Lista de Exercícios 6 – UV, IV, MS e RMN

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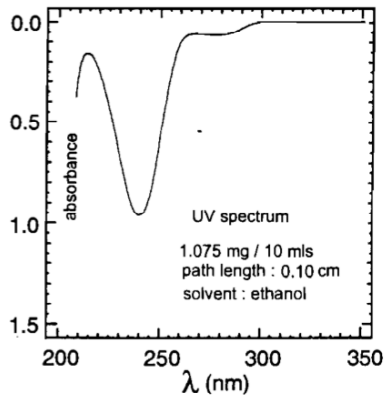
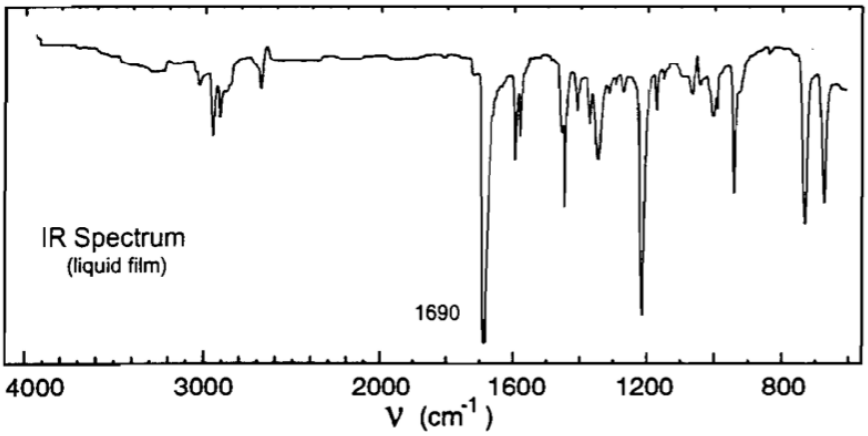
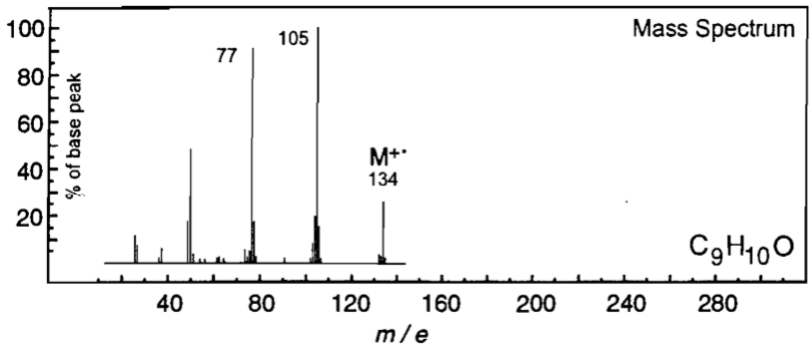
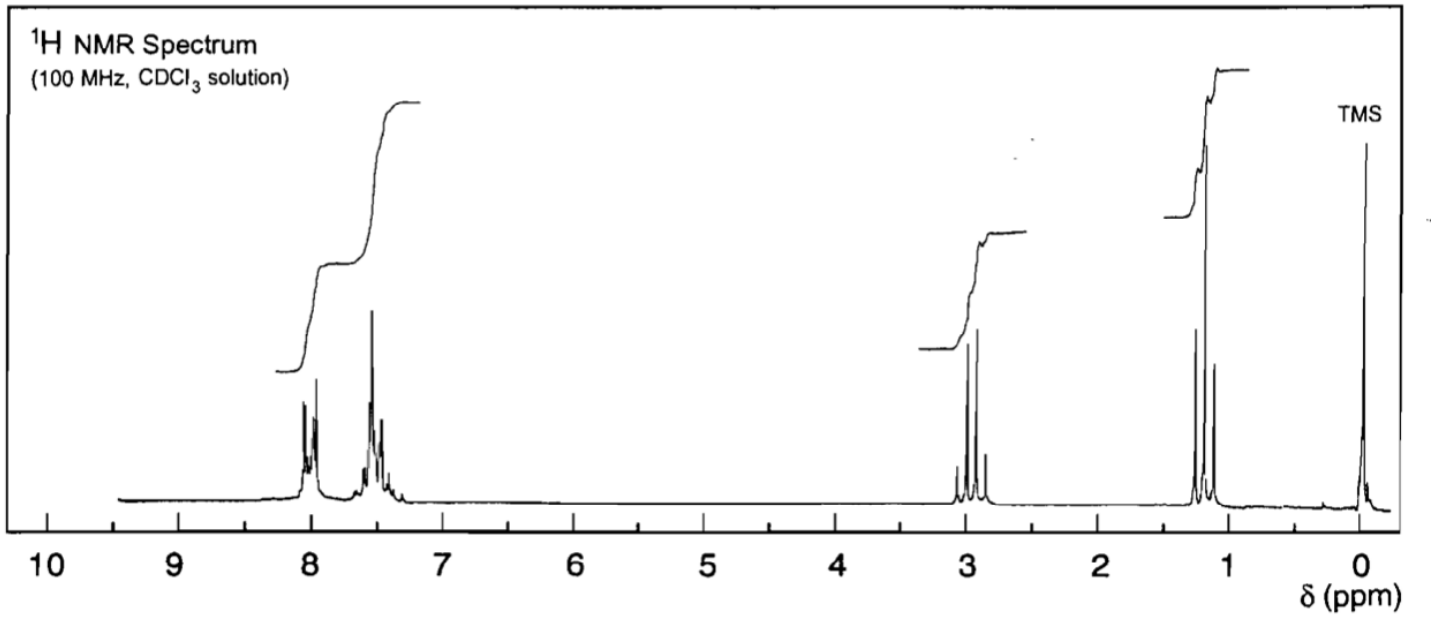
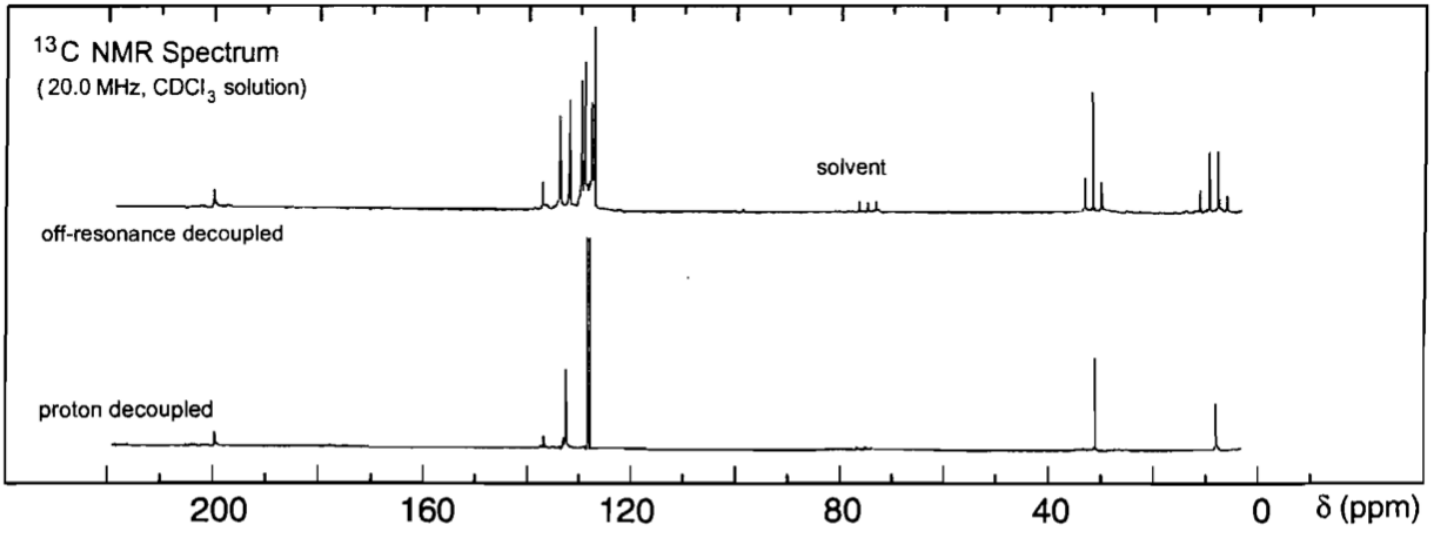
1. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_9H_{10}O$.



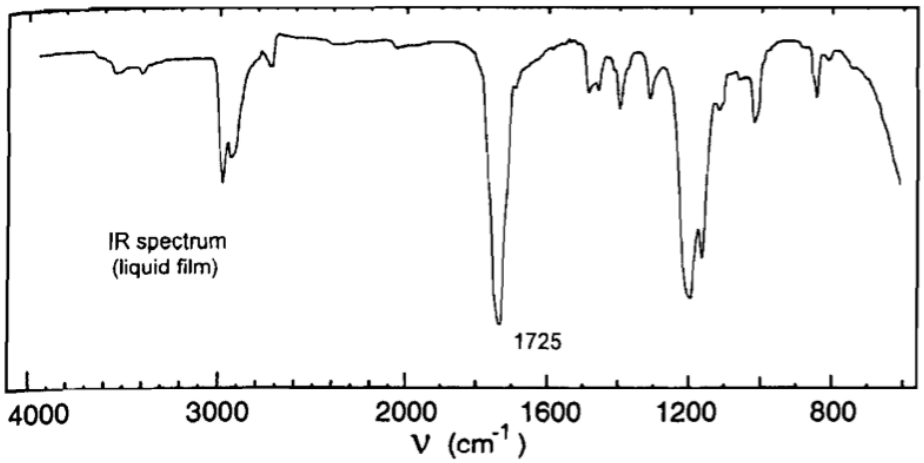


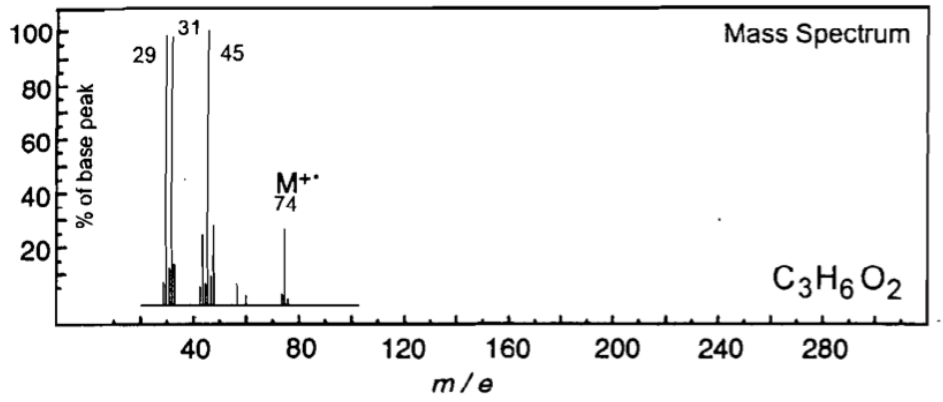


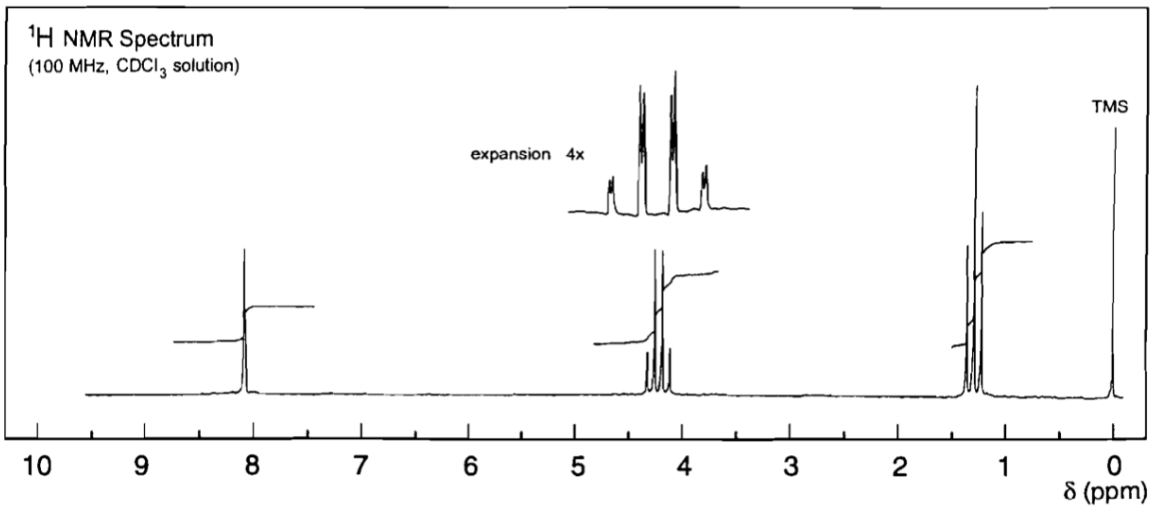

^{1}H NMR Spectrum
(100 MHz, $CDCl_3$ solution)
TMS
10
9
8
7
6
5
4
3
2
1
0
δ (ppm)

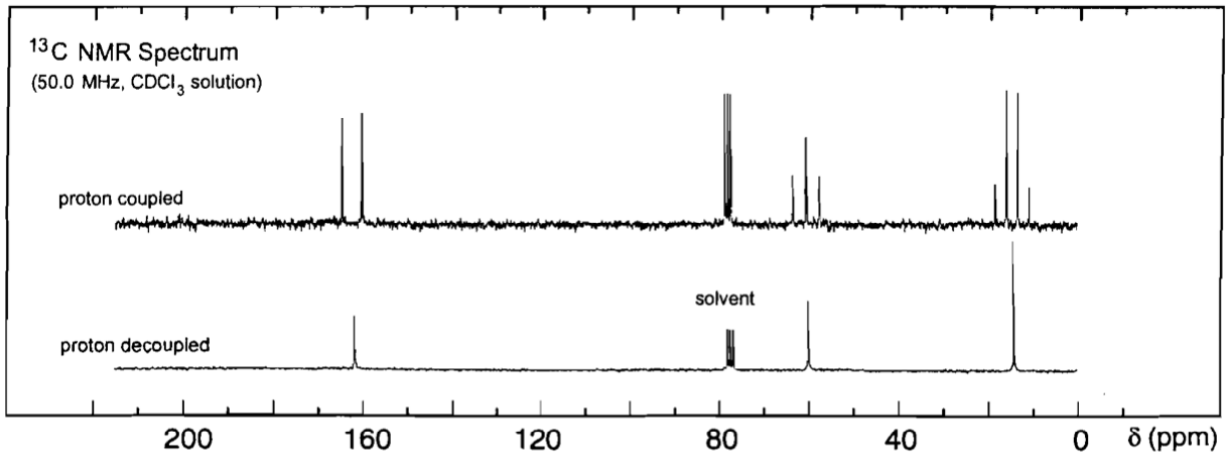

^{13}C NMR Spectrum
(20.0 MHz, $CDCl_3$ solution)
solvent
off-resonance decoupled
proton decoupled
200
160
120
80
40
0
δ (ppm)

2. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_3H_6O_2$ e que não possui absorção significante no UV acima de 210 nm.

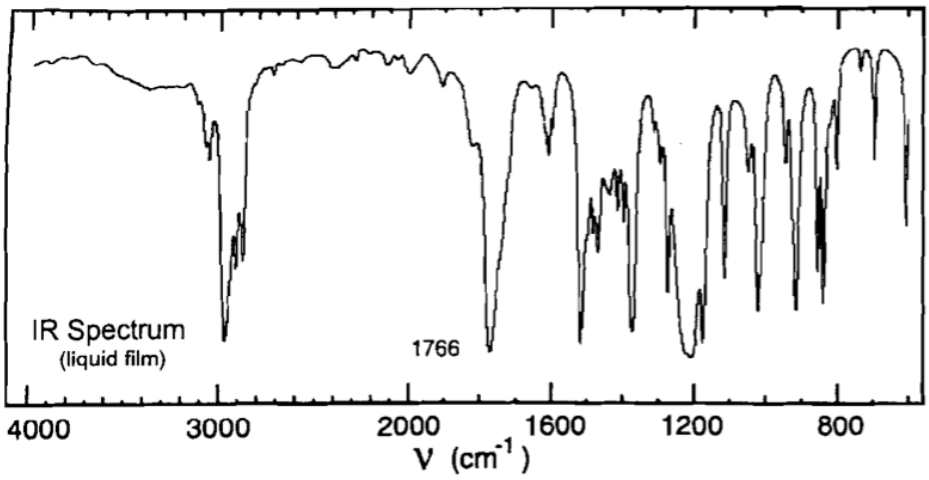


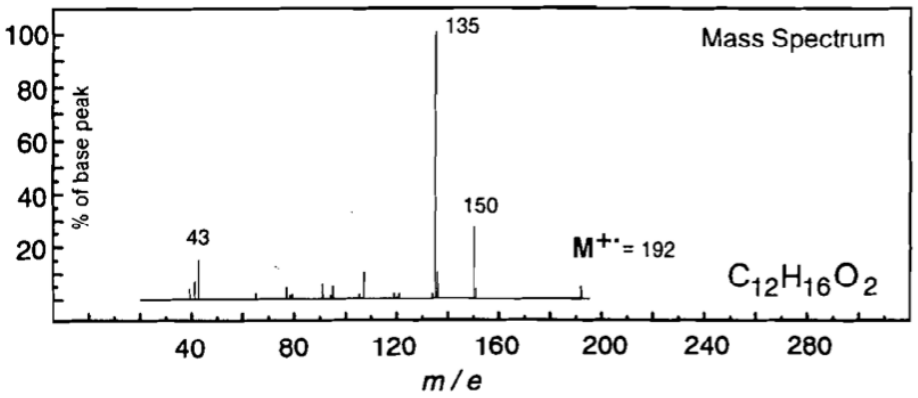


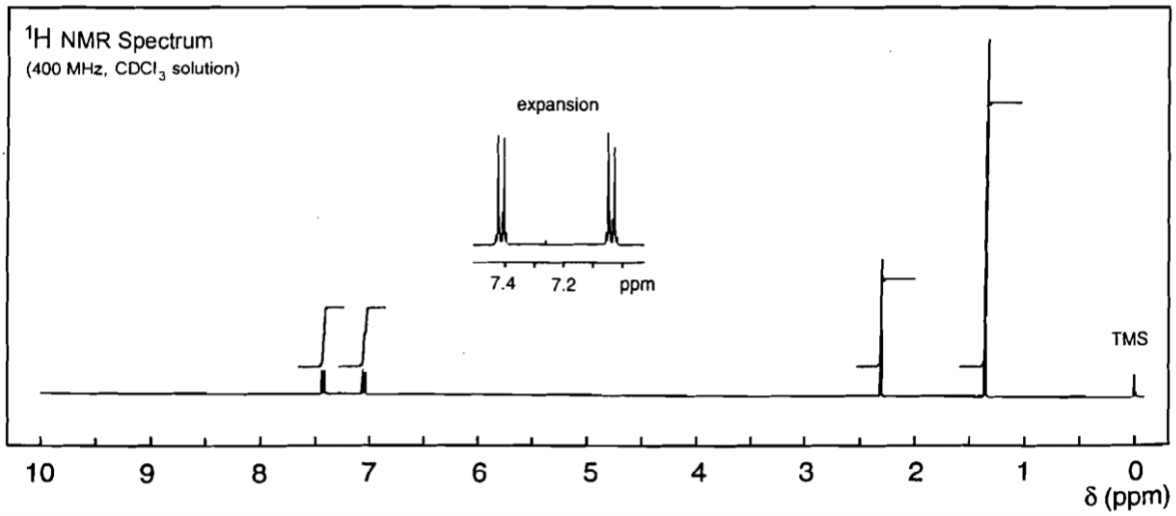


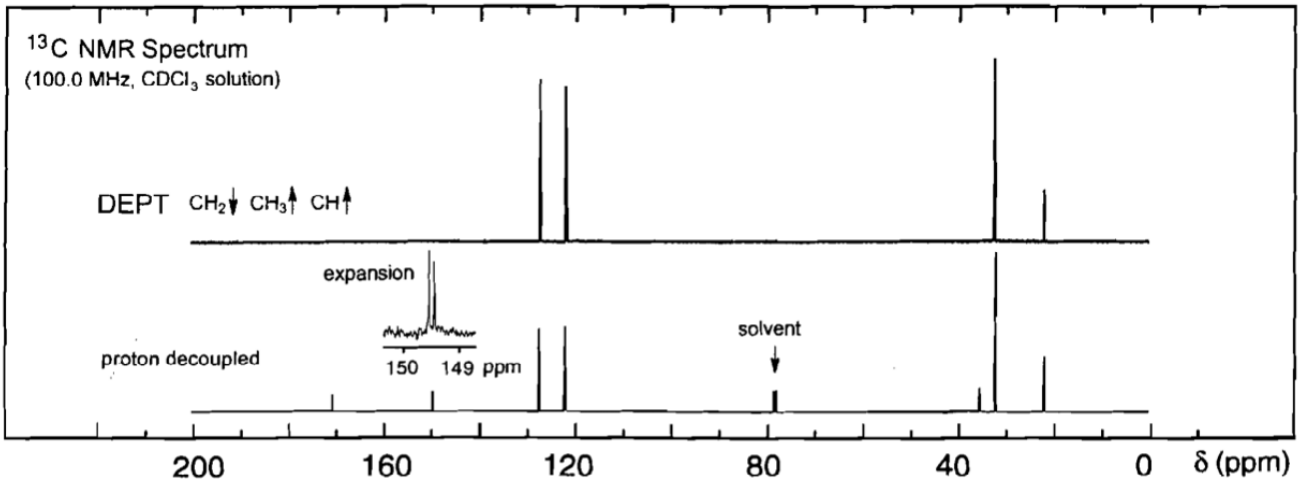


3. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_{12}H_{16}O_2$ e que aparecem 2 bandas no espectro de UV, uma em 262 nm e outra em 269 nm (solvente metanol).

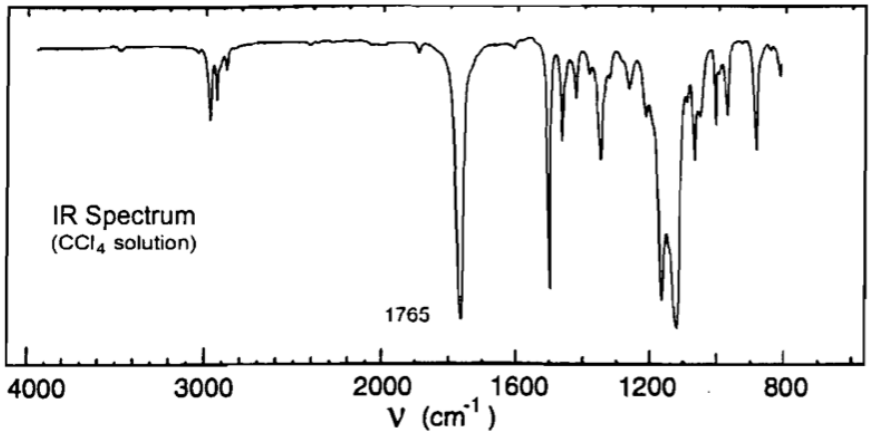


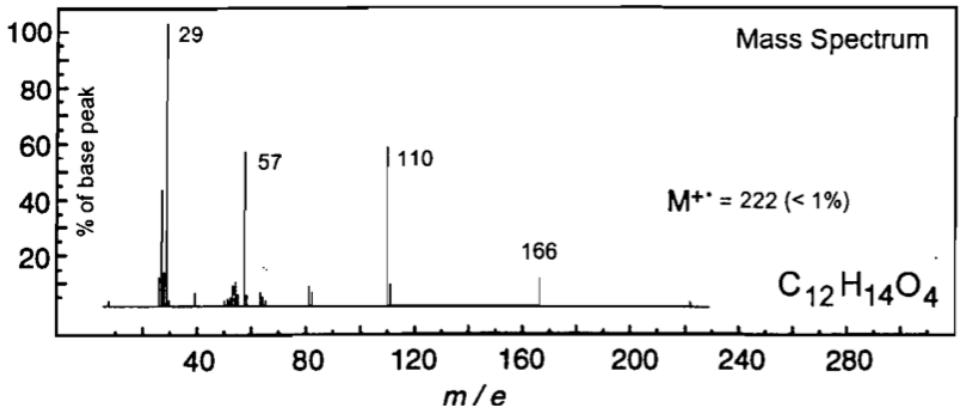


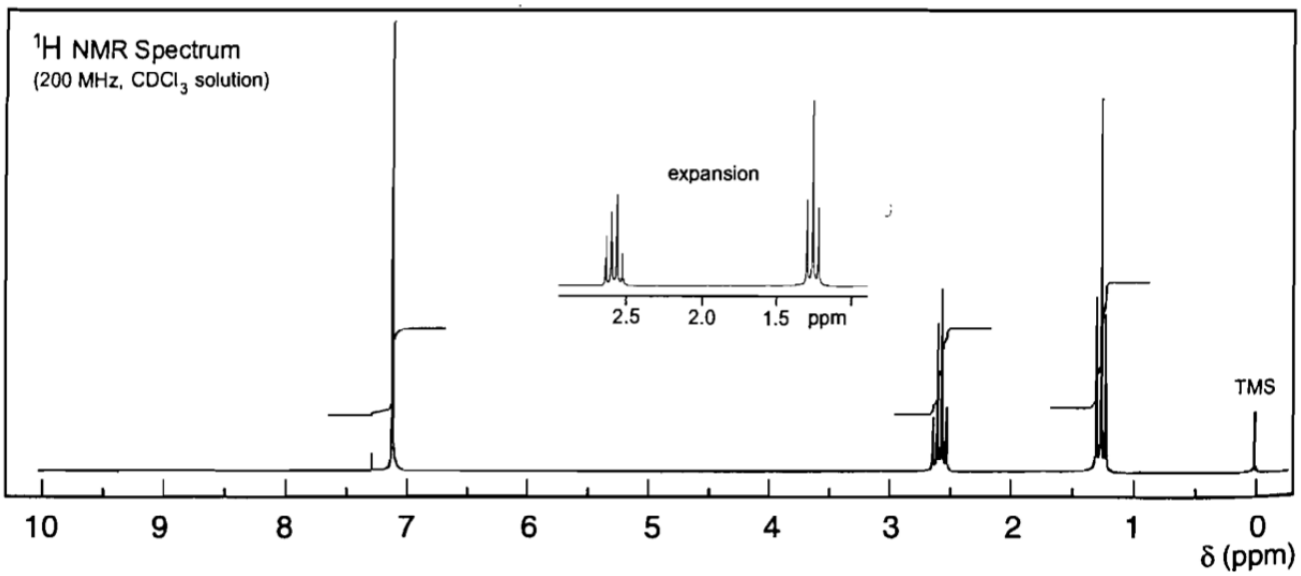

^{1}H NMR Spectrum
(400 MHz, $CDCl_3$ solution)
expansion
7.4
7.2
ppm
TMS
10
9
8
7
6
5
4
3
2
1
0
δ (ppm)

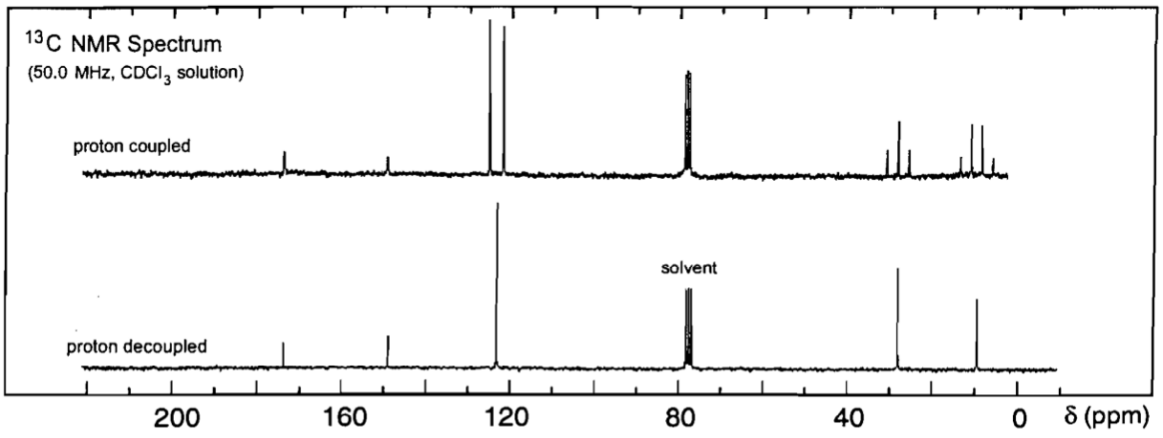

^{13}C NMR Spectrum
(100.0 MHz, $CDCl_3$ solution)
DEPT CH_2 CH_3 CH
expansion
150
149 ppm
proton decoupled
solvent
200
160
120
80
40
0
δ (ppm)

4. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_{12}H_{14}O_4$ e que aparecem 2 bandas no espectro de UV, uma em 269 nm e outra em 263 nm (solvente metanol).

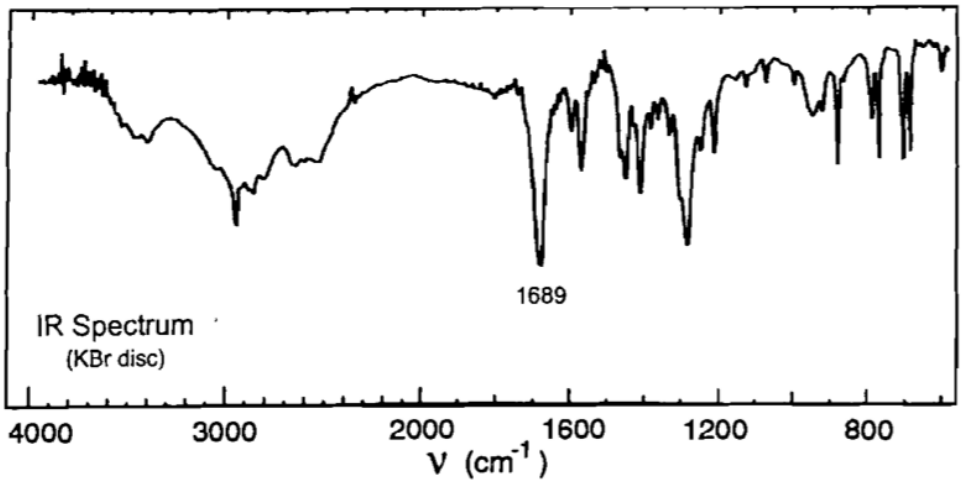


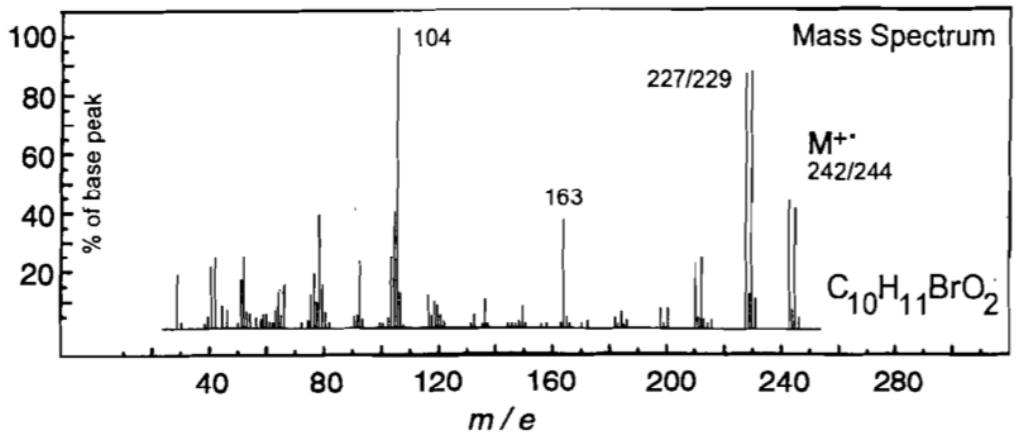


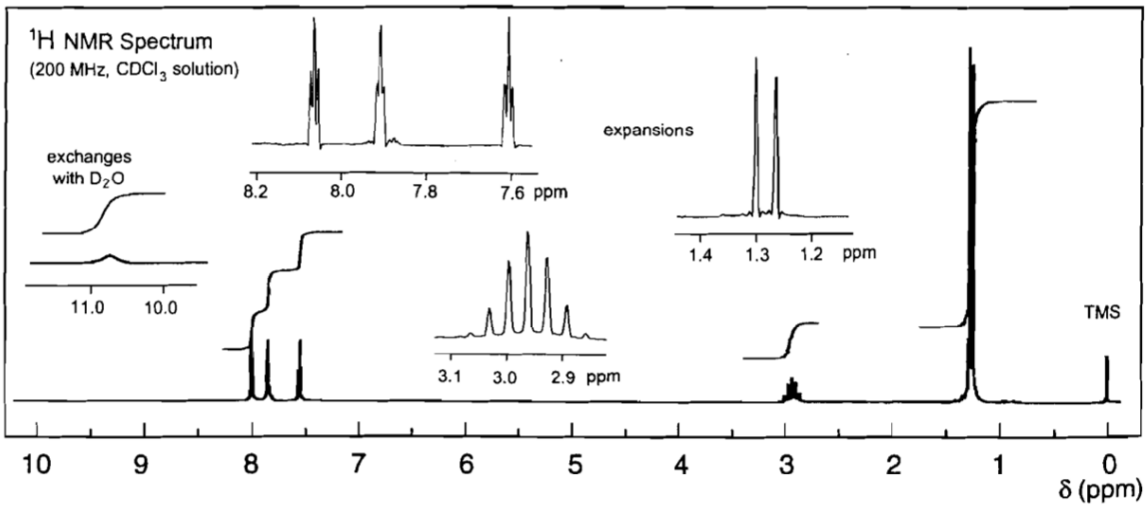


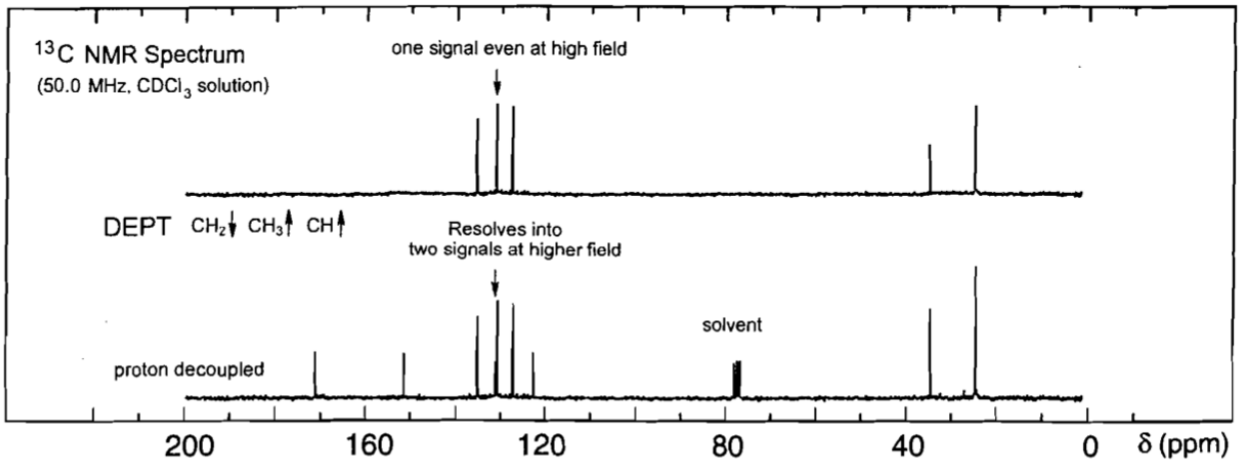


5. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_{10}H_{11}BrO_2$.

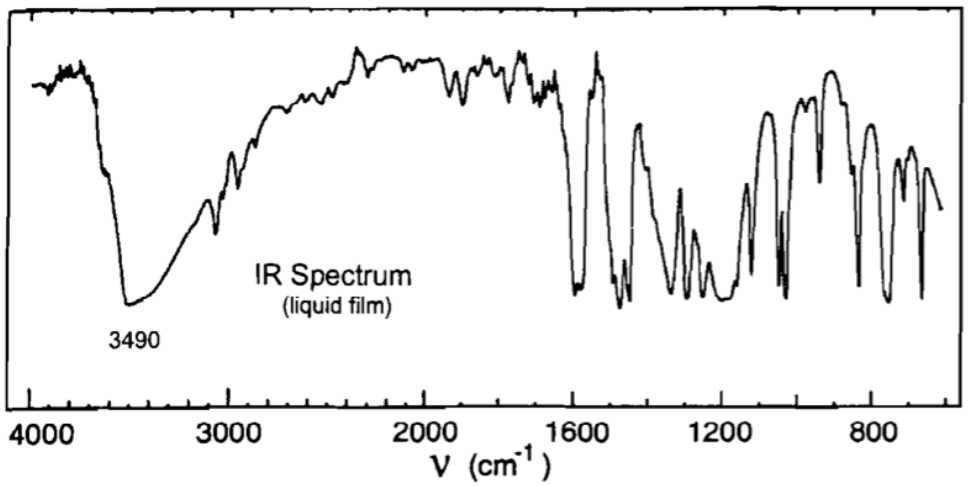


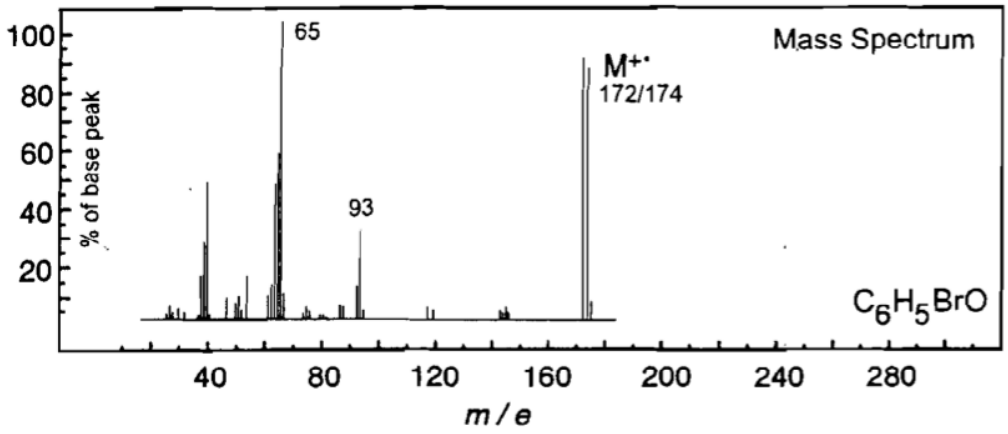


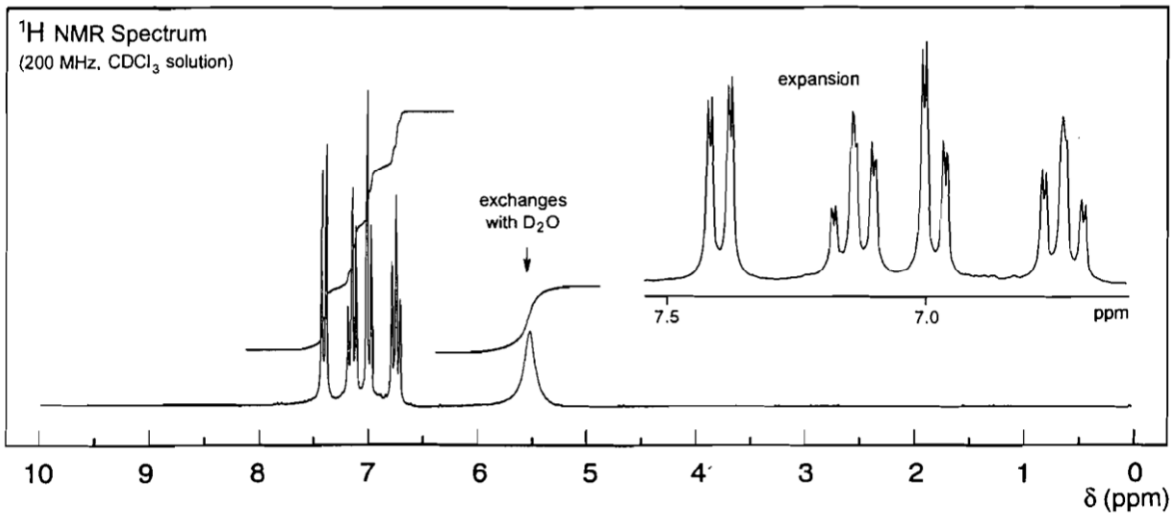

^{1}H NMR Spectrum
(200 MHz, $CDCl_3$ solution)
exchanges with D_2O
11.0
10.0
8.2
8.0
7.8
7.6 ppm
3.1
3.0
2.9 ppm
expansions
1.4
1.3
1.2 ppm
TMS
10
9
8
7
6
5
4
3
2
1
0
δ (ppm)

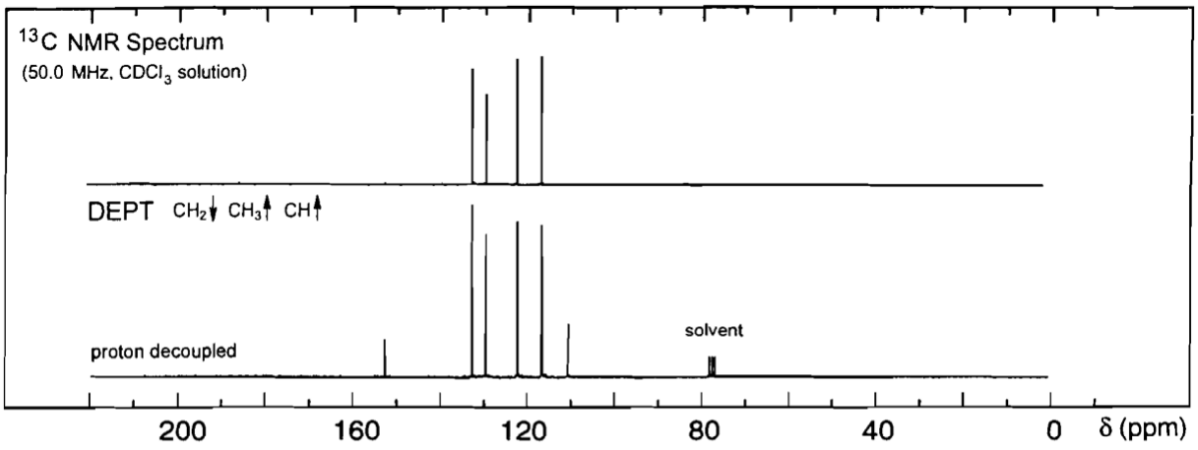

^{13}C NMR Spectrum
(50.0 MHz, $CDCl_3$ solution)
one signal even at high field
DEPT CH_2 CH_3 CH
Resolves into two signals at higher field
solvent
proton decoupled
200
160
120
80
40
0
δ (ppm)

6. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é C_6H_5BrO e que apresenta uma banda em 277 nm no espectro de UV (solvente metanol).

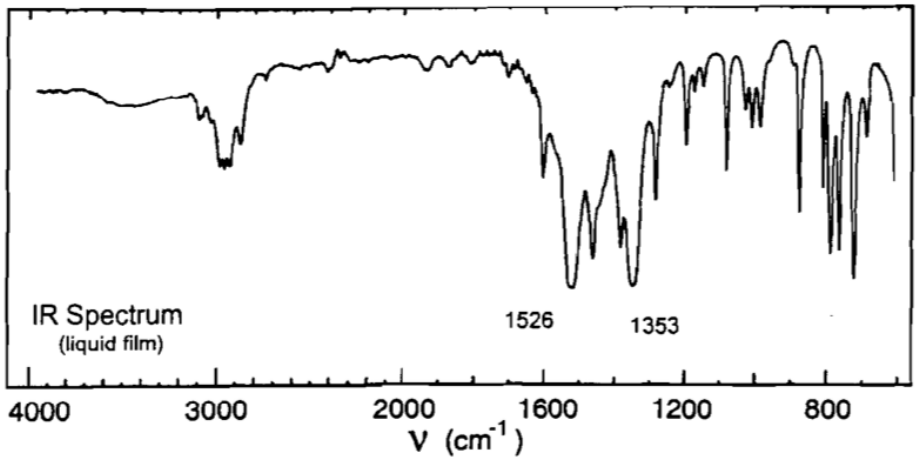


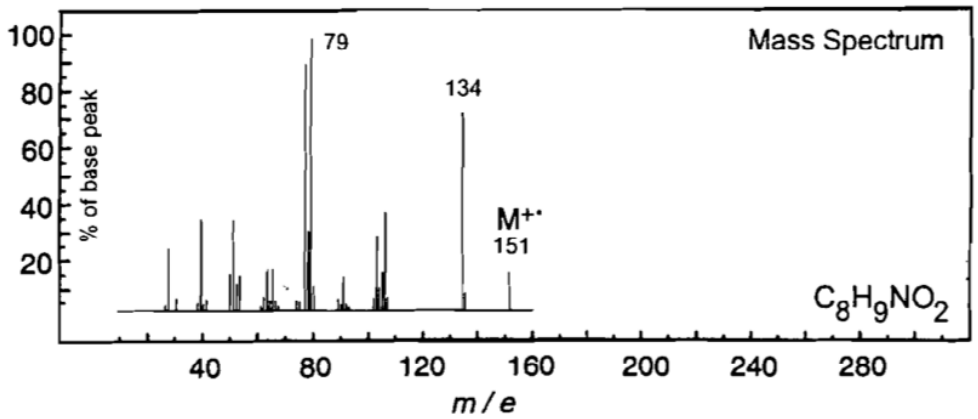


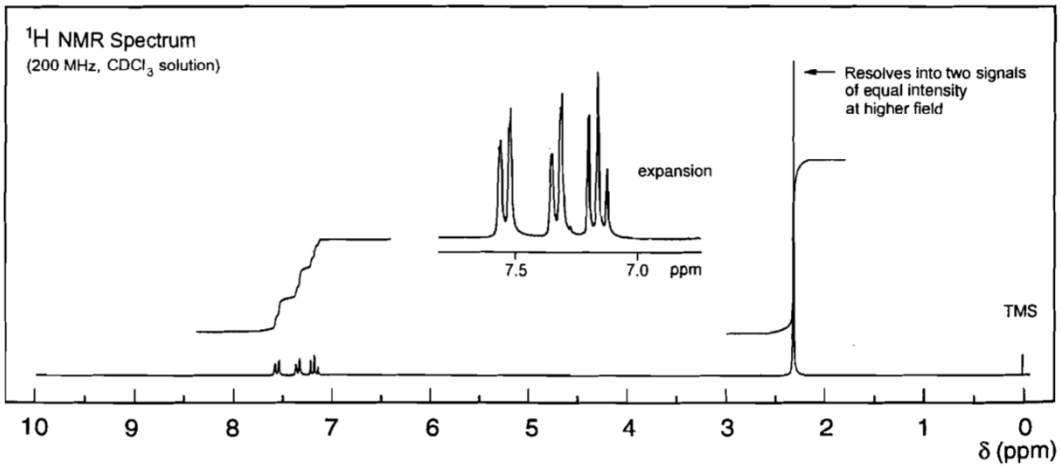


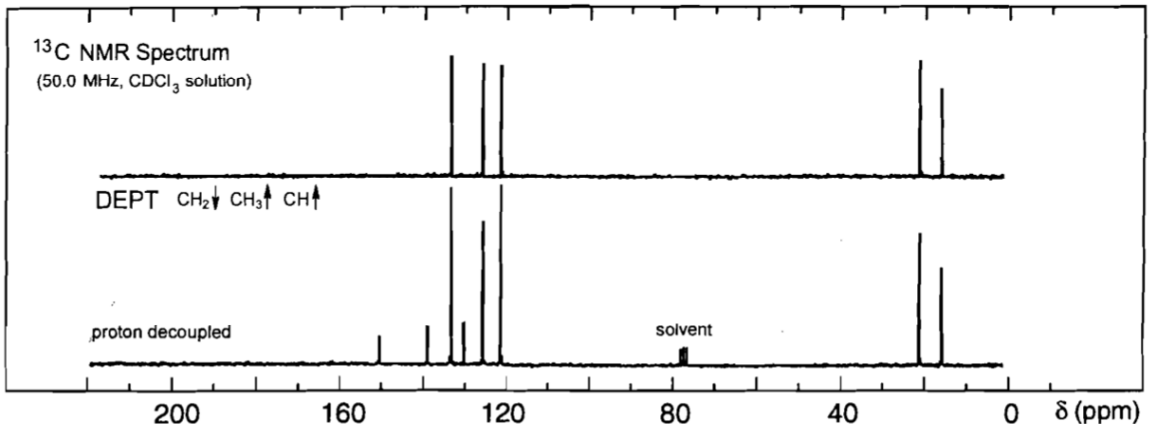


7. Dê a estrutura do composto que gerou os seguintes espectros sabendo que sua fórmula molecular é $C_8H_9NO_2$.






^{1}H NMR Spectrum
(200 MHz, $CDCl_3$ solution)
Resolves into two signals of equal intensity at higher field
expansion
7.5
7.0 ppm
TMS
10 9 8 7 6 5 4 3 2 1 0
δ (ppm)


^{13}C NMR Spectrum
(50.0 MHz, $CDCl_3$ solution)
DEPT CH_2↓ CH_3↑ CH↑
proton decoupled
solvent
200 160 120 80 40 0
δ (ppm)