



QFL0342 - Reatividade dos Compostos Orgânicos

Aula 8. Substituição Nucleofílica Aromática (S_NAr)

Cassius V. Stevani



Literatura

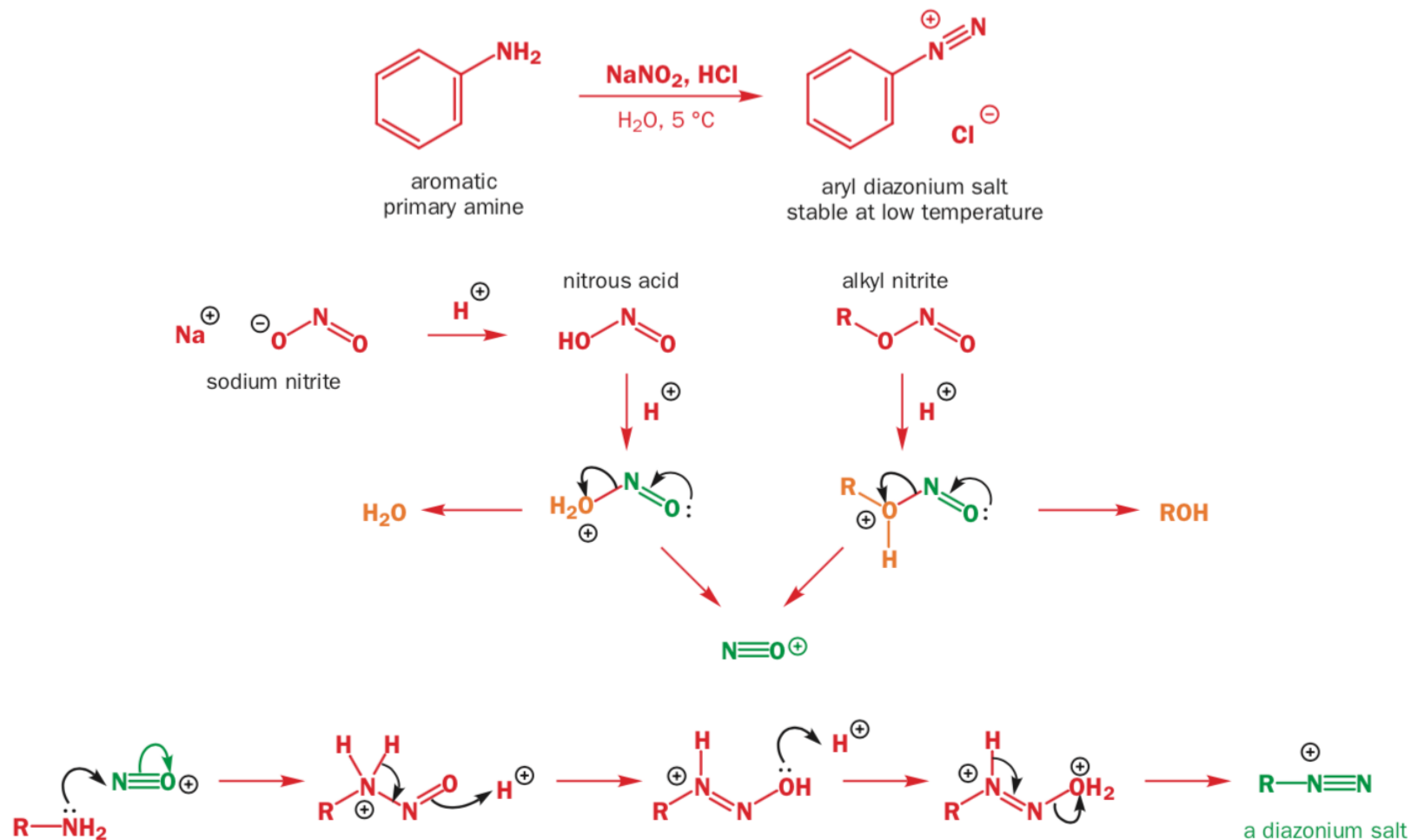
Leitura recomendada. Clayden, Greeves, Warren, Wothers, 2ª edição, cap. 22



Substituição Nucleofílica Aromática (S_NAr)

Reação de Sandmeyer

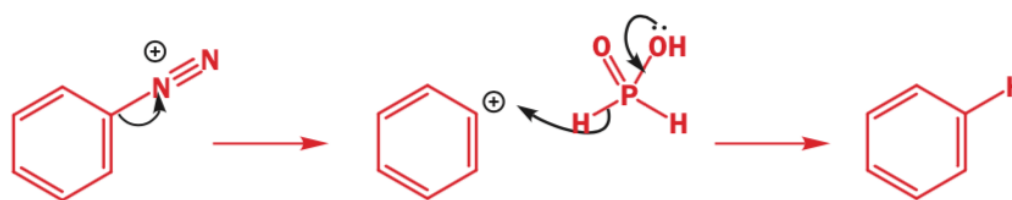
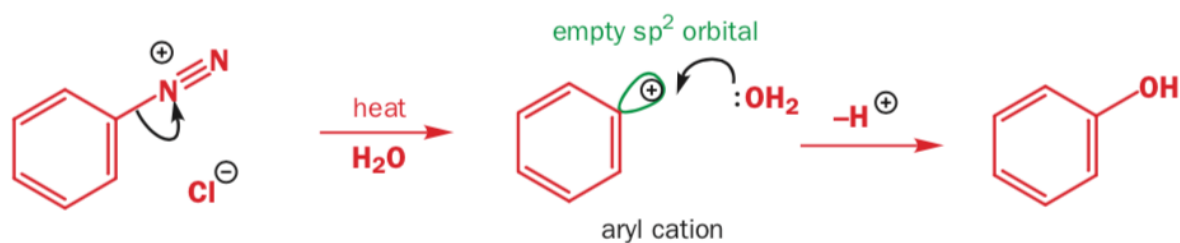
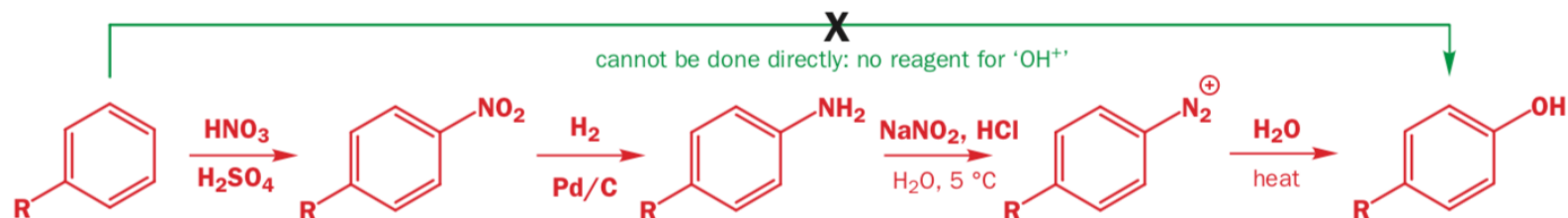
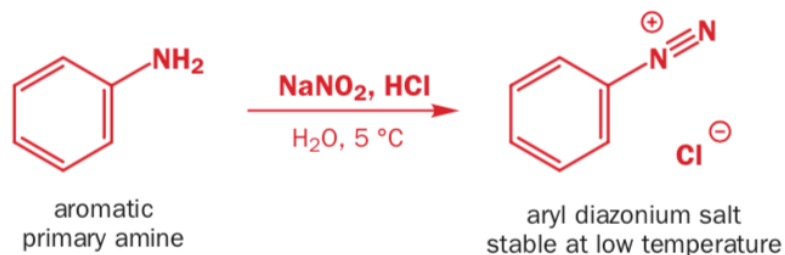
- Reação via sal de diazonium (Sandmeyer).



Substituição Nucleofílica Aromática (S_NAr)

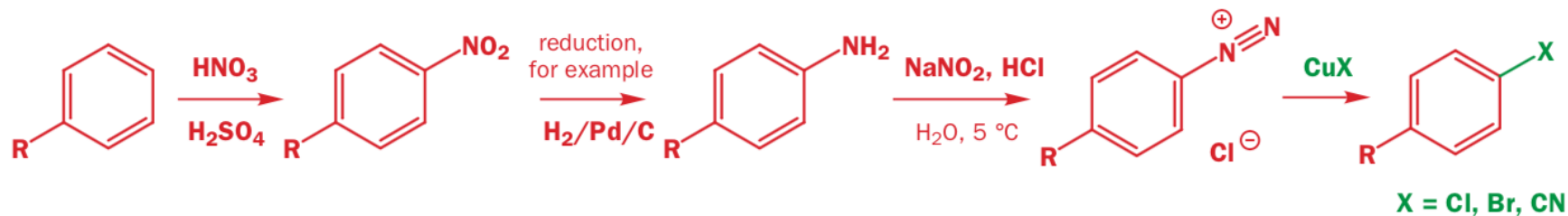
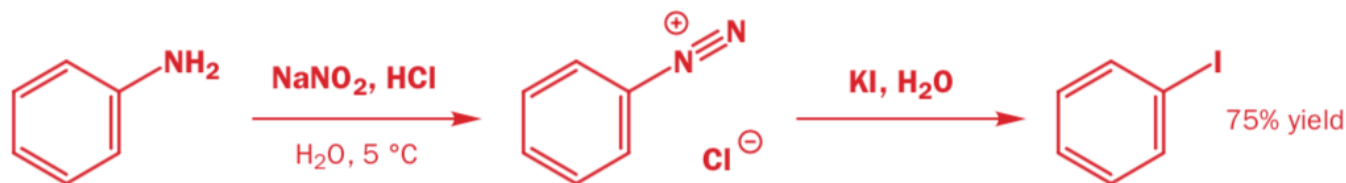
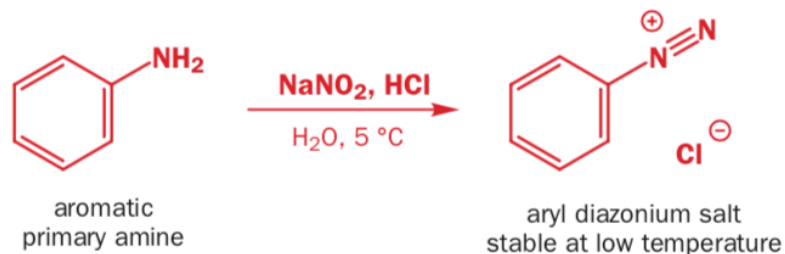
Reação de Sandmeyer

- Reação via sal de diazonium (Sandmeyer).



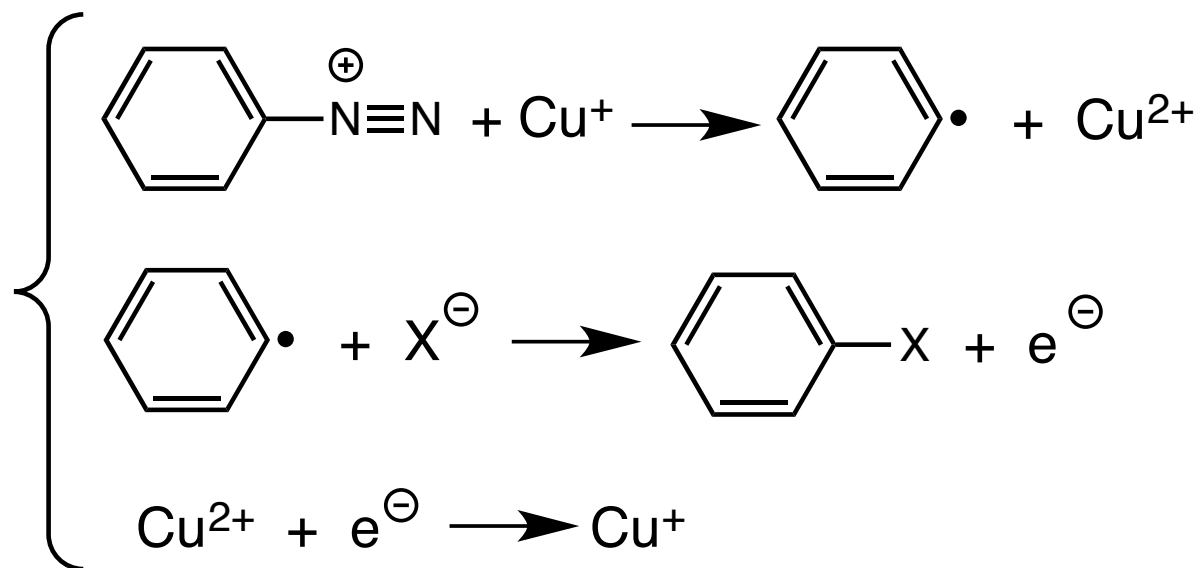
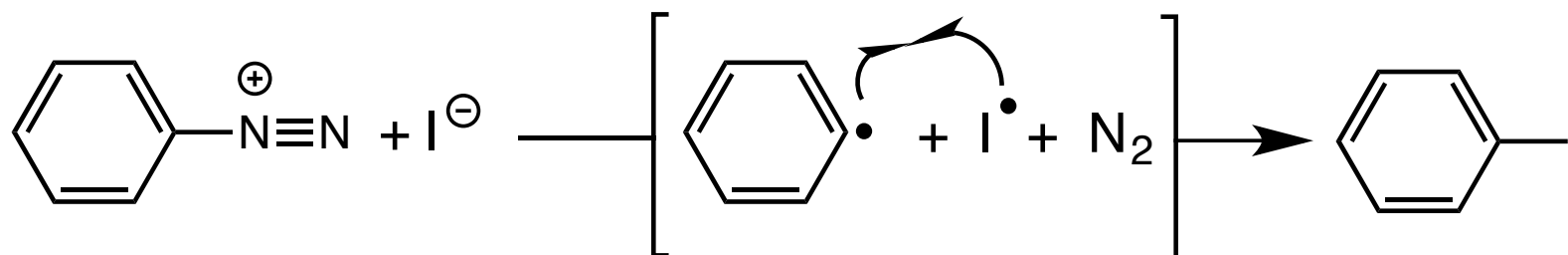
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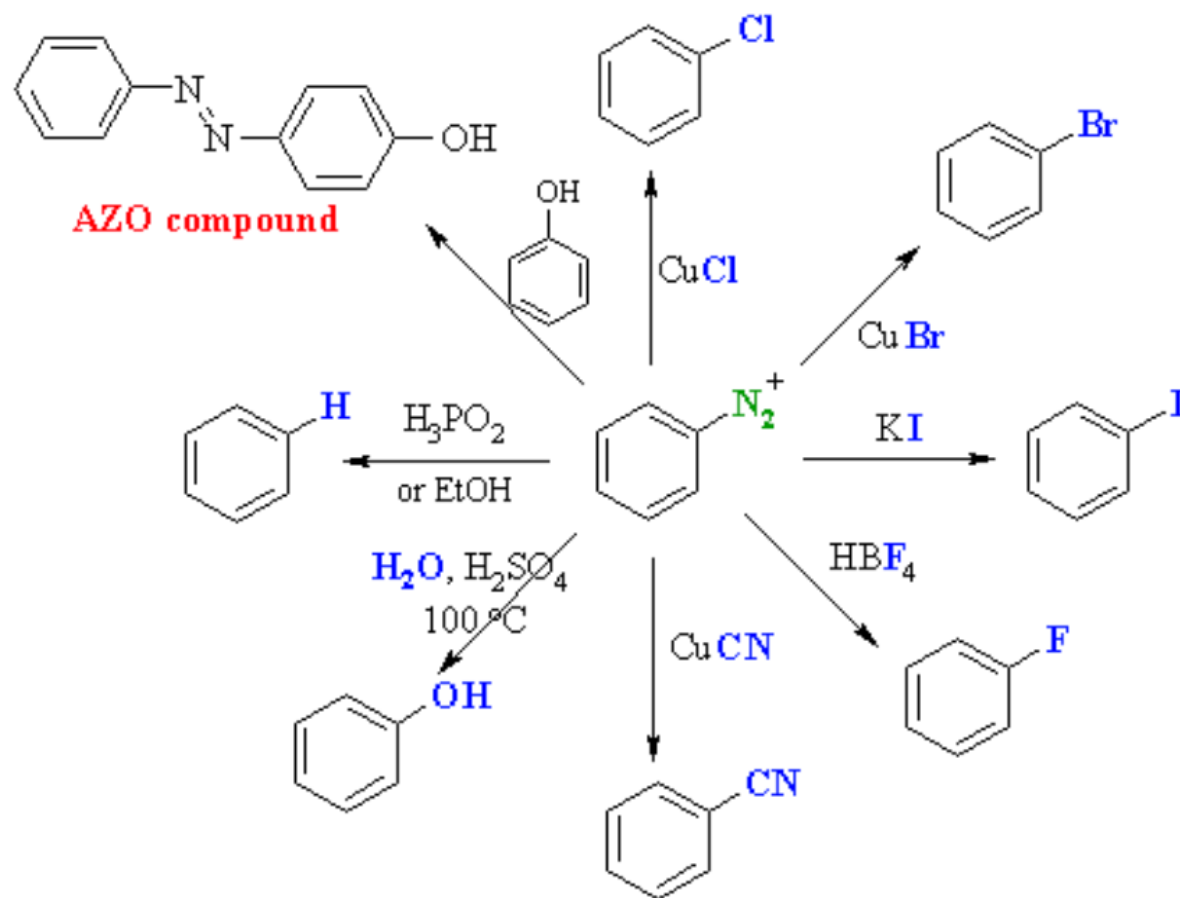




Substituição Nucleofílica Aromática (S_NAr)

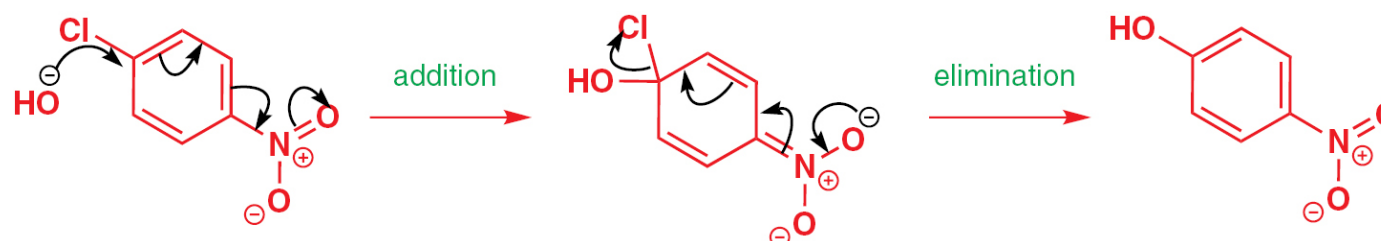
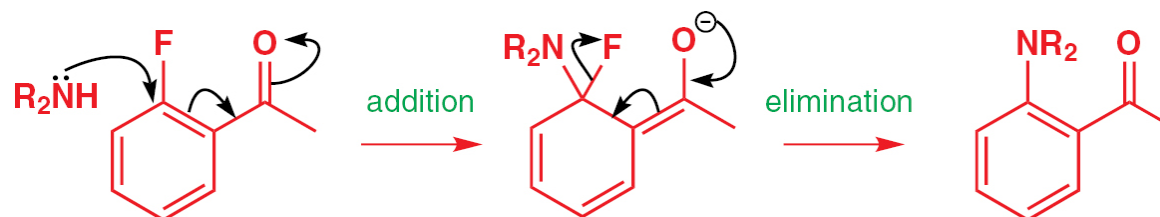
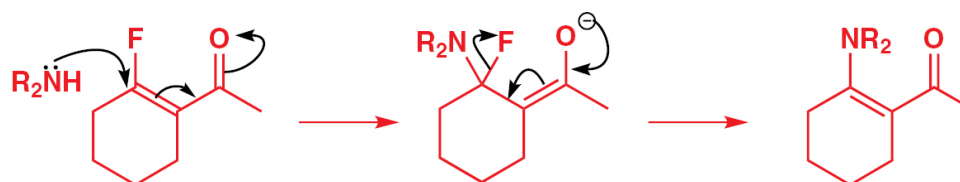
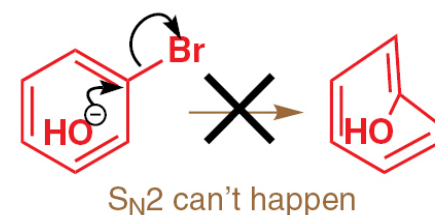
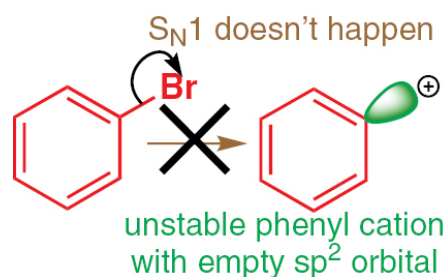
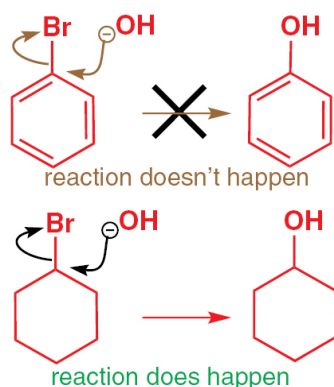
Reação de Sandmeyer

- Reação via sal de diazonium (Sandmeyer).



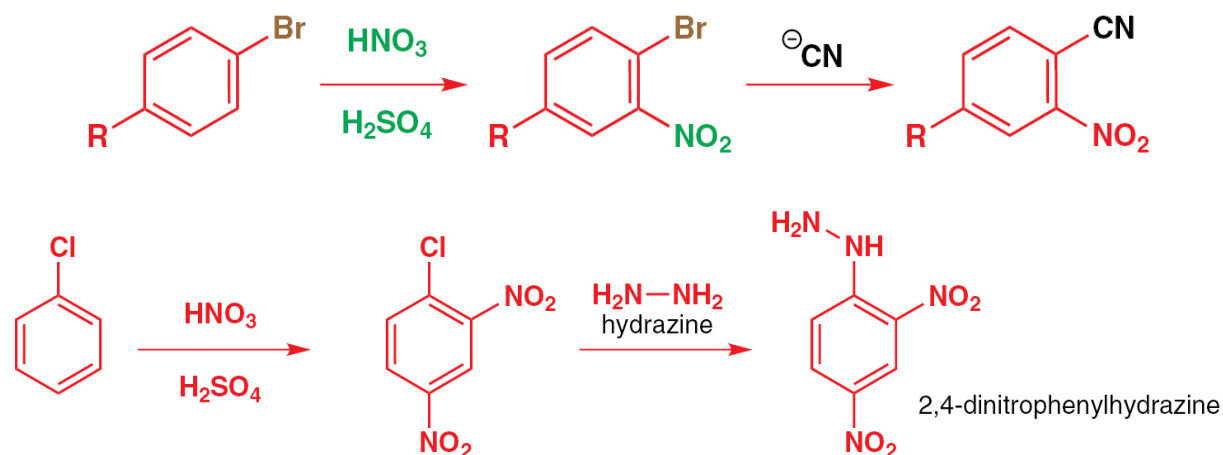
Mecanismo de Adição-Eliminação

- Derivados de benzeno não reagem via S_N1 ou S_N2 .

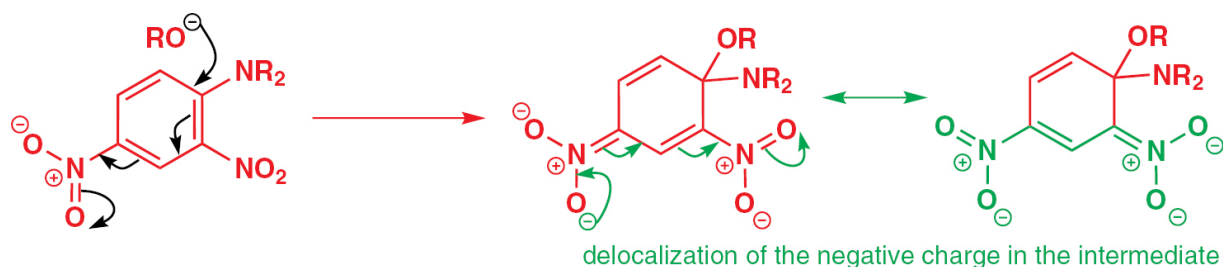


Mecanismo de Adição-Eliminação

- Usualmente, o mecanismo de eliminação acontece com: a) bons nucleófilos contendo oxigênio (HO^- , RO^-), nitrogênio (N_3^- , NH_2^-), enxofre (RS^-) e ^-CN , b) com haletos como grupo de partida e c) com grupo carbonila, nitro ou ciano em *orto* ou *para* ao grupo abandonador.

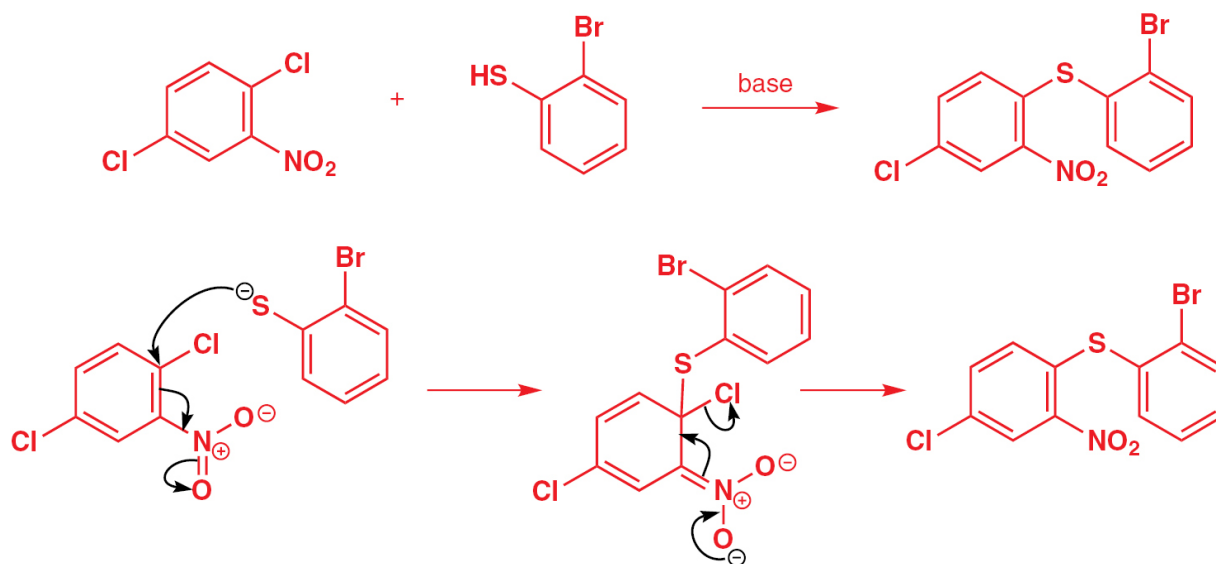


- Desta forma, há estabilização do intermediário



Mecanismo de Adição-Eliminação

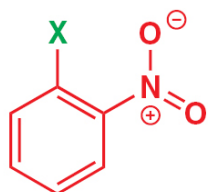
- Usualmente, o mecanismo de eliminação acontece com: a) bons nucleófilos contendo oxigênio (HO^- , RO^-), nitrogênio (N_3^- , NH_2^-), enxofre (RS^-) e ^-CN , b) com haletos como grupo de partida e c) com grupo carbonila, nitro ou ciano em *orto* ou *para* ao grupo abandonador.



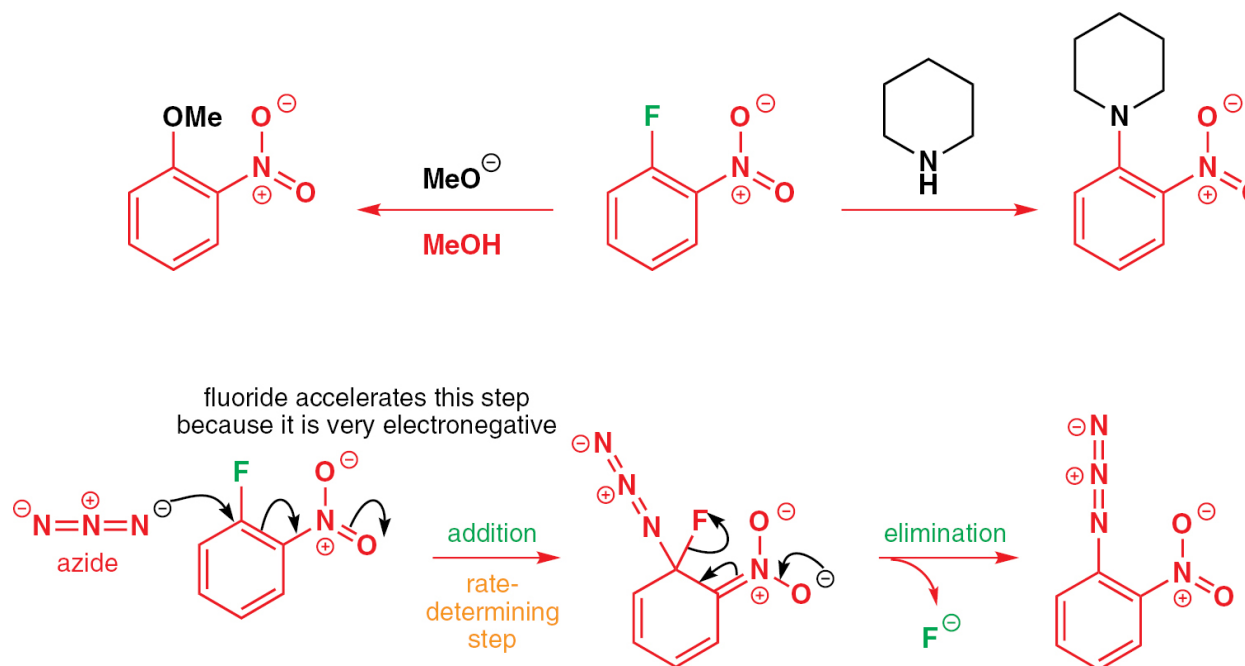
Mecanismo de Adição-Eliminação

- A reação é mais rápida, quanto mais eletronegativo o grupo abandonador. A etapa lenta é a adição, não a eliminação.

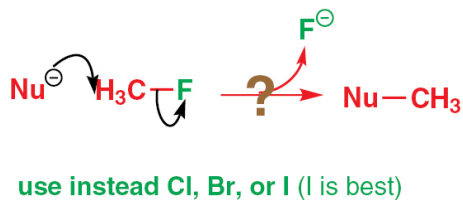
reactivity of 2-halo-1-nitrobenzenes in nucleophilic aromatic substitution



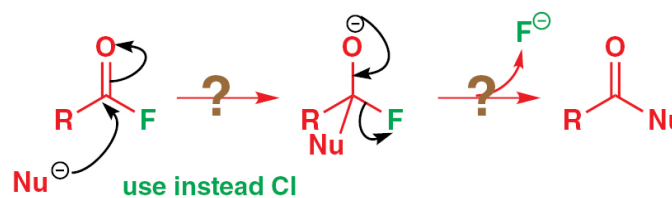
$F \gg Cl \sim Br \gg I$



This reaction is never used:



This reaction is rarely used:





Substituição Nucleofílica Aromática (S_NAr)

Mecanismo de Adição-Eliminação

- O grupo estabilizador, por efeito mesomérico sacador, também é importante.

