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ACS Publications

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ORIGINAL

## **SUPPORTING INFORMATION FOR:**

### **Synthesis of Novel Glycosidase-Inhibitory Hydroxymethyl-Substituted Polyhydroxylated Indolizidines: Ring-Expanded Analogs of the Pyrrolizidine Alkaloids Alexine and Australine**

William H. Pearson\* and Erik J. Hembre

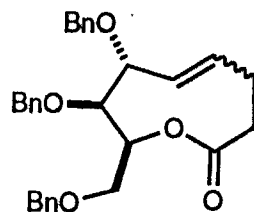
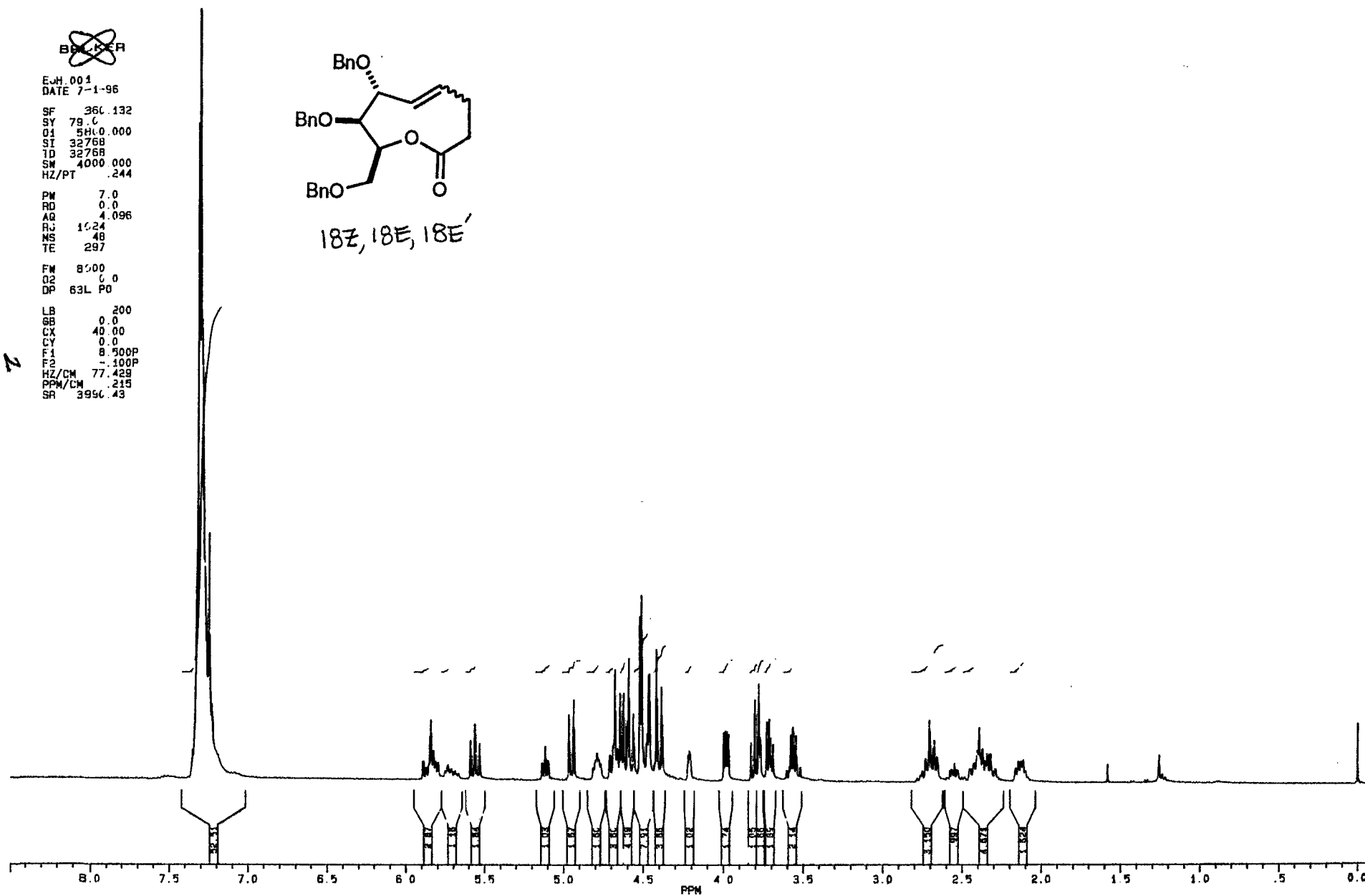
*Department of Chemistry, The University of Michigan, Ann Arbor, Michigan 48109-1055*

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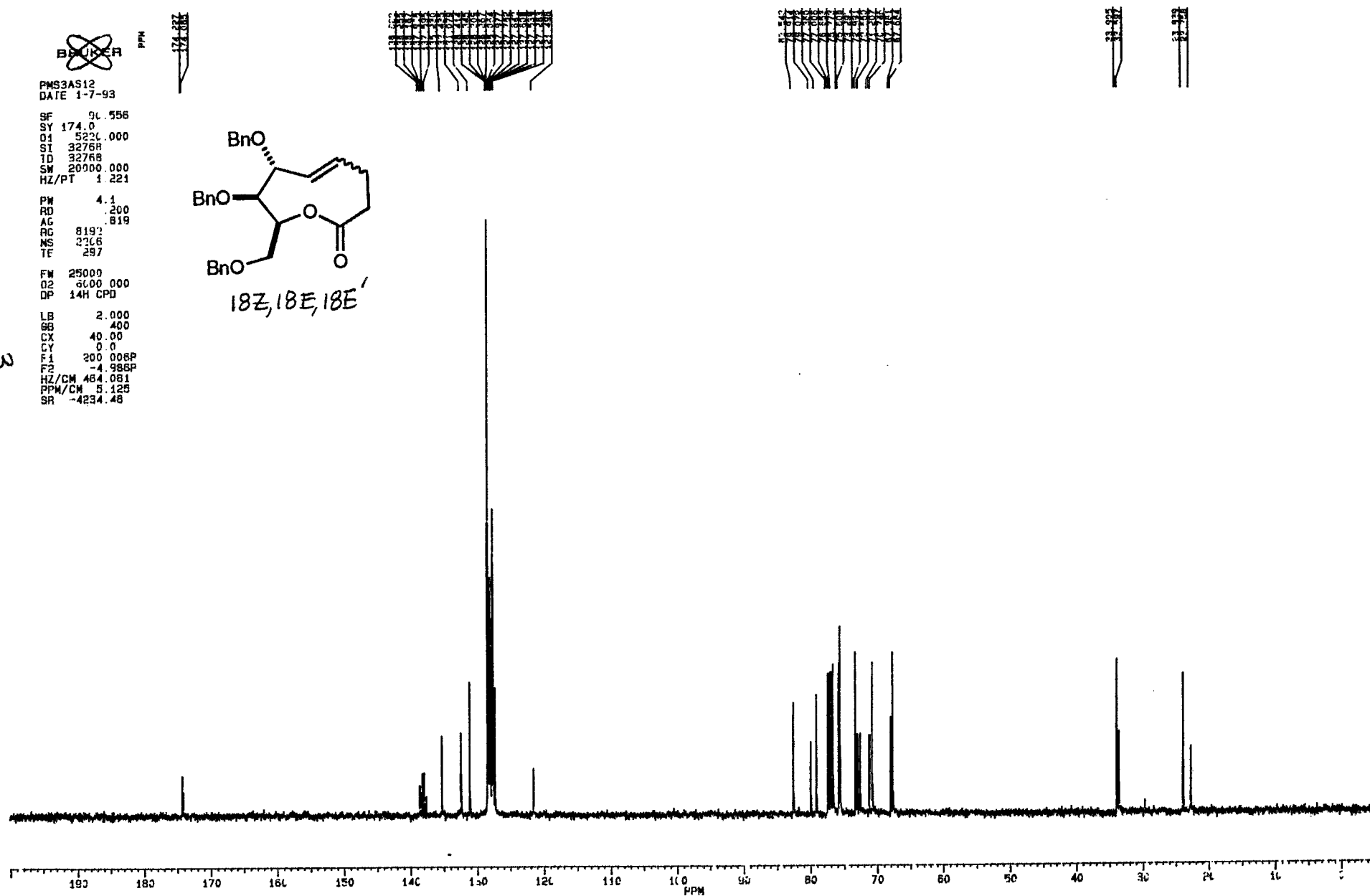
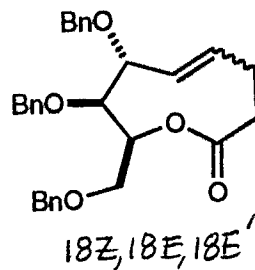
Photocopies of  $^1\text{H}$ -NMR,  $^{13}\text{C}$ -NMR, COSY, and NOESY spectra for new compounds **7-10**, **18-27**, and **30-35**.

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 $18Z, 18E, 18E'$ 

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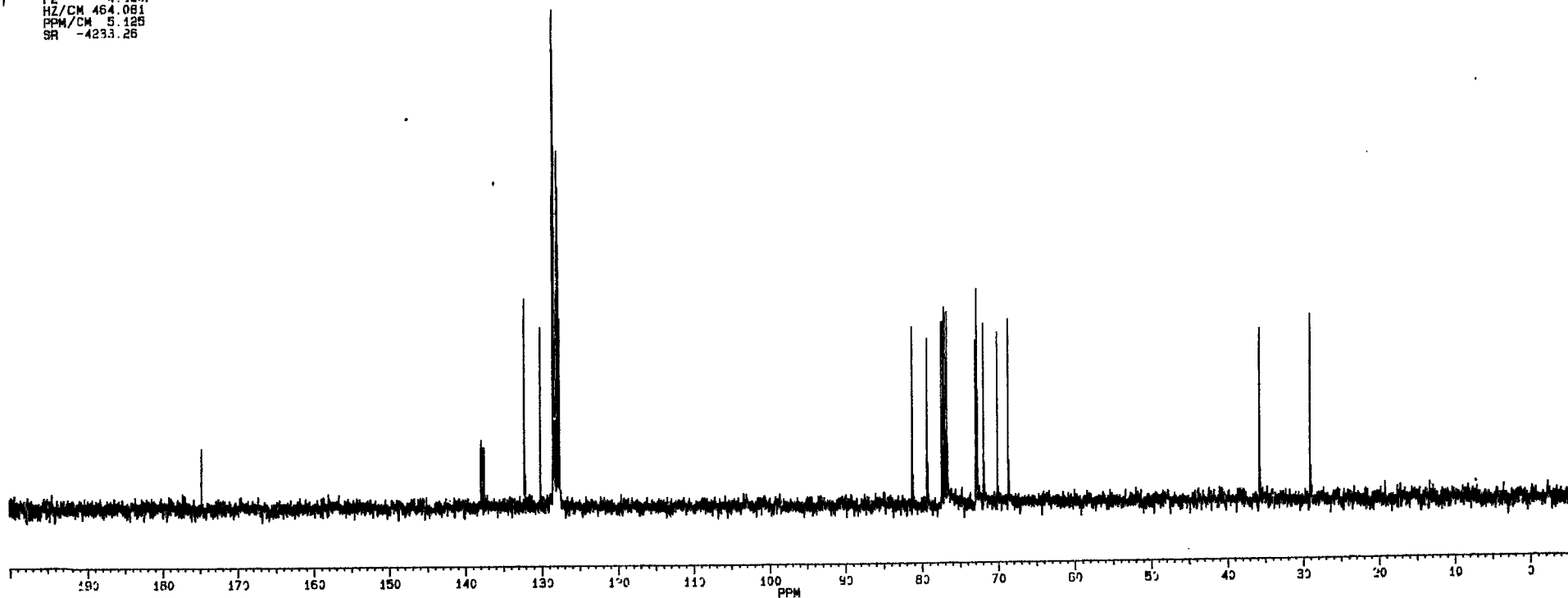
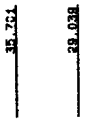
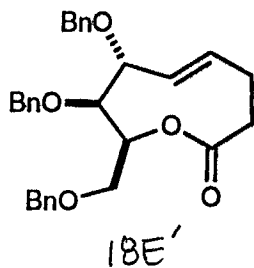




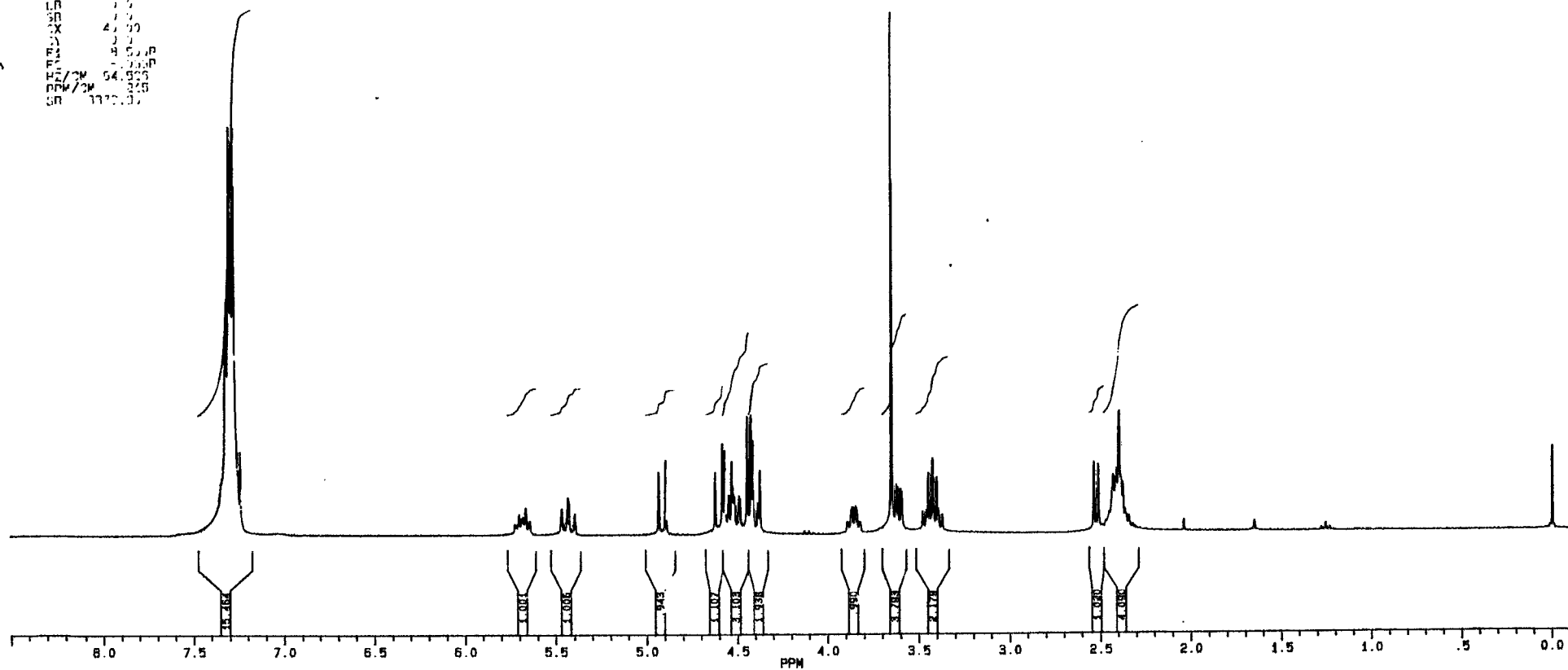
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174.10



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Model

~~173.330~~

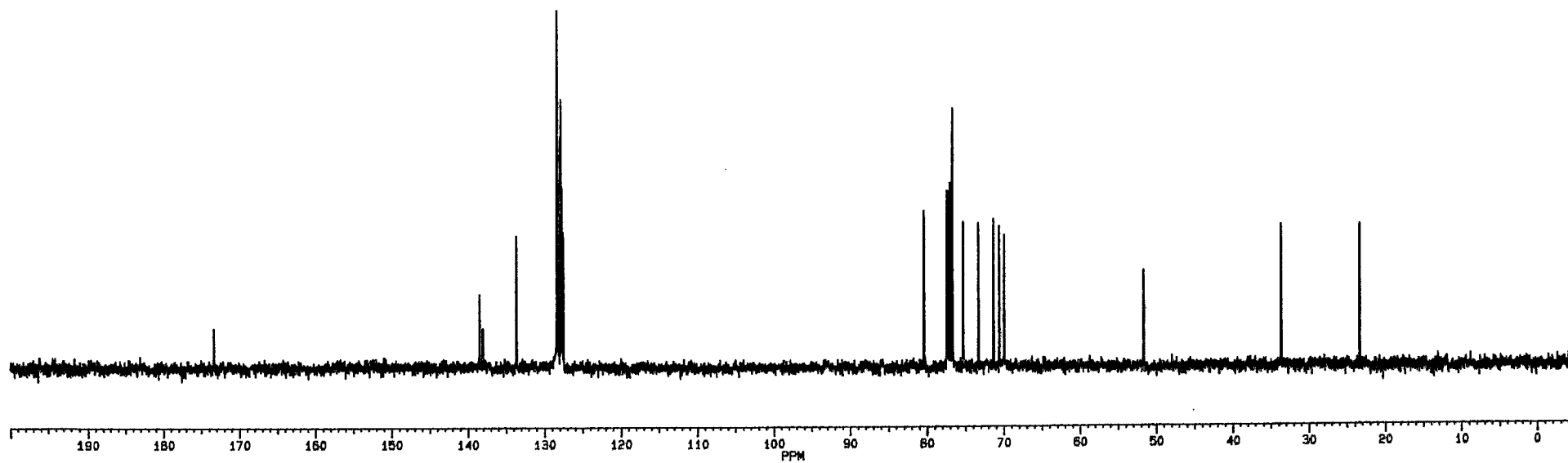
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197

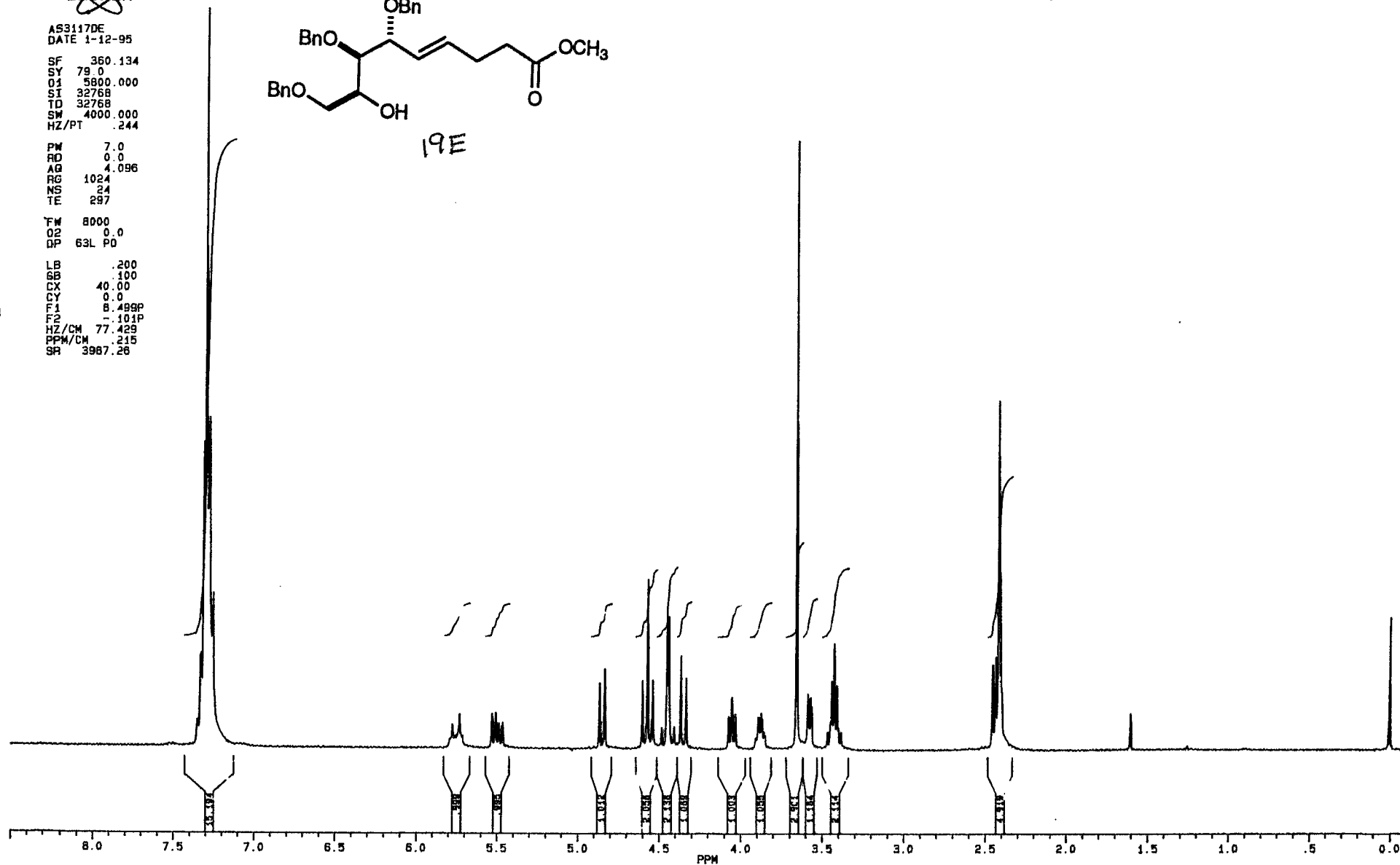
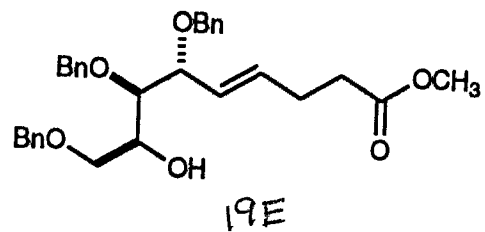
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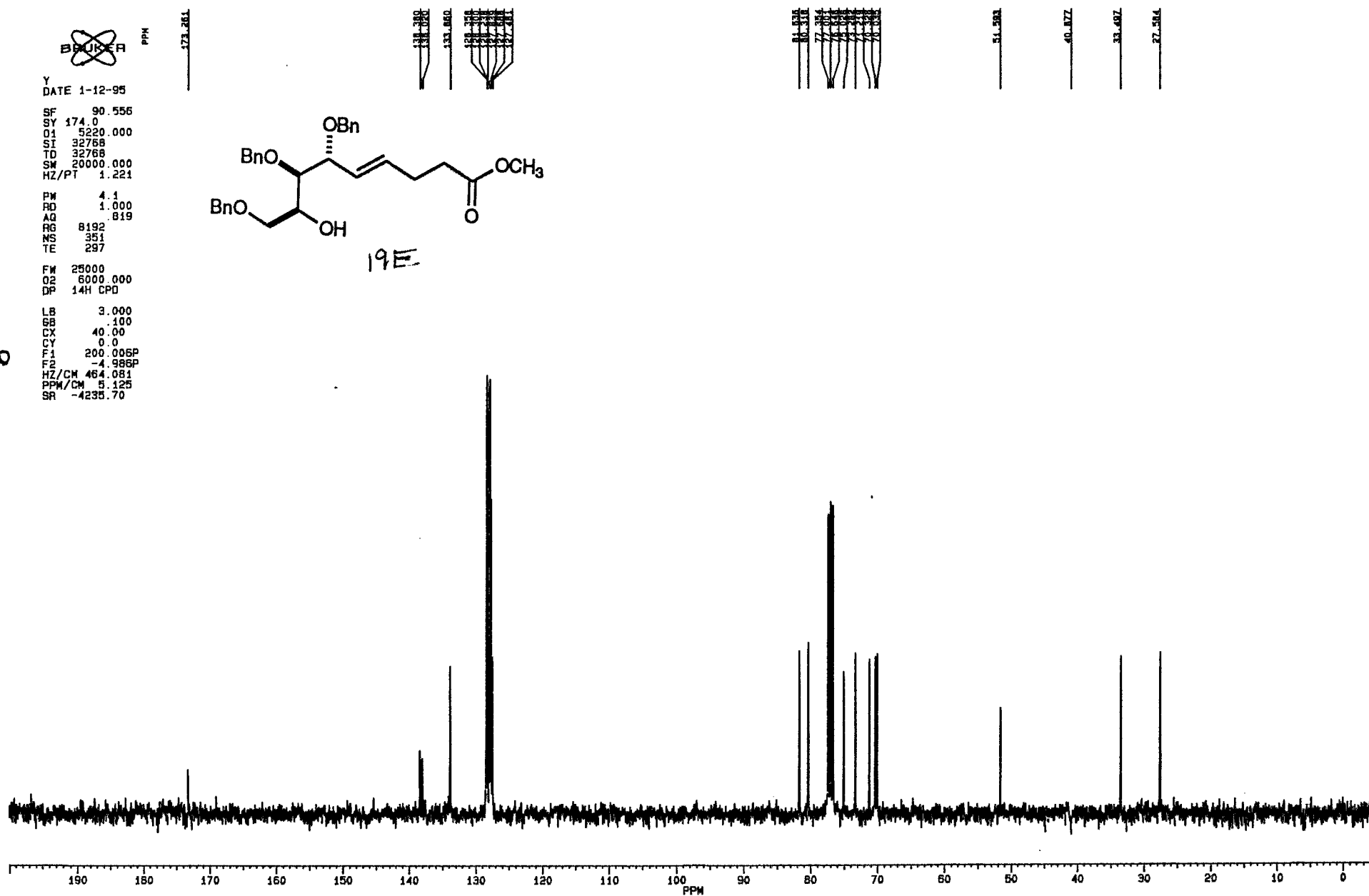
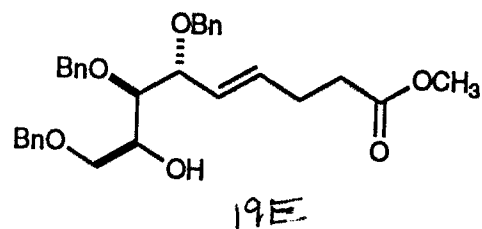


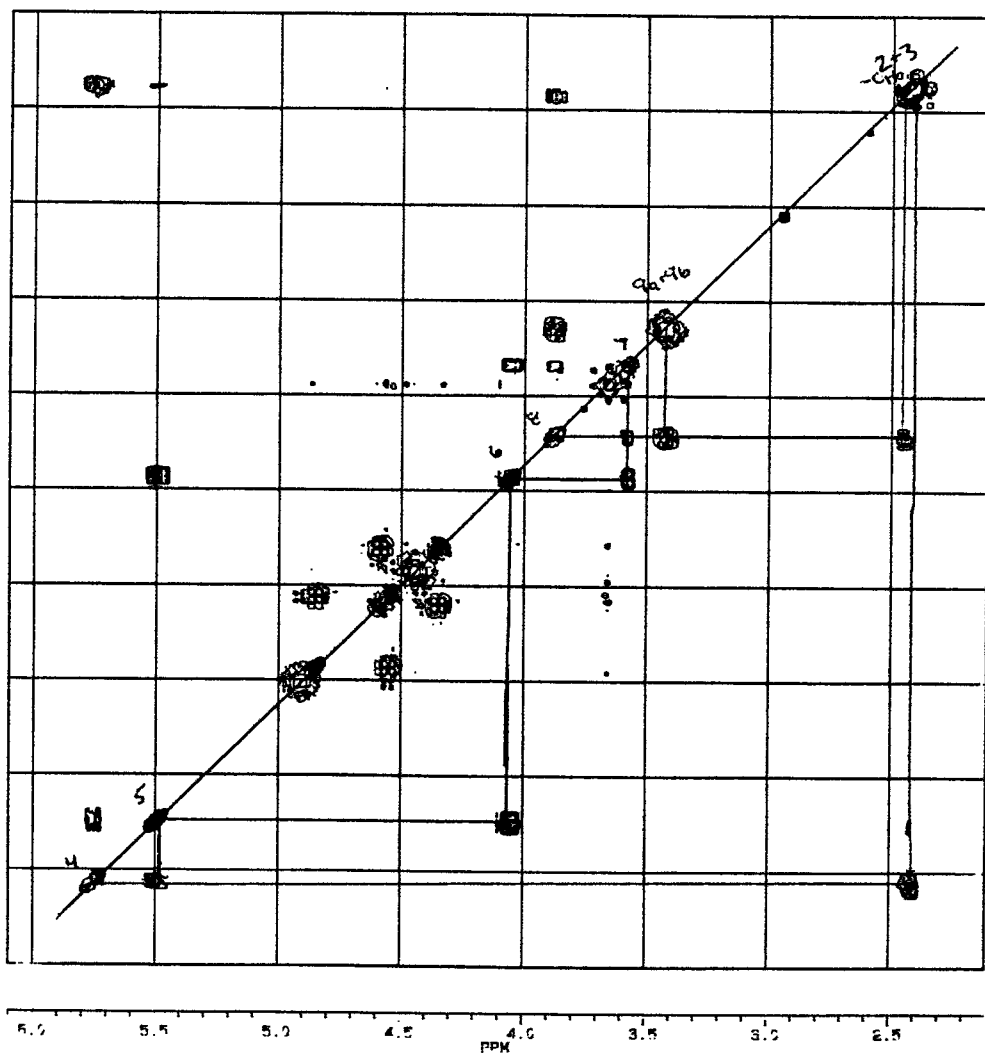
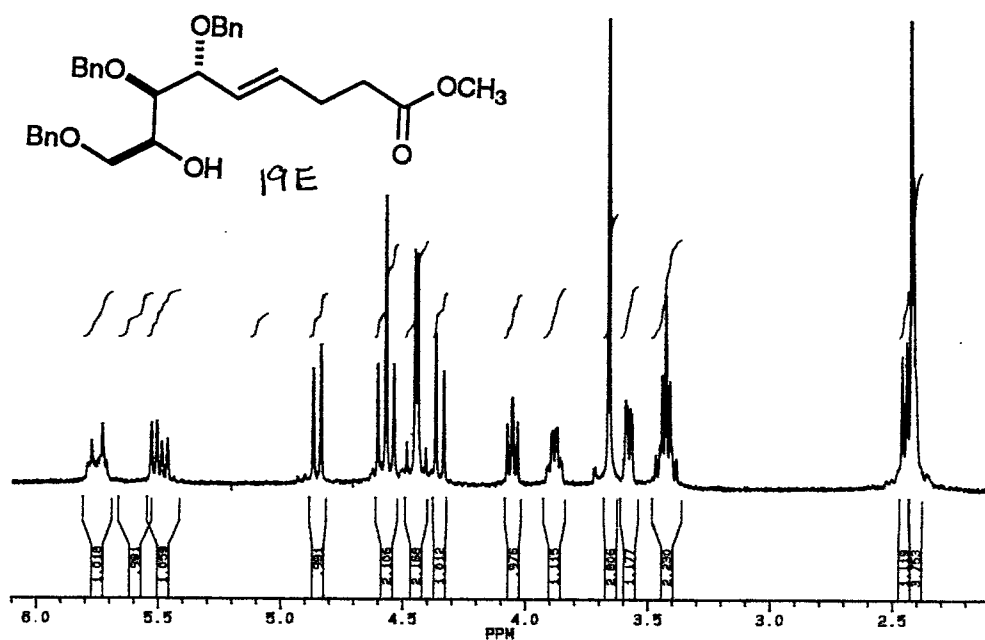
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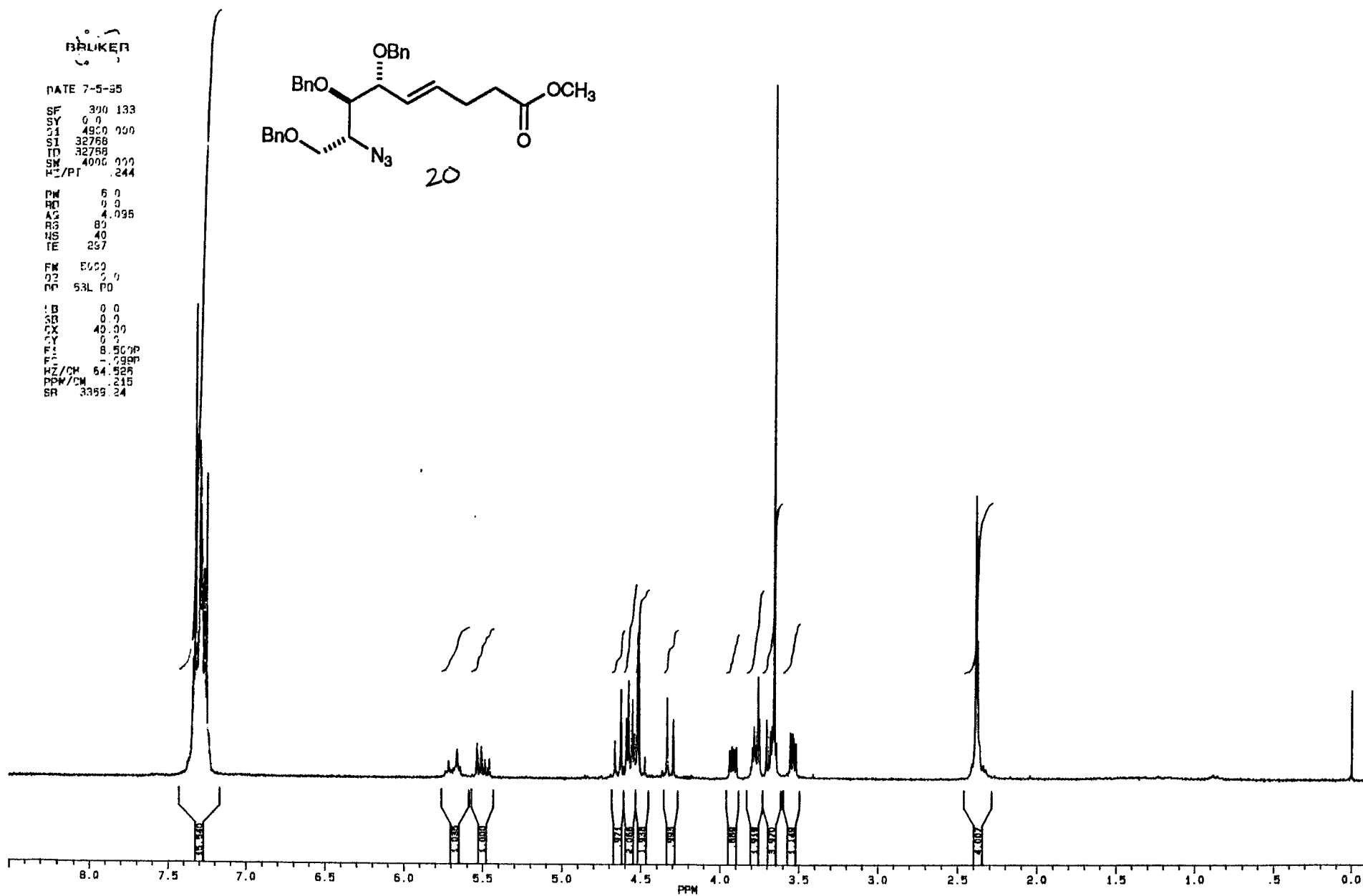


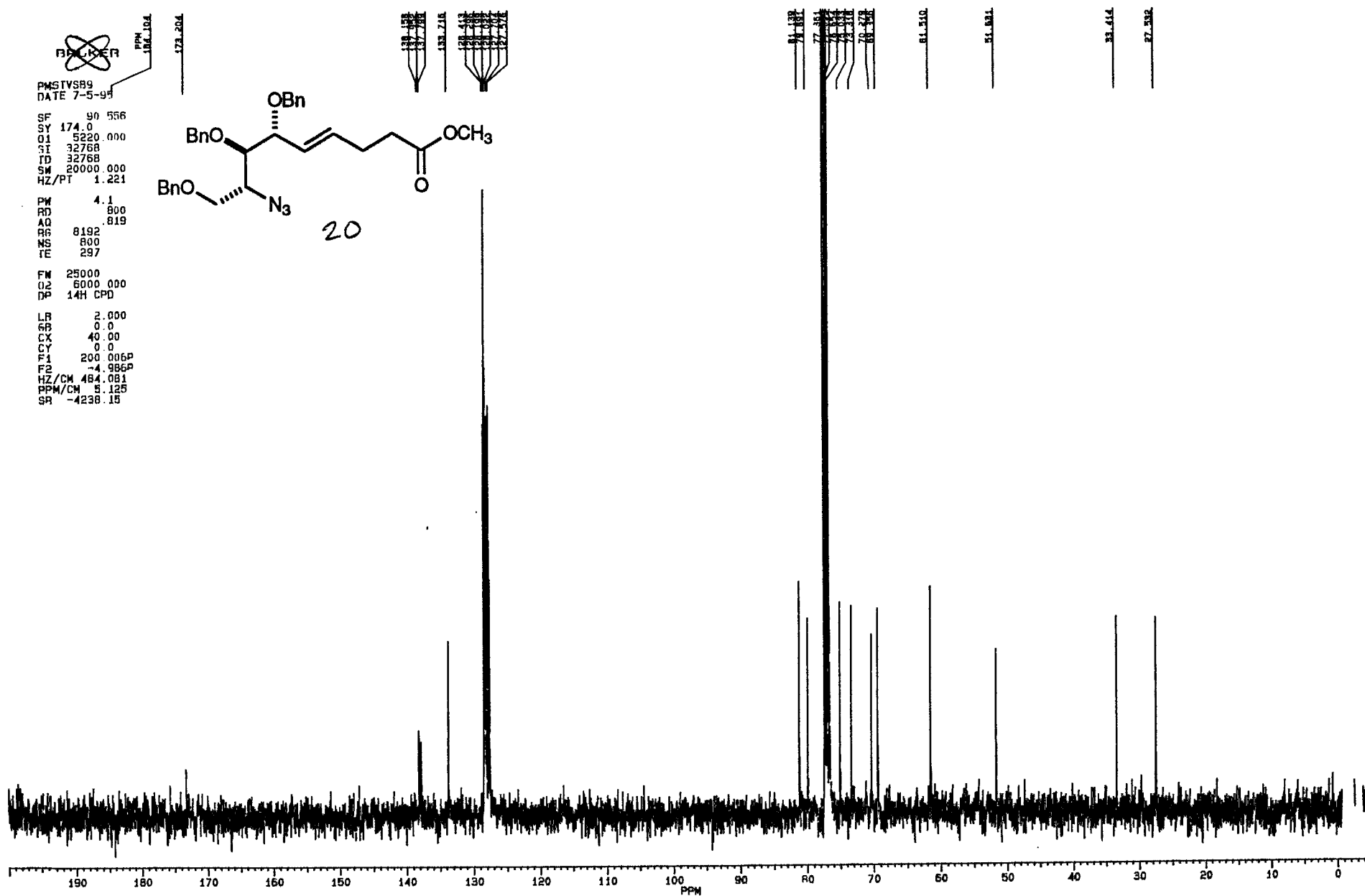
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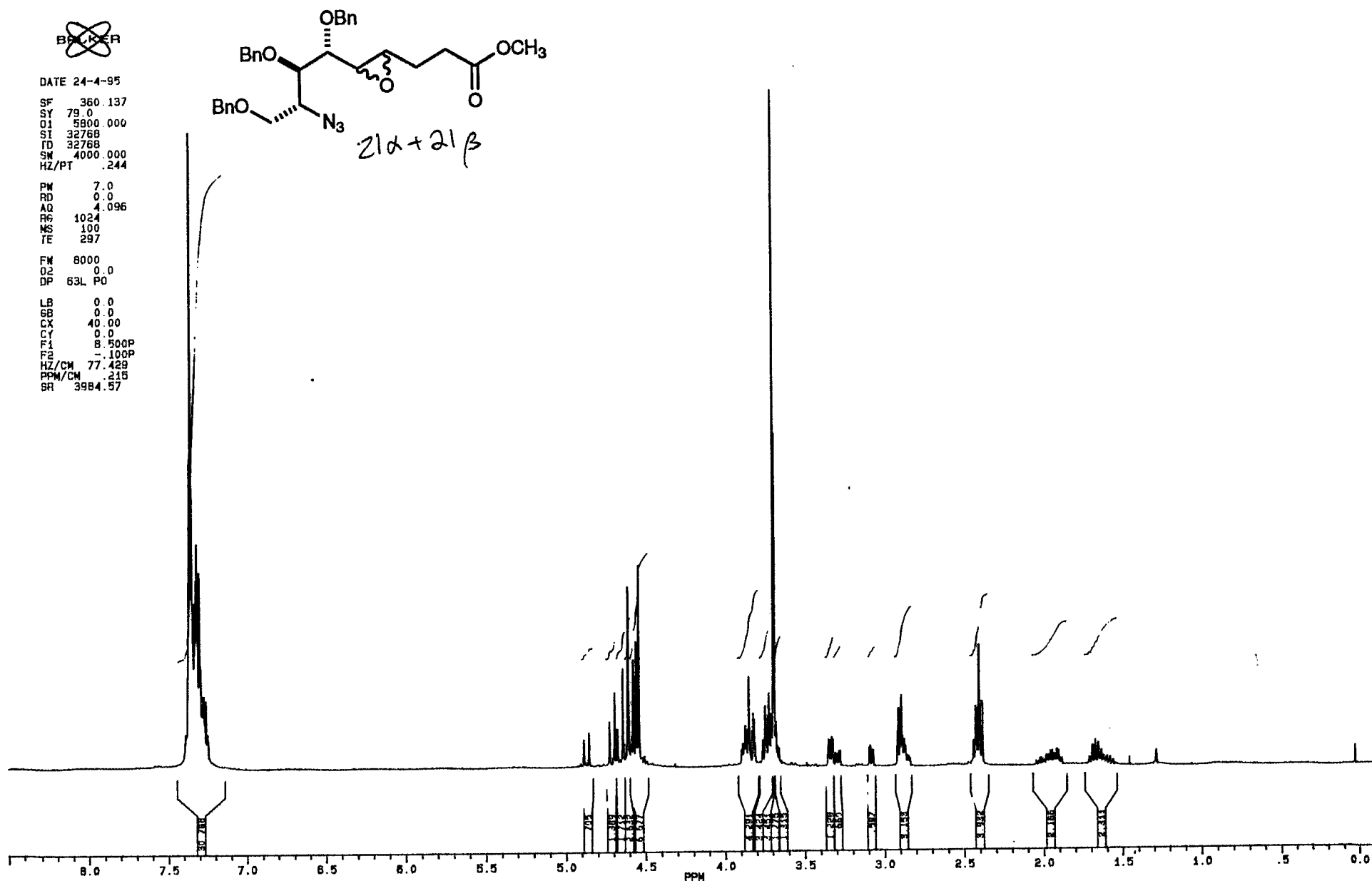
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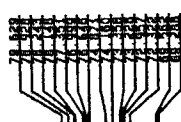




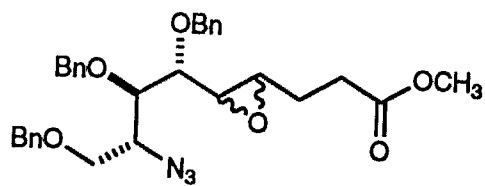
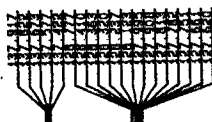








13C NMR



21 $\alpha$ +21 $\beta$

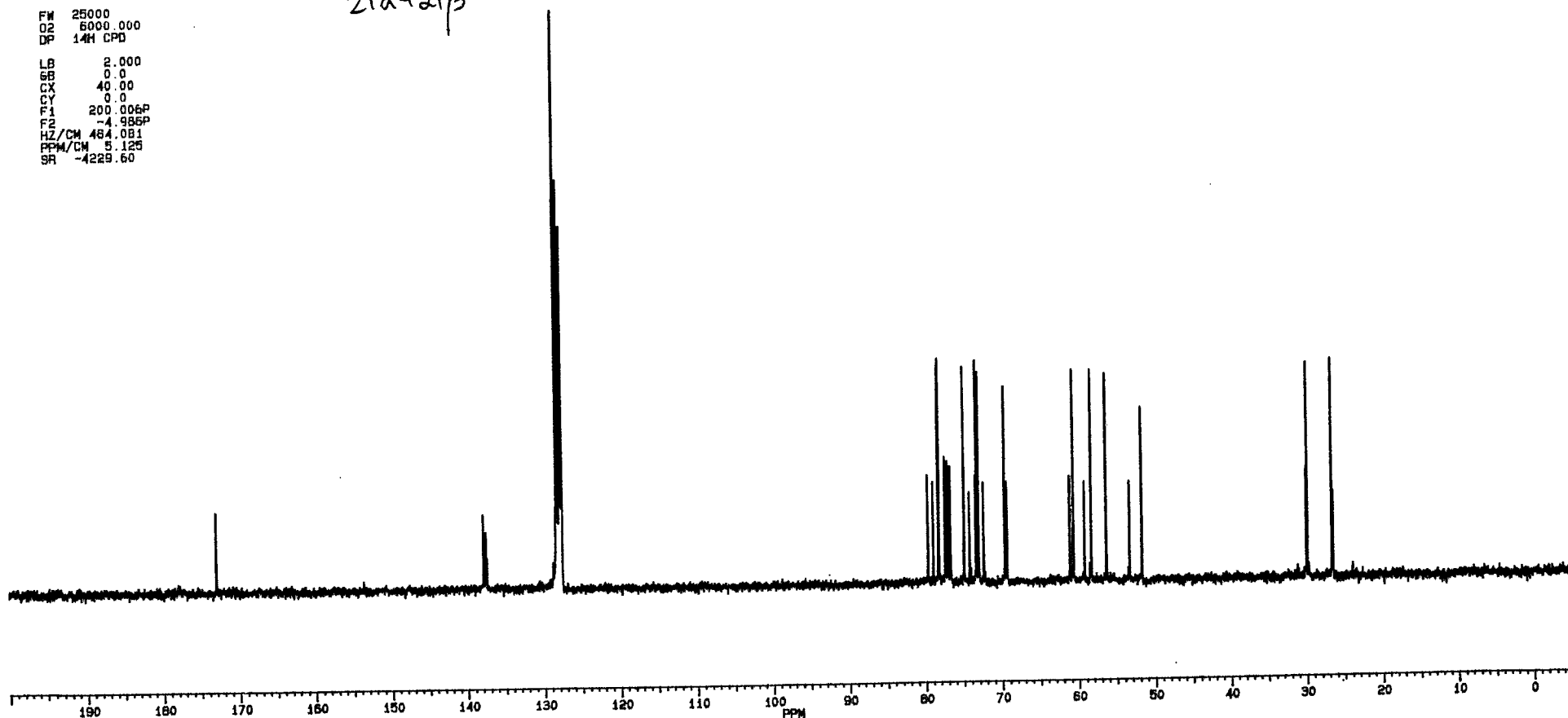
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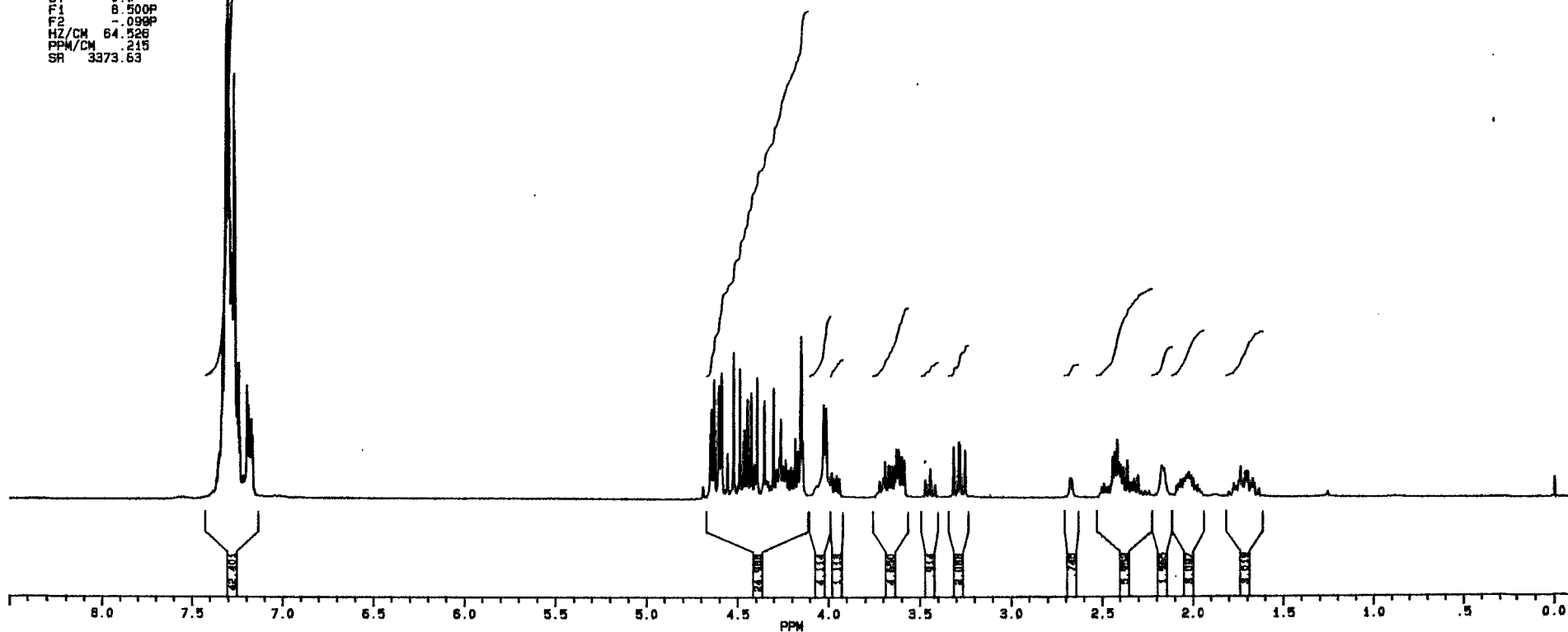
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14

SR 3373.63





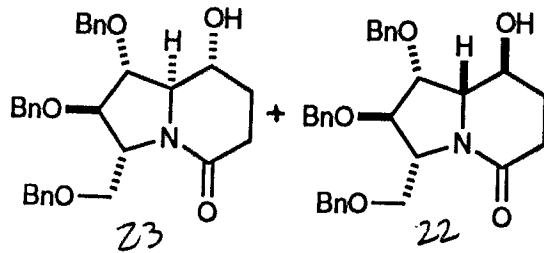
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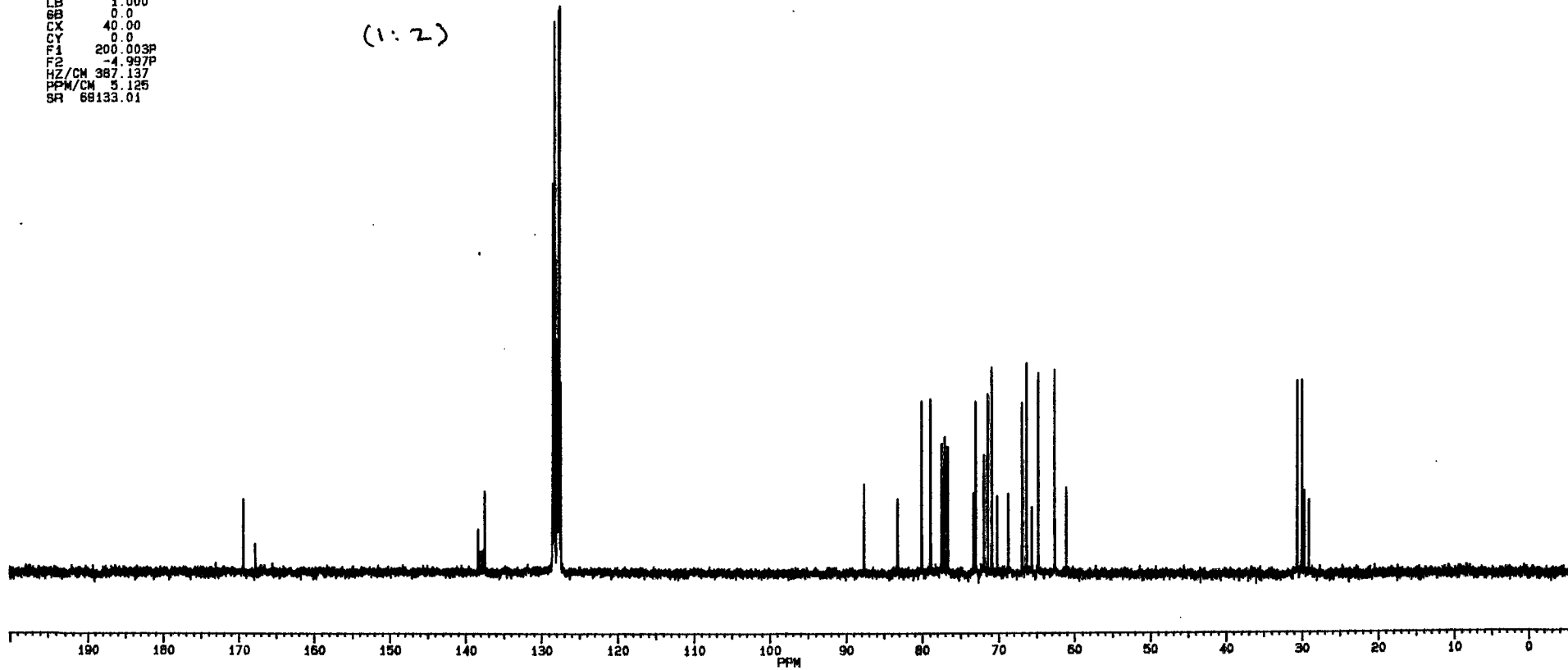
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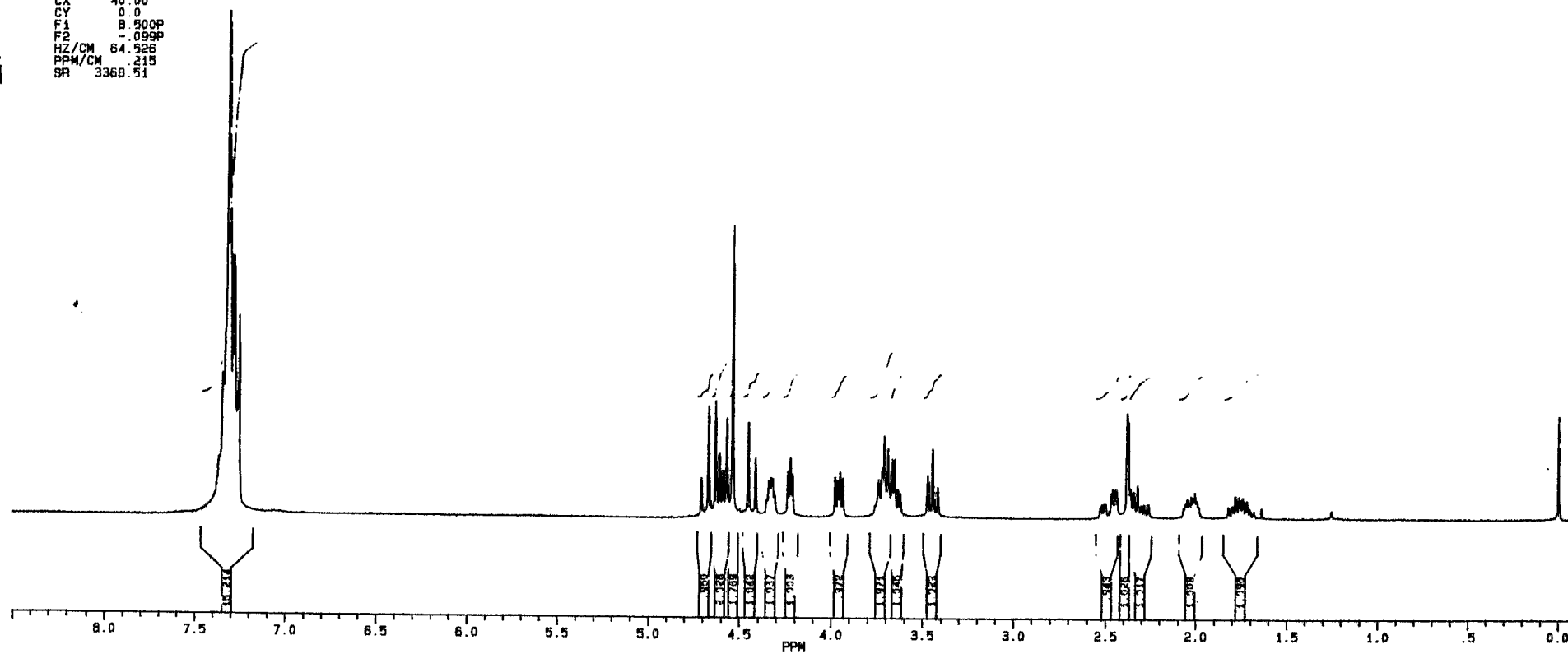
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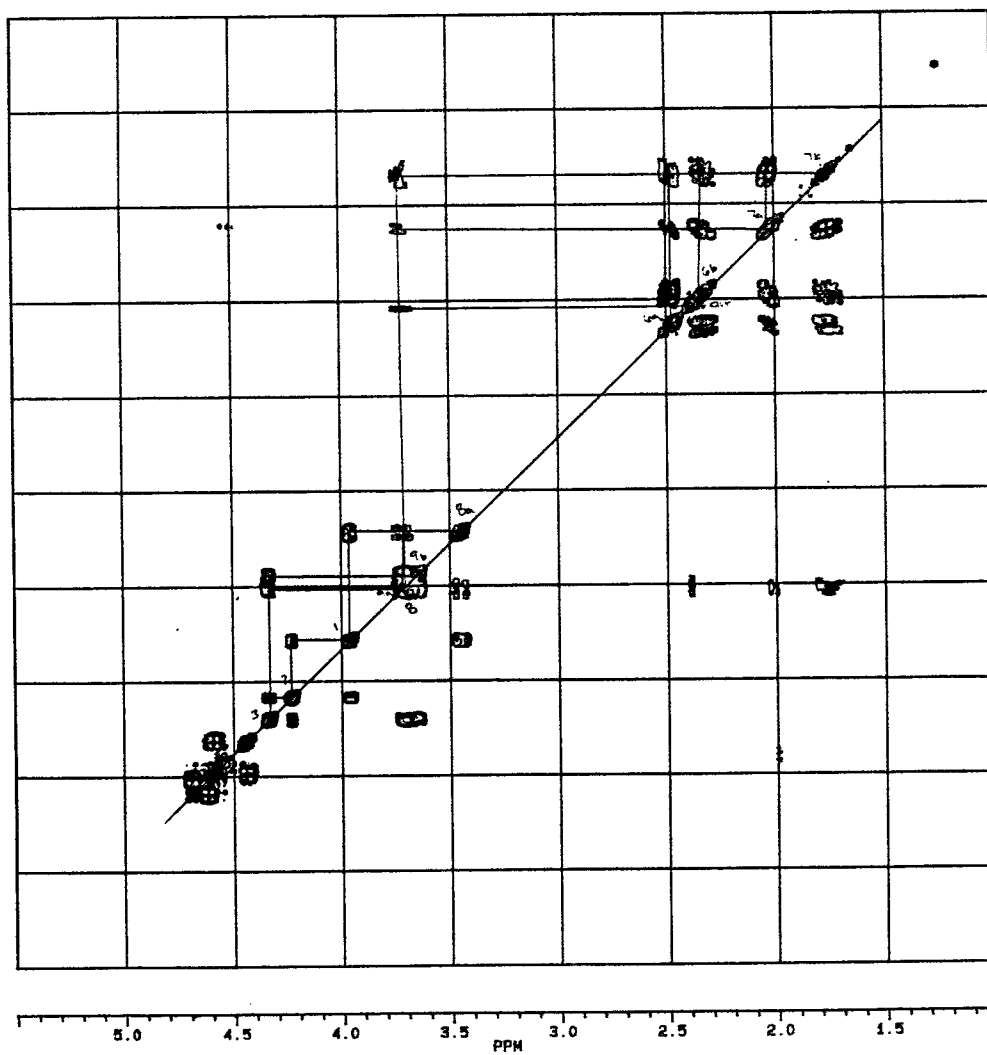
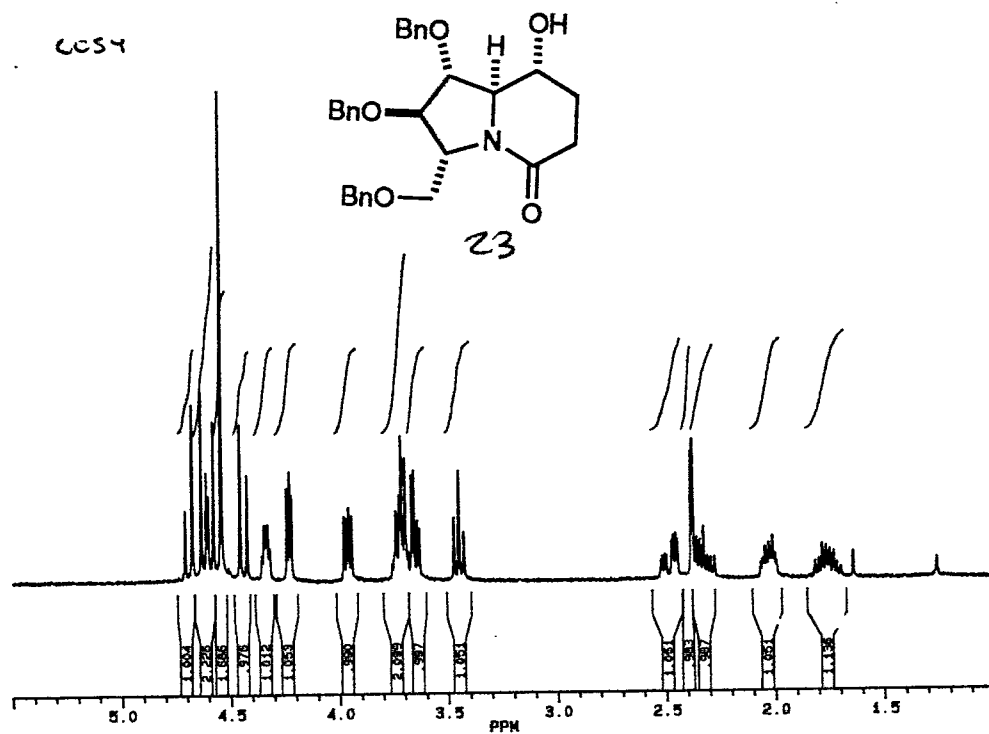
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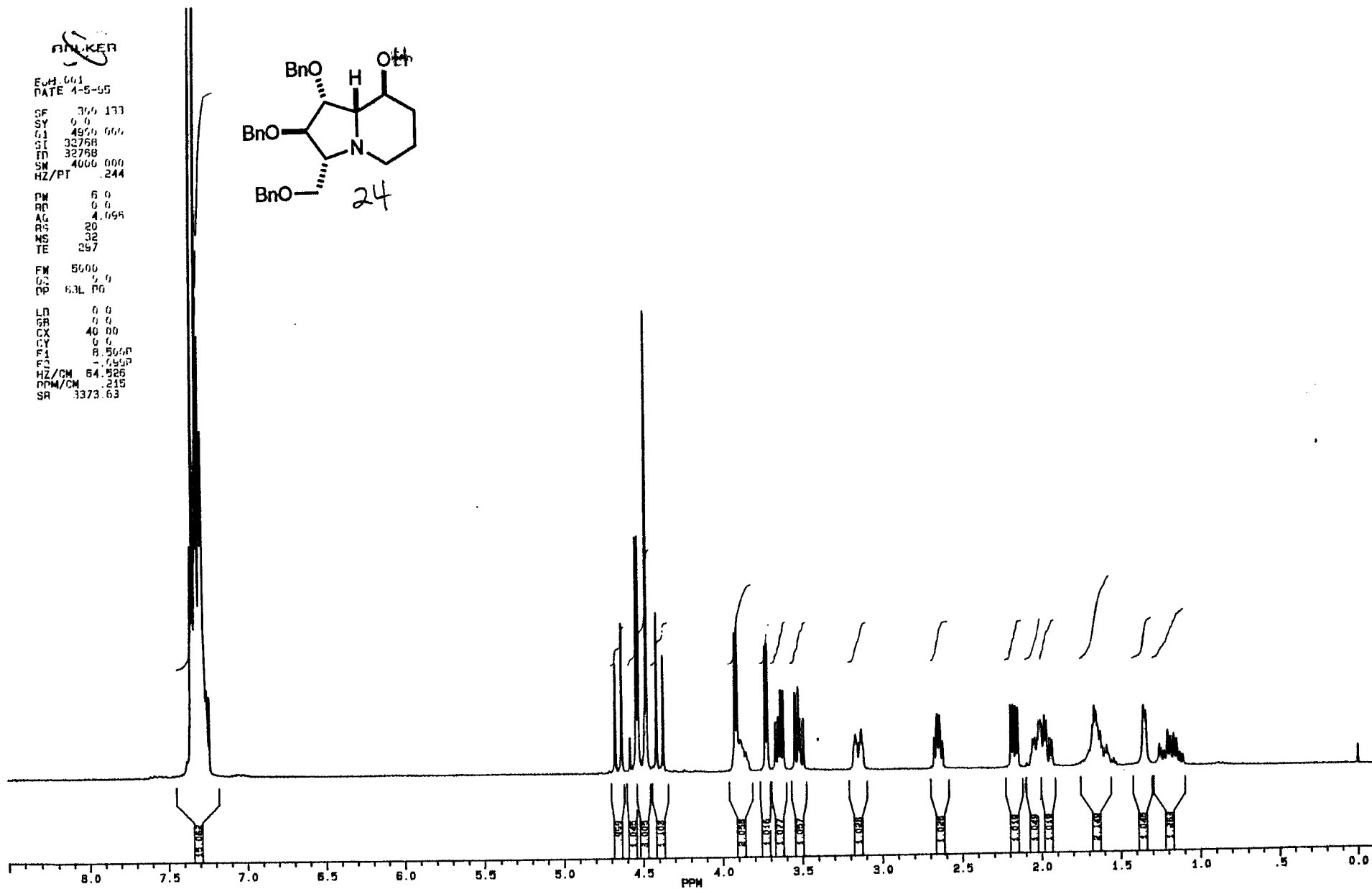
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[illegible]



20



21

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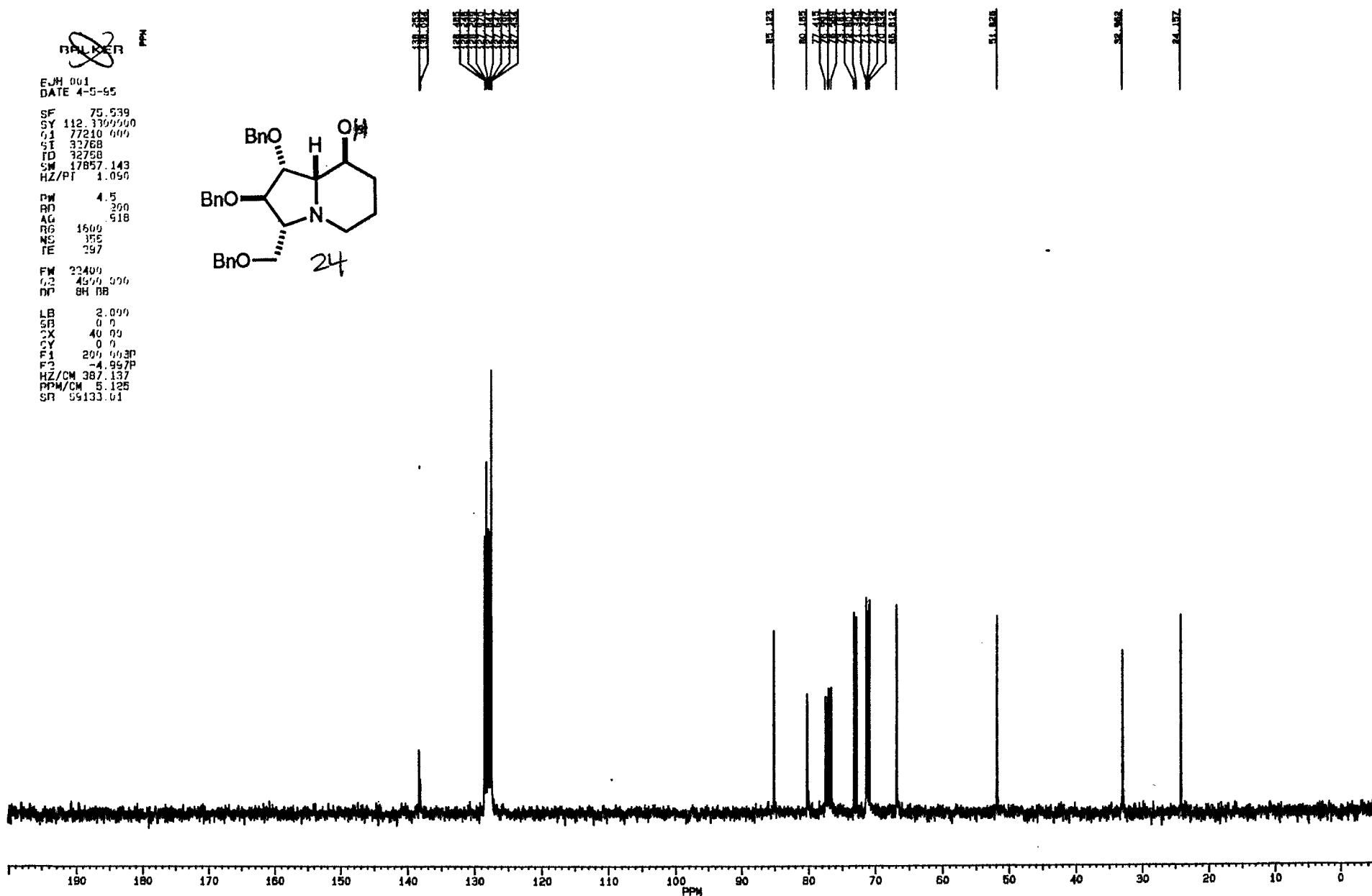
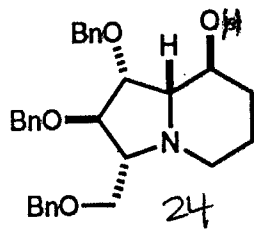
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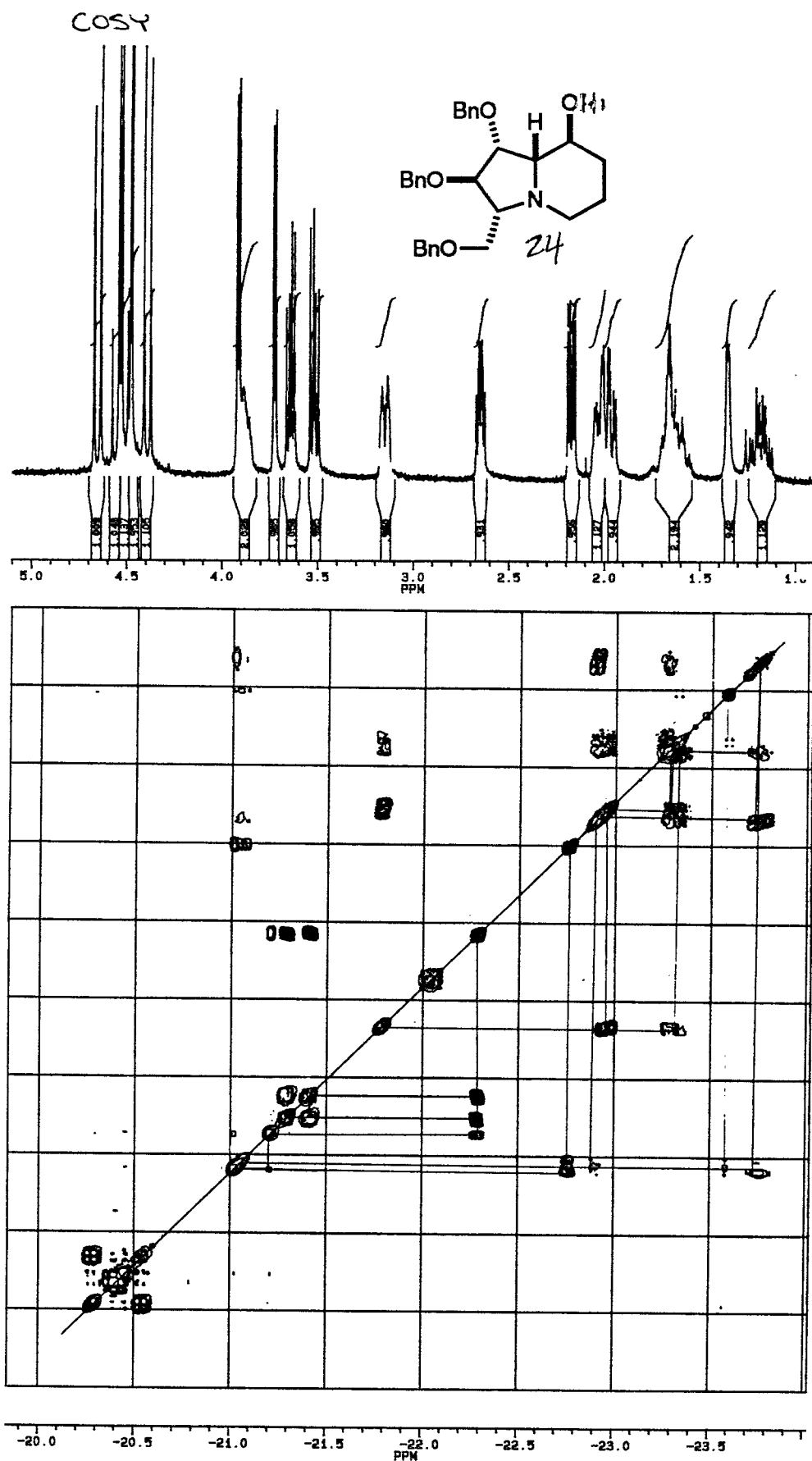
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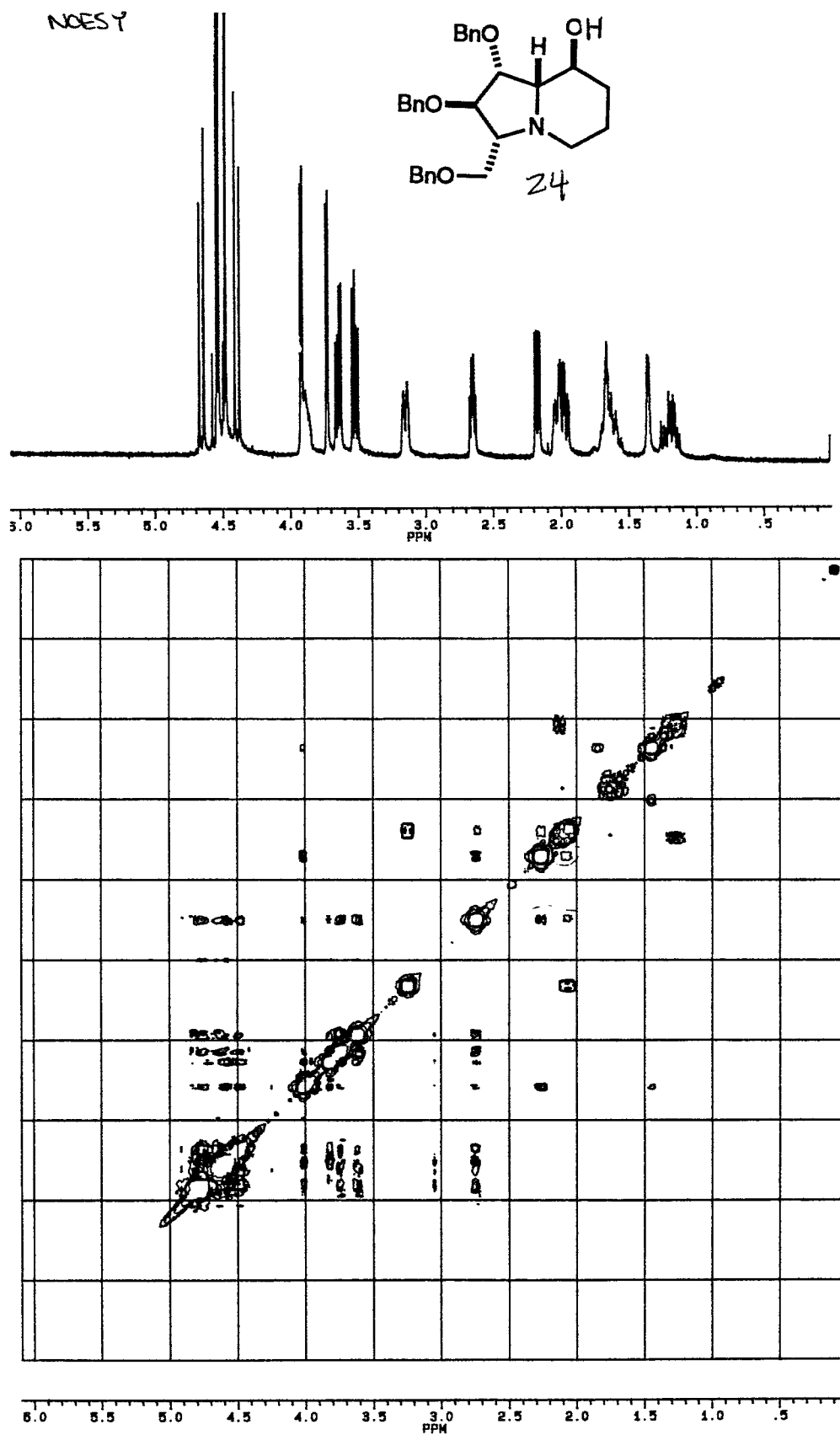
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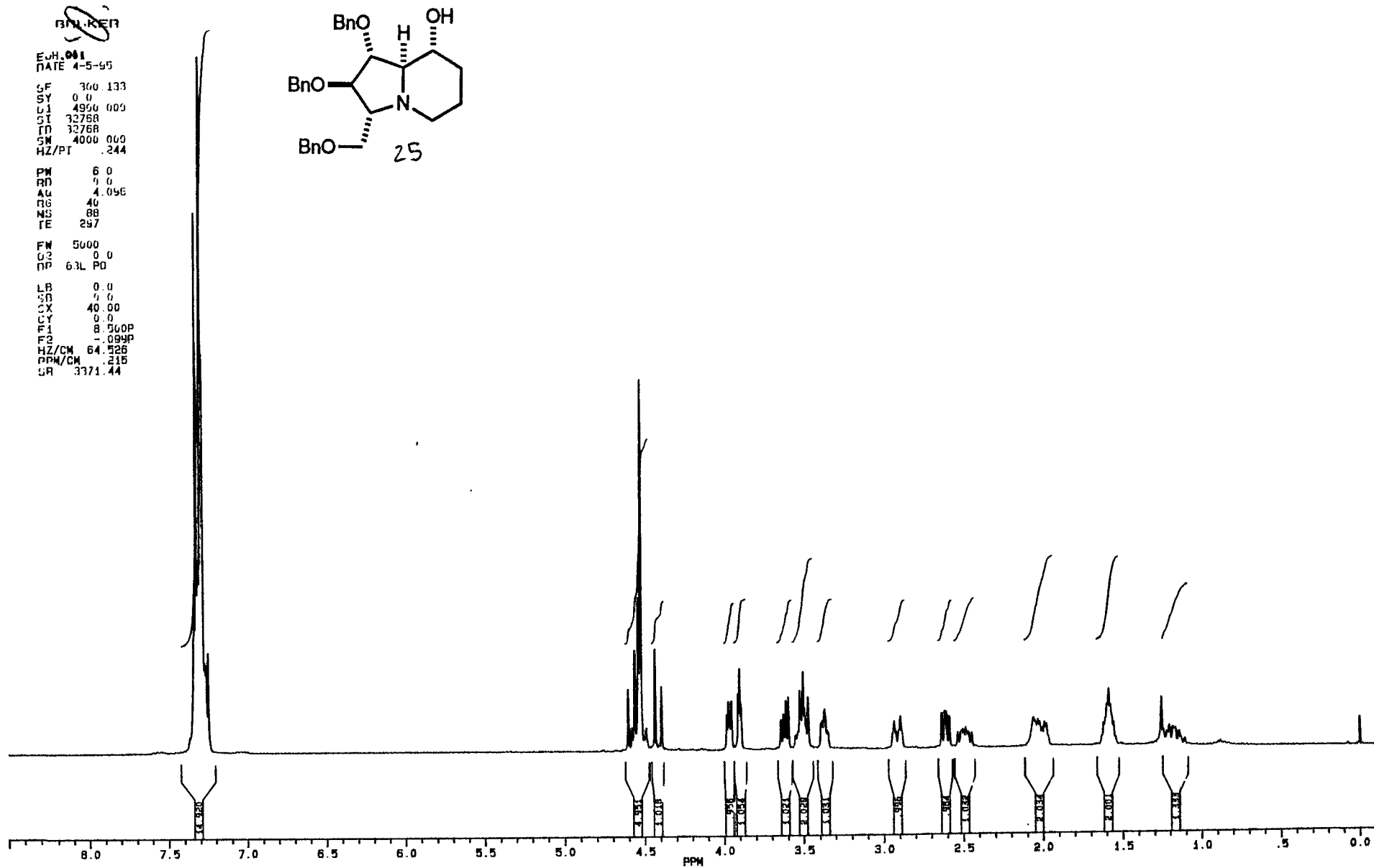
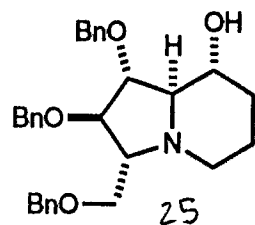
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BMKER

EXP. 001  
DATE 4-5-95

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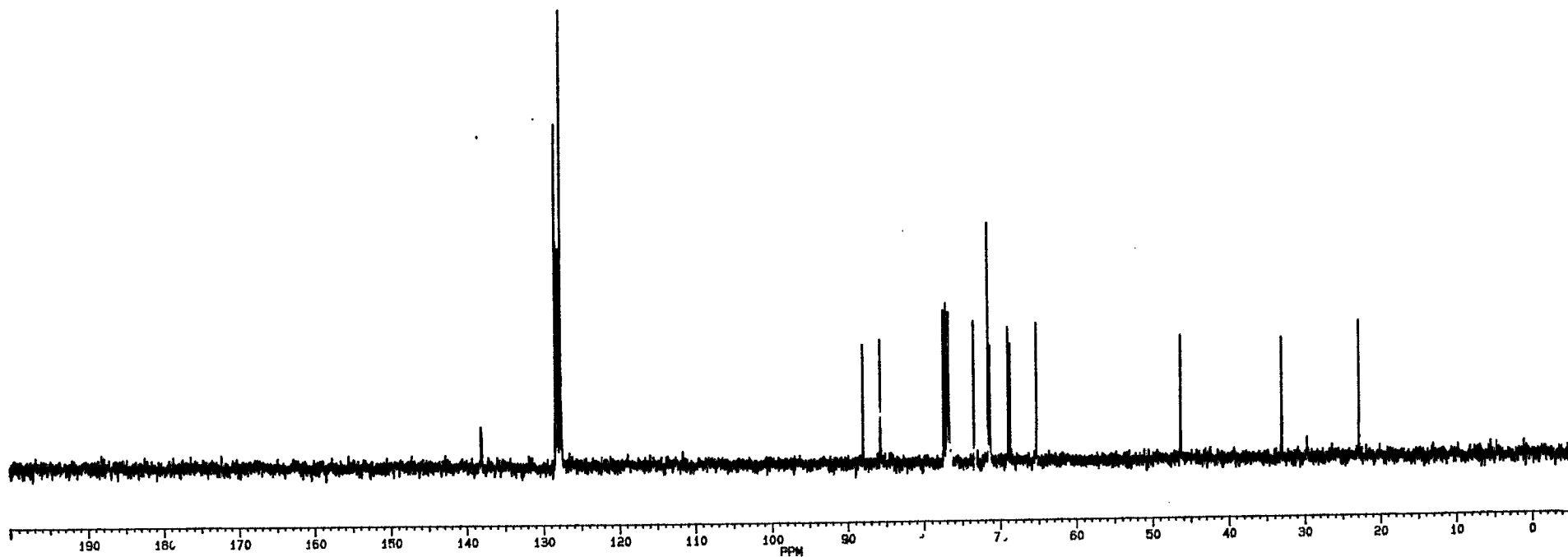
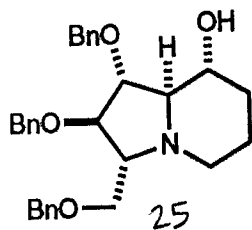
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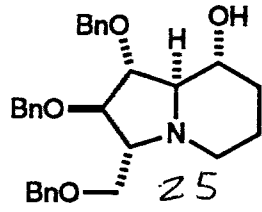
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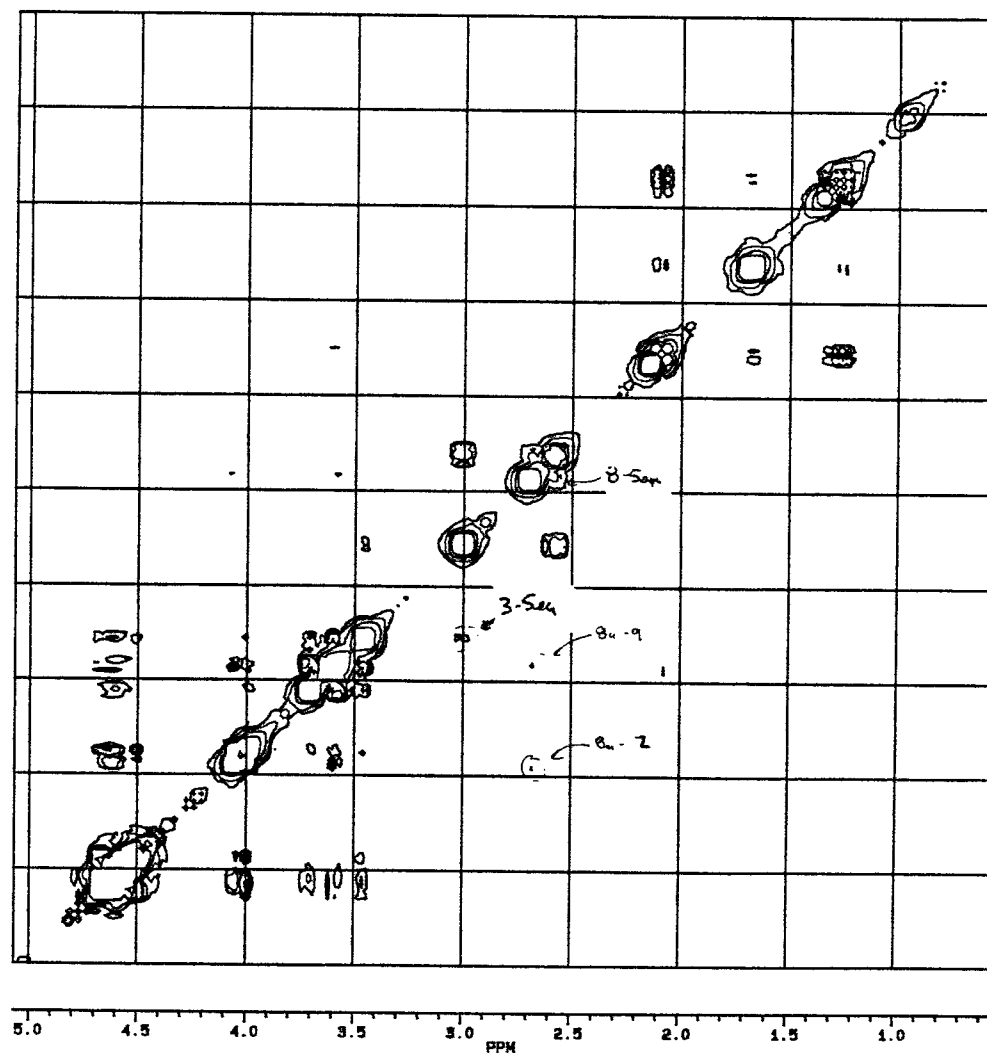
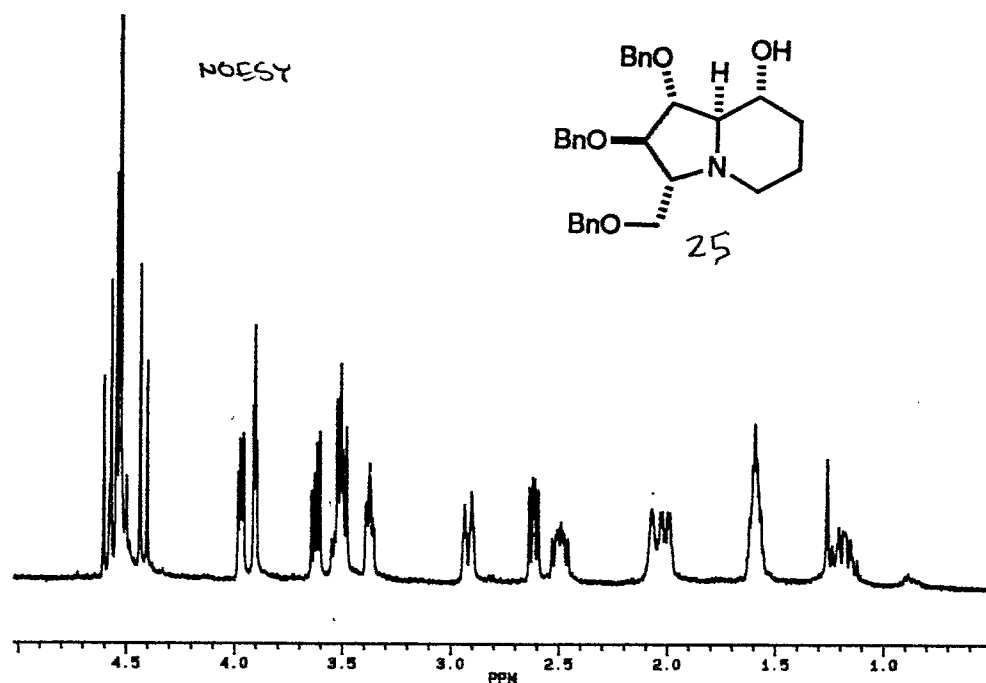
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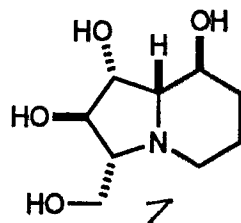


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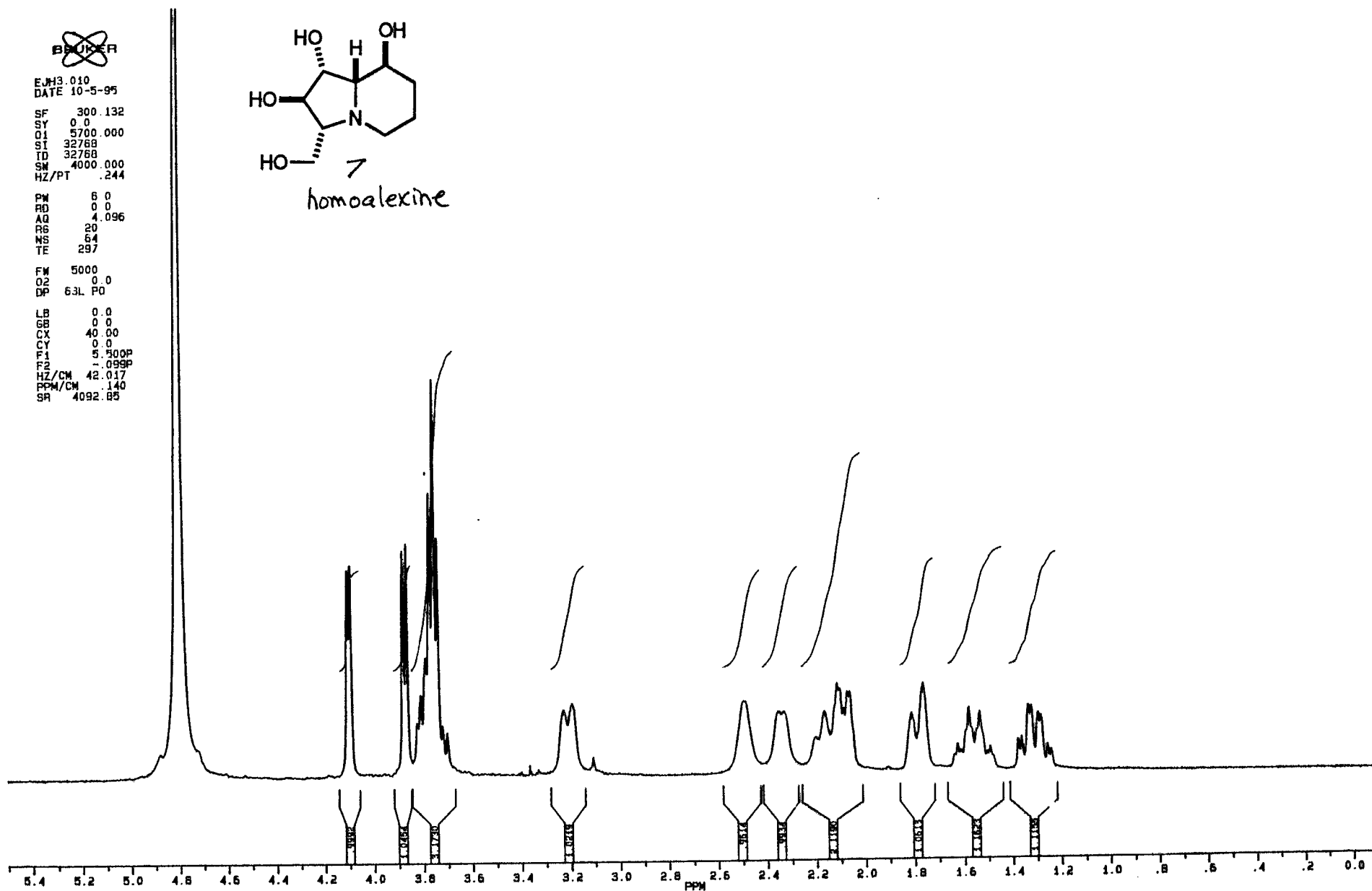
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homoaletine



29

BRUKER

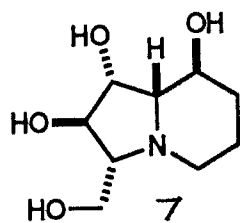
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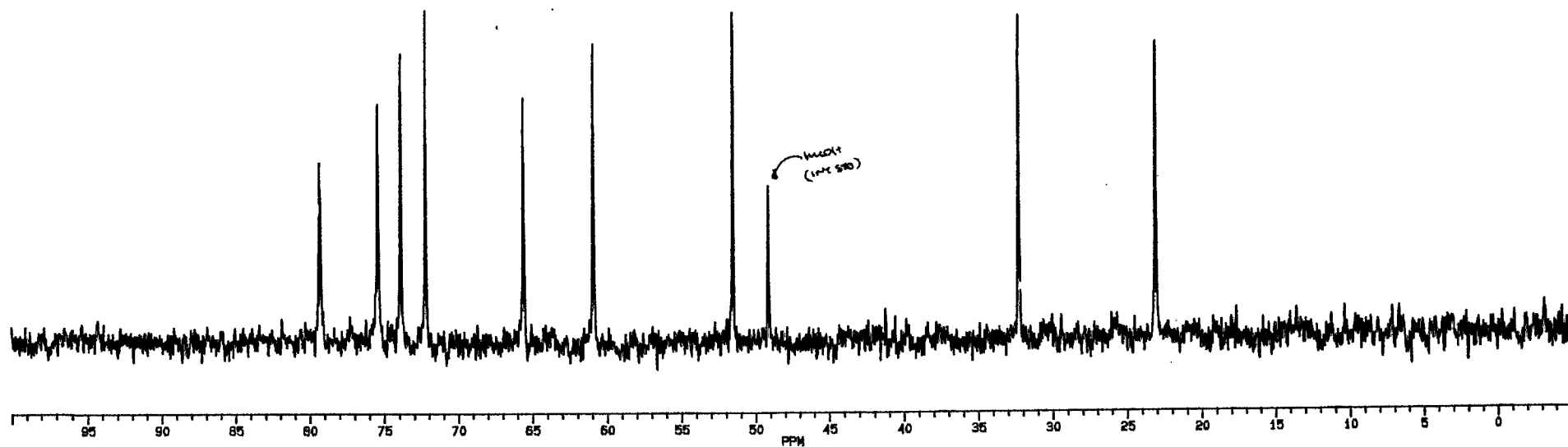
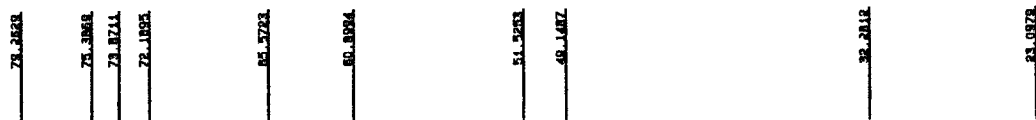
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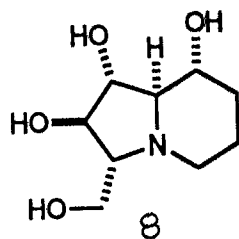
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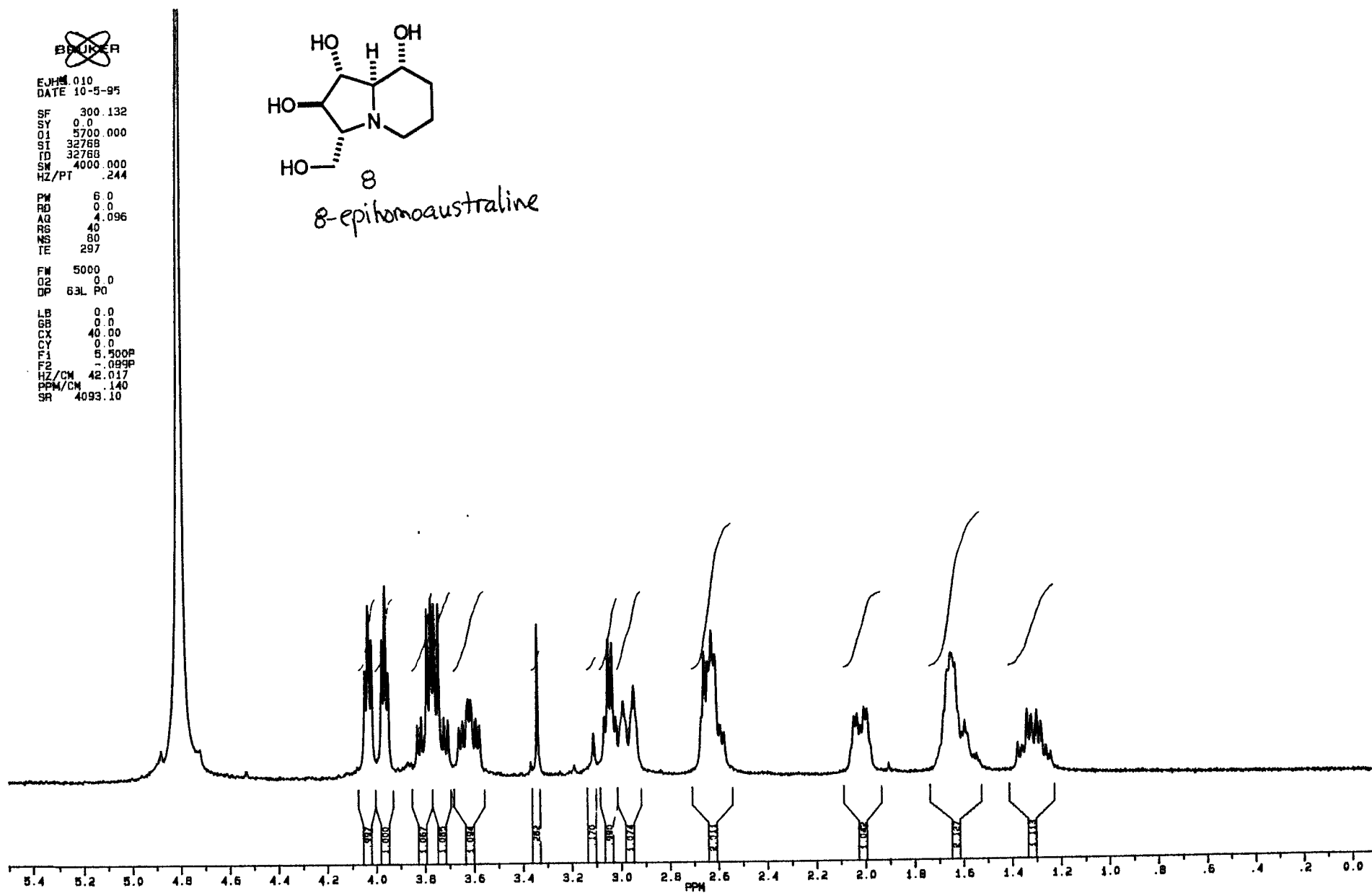
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homoaalexine



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|--------|---------|
| LB     | 0.0     |
| GB     | 0.0     |
| CX     | 40.00   |
| CY     | 0.0     |
| F1     | 5.500P  |
| F2     | - .099P |
| HZ/CM  | 42.017  |
| PPM/CM | .140    |
| SR     | 4093.10 |



8-epihomoaustraline



Bruker

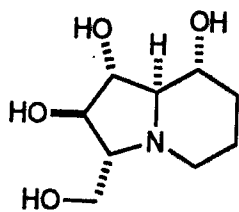
DATE 10-5-95

SF 75.539  
SY 112.3300000  
O1 77210.000  
SI 32768  
TD 32768  
SW 17857.143  
HZ/PT 1.090

PW 4.5  
RD .200  
AQ .918  
RG 1500  
MS 640  
TE 297

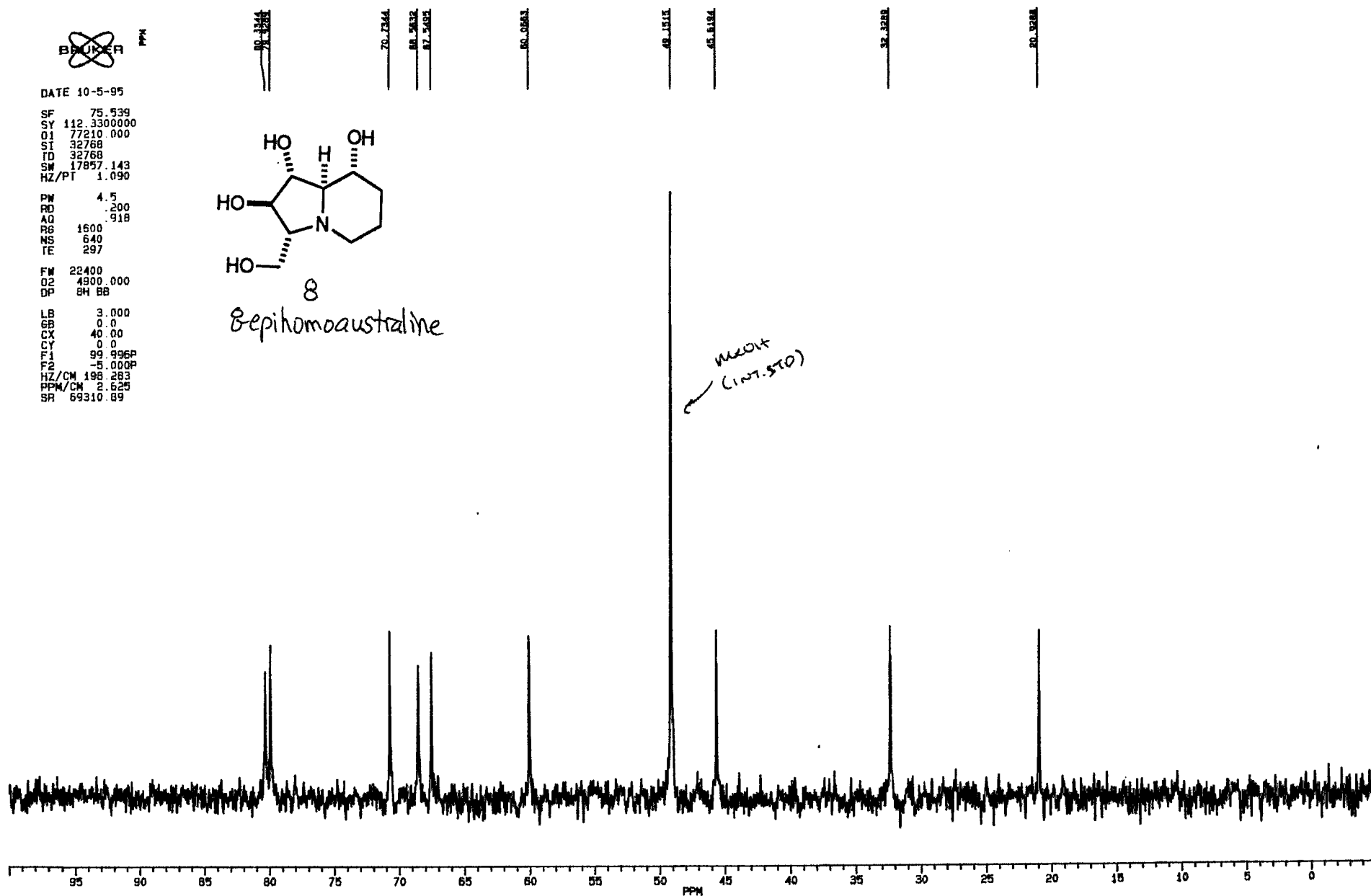
FW 22400  
O2 4900.000  
DP 8H BB

LB 3.000  
GB 0.0  
CX 40.00  
CY 0.0  
F1 99.996P  
F2 -5.000P  
HZ/CM 198.283  
PPM/CM 2.625  
SR 69310.89



8

Bepihomoaustraline





32

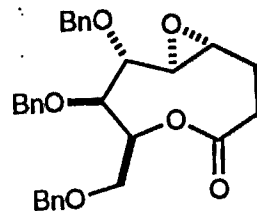
BRUKER

CLASS 130  
DATE 7-12-95  
SF 360.132  
SY 79.0  
Q1 5800.000  
Q2 32768  
Q3 32768  
Q4 4000.000  
HZ/PT .244

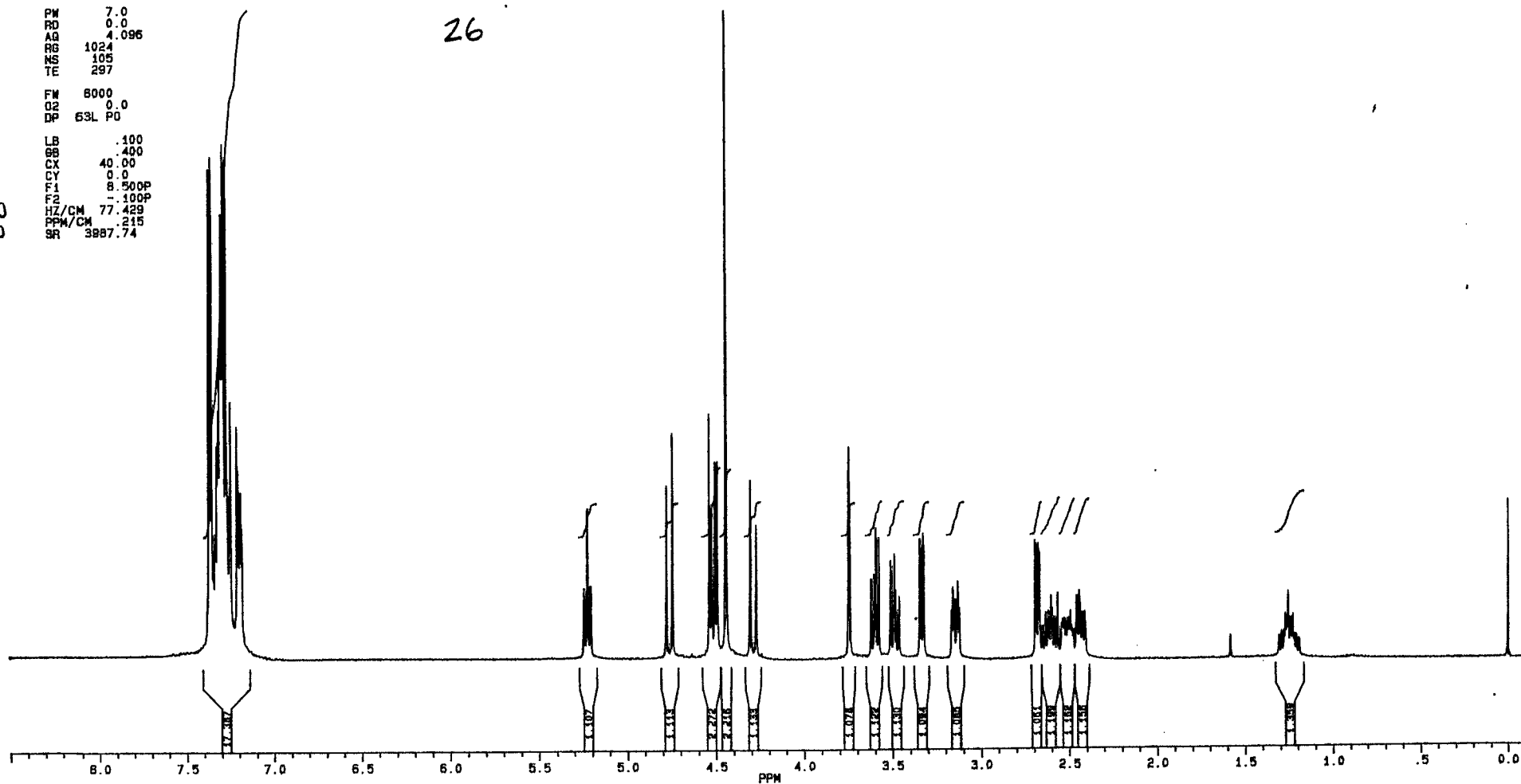
PW 7.0  
RD 0.0  
AQ 4.096  
RG 1024  
NS 105  
TE 297

FW 8000  
Q2 0.0  
DP 63L P0

LB .100  
GB .400  
CX 40.00  
CY 0.0  
F1 8.500P  
F2 -100P  
HZ/CM 77.429  
PPM/CM .215  
SR 3887.74



26



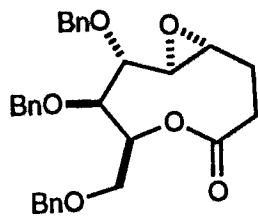
33



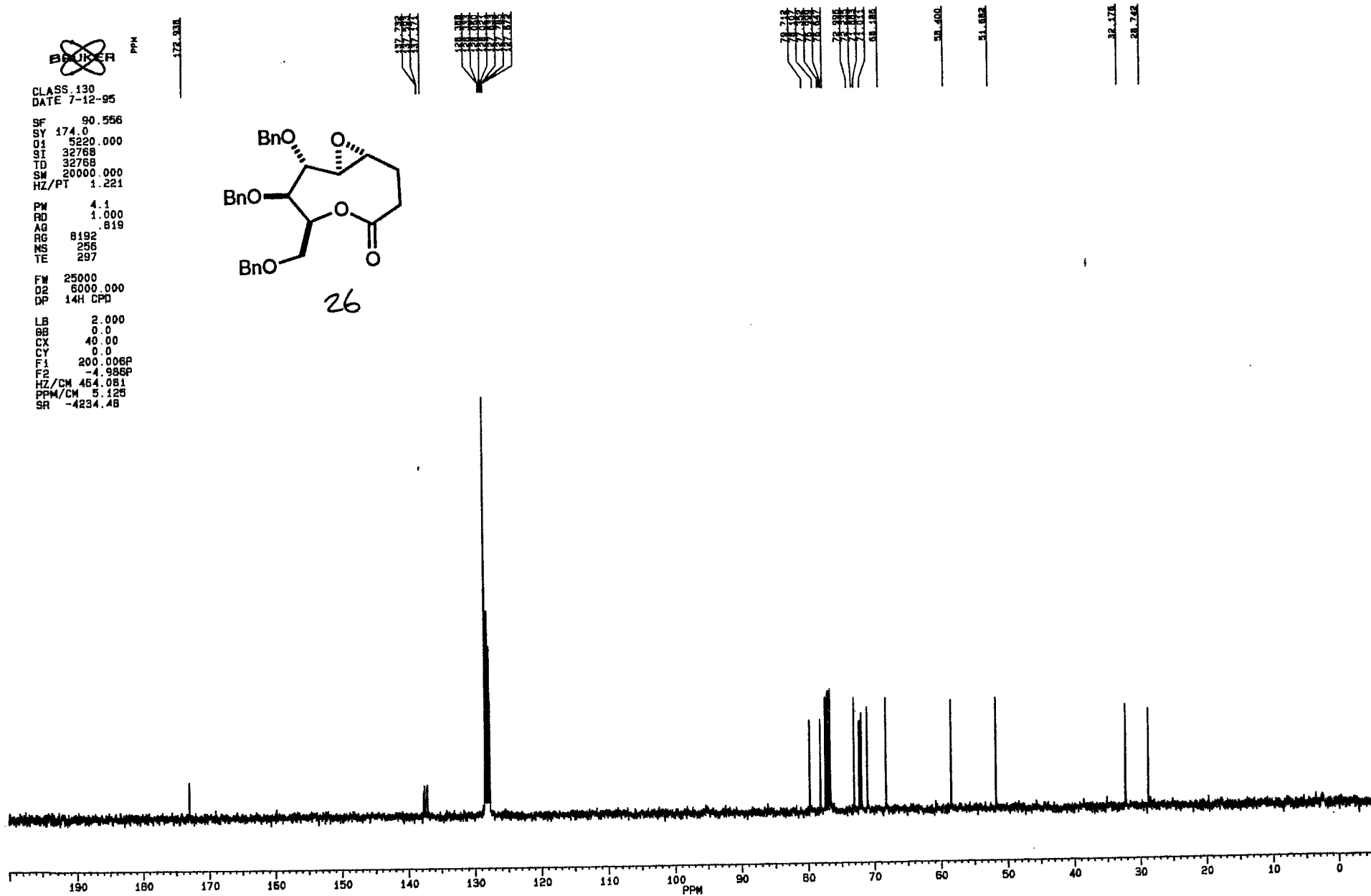
CLASS 130  
DATE 7-12-95  
SF 90.556  
SY 174.0  
Q1 5220.000  
SI 32768  
TD 32768  
SW 20000.000  
HZ/PT 1.221  
PM 4.1  
RD 1.000  
AQ .819  
RG 8192  
NS 256  
TE 297  
FW 25000  
Q2 6000.000  
DP 14H CPD  
LB 2.000  
GB 0.0  
CX 40.00  
CY 0.0  
F1 200.006P  
F2 -4.985P  
HZ/CM 464.081  
PPM/CM 5.125  
SR -4234.46

PPM

172.931



26



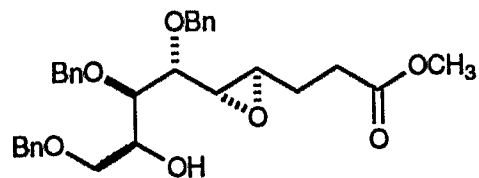
~~BRUKER~~

DATE 7-3-95  
SF 300.133  
SY 0.0  
Q1 4900.000  
ST 32768  
TD 32768  
SW 4000.000  
HZ/PT .244

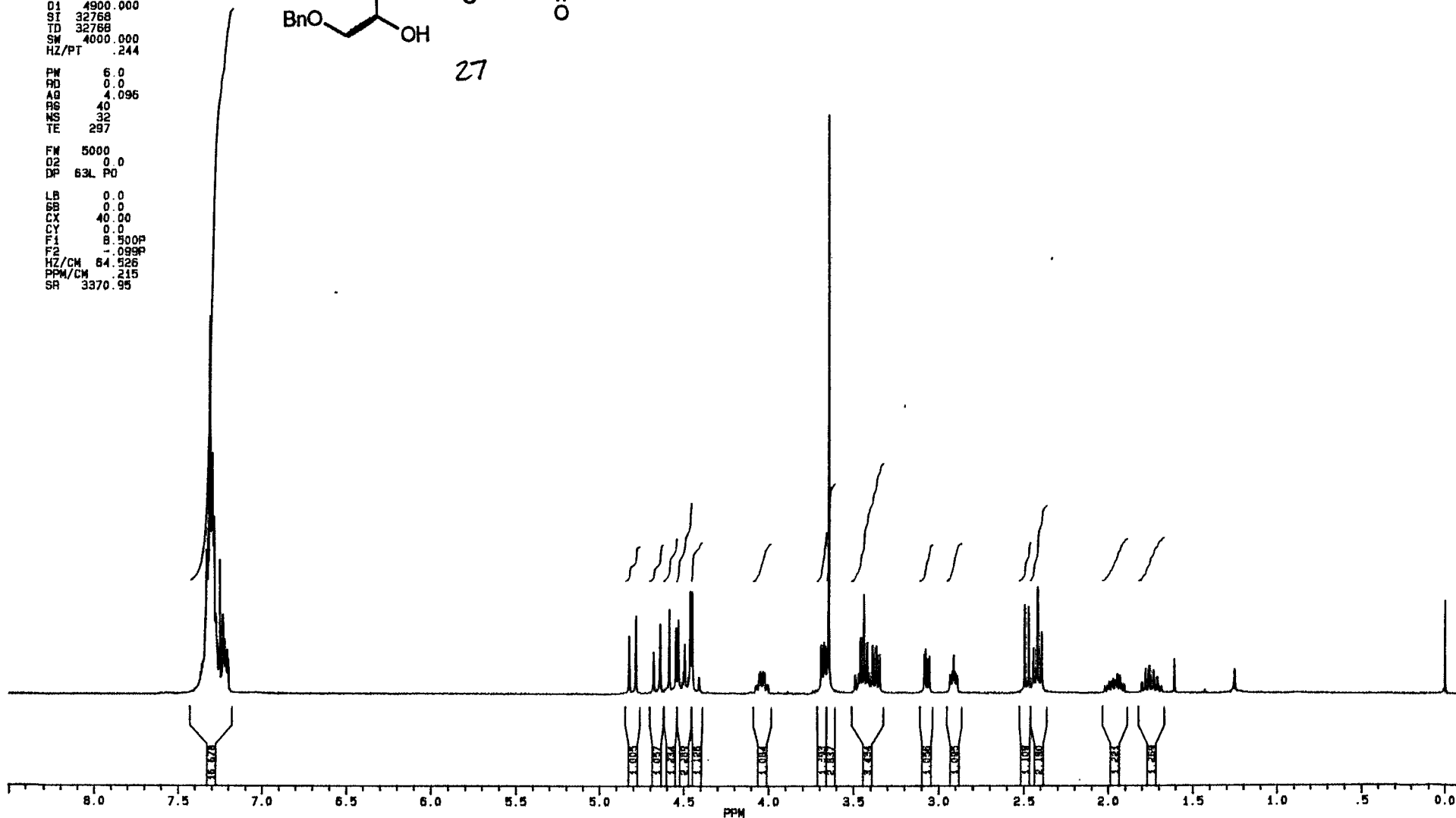
PW 6.0  
RD 0.0  
AQ 4.096  
RG 40  
NS 32  
TE 297

FW 5000  
Q2 0.0  
DP 63L PD

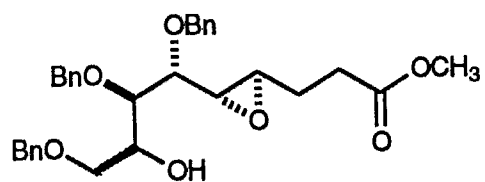
LB 0.0  
GB 0.0  
CX 40.00  
CY 0.0  
F1 8.500P  
F2 - .099P  
HZ/CM 64.526  
PPM/CM .215  
SR 3370.95



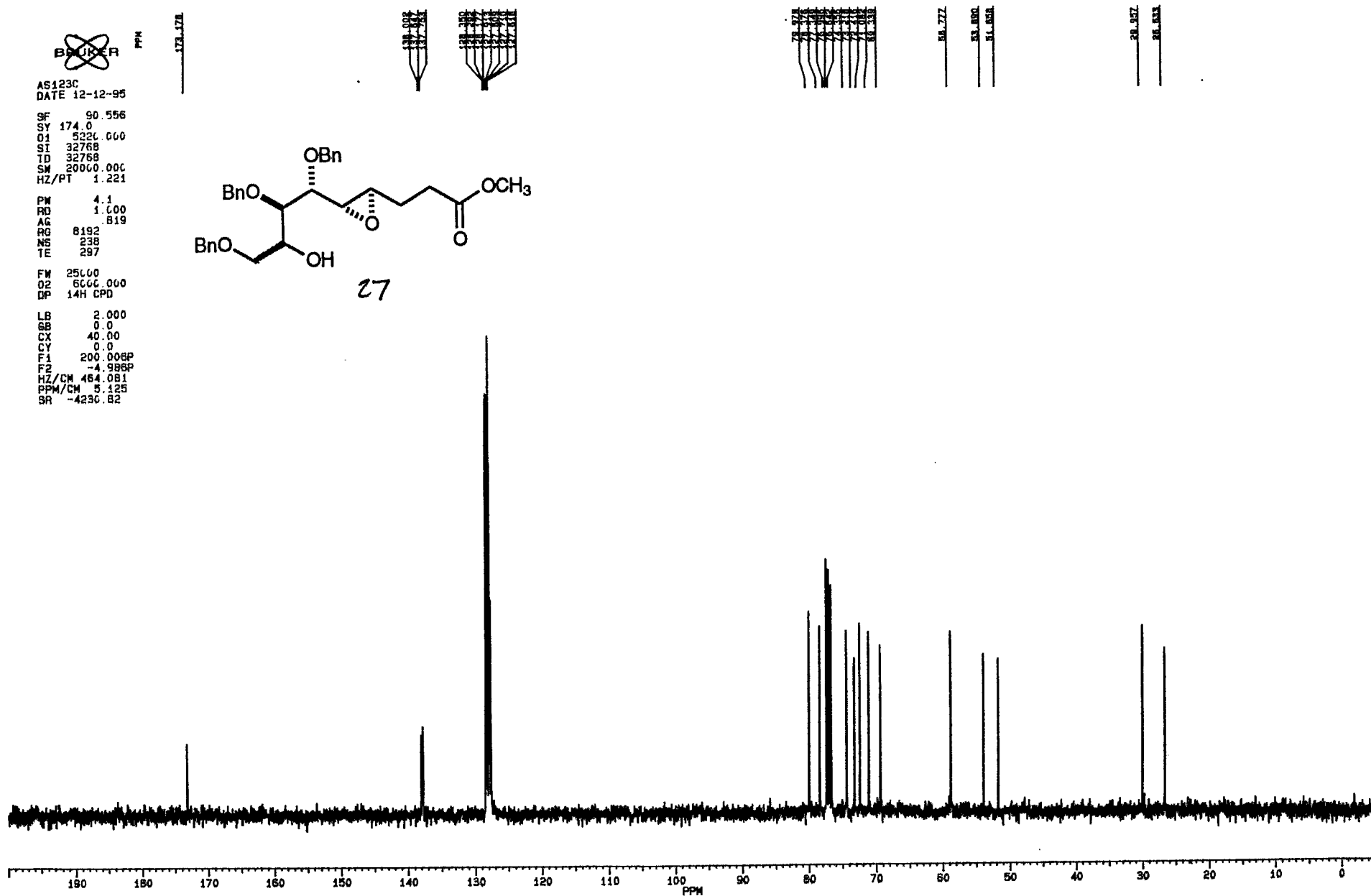
27



34



27



BRUKER

AS123C  
DATE 12-12-95

9F 90.556  
SY 174.0  
O1 5226.000  
SI 32768  
TD 32768  
SM 20000.000  
HZ/PT 1.221

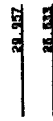
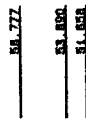
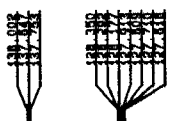
PM 4.1  
RD 1.000  
AG 8192  
RG 238  
NS 297  
TE

FW 256.00  
O2 6000.000  
DP 14H CPD

LB 2.000  
GB 0.0  
CX 40.00  
CY 0.0  
F1 200.006P  
F2 -4.986P  
HZ/CN 464.081  
RPM/CN 5.125  
SR -4230.62

PPM

77.2 77.1 77.0



BRUKER

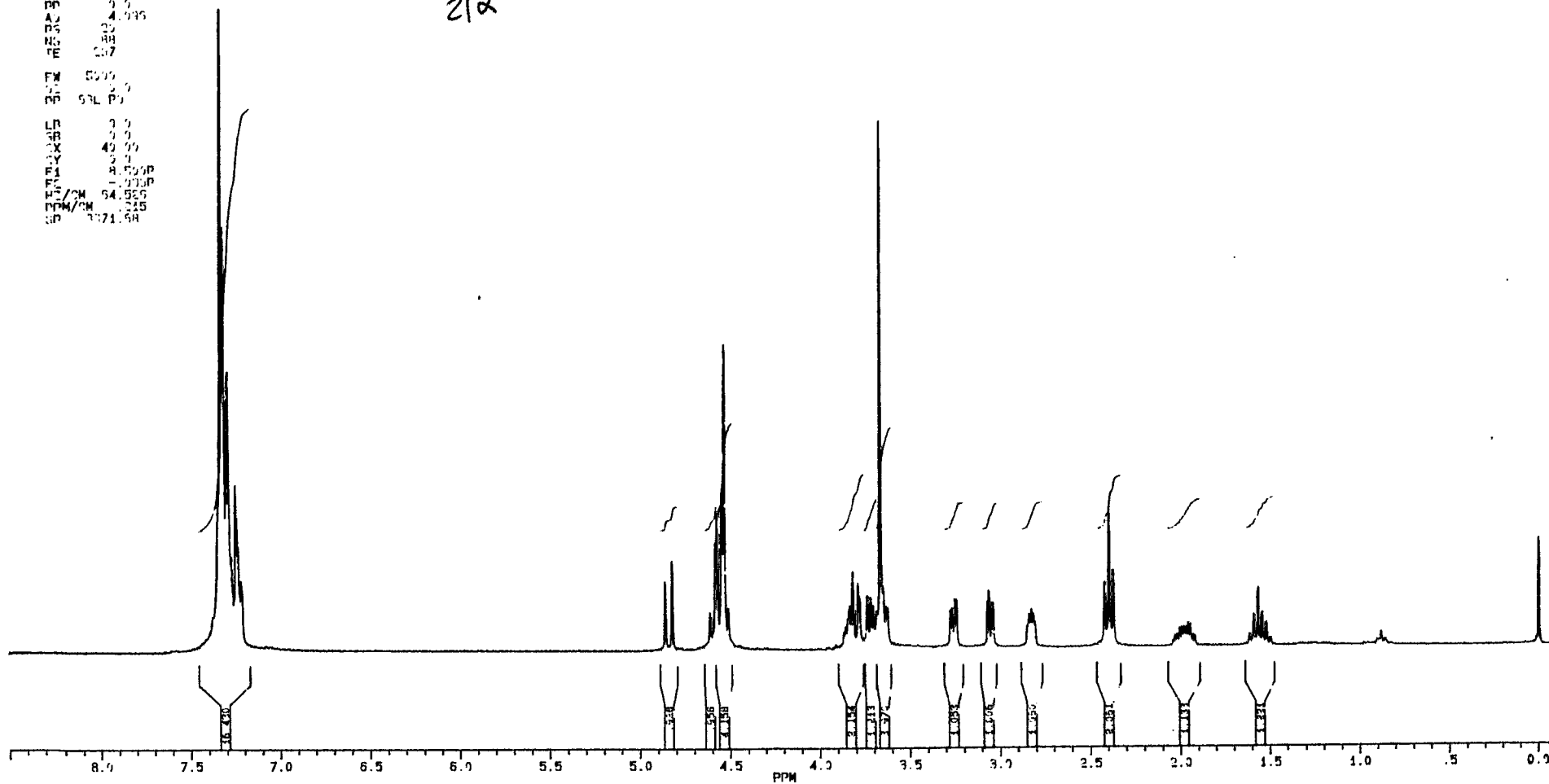
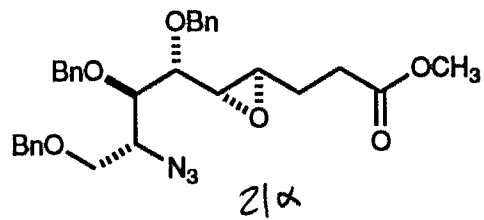
DATE 14-12-95

SF 300 130  
SY 1.0  
SI 4000 000  
ST 32768  
TD 32768  
SW 4000 000  
HZ/PT 1.044

FW 5.0  
PP 0.0  
AQ 4.095  
PS 35  
NS 88  
TE 207

FM 5000  
SC 0.0  
PP 500.00

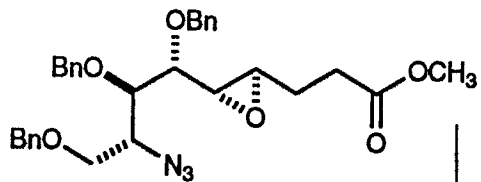
LR 0.0  
SR 0.0  
CX 40.00  
CY 0.0  
F1 8.0000  
F2 1.0000  
F3/CM 64.0000  
PPM/CM 215  
SP 1071.58



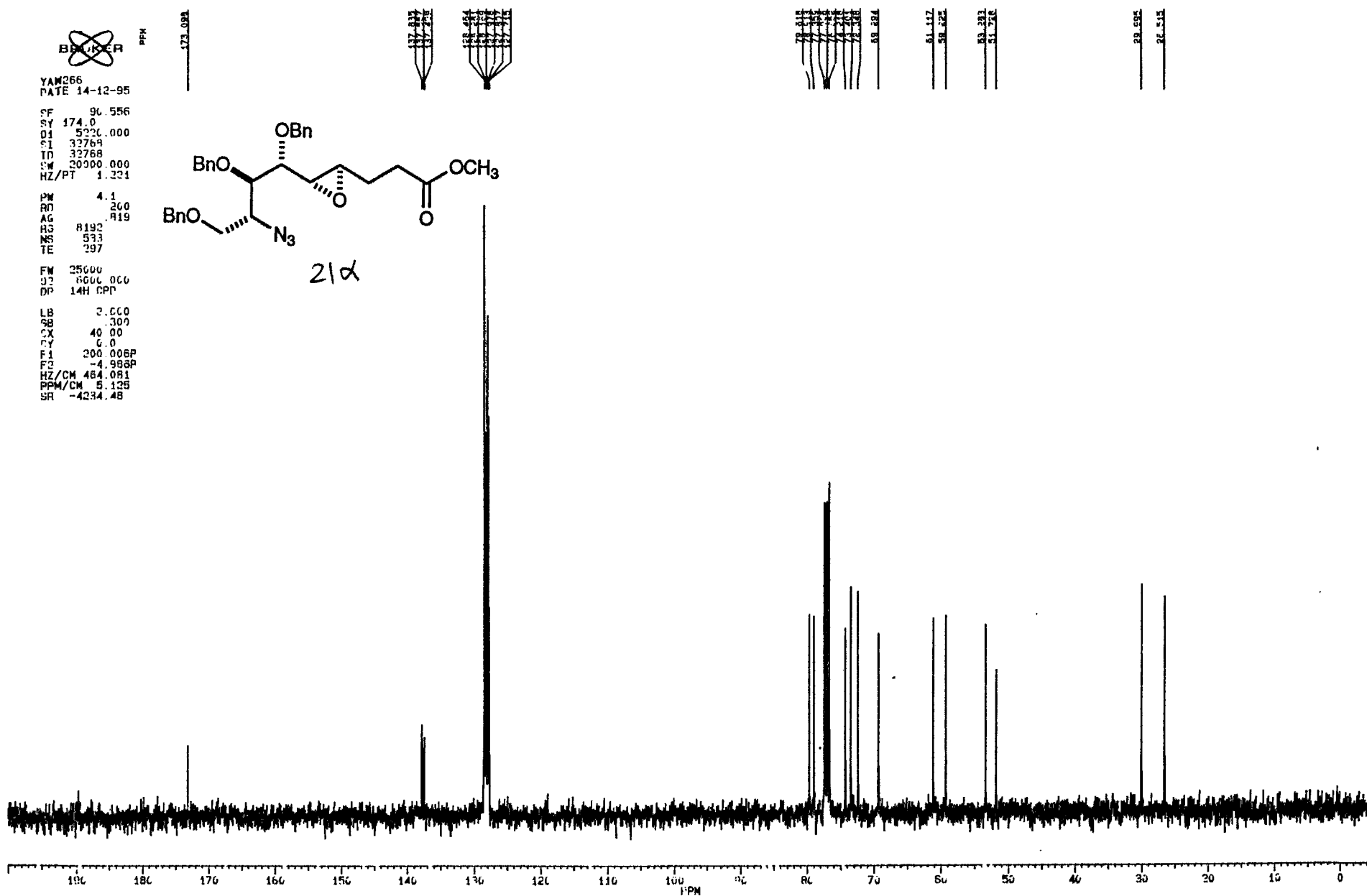
```

LB      2.000
GB      .300
CX      40.00
CY      0.0
F1      200.006P
F2      -4.986P
HZ/CM   464.081
PPM/CM   5.125
SR      -4234.48

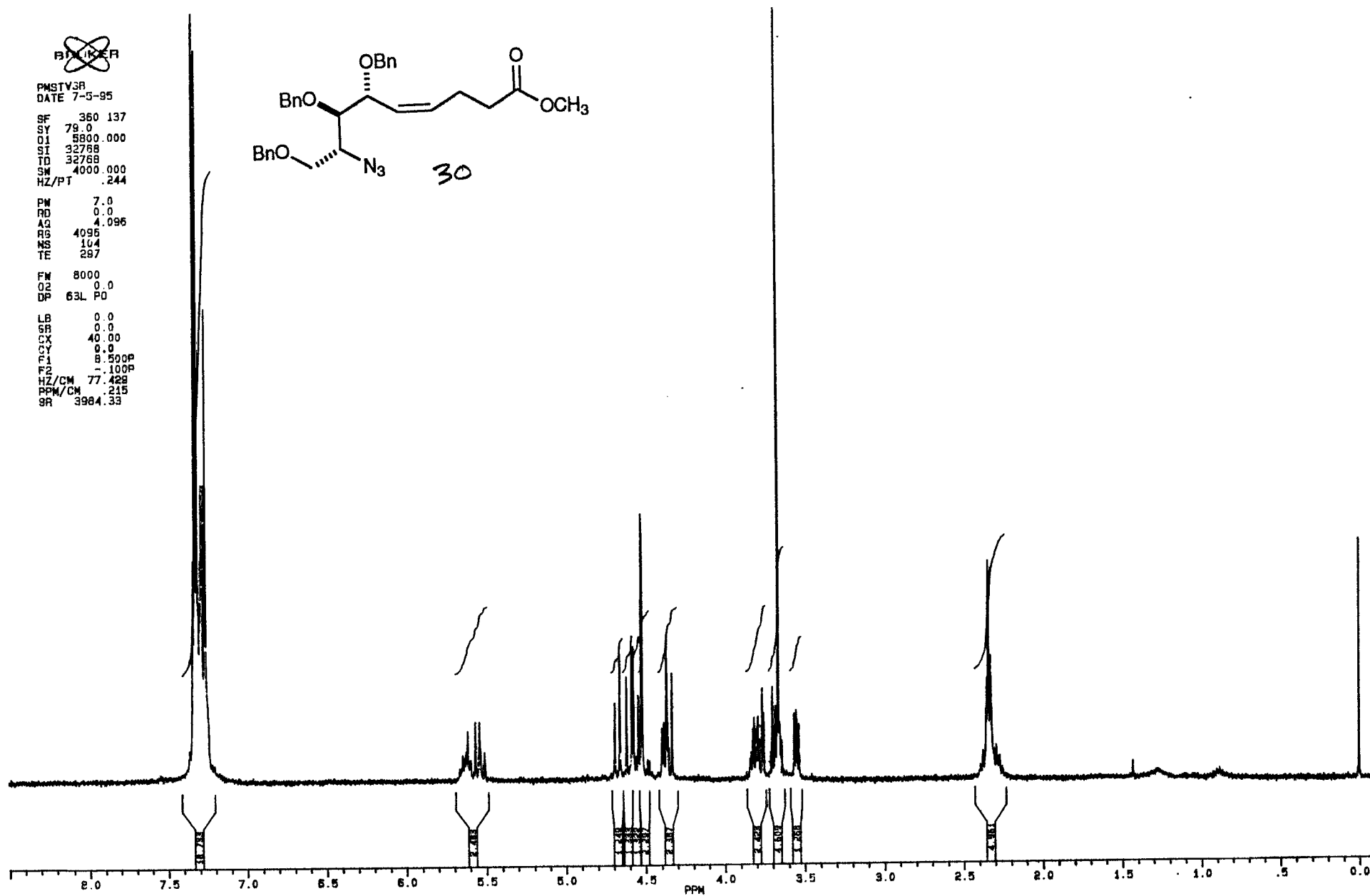
```



21a



|        |         |
|--------|---------|
| LB     | 0.0     |
| GR     | 0.0     |
| CX     | 40.00   |
| CY     | 0.0     |
| F1     | 8.500P  |
| F2     | -1.100P |
| HZ/CM  | 77.429  |
| PPM/CM | .215    |
| GR     | 3984.33 |



39



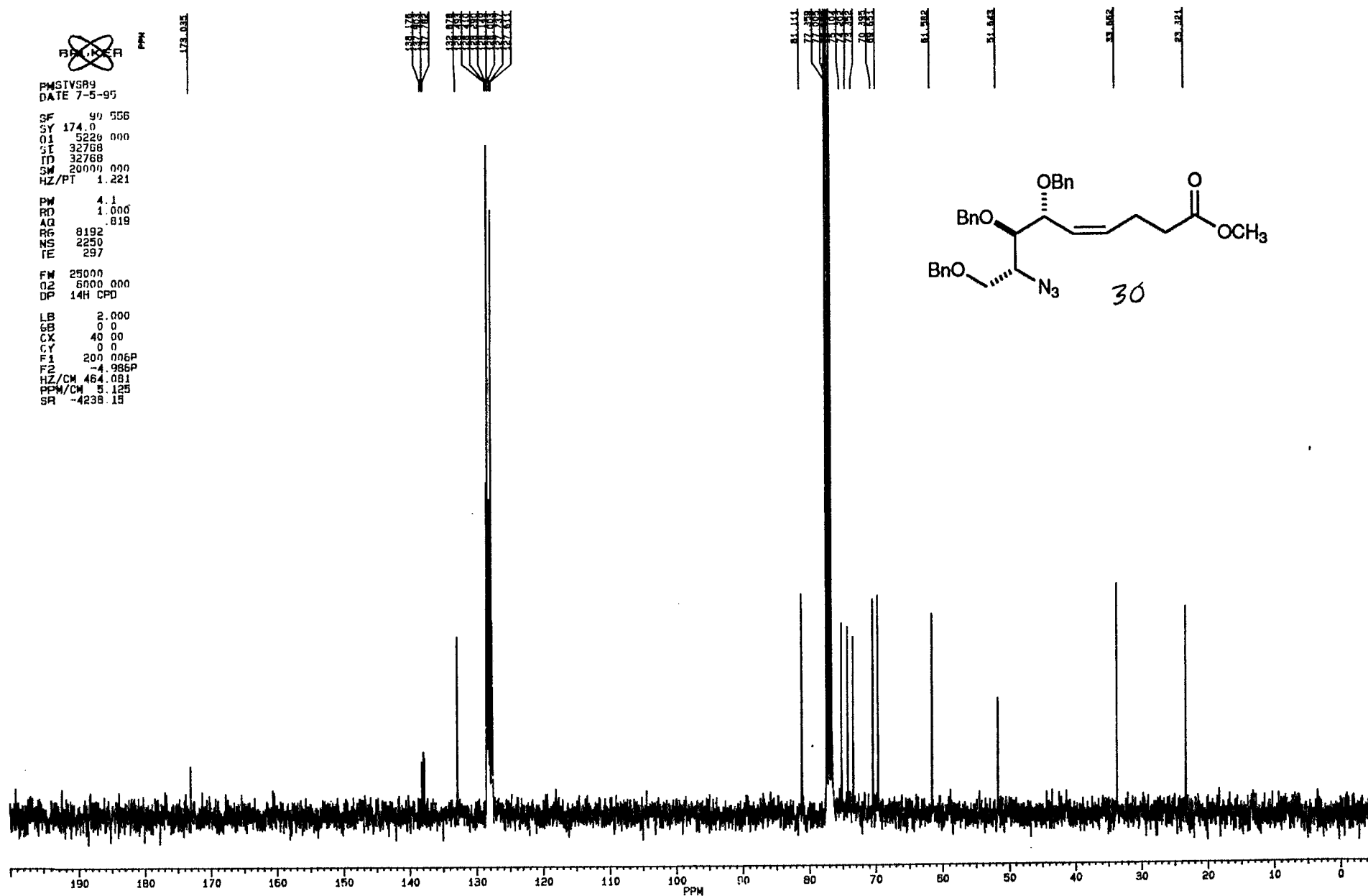
PMGIVS89  
DATE 7-5-95

SF 90 556  
SY 174.0  
Q1 5226 000  
S1 32768  
TD 32768  
SM 20000 000  
HZ/PT 1.221

PW 4.1  
RO 1.000  
AQ .819  
RG 8192  
NS 2250  
TE 297

FW 25000  
Q2 5000 000  
DP 14H CPD

LB 2.000  
GB 0 0  
CX 40 00  
CY 0 0  
F1 200 006P  
F2 -4.986P  
HZ/CM 464.081  
PPM/CM 5.125  
SR -4238.15





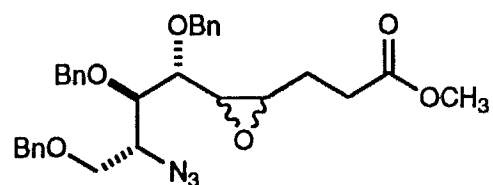
BRUKER

EXPT122  
DATE 3-12-95  
SF 360.132  
SY 79.0  
Q1 5800.000  
SI 32768  
TD 32768  
SW 4000.000  
HZ/PT .244

PM 7.0  
PD 0.0  
AQ 4.096  
RG 1024  
NS 257  
TE 297

FM 8000  
Q2 0.0  
DP 63L P0

LB .100  
GB .100  
CX 40.00  
CY 0.0  
F1 8.500P  
F2 .100P  
HZ/CM 77.429  
PPM/CM .215  
SR 3984.33



31 $\alpha$  + 31 $\beta$

