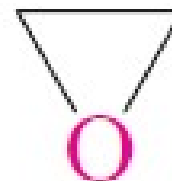


HETEROCYKLIKÉ SLOUČENINY



Počet atomů v cyklu	Kmeny názvů pro cykly obsahující atom dusíku		Kmeny názvů pro cykly neobsahující atom dusíku	
	Nenasycené	Nasycené	Nenasycené	Nasycené
3	-irin	-iridin	-iren	-iran
4	-et	-etidin	-et	-etan
5	-ol	-olidin	-ol	-olan
6	-in	-inan	-in ^a	-an ^b
7	-epin	-epan	-epin	-epan
8	-ocin	-okan	-ocin	-okan
9	-onin	-onan	-onin	-onan
10	-ecin	-ekan	-ecin	-ekan

^a je-li heteroatomem B, P, As používá se kmen -inin; ^b je-li heteroatomem B, P, As používá se kmen -inan



Oxacyclopropane
(Oxirane, ethylene oxide)

oxiran

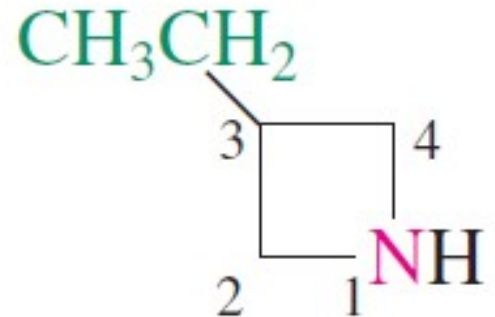




***N*-Methylazacyclopropane**
(*N*-Methylaziridine)

***N*-methylaziridin**

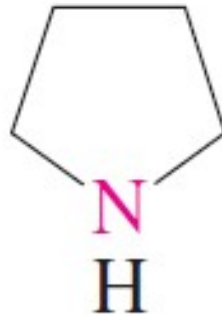




3-Ethylazetidine
(3-Ethylazetidine)

3-ethylazetidin

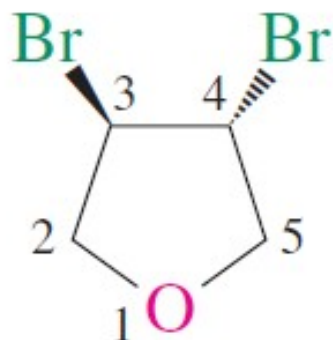




Azacyclopentane
(Pyrrolidine)

azolidin

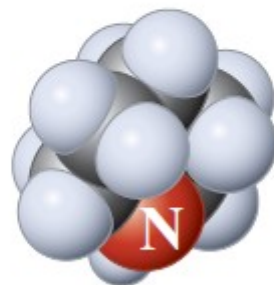
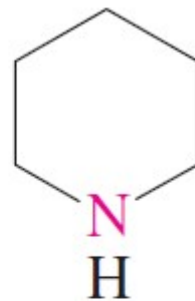




trans-3,4-Dibromoxacyclopentane
(*trans*-3,4-Dibromotetrahydrofuran)

trans-3,4-dibromoxolan

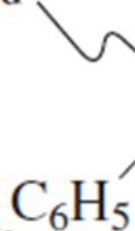




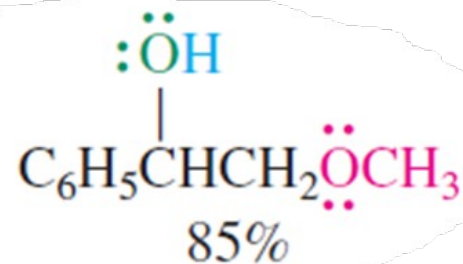
Azacyclohexane
(Piperidine)

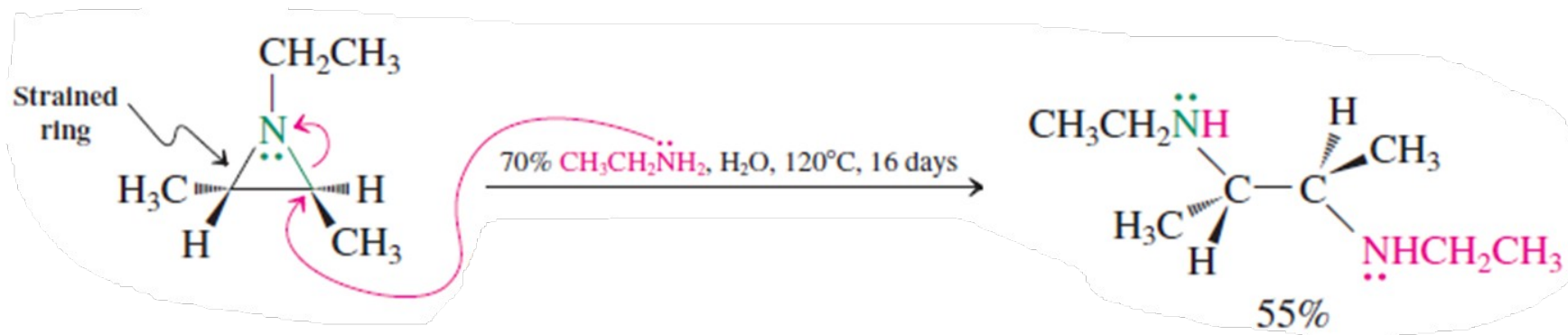


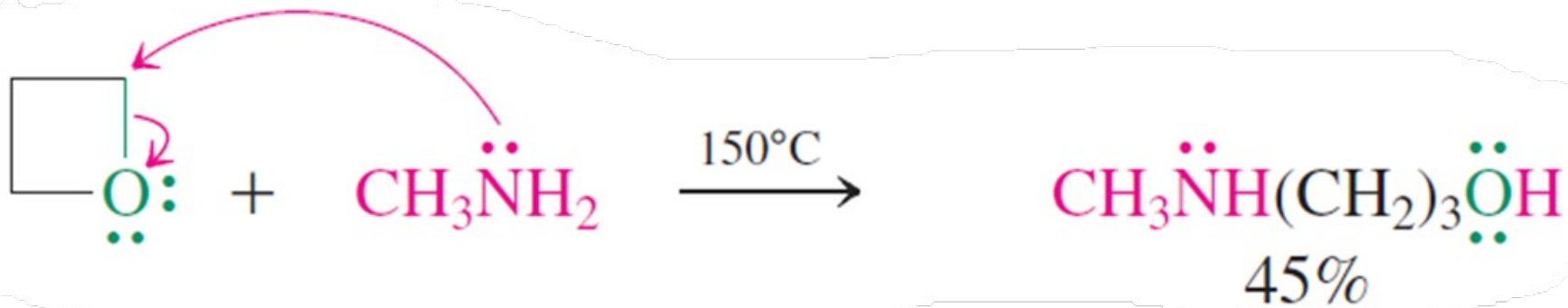
Strained
ring

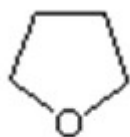


+

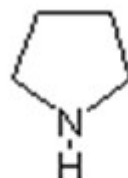




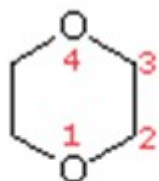




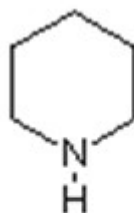
tetrahydrofuran
oxolane



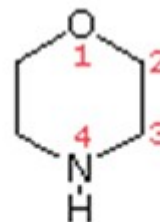
pyrrolidine
azolidine



dioxane
1,4-dioxane



piperidine
perhydropyridine

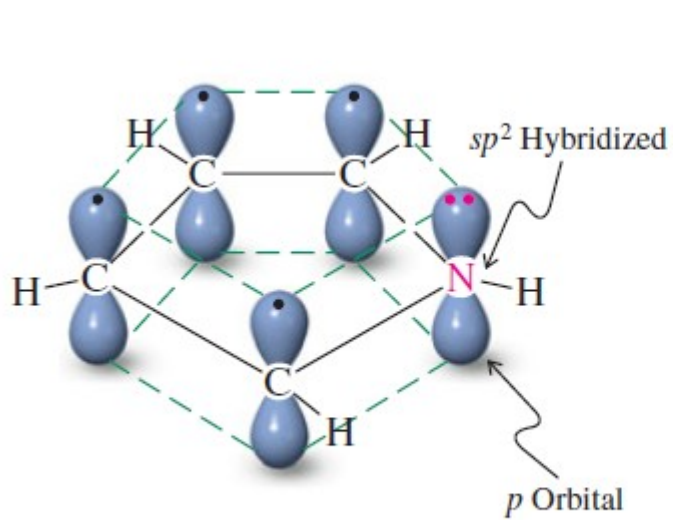
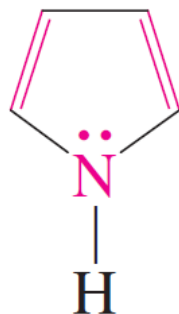


morpholine
tetrahydro-1,4-oxazine

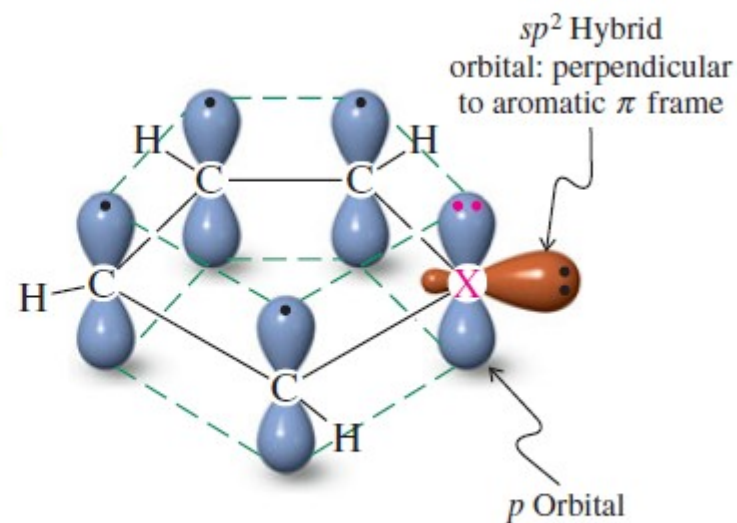
K otevírání kruhu relativně inertní



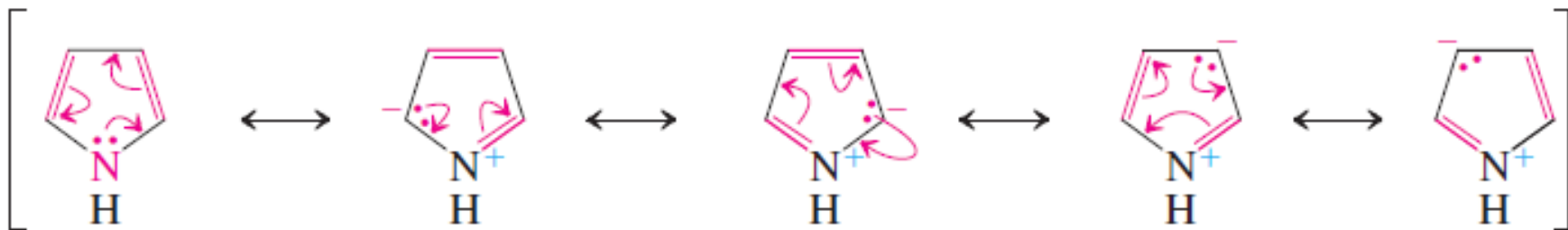
Aromatické heterocyklické sloučeniny



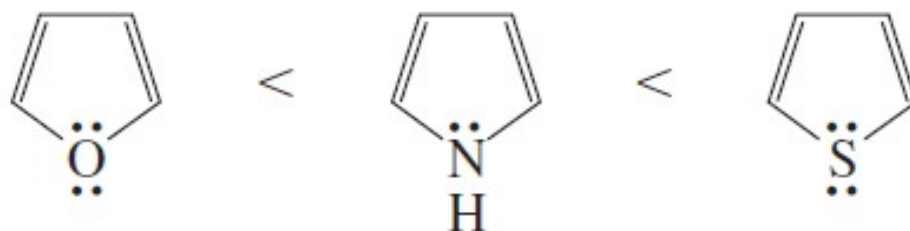
Pyrrole



Furan (X = O)
Thiophene (X = S)



Aromaticity in Heterocyclopentadienes



Increasing aromaticity

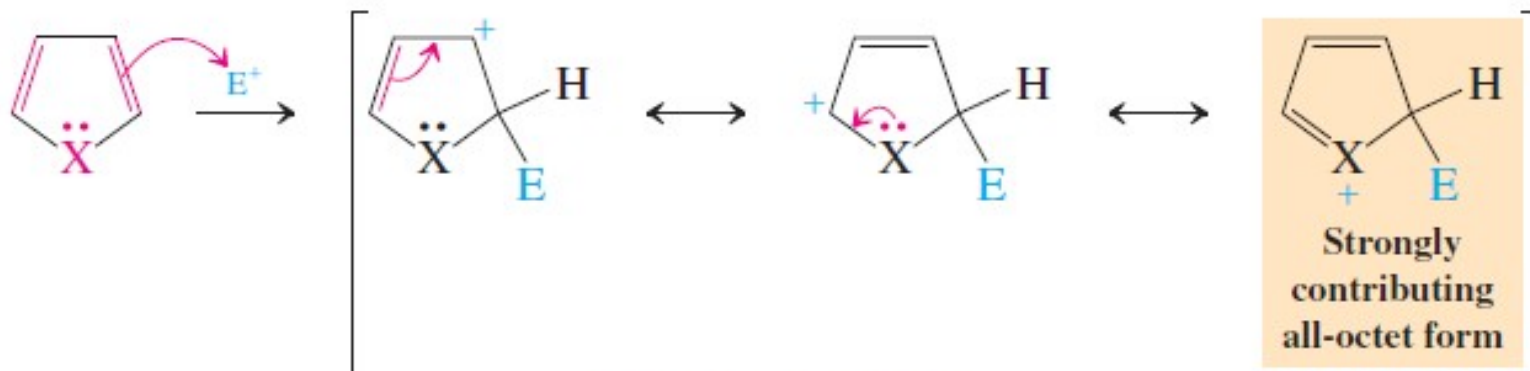
3,44

3,04

2,58

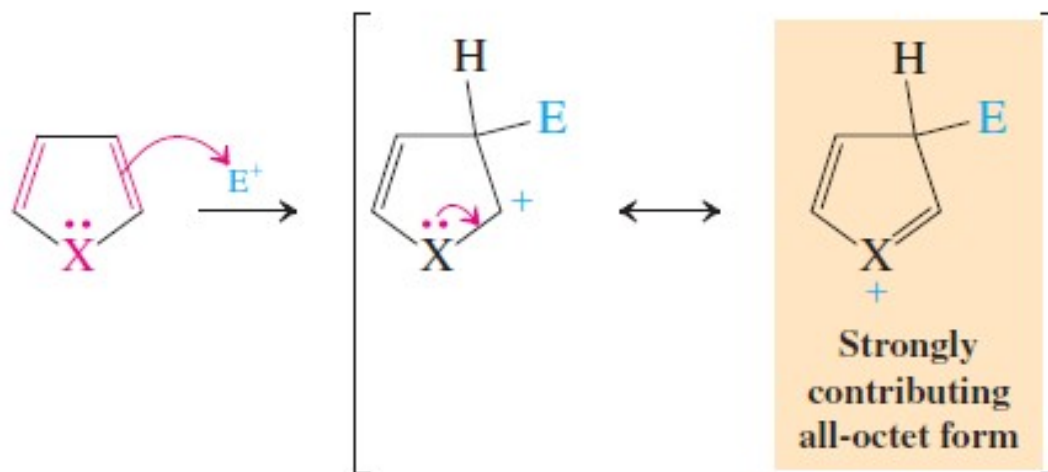


Attack at C2



Three resonance forms

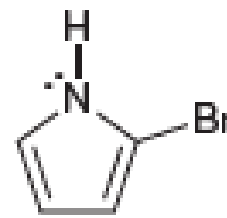
Attack at C3



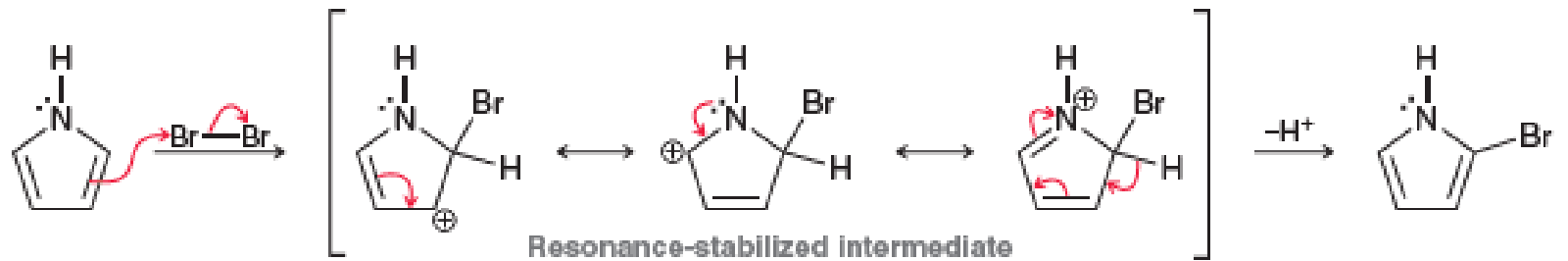
Two resonance forms

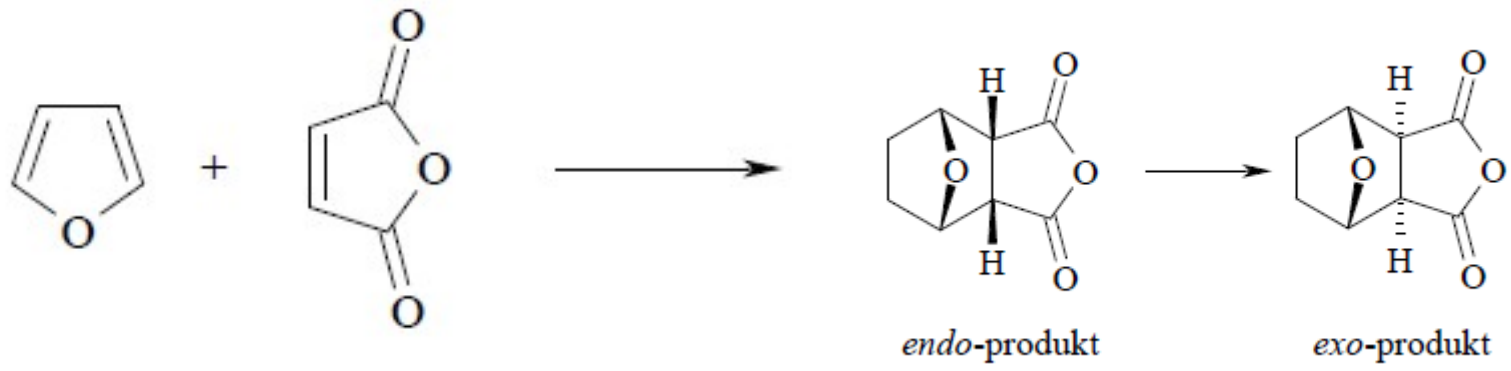


Pyrrole

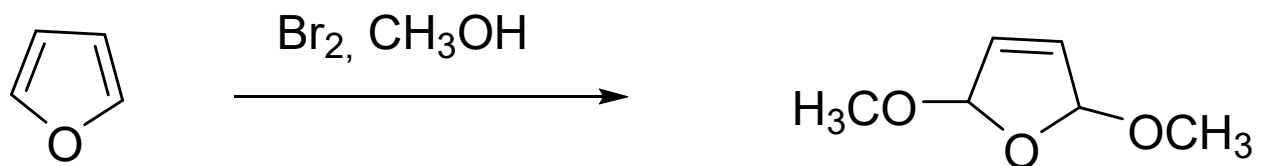


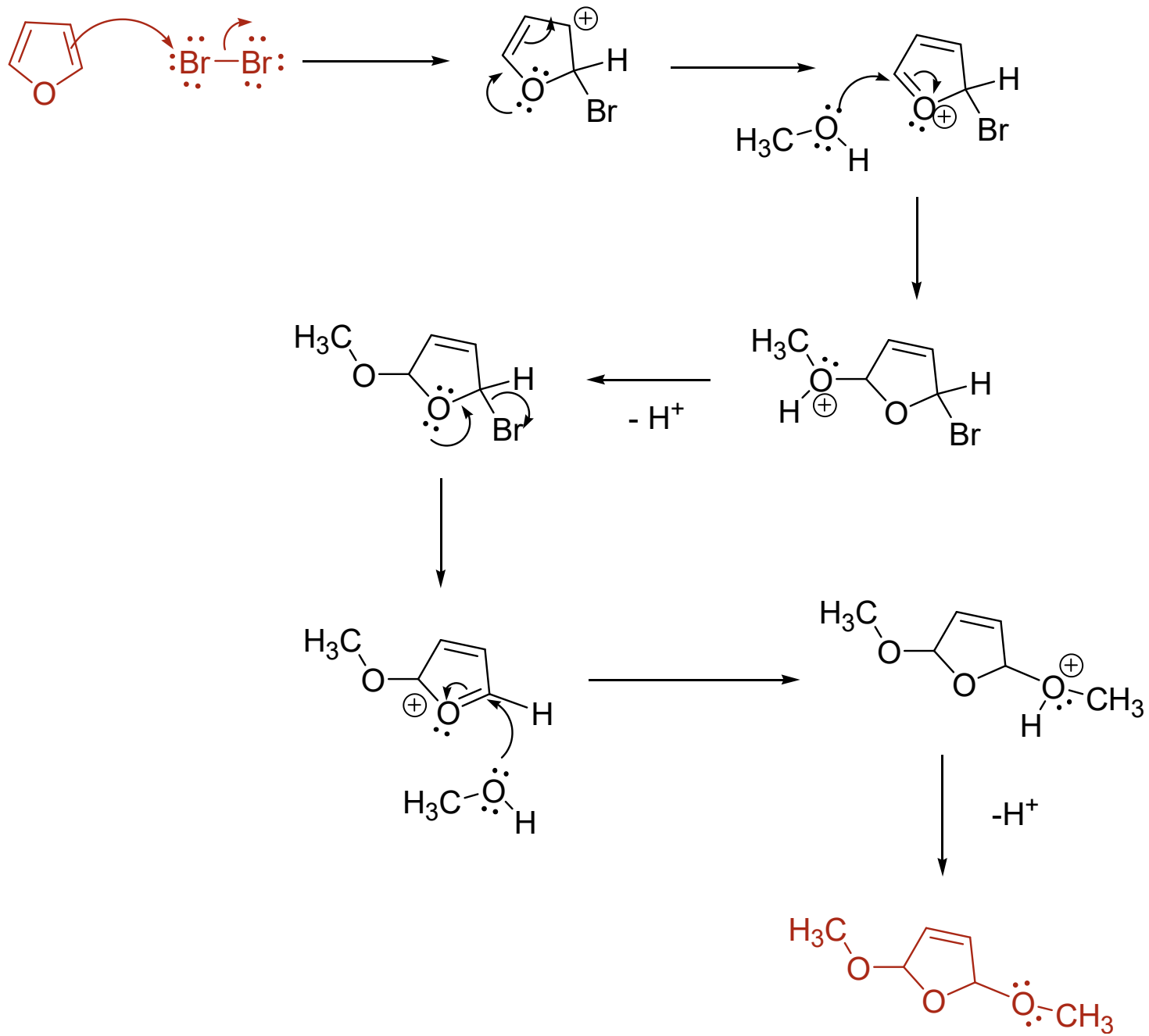
2-Bromopyrrole
(90%)

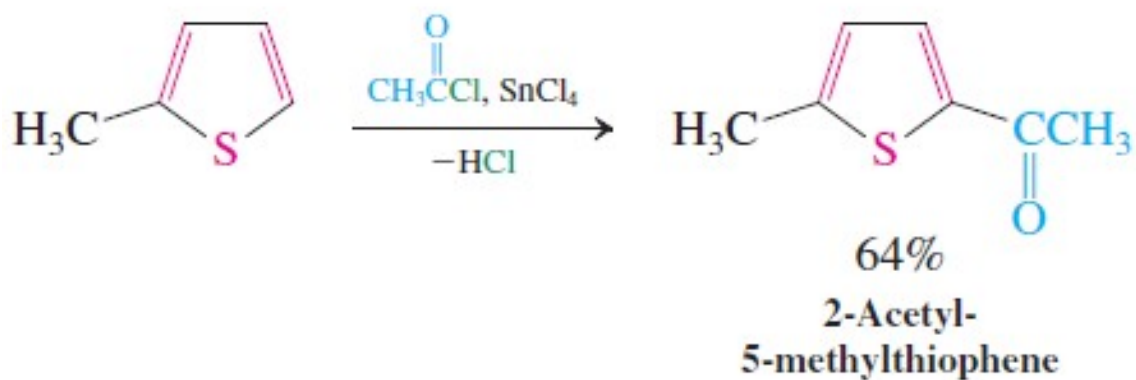
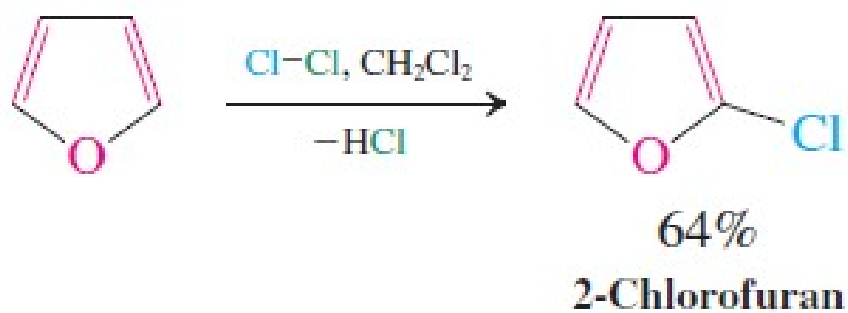
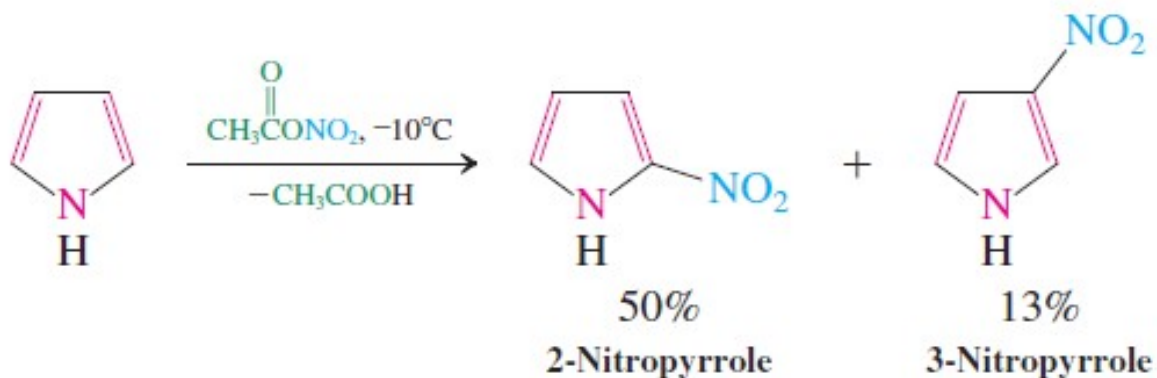


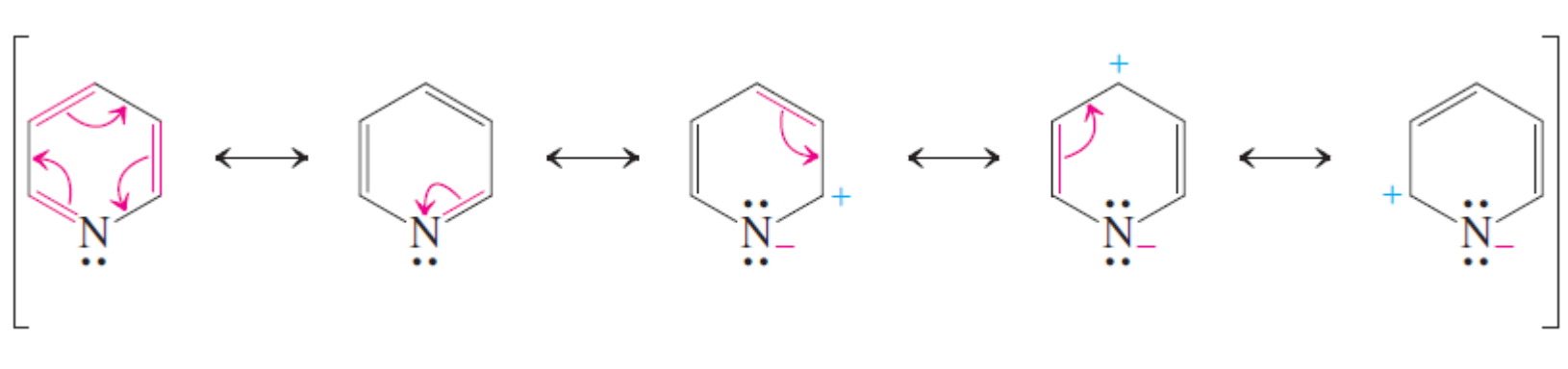
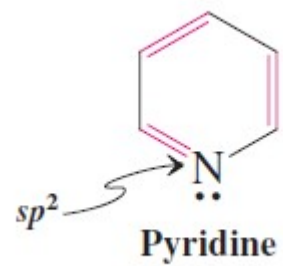


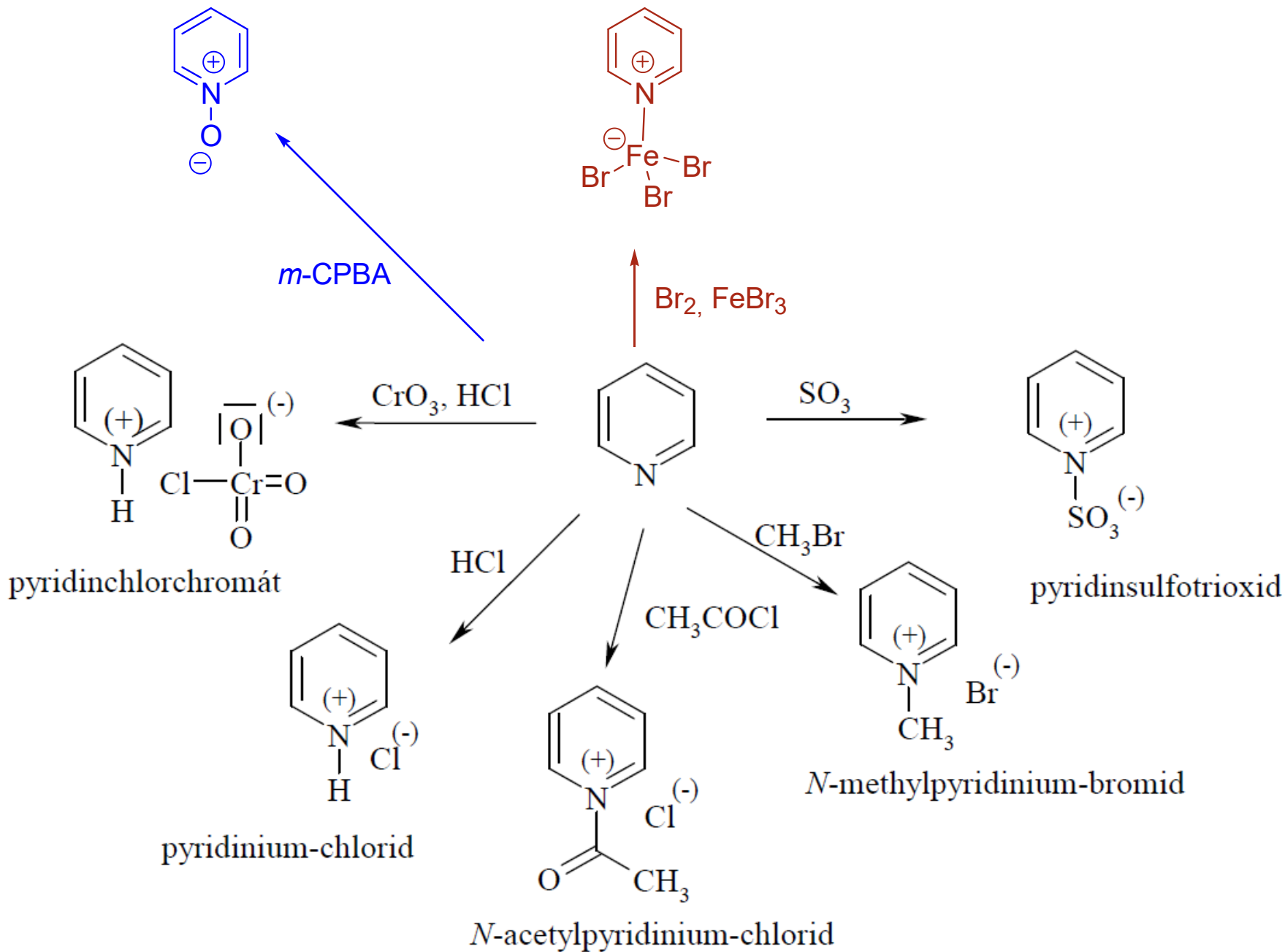
Napište mechanismus reakce



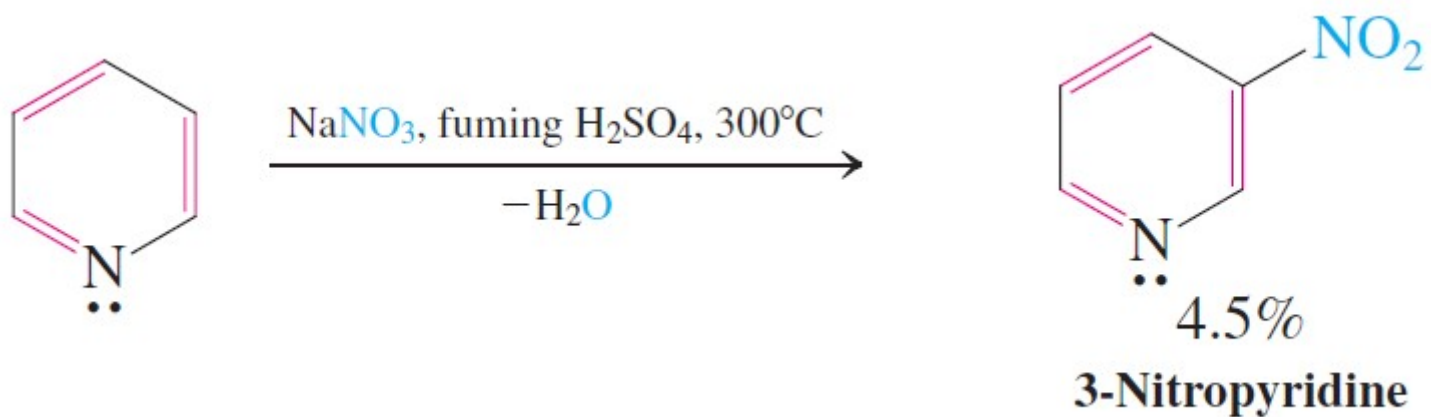




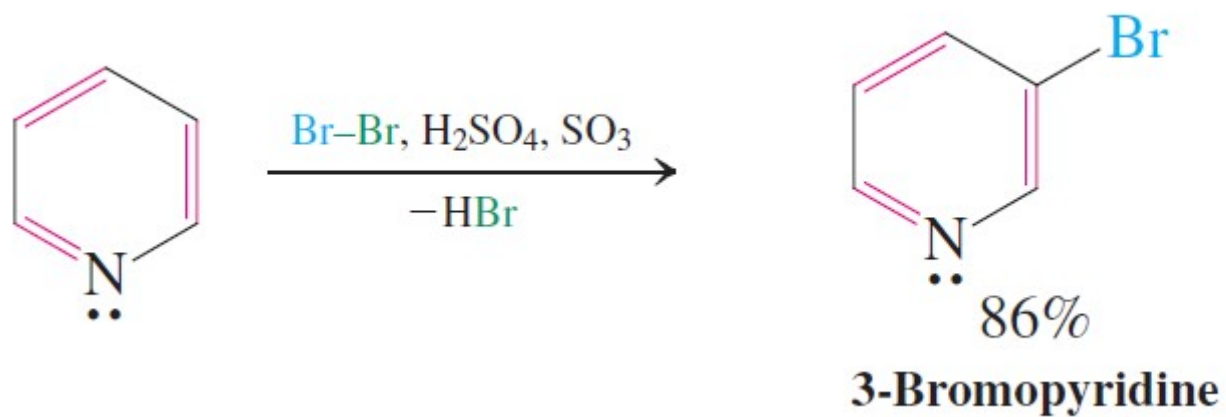




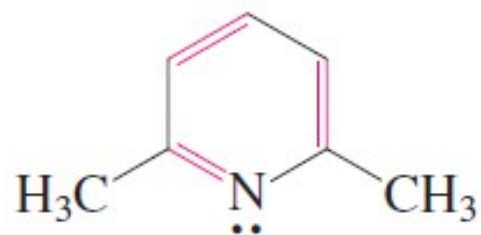
Elektrofilní aromatická substituce – obtížný průběh jádro elektronově deficitní



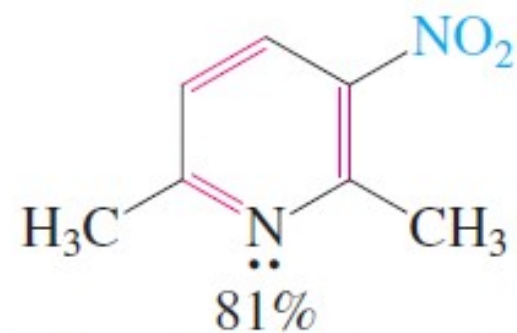
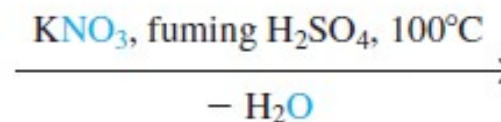
Elektrofilní aromatická substituce – obtížný průběh jádro elektronově deficitní



jádra aktivovaná – snadnější průběh



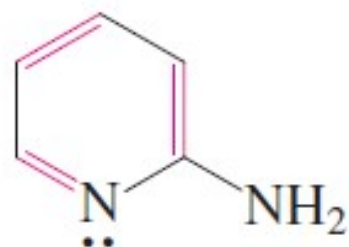
2,6-Dimethylpyridine



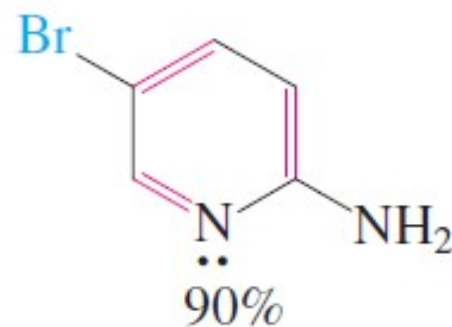
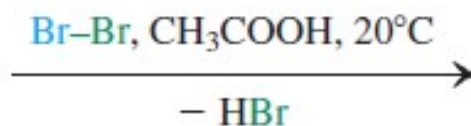
2,6-Dimethyl-3-nitropyridine



jádra aktivovaná – snadnější průběh

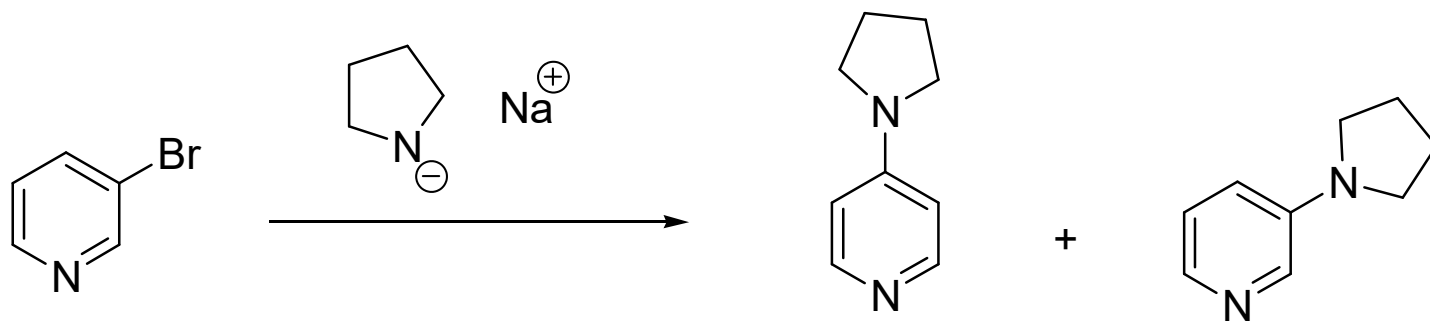
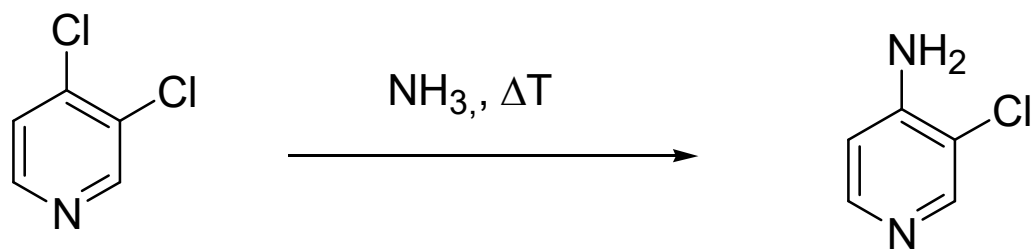


2-Aminopyridine

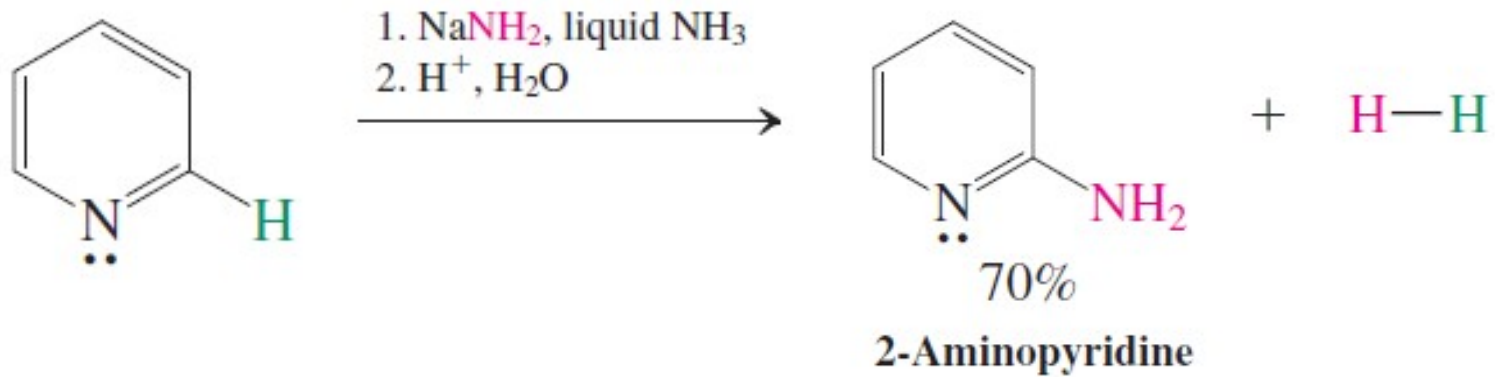


2-Amino-5-bromopyridine
90%





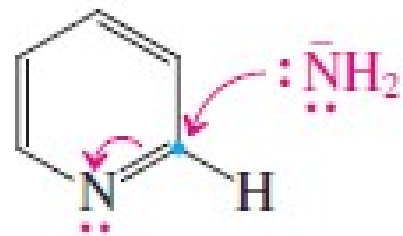
Čičibabinova reakce



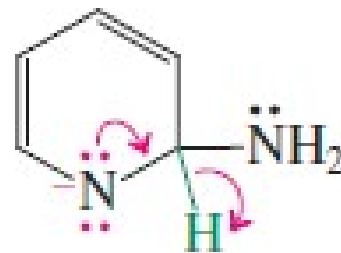
Mechanismus adičně - eliminační



Čičibabinova reakce



↓ Addition



↓ $-\text{:H}^-$ Elimination

