

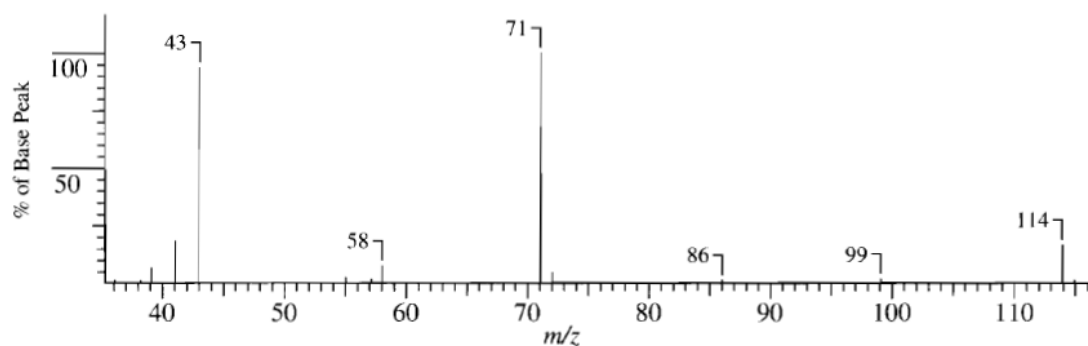
Exercice : Déterminer les formules développées des composés (A-I) dont la série spectrales (SM,  $^{13}\text{C}/\text{DEPT}$ , IR, RMN $^1\text{H}$ ) est donné, en répondant sur les questions suivantes :

1. Calculer l'indice de déficience en hydrogène ?
2. Indiquer le pic de l'ion moléculaire et le pic de base de chaque composé (Spectres IE) ?
3. Attribuer les bandes représentatives dans le spectre IR ?
4. Attribuer tous les protons dans le spectre RMN  $^1\text{H}$  ? Expliquer la multiplicité ?
5. Attribuer tous les carbones dans les spectres RMN  $^{13}\text{C}/\text{DEPT}$  ?

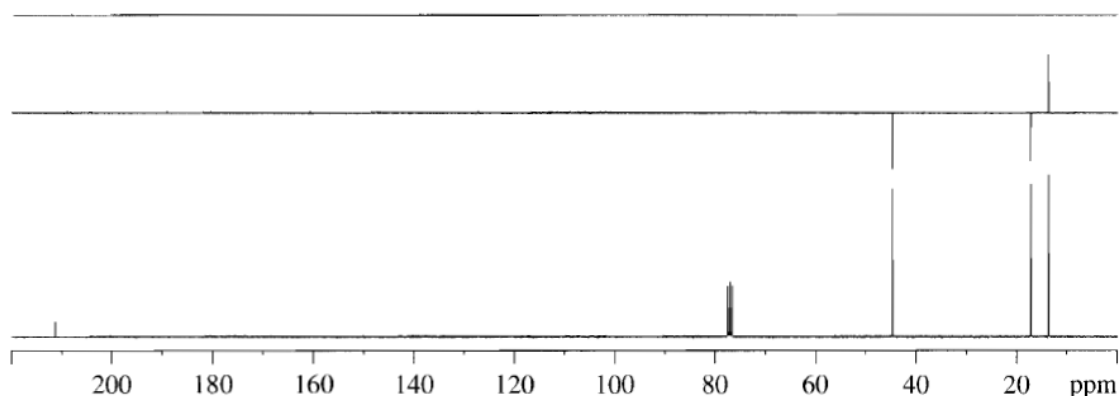
(Les spectres RMN $^1\text{H}$  et les spectres  $^{13}\text{C}$  ont été enregistrés à 300 MHz et 75.5 MHz dans le  $\text{CDCl}_3$ , respectivement)

Composé A ( $\text{C}_7\text{H}_{14}\text{O}$ )

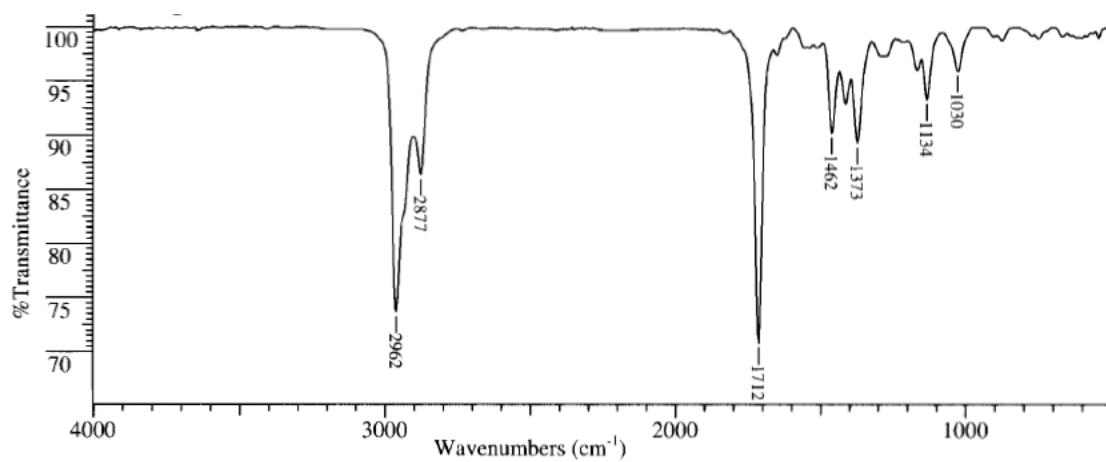
SM (IE)



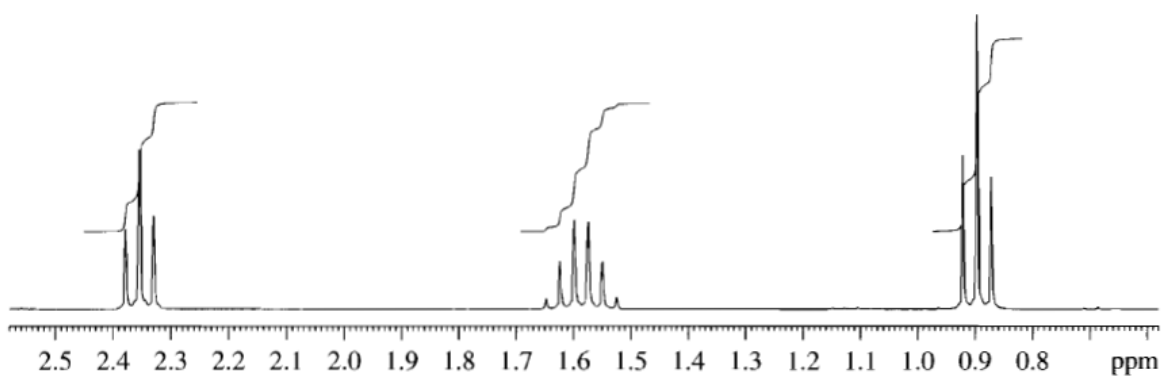
$^{13}\text{C}/\text{DEPT}$



IR

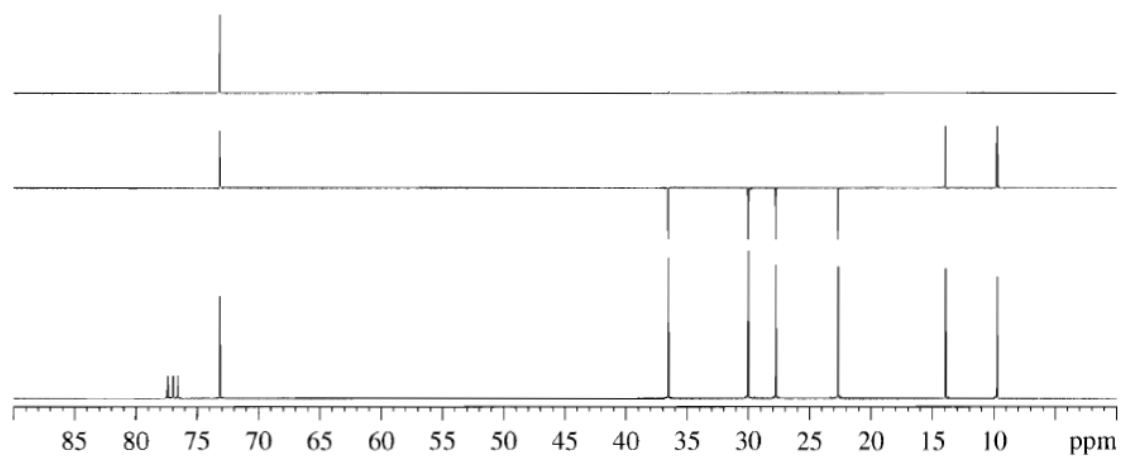


RMN<sup>1</sup>H

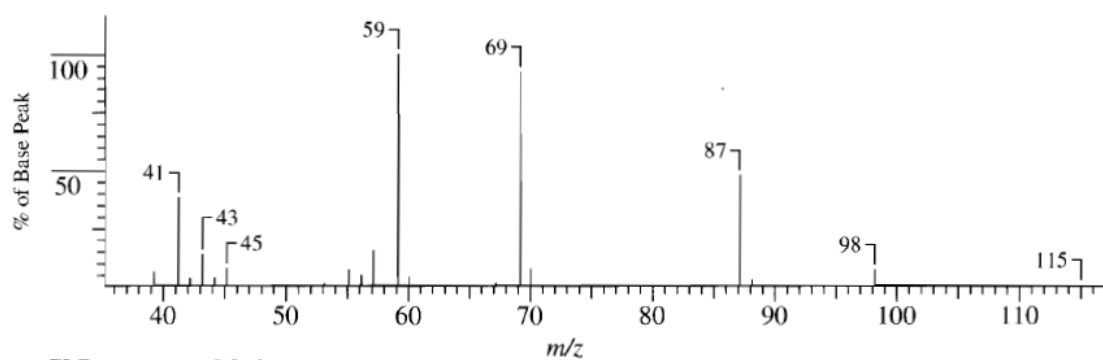


Composé B ( $\text{C}_7\text{H}_{16}\text{O}$ )

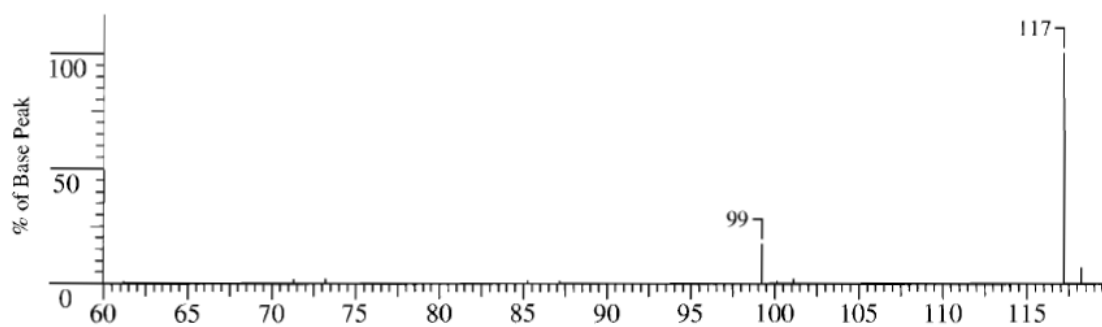
<sup>13</sup>C/DEPT



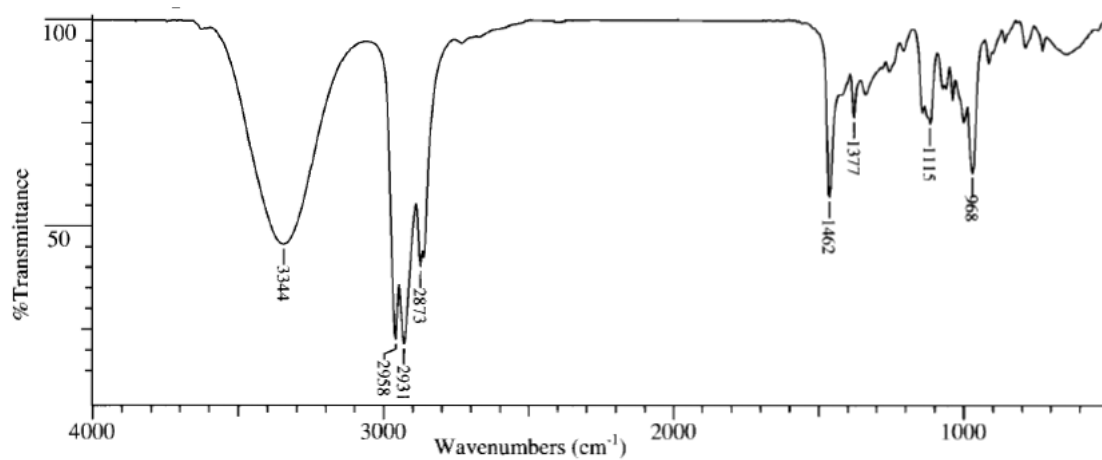
# SM (IE et IC)



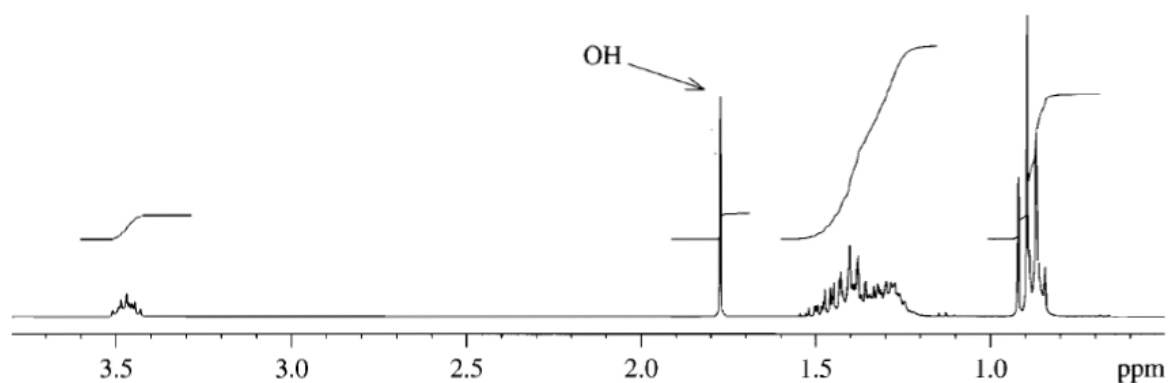
CI Reagent gas Methane



## IR

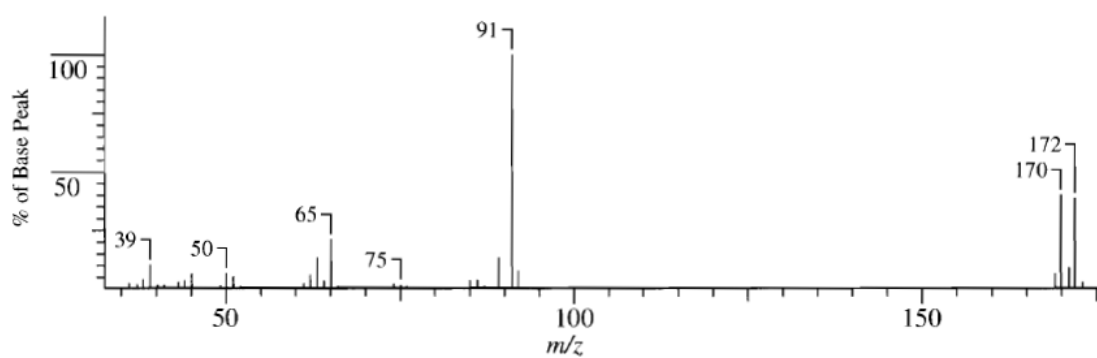


**RMN<sup>1</sup>H**

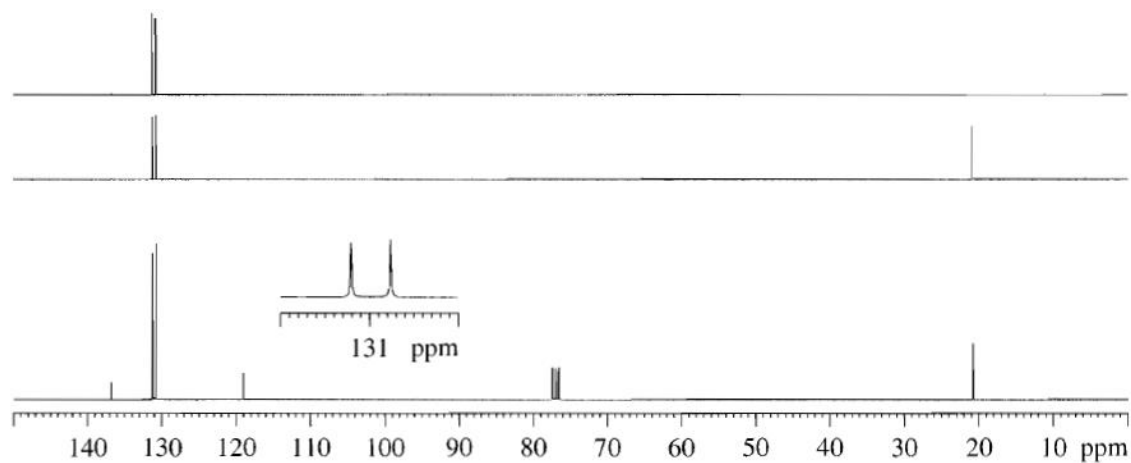


**Composé C (C<sub>7</sub>H<sub>7</sub>Br)**

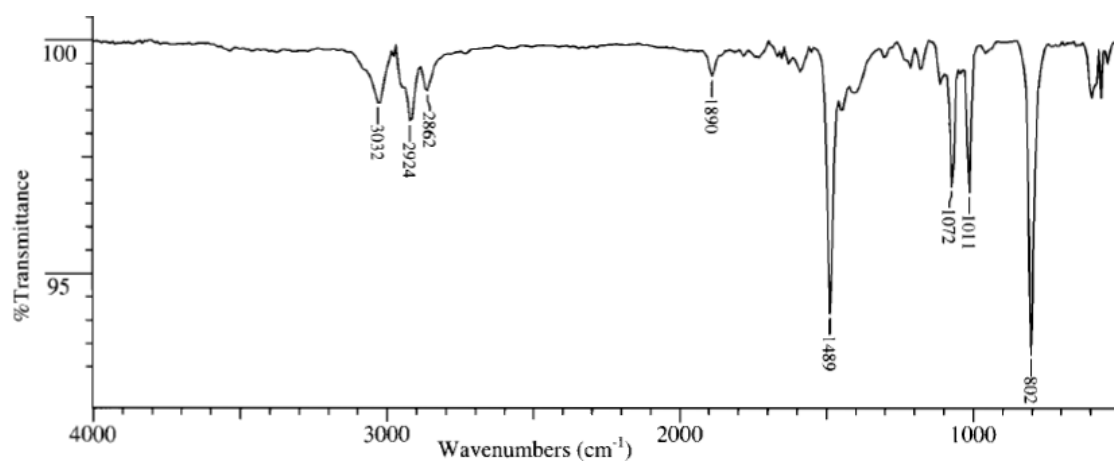
**SM (IE)**



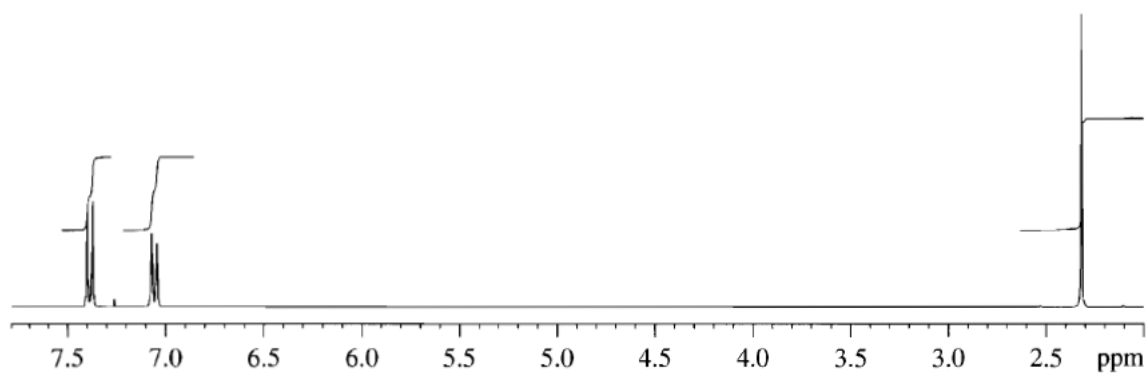
**<sup>13</sup>C/DEPT**



## IR

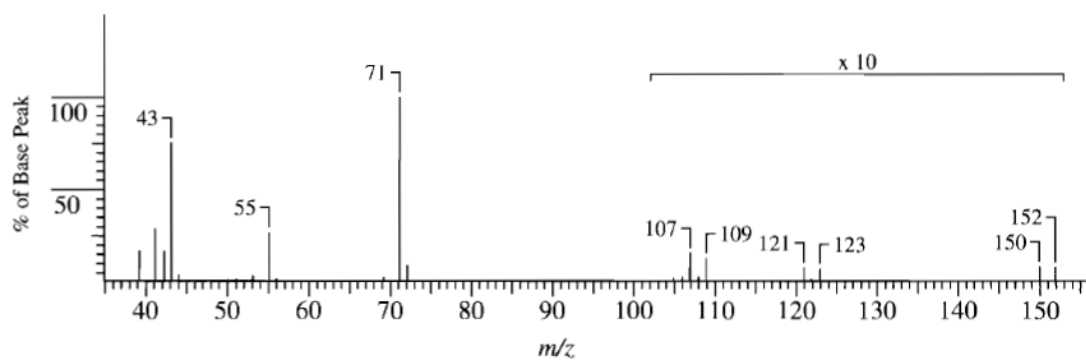


## RMN<sup>1</sup>H

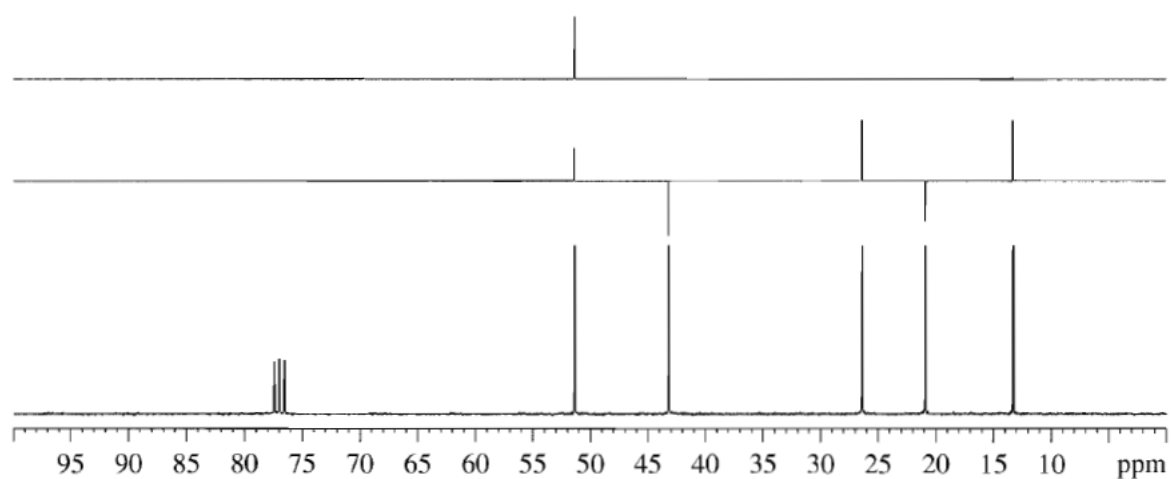


## Composé D (C<sub>5</sub>H<sub>11</sub>Br)

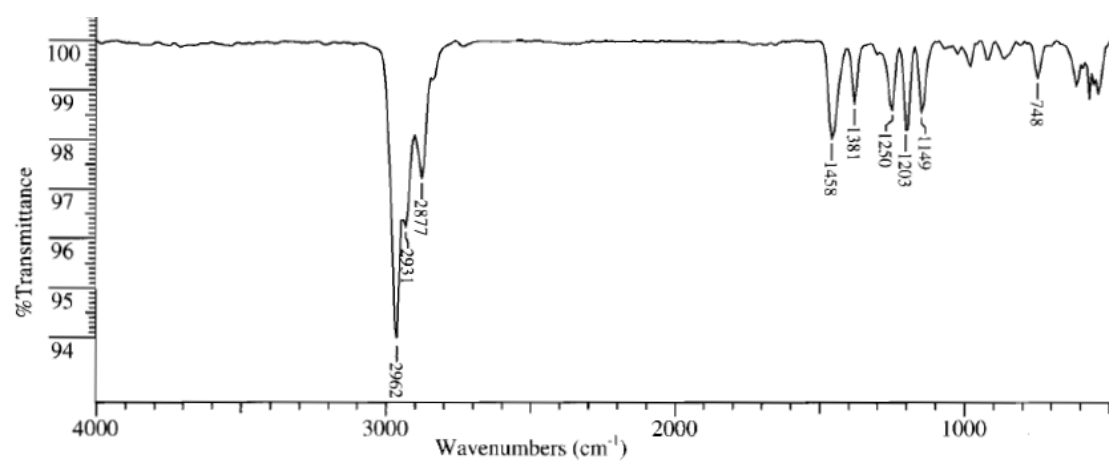
## SM (IE)



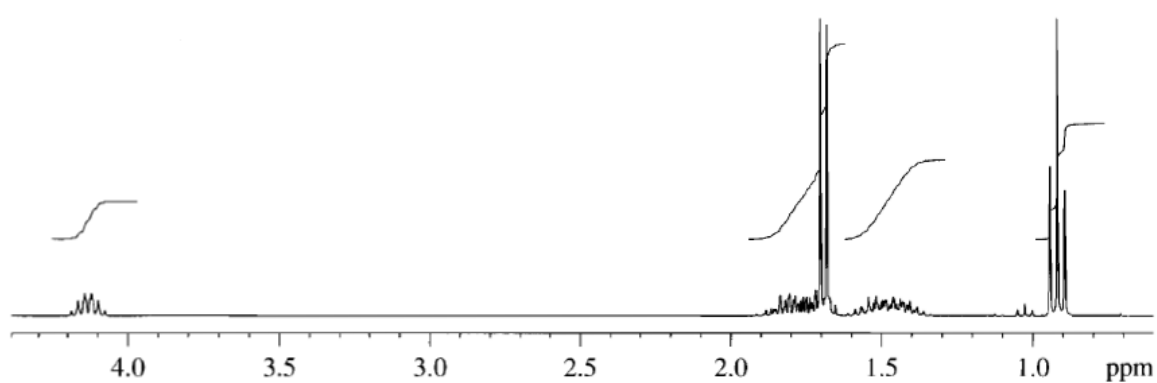
**$^{13}\text{C}/\text{DEPT}$**



**IR**

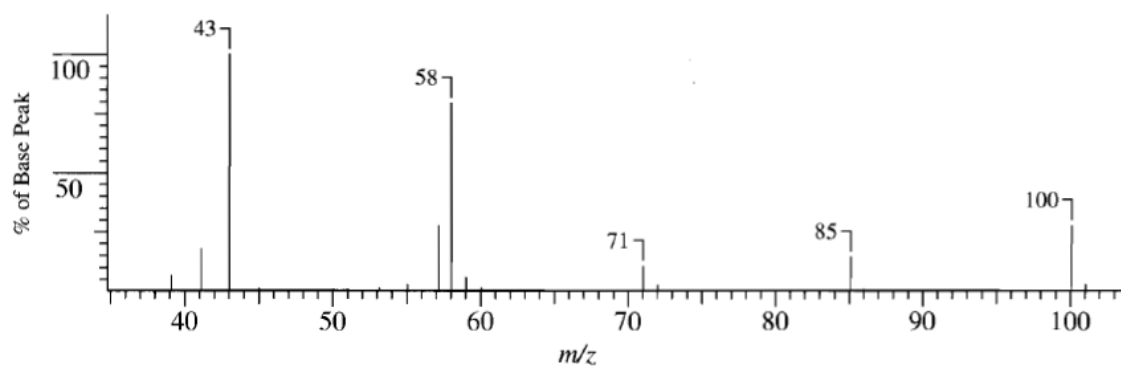


**$\text{RMN}^1\text{H}$**

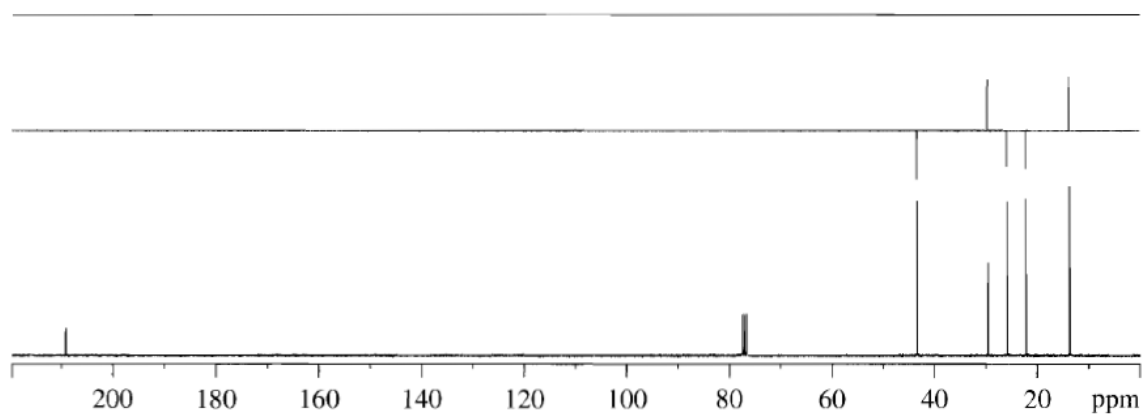


## Composé E ( $C_6H_{12}O$ )

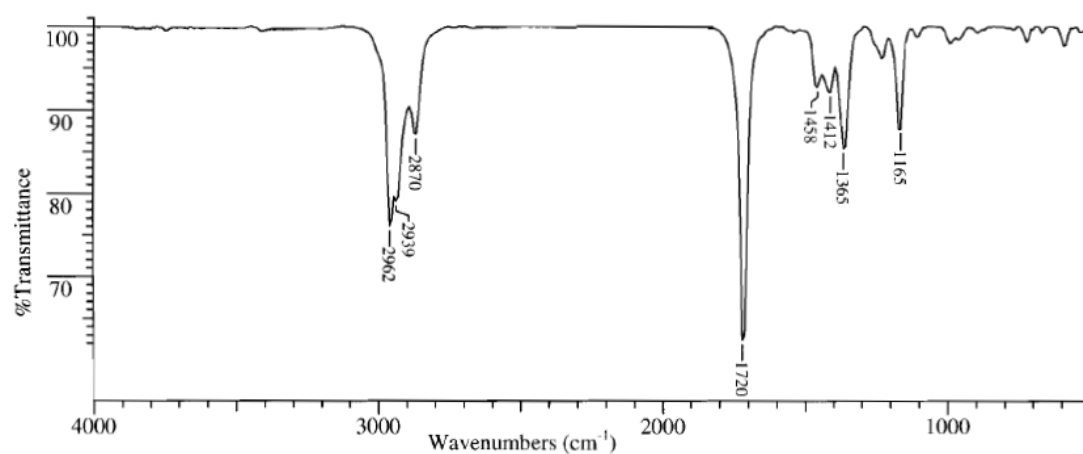
### SM (IE)



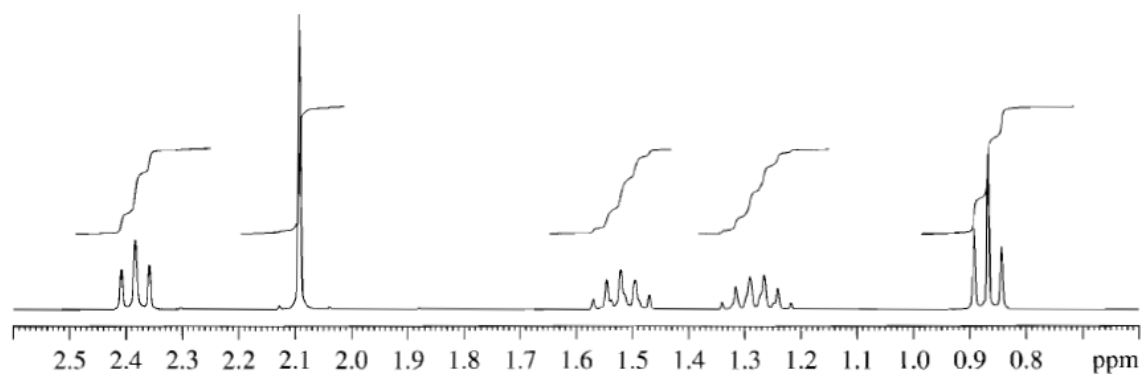
### $^{13}C/DEPT$



### IR

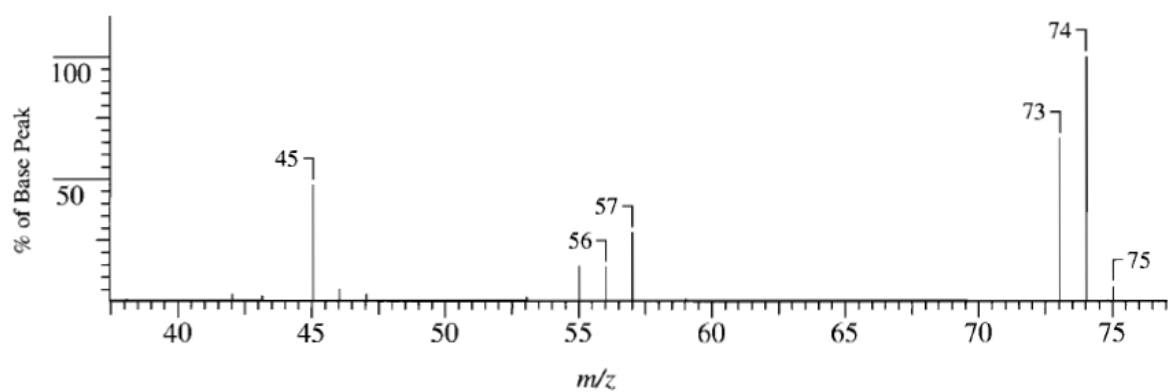


# RMN<sup>1</sup>H

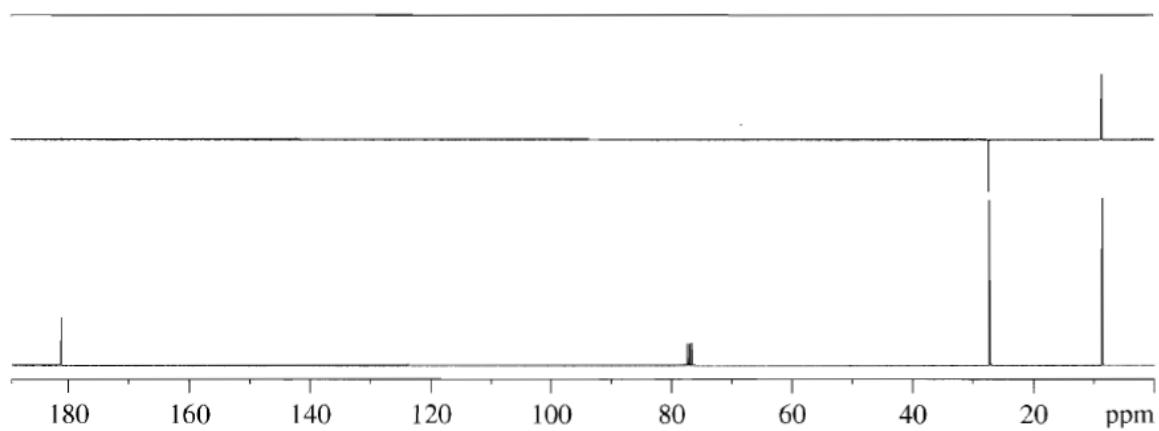


## Composé F (C<sub>3</sub>H<sub>6</sub>O<sub>2</sub>)

### SM (IE)

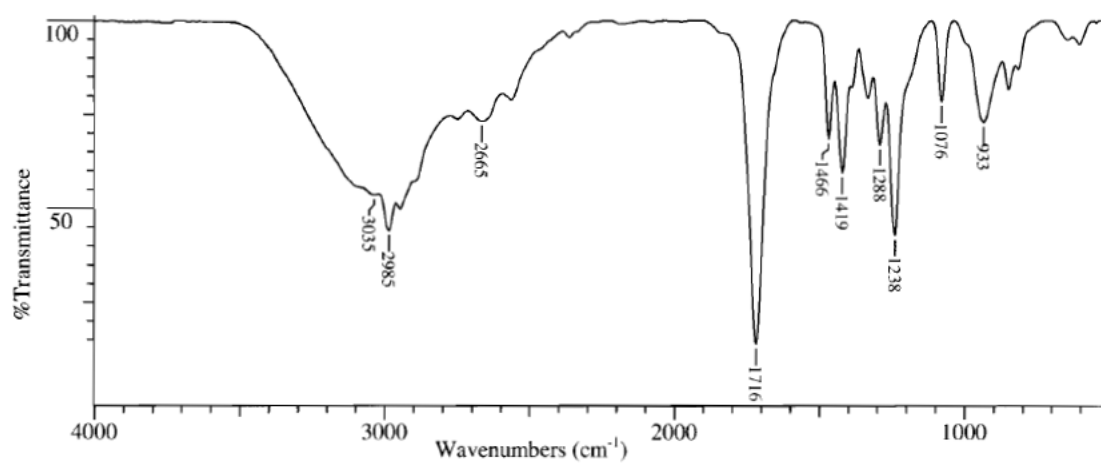


### <sup>13</sup>C/DEPT

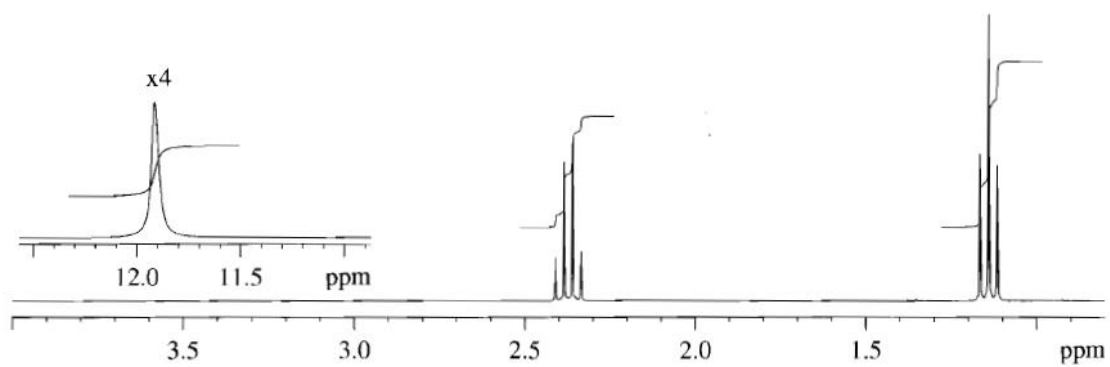




## IR

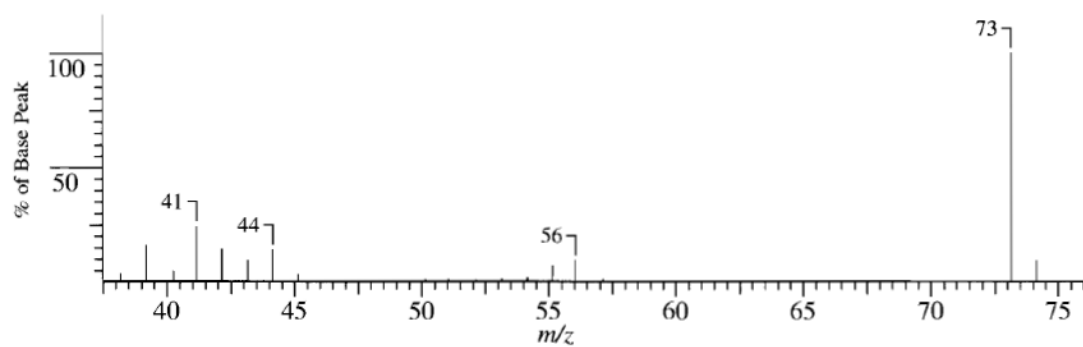


## RMN<sup>1</sup>H

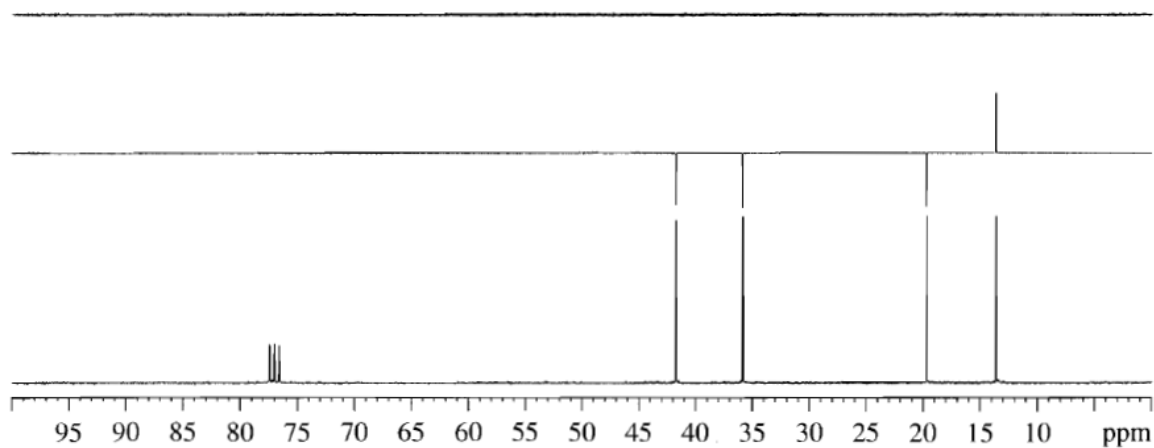


## Composé G (C<sub>4</sub>H<sub>11</sub>N)

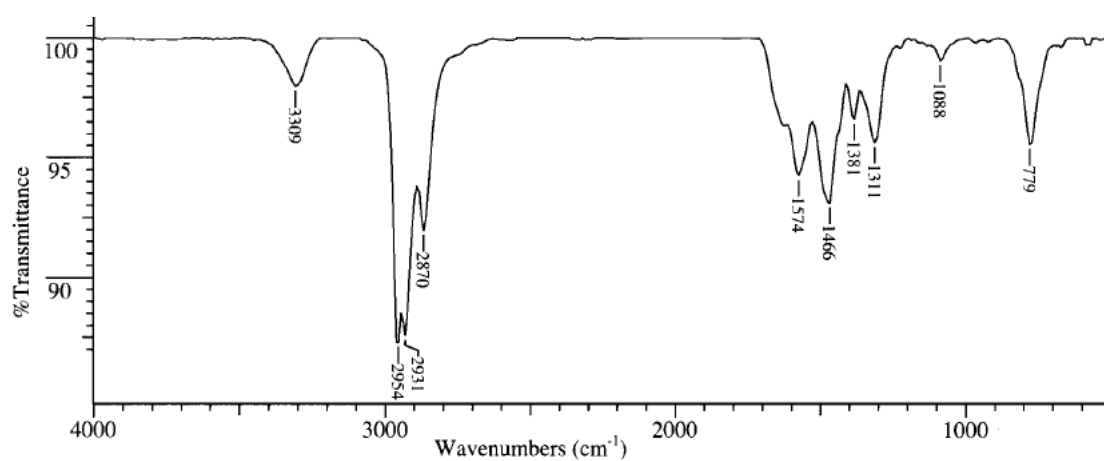
### SM (IE)



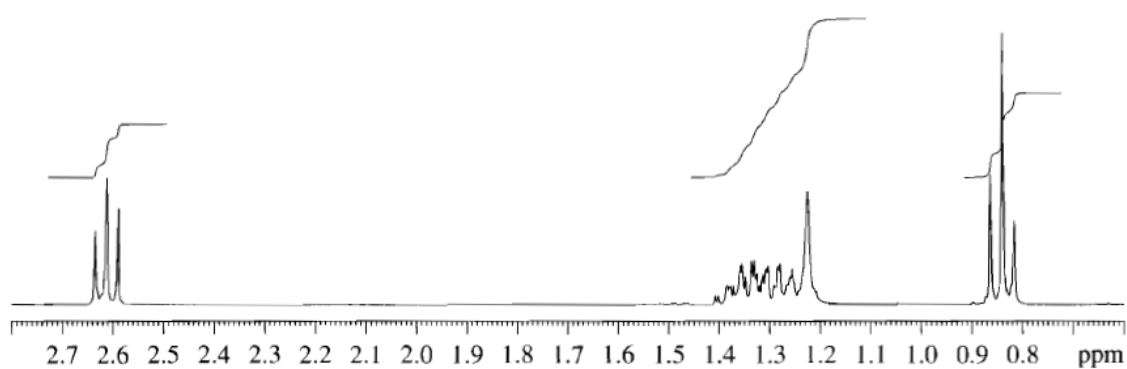
**$^{13}\text{C}/\text{DEPT}$**



**IR**



**$\text{RMN}^1\text{H}$**



**REFERENCES BIBLIOGRAPHIQUES (Spectres)**

Robert M. Silverstein, Francis X. Webster, David J. Kiemle. Identification spectrométrique de composés organiques. 2007. 2 Ed. de boeck.

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