

ESPERIENZA 1

Gli acetilacetonato complessi sintetizzati

Complesso	[Cr(acac) ₃]	[Mn(acac) ₃]	[Fe(acac) ₃]	[Cu(acac) ₂]		
Stato di ox	+ 3	+ 3	+ 3	+ 2		
Config. Elettr.	<i>d</i> ³	<i>d</i> ⁴	<i>d</i> ⁵	<i>d</i> ⁹		
Geometria	Ottaedr.	Ottaedr.	Ottaedr.	Plan. Quadr.		
Magnetismo	Param.	Param.	Param.	Param.		
	[Al(acac) ₃]	+ 3	<i>d</i> ⁰	Ottaedr.	Diam.	beige

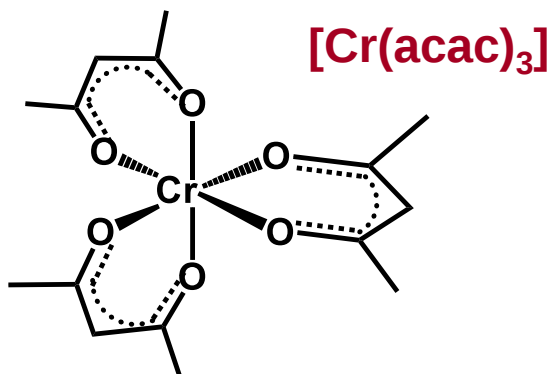
ESPERIENZA 1

Cromatografia su strato sottile degli acetilacetonato complessi

Complesso	Colore	r_F
$[\text{Cr}(\text{acac})_3]$	viola	
$[\text{Mn}(\text{acac})_3]$	nero	
$[\text{Fe}(\text{acac})_3]$	Rosso	
$[\text{Cu}(\text{acac})_2]$	Azzurro verde	

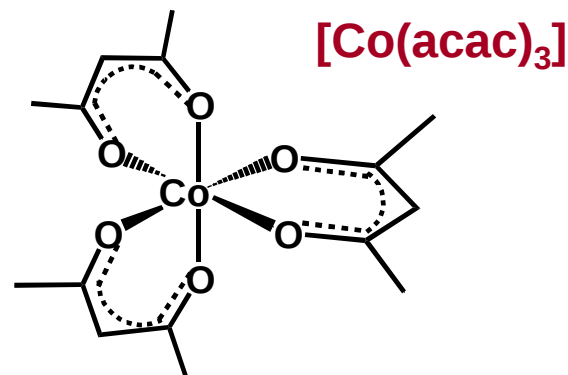
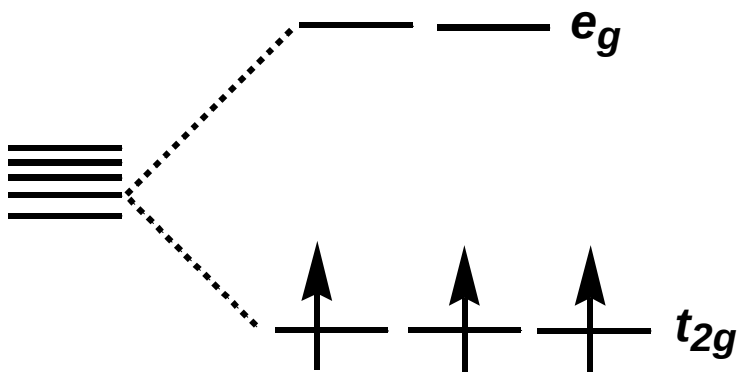
Effetto Jahn-Teller

Per molecole non lineari in uno stato elettronicamente degenere deve avvenire una distorsione per abbassare la simmetria, togliere la degenerazione e abbassare l'energia.



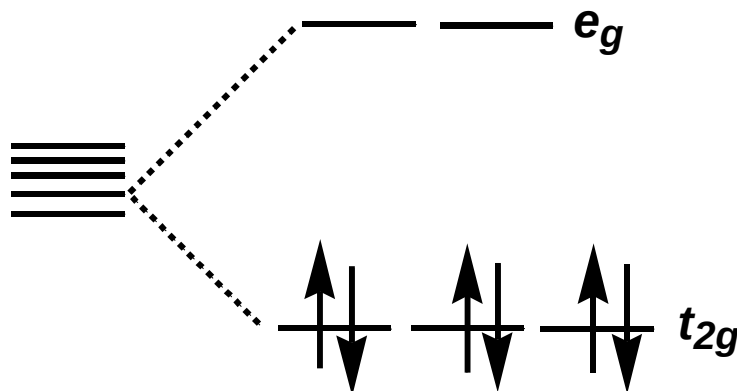
$[\text{Cr}(\text{acac})_3]$

Ottaedro, d^3

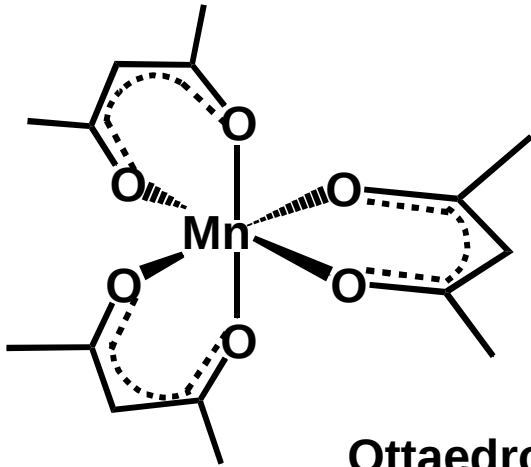


$[\text{Co}(\text{acac})_3]$

Ottaedro, d^6



NO effetto Jahn-Teller

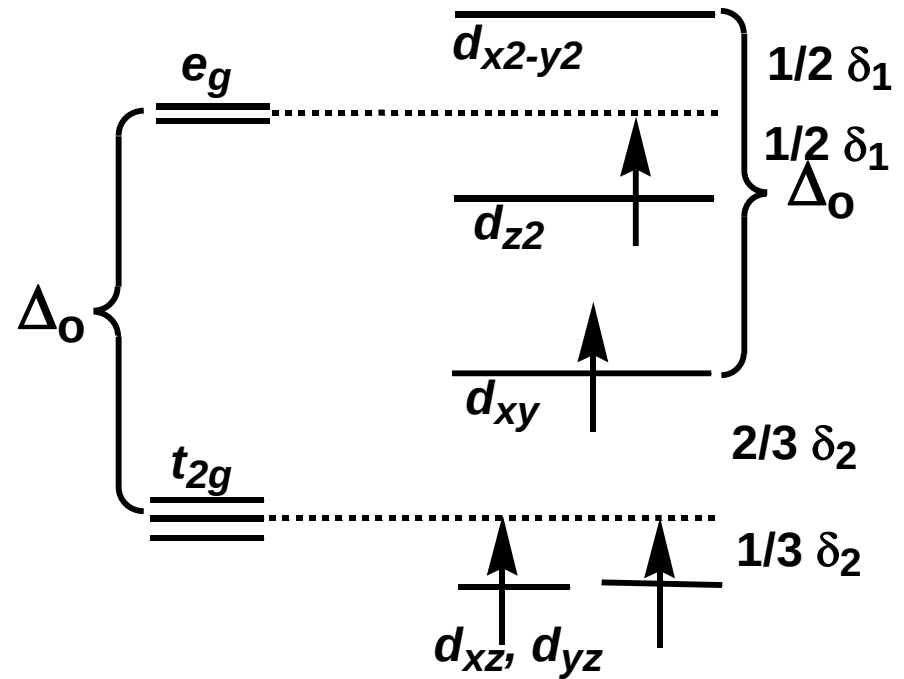
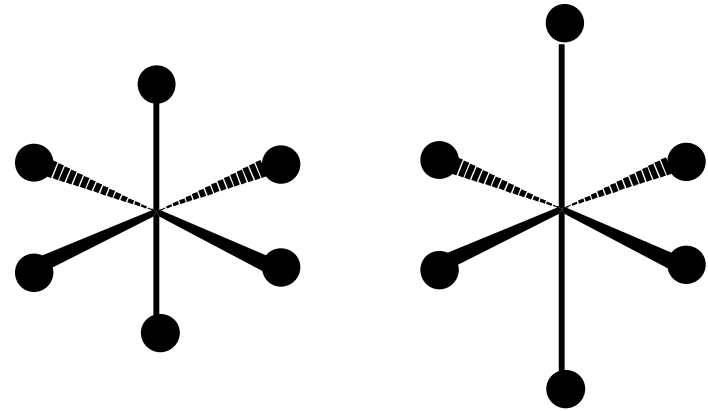


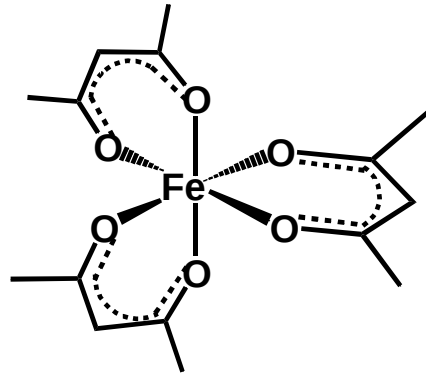
Ottaedro, d^4

Distorsioni per effetto Jahn-Teller:

Allungamento: 2 Mn-O 2.12 Å;
4 Mn-O 1.93 Å;

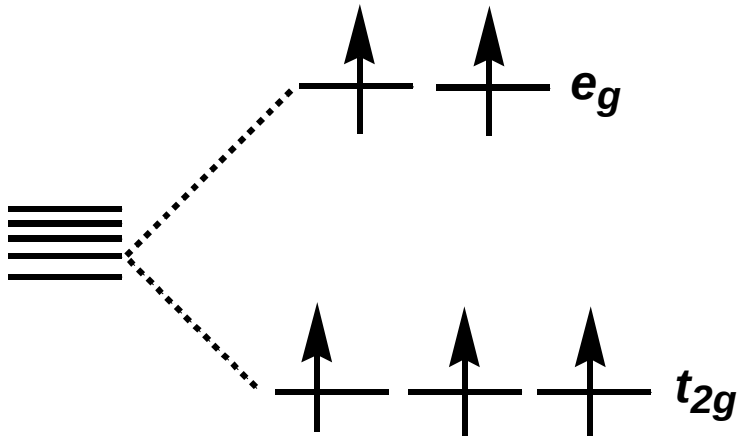
Compressione: 2 Mn-O 1.95 Å;
4 Mn-O 2.00 Å.





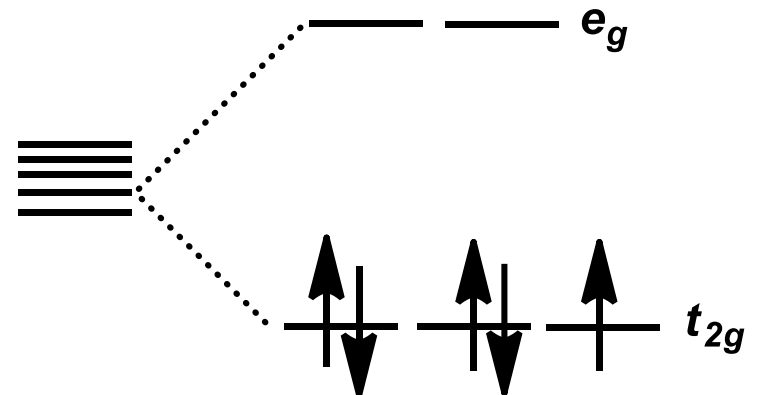
Ottaedro, d^5

alto spin

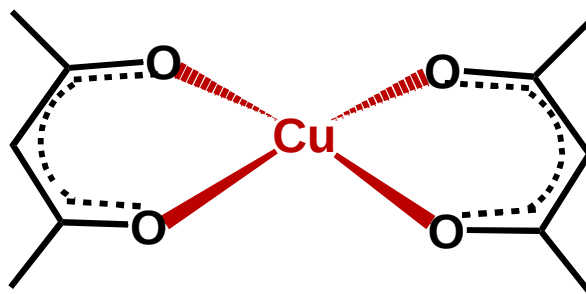


NO effetto Jahn-Teller

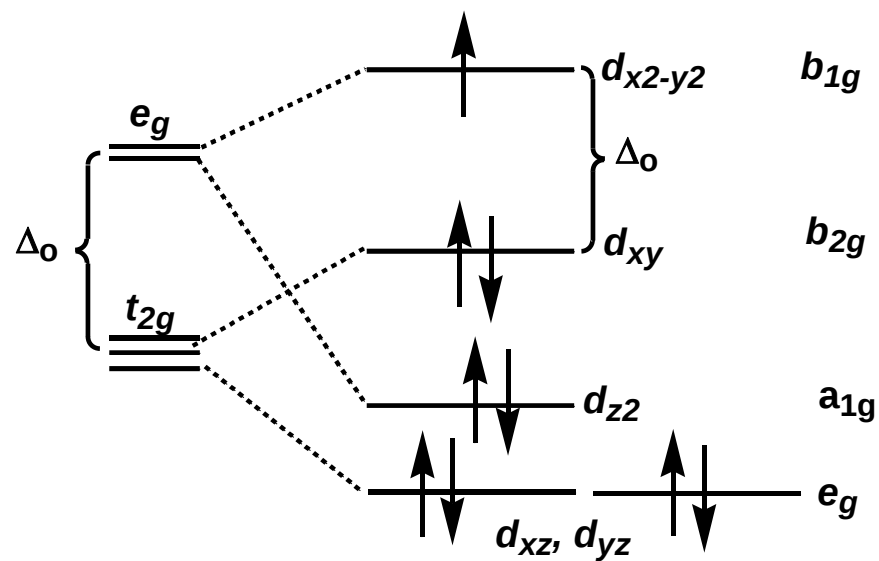
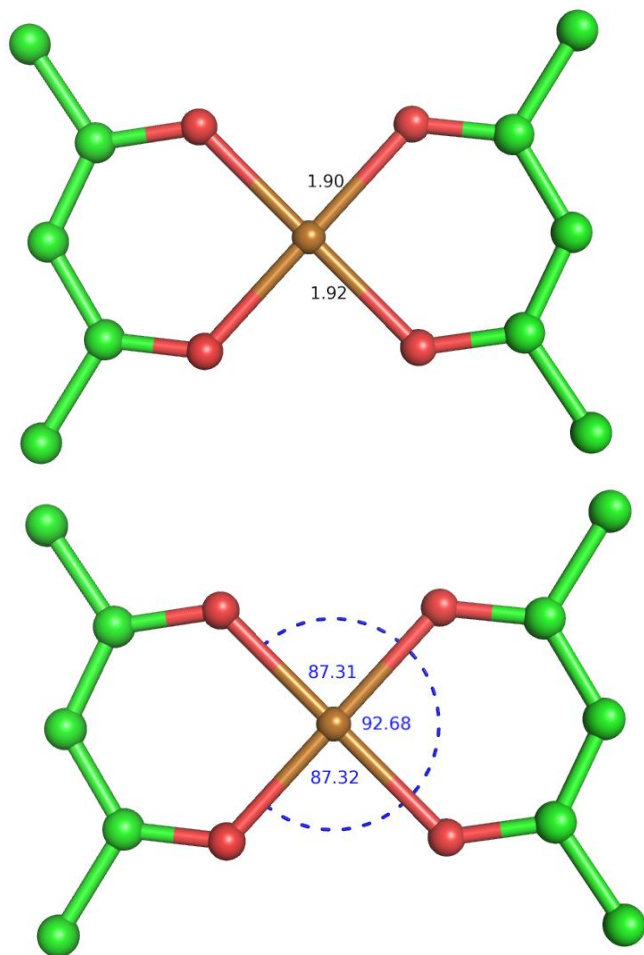
basso spin



SI' effetto Jahn-Teller

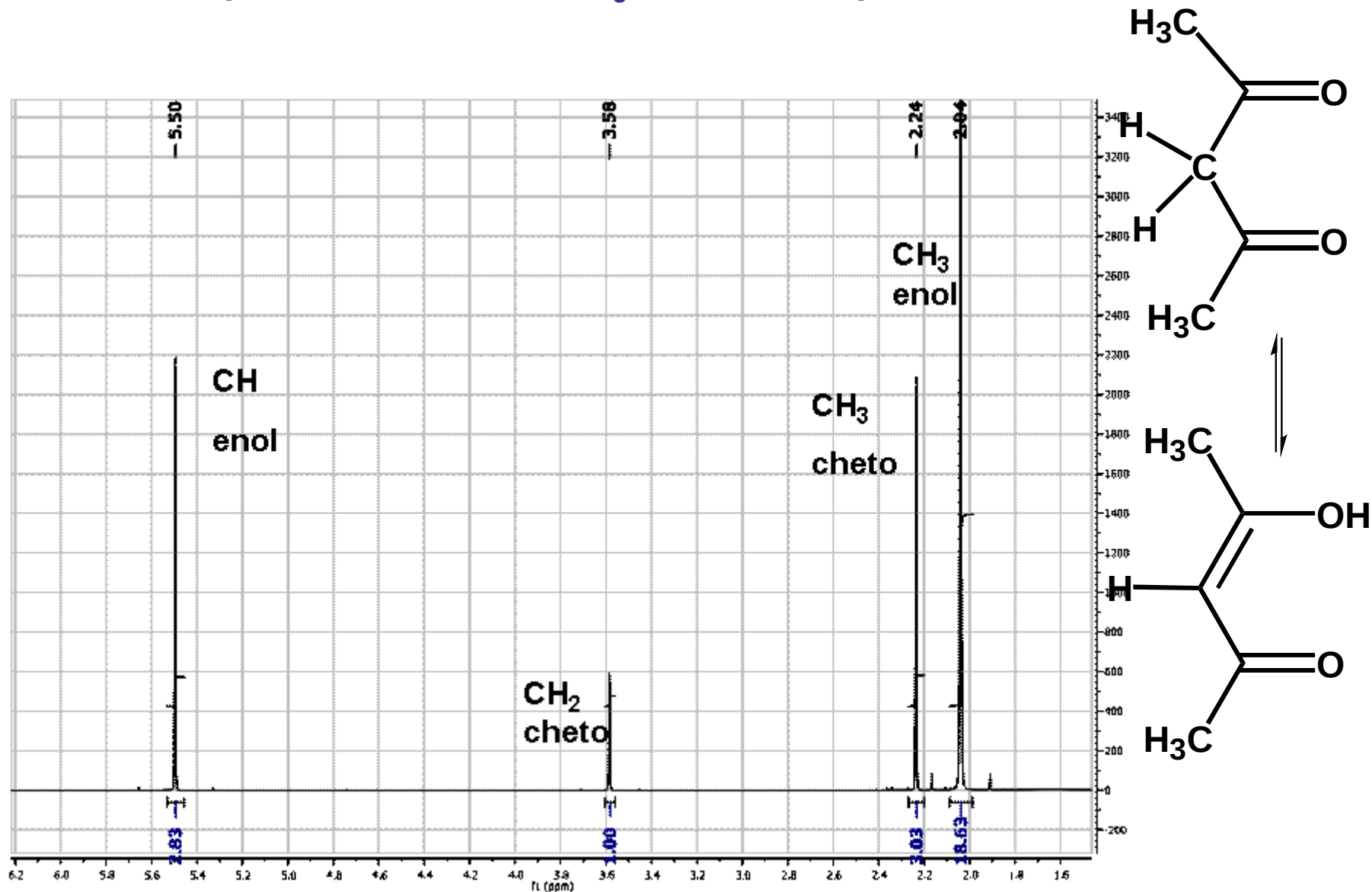


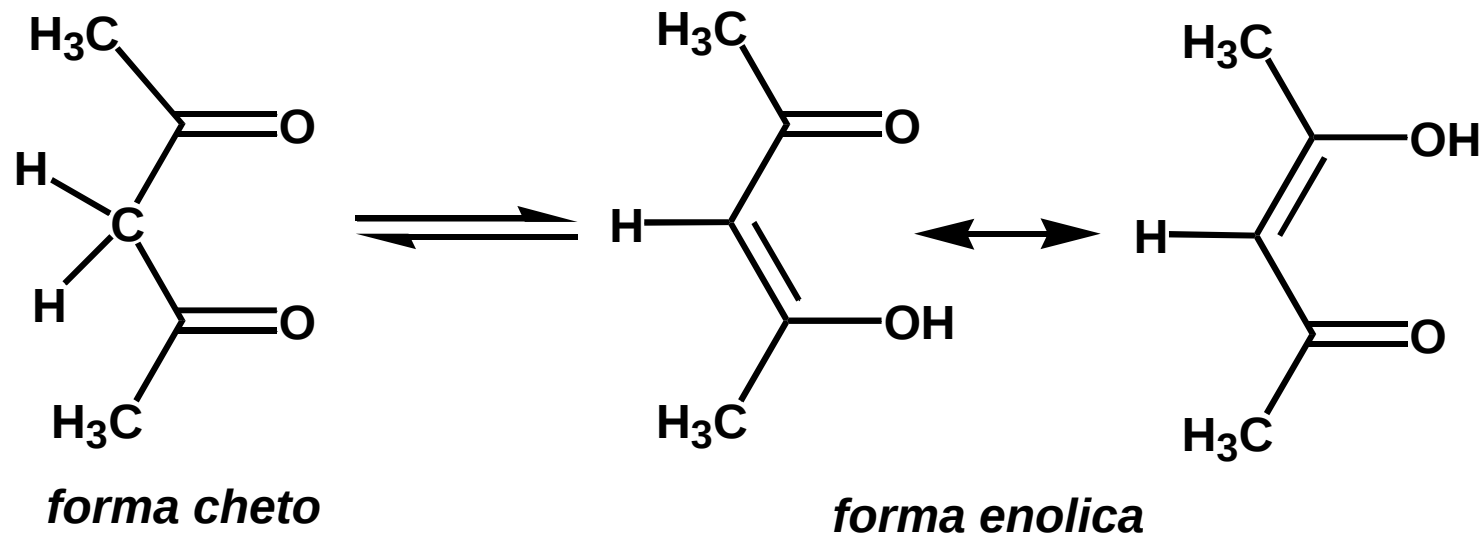
planare quadrato, d^9



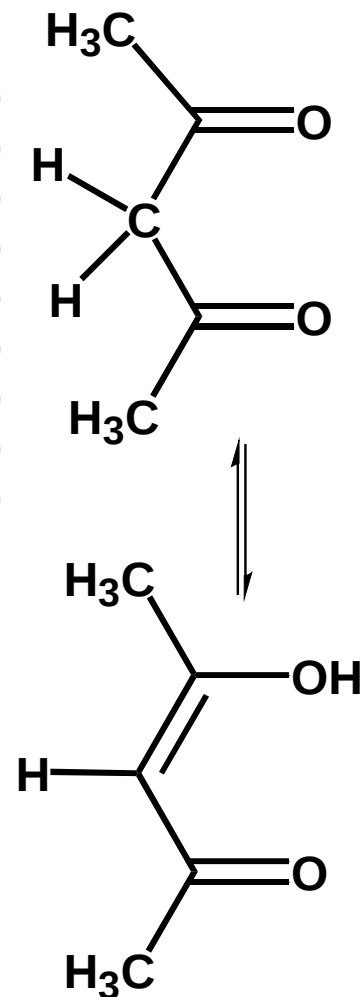
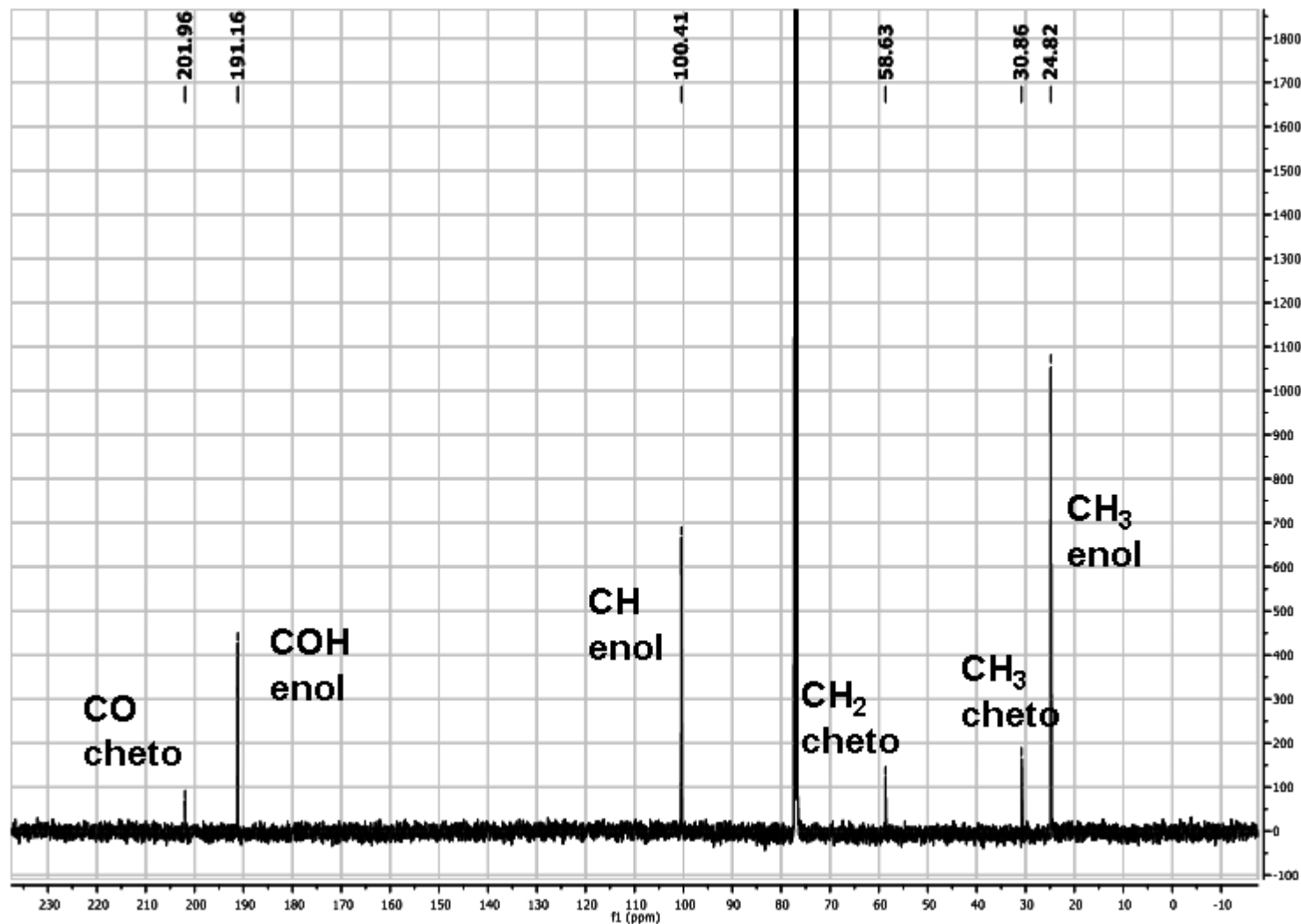
paramagnetico

Spettro ^1H NMR in CDCl_3 , a t.a. di 2,4-pentandione

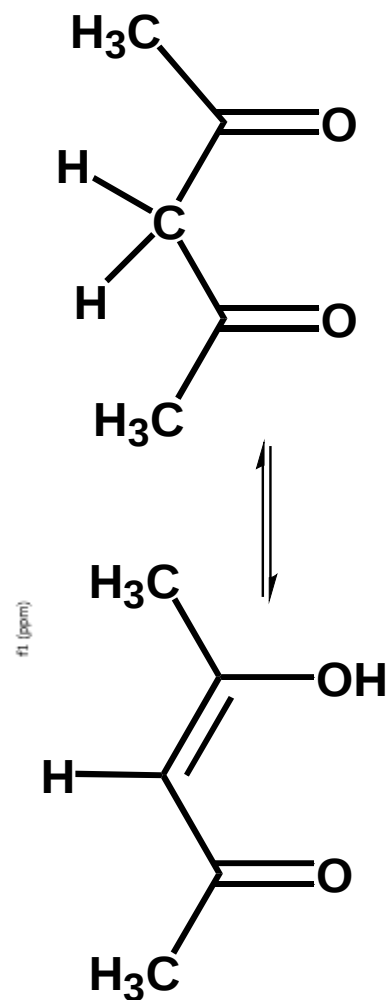
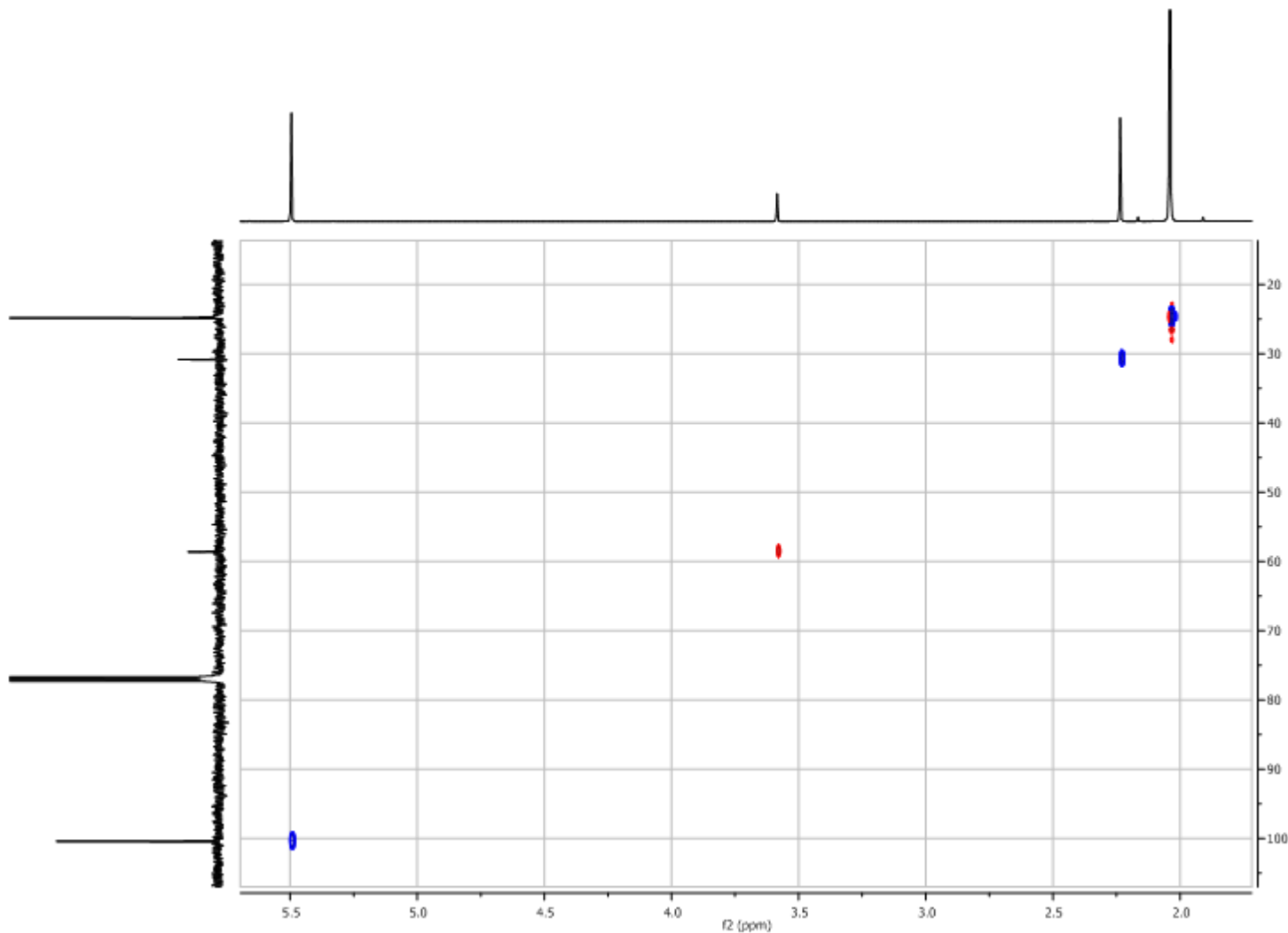




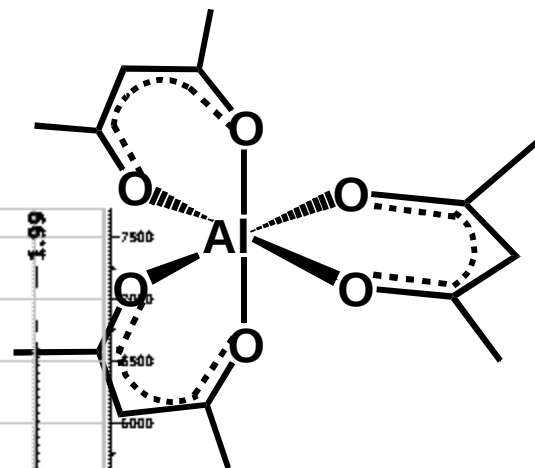
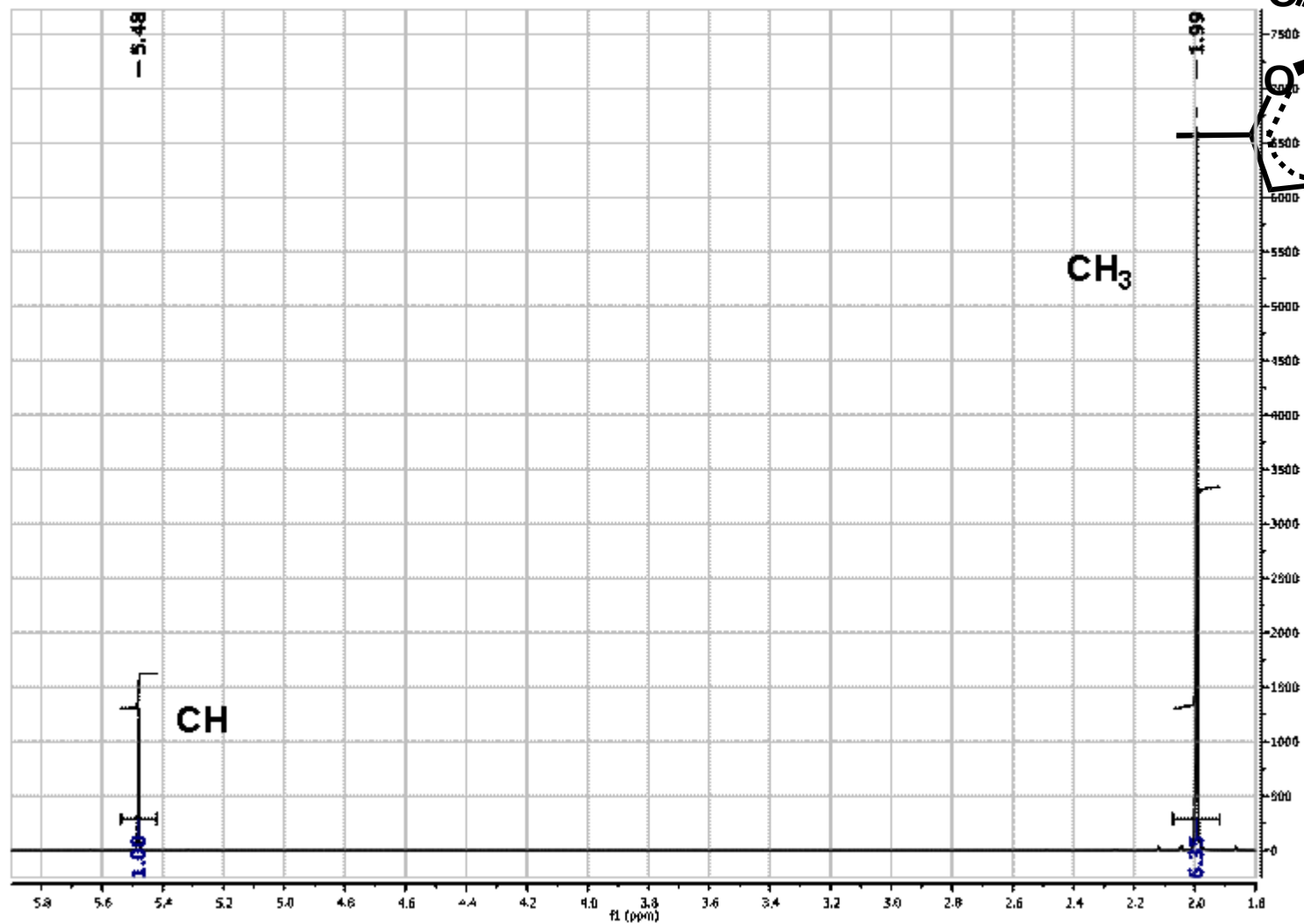
Spettro ^{13}C NMR in CDCl_3 , a t.a. di 2,4-pentandione



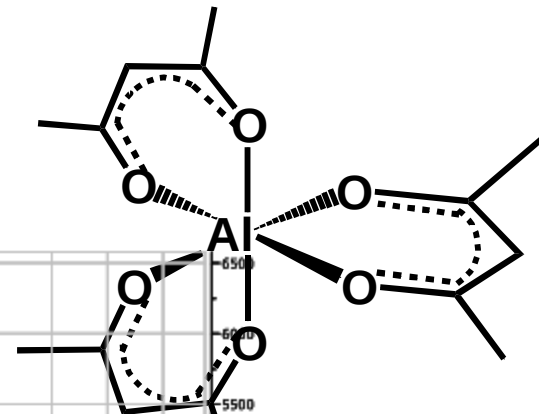
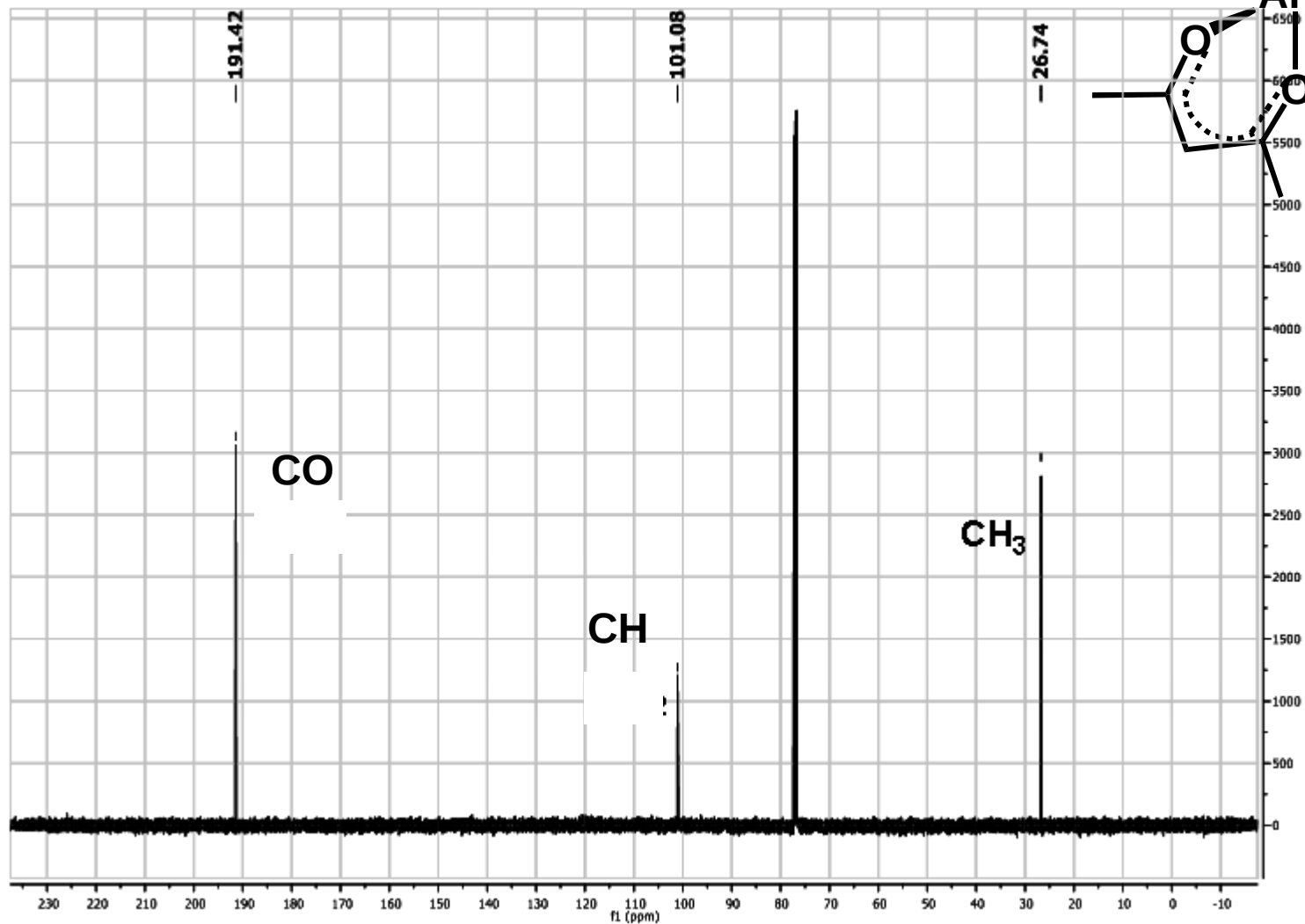
Spettro HC COSY (HSQC) NMR in CDCl_3 , a t.a. di 2,4-pentandione



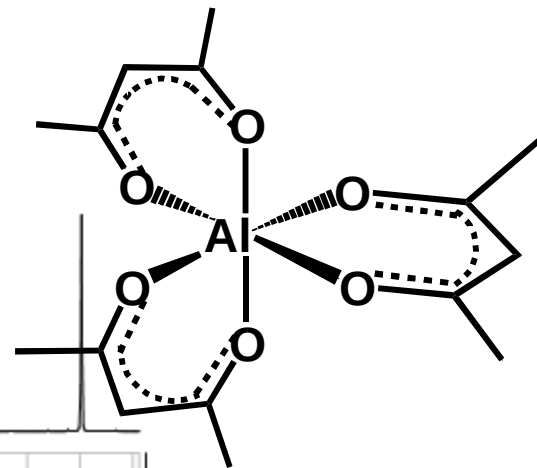
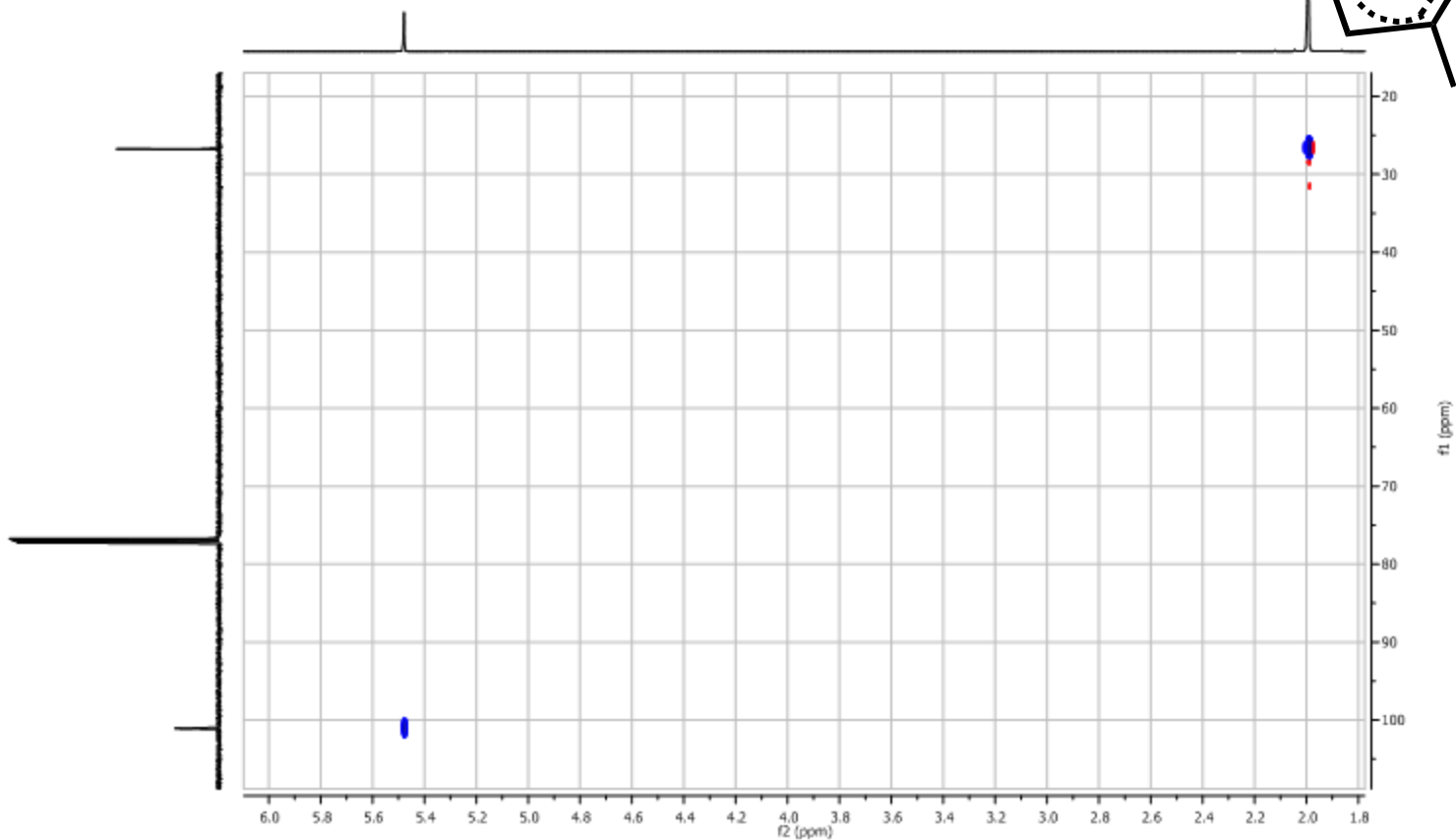
Spettro ^1H NMR in CDCl_3 , a t.a. di $[\text{Al}(\text{acac})_3]$



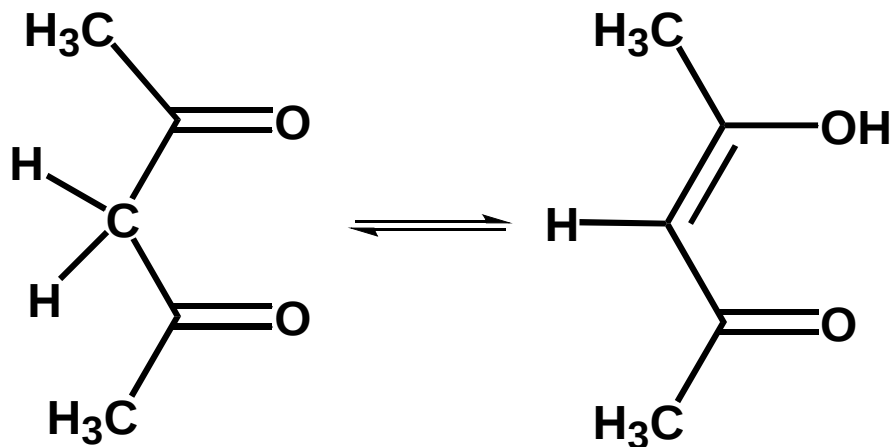
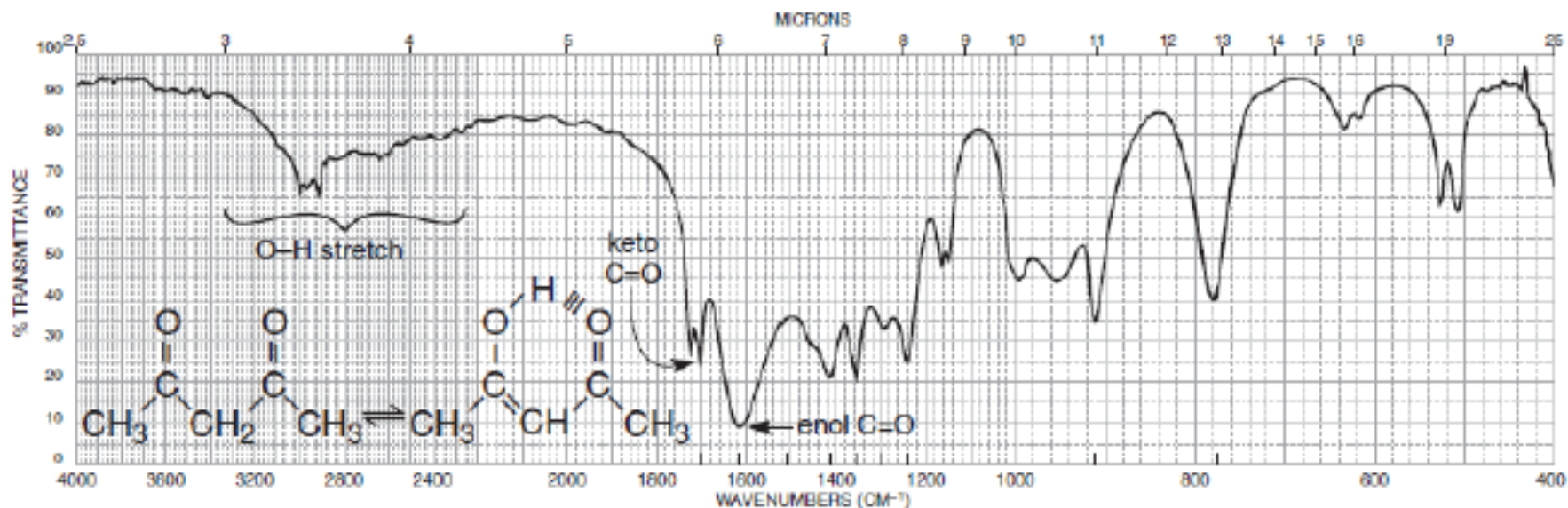
Spettro ^{13}C NMR in CDCl_3 , a t.a. di $[\text{Al}(\text{acac})_3]$



Spettro HC COSY (HSQC) NMR in CDCl_3 , a t.a.
di $[\text{Al}(\text{acac})_3]$



Spettro IR di 2,4-pentandione



Spettri IR dei complessi metallo-acac