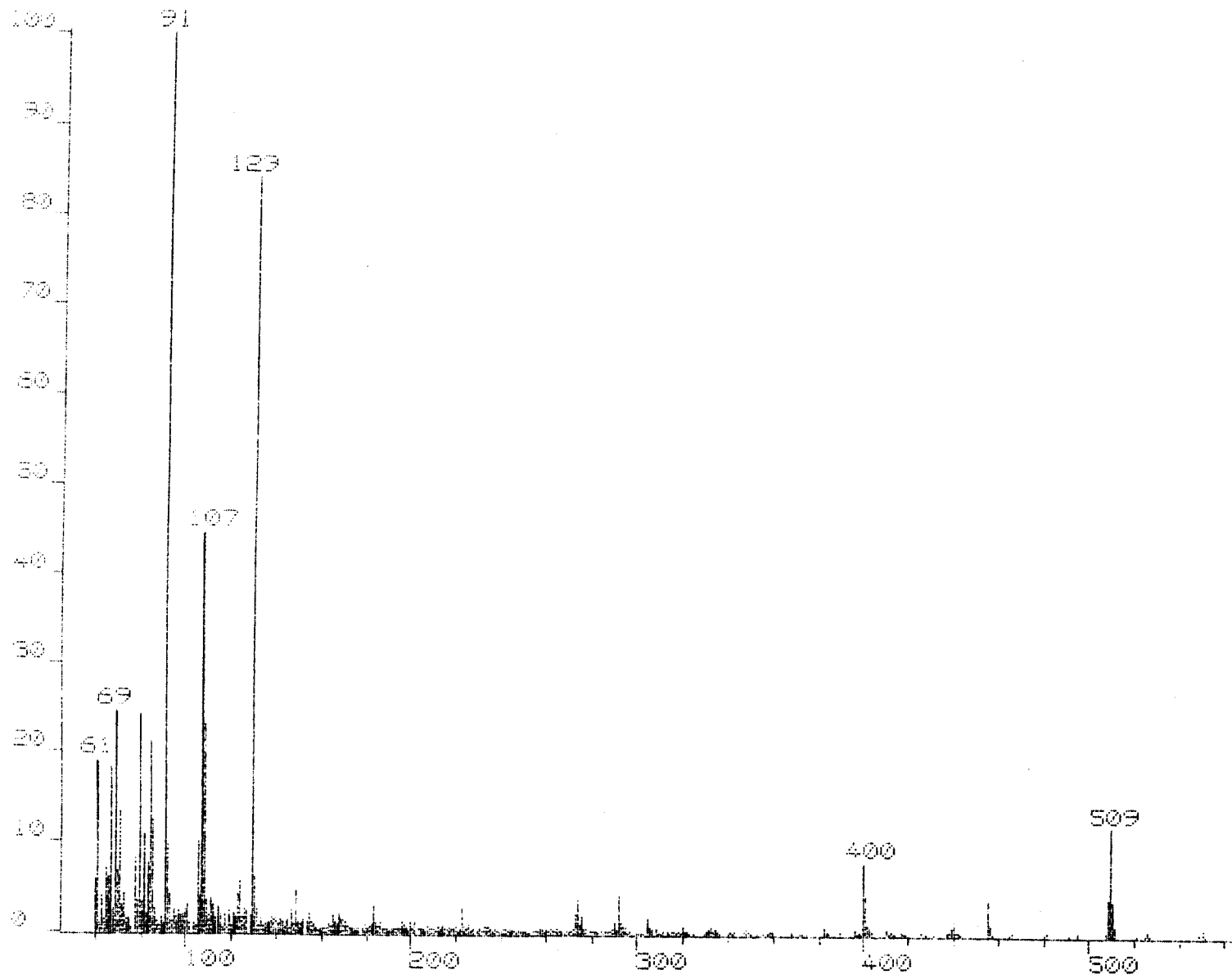
Espectro de masas (EI) de 3-acetil-2-metoxycarbonil-(2,3-dideoxi-D-glucopirán)-
-[2,3-d]-oxazolidina (58)



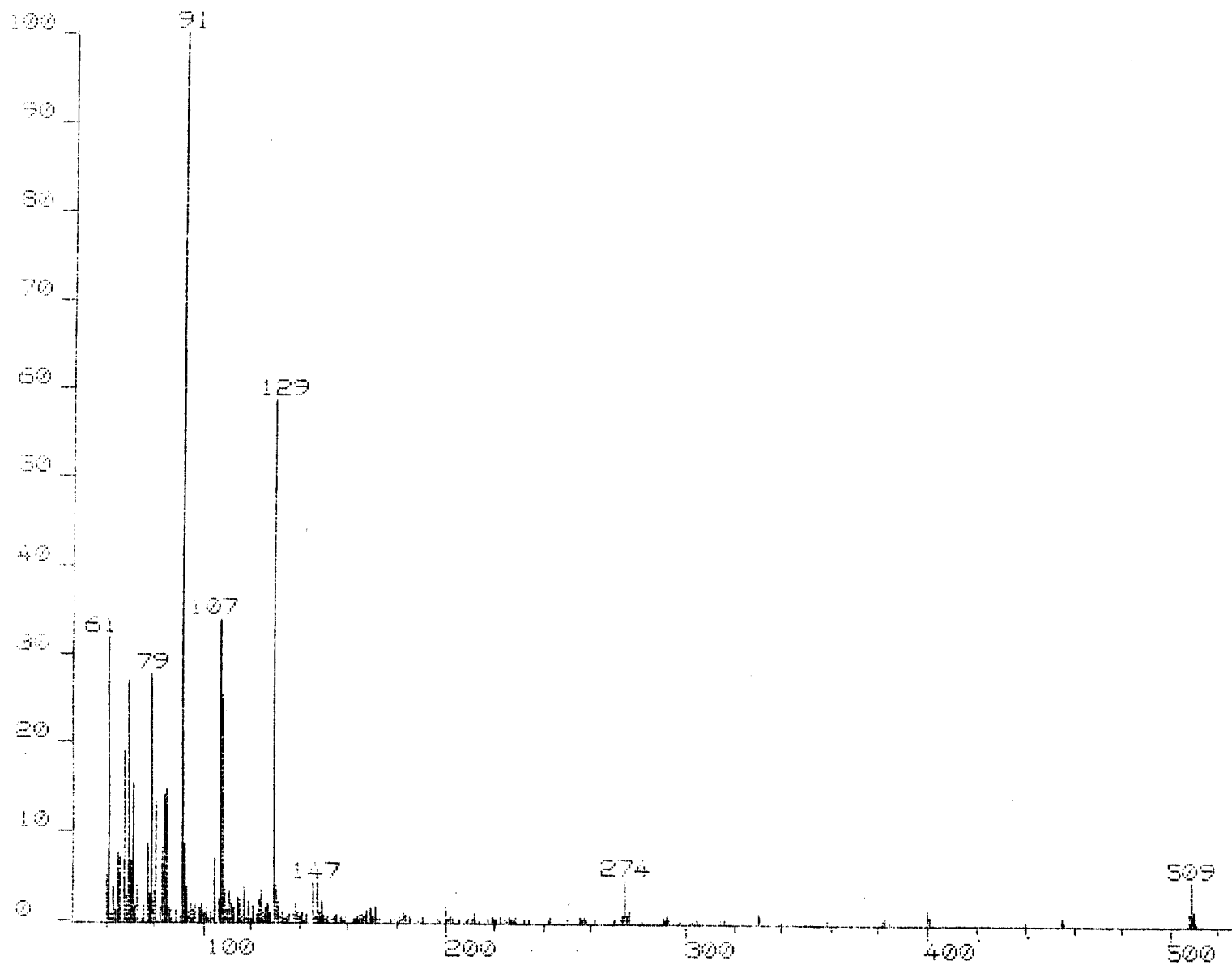
Espectro de masas (EI) de 2-metoxicarbonil-3-n-octanoil-(2,3-didesoxi-D-glucopirán)-[2,3-d]-oxazolidina (59)



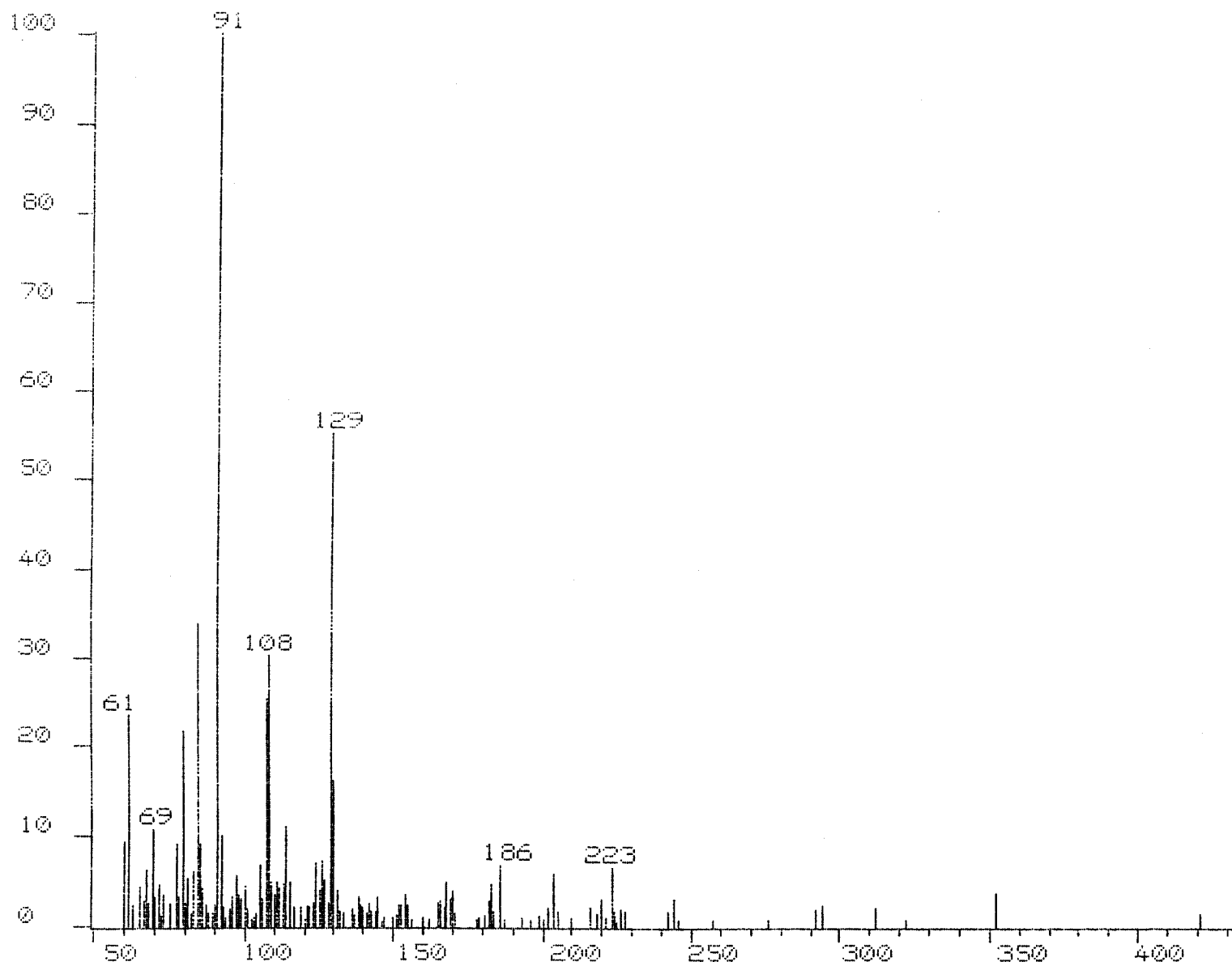
Espectro de masas (CI) de la sustancia (58)



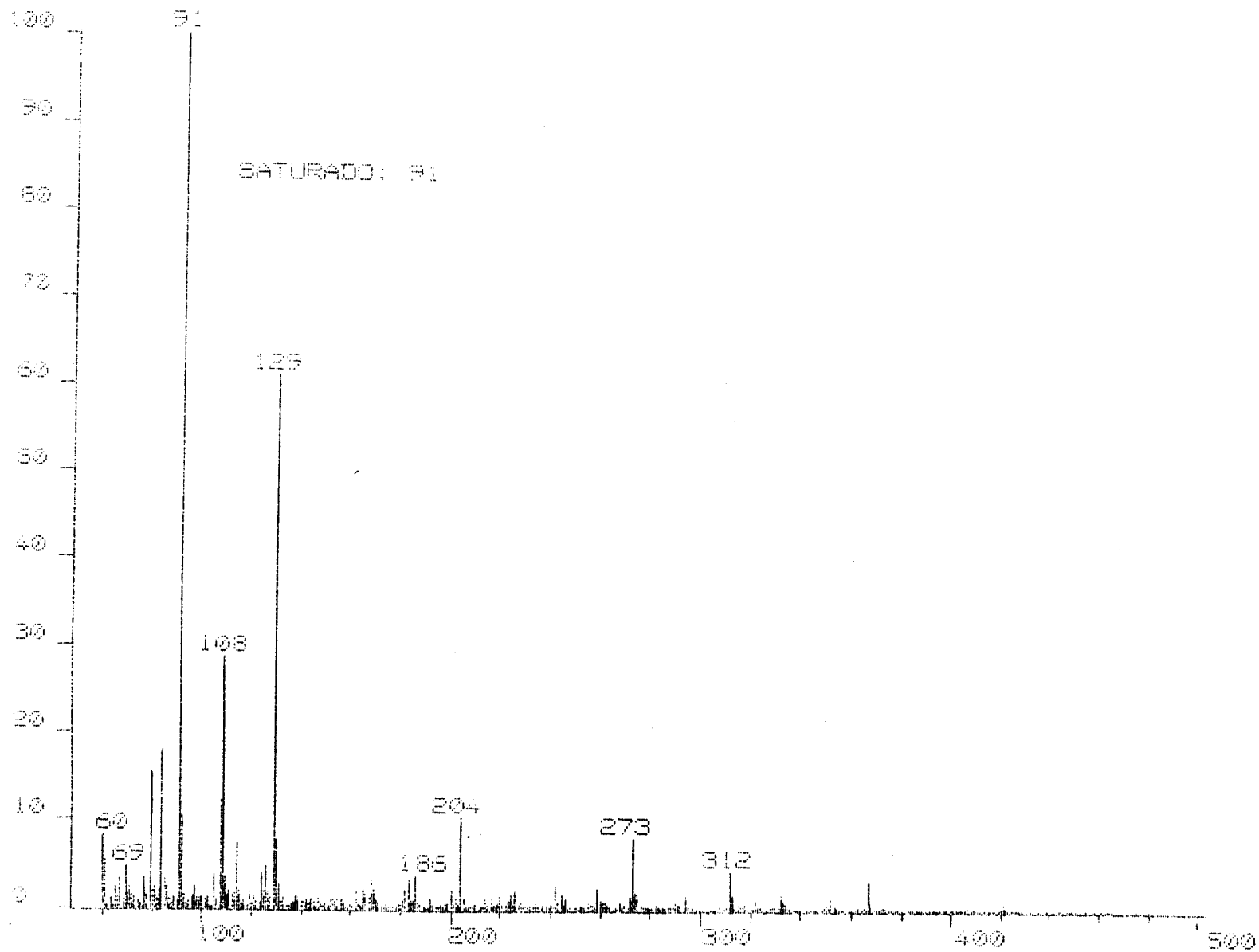
Espectro de masas (CI) del éster bencílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-
-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (52)



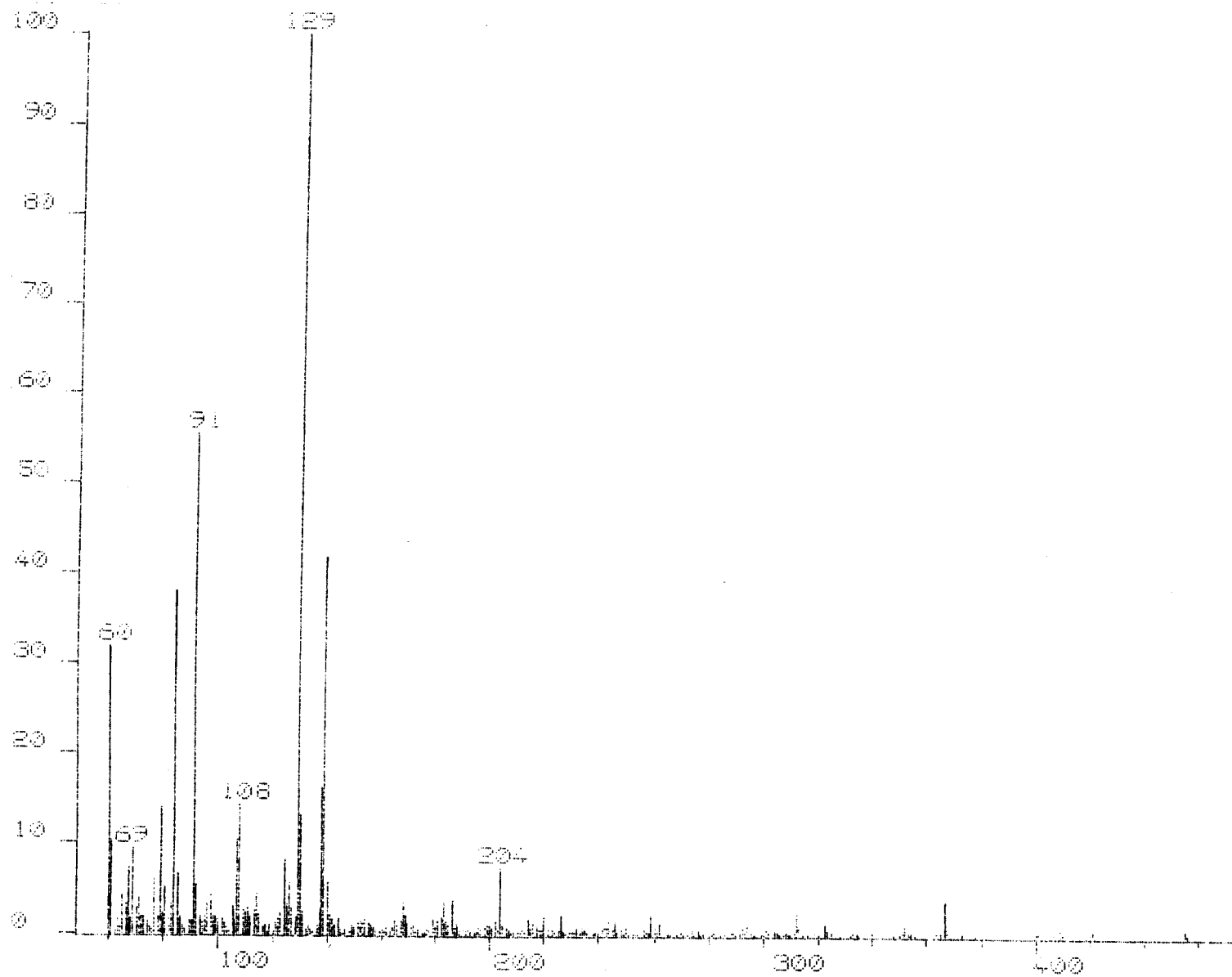
Espectro de masas (CI) del éster bencílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (53)



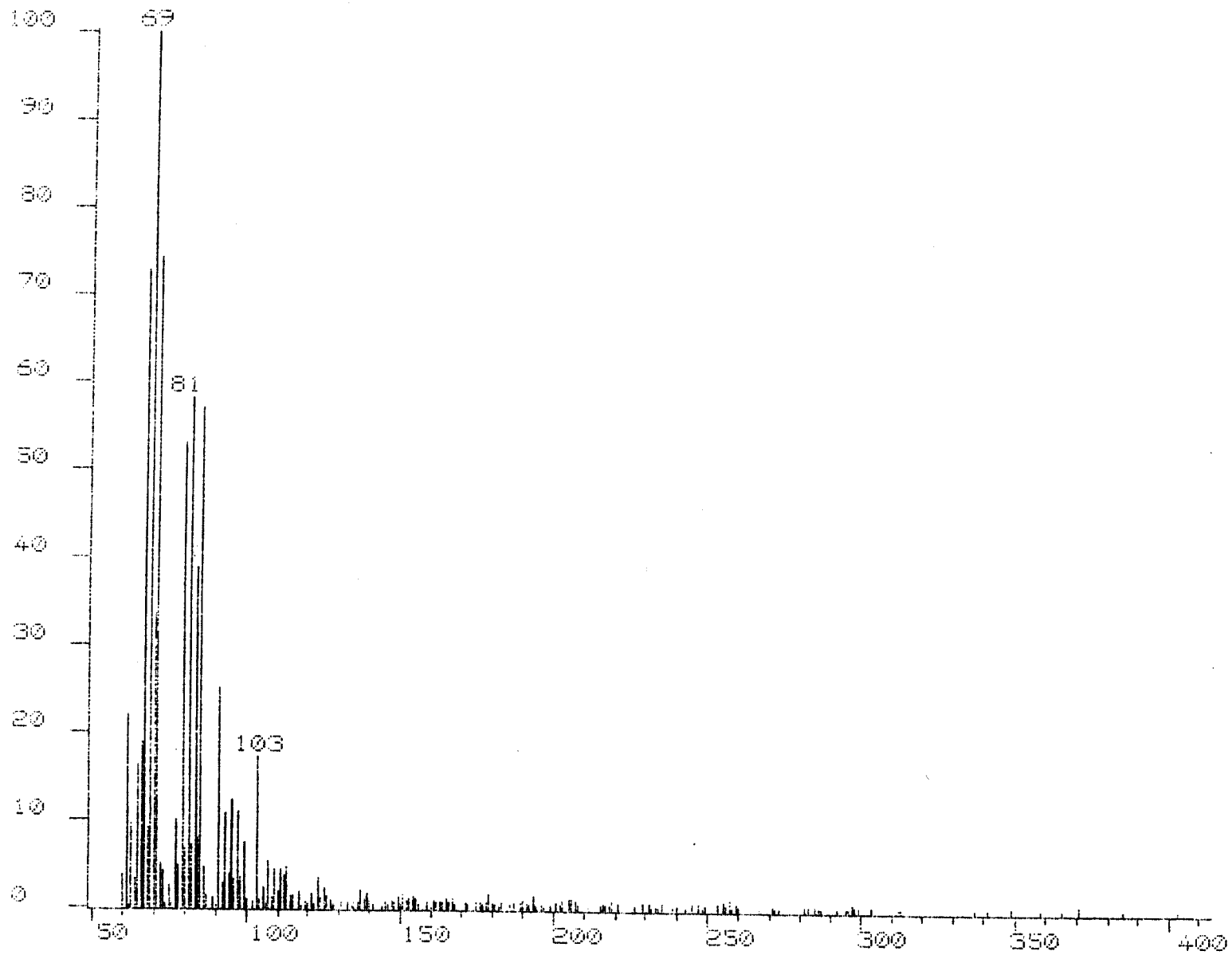
Espectro de masas (CI) del éster bencílico de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glu
copirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (62)



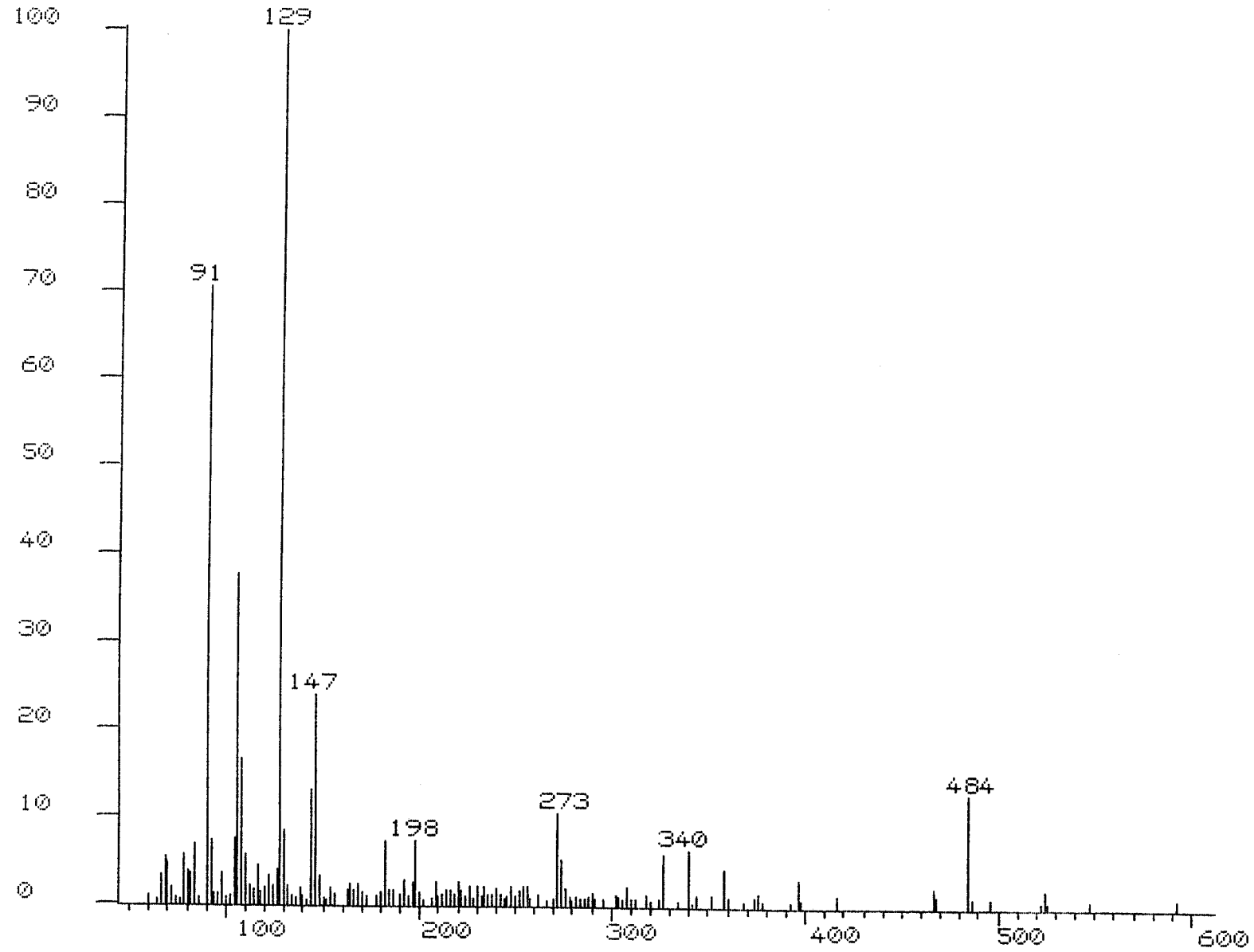
Espectro de masas (CI) del éster bencílico de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (61)



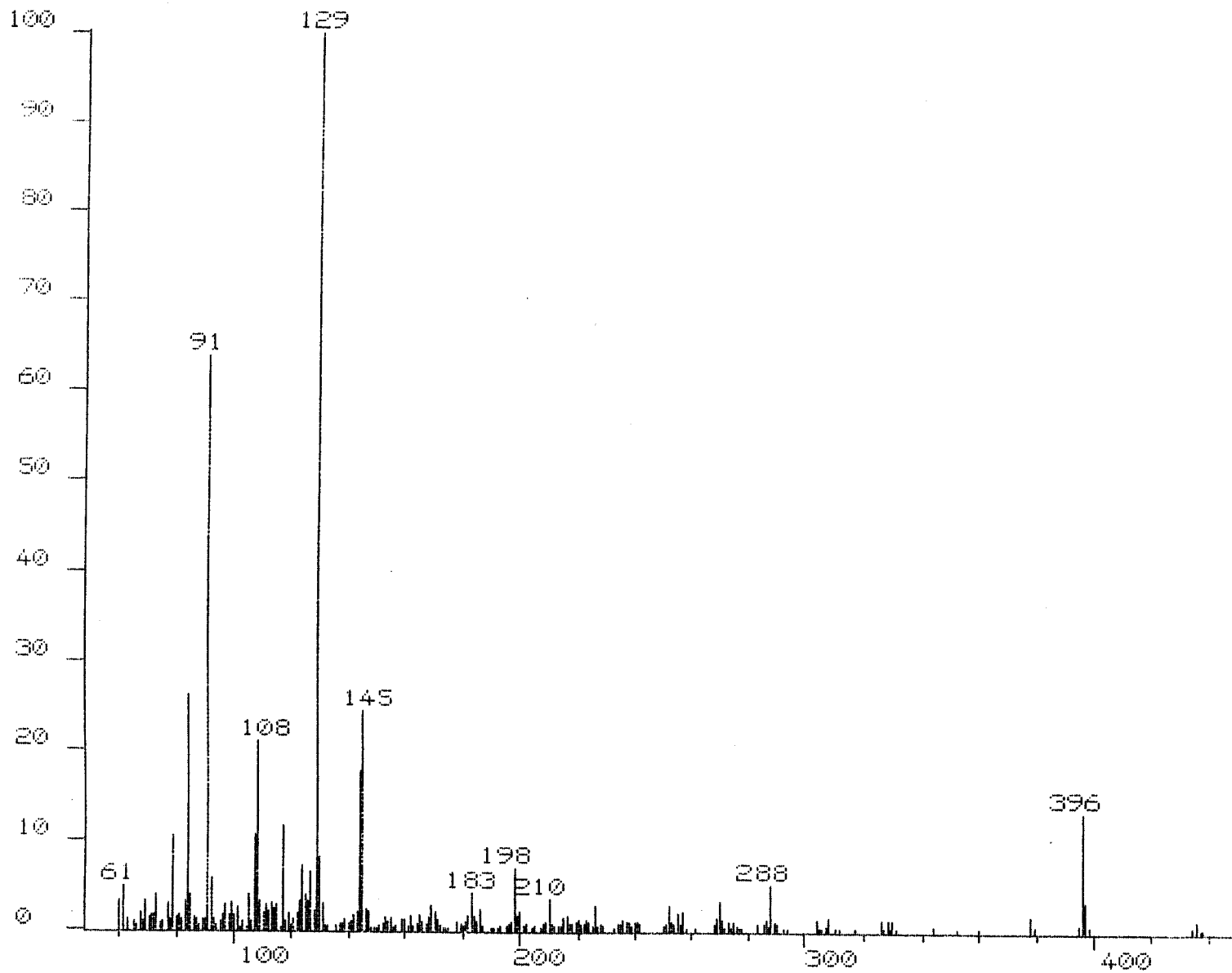
Espectro de masas (CI) de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxa
zolidín-2-carbonil-L-alanil-D-isoglutamina (65)



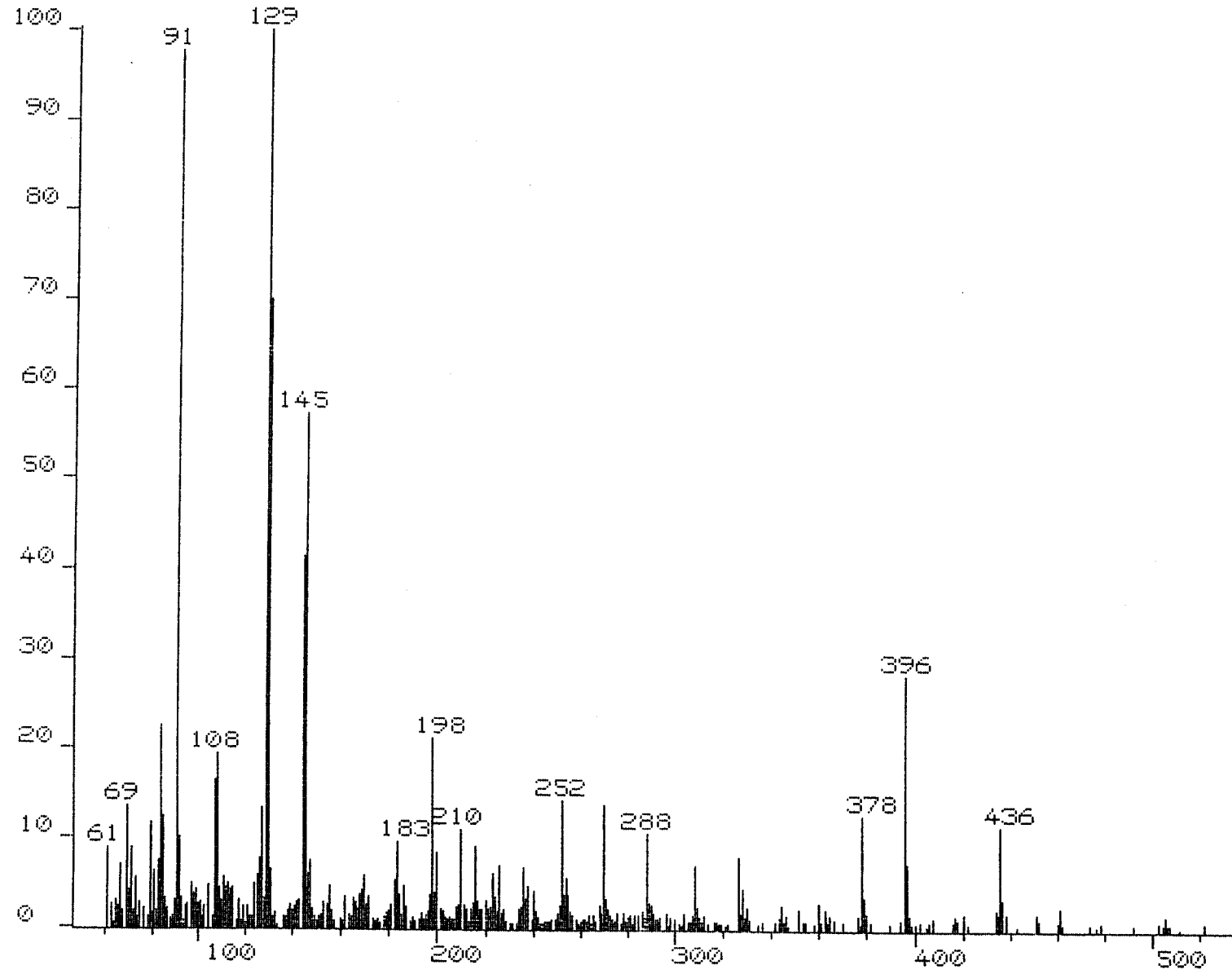
Espectro de masas (CI) de 3-acetil-(2,3-dideoxi-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (26)



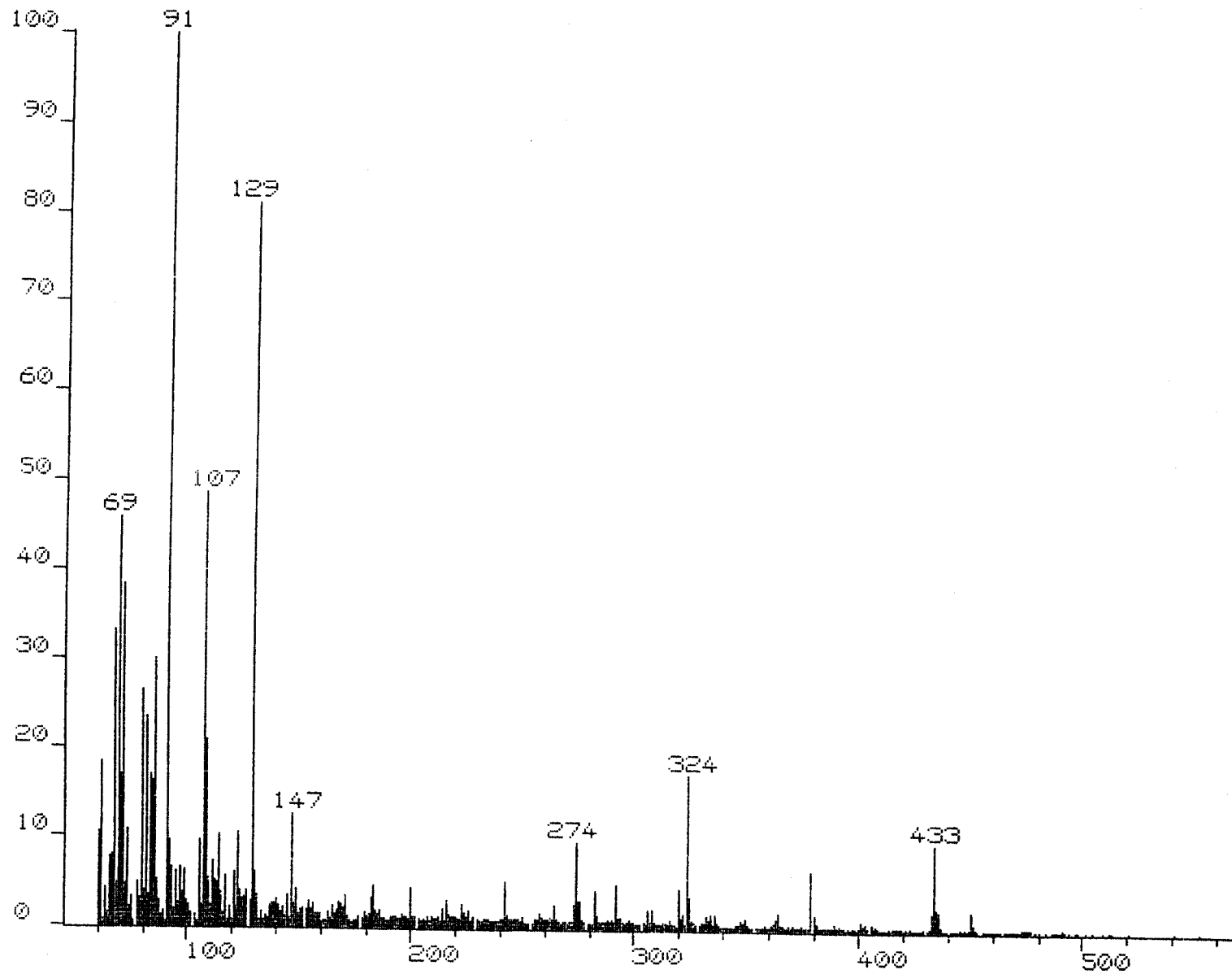
Espectro de masas (CI) del éster bencílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (54)



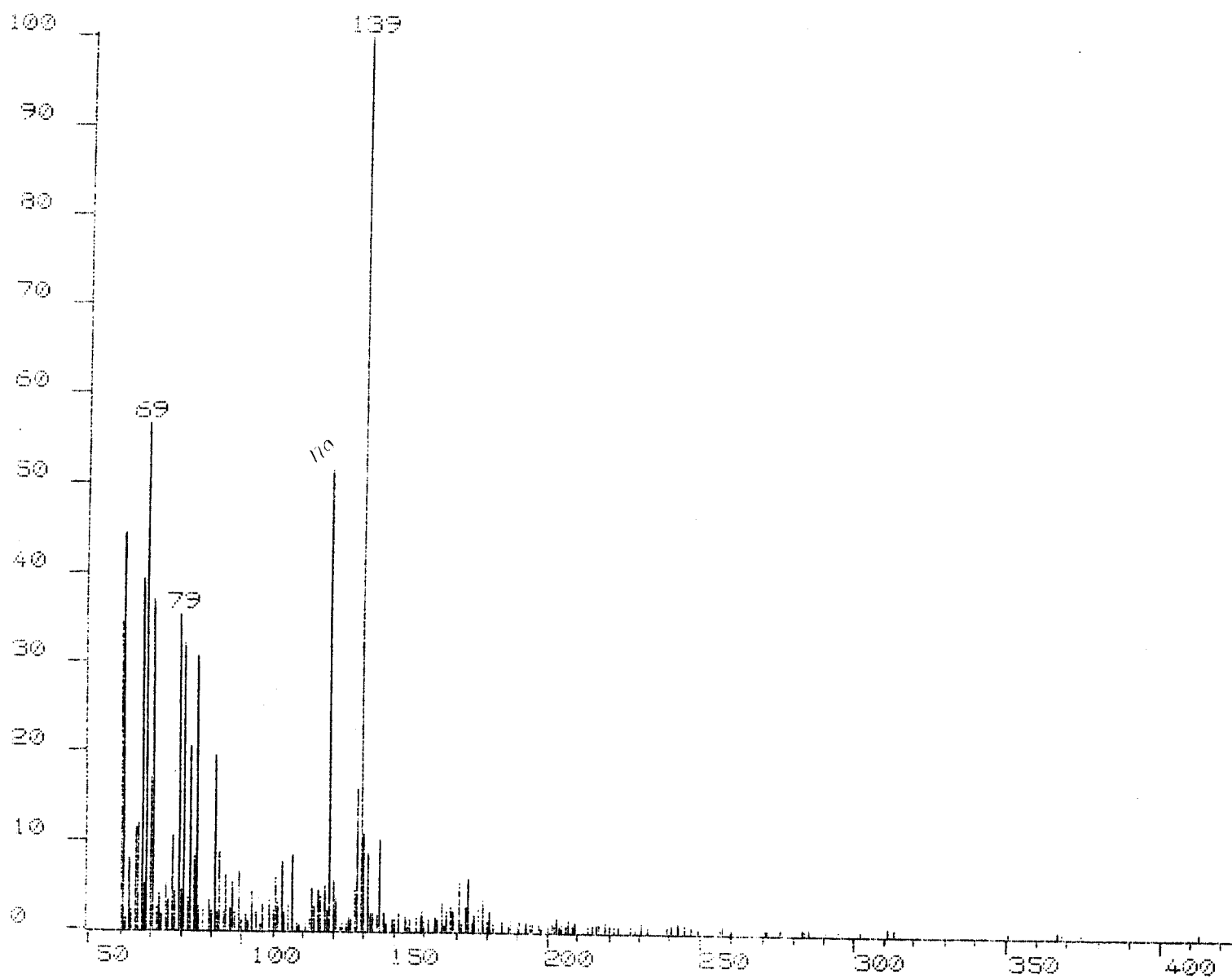
Espectro de masas (CI) del éster bencílico de 3-n-octanoil-(1-O-bencil-2,3-didesoxi- α -
-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (63)



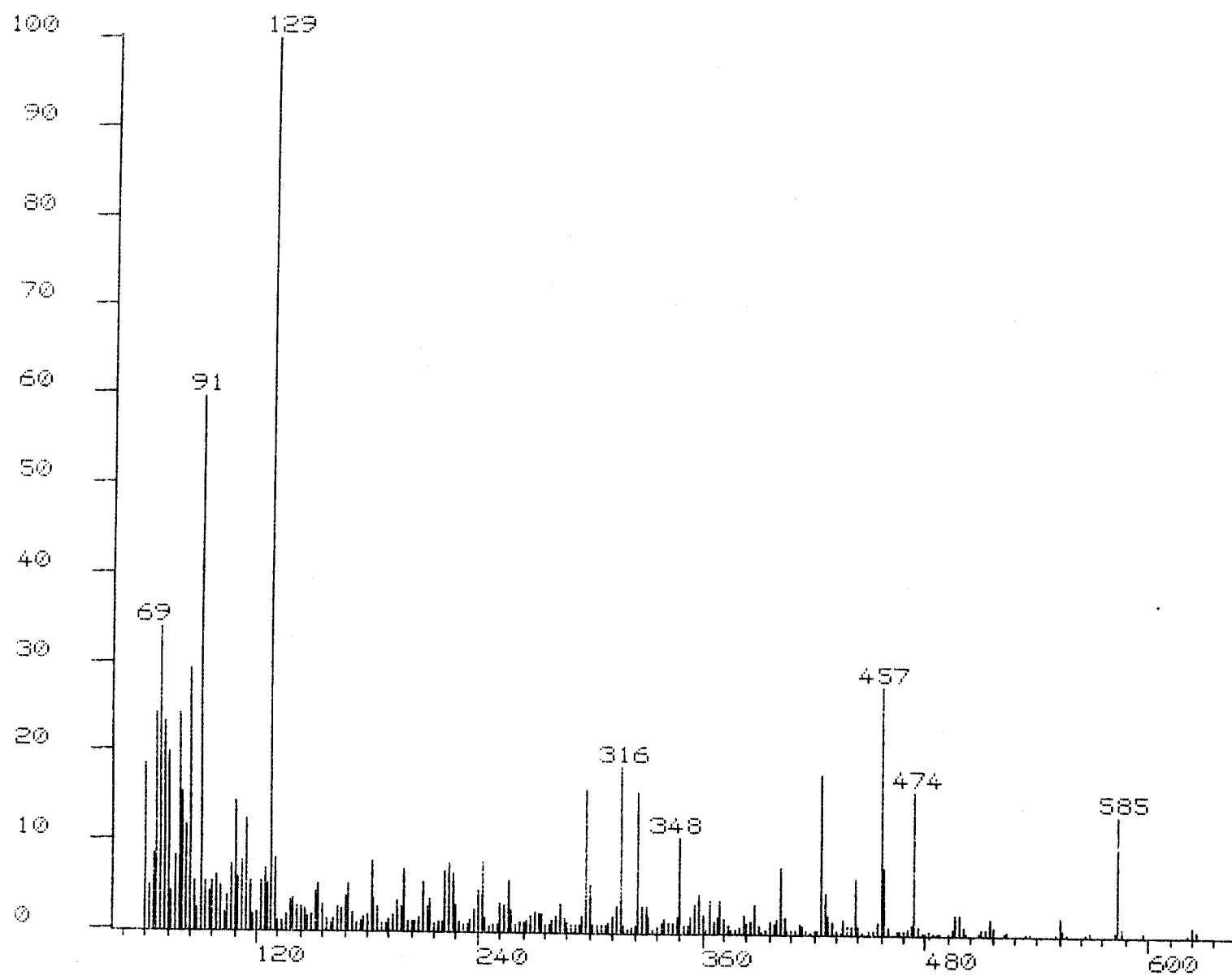
Espectro de masas (CI) del éster bencílico de 3-n-octanoil-(1-0-bencil-2,3-didesoxi- α -
 -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (64)



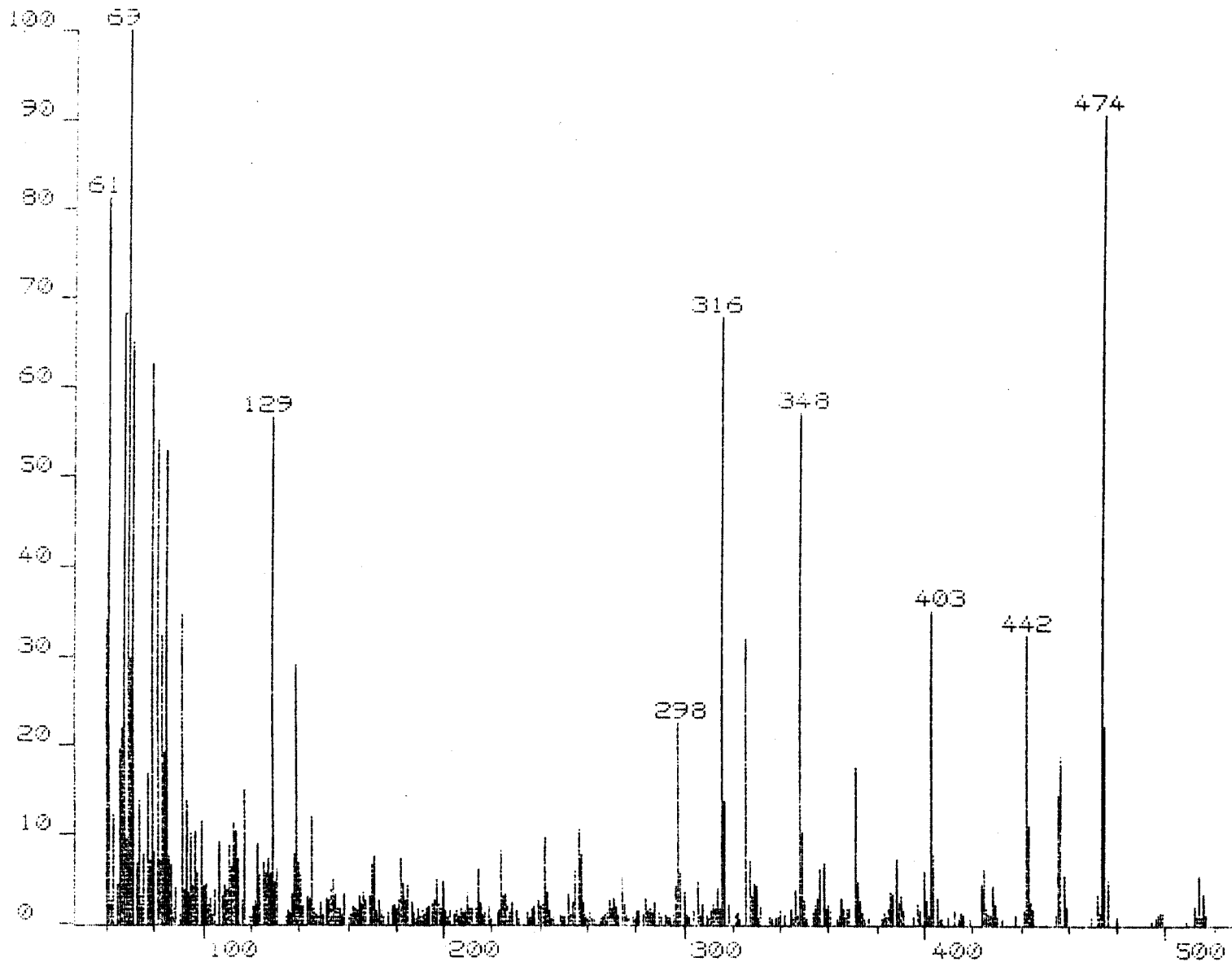
Espectro de masas (CI) del éster bencílico de 3-acetil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil-β-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (70)



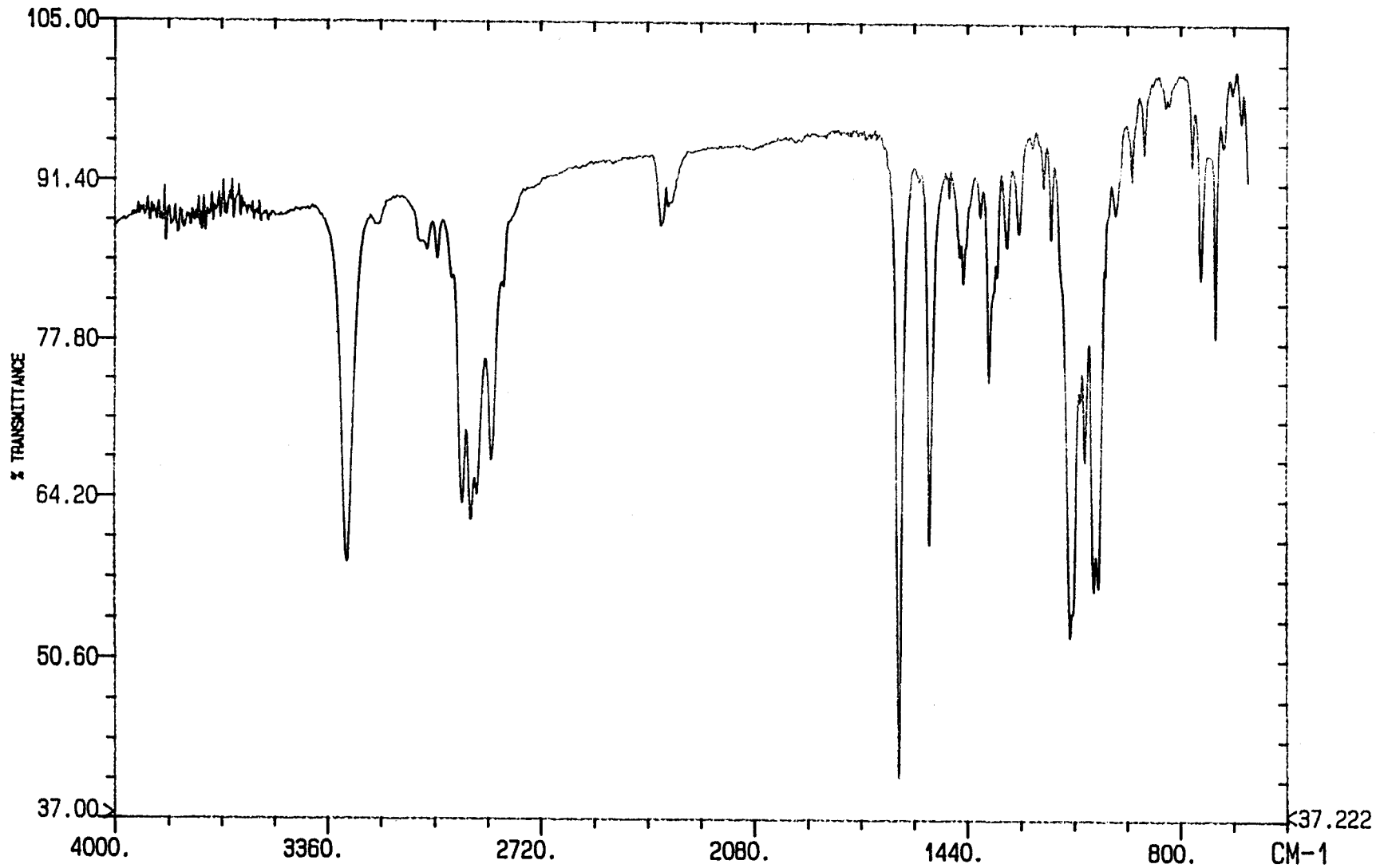
Espectro de masas (CI) de 3-acetil-(2,3-dideoxi-1-O-metil- β -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (28)



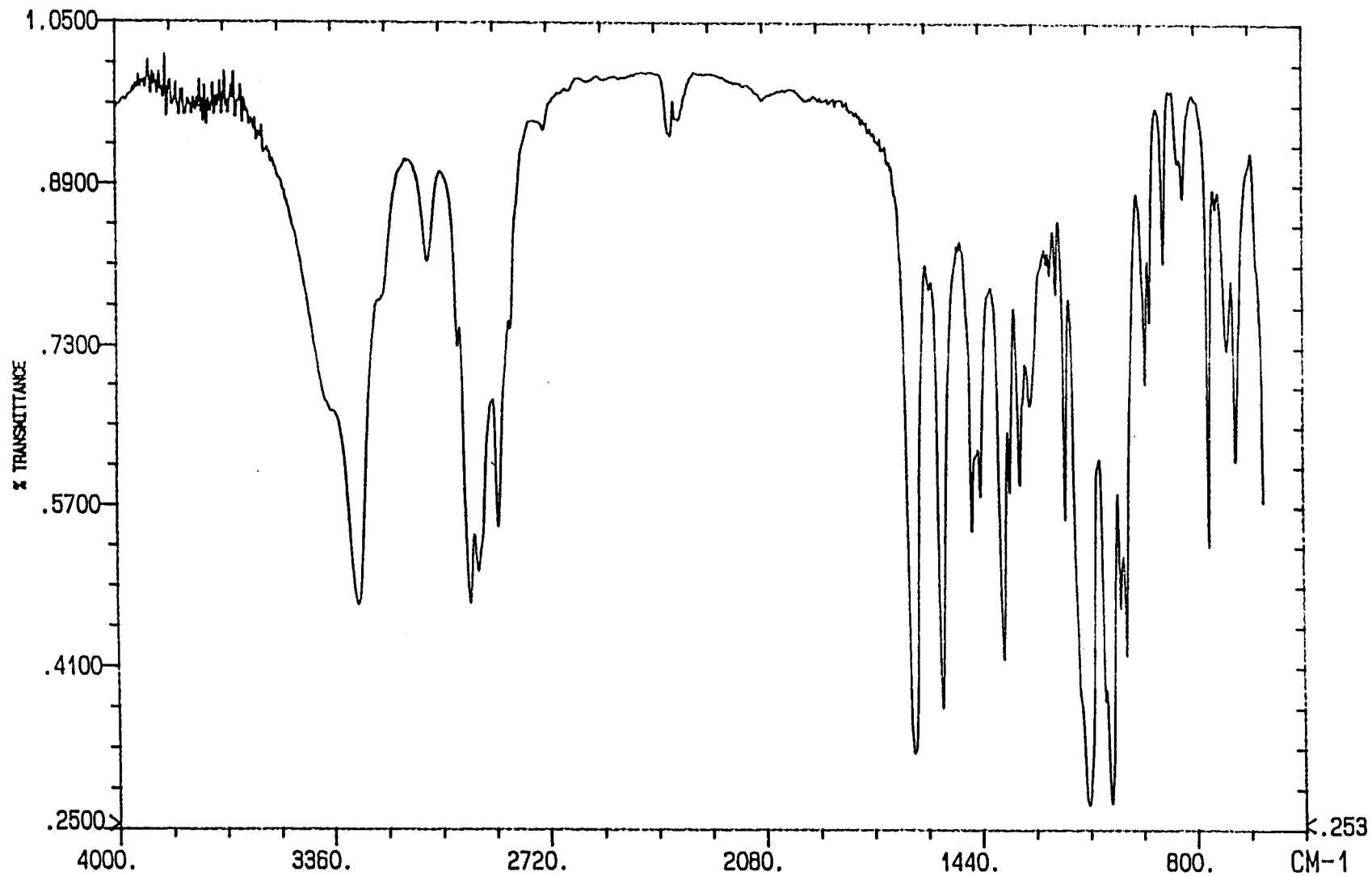
Espectro de masas (CI) del éster bencílico de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (79)



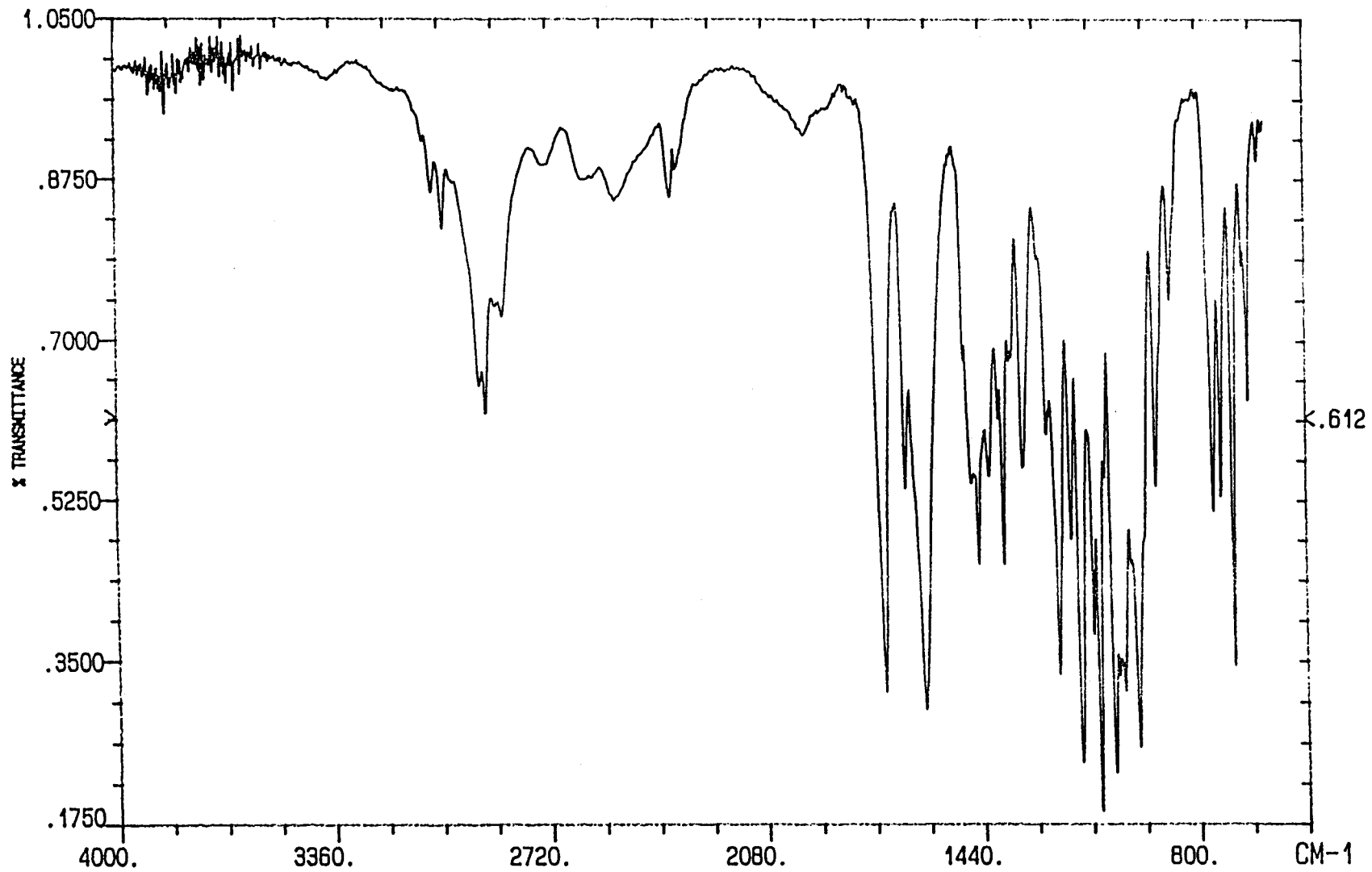
Espectro de masas (CI) de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (29)



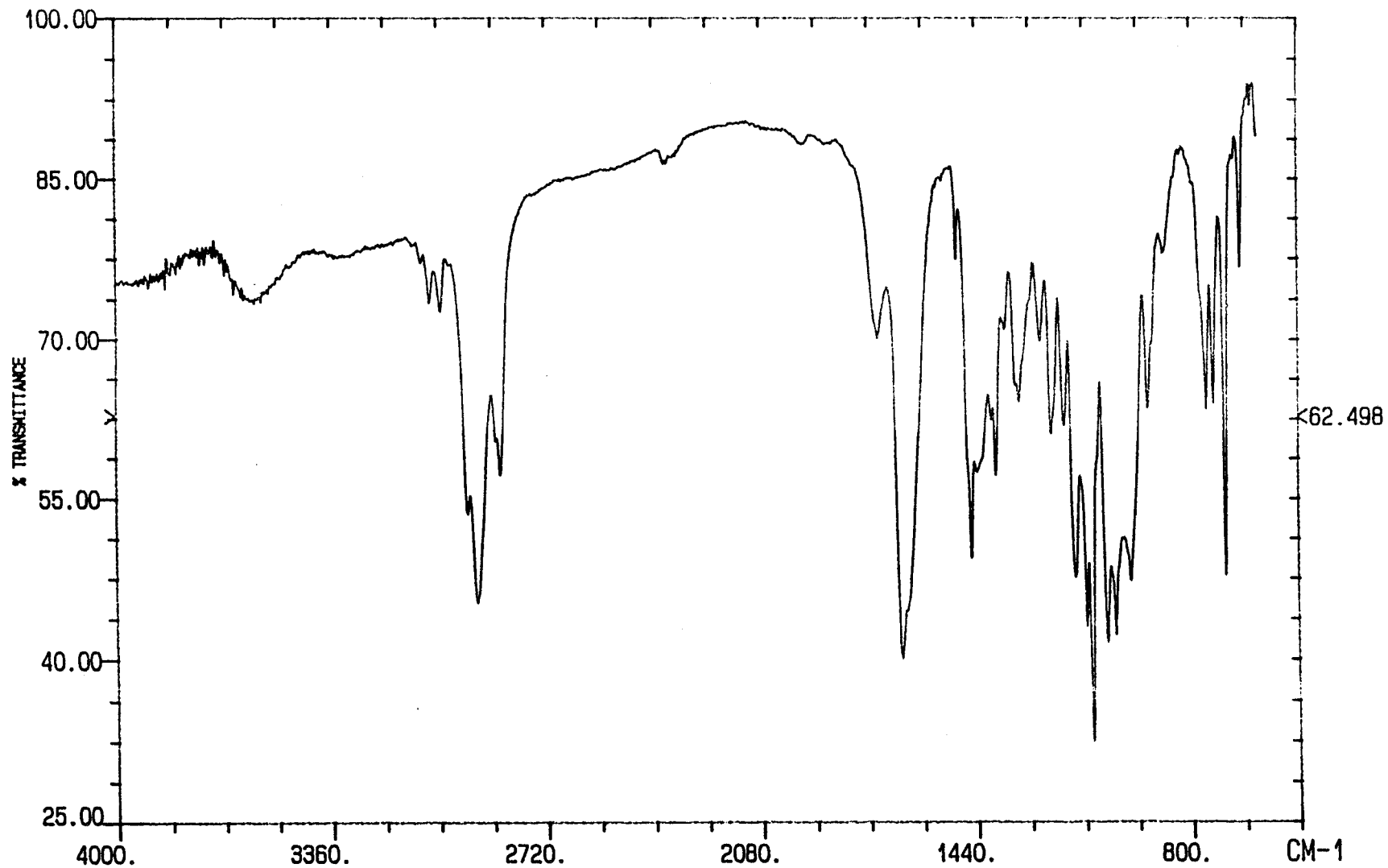
Espectro IR de metil 2-acetamido-3-O-bencil-2-desoxi-4,6-di-O-n-butil- α -D-glucopiranosido (75)



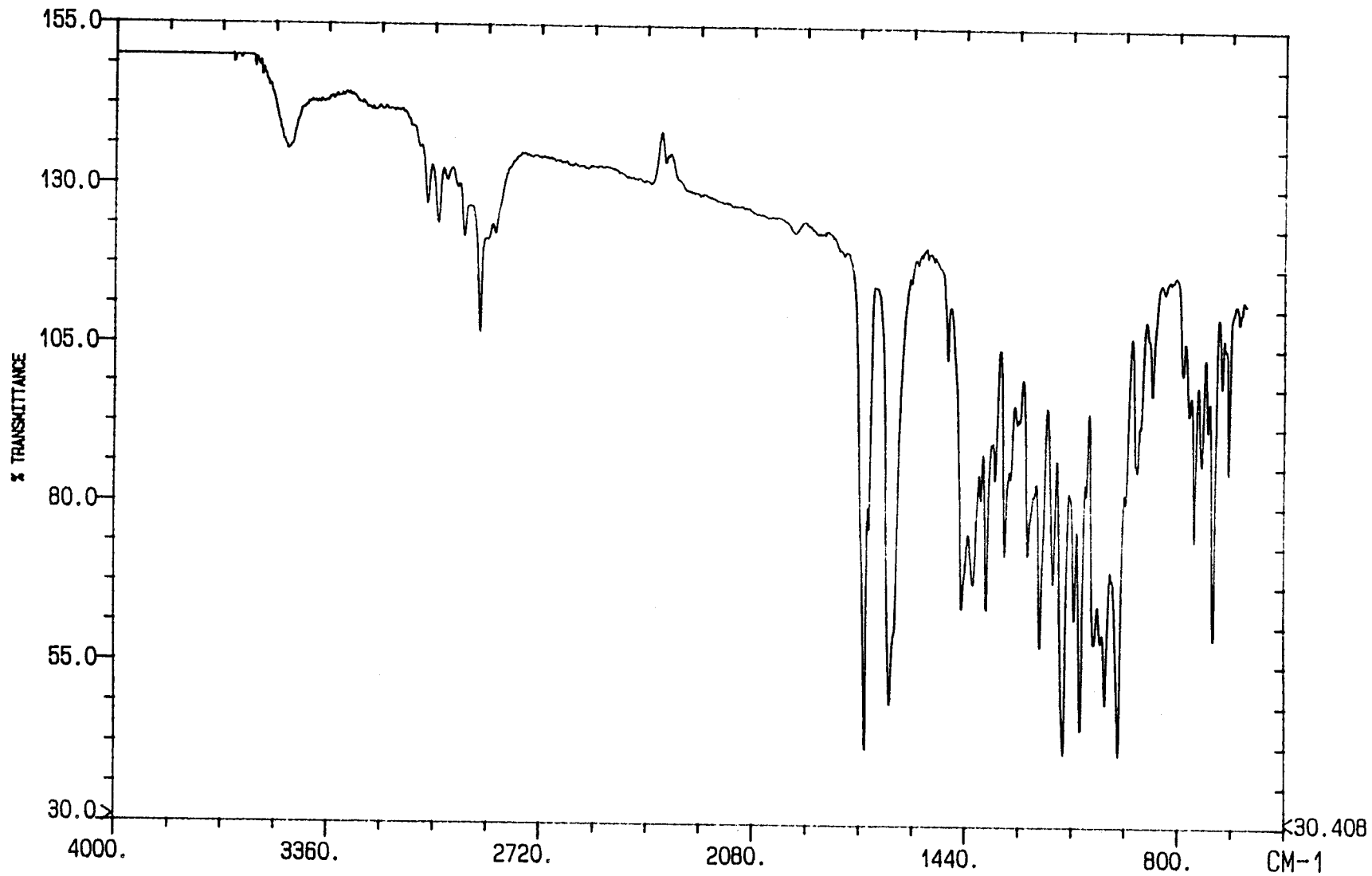
Espectro IR de metil 2-acetamido-2-desoxi-4,6-di-O-n-butil- α -D-glucopiranosido (76)



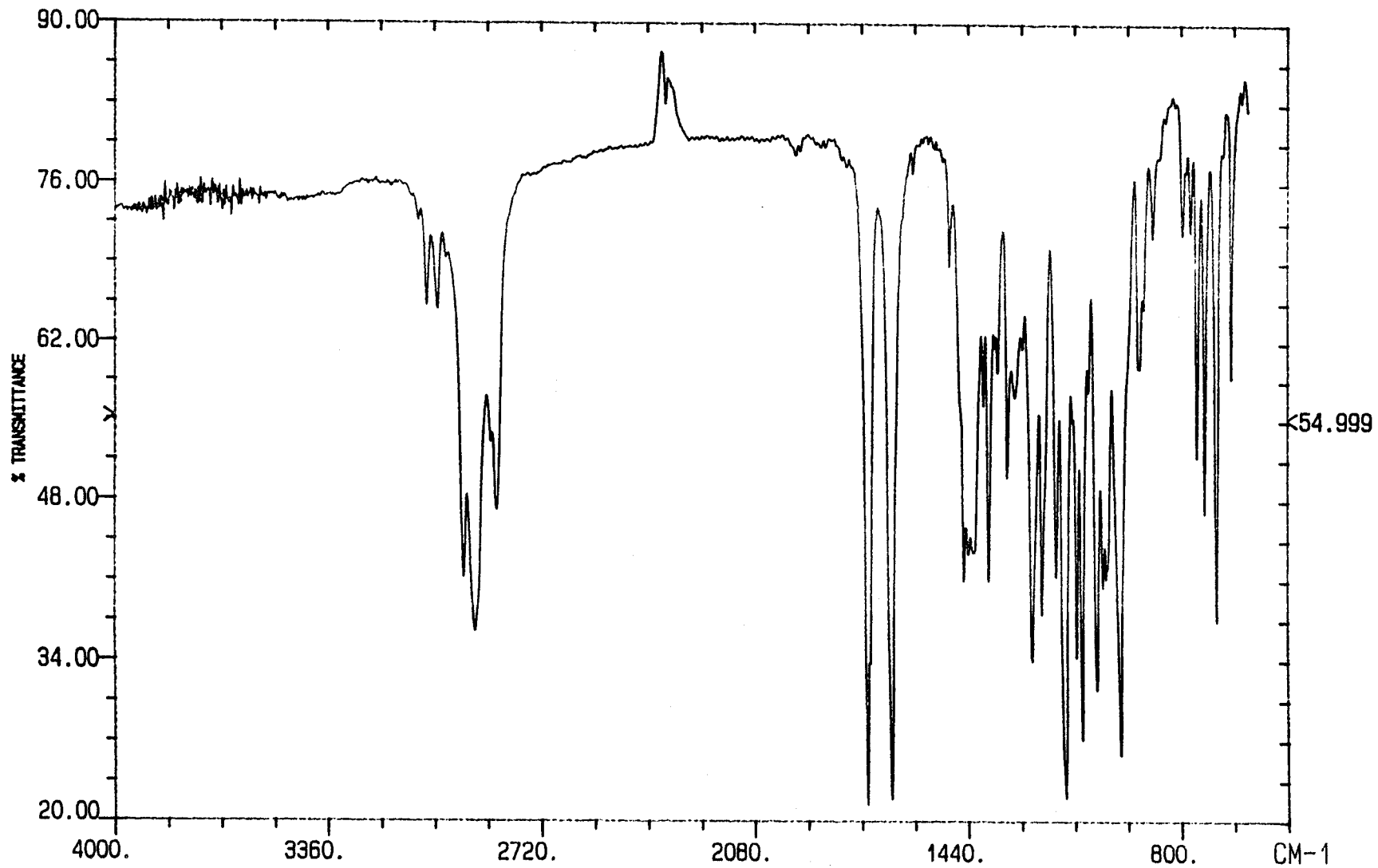
Espectro IR de 3-acetil-2-carboxi-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (37)



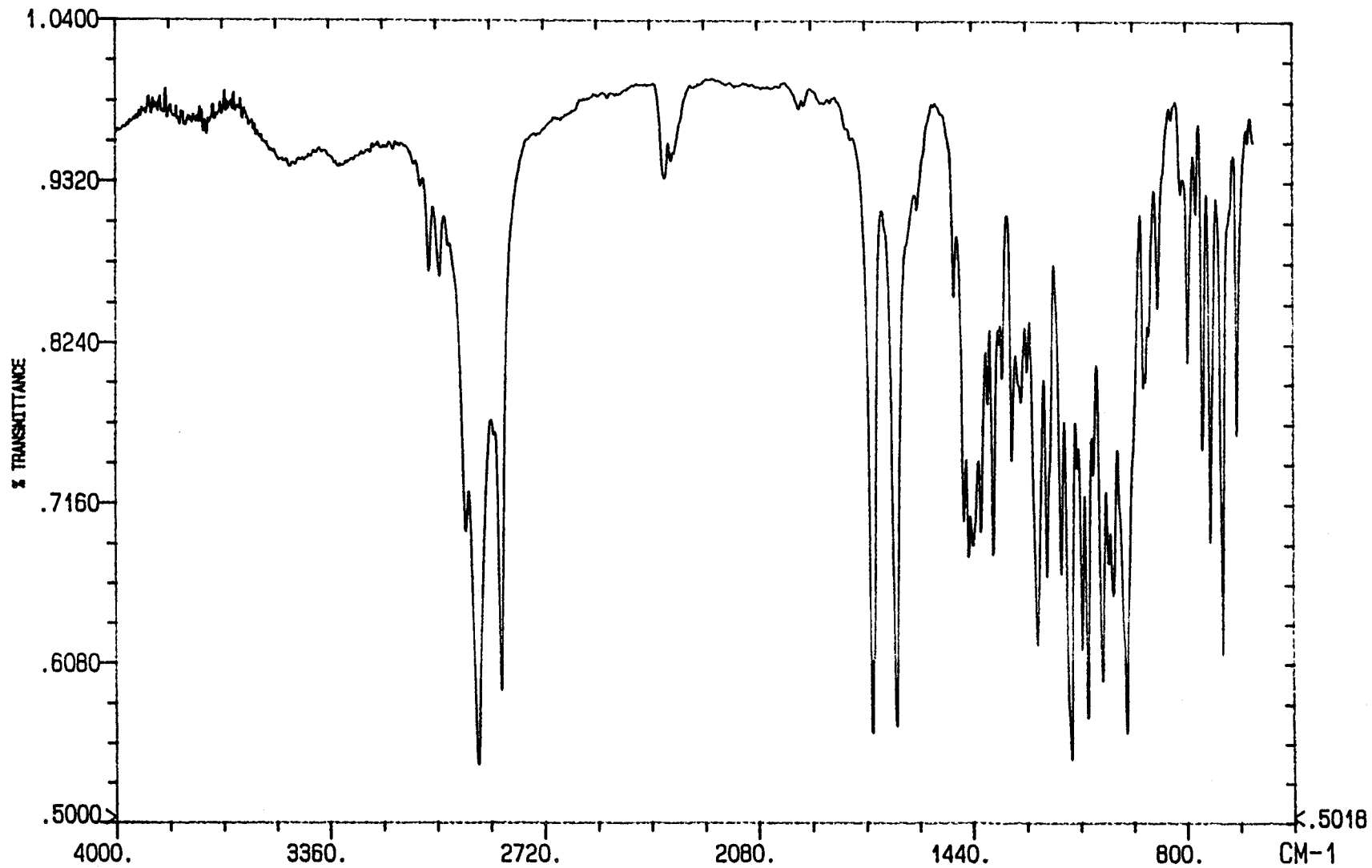
Espectro IR de 2-carboxi-3-n-octanoil-(1-0-bencil-4,6-0-bencilidén-2,3-didesoxi- α -
-D-glucopirán)-|2,3-d|-oxazolidina (38)



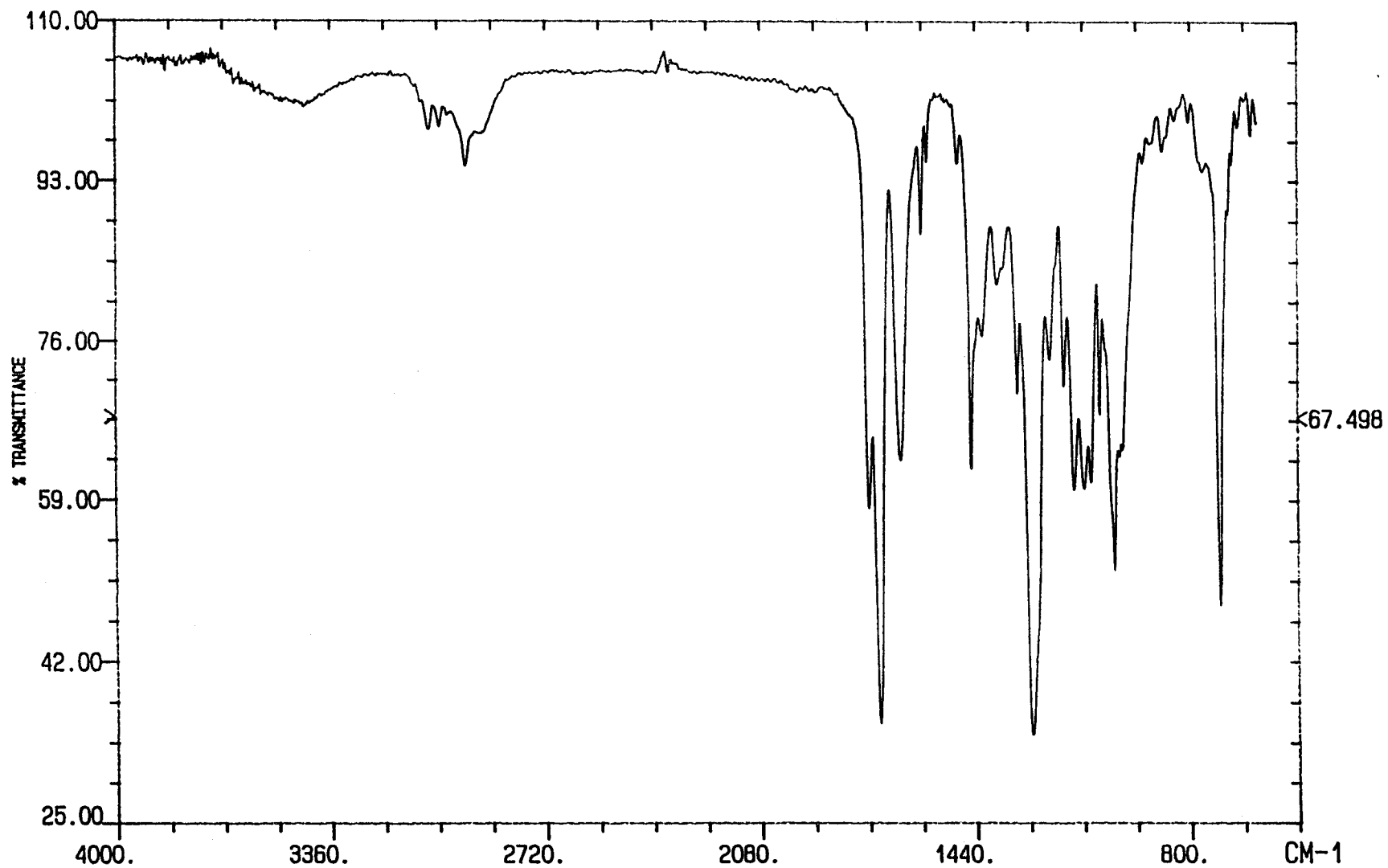
Espectro de IR de 3-acetil-2-metoxicarbonil-(1-0-bencil-4,6-0-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (40)



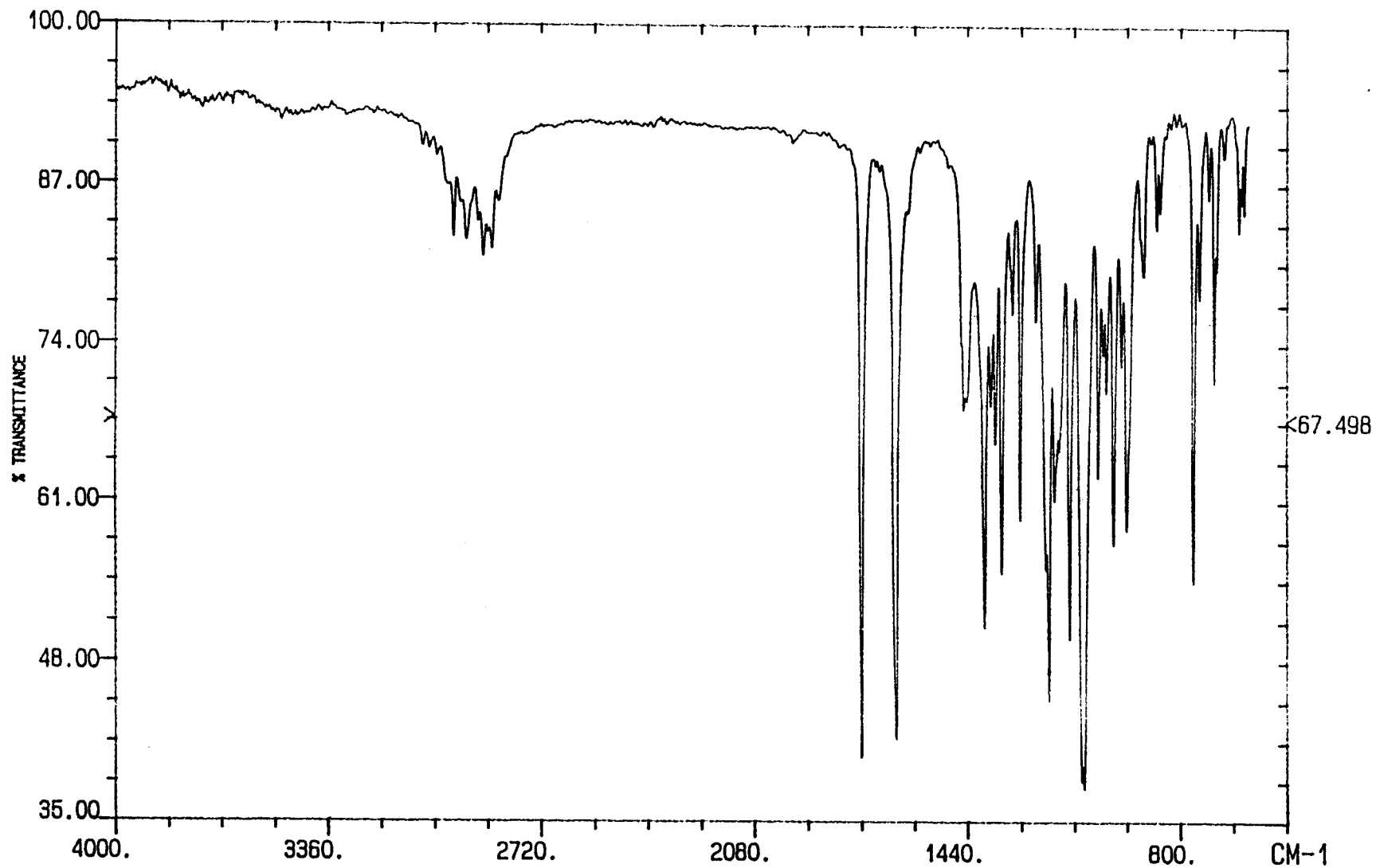
Espectro IR de 2-metoxicarbonil-3-n-octanoil-(1-0-bencil-4,6-0-bencilidén-2,3-di-desoxi- α -D-glucopirán)-|2,3-d|-oxazolidina (41)



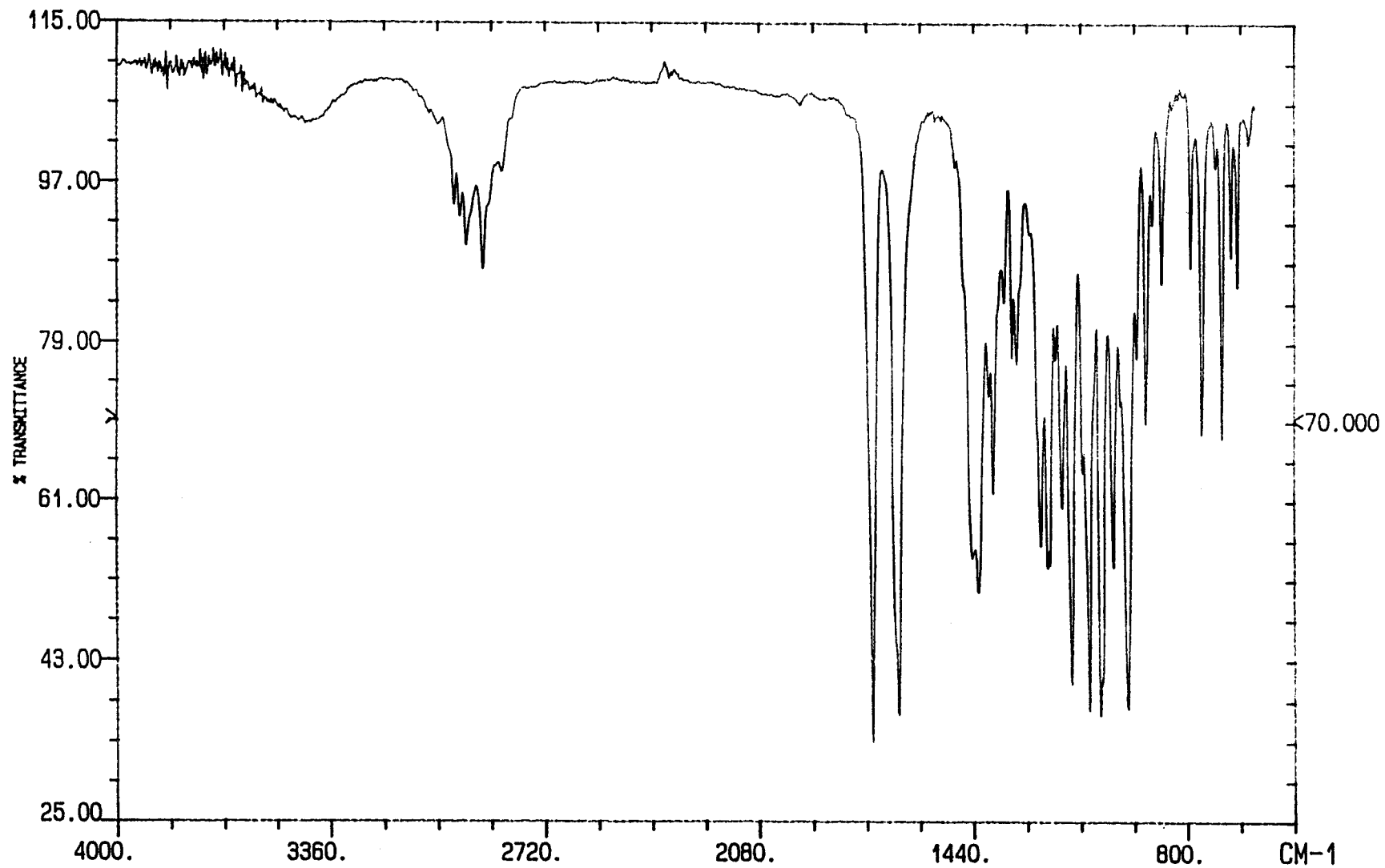
Espectro IR de 2-metoxicarbonil-3-palmitoil-(1-0-bencil-4,6-0-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidina (42)



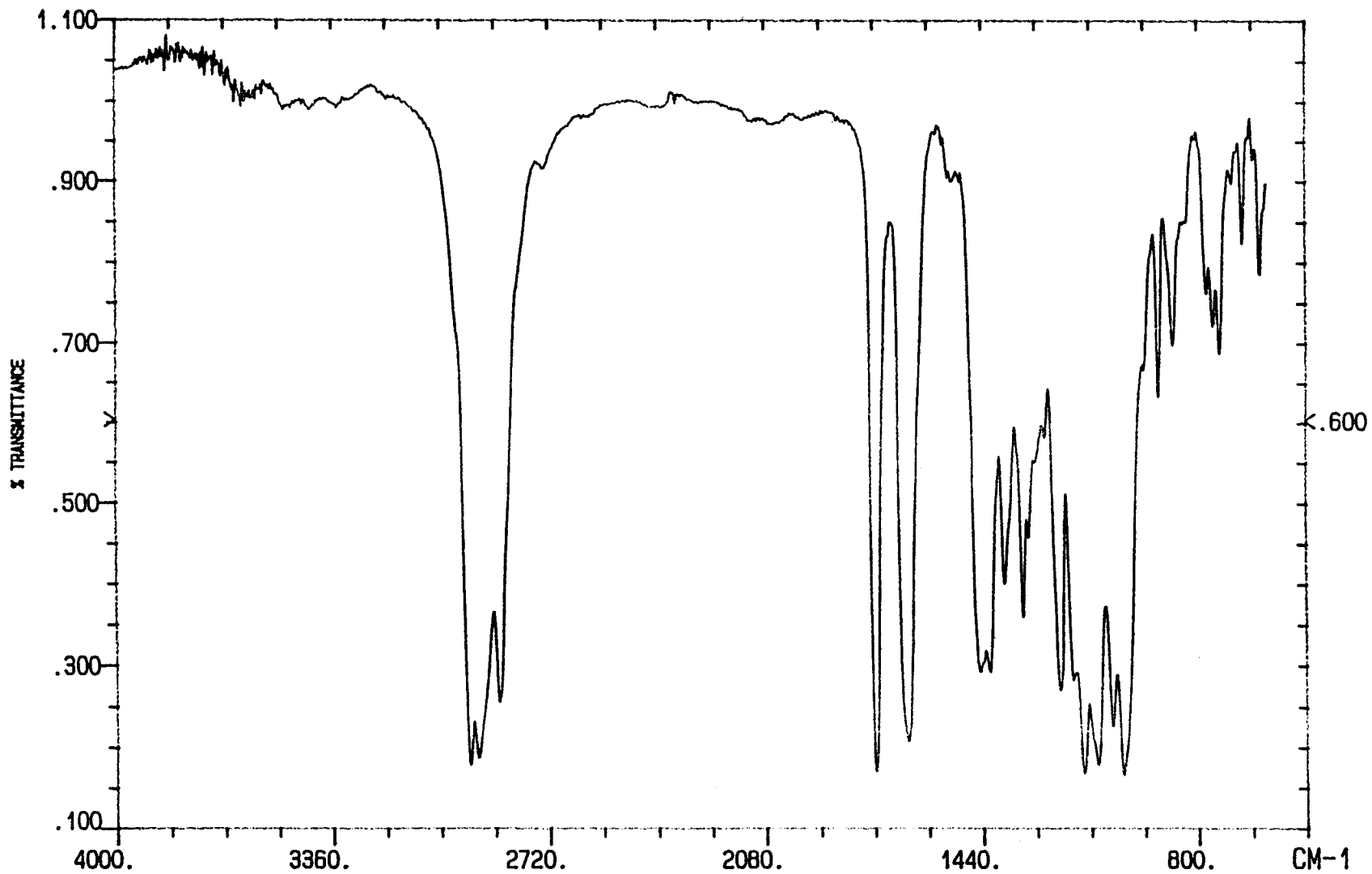
Espectro IR de 3-acetil-2-metoxicarbonil-(1-O-bencil-4,6-di-O-benzoil-2,3-dideso-
xi- α -D-glucopirán)-[2,3-d]-oxazolidina (57)



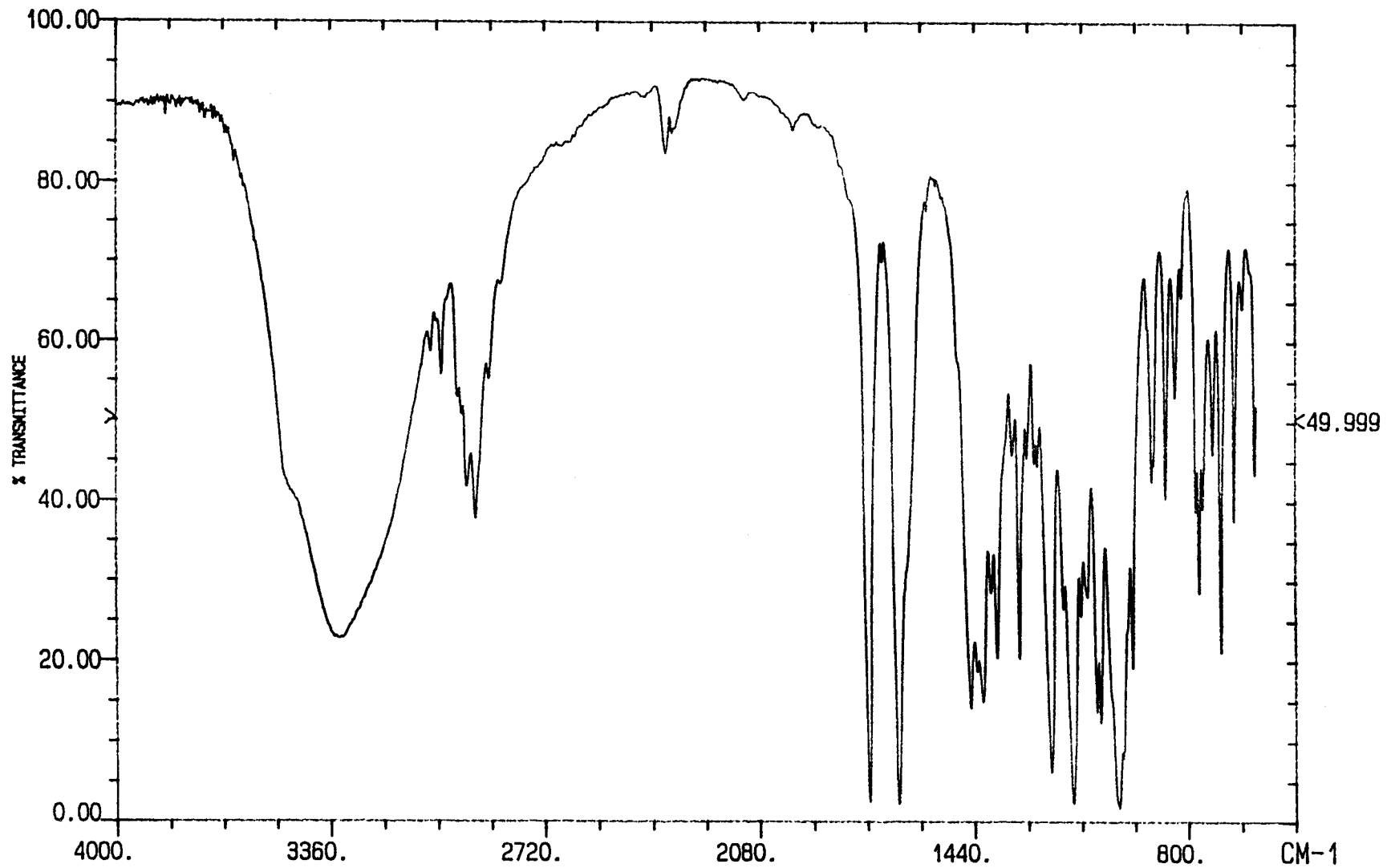
Espectro IR de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil-
-β-D-glucopirán)-|2,3-d|-oxazolidina (69)



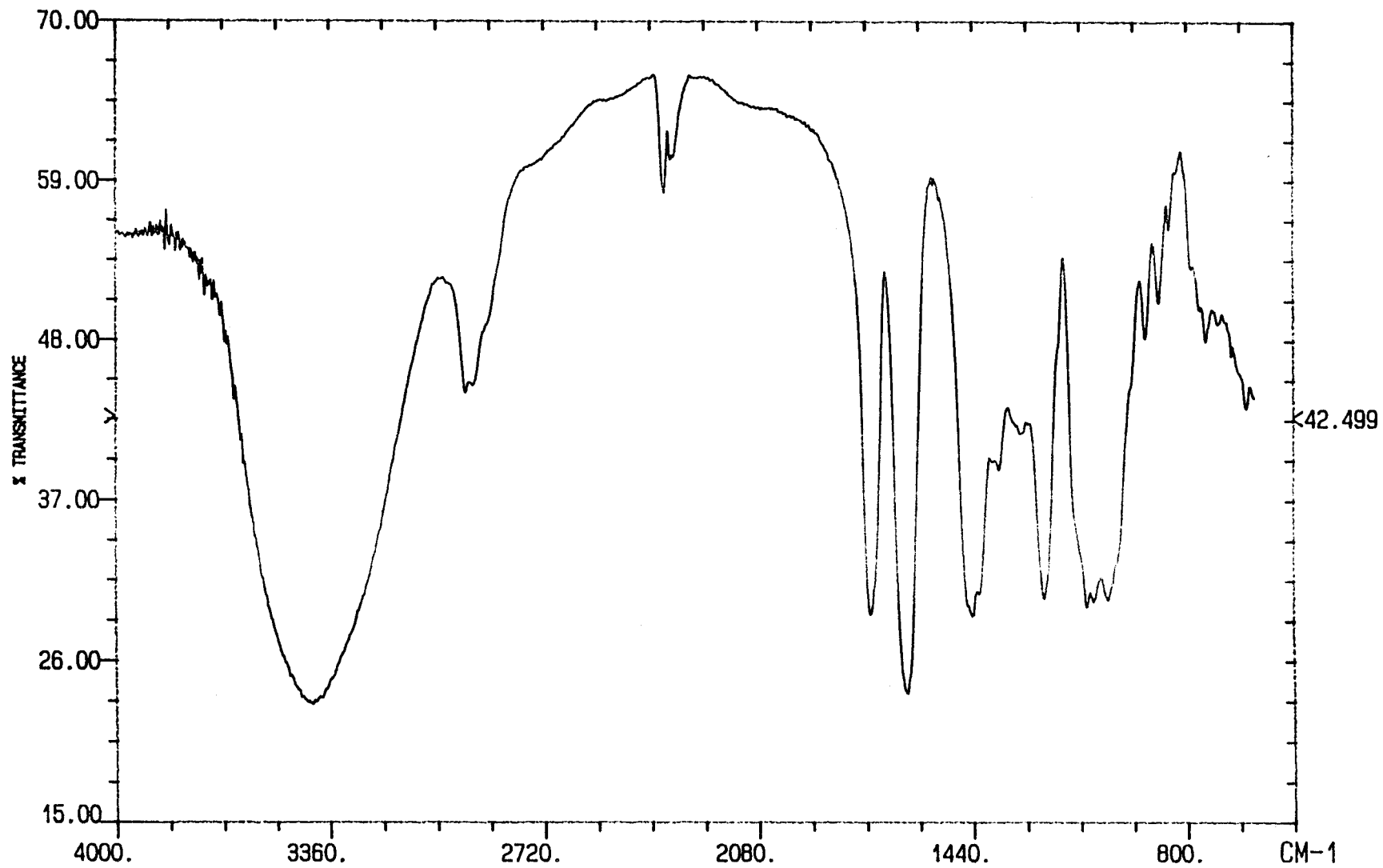
Espectro IR de 3-acetil-2-metoxicarbonil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil- α -D-glucopirán)-|2,3-d|-oxazolidina (81)



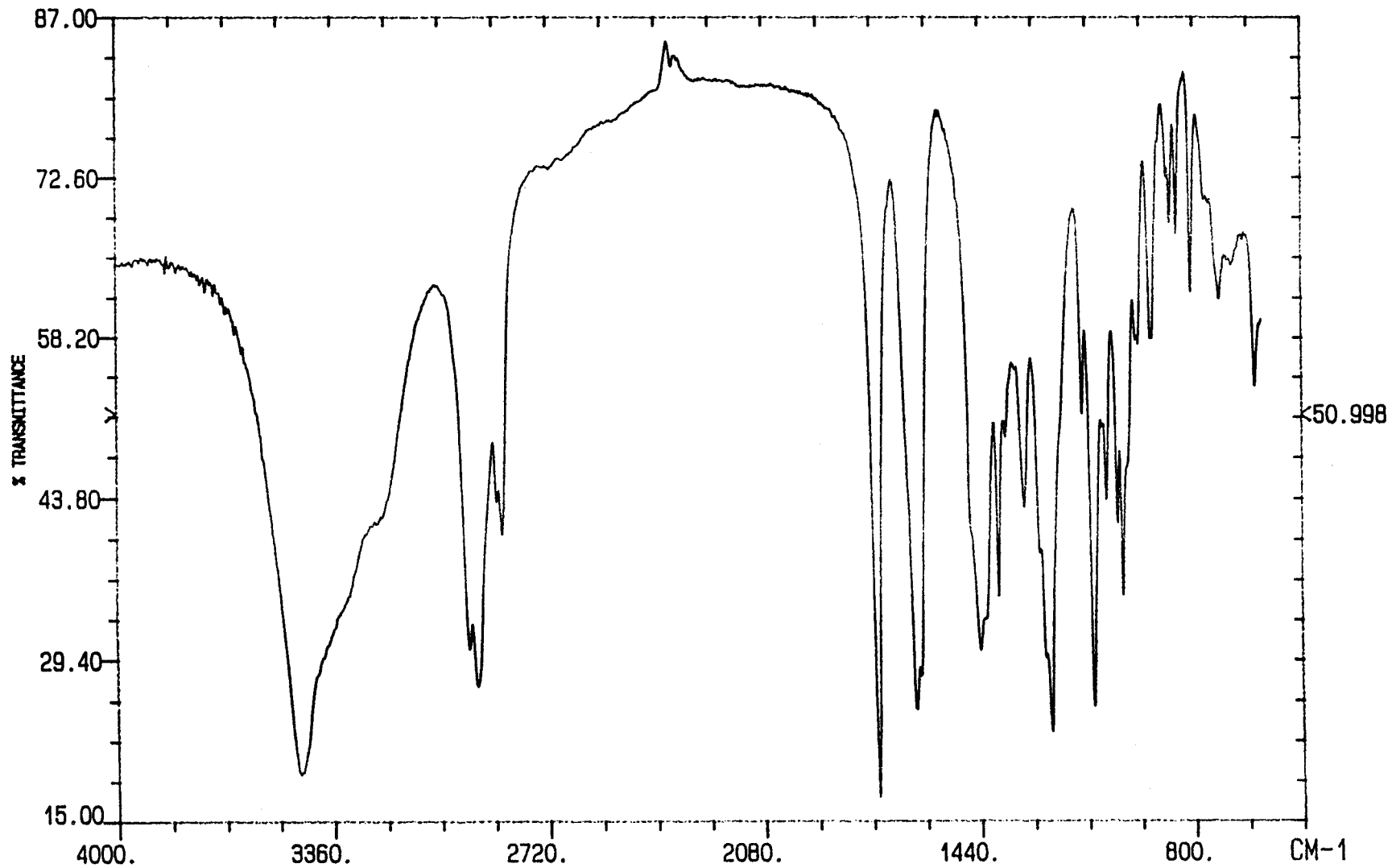
Espectro IR de 3-acetil-2-metoxicarbonil-(4,6-di-0-n-butil-2,3-didesoxi-1-0-metil- α -D-glucopirán)-|2,3-d|-oxazolidina (78)



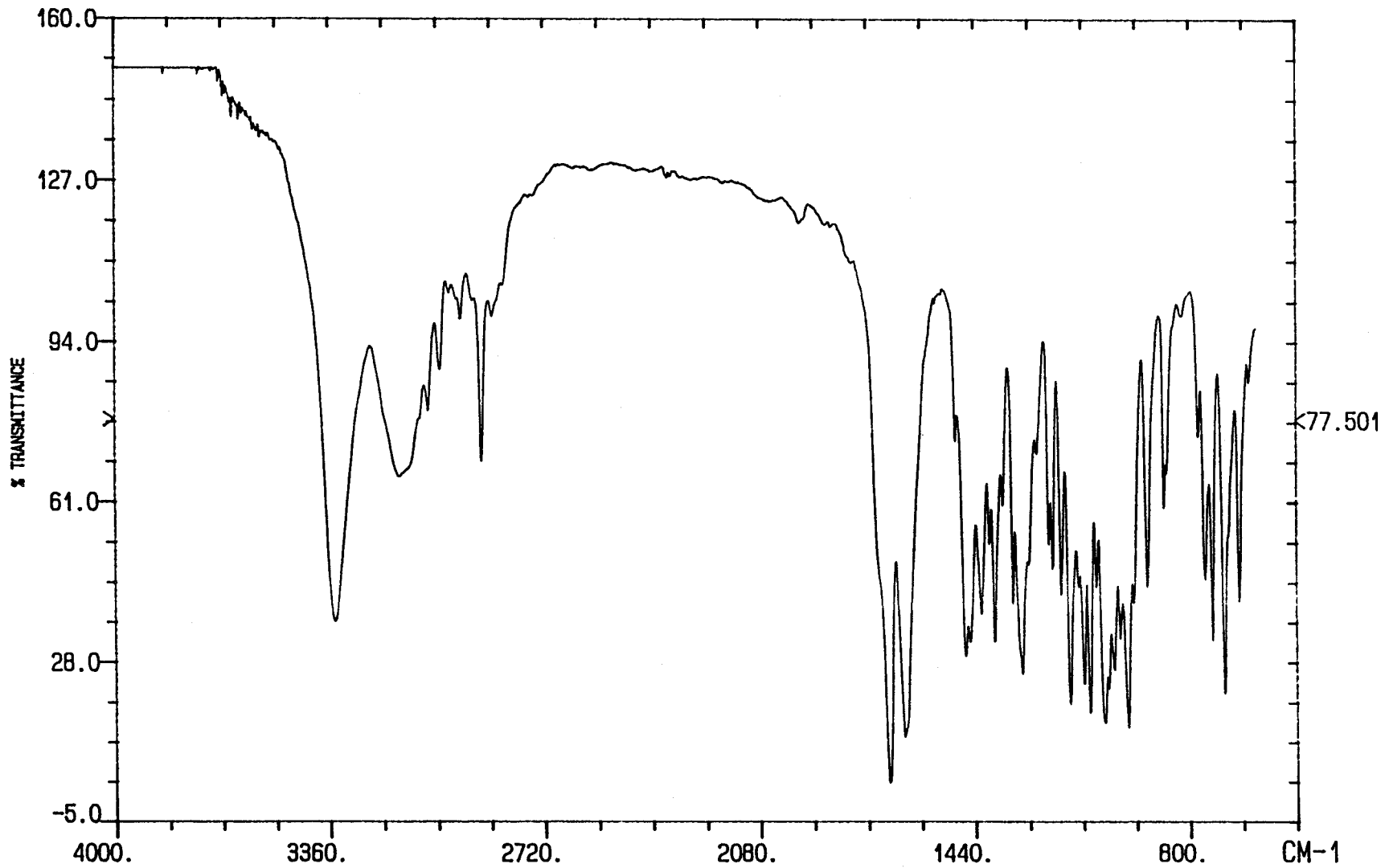
Espectro IR de 3-acetil-2-metoxicarbonil-(1-0-bencil-2,3-didesoxi- α -D-glucopirán-
-[2,3-d]-oxazolidina (55)



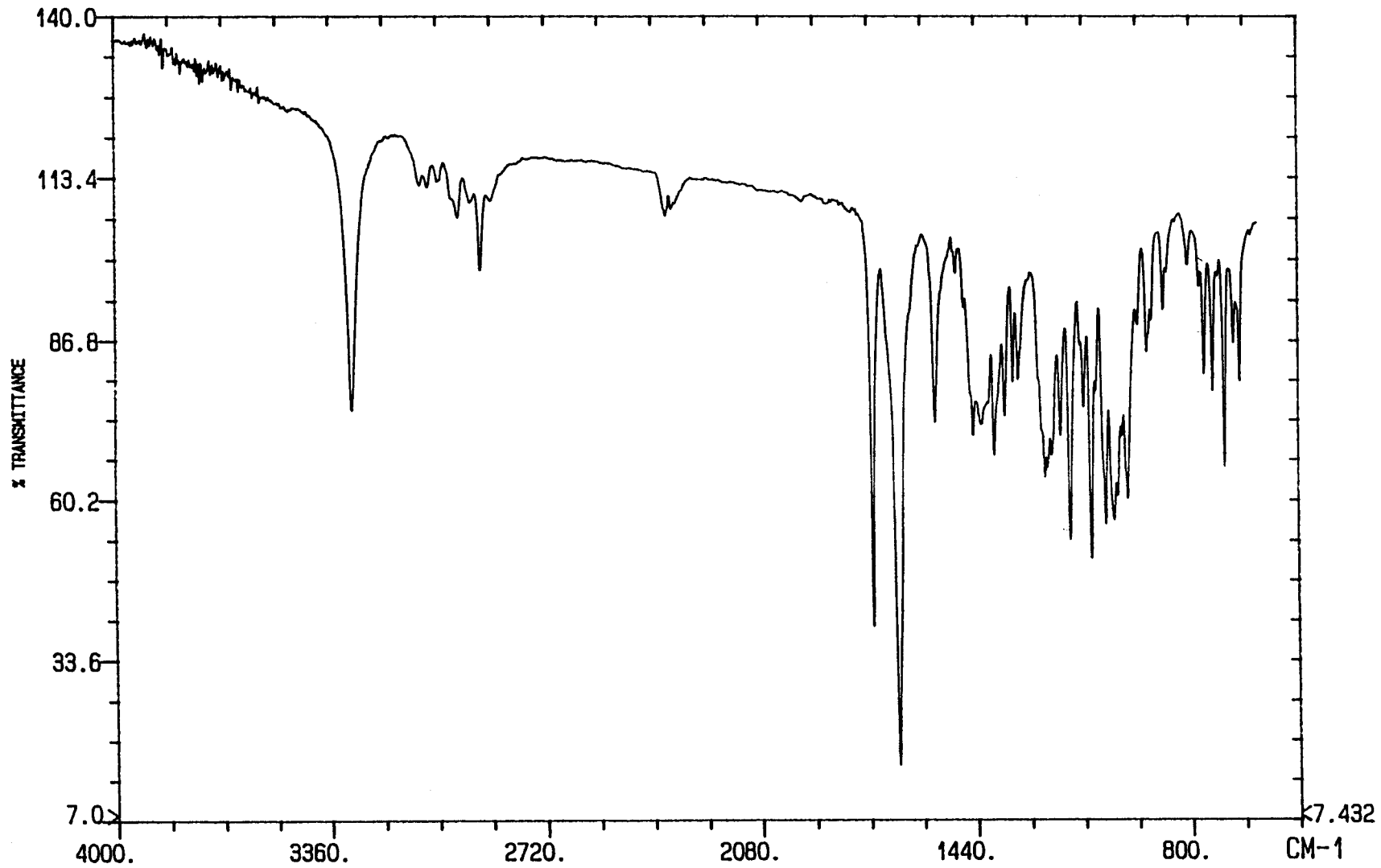
Espectro IR de 3-acetil-2-metoxicarbonil-(2,3-didesoxi-D-glucopirán)-|2,3-d|-oxa-
zolidina (58)



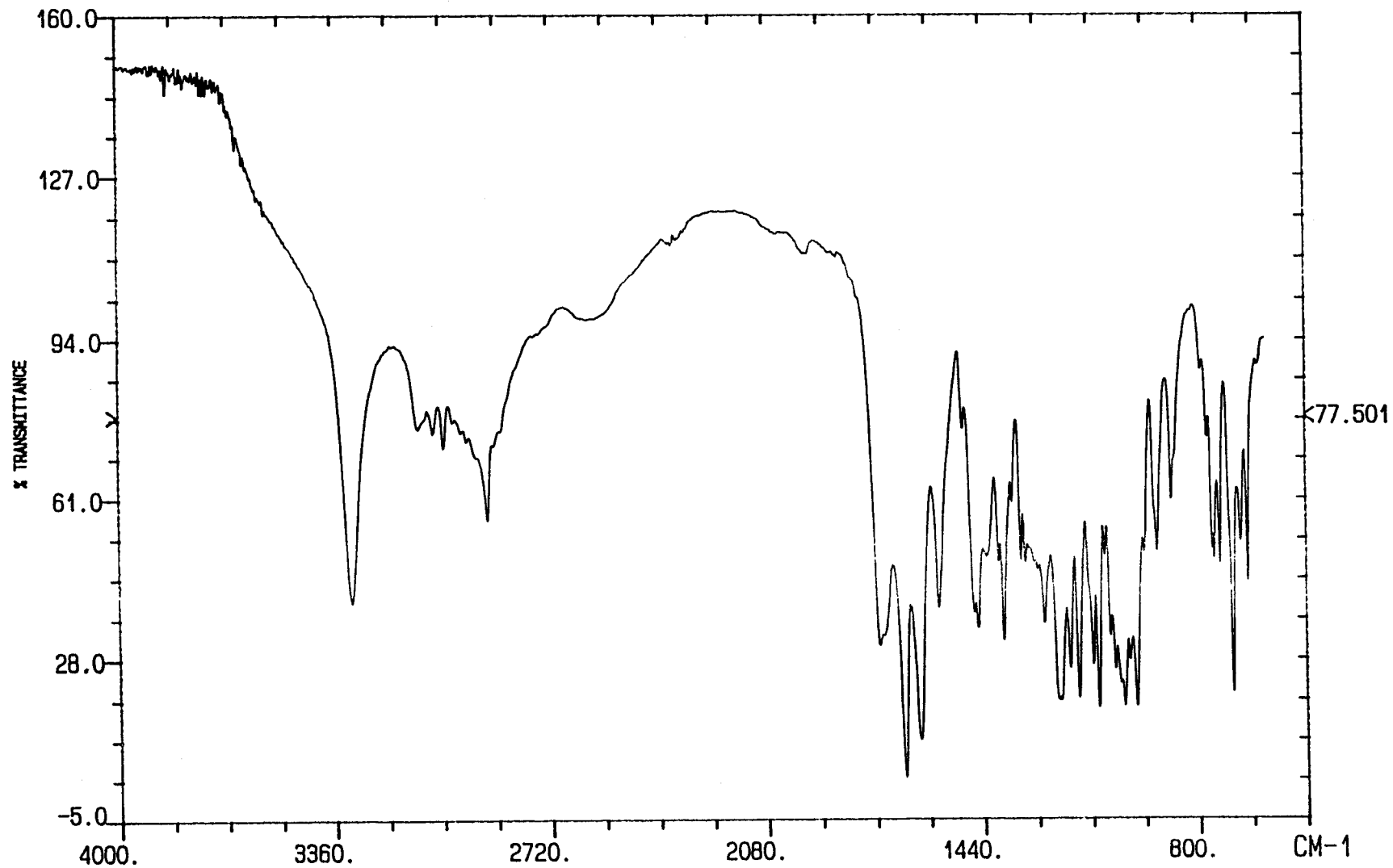
Espectro IR de 2-metoxicarbonil-3-n-octanoil-(2,3-didesoxi-D-glucopirán)-|2,3-d|-
-oxazolidina (59)



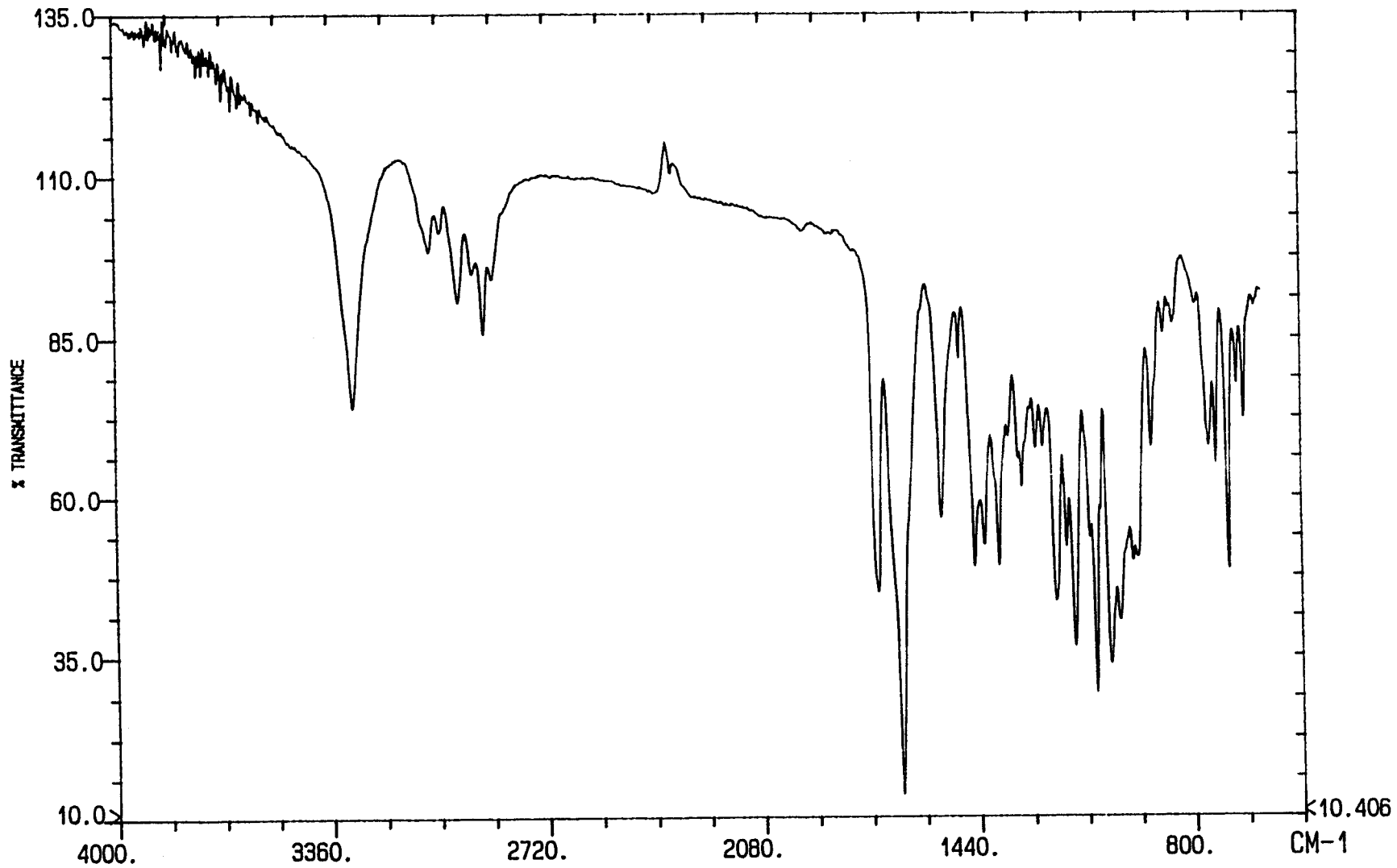
Espectro IR de 3-acetil-2-carboxamido-(1-0-bencil-4,6-0-bencilidén-2,3-didesoxi- α -
-D-glucopirán)-[2,3-d]-oxazolidina (43)



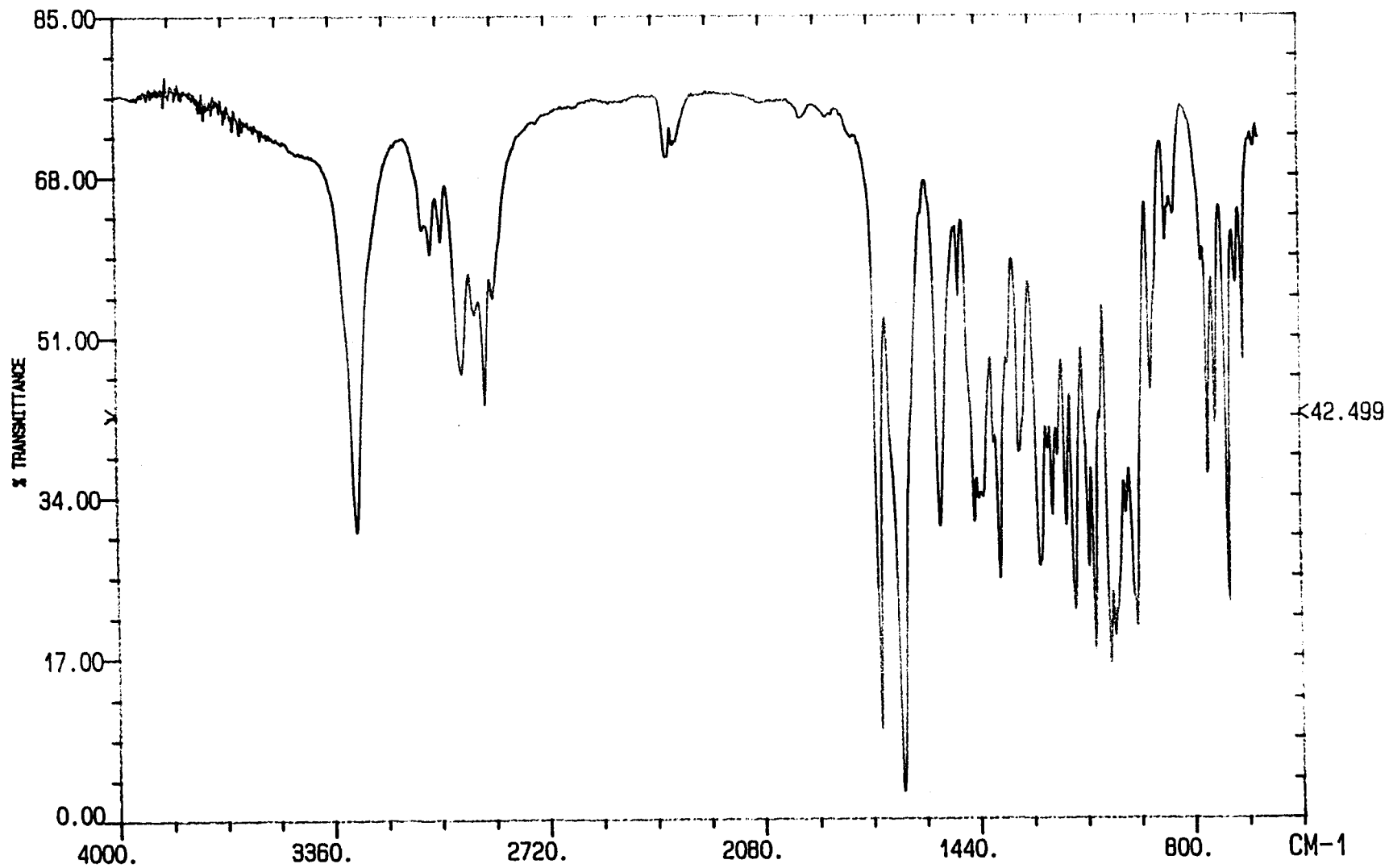
Espectro IR del éster etílico de 3-acetil-(1-0-bencil-4,6-0-bencilidén-2,3-dideso-
xi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonilglicina (44)



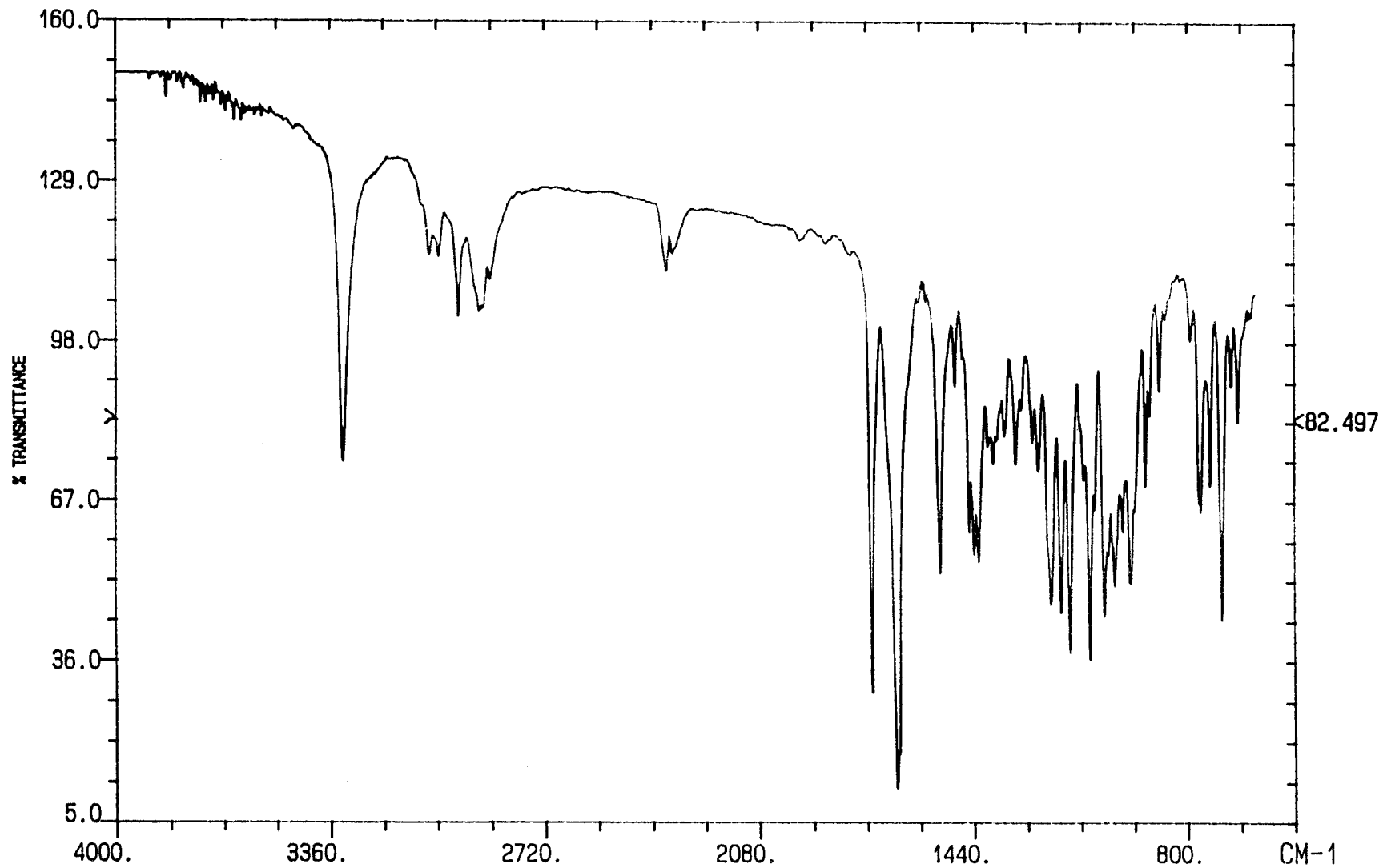
Espectro IR de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-
-|2,3-d|-oxazolidín-2-carbonilglicina (50)



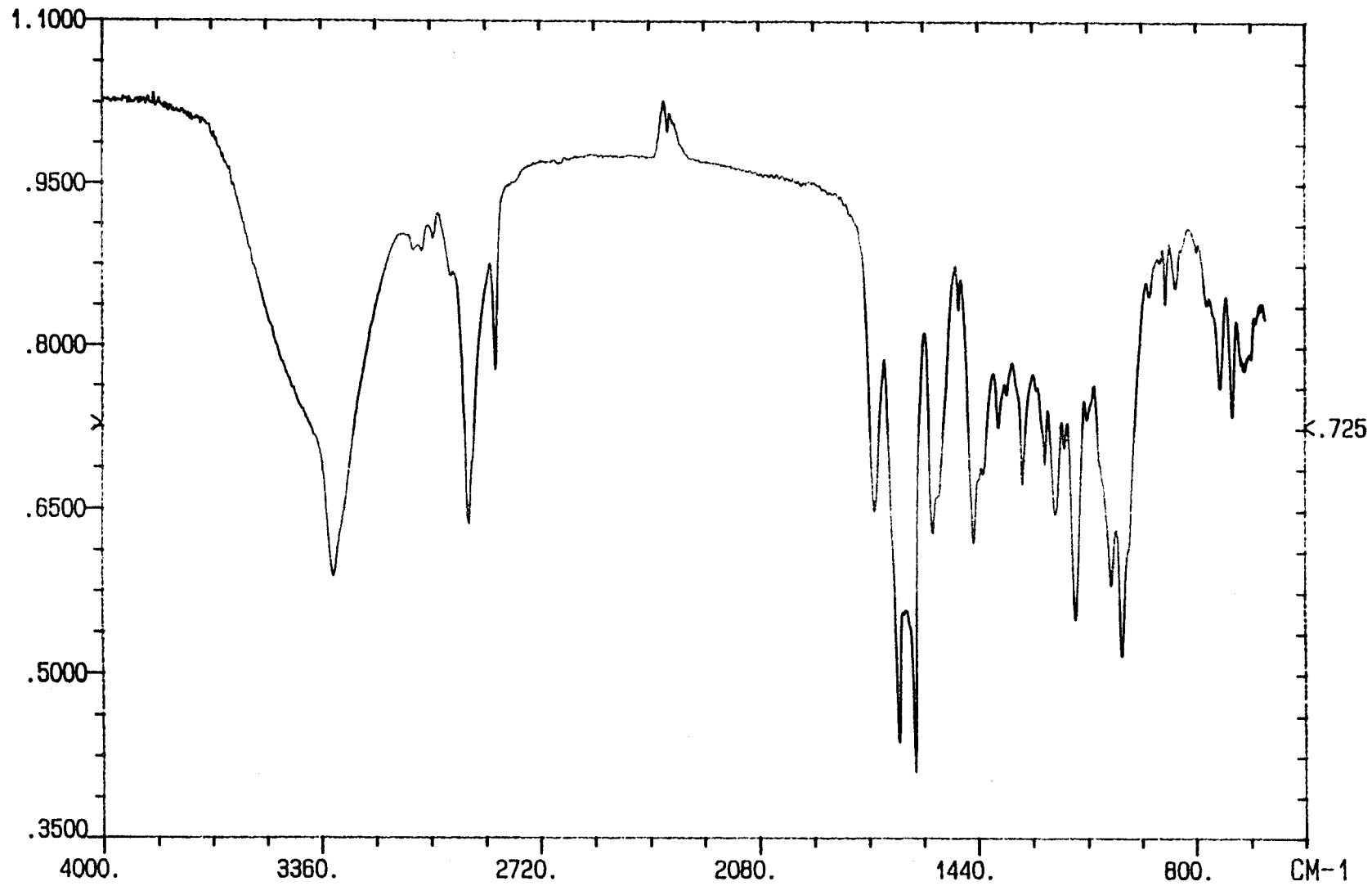
Espectro IR del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-dideso-
xi- α -D-glucopirán)-|2,3-d|-oxazolín-2-carbonil-L-alanina (45)



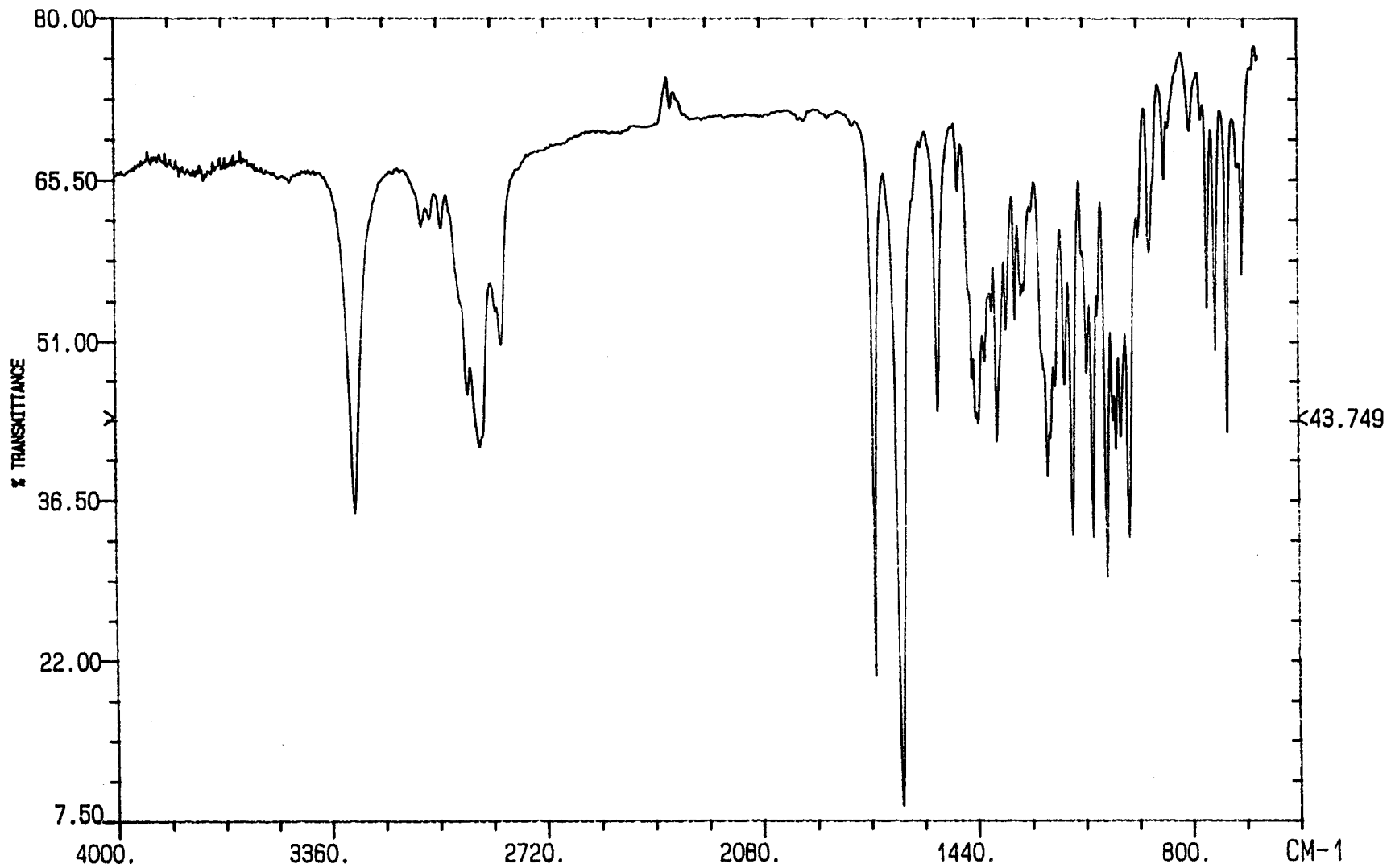
Espectro IR del éster etílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-dideso-
xi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-valina (46)



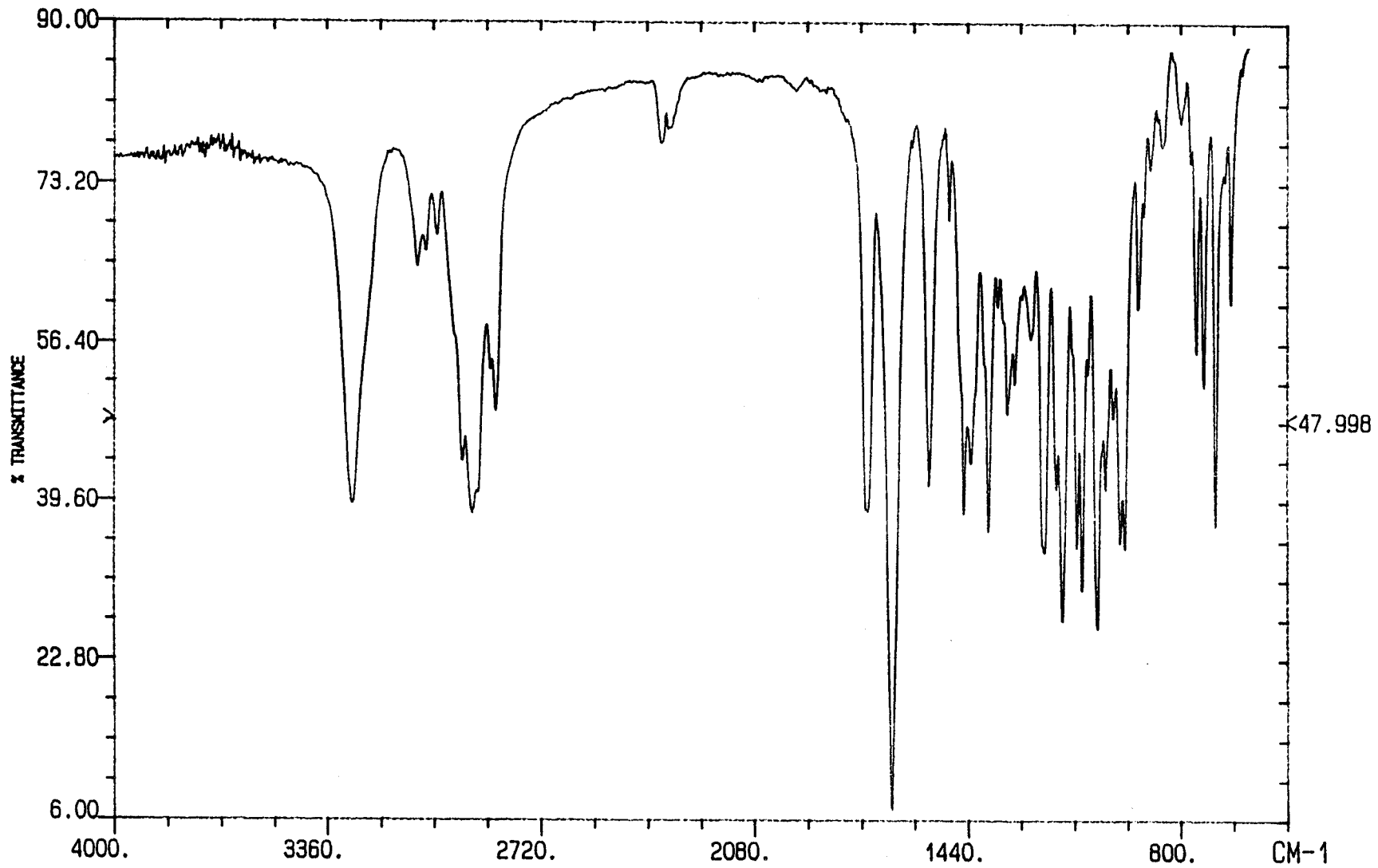
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xi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-fenilalanina (47)



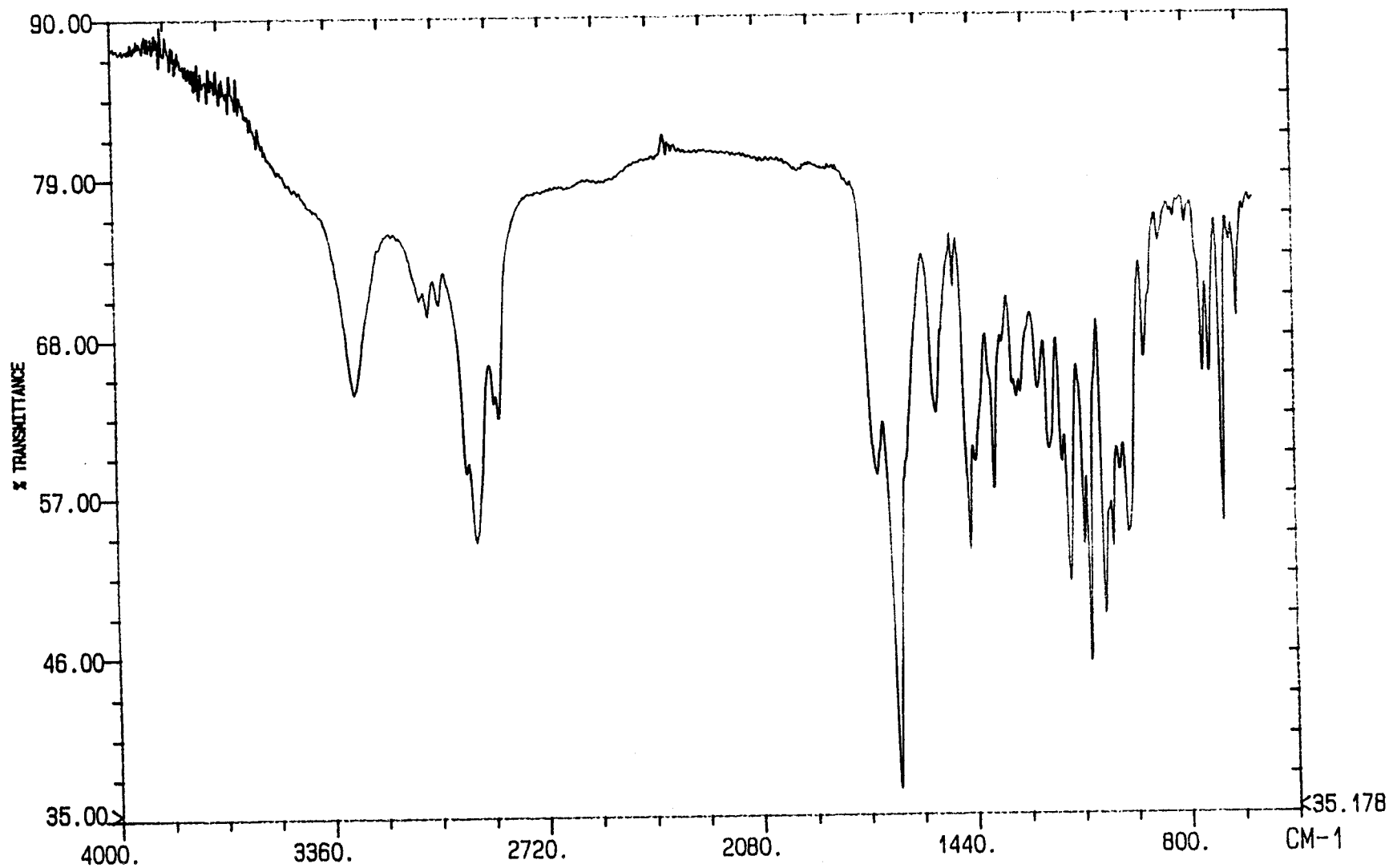
Espectro IR del éster etílico de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-
-|2,3-d|-oxazolidín-2-carbonil-L-alanina (60)



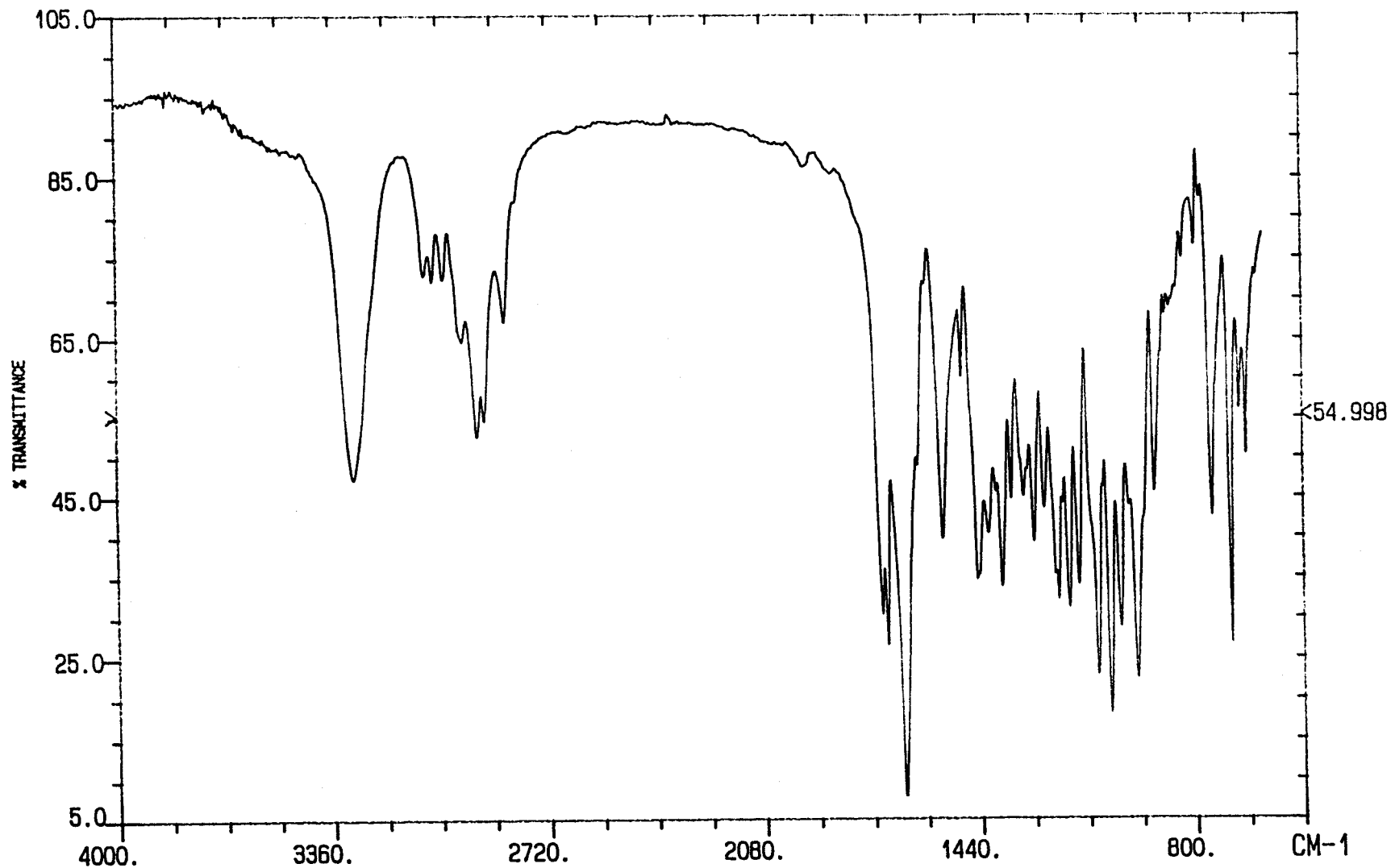
Espectro IR del éster etílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-di-desoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonilglicina (48)



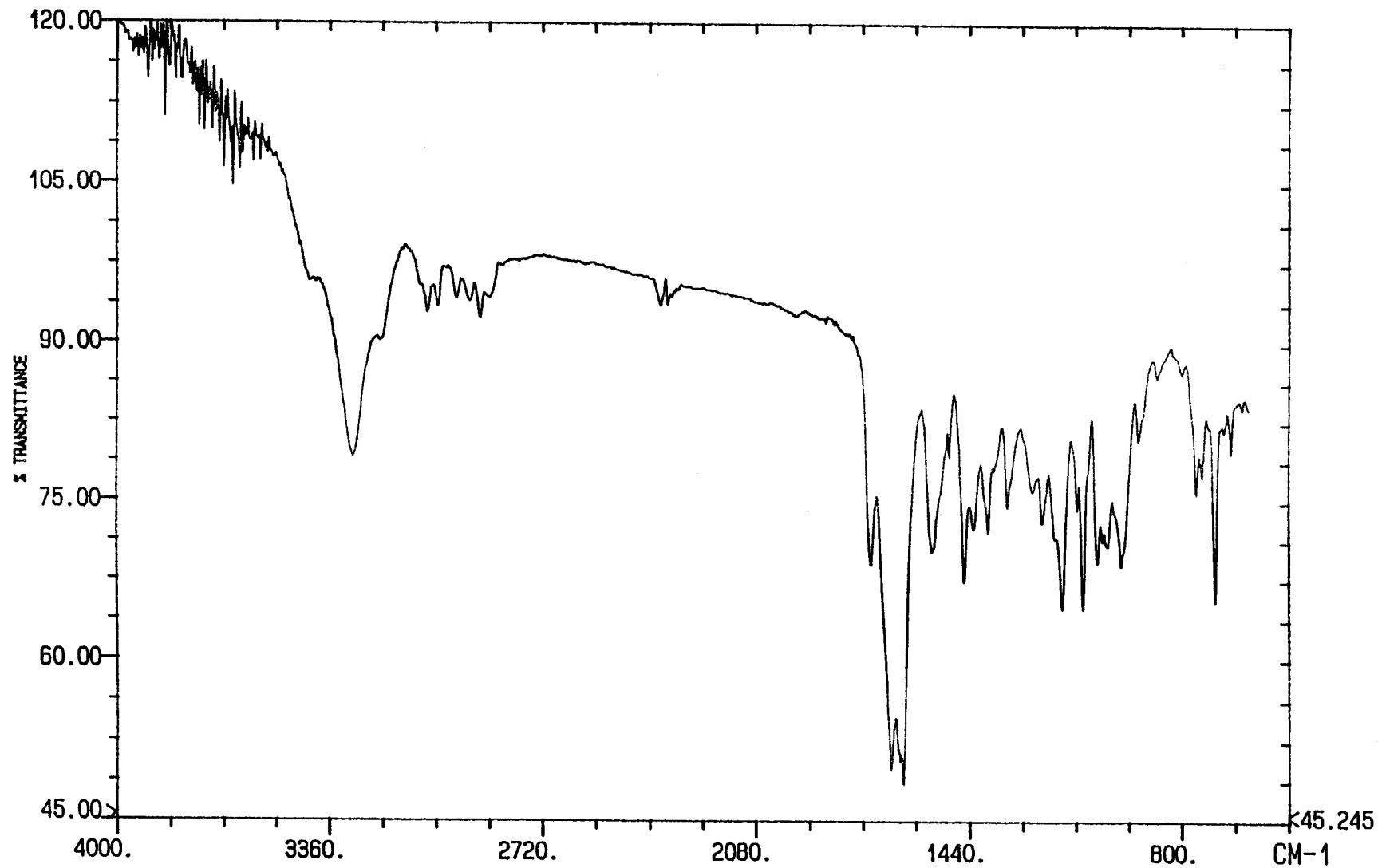
Espectro IR del éster etílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-di-desoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanina (49)



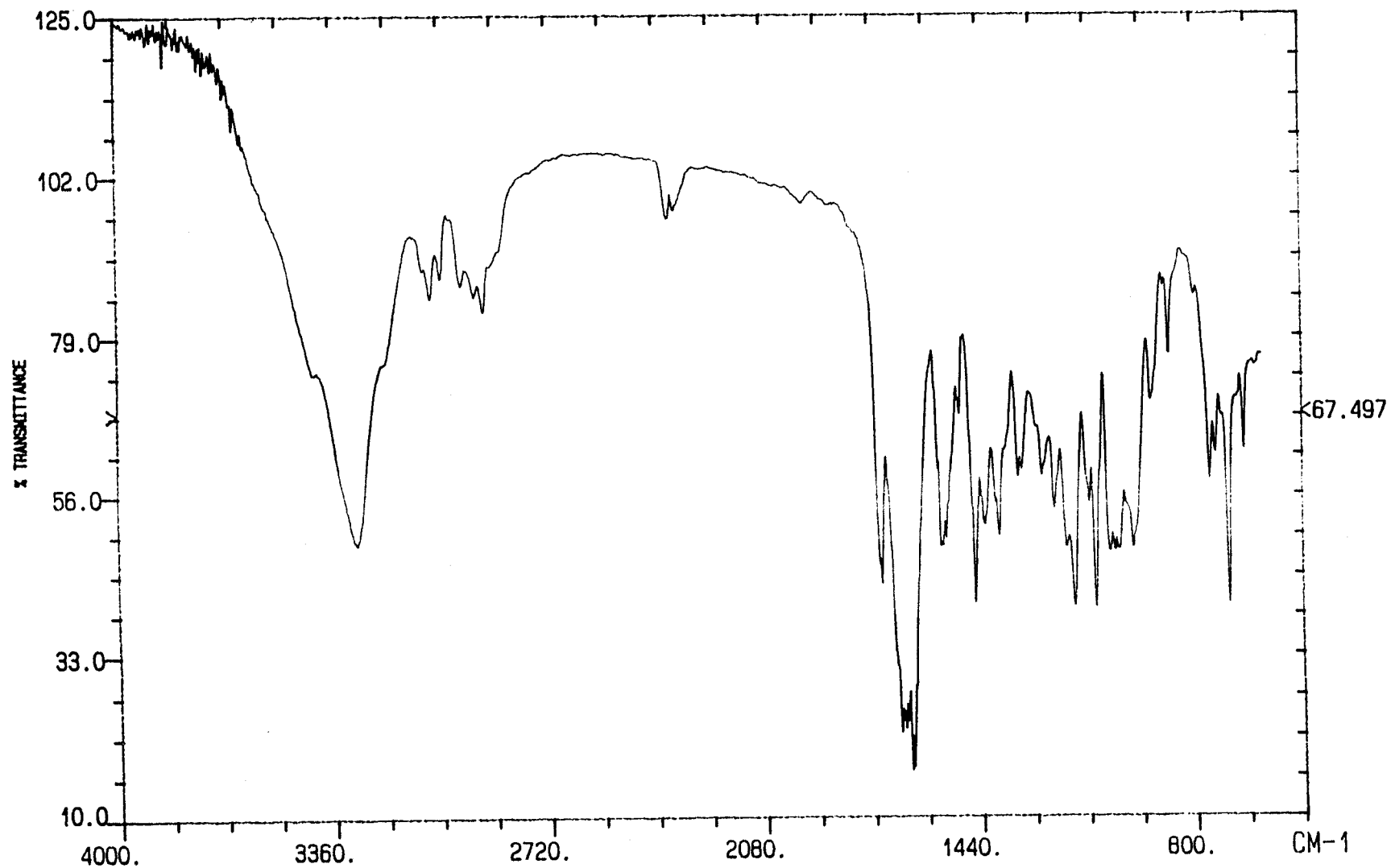
Espectro IR de 3-n-ocatanoil-(1-0-bencil-4,6-0-bencilidén-2,3-didesoxi- α -D-gluco-
pirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanina (51)



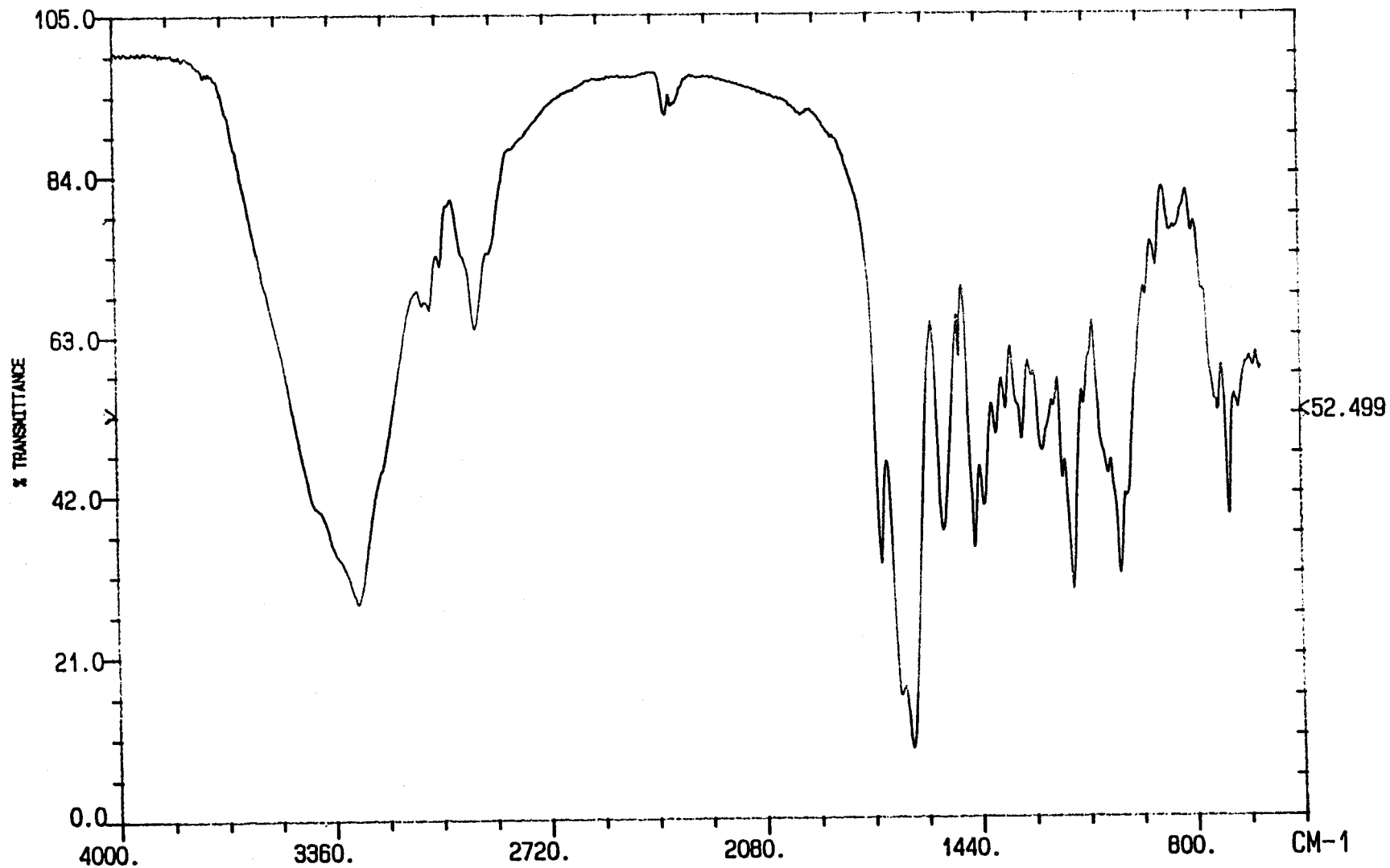
Espectro IR del éster etílico de 3-acetil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-fenilalanina (82)



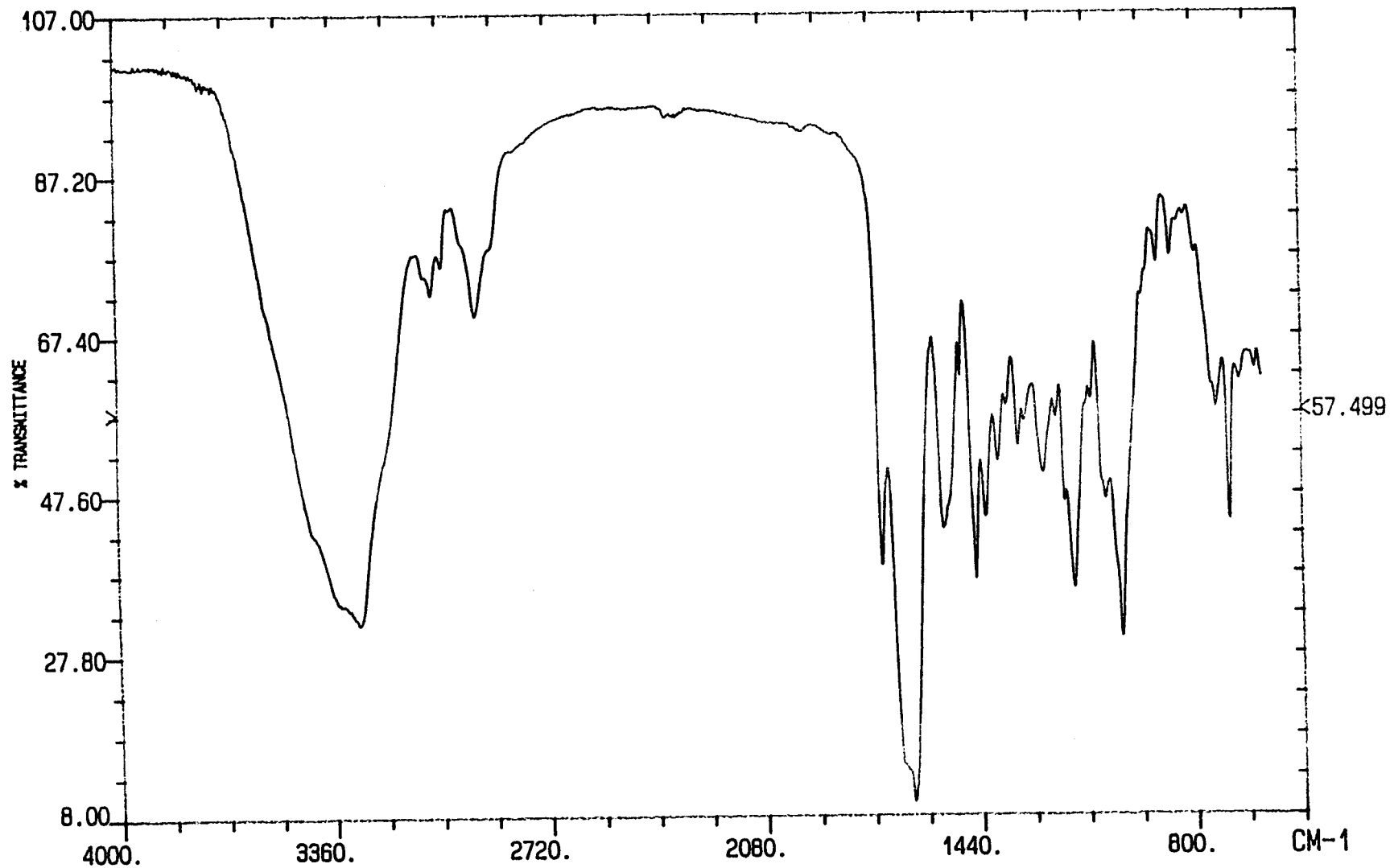
Espectro IR del éster bencílico de 3-acetil-(1-0-bencil-4,6-0-bencilidén-2,3-dideoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (53)



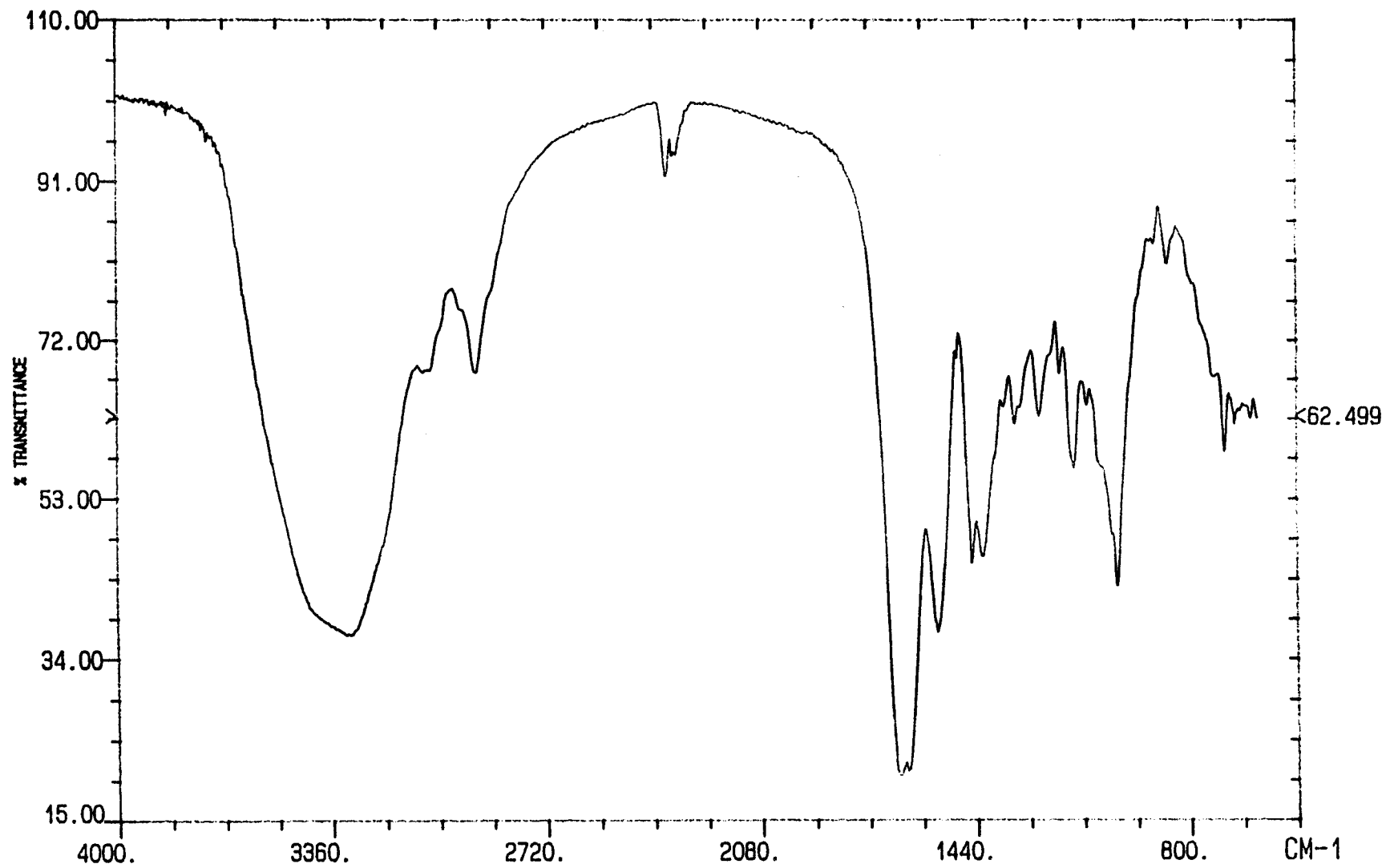
Espectro IR del éster bencílico de 3-acetil-(1-O-bencil-4,6-O-bencilidén-2,3-dideoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (52)



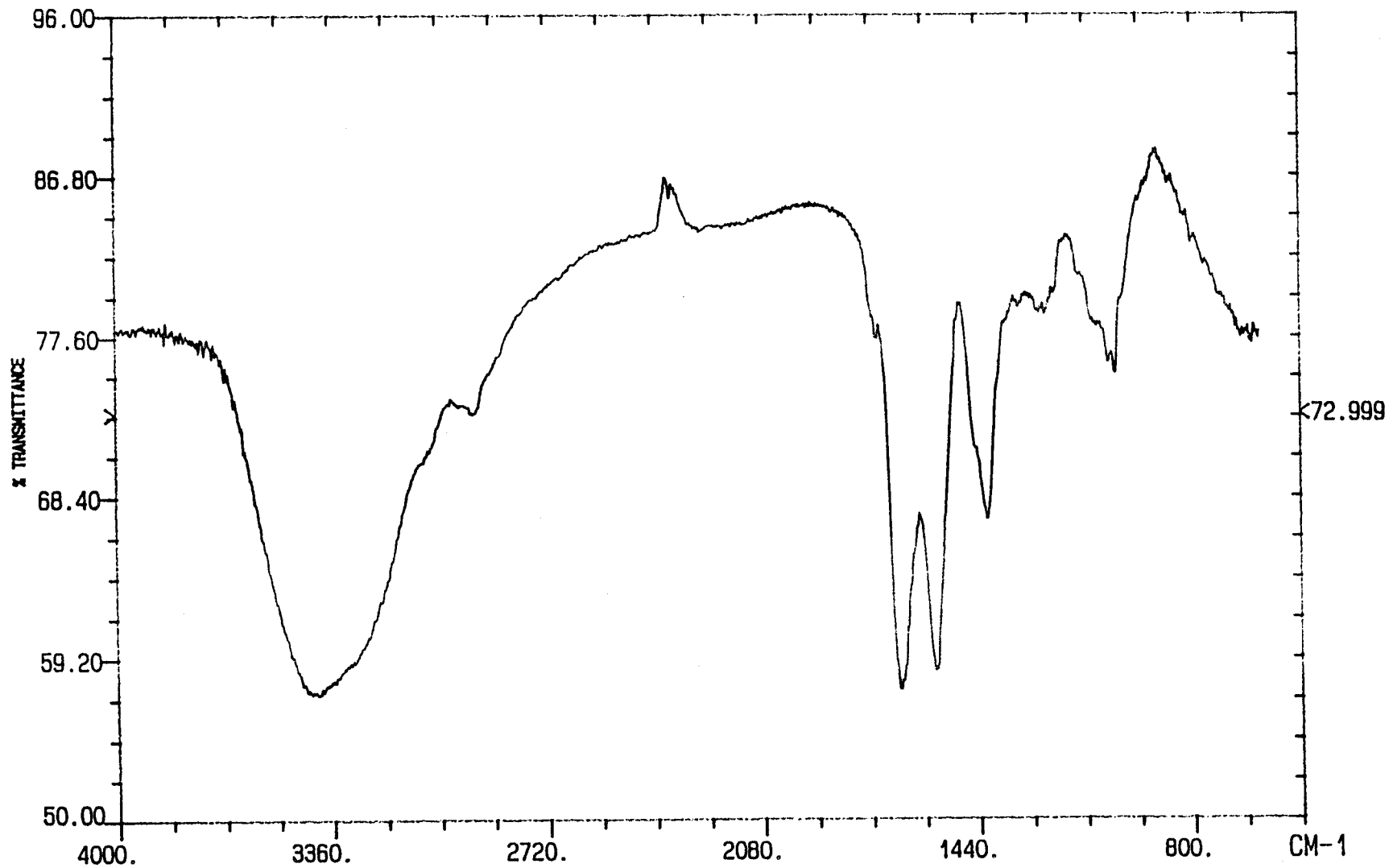
Espectro IR del éster bencílico de 3-acetil-(1-0-bencil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (61)



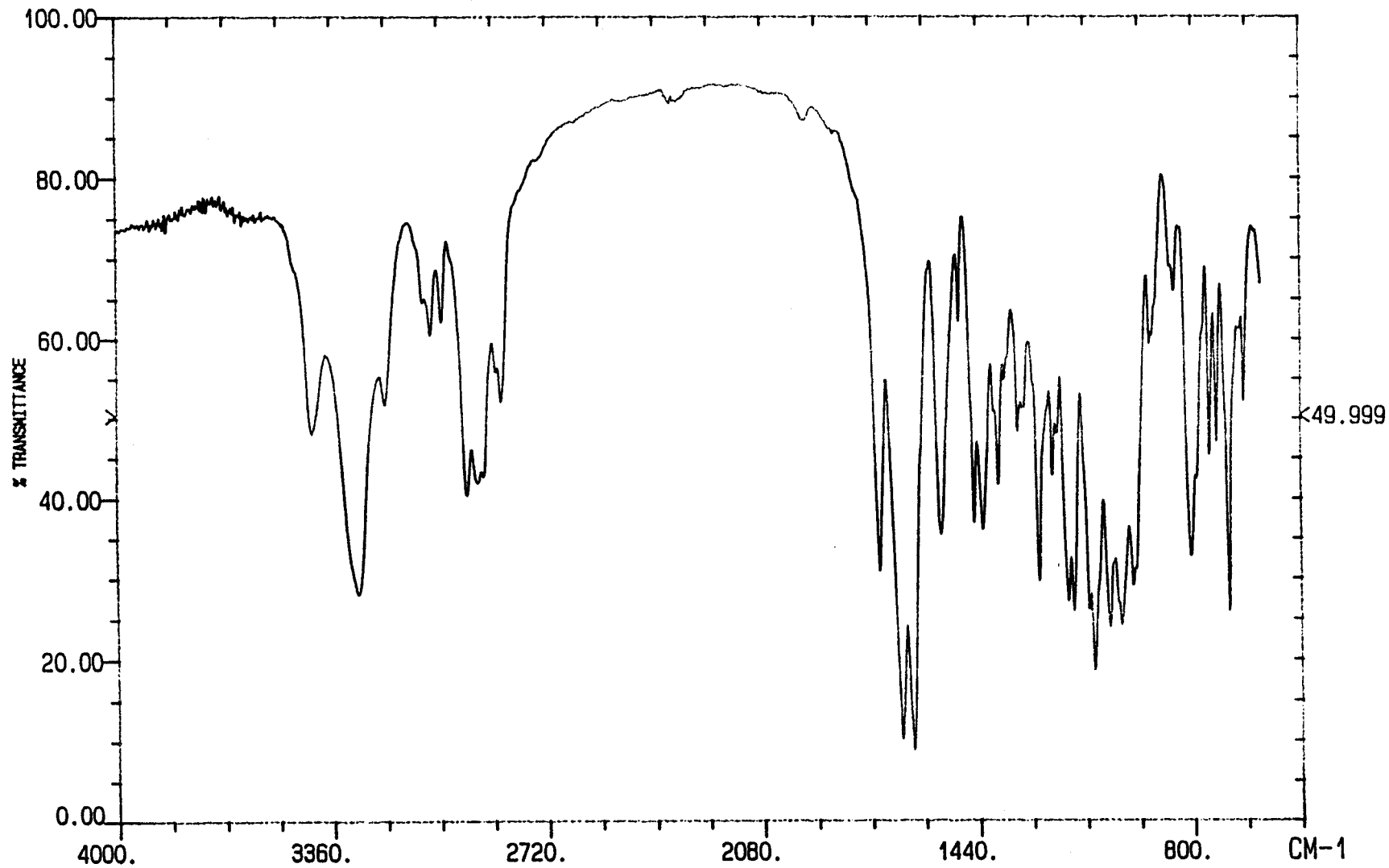
Espectro IR del éster bencílico de 3-acetil-(1-0-bencil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (62)



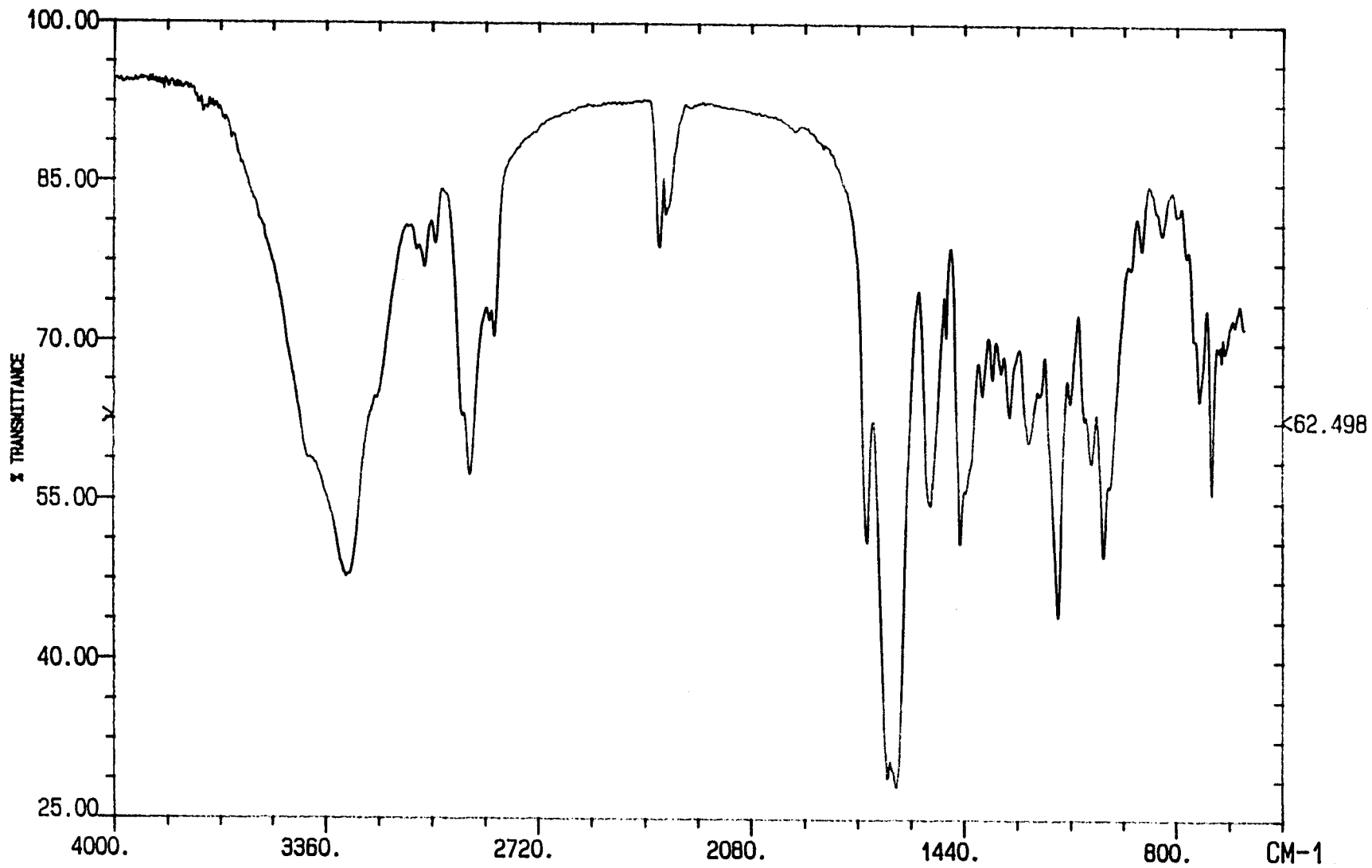
Espectro IR de 3-acetil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (65)



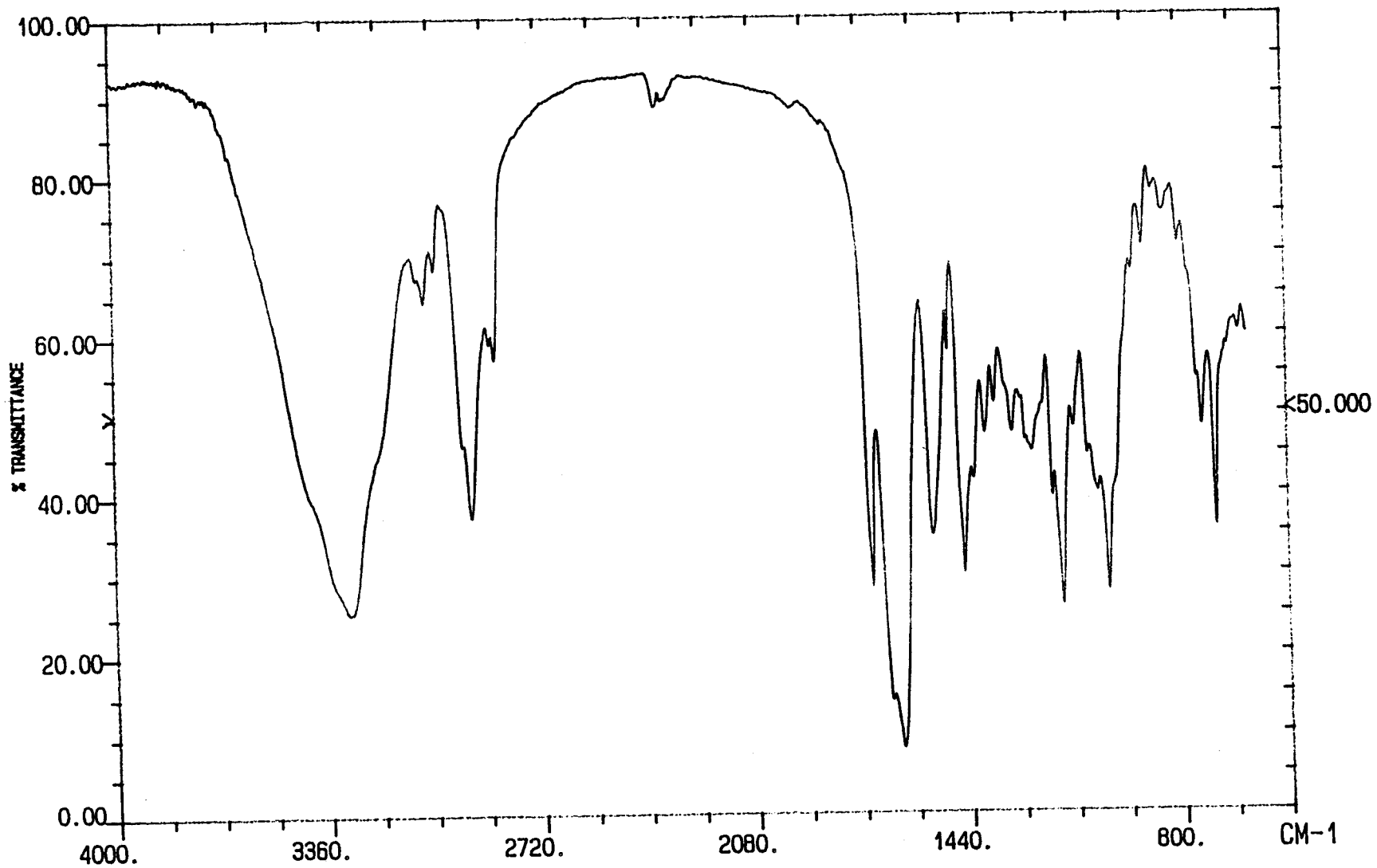
Espectro IR de 3-acetil-(2,3-didesoxi-D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (26)



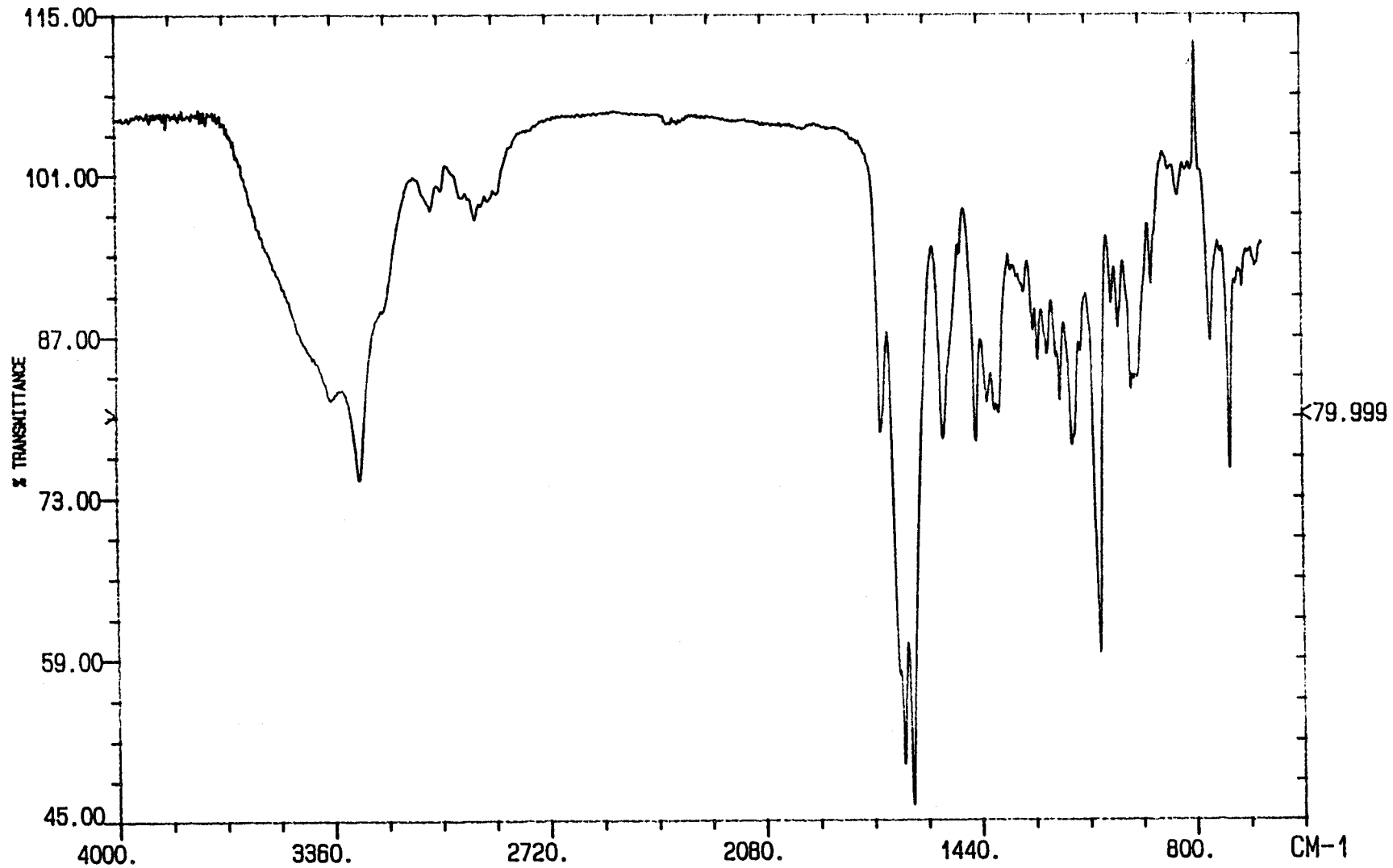
Espectro IR del éster bencílico de 3-n-octanoil-(1-O-bencil-4,6-O-bencilidén-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (54)



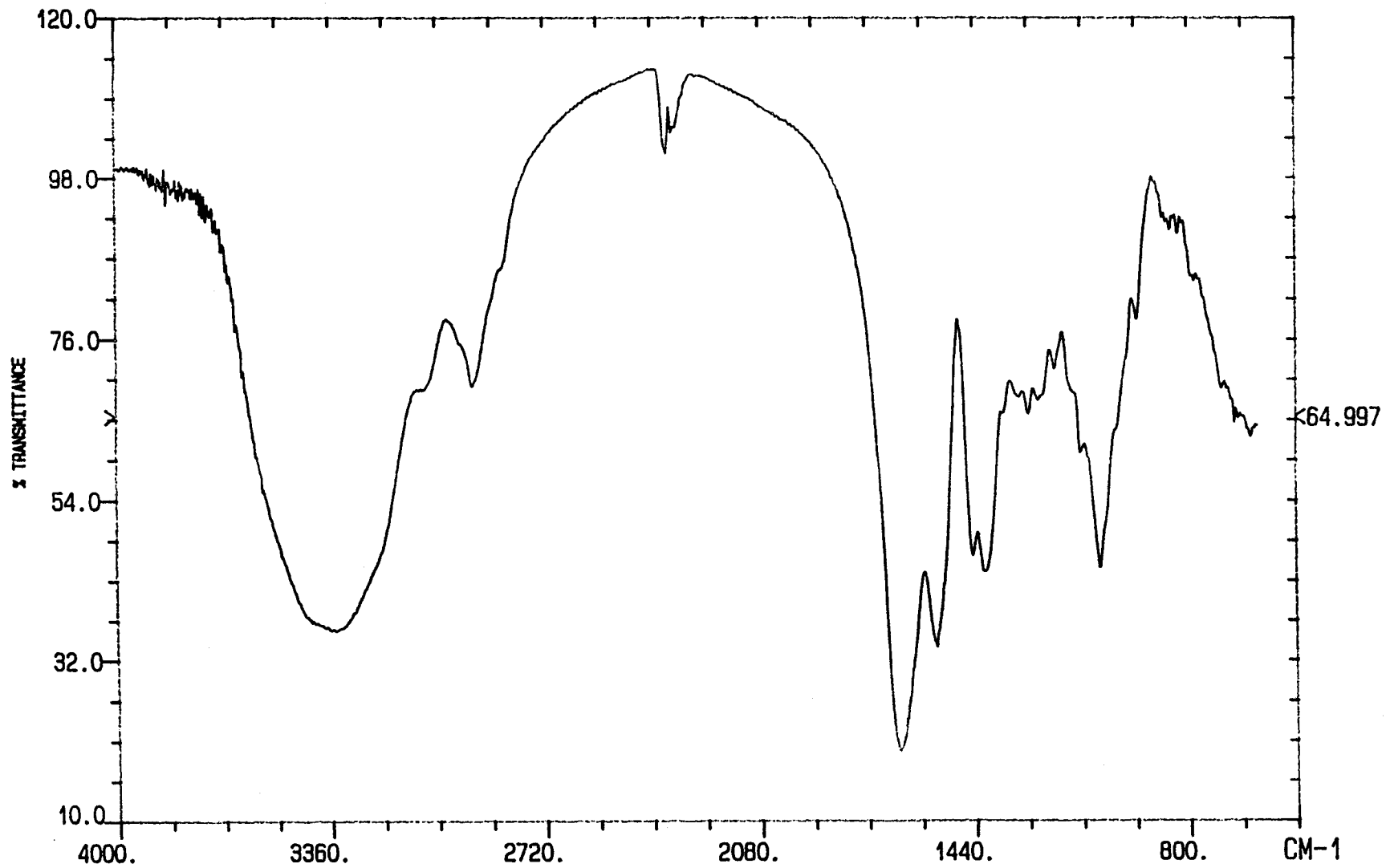
Espectro IR del éster bencílico de 3-n-octanoil-(1-O-bencil-2,3-didesoxi- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (64)



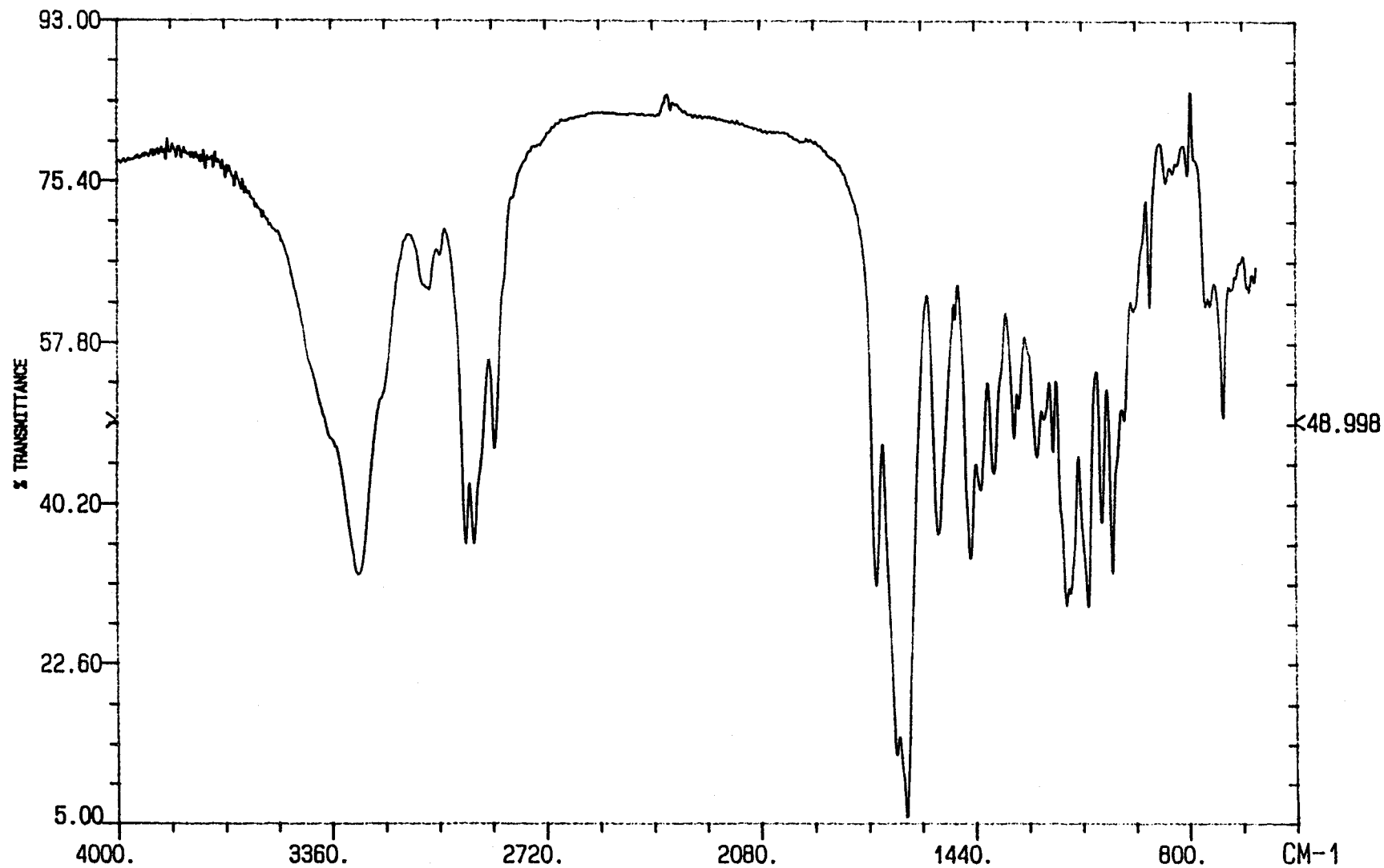
Espectro IR del éster bencílico de 3-n-octanoil-(1-0-bencil-2,3-didesoxi- α -D-glu-
copirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-L-isoglutamina (63)



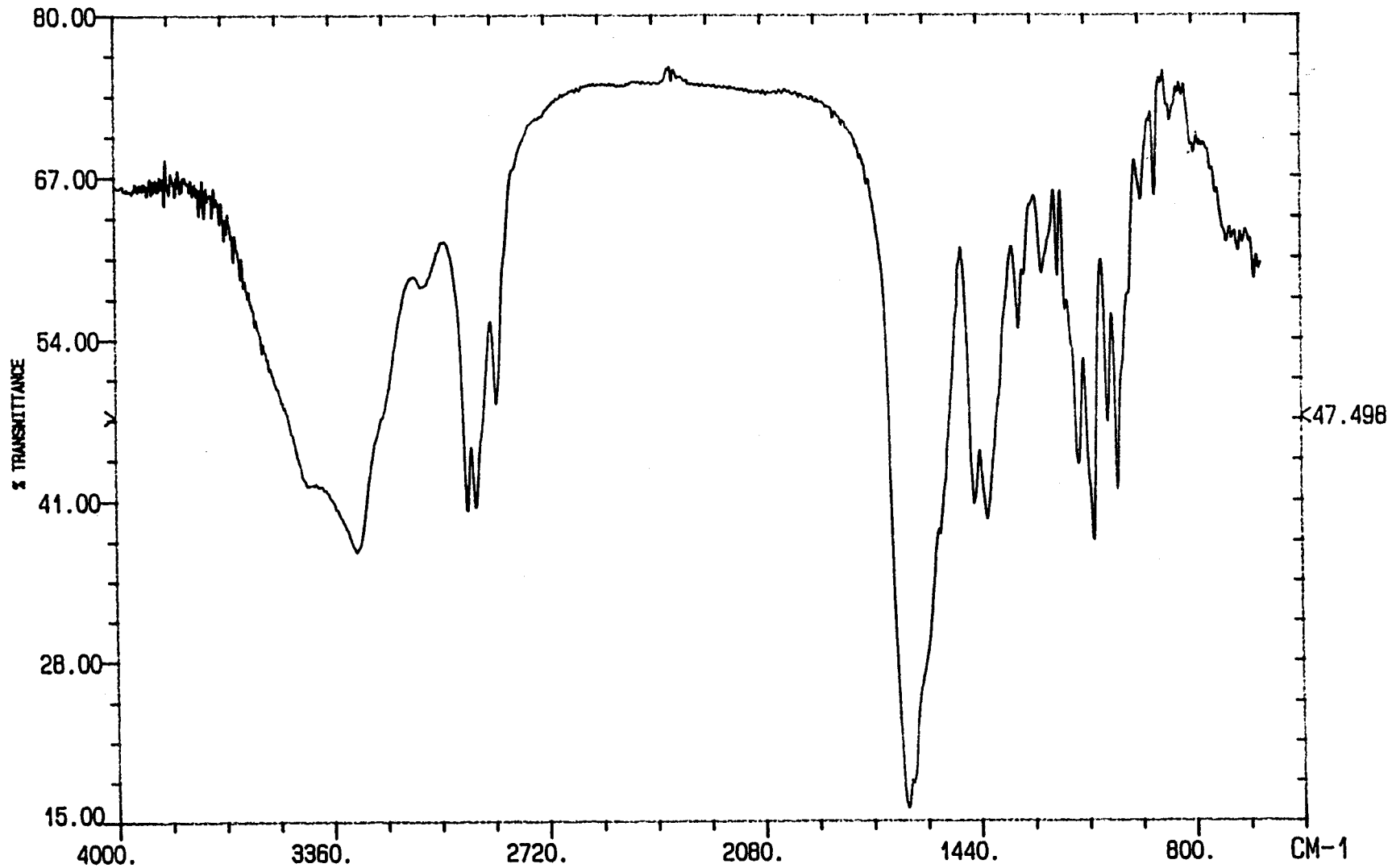
Espectro IR del éster bencílico de 3-acetil-(4,6-O-bencilidén-2,3-didesoxi-1-O-metil- α -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (70)



Espectro IR de 3-acetil-(2,3-didesoxi-1-O-metil- β -D-glucopirán)-[2,3-d]-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (28)



Espectro IR del éster bencílico de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi-1-O-metil- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (79)



Espectro IR de 3-acetil-(4,6-di-O-n-butil-2,3-didesoxi- α -D-glucopirán)-|2,3-d|-oxazolidín-2-carbonil-L-alanil-D-isoglutamina (29)

UNIVERSIDAD DE SEVILLA

Resolvido el Excmo. Consejo por los votos afirmativos en el día de la fecha por la lectura de Tesis Doctoral de D. Francisco José Ruiz Rodríguez titulada "Inmunocoadyuvantes. Síntesis de análogos lipídicos del - - - - (MDP)"

"Apto cum laude"

Sevilla, 12 de Junio 1990

El Vocal

~~Francisco Fernández Betancor~~

El Secretario

~~[Signature]~~

El Vocal

~~[Signature]~~

El Secretario

[Signature]

El Vocal

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El Decano

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