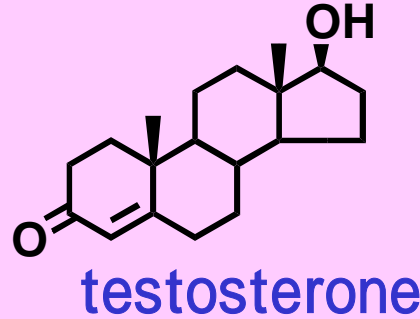
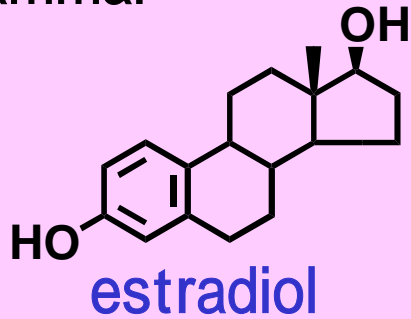


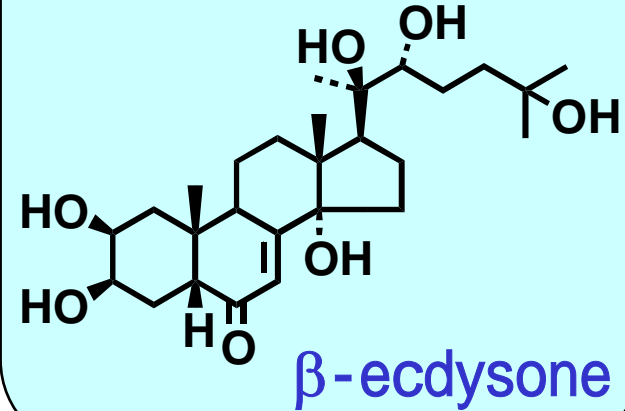
第4章 Brassinolideのスペクトル解析

(A) Steroid Hormones

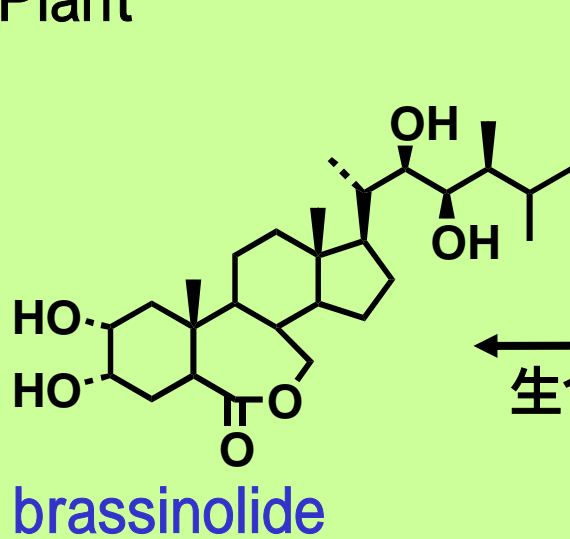
Mammal



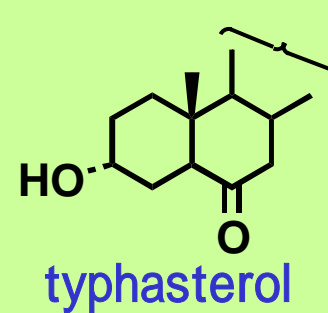
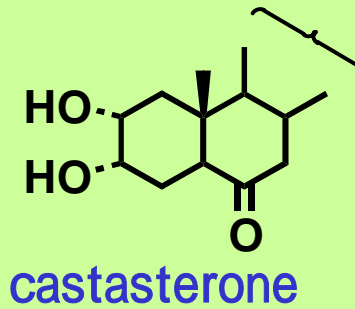
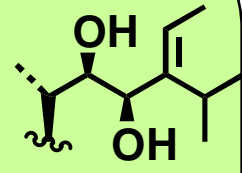
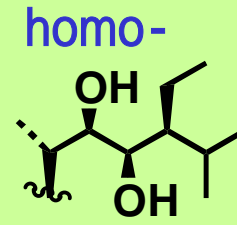
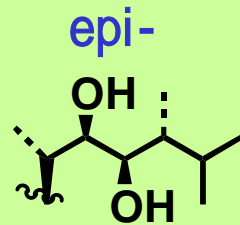
Insect



Plant

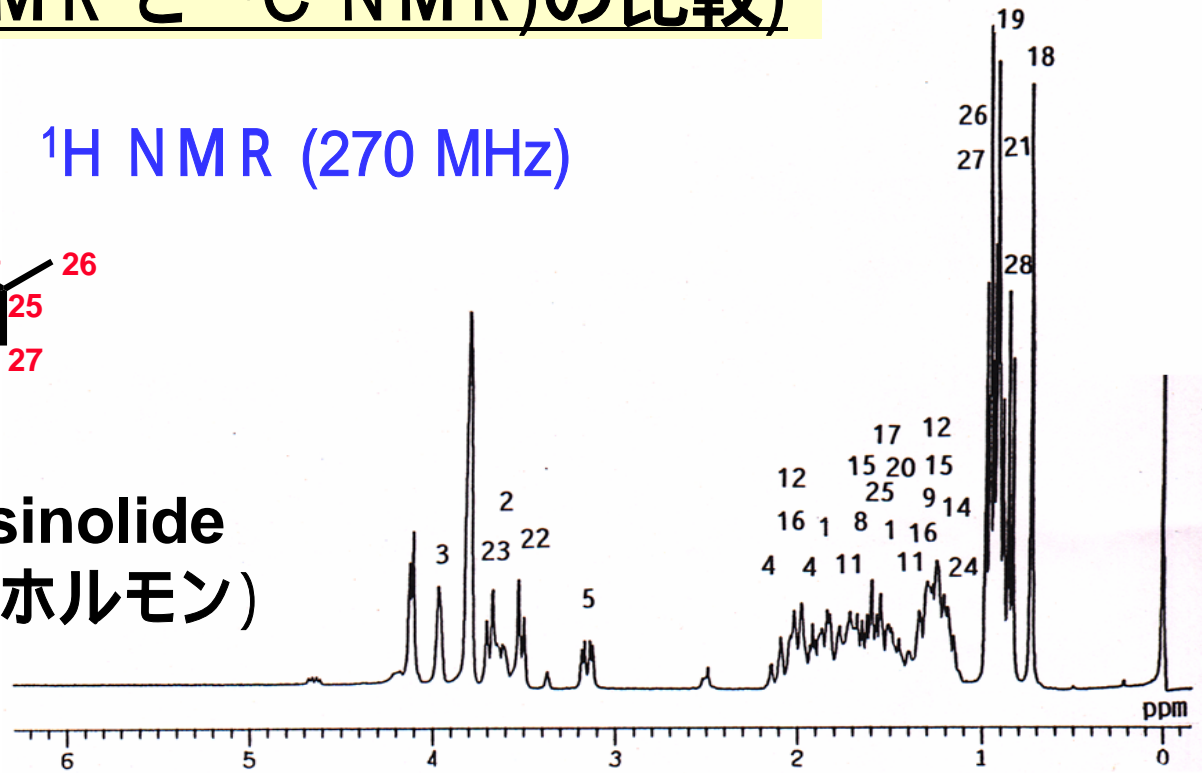
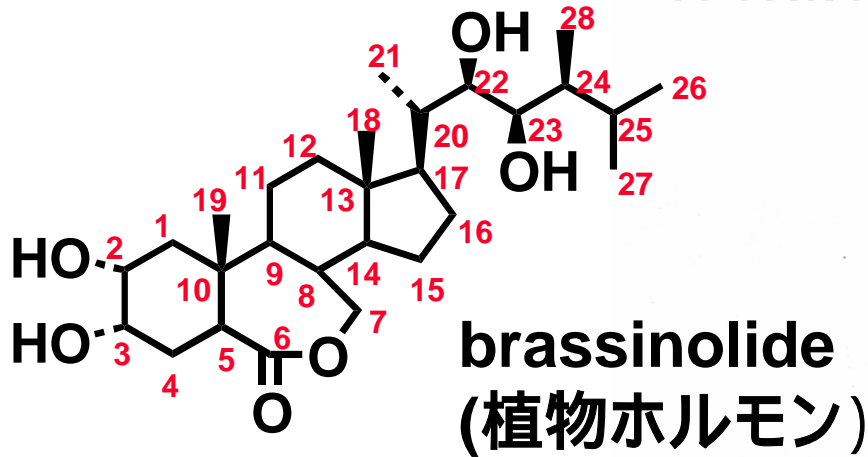


← 生合成

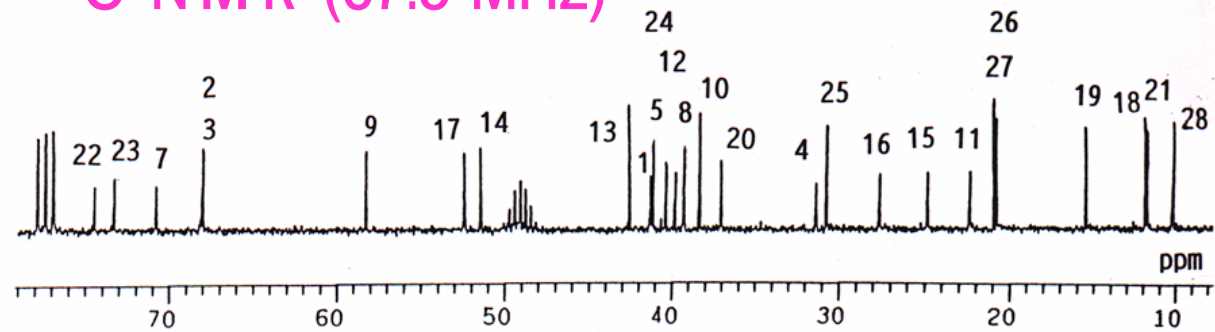


(B) 1D NMR (^1H NMR と ^{13}C NMR)の比較)

^1H NMR (270 MHz)



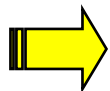
^{13}C NMR (67.5 MHz)



シグナルの重なりが
少ない
炭素は有機化合物の
骨格を形成



活用できれば便利



シグナルの帰属はどのようにするのか？

(C) 有機化合物のNMR解析

[i] ^1H シグナルの帰属

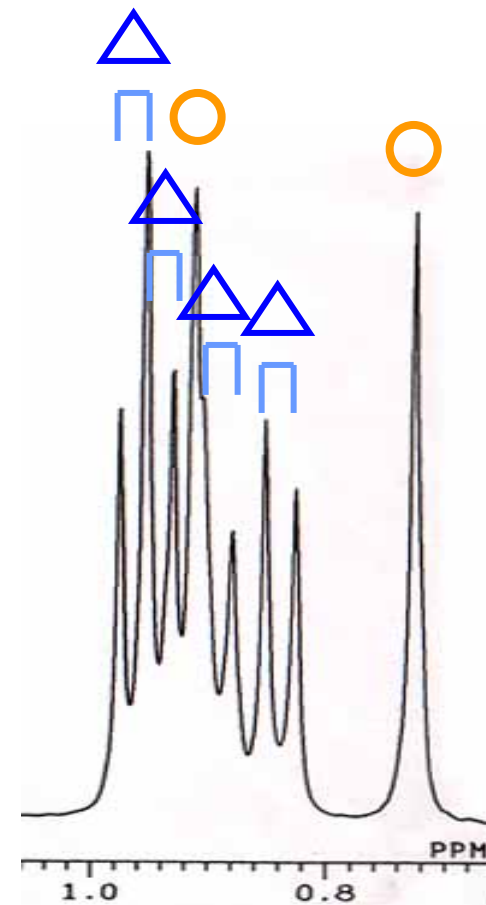
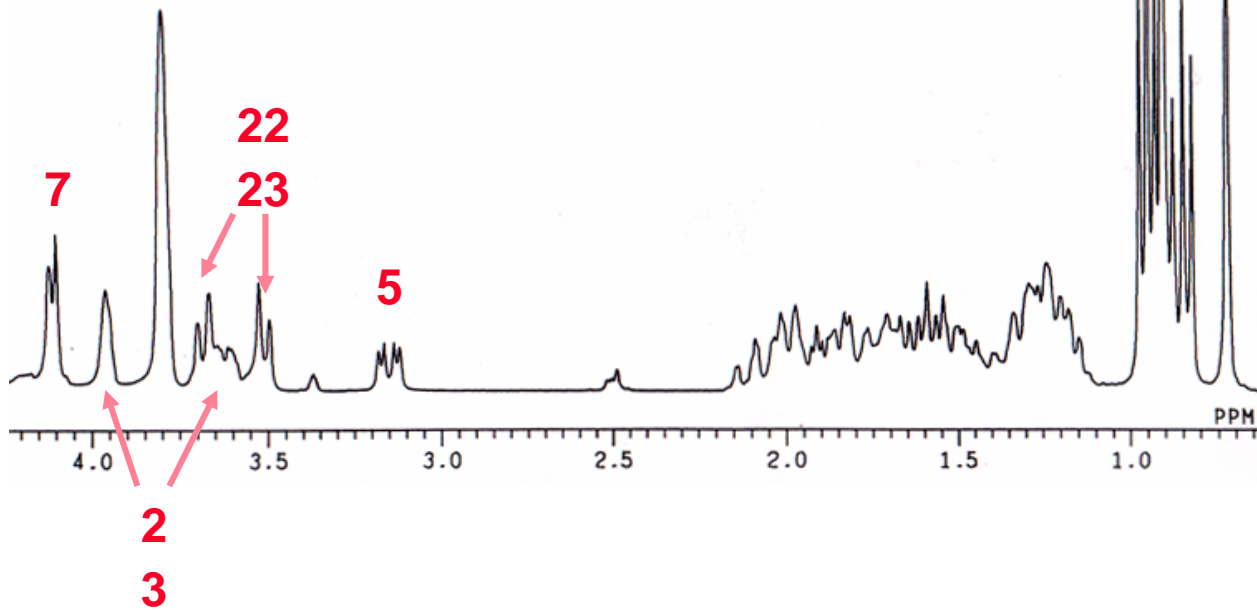
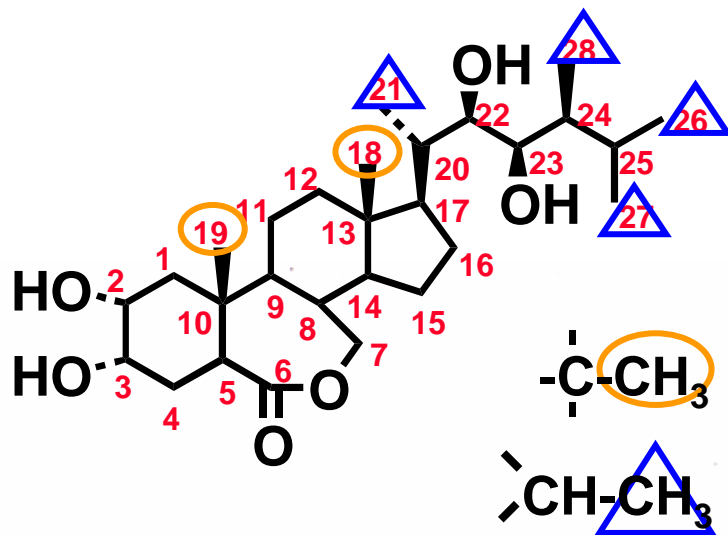
1D NMR	chemical shift, coupling constant, decoupling
2D NMR	^1H - ^1H シフト相関 (COSY), long range COSY, NOESY

[ii] ^{13}C シグナルの帰属

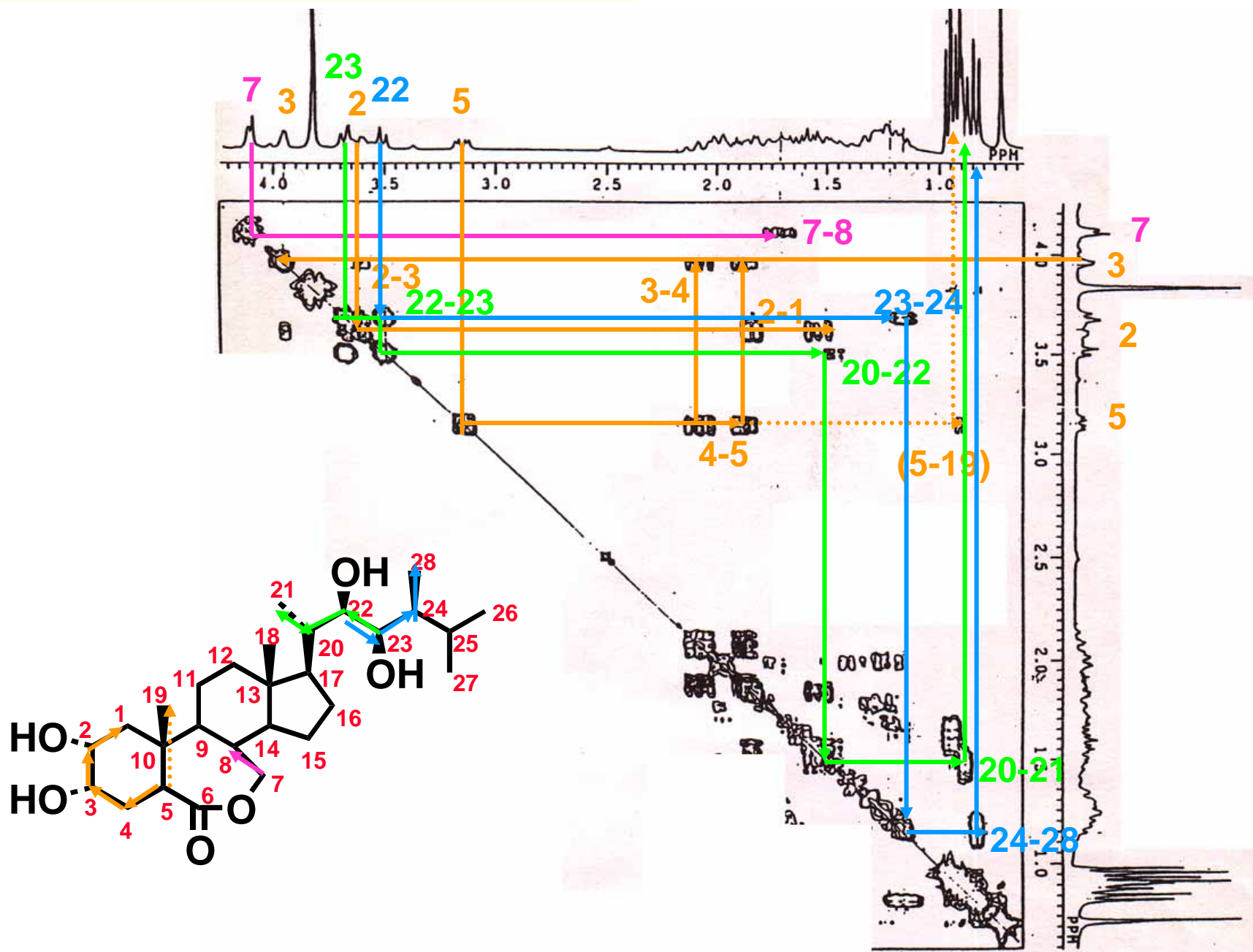
1D NMR	chemical shift DEPT 135 (OFR) → CH_3 , CH_2 , CH , 4級 パラメーターを使用した計算 (経験則)
2D NMR	^1H - ^{13}C シフト相関 (C-H COSY long range C-H COSY)

INADEQUATE

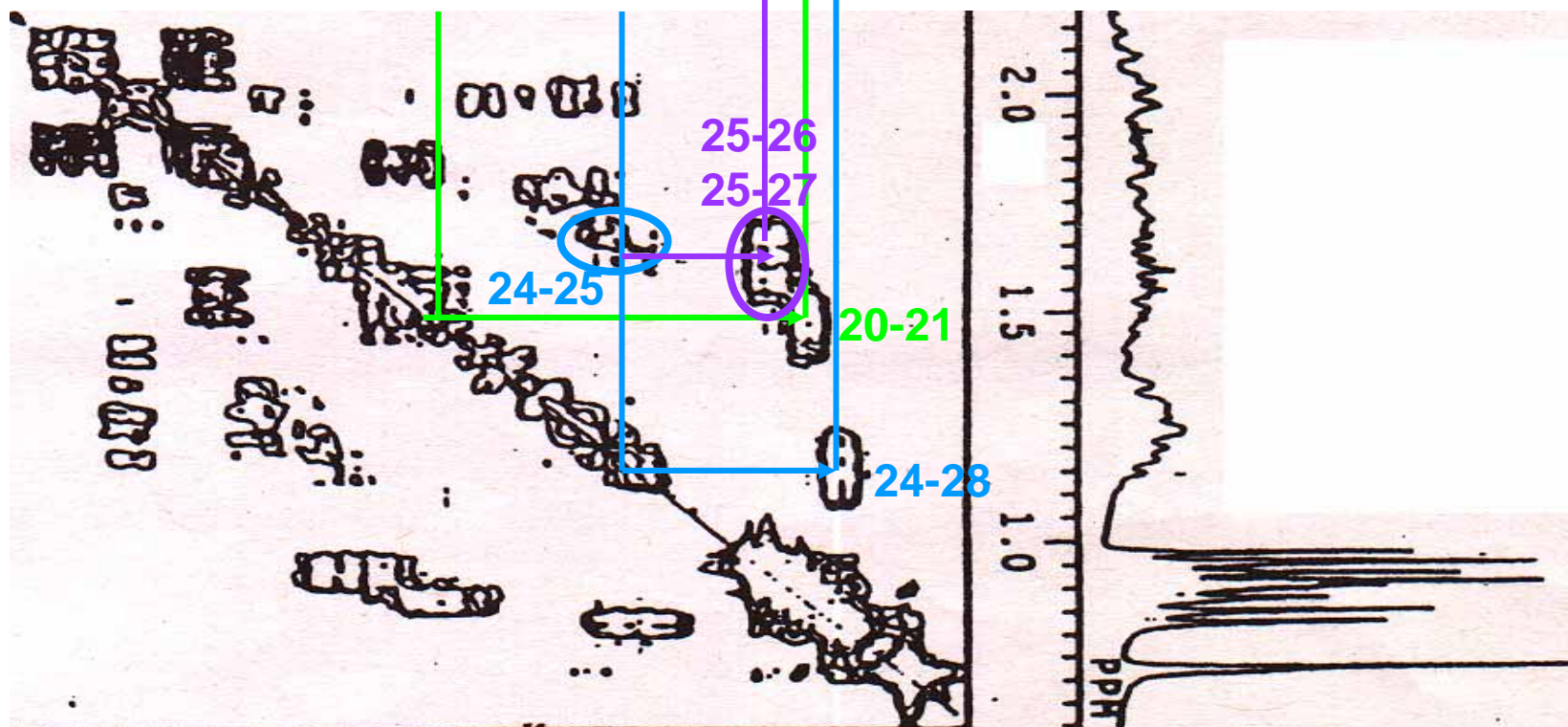
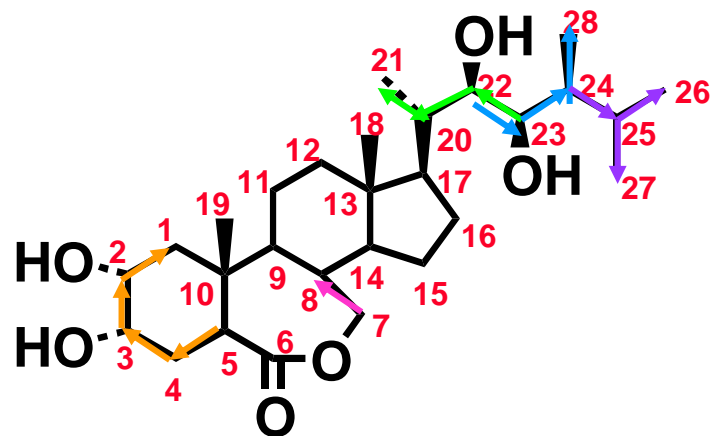
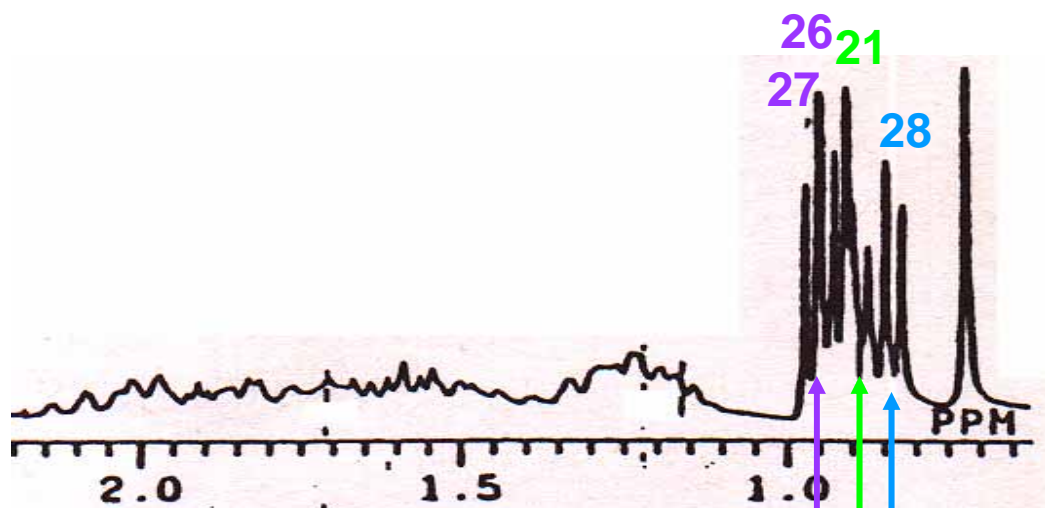
(D) Brassinolide の $^1\text{H-NMR}$ (1D NMR)



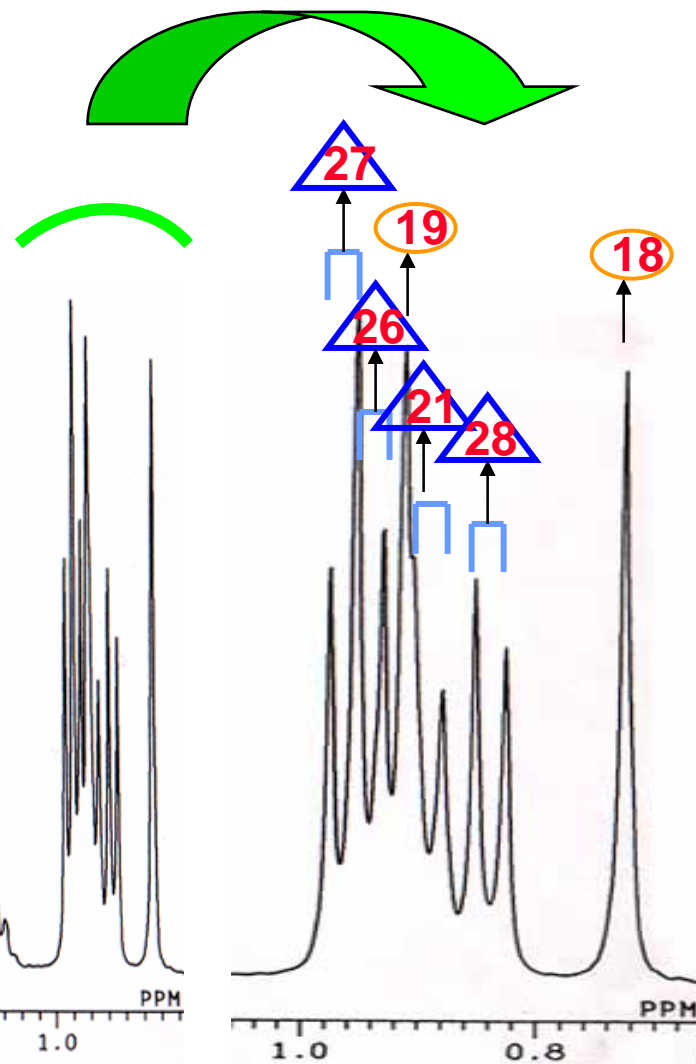
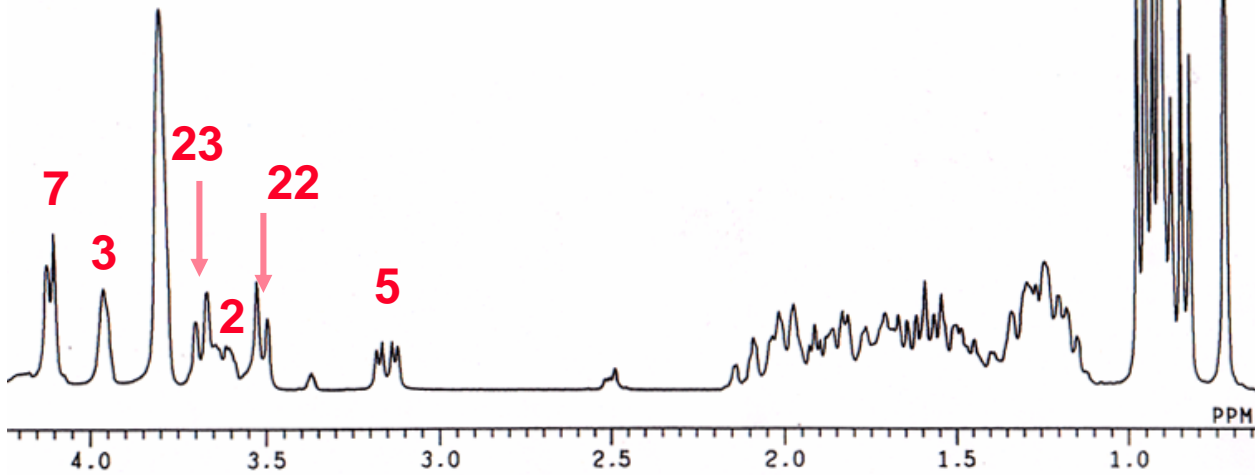
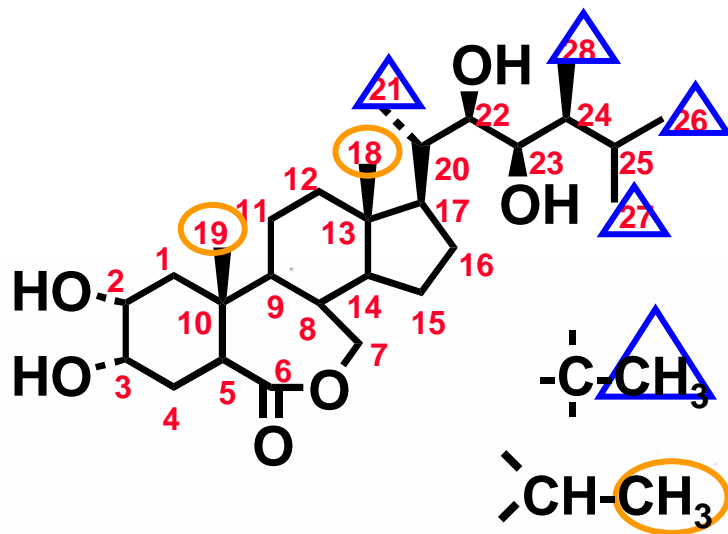
(E) Brassinolide の COSY



(E) Brassinolide の COSY (拡大)

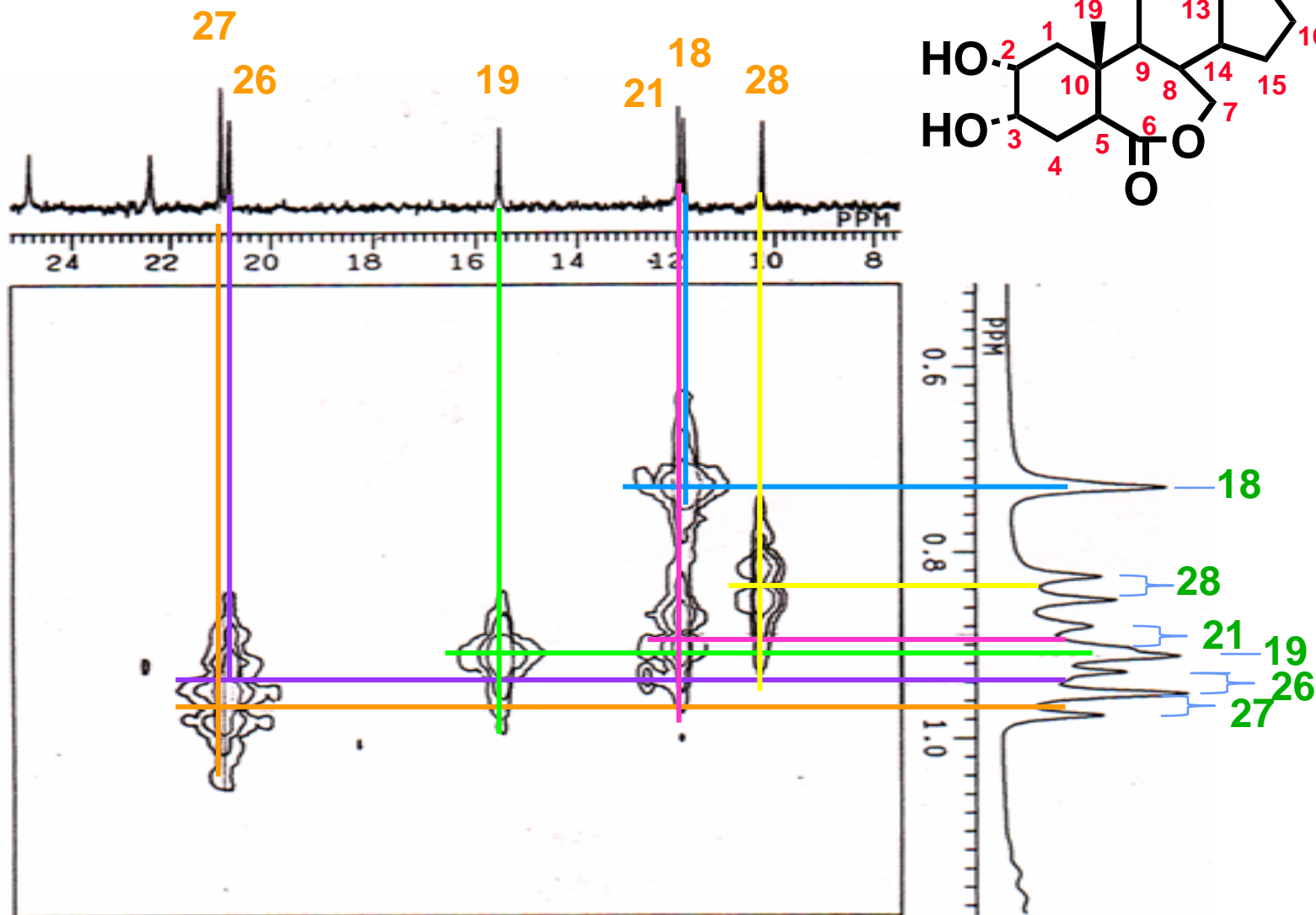
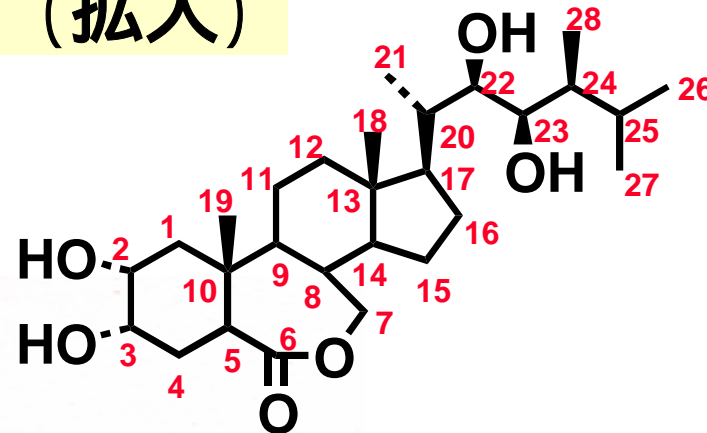


(D) Brassinolide の $^1\text{H-NMR}$ (1D NMR) その2

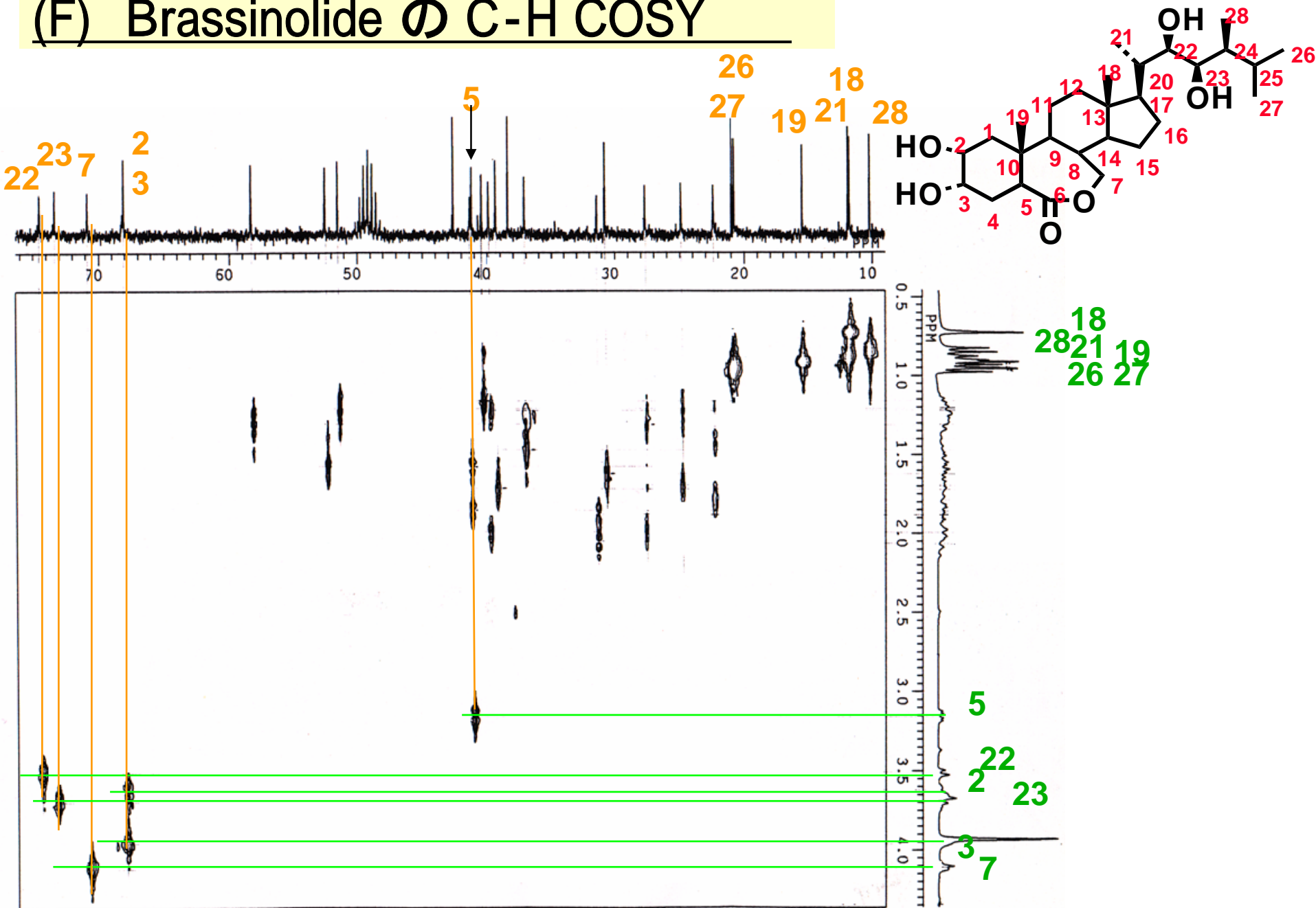


(F) Brassinolide の C-H COSY (拡大)

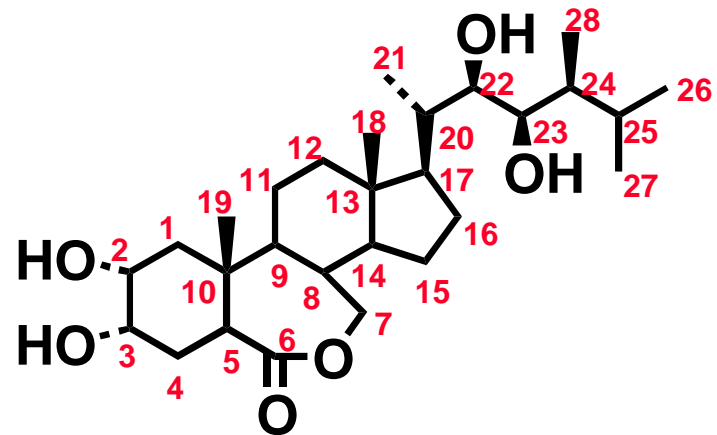
(拡大)



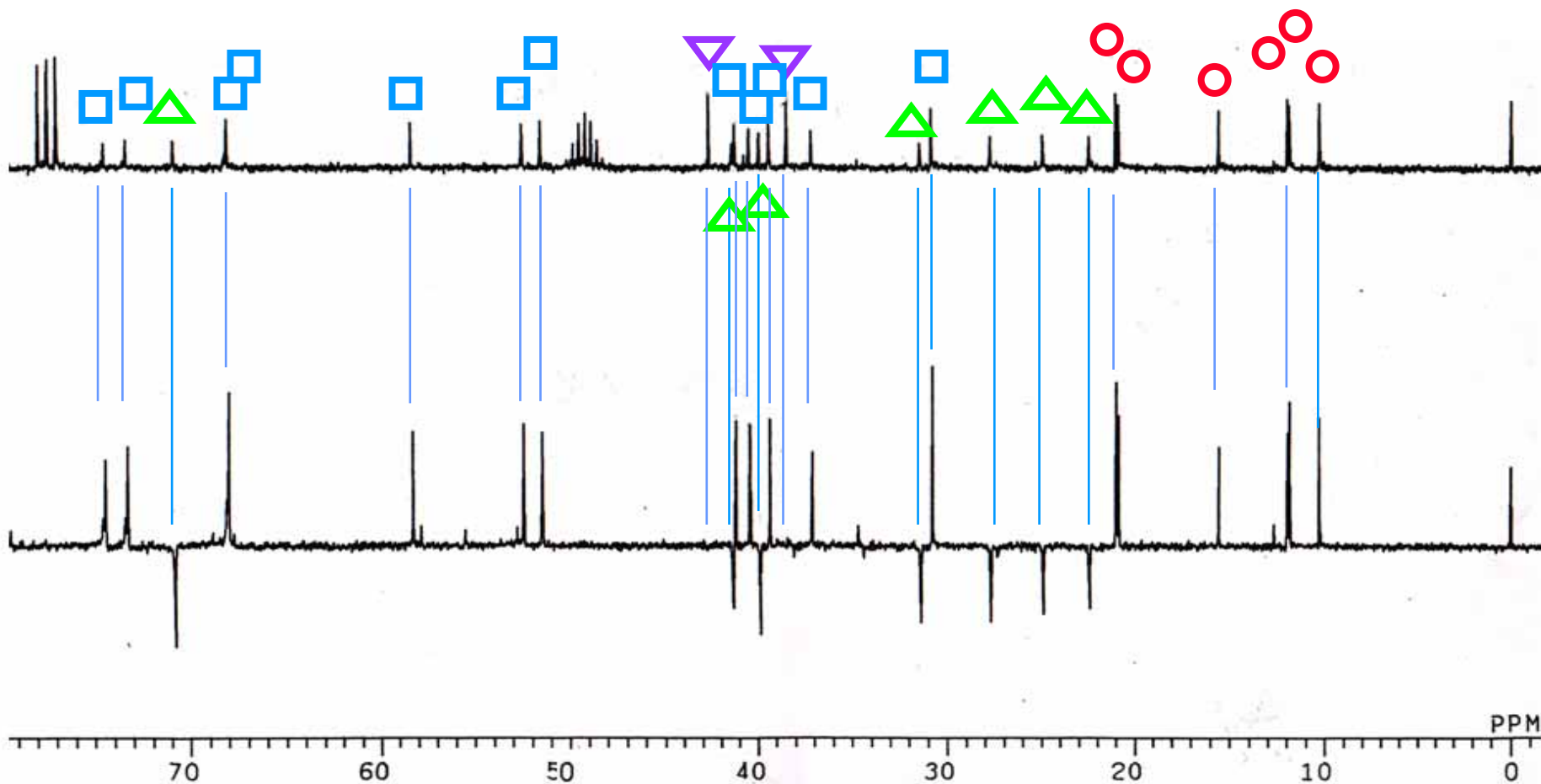
(F) Brassinolide の C-H COSY



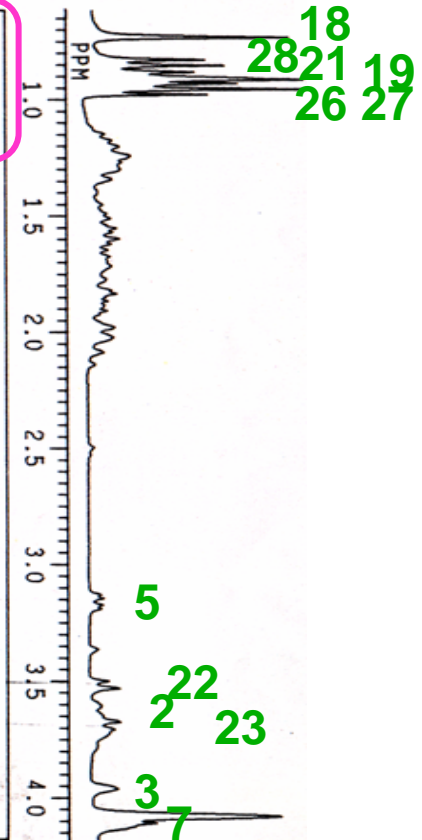
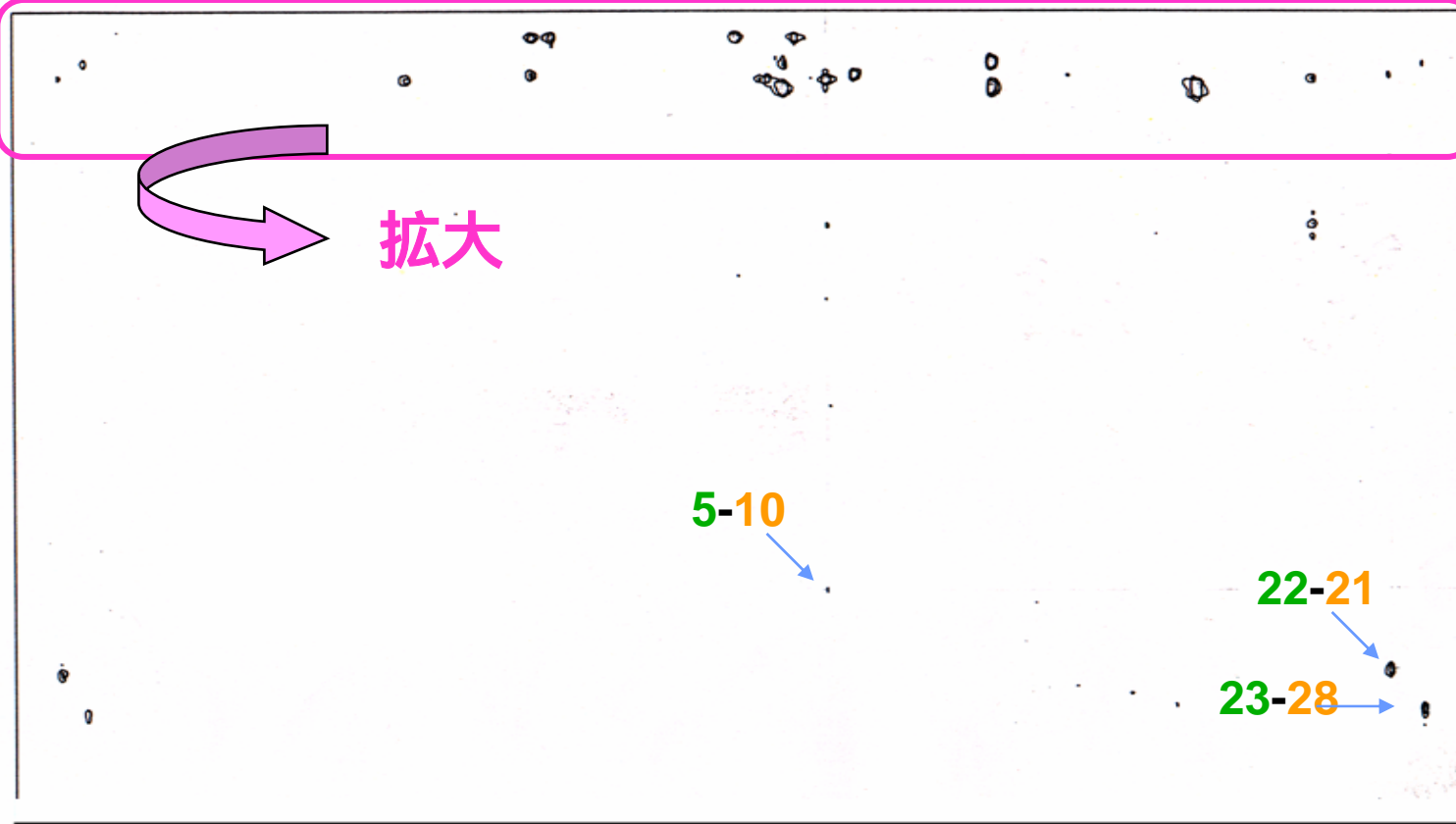
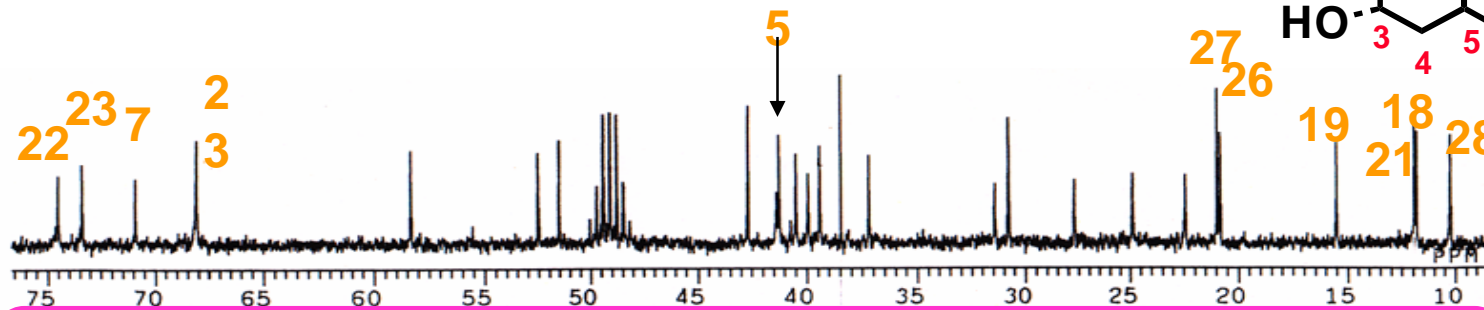
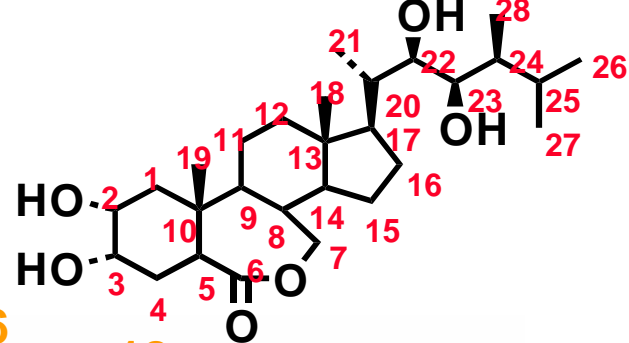
(G) Brassinolide の DEPT 135



- CH₃
- CH
- △ CH₂
- ▽ C(4級) なし

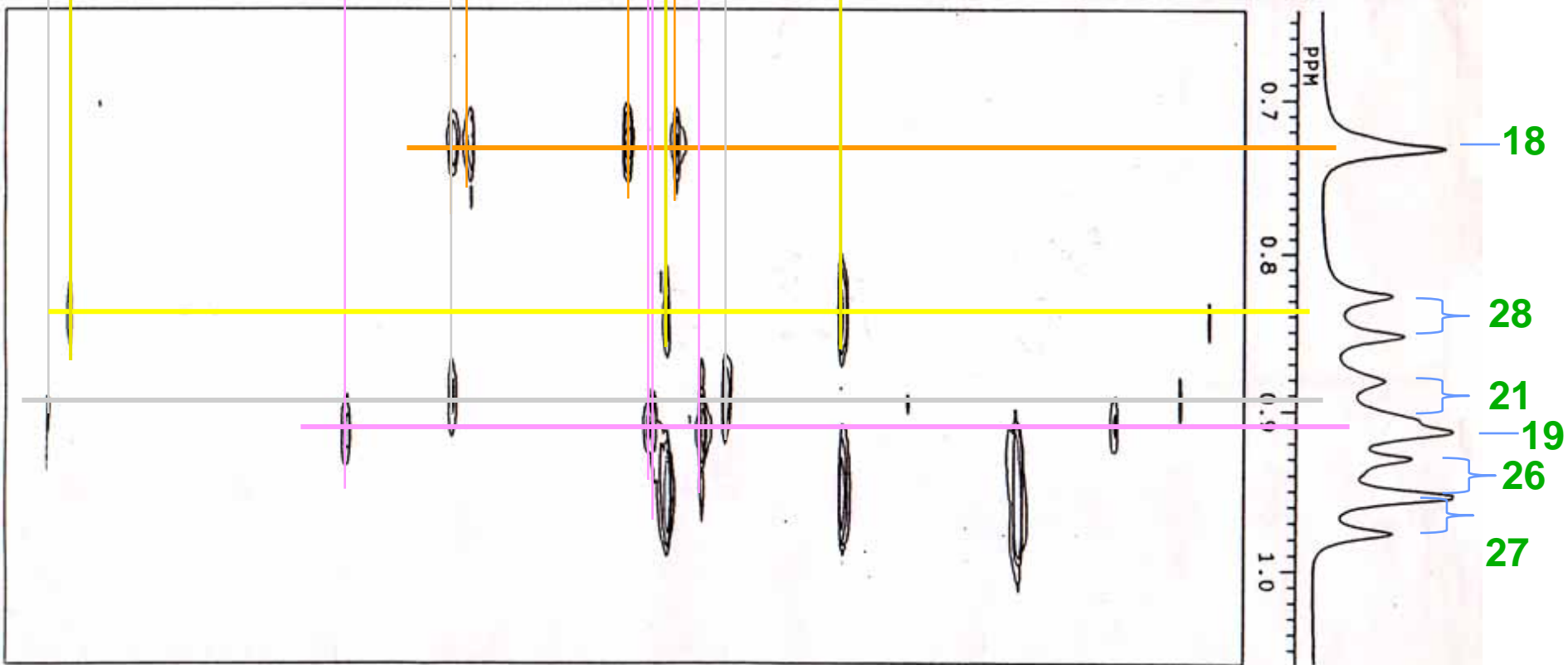
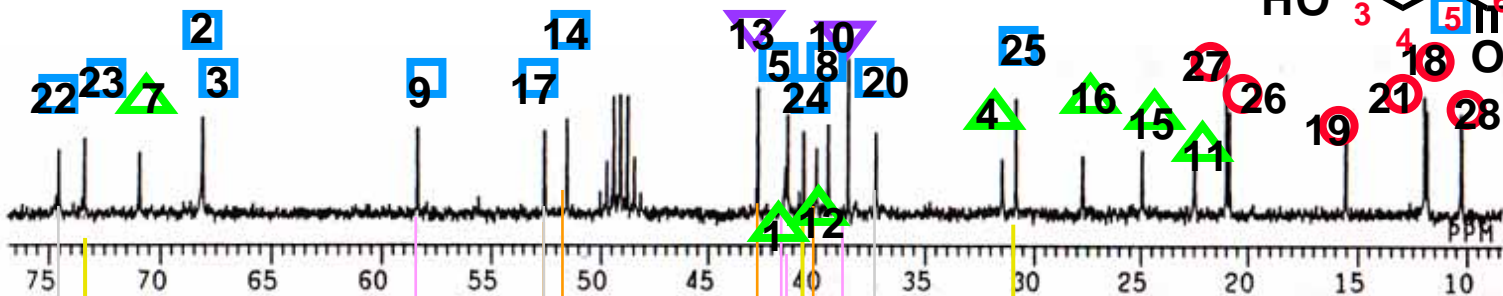
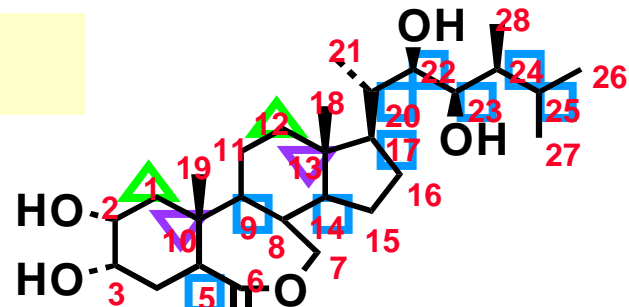


(H) long range C-H COSY



(H) long range C-H COSY

(拡大)



(I) Brassinolide と Castasterone の ^{13}C NMR

