LC 09 Caractérisations par spectroscopie en synthèse organique

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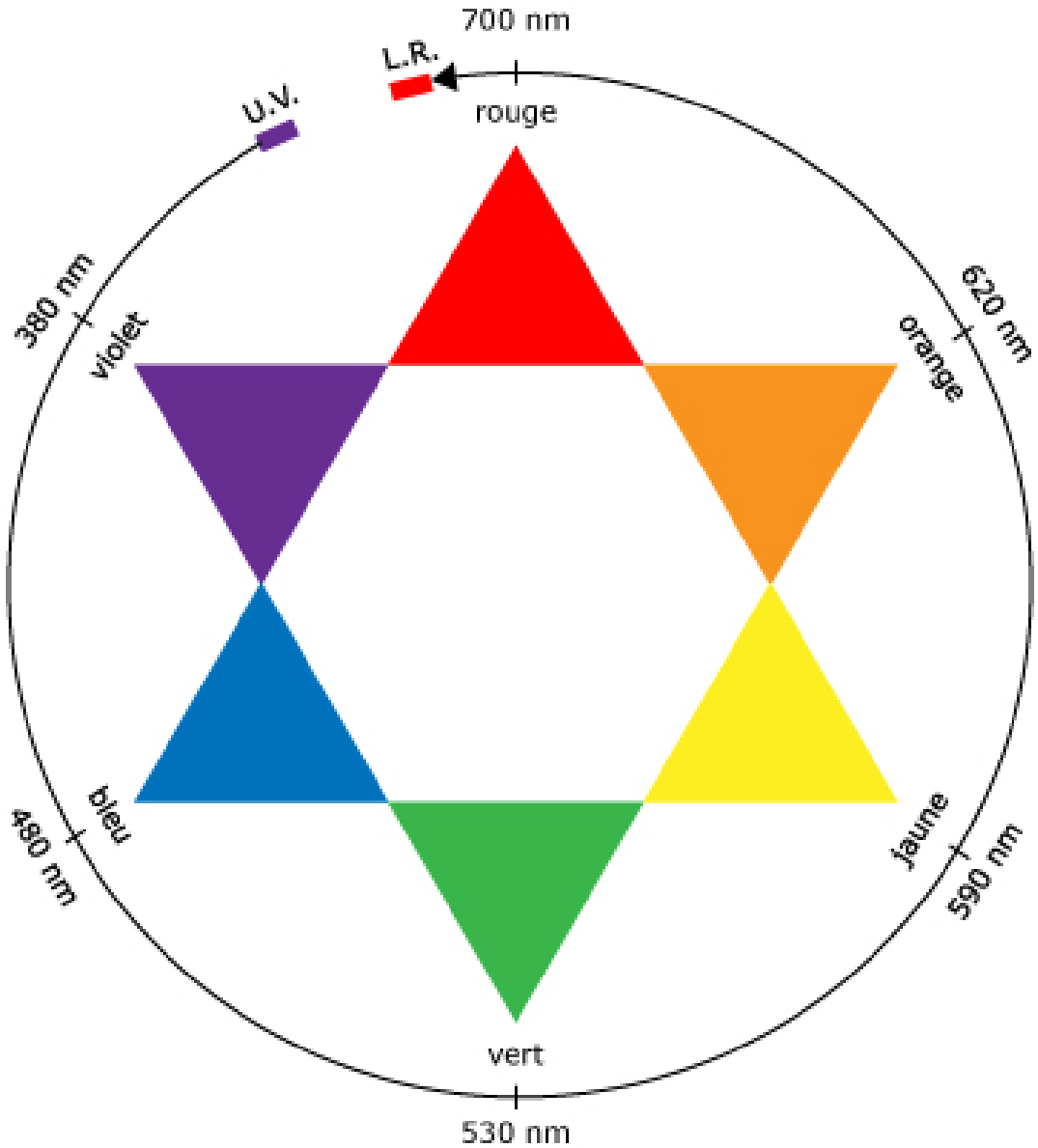
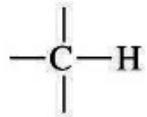
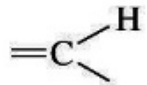
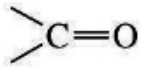
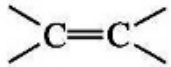
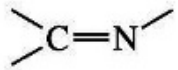
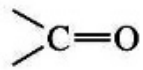
Spectroscopie visible

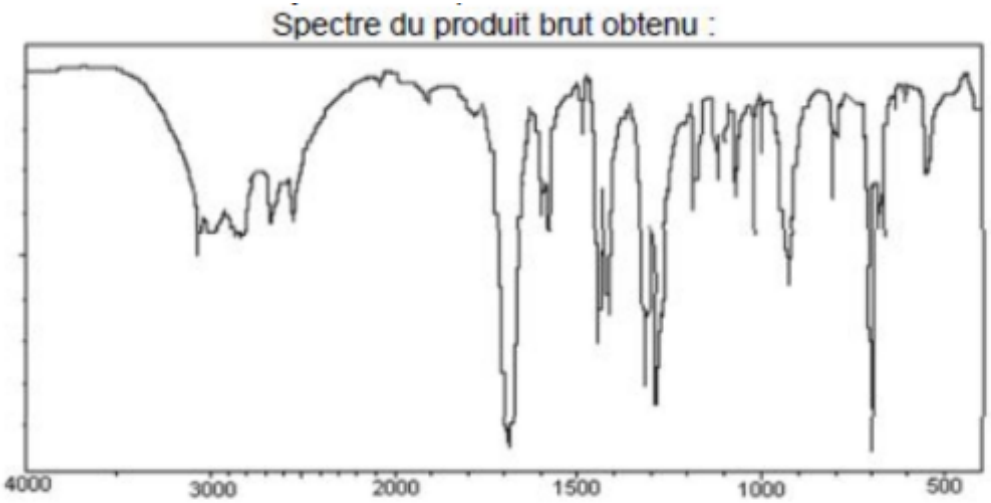


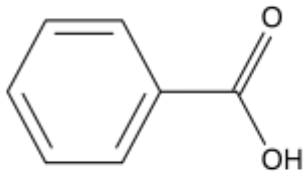
Spectroscopie Infra-rouge

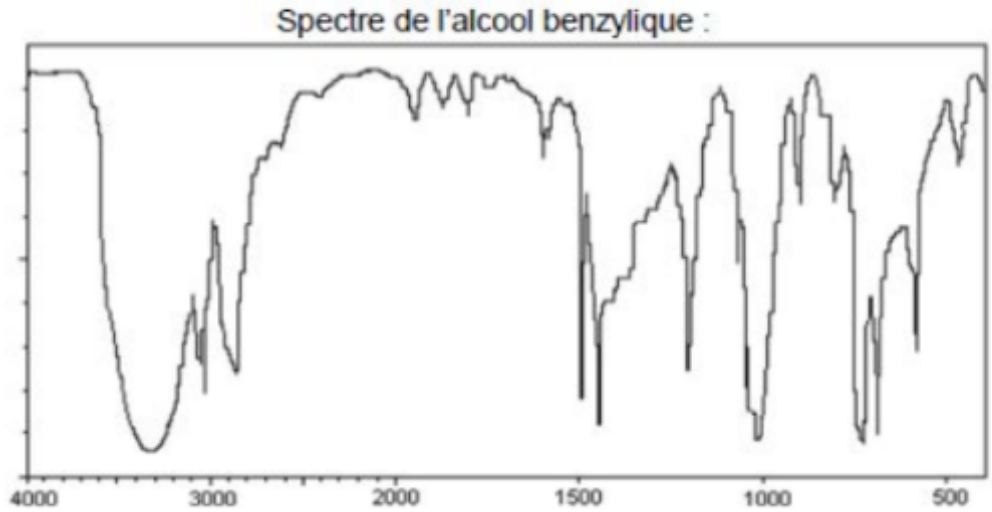
Frequency (cm^{-1})	Functional Group		Comments
3300	alcohol	O—H	always broad
	amine, amide	N—H	may be broad, sharp, or broad with spikes
	alkyne	≡C—H	always sharp, usually strong
3000	alkane		just below 3000 cm^{-1}
	alkene		just above 3000 cm^{-1}
	acid	O—H	very broad
2200	alkyne	—C≡C—	just below 2200 cm^{-1}
	nitrile	—C≡N	just above 2200 cm^{-1}
1710 (very strong)	carbonyl		ketones, aldehydes, acids esters higher, about 1735 cm^{-1} conjugation lowers frequency amides lower, about 1650 cm^{-1}
1660	alkene		conjugation lowers frequency aromatic C=C about 1600 cm^{-1}
	imine		stronger than C=C
	amide		stronger than C=C (see above)

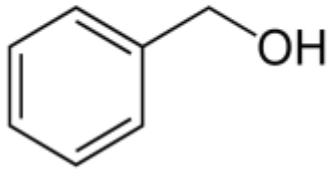
Ethers, esters, and alcohols also show C—O stretching between 1000 and 1200 cm^{-1}.

Synthèse de l'acide benzoïque à partir de l'alcool benzylique

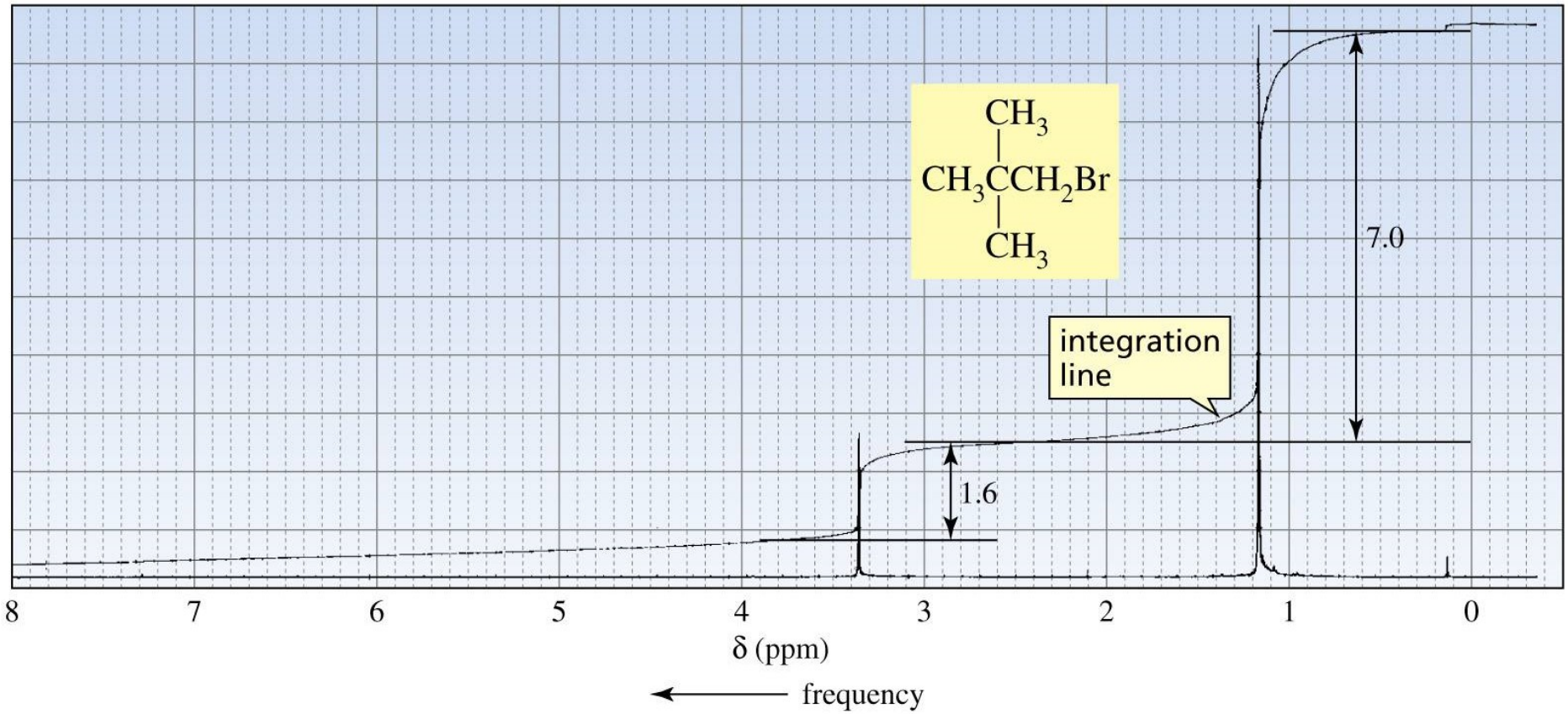




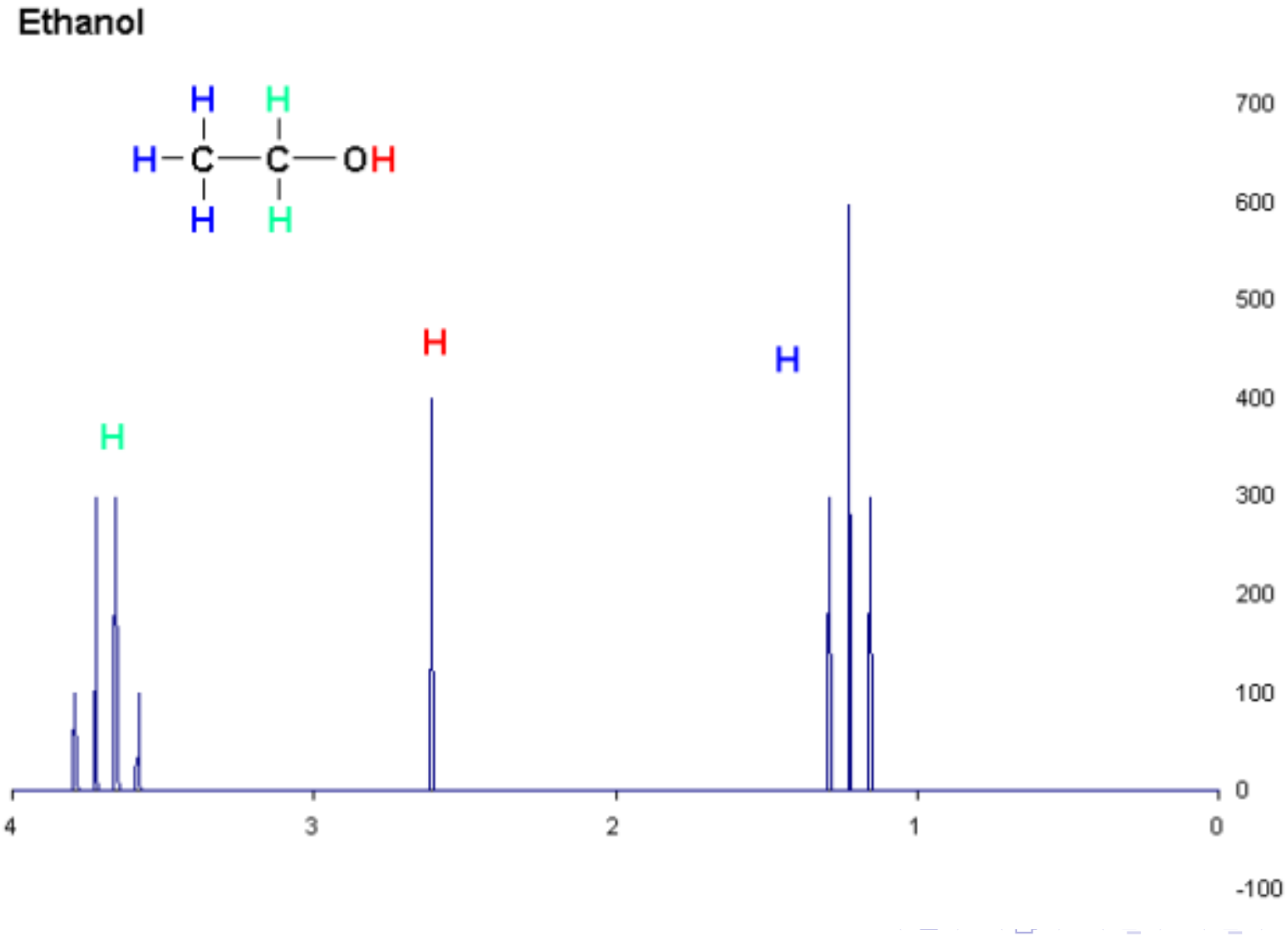




Déplacement chimique et aire : cas du 1-bromo-2,2-diméthylpropane



Multiplicité : exemple de l'éthanol $CH_3 - CH_2 - OH$



Application : 4-méthylbenzaldéhyde