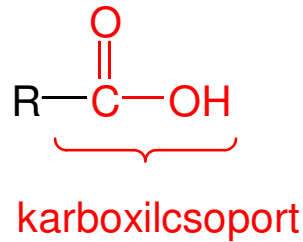


KARBONSAVAK



Példák

A) Nyílt láncú telített monokarbonsavak (zsírsavak)

"alkánsav" pl. metánsav, etánsav, propánsav...

Homológ sor

HCOOH
hangyasav

CH₃CH₂CH₂CH₂COOH
valeriánsav

CH₃COOH
ecetsav

CH₃CH₂CH₂CH₂CH₂COOH
kapronsav

CH₃CH₂COOH
propionsav

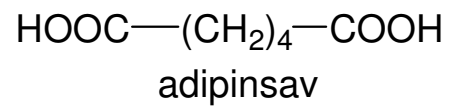
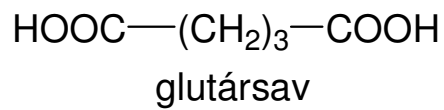
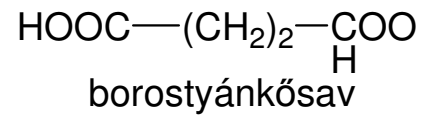
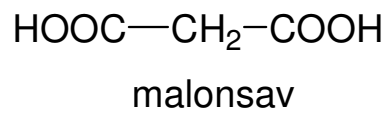
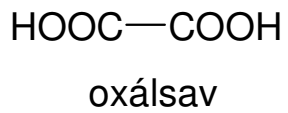
CH₃(CH₂)₁₄COOH
palmitinsav

CH₃CH₂CH₂COOH
vajsav

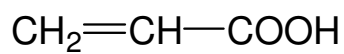
CH₃(CH₂)₁₆COOH
szterarinsav

B) Nyílt láncú telített dikarbonsavak

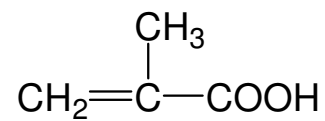
"alkándisav" pl. etándisav, propándisav...



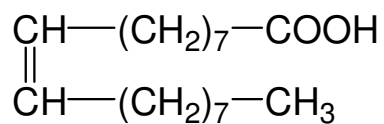
C) Telítetlen karbonsavak



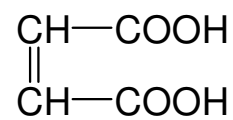
propénsav
akrilsav



2-metilpropénsav
metakrilsav

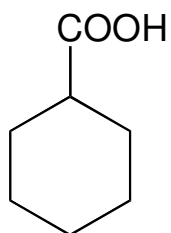


olajsav

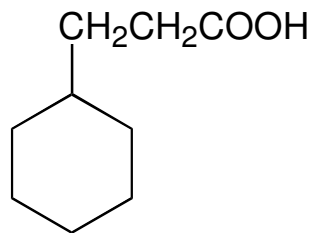


maleinsav

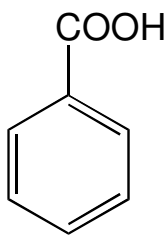
D) Gyűrűs karbonsavak



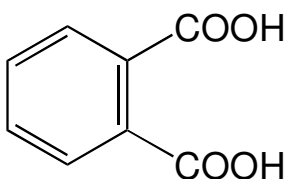
ciklohexánkarbonsav



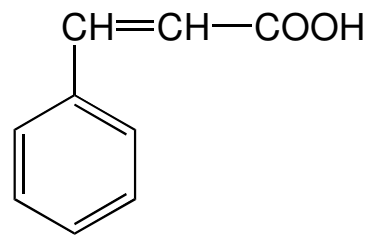
3-ciklohexil-propionsav



benzoesav

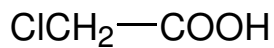


ftálsav

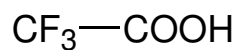


fahéjsav

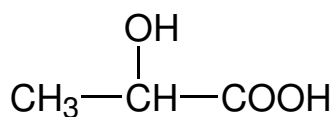
E) Láncban szubsztituált karbonsavak



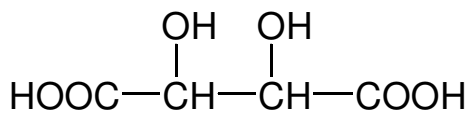
klórecetsav



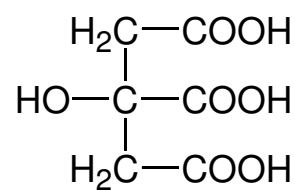
trifluorecetsav



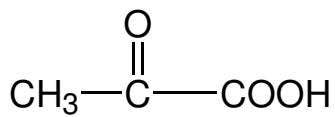
tejsav



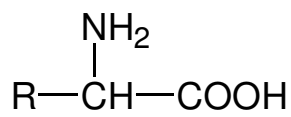
borkősav



citromsav

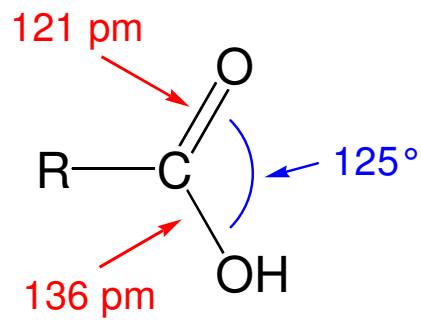
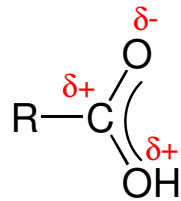
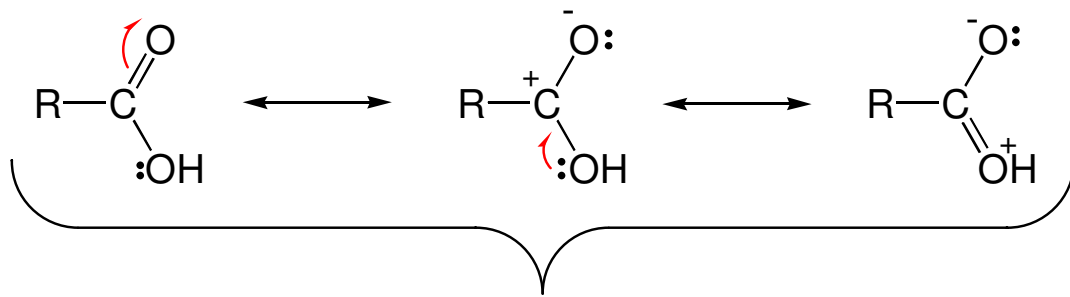


piroszőlősav

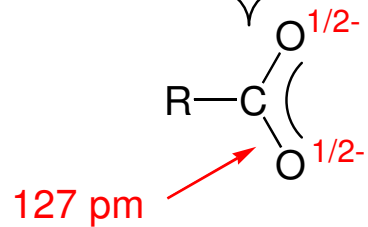
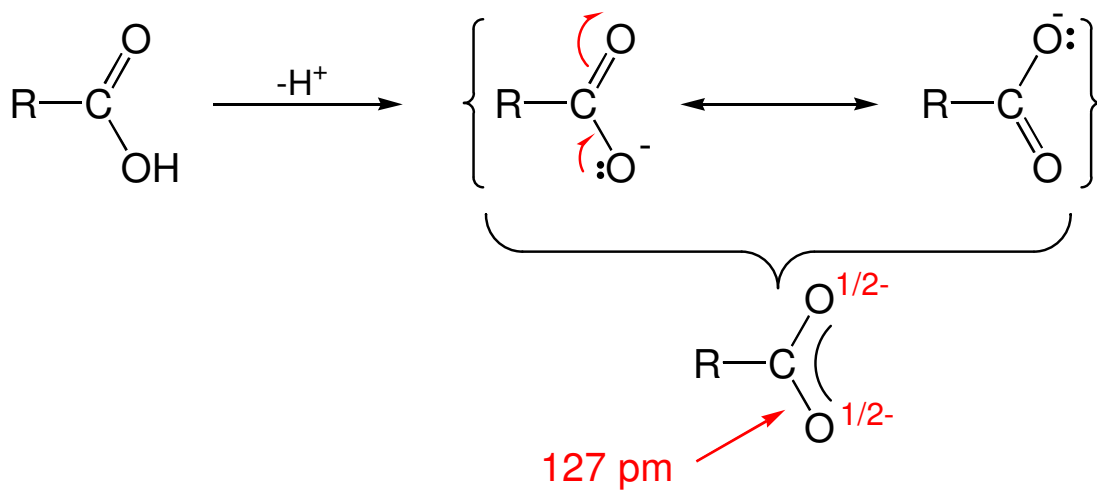


" α -aminosav"

A karbonsavak szerkezete

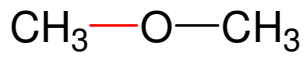


A karboxilátion szerkezete

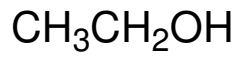


FIZIKAI TULAJDONSÁGOK

Forráspont



-24 °C

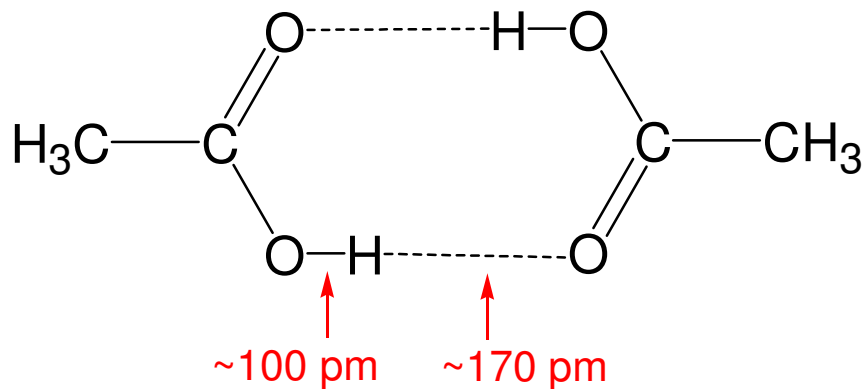


78 °C



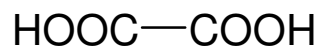
118 °C

Asszociáció hidrogénkötéssel



molekulatömeg x 2 = 120; fp: 118 °C

$\text{CH}_3(\text{CH}_2)_6\text{CH}_3$, molekulatömeg: 114, fp: 126 °C



op. = 190 °C

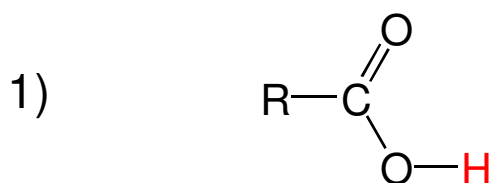


fp. = 54 °C

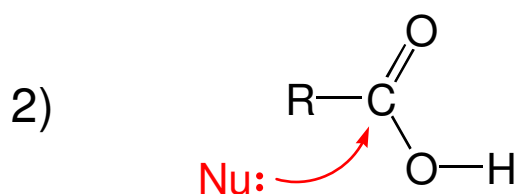
Vízoldhatóság

$\text{C}_1\text{—C}_4$: korlátlan; C_9 -: oldhatatlan

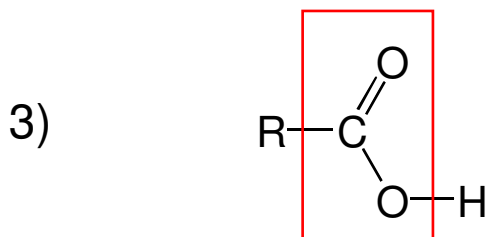
A karbonsavak reaktivitása



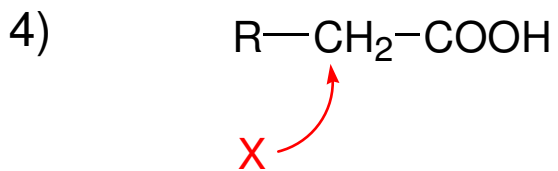
Savi jelleg



Szubsztitúció karbonil-szénatomon

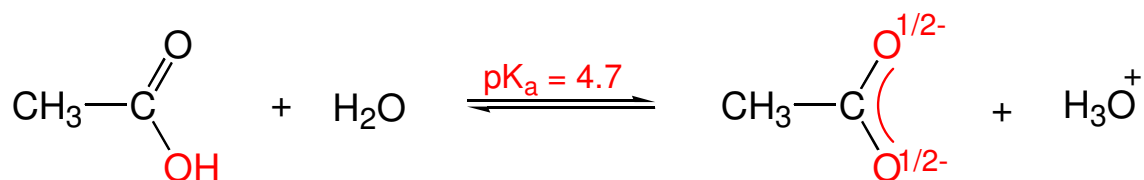
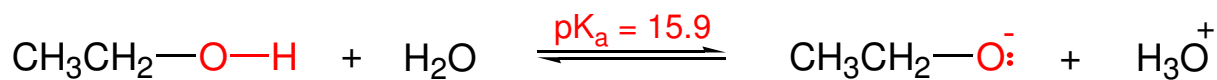


Dekarboxilezés

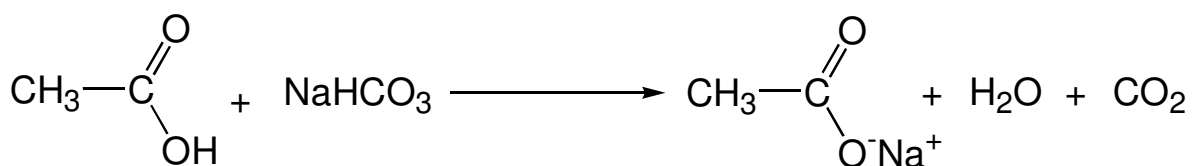
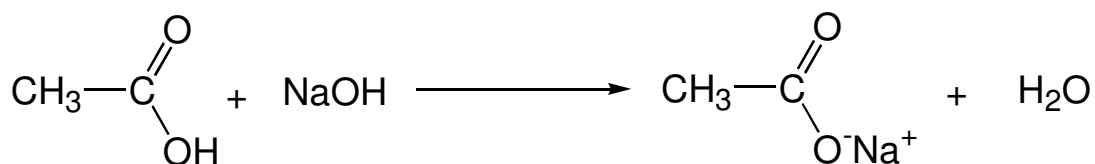


Szubsztitúció α -szénatomon

A karbonsavak savi jellege



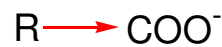
Sóképzés



Szubsztituált karbonsavak savi erőssége



-I effektusú R-csoport
növekvő stabilitású anion
erősebb sav



+I effektusú R-csoport
csökkenő stabilitású anion
gyengébb sav

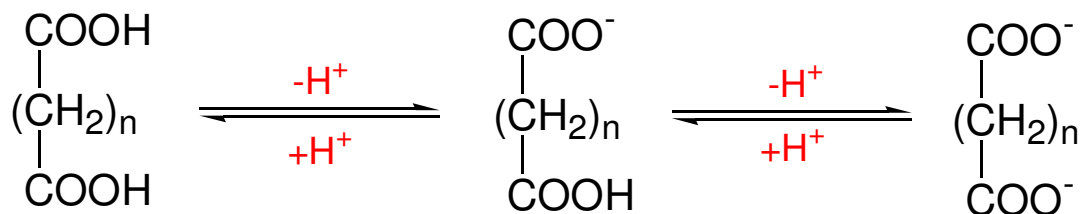
Példák

	pK_a
CH ₃ —COOH	4.76
Cl—CH ₂ —COOH	2.86
$\begin{array}{c} \text{Cl—CH—COOH} \\ \\ \text{Cl} \end{array}$	1.48
$\begin{array}{c} \text{Cl} \\ \\ \text{Cl—C—COOH} \\ \\ \text{Cl} \end{array}$	0.70

	pK_a
CH ₃ CH ₂ CH ₂ COOH	4.82
CH ₂ ClCH ₂ CH ₂ COOH	4.50
CH ₃ CHClCH ₂ COOH	4.05
CH ₃ CH ₂ CHClCOOH	2.85

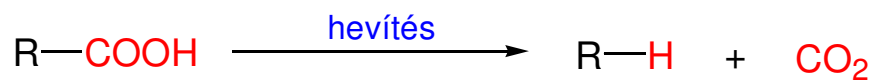
	pK_a
$\text{H}-\text{COOH}$	3.75
CH_3-COOH	4.76
$\text{CH}_3\text{CH}_2-\text{COOH}$	4.87
$ \begin{array}{c} \text{CH}_3 \\ \\ \text{H}_3\text{C}-\text{C}-\text{COOH} \\ \\ \text{CH}_3 \end{array} $	5.05

A dikarbonsavak savi jellege

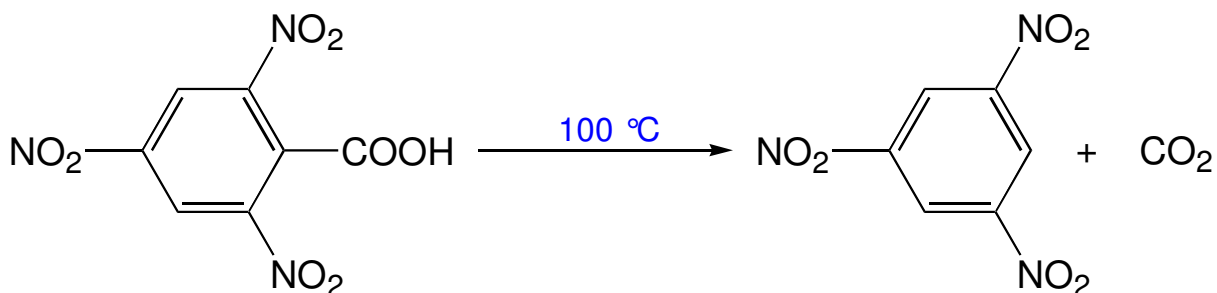
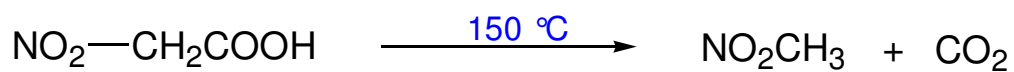
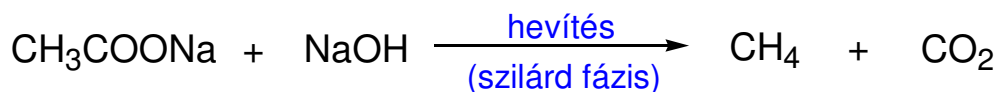


n	pK₁	pK₂
0	1.27	4.28
1	2.85	5.70
2	4.19	5.64

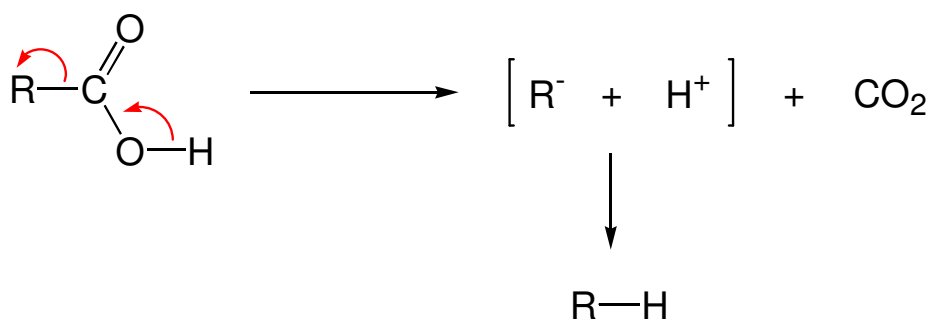
A KARBONSÁVAK DEKARBOXILEZÉSE



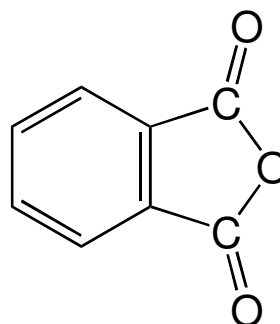
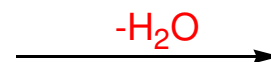
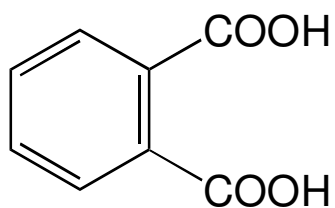
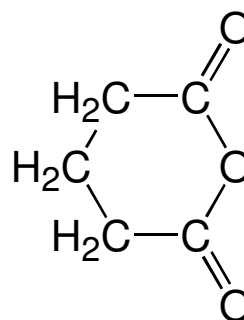
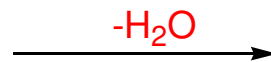
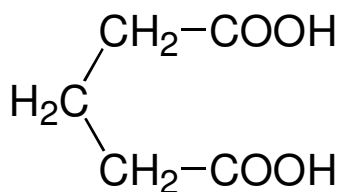
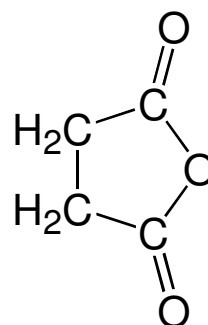
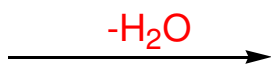
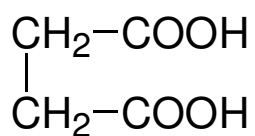
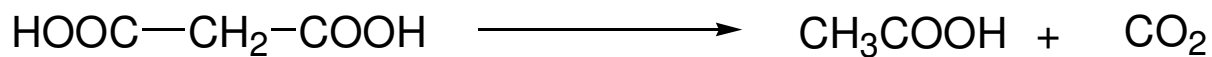
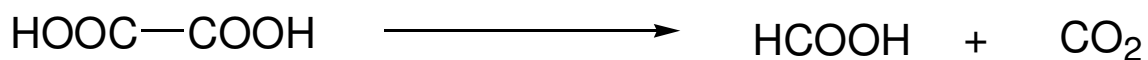
Példák



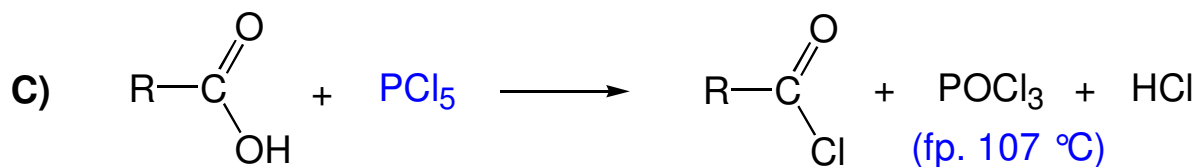
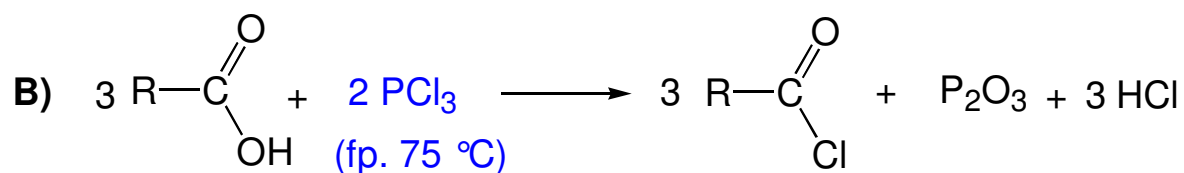
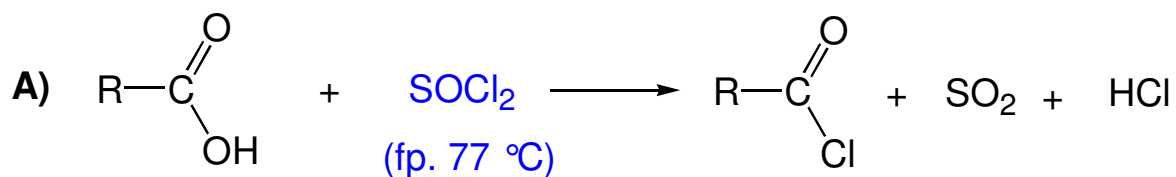
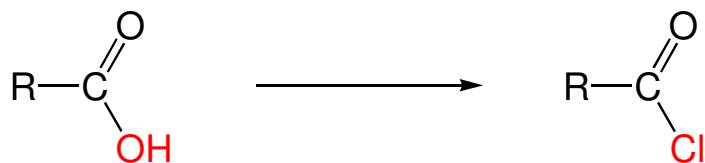
Mechanizmus



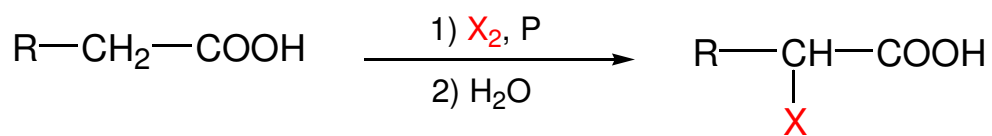
A dikarbonsavak hevítése



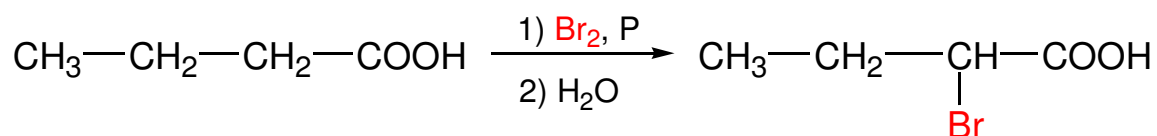
A KARBONSAVAK ÁTALAKÍTÁSA SAVKLORIDOKKÁ



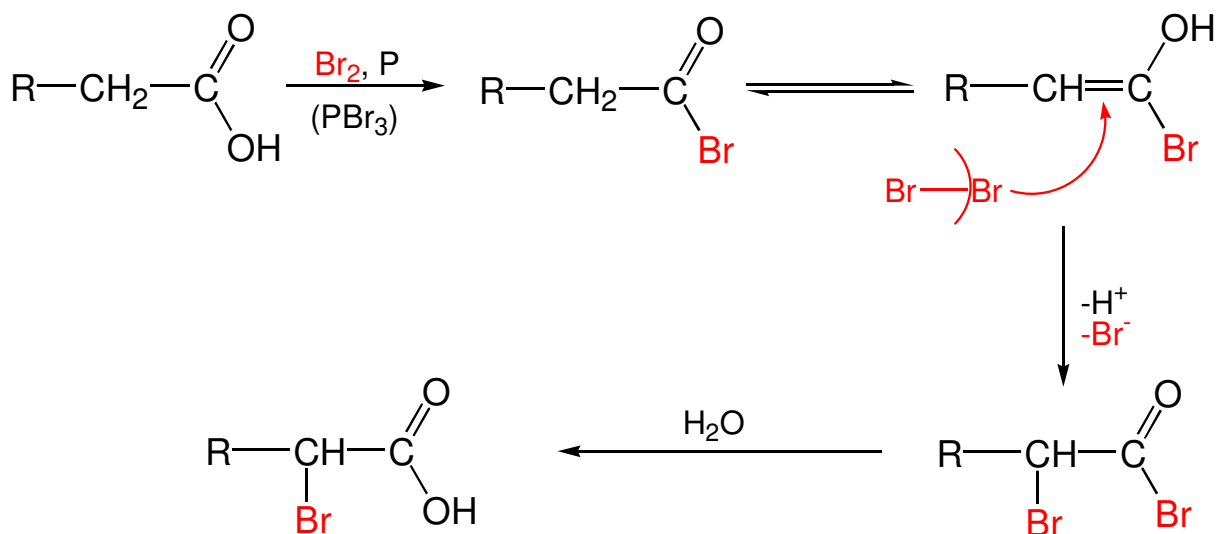
A KARBONSAVAK α -HELYZETŰ HALOGÉNEZÉSE



Példa



Mechanizmus



Az α -halogénezett karbonsavak reakciókészsége

