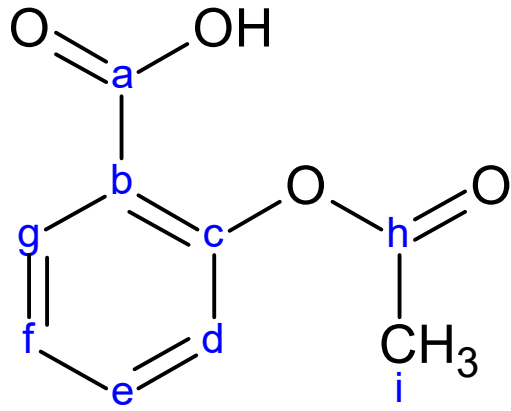
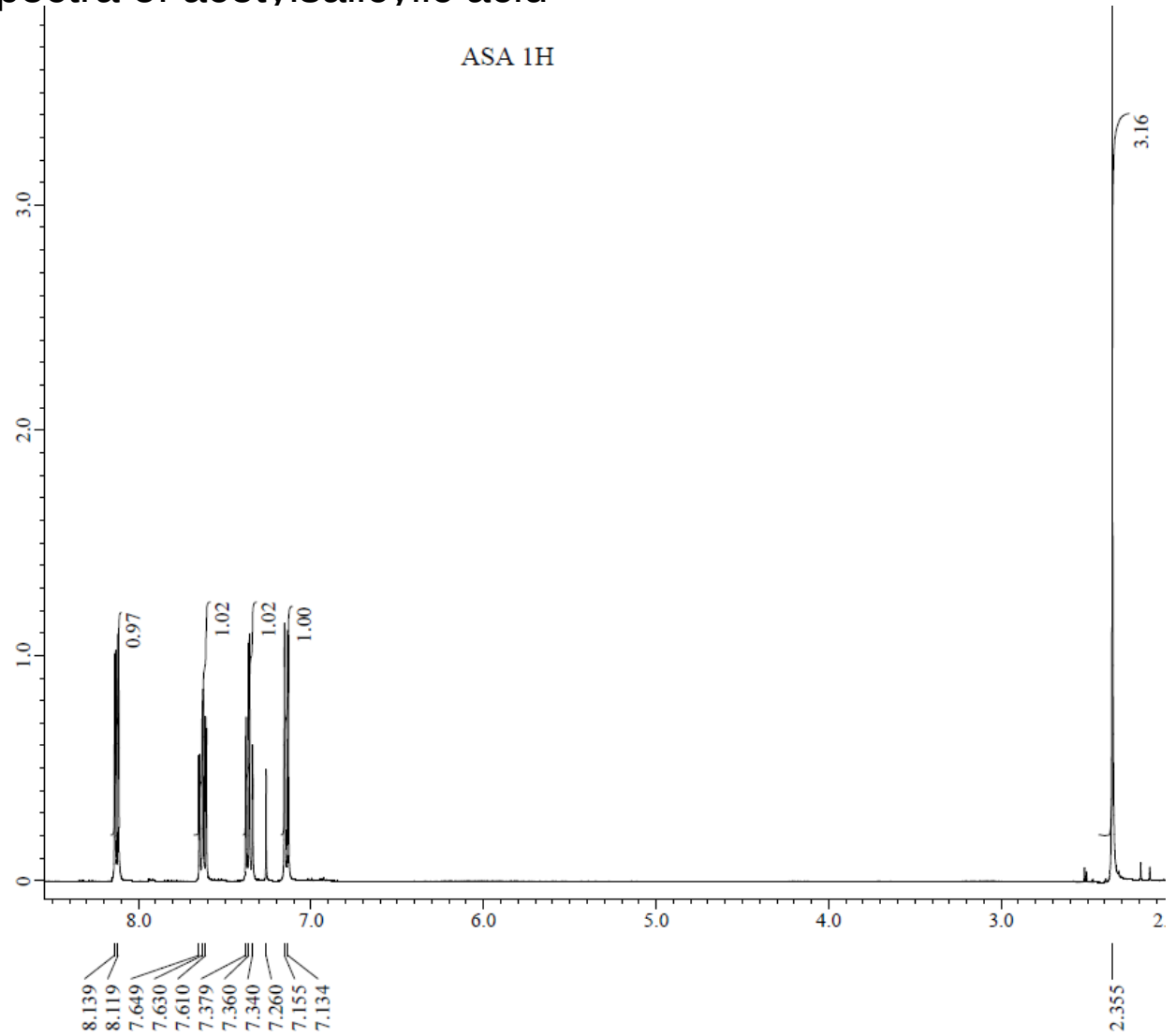
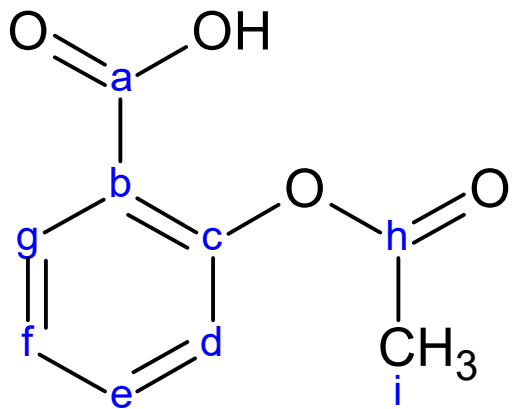


# NMR spectra of acetylsalicylic acid

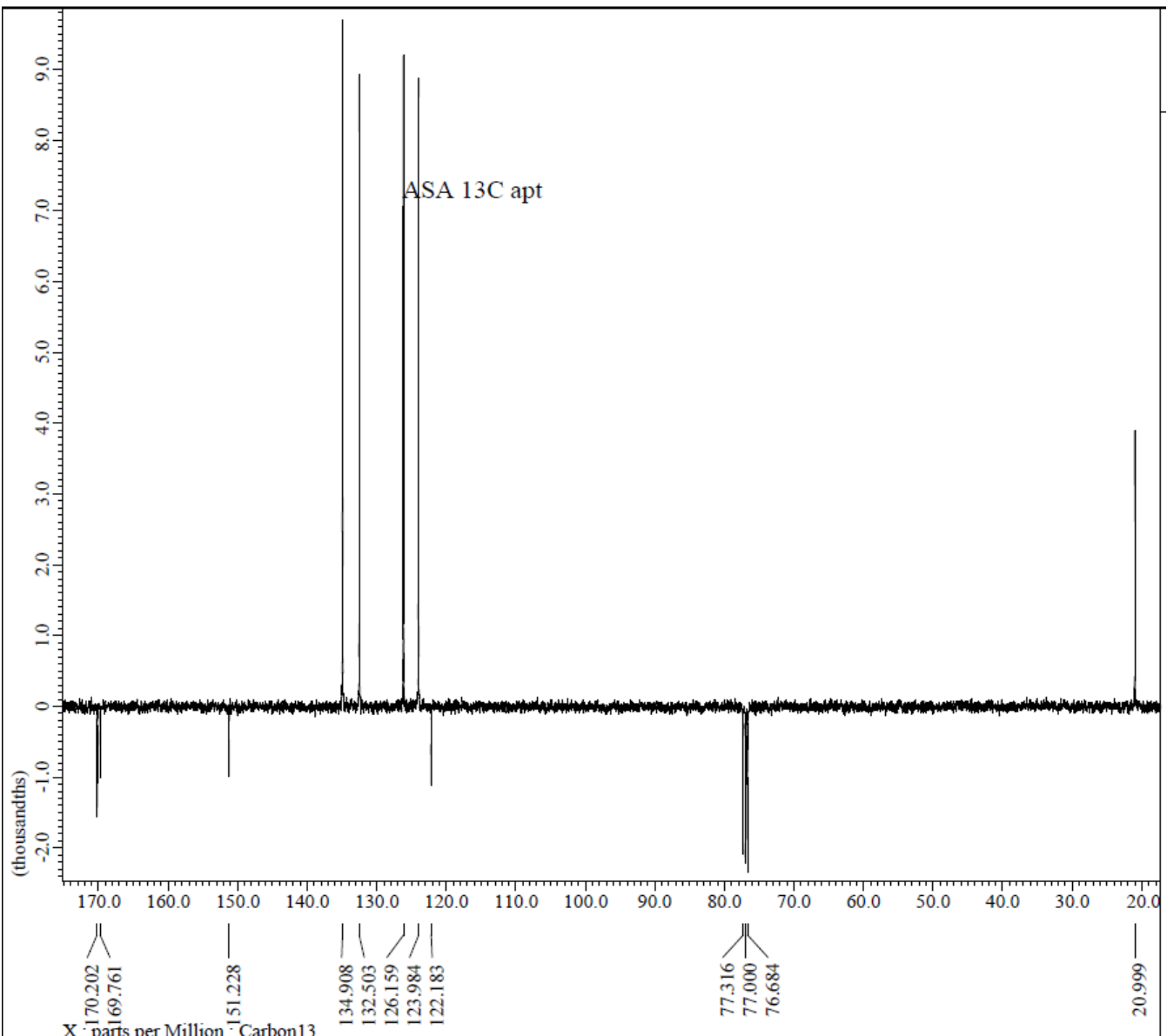


1<sup>st</sup> question: does the number of hydrogens in the structure correspond with the number in the spectrum?





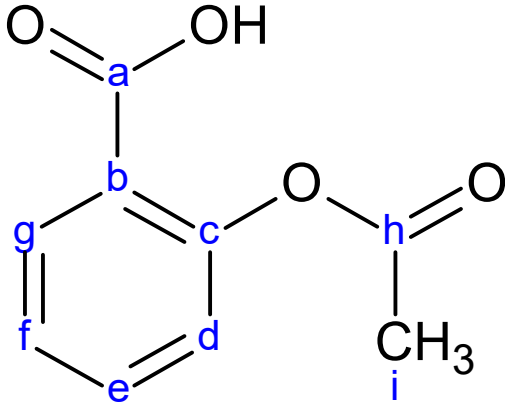
NMR spectra of acetylsalicylic acid  
<sup>13</sup>C-apt



## NMR spectra of acetylsalicylic acid

$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 8.12 1H d  $J=8$  ; 7.63 1H t  $J=7.6$  ; 7.36 1H t  $J=7.6$  ; 7.14 1H d  $J=8.4$  ; 2.36 3H s **i**

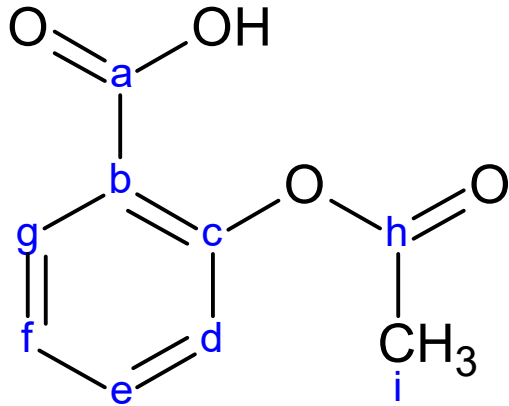
$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 170.2 ; 169.8 ; 151.2 ; 134.9 ; 132.5 ; 126.2 ; 122.2 ; 21.0 **i**

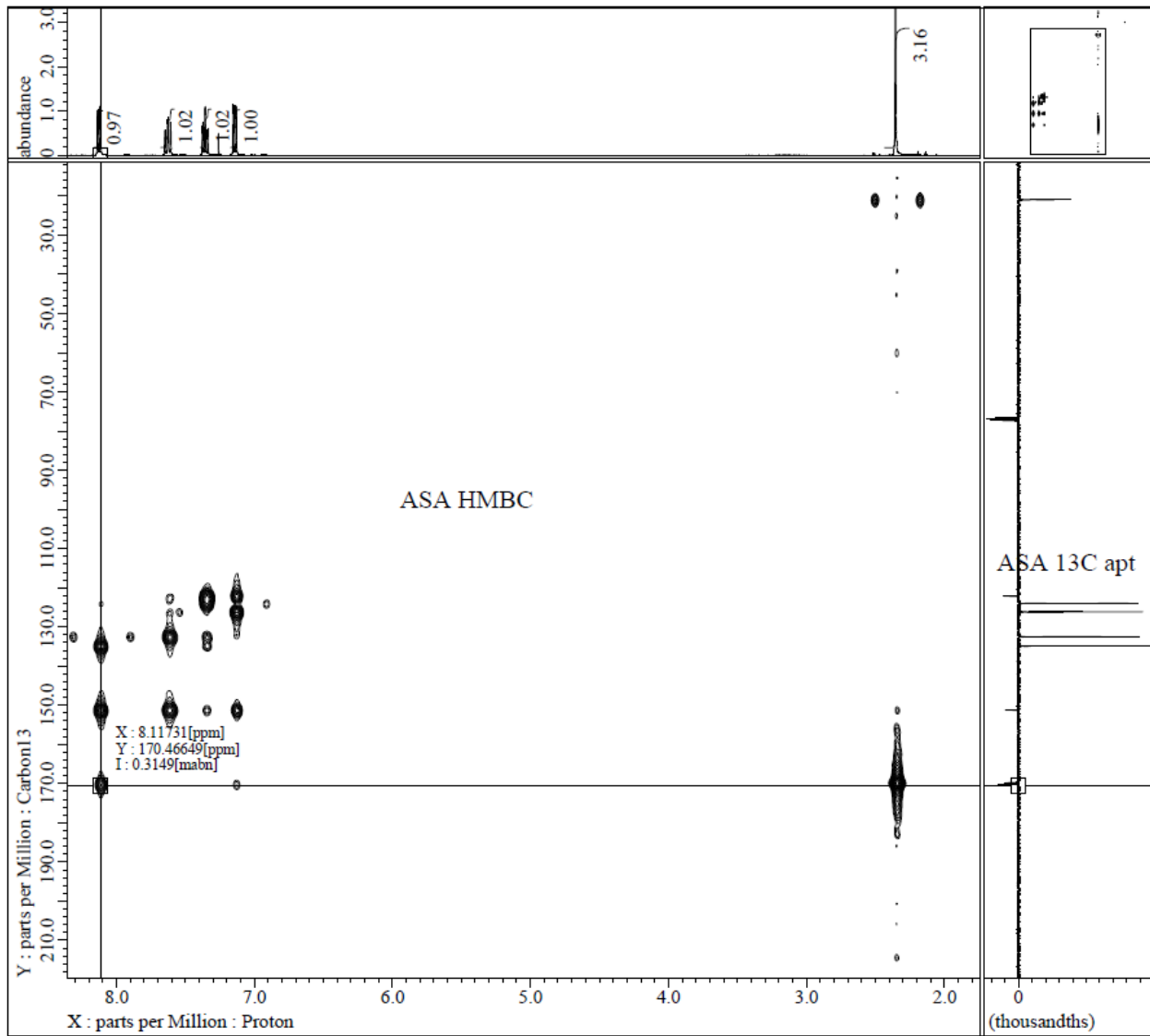


## NMR spectra of acetylsalicylic acid

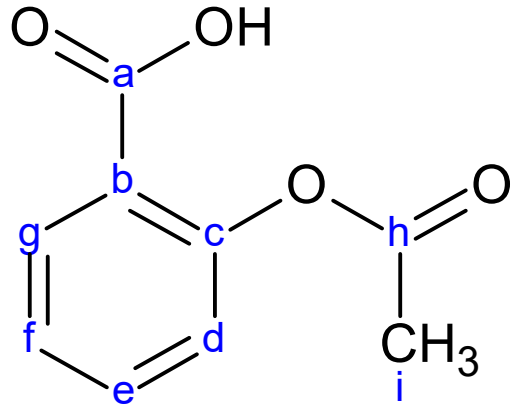
$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 8.12 1H d  $J=8$  ; 7.63 1H t  $J=7.6$  ; 7.36 1H t  $J=7.6$  ; 7.14 1H d  $J=8.4$  ; 2.36 3H s **i**

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 170.2 ; 169.8 ; 151.2 ; 134.9 ; 132.5 ; 126.2 ; 122.2 ; 21.0 **i**





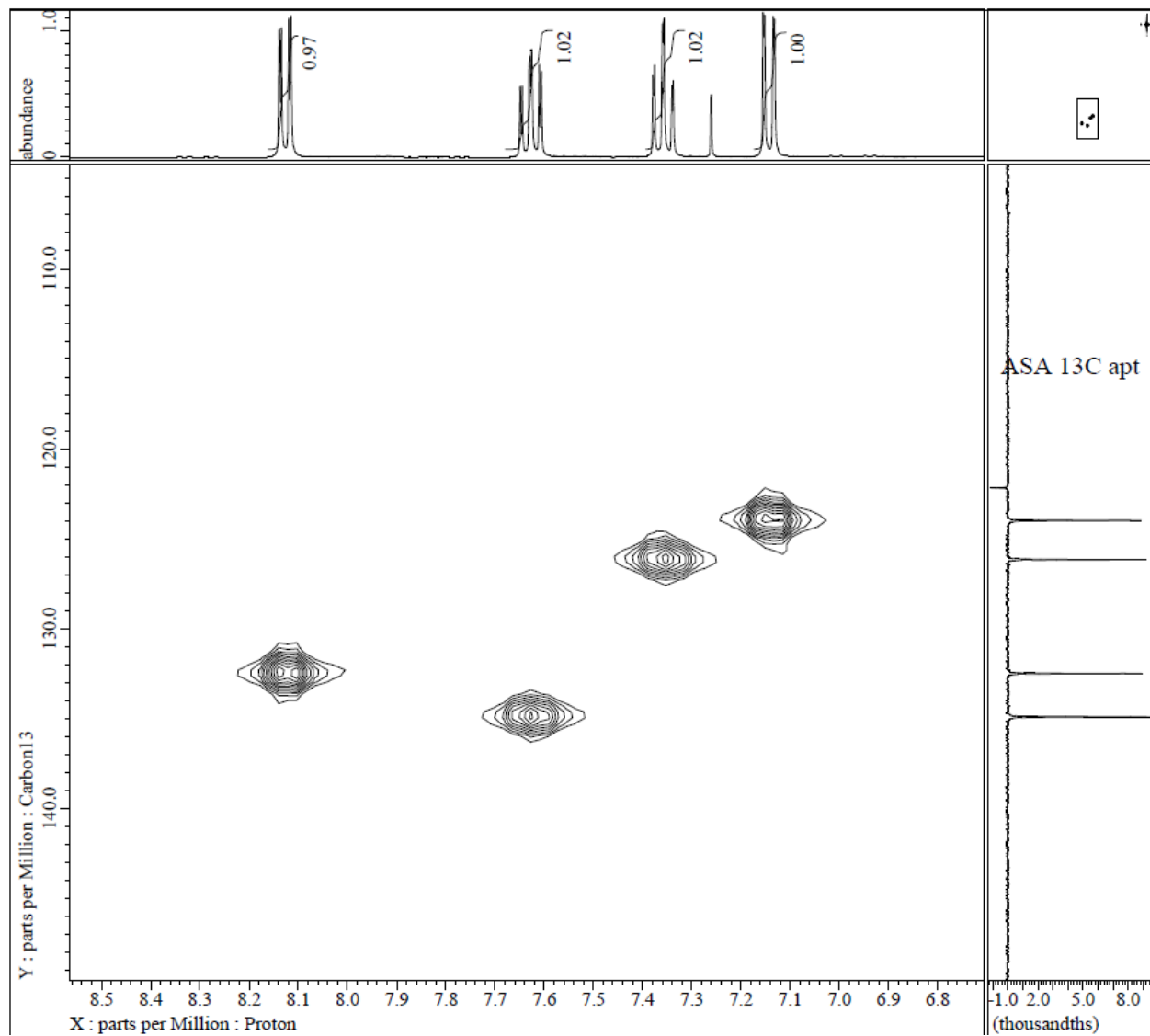
## NMR spectra of acetylsalicylic acid



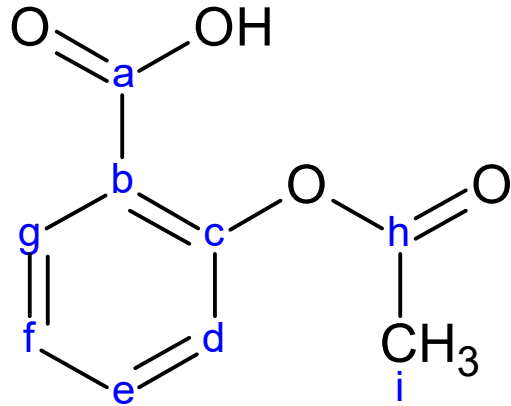
$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 8.12 1H d  $J=8$  **d**; 7.63 1H t  $J=7.6$  ;  
7.36 1H t  $J=7.6$  ; 7.14 1H d  $J=8.4$  ; 2.36 3H s **i**

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 170.2 **h**; 169.8 **a**; 151.2 ; 134.9 ; 132.5 ;  
126.2 ; 122.2 ; 21.0 **i**

# HMQC



## NMR spectra of acetylsalicylic acid

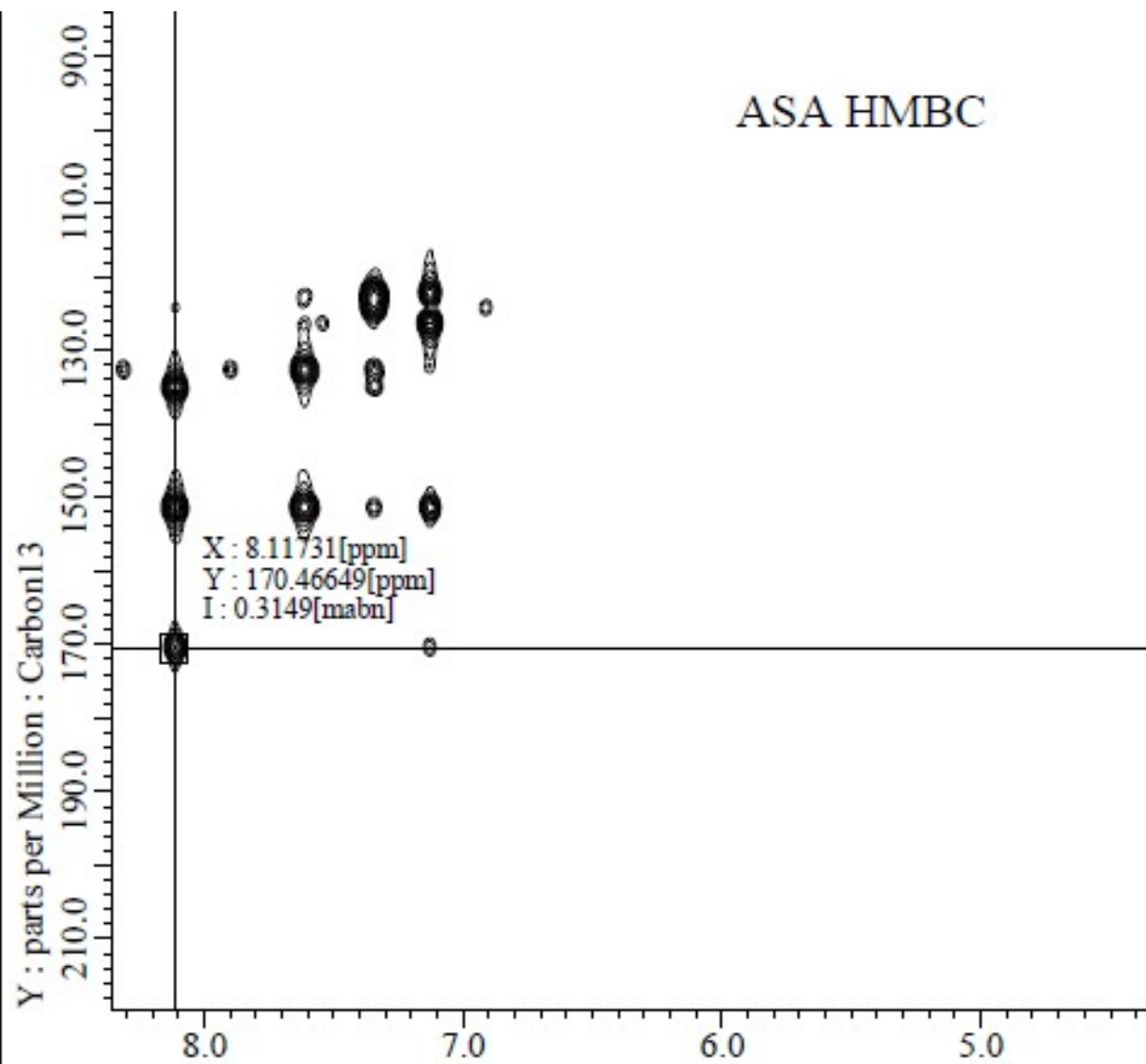


$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 8.12 1H d  $J=8$  **d**; 7.63 1H t  $J=7.6$  ;  
7.36 1H t  $J=7.6$  ; 7.14 1H d  $J=8.4$  ; 2.36 3H s **i**

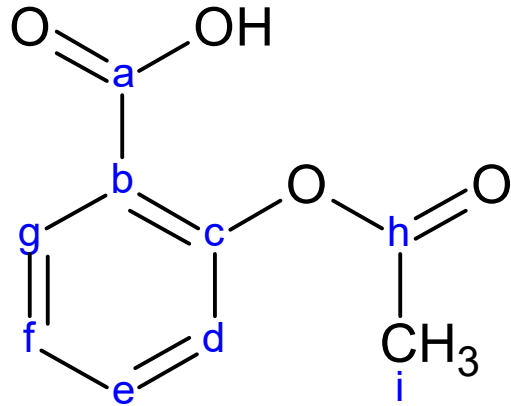
$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 170.2 **h**; 169.8 **a**; 151.2 ; 134.9 ; 132.5 **d**;  
126.2 ; 122.2 ; 21.0 **i**



ASA HMBC



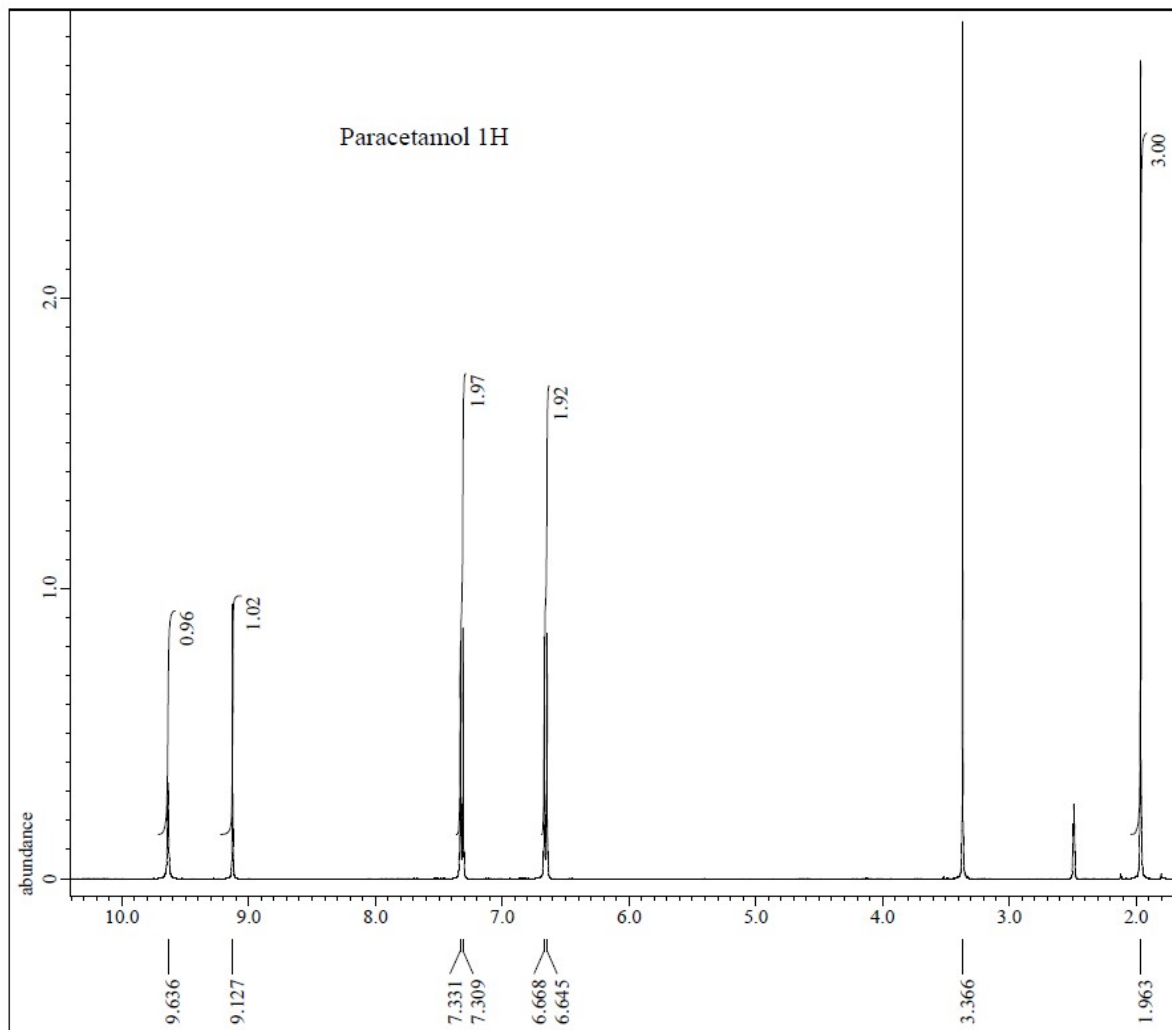
## NMR spectra of acetylsalicylic acid - final



$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 8.12 1H d  $J=8$  **d**; 7.63 1H t  $J=7.6$  **e**;  
7.36 1H t  $J=7.6$  **f**; 7.14 1H d  $J=8.4$  **g**; 2.36 3H s **i**

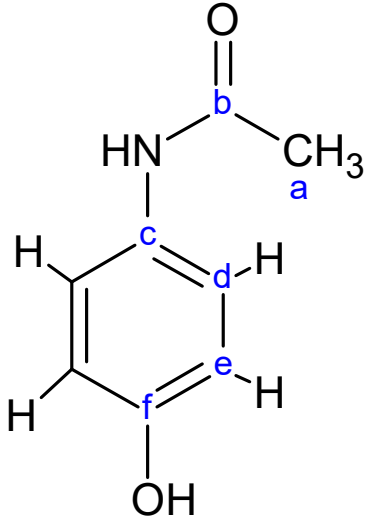
$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 170.2 **h**; 169.8 **a**; 151.2 **c**; 134.9 **e**; 132.5 **d**;  
126.2 **f**; 122.2 **g**; 21.0 **i**

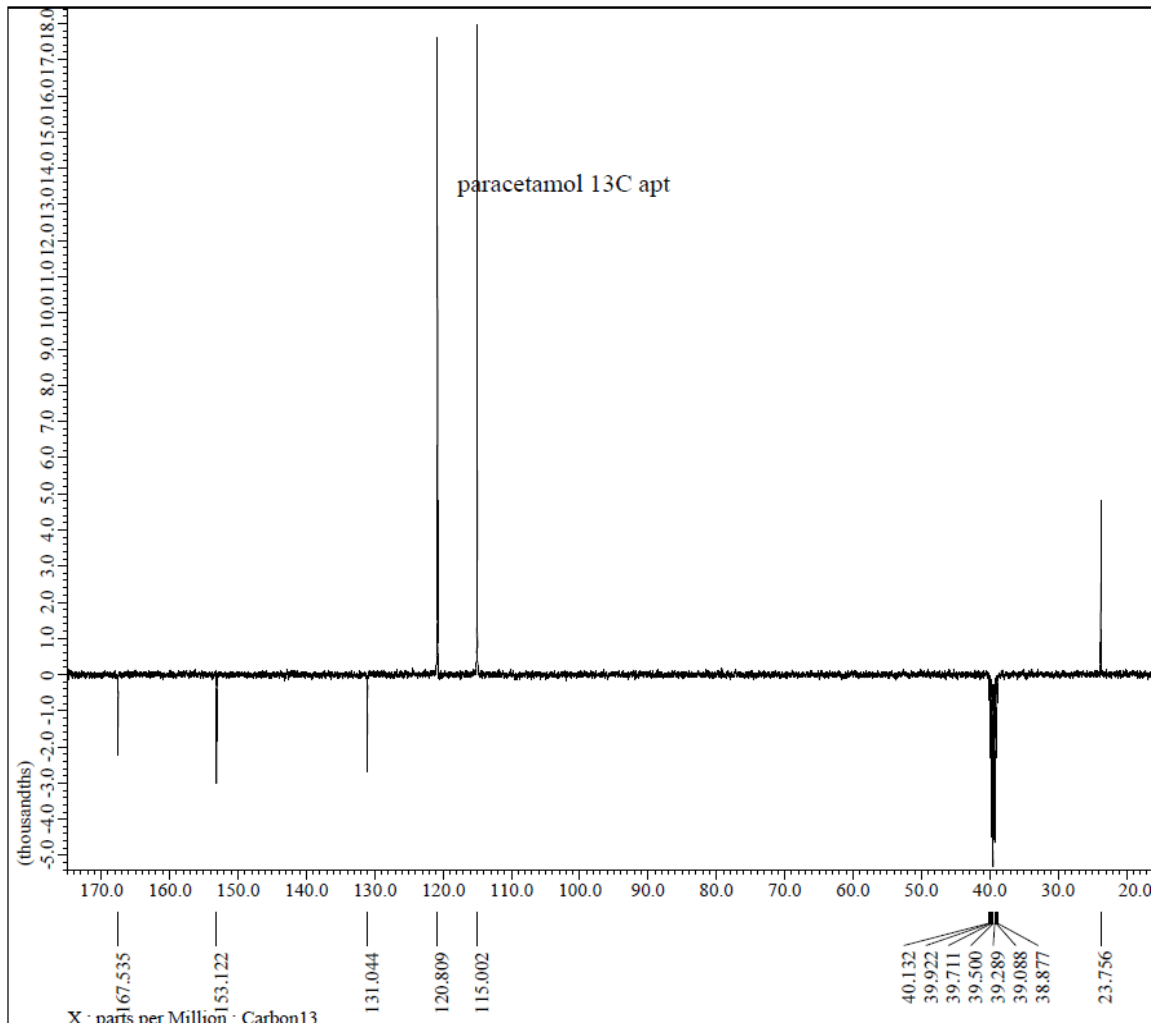
# NMR spectra of paracetamol



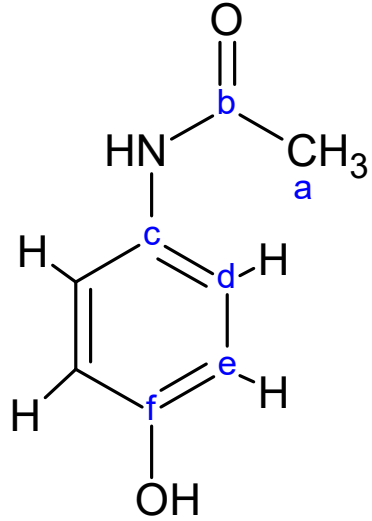
# NMR spectra of paracetamol

$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 9.63 1H s ; 9.13 1H s ; 7.32 2H d  $J = 8.8$ ; 6.65 2H d  $J=9.2$  ; 1.96



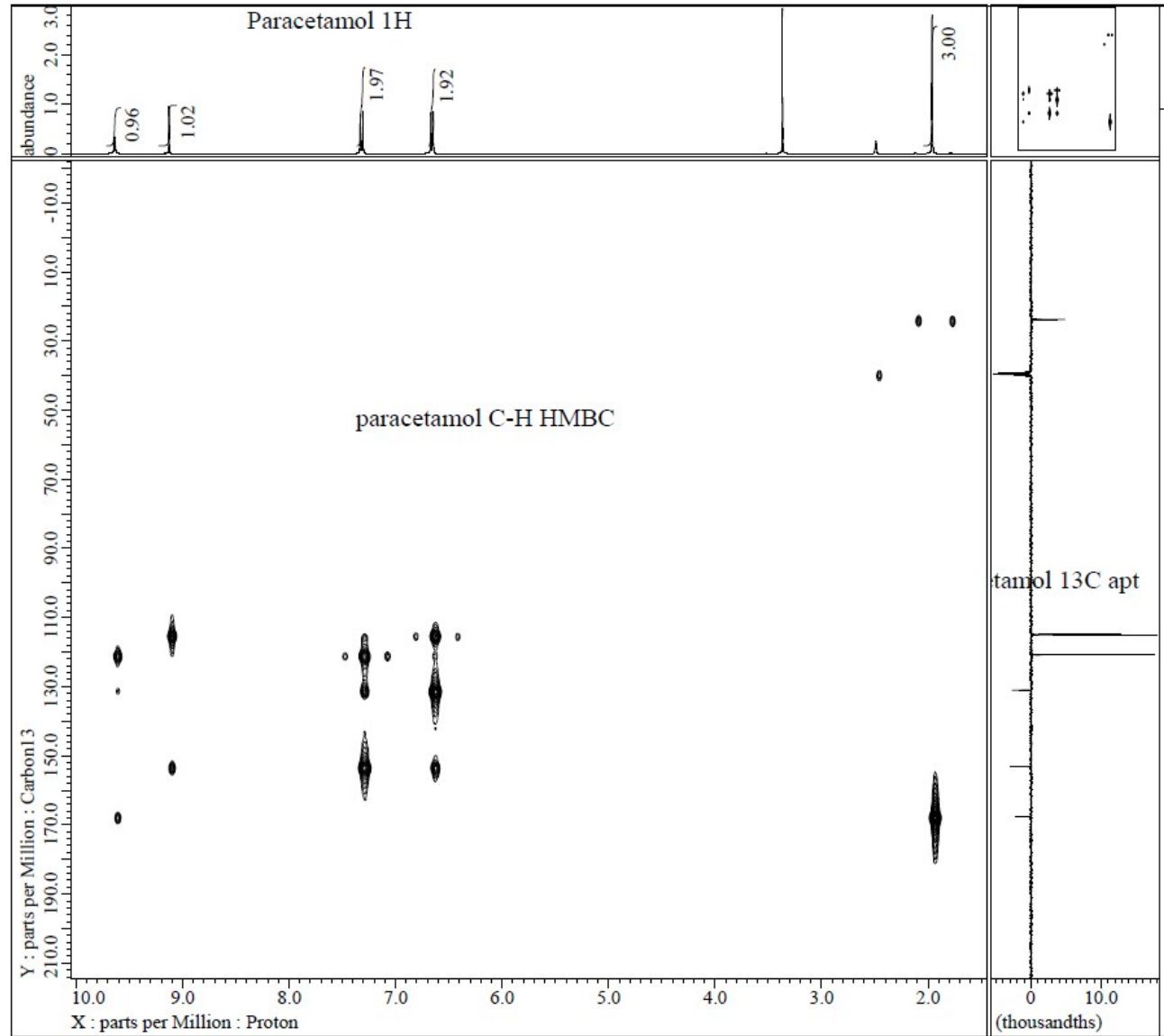


# NMR spectra of paracetamol

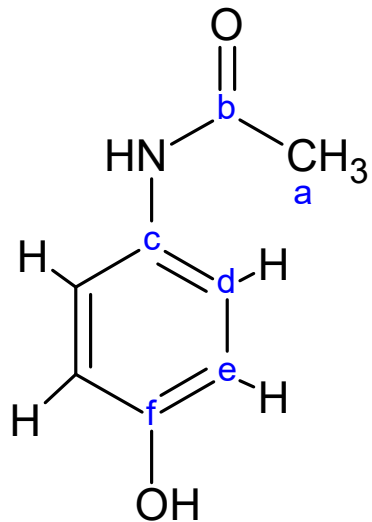


$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 9.63 1H s ; 9.13 1H s ; 7.32 2H d  $J = 8.8$ ; 6.65 2H d  $J=9.2$  ; 1.96 3H s **a**

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 167.5 **b**; 153.1 ; 131.0 ; 120.8 ; 115.0 ; 23.8 **a**



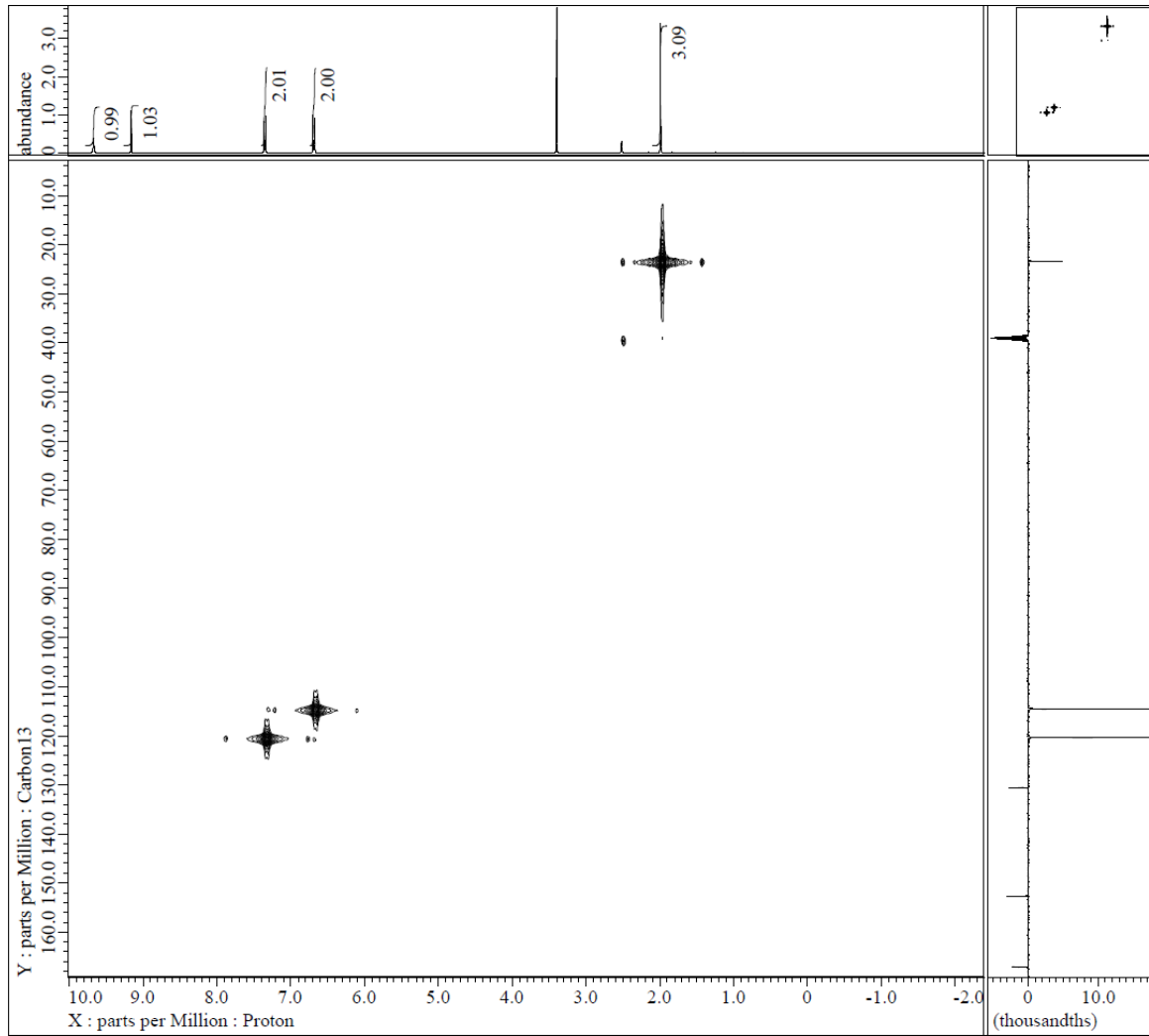
## NMR spectra of paracetamol



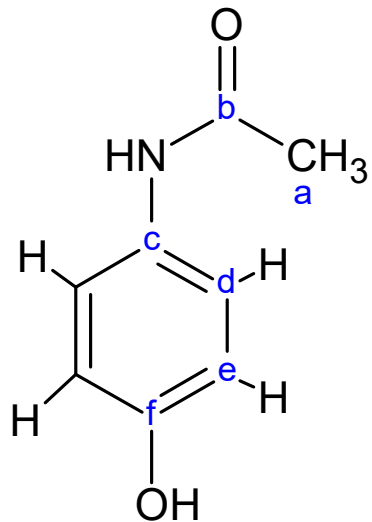
$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 9.63 1H s **NH**; 9.13 1H s ; 7.32 2H d  $J = 8.8$ ; 6.65 2H d  $J=9.2$  ; 1.96 3H s **a**

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 167.5 **b**; 153.1 ; 131.0 ; 120.8 ; 115.0 **d** ; 23.8 **a**





## NMR spectra of paracetamol



$^1\text{H-NMR}$  (400 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm],  $J$ [Hz]): 9.63 1H s **NH**; 9.13 1H s **OH**; 7.32 2H d  $J = 8.8$  **e**; 6.65 2H d  $J=9.2$  **d**; 1.96 3H s **a**

$^{13}\text{C-NMR}$  (100 MHz,  $\text{CDCl}_3$ ,  $\delta$ [ppm]): 167.5 **b**; 153.1 **f**; 131.0 **c**; 120.8 **e**; 115.0 **d** ; 23.8 **a**