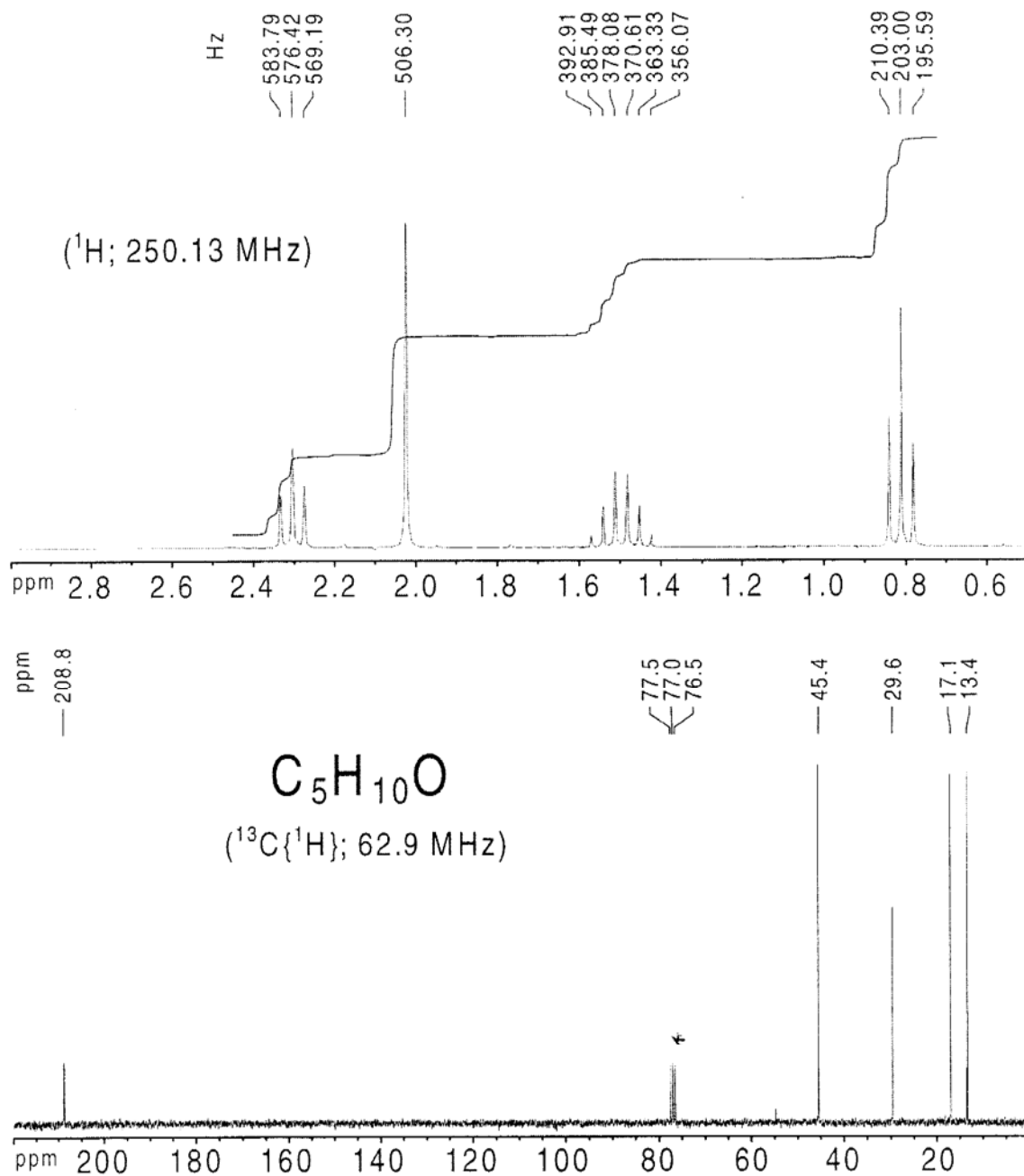


Exercices RMN-1D et RMN-2D

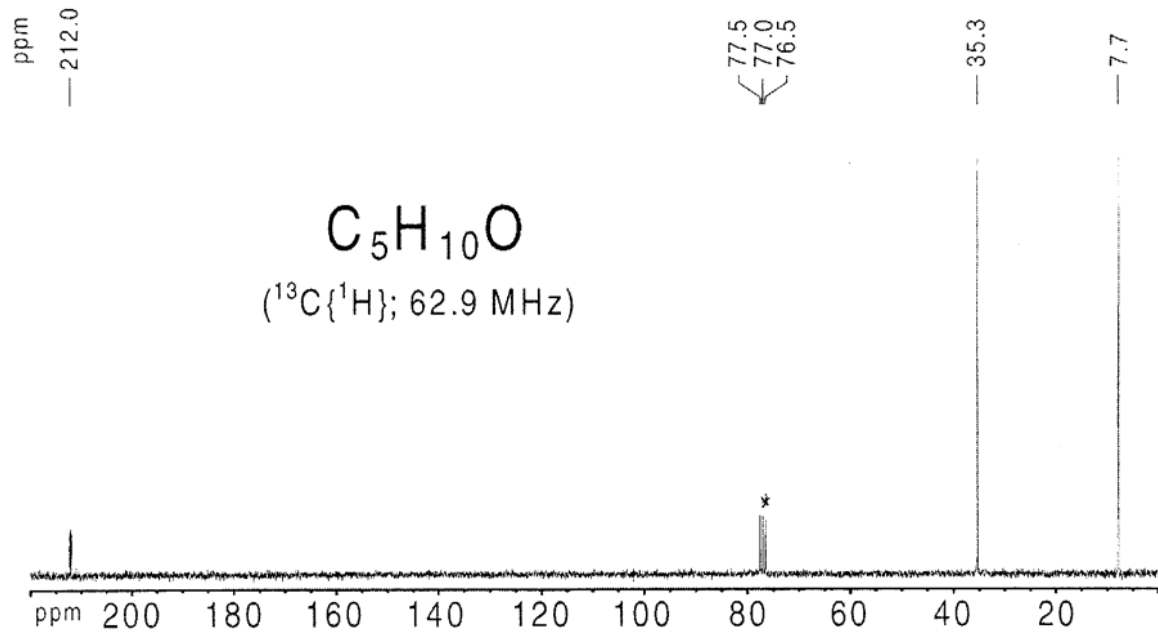
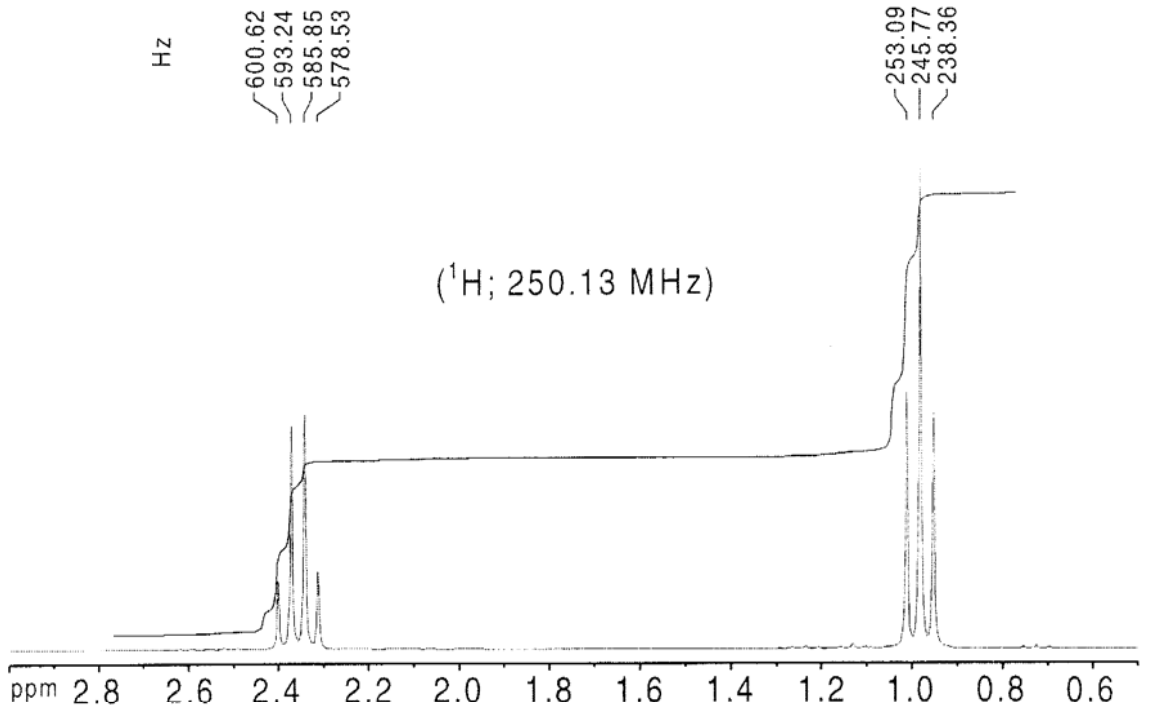
Exercice 1

Déterminer la structure de ces deux isomères.

Isomère 1



Isomère 2



Exercice 2

Ci-dessous sont présentés les spectres 1D de la molécule de sarin de formule brute $C_4H_{10}O_2PF$.

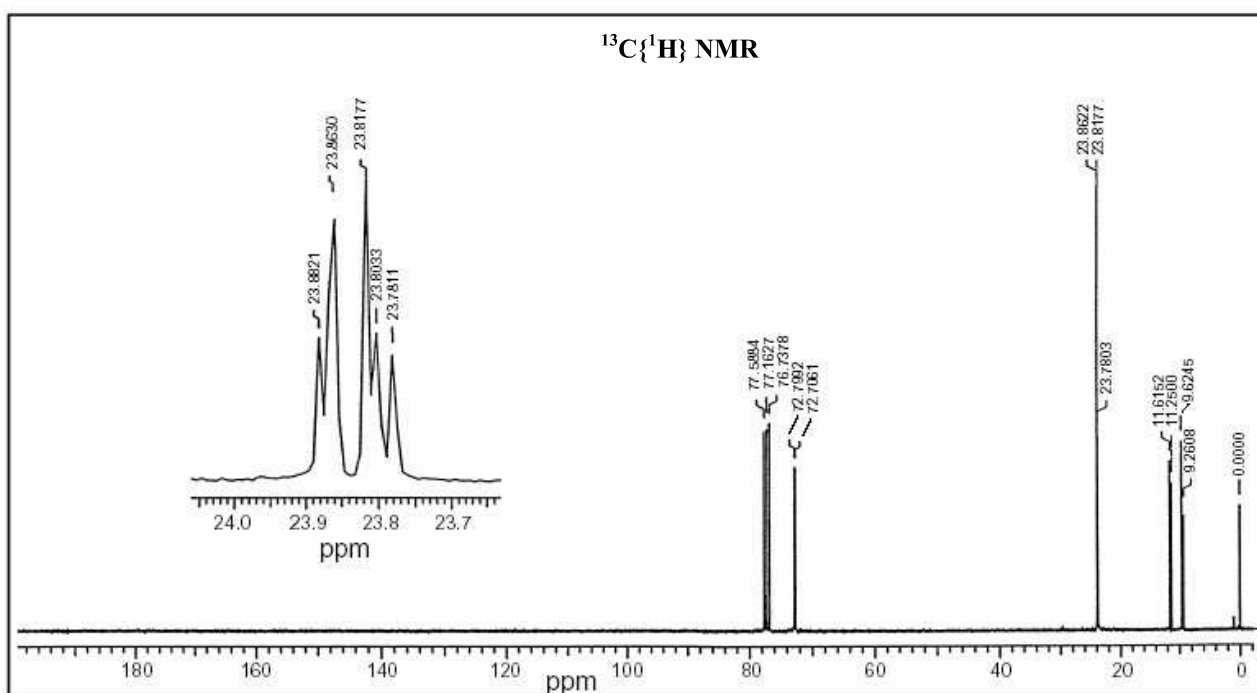
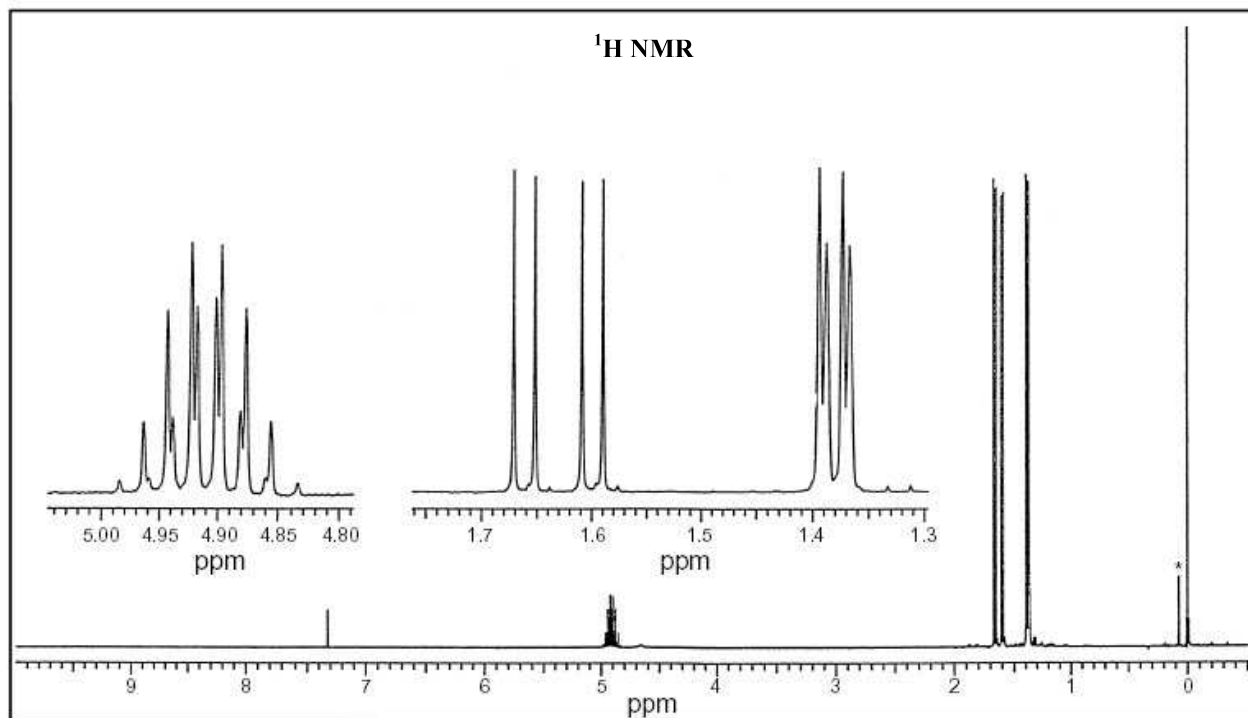
- 1) Quelles sont les fréquences de résonance des noyaux observables dans cette molécule ?
- 2) Déterminer la structure de la molécule.
- 3) Expliquer l'allure des multiplets obtenus pour chaque noyau, mesurer les constantes de couplage correspondantes.

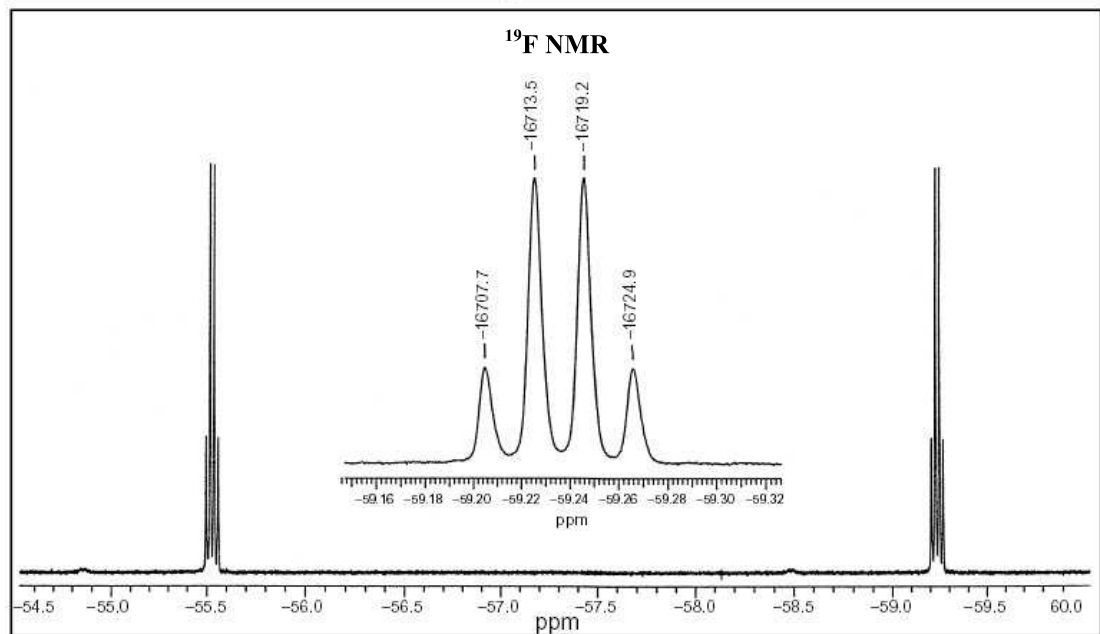
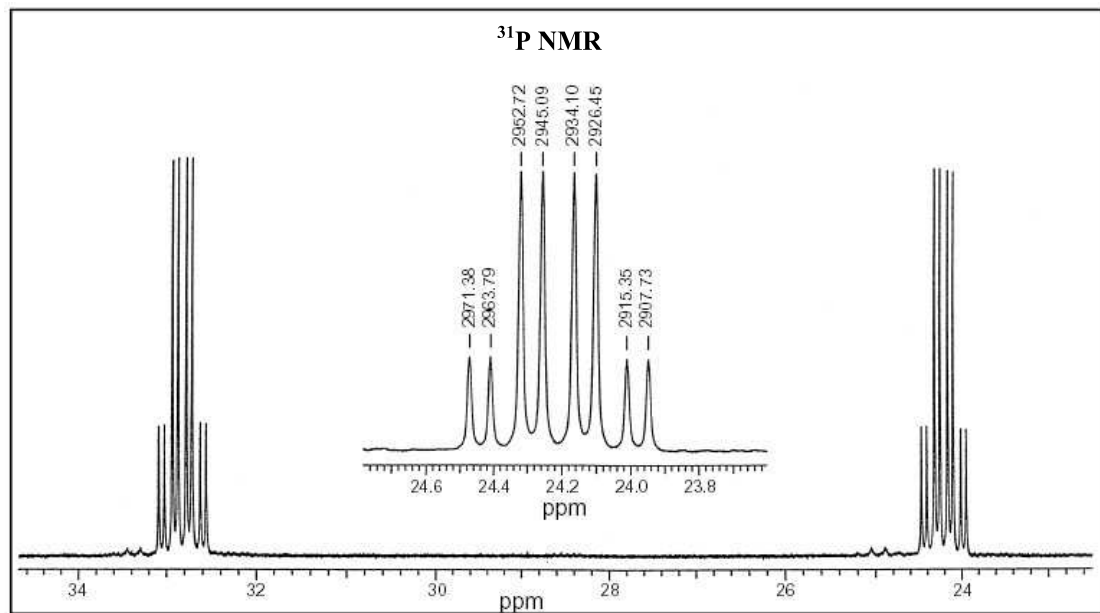
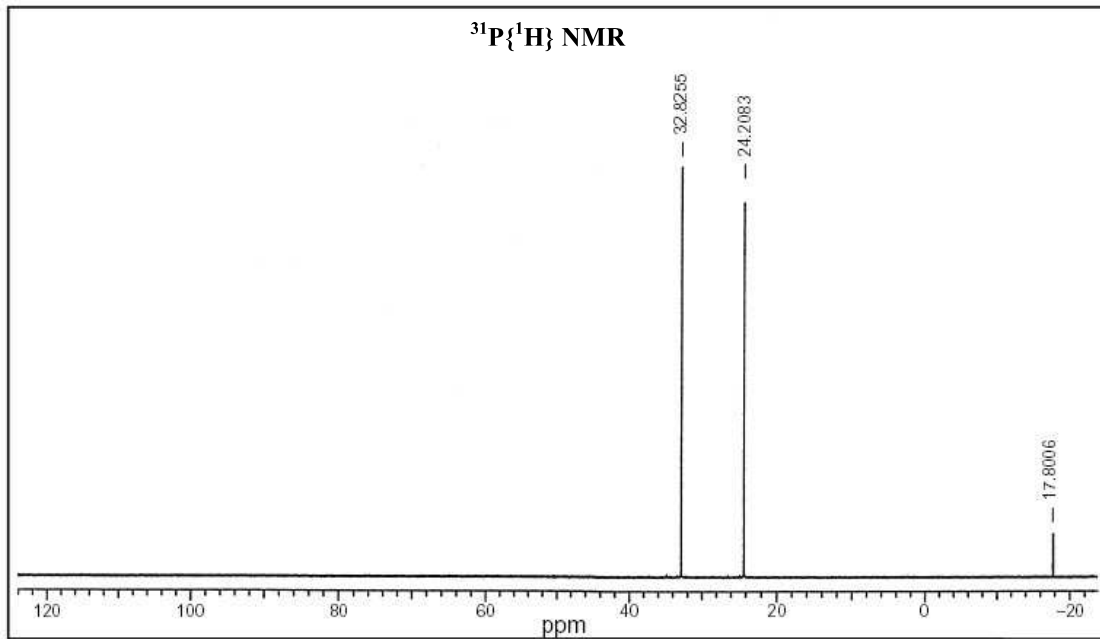
Conditions expérimentales :

Solvant : $CDCl_3$

1H res. Freq. : 300MHz

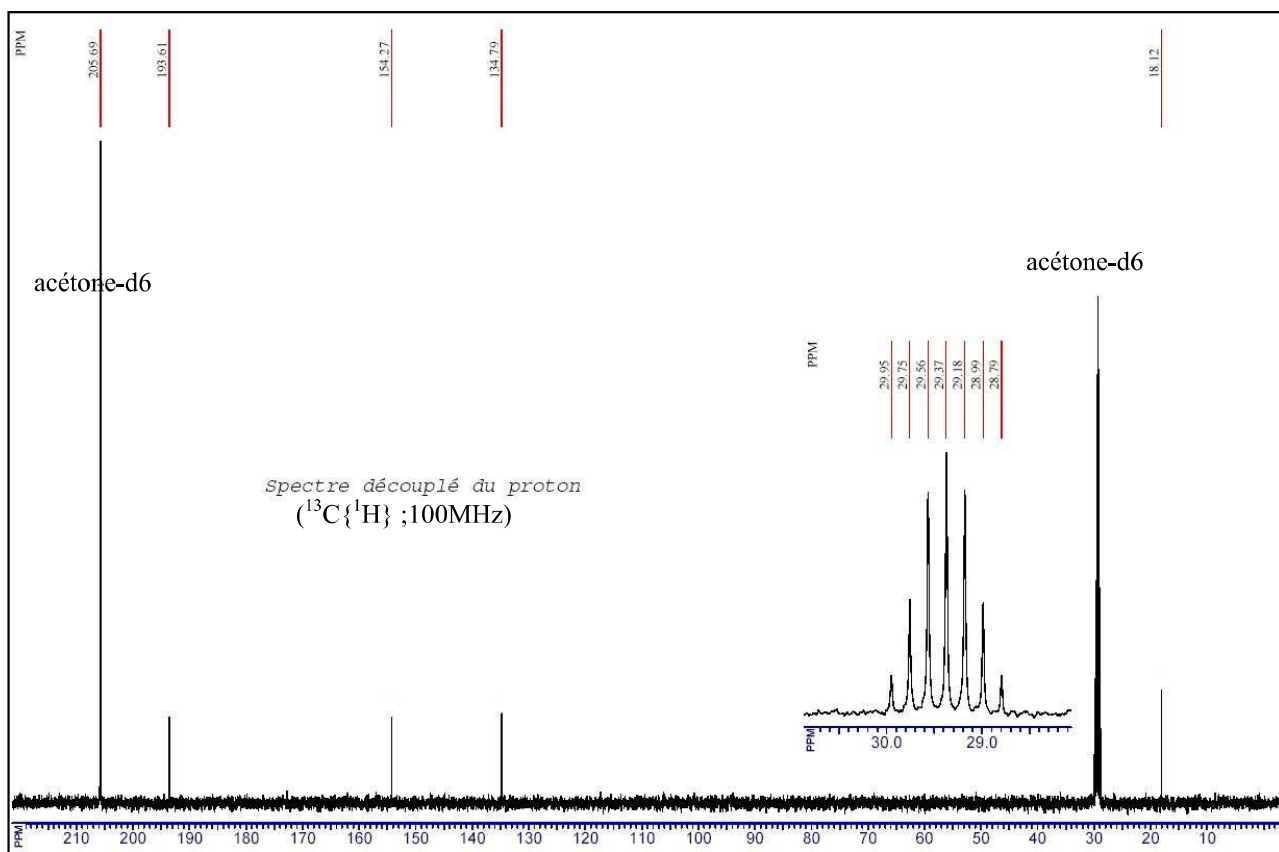
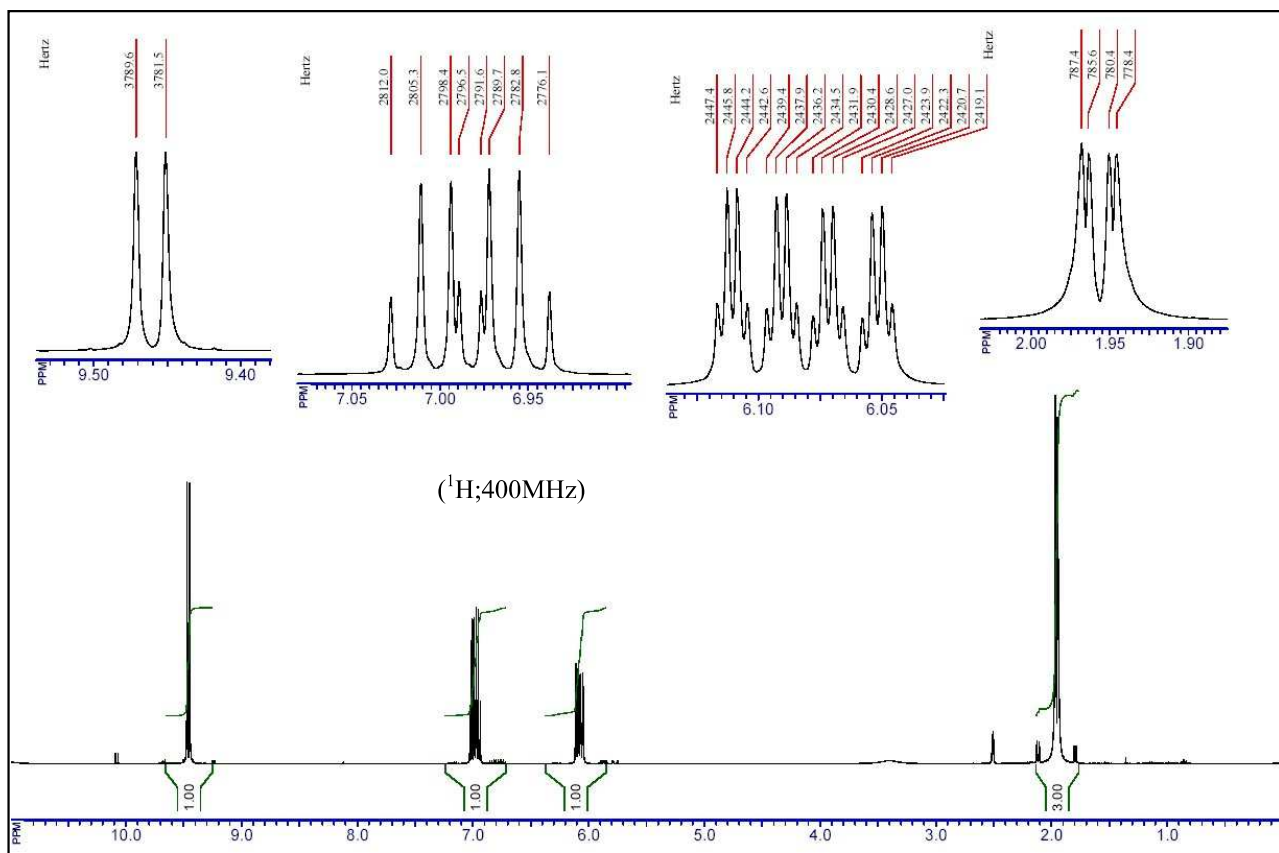
Temp. : 24°C

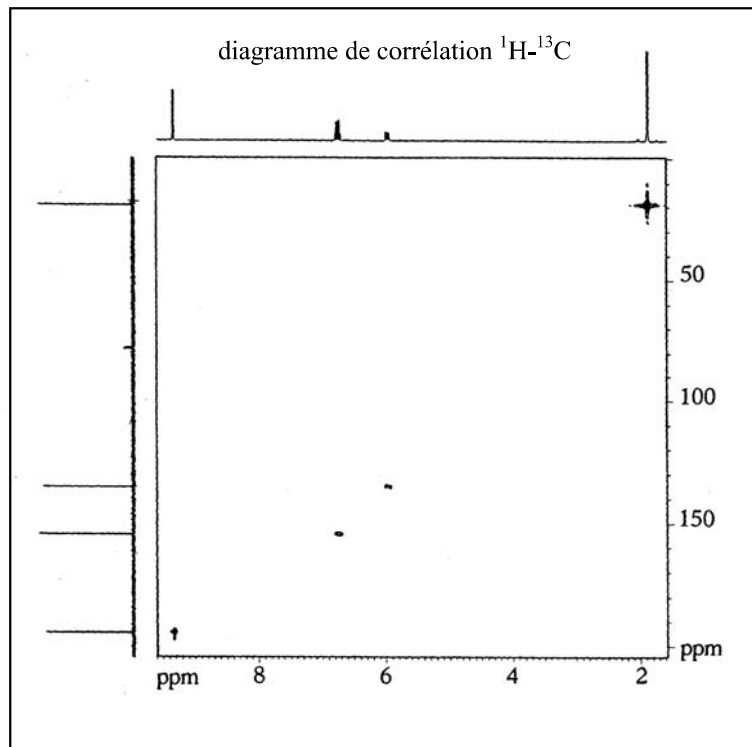
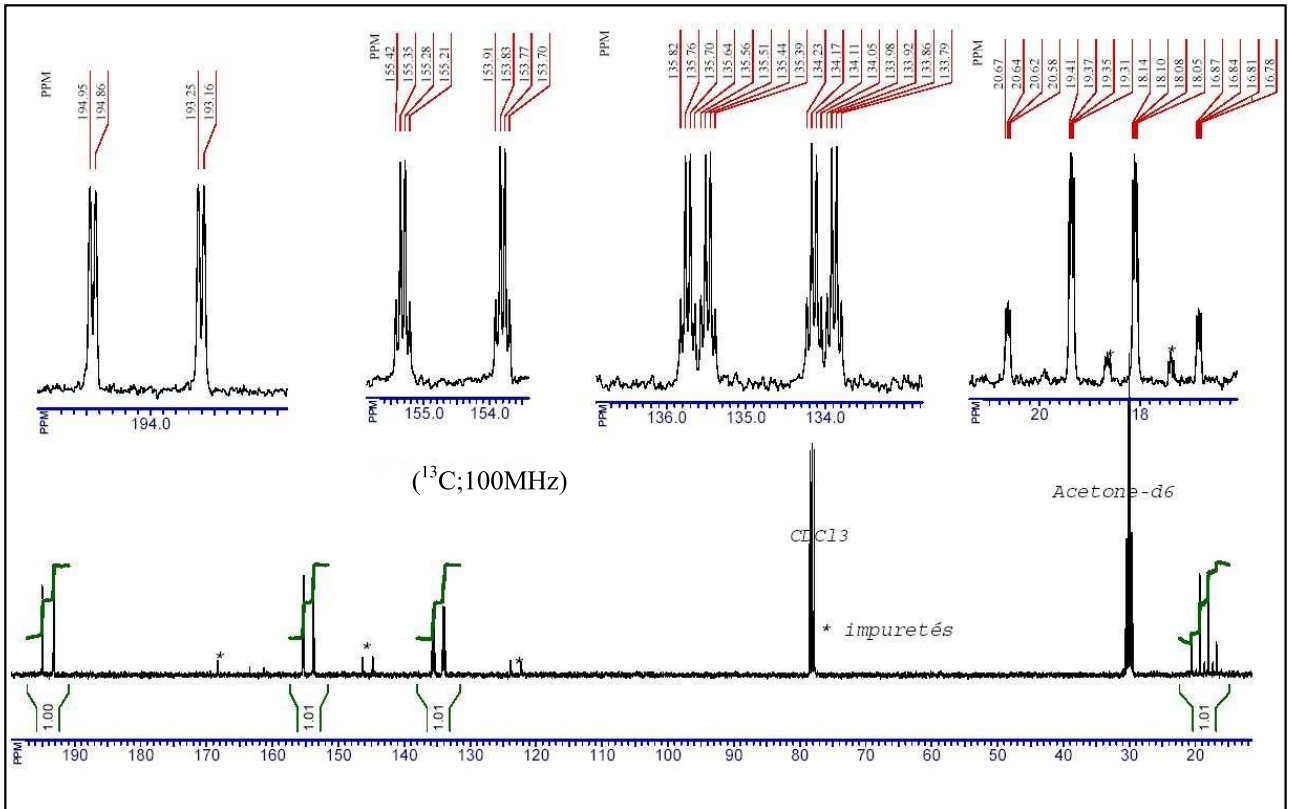




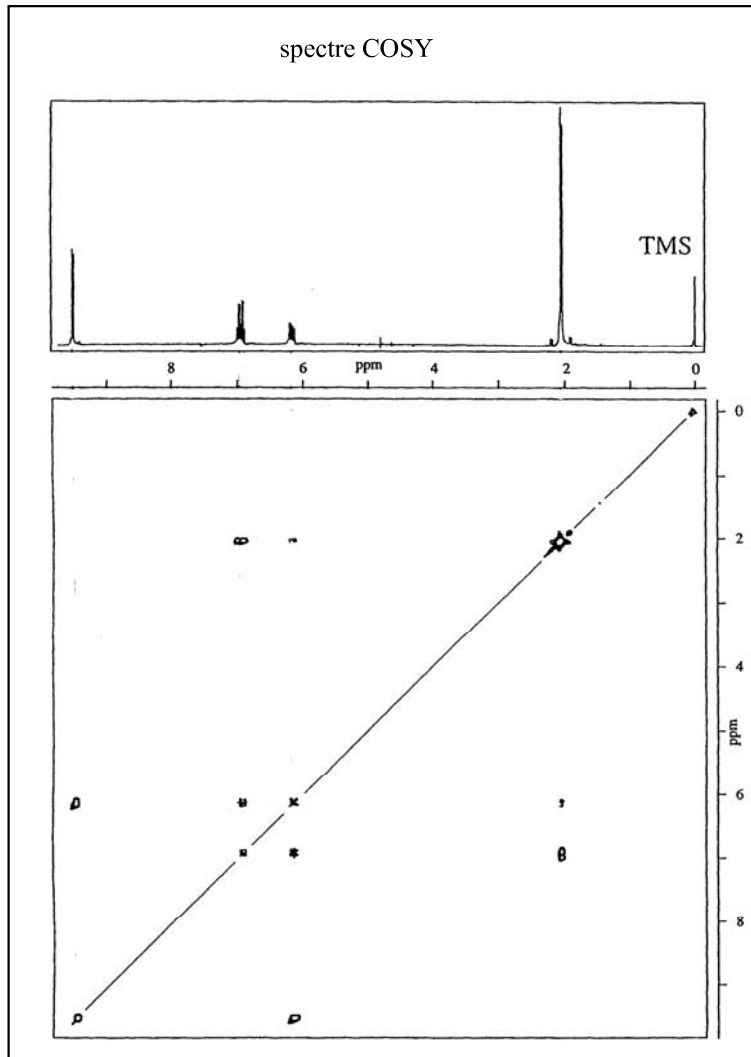
Exercice 3

Déterminer la structure du composé de formule brute C_4H_6O . Expliquer l'allure des multiplets, et mesurer les constantes de couplage.

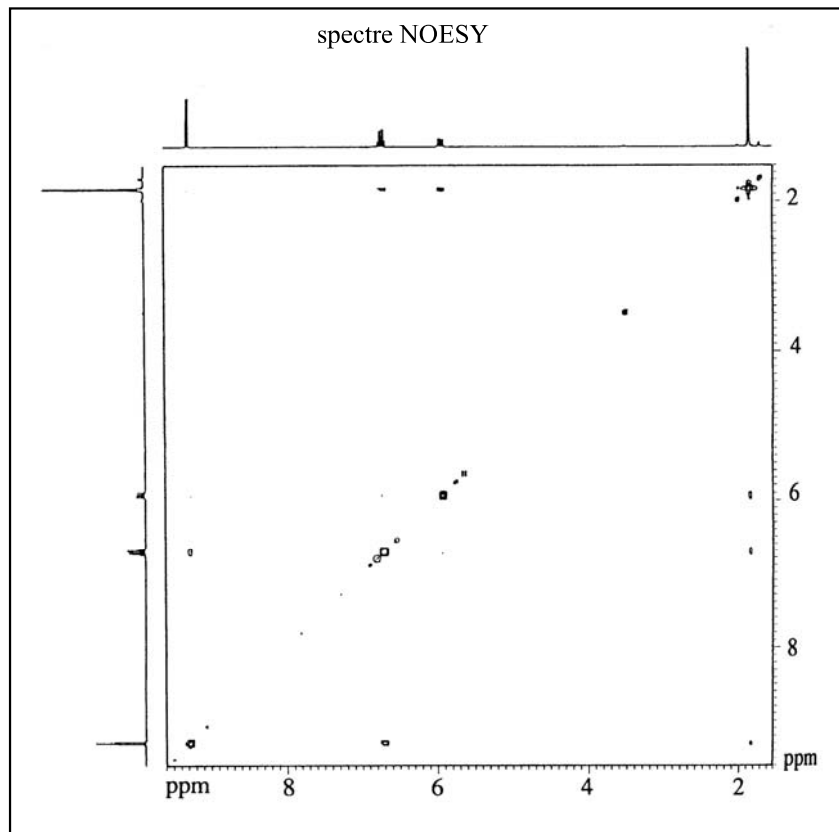




spectre COSY

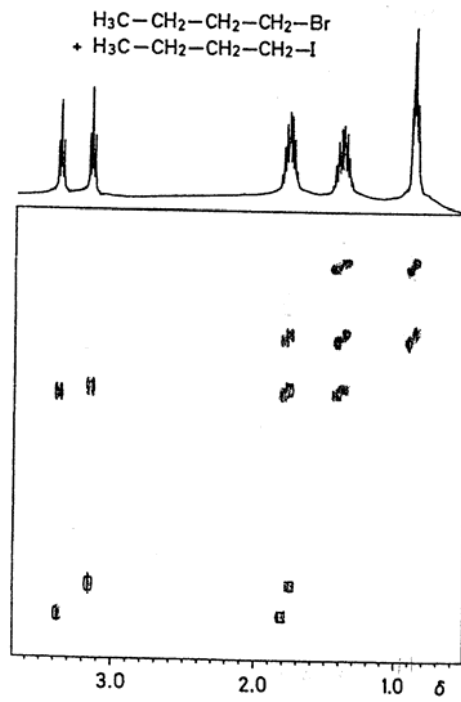


spectre NOESY



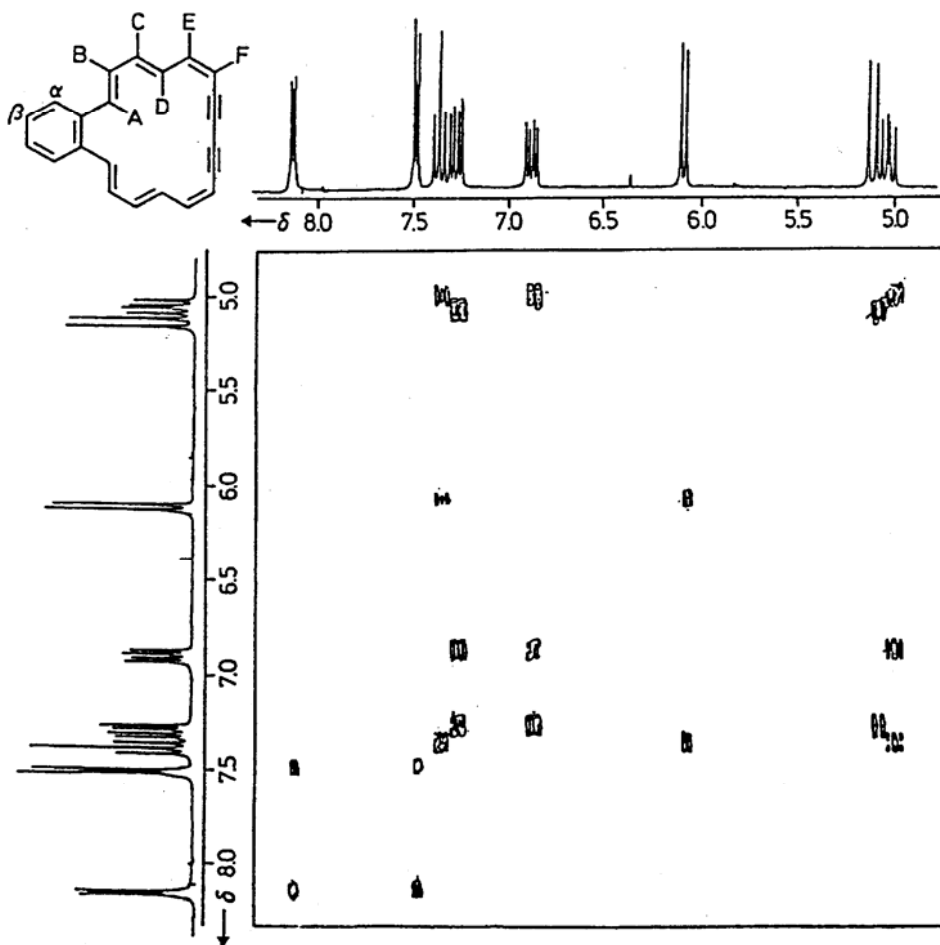
Exercice 4

Interpréter la carte COSY ^1H - ^1H ci-dessous obtenue à 400MHz pour mélange quasiment équimolaire de bromure de n-butyle et d'iodure de n-butyle.



Exercice 5

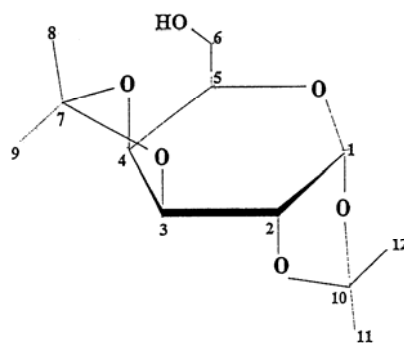
Interpréter le spectre COSY ^1H - ^1H ci-dessous, correspondant au 9,11-dihydrobenzoannulène-18.

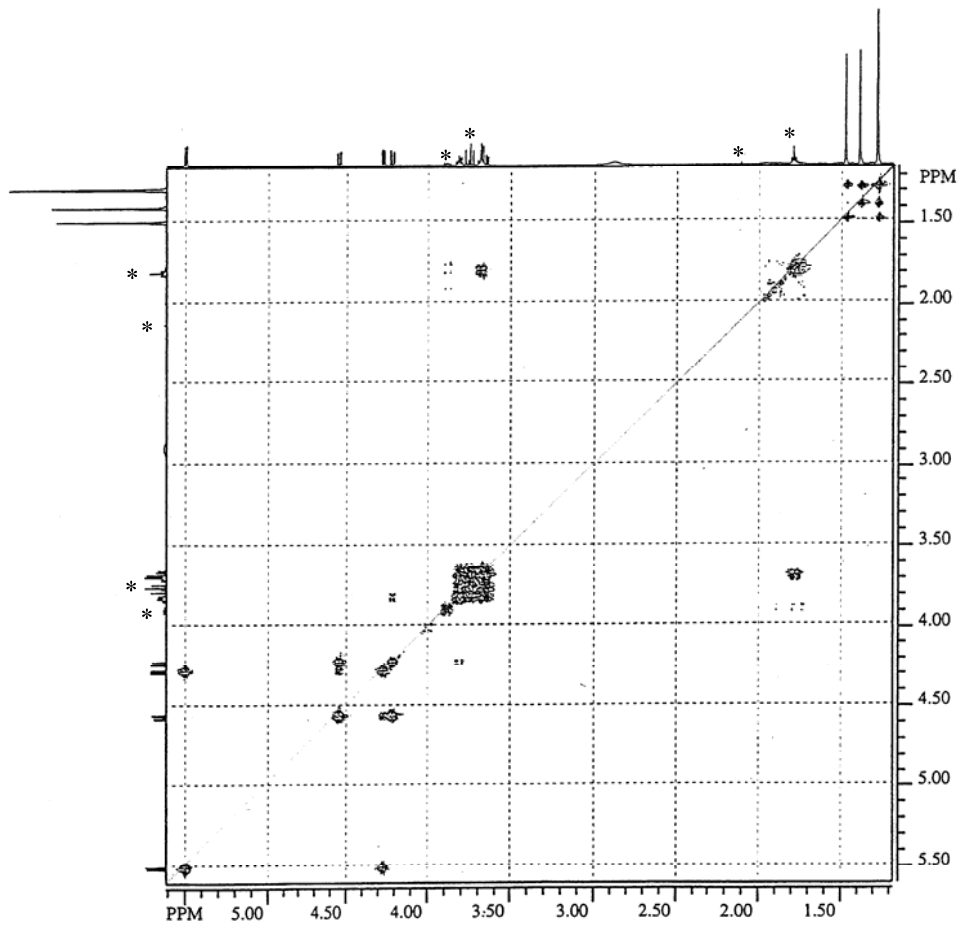
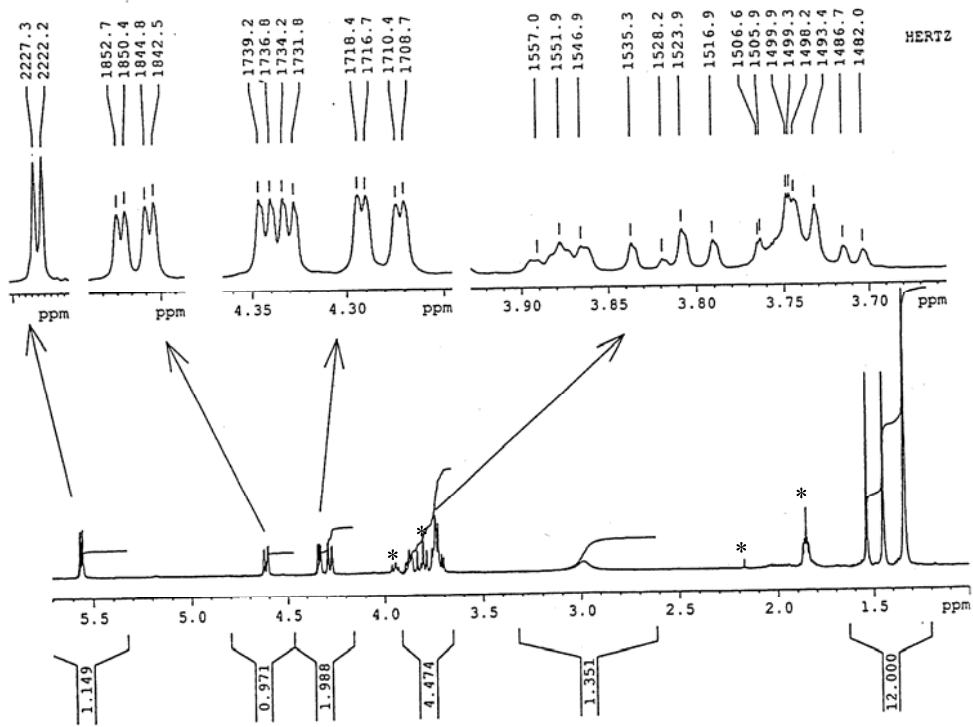


Exercice 6

Les figures suivantes présentent la carte COSY ^1H - ^1H et le spectre protonique à 400MHz du composé 1,2,3,4 di-O-isopropylidène-galactopyranose dilué dans CDCl_3 . Les régions marquées d'un astérisque contiennent des pics dus à des impuretés.

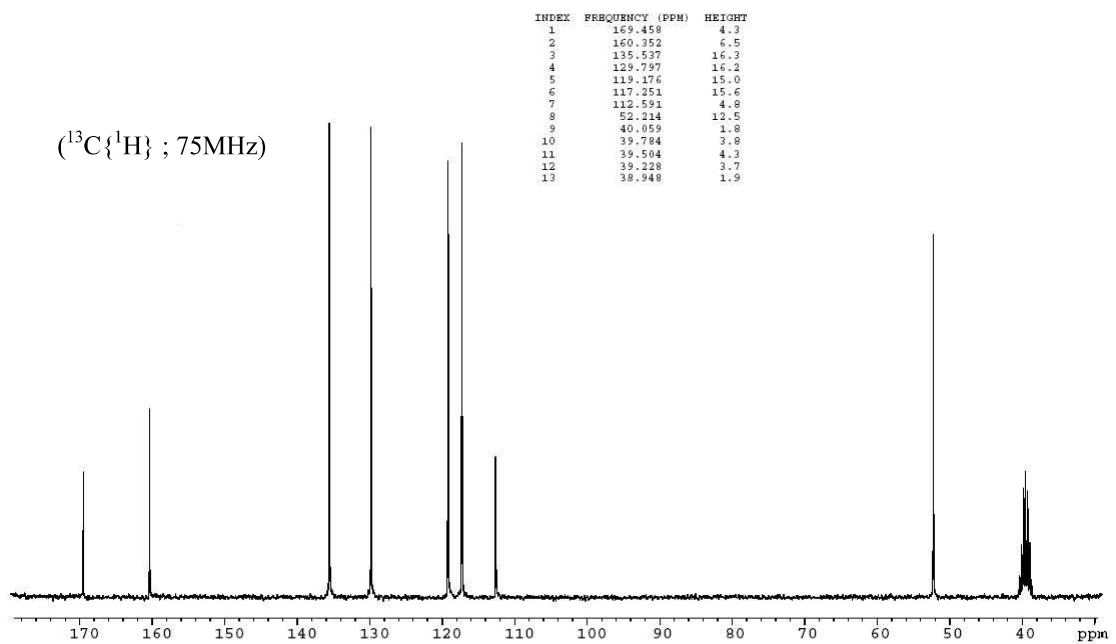
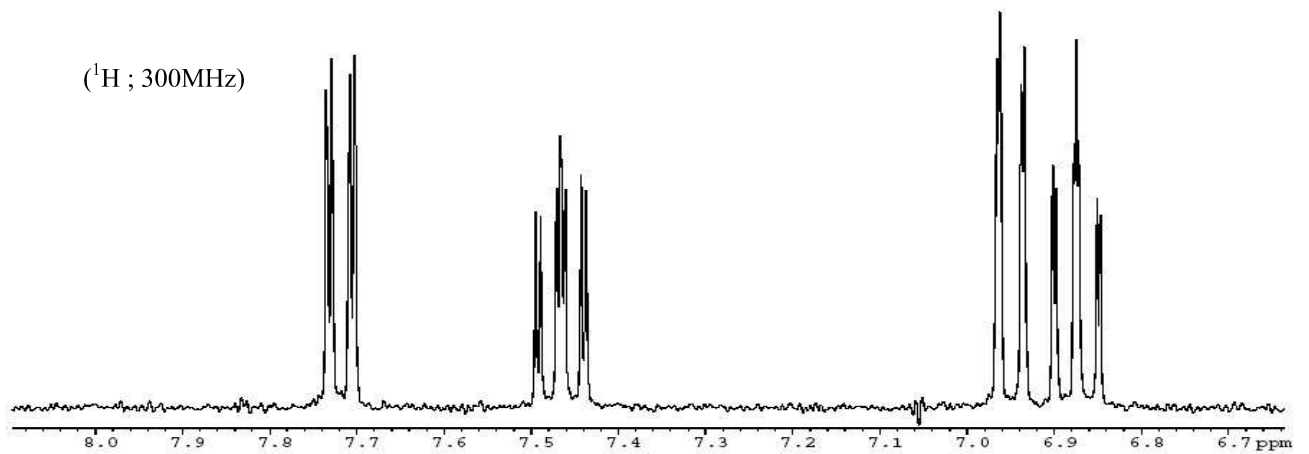
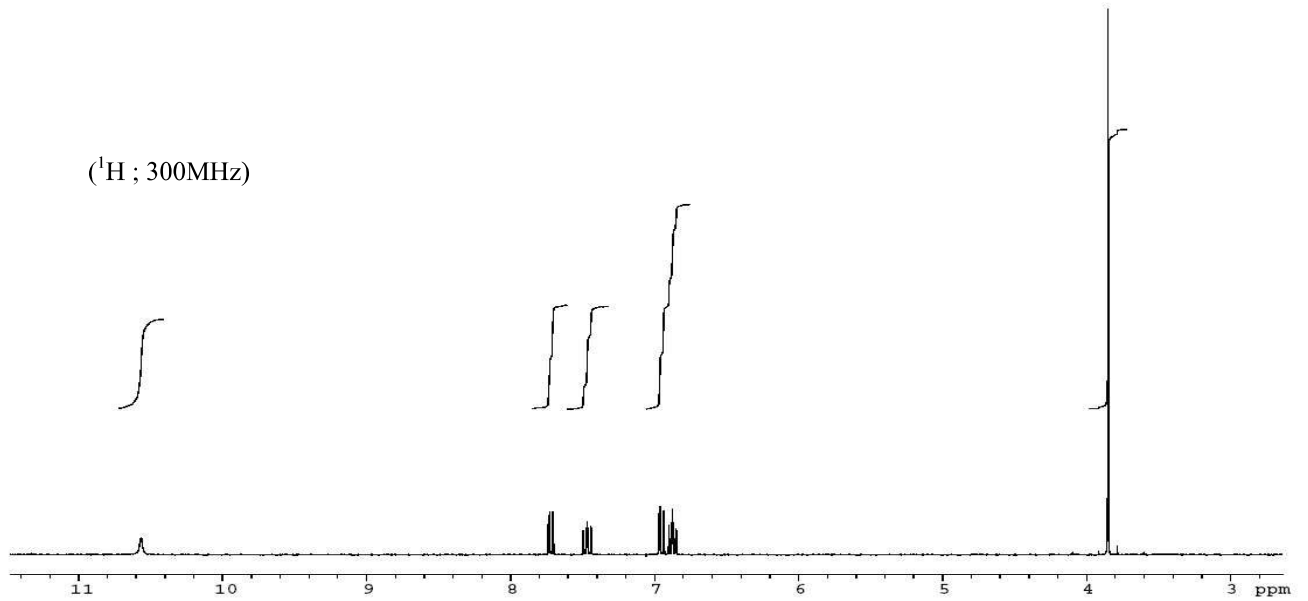
Interpréter le spectre et la carte COSY en indiquant clairement la démarche suivie.



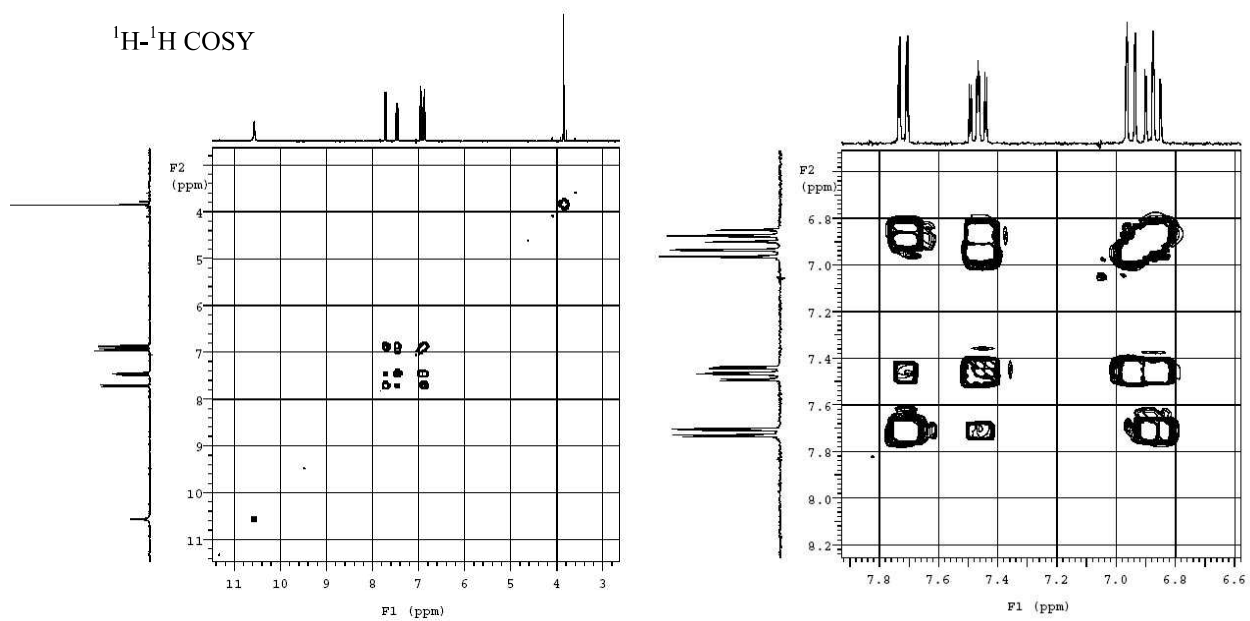


Exercice 7

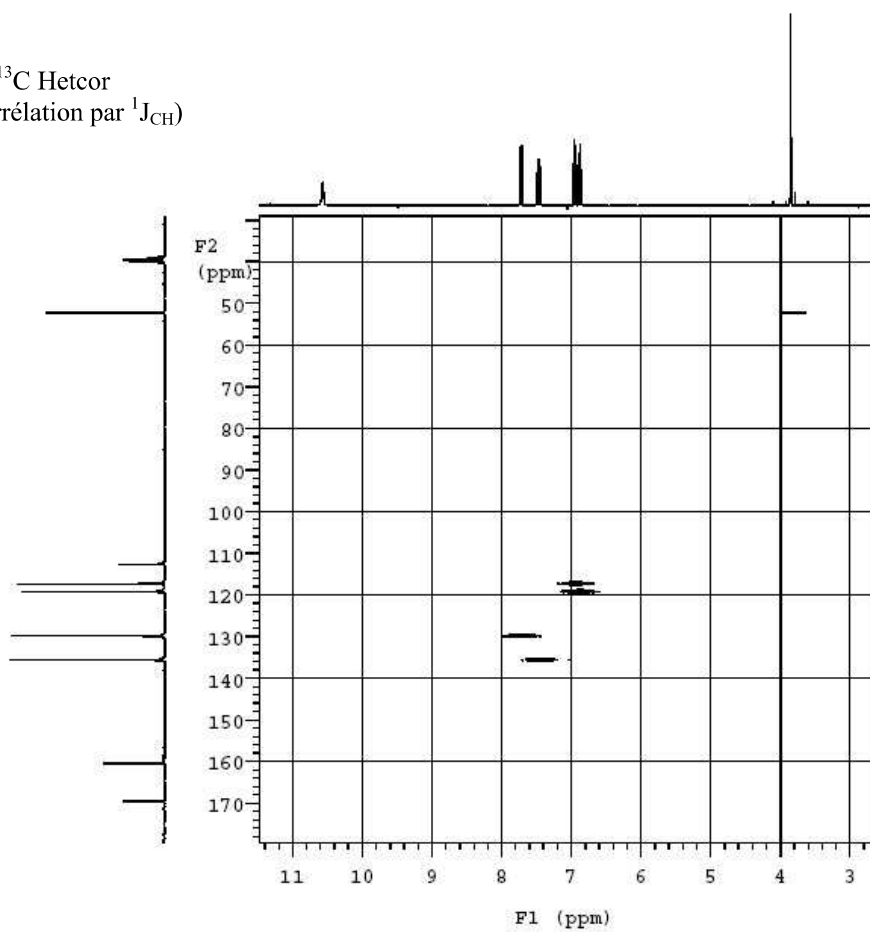
Déterminer la structure du composé de formule brute $C_8H_8O_3$. Expliquer l'allure des multiplets, et mesurer les constantes de couplage.



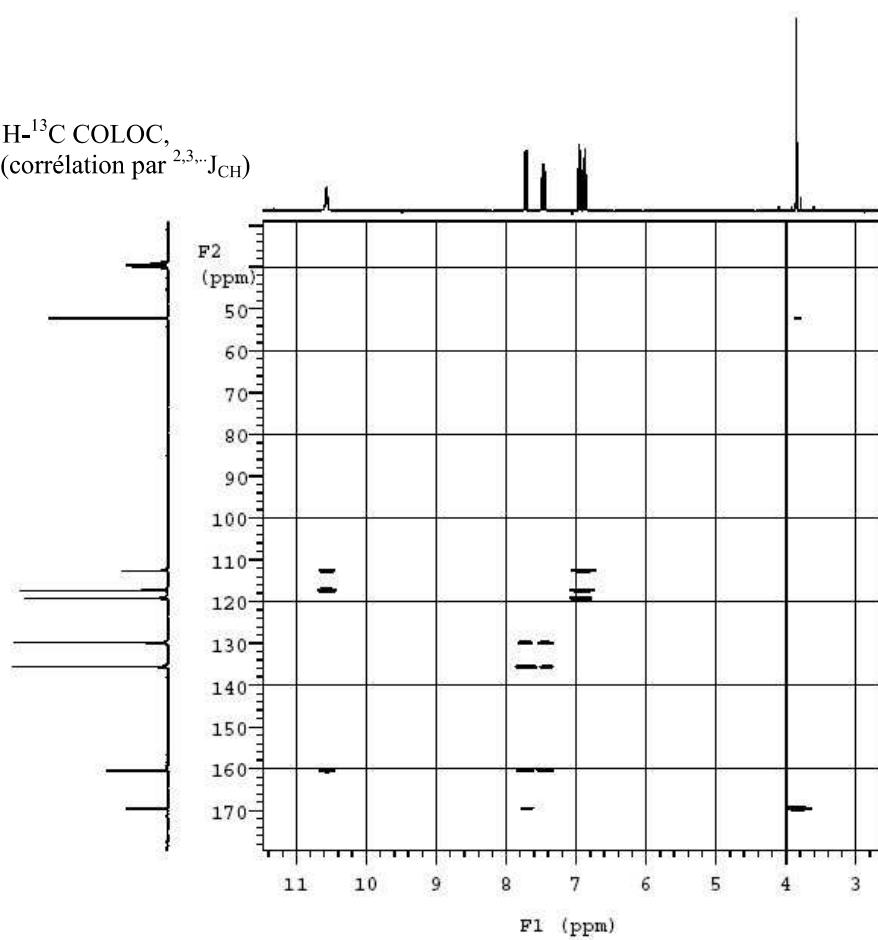
^1H - ^1H COSY



^1H - ^{13}C Hetero
(corrélacion par $^1J_{\text{CH}}$)



^1H - ^{13}C COLOC,
(corrélacion par $^{2,3}J_{\text{CH}}$)



^1H - ^1H NOESY

