

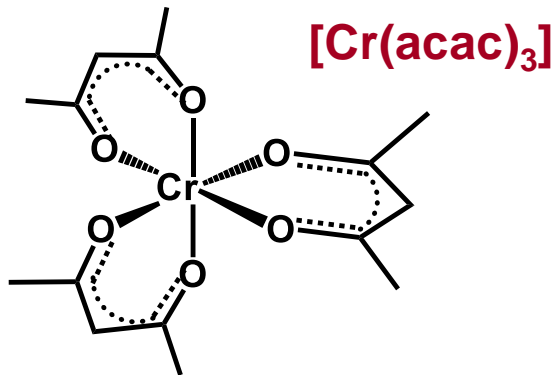
# ESPERIENZA 1

## Gli acetilacetonato complessi sintetizzati

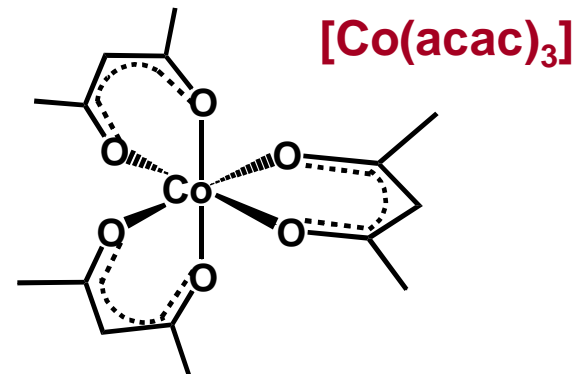
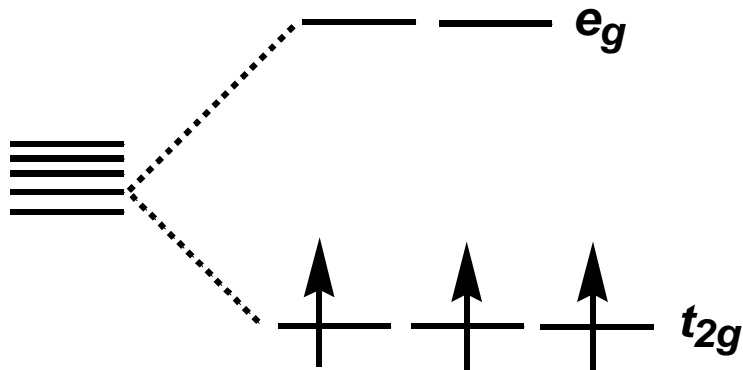
Complesso	<b>[Cr(acac)<sub>3</sub>]</b>	<b>[Mn(acac)<sub>3</sub>]</b>	<b>[Fe(acac)<sub>3</sub>]</b>	<b>[Co(acac)<sub>3</sub>]</b>	<b>[Cu(acac)<sub>2</sub>]</b>
Stato di ox	+ 3	+ 3	+ 3	+ 3	+ 2
Config. Elettr.	$d^3$	$d^4$	$d^5$	$d^6$	$d^9$
Geometria	Ottaedr.	Ottaedr.	Ottaedr.	Ottaedr.	Plan. Quadr.
Magnetismo	Param.	Param.	Param.	<b>Diam.</b>	Param.
	<b>[Al(acac)<sub>3</sub>]</b>	+ 3	$d^0$	Ottaedr.	<b>Diam.</b> beige

## Effetto Jahn-Teller

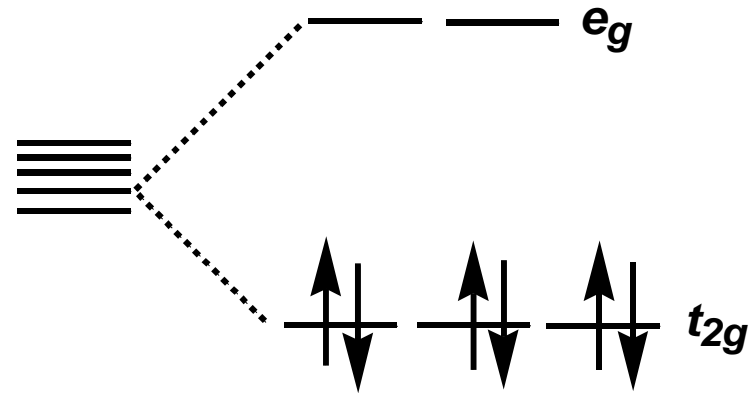
*Per molecole non lineari in uno stato elettronicamente degenere deve avvenire una distorsione per abbassare la simmetria, togliere la degenerazione e abbassare l'energia.*



Ottaedro,  $d^3$

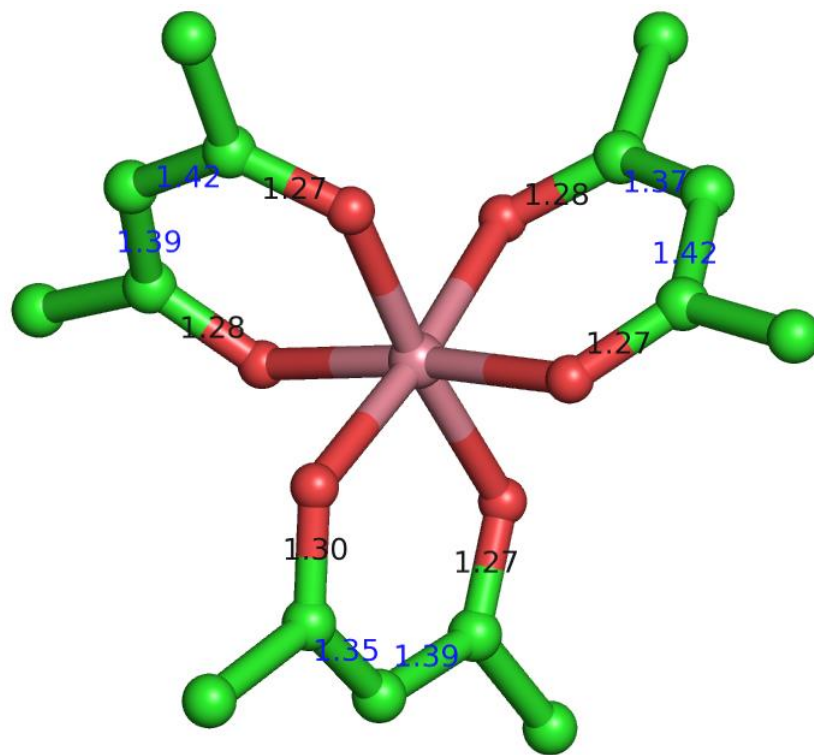
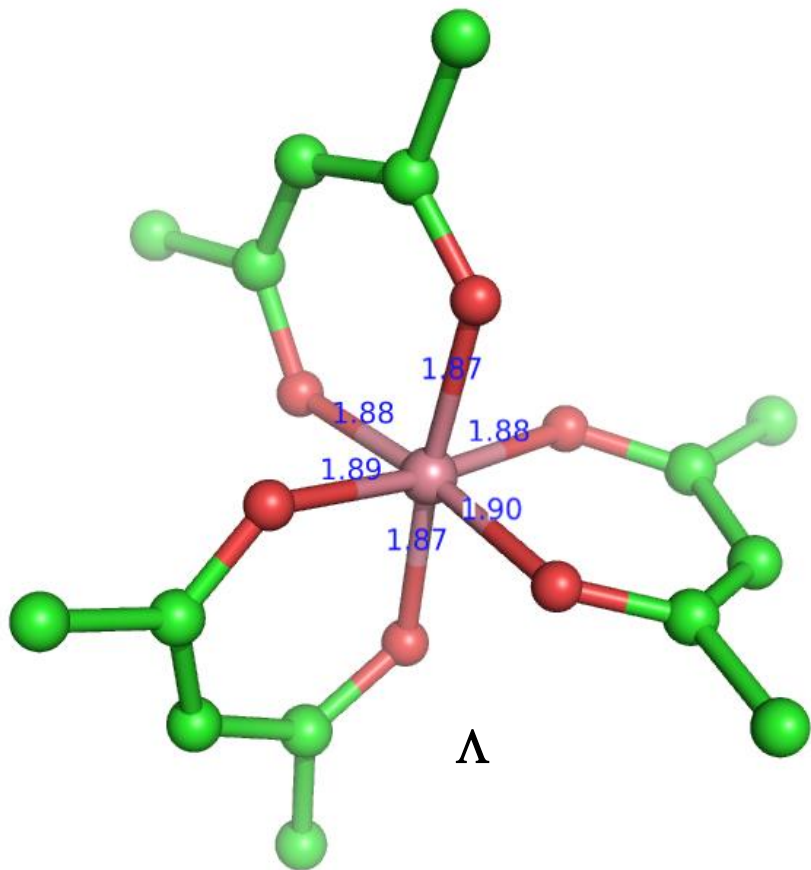
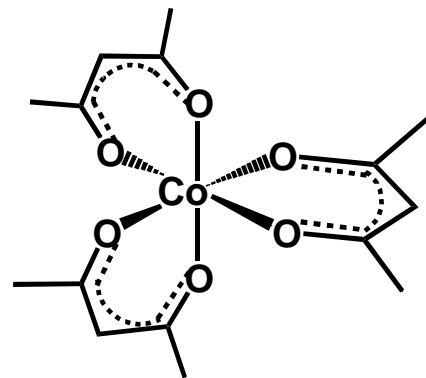


Ottaedro,  $d^6$

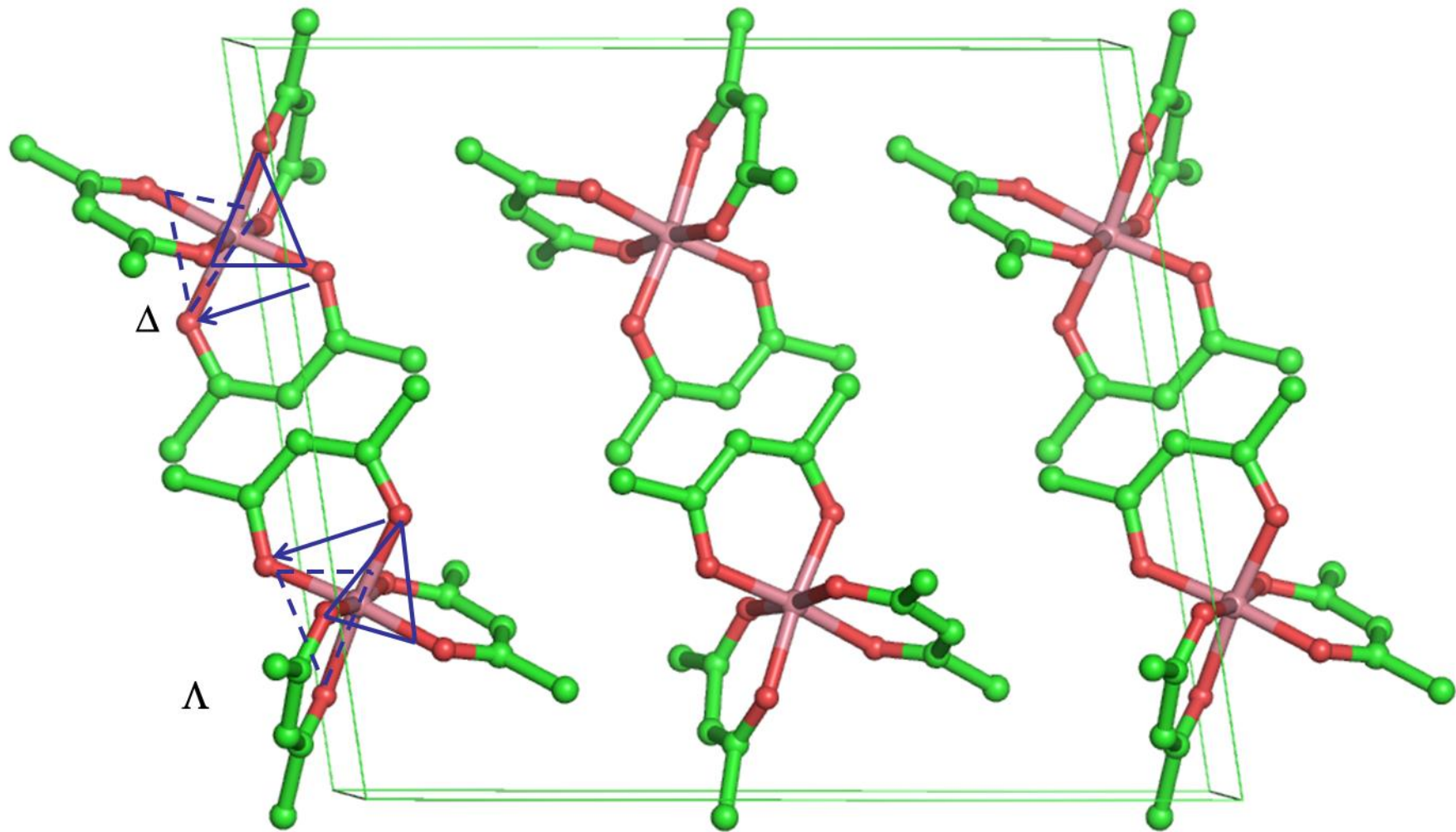


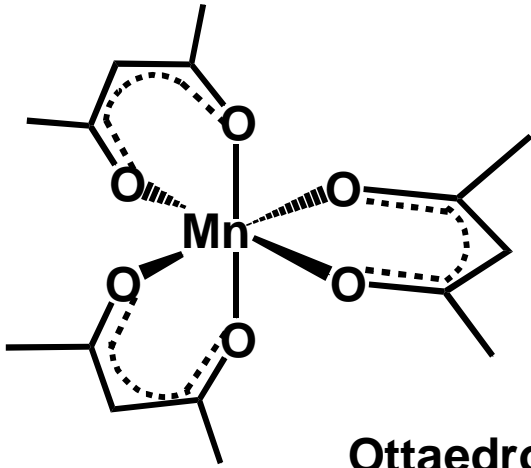
**NO effetto Jahn-Teller**

[Co(acac)<sub>3</sub>]



**[Co(acac)<sub>3</sub>]**



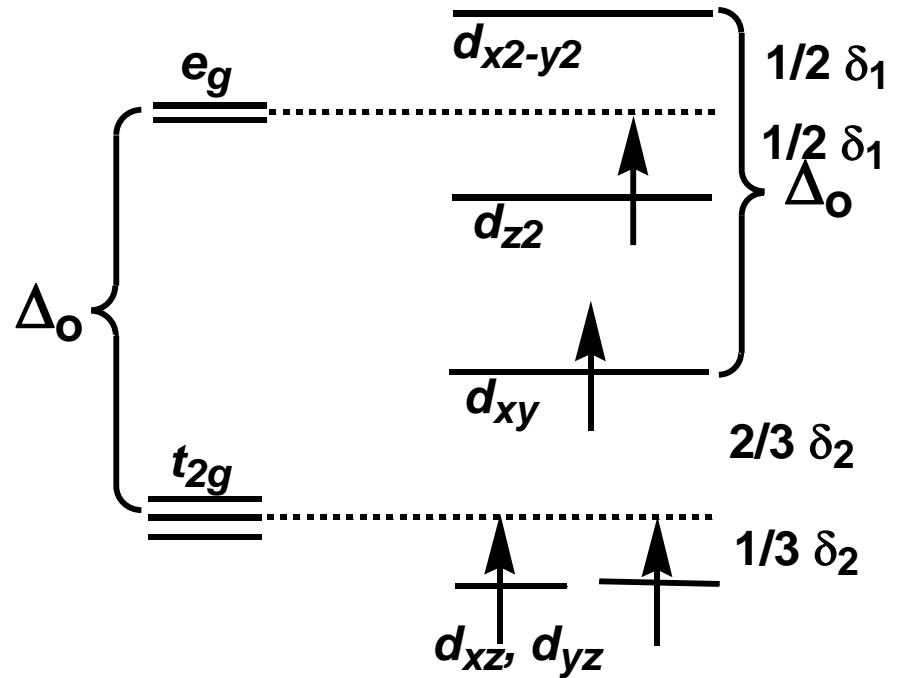
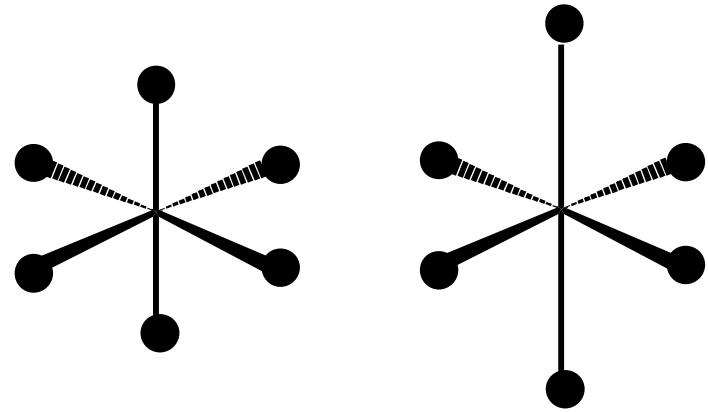


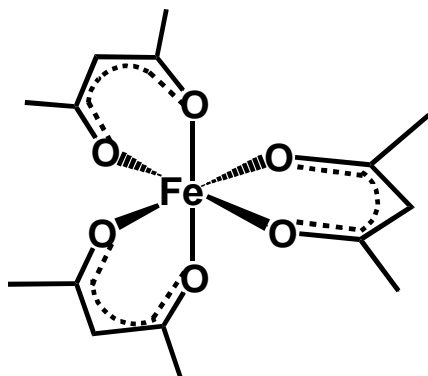
Ottaedro,  $d^4$

**Distorsioni per effetto Jahn-Teller:**

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

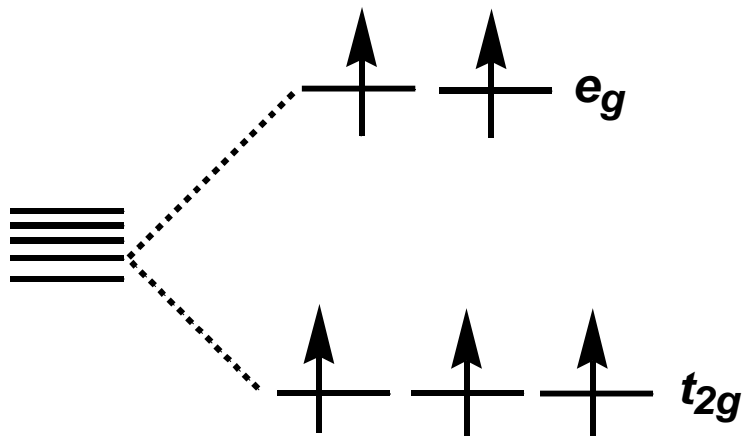
**Compressione:** 2 Mn-O 1.95 Å;  
4 Mn-O 2.00 Å.





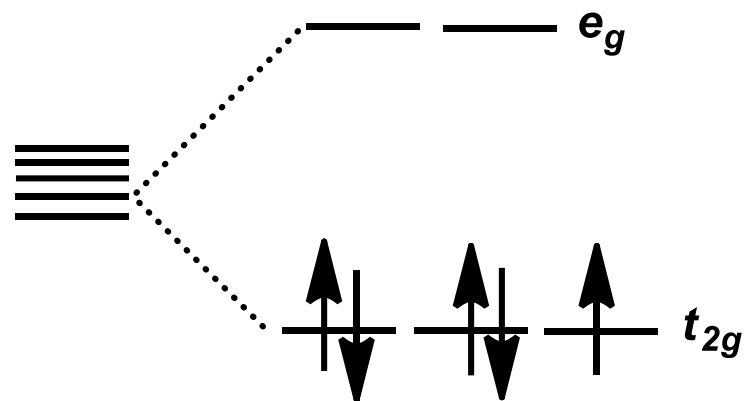
Ottaedro,  $d^5$

**alto spin**

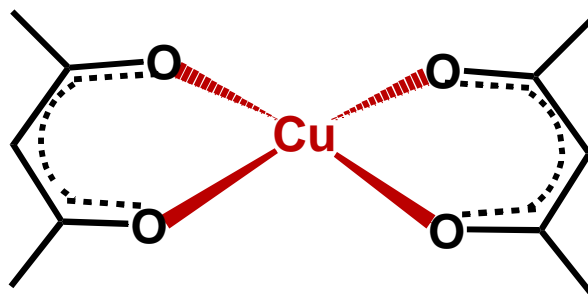


**NO effetto Jahn-Teller**

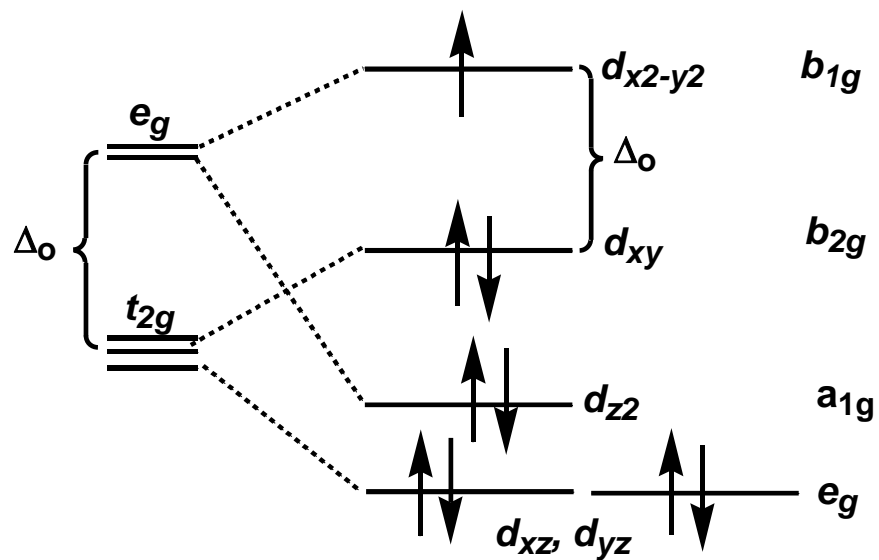
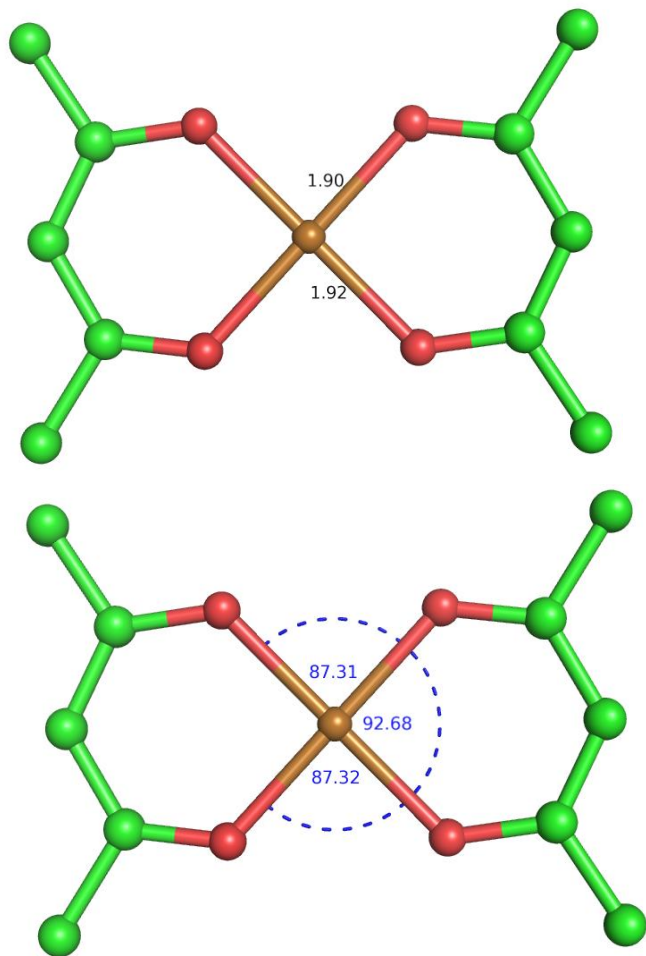
**basso spin**



**SI' effetto Jahn-Teller**



planare quadrato,  $d^9$



**paramagnetico**

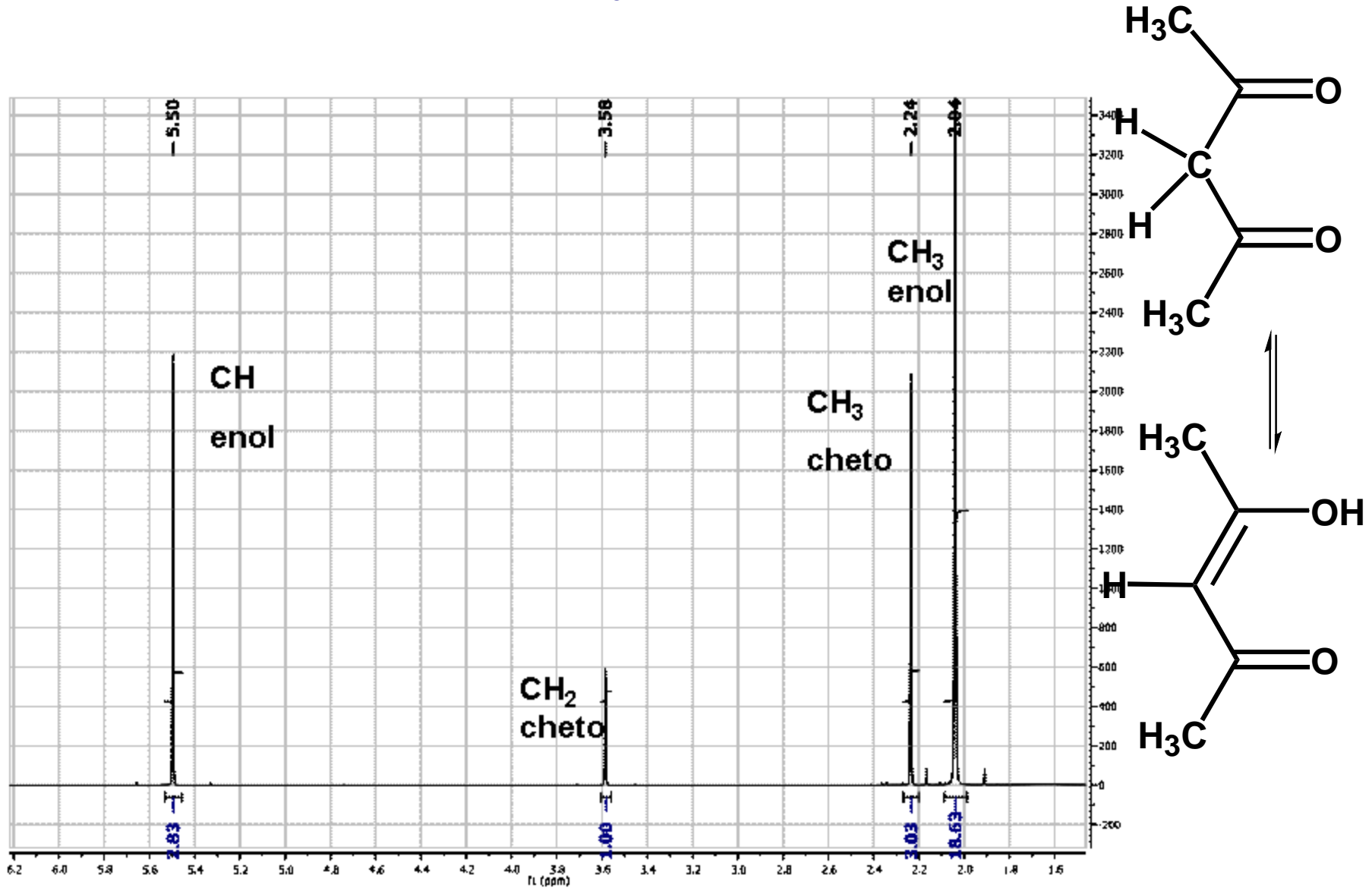
## ESPERIENZA 1

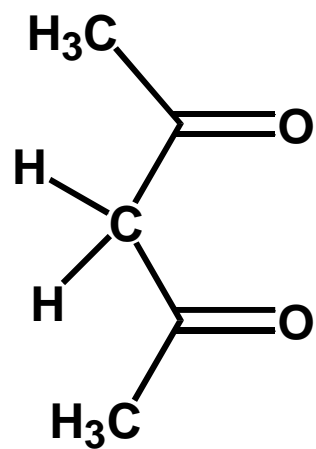
### Cromatografia su strato sottile degli acetilacetonato complessi

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

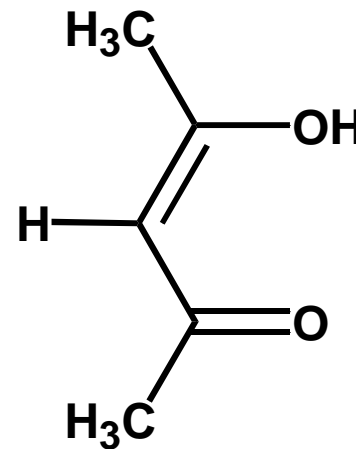
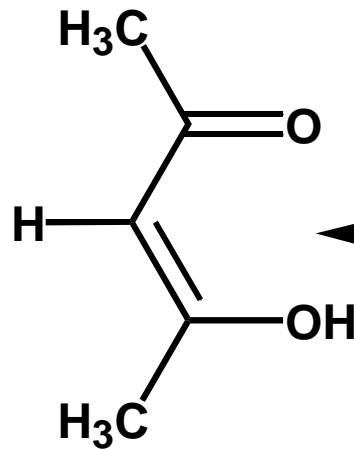


# Spettro $^1\text{H}$ NMR in $\text{CDCl}_3$ , a t.a. di 2,4-pentandione



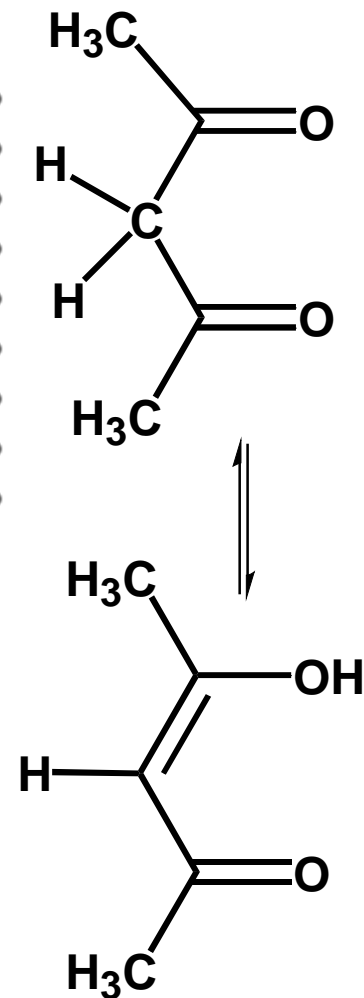
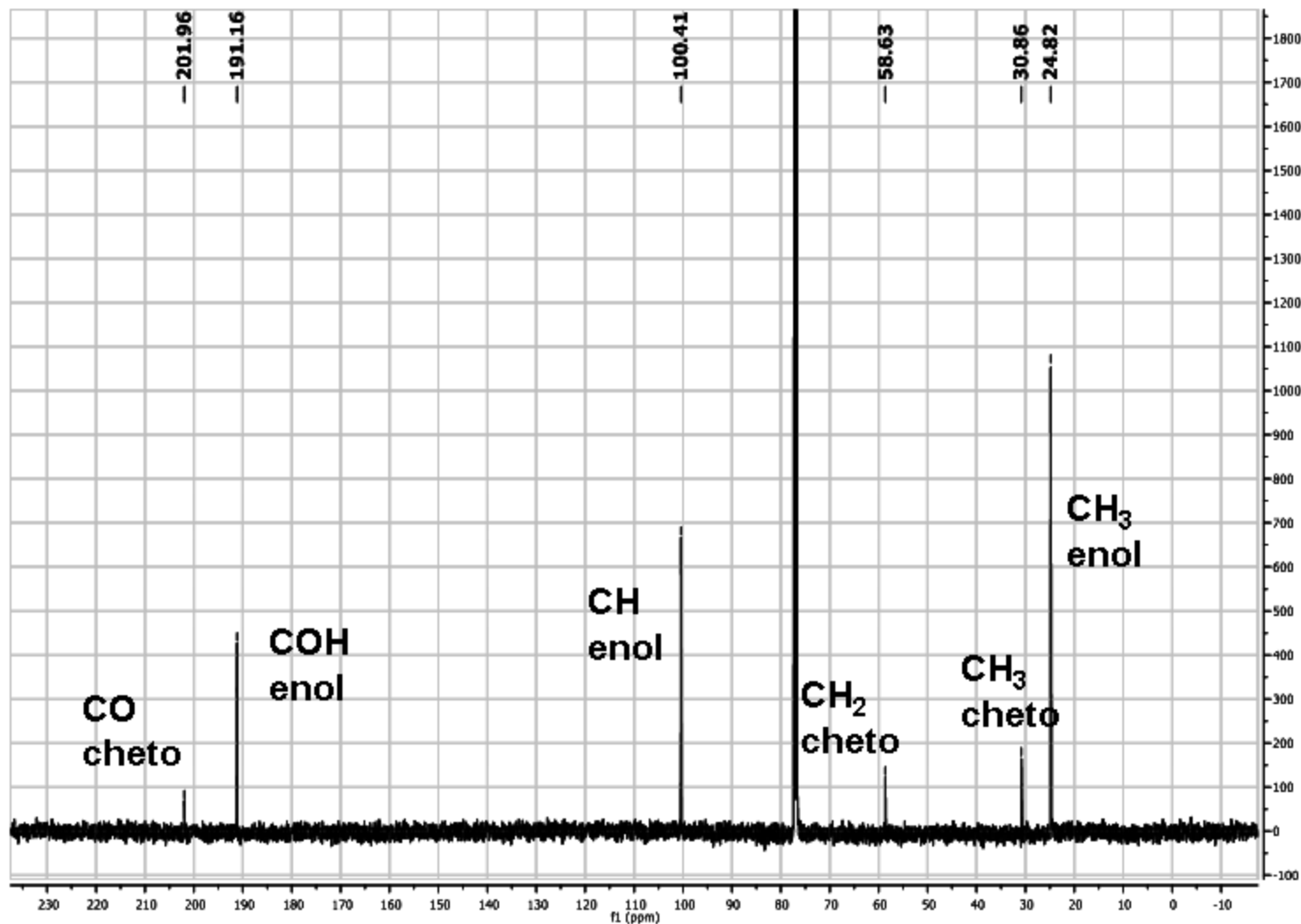


*forma cheto*

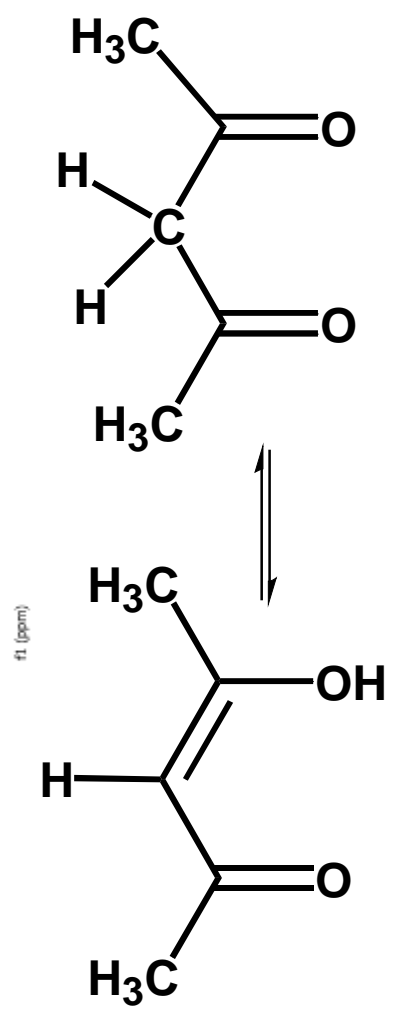
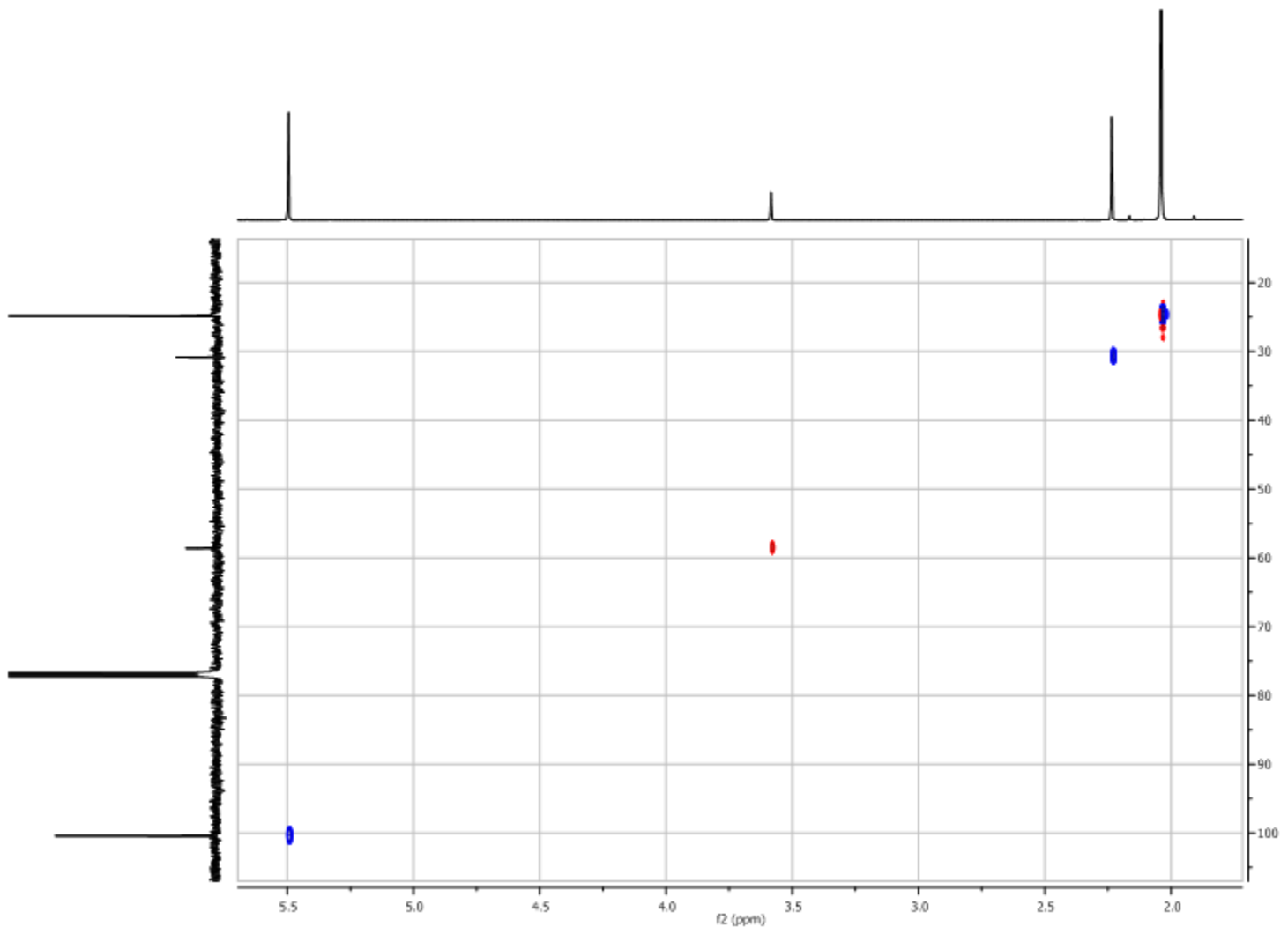


*forma enolica*

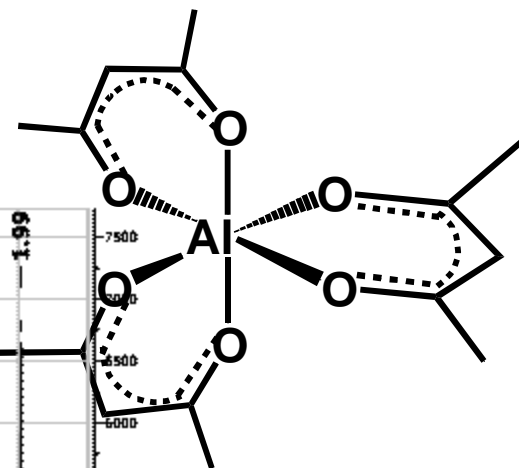
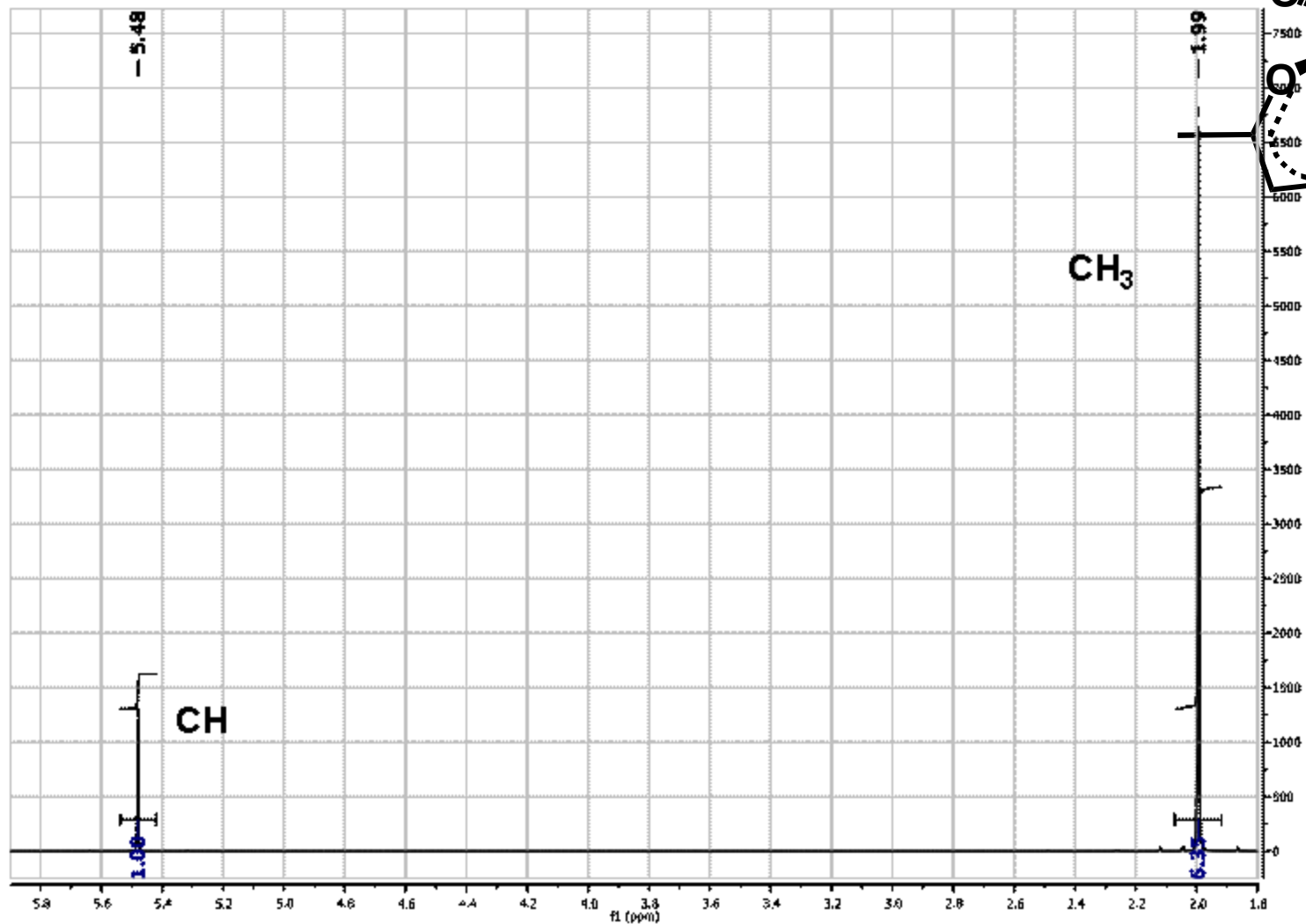
# Spettro $^{13}\text{C}$ NMR in $\text{CDCl}_3$ , a t.a. di 2,4-pentandione



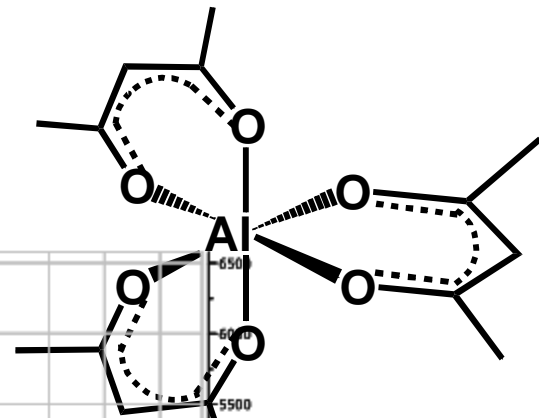
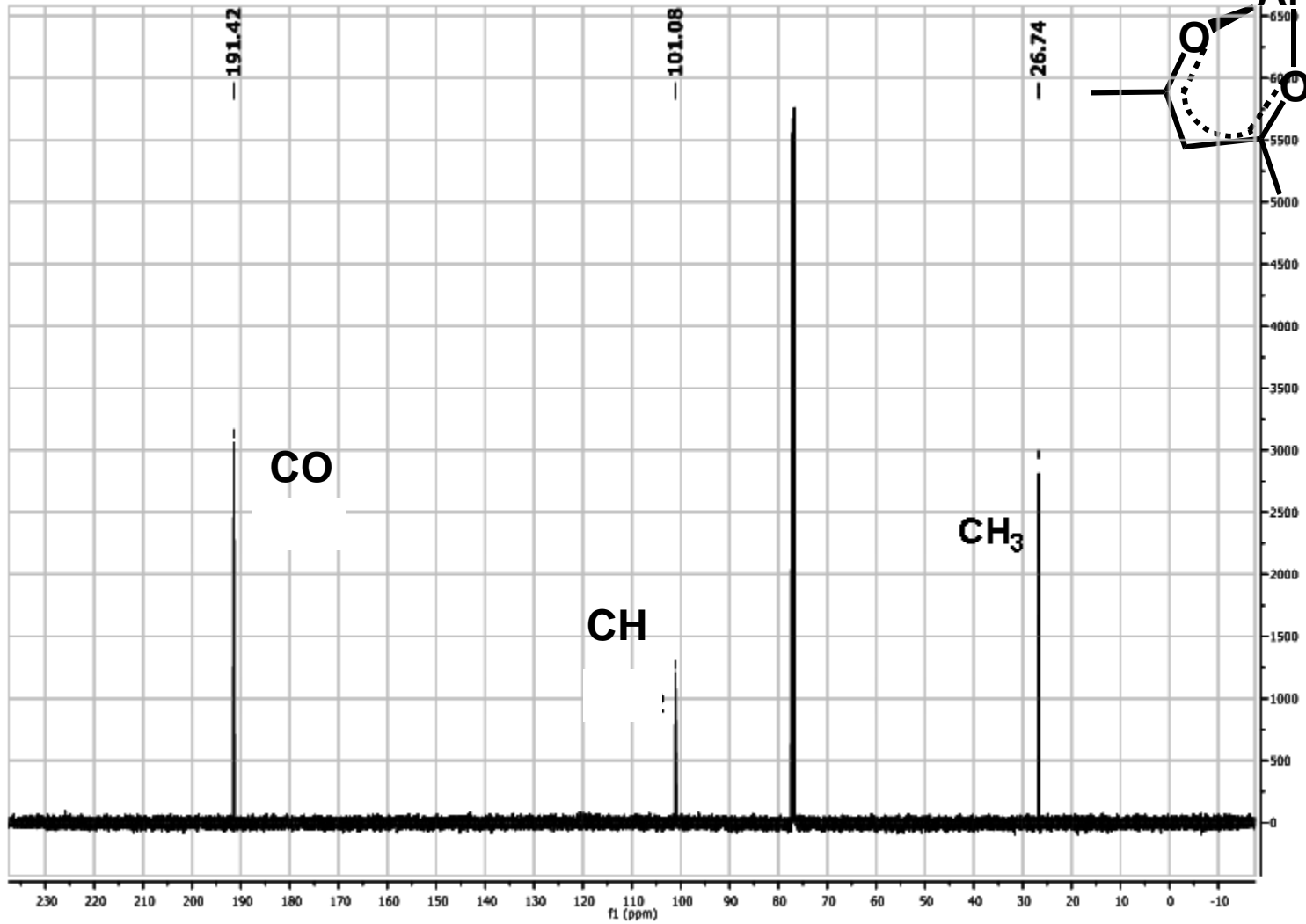
# Spettro HC COSY (HSQC) NMR in $\text{CDCl}_3$ , a t.a. di 2,4-pentandione



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

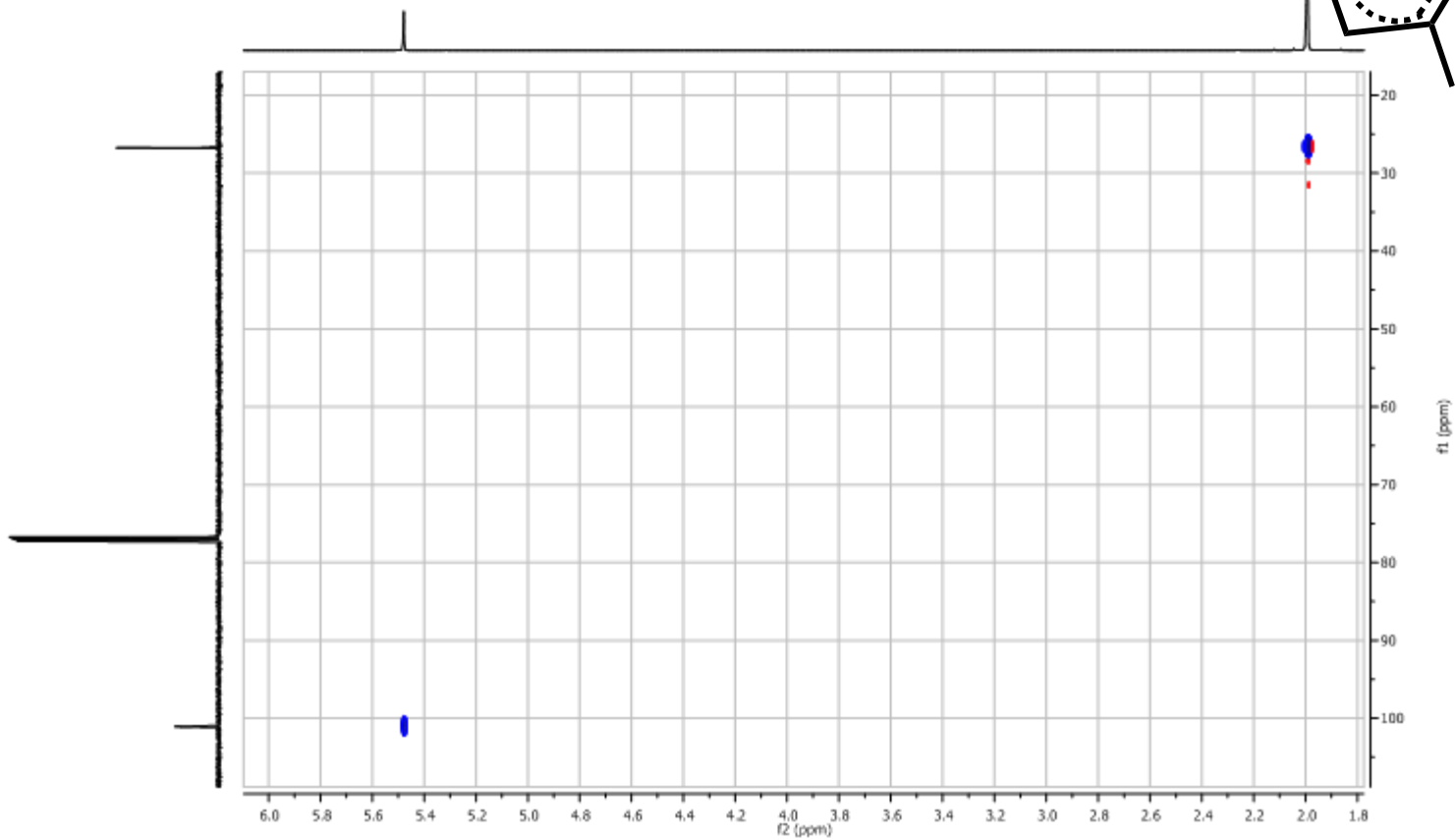
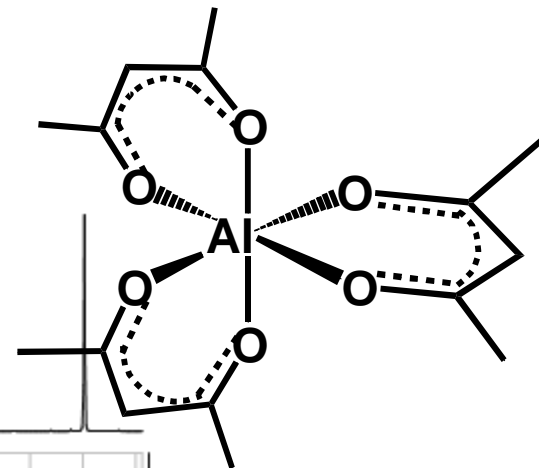


# Spettro $^{13}\text{C}$ NMR in $\text{CDCl}_3$ , a t.a. di $[\text{Al}(\text{acac})_3]$

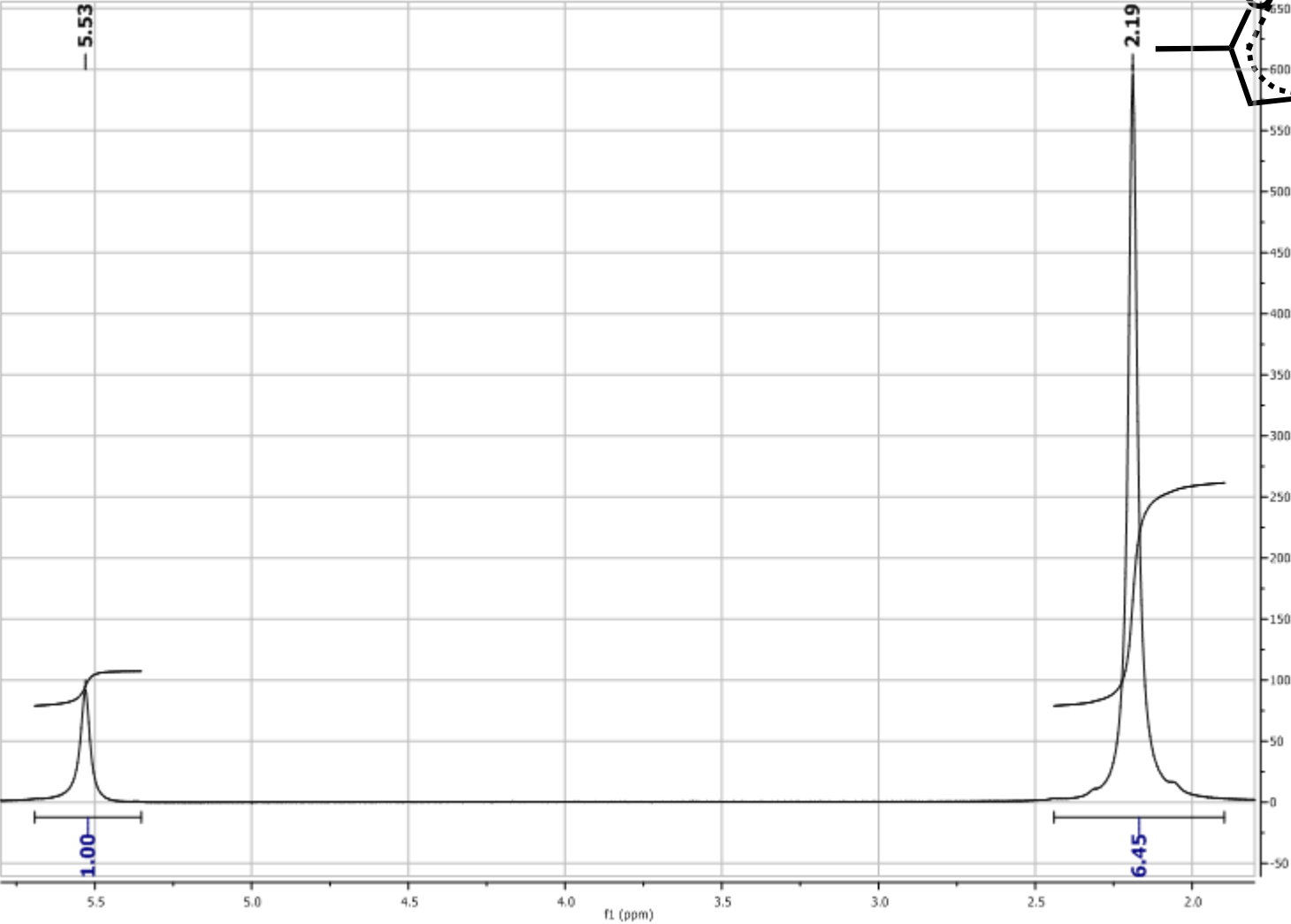
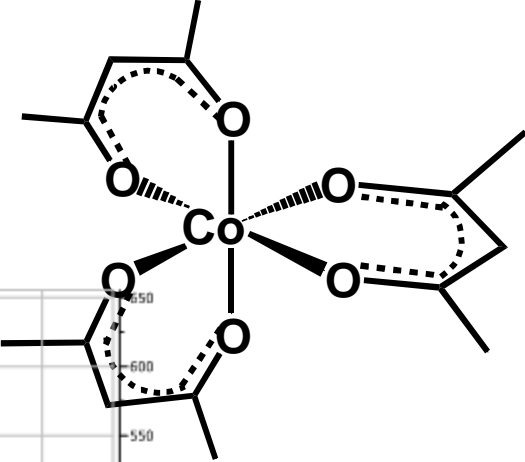


Spettro HC COSY (HSQC) NMR in  $\text{CDCl}_3$ , a t.a.

di  $[\text{Al}(\text{acac})_3]$



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





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

