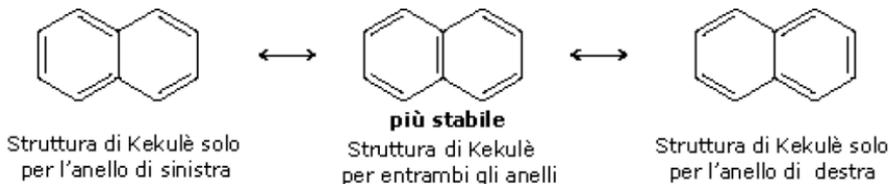


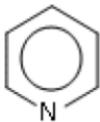
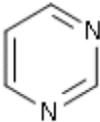
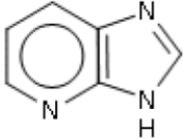
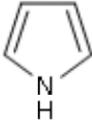
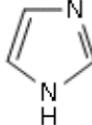
Aromaticità e benzene

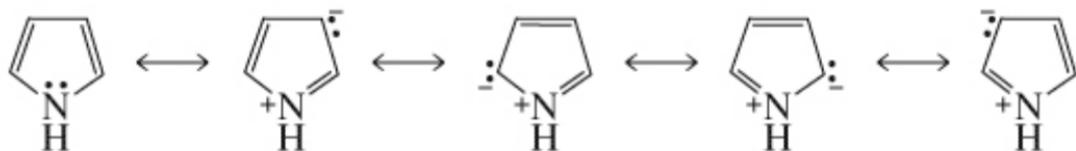
Risonanza del naftalene



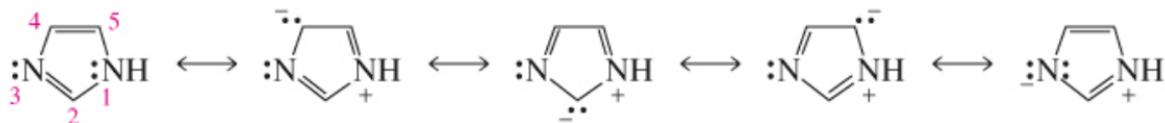
Assegnare il nome ai seguenti composti eterociclici aromatici

Gli areni si definiscono **eterociclici** quando uno o più atomi di carbonio di un anello aromatico sono sostituiti da altri elementi chimici (**eteroatomi**) senza che venga persa l'aromaticità, i più importanti eterociclici aromatici, da un punto di vista biochimico sono:

						
Piridina	Pirimidina	Purina	Pirrolo	Tiofene	Furano	Imidazolo



strutture limite di risonanza del pirrolo

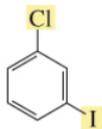


strutture limite di risonanza dell'imidazolo

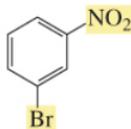


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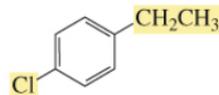
nomenclatura



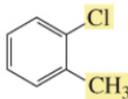
1-cloro-3-iodobenzene
meta-cloroiodobenzene
non
1-iodo-3-clorobenzene o
meta-iodoclorobenzene



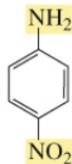
1-bromo-3-nitrobenzene
meta-bromonitrobenzene



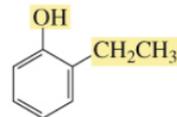
1-cloro-4-etilbenzene
para-cloroetilbenzene



2-clorotoluene
orto-clorotoluene
non
orto-clorometilbenzene

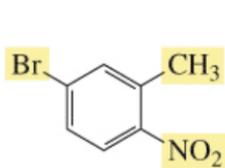


4-nitroanilina
para-nitroanilina
non
para-amminonitrobenzene

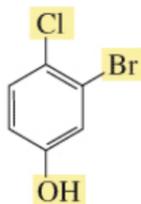


2-etilfenolo
orto-etilfenolo
non
orto-etilidrossibenzene

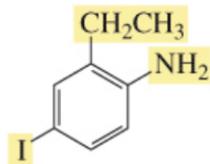
nomenclatura



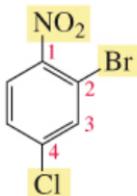
5-bromo-2-nitrotoluene



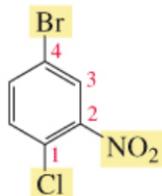
3-bromo-4-clorofenolo



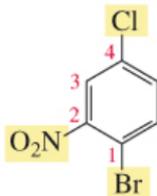
2-etil-4-iodoanilina



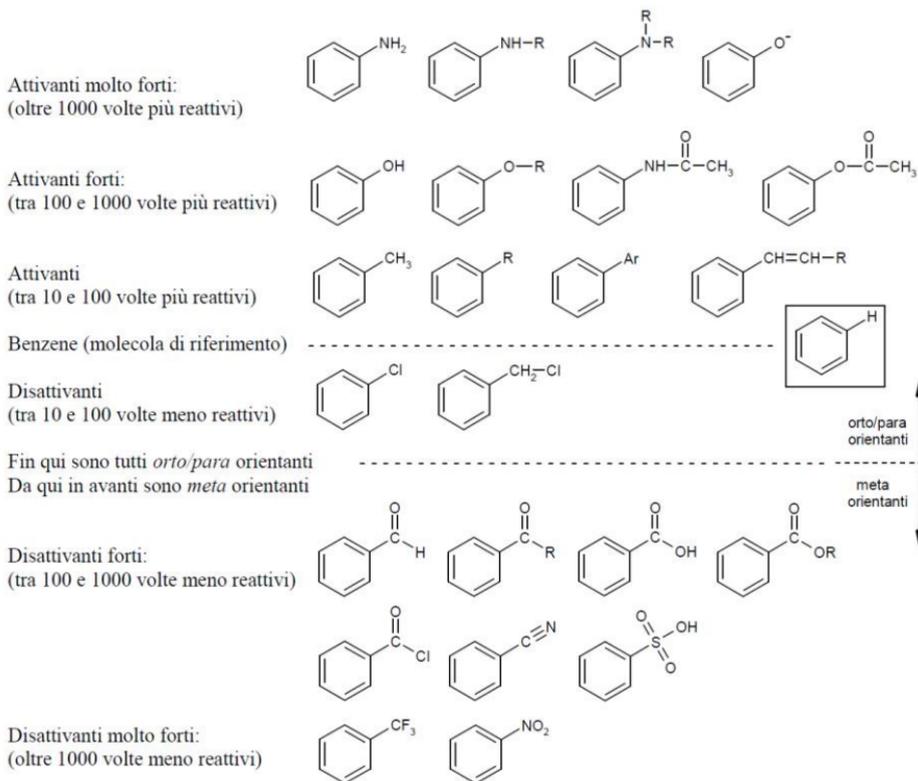
2-bromo-4-cloro-1-nitrobenzene



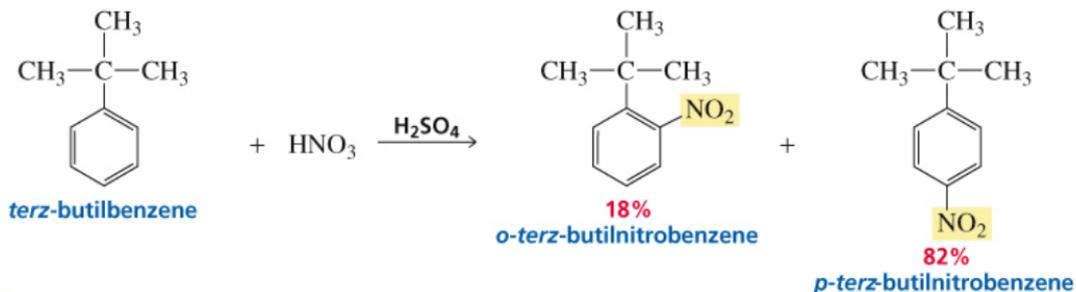
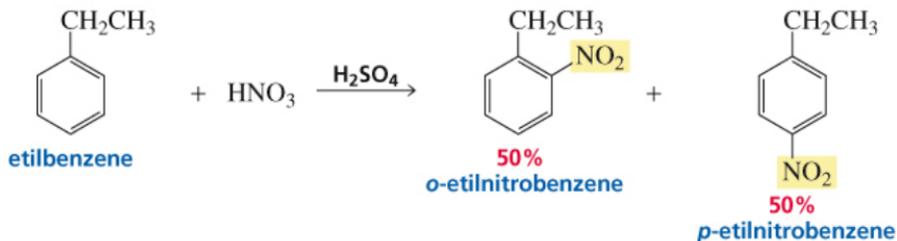
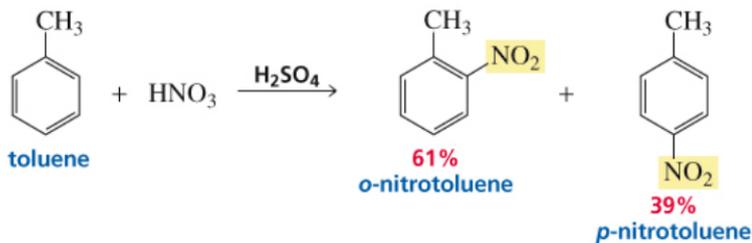
4-bromo-1-cloro-2-nitrobenzene



1-bromo-4-cloro-2-nitrobenzene

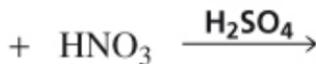
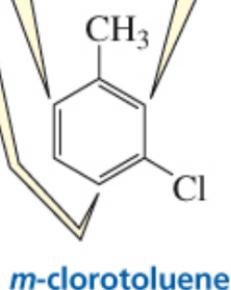


Prodotti delle reazioni di sostituzione elettrofila aromatica

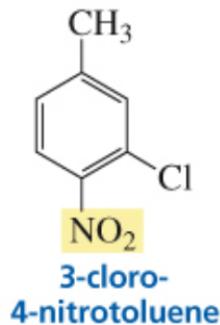


Prodotti delle reazioni di sostituzione elettrofila aromatica

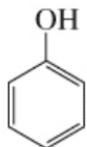
entrambi i sostituenti metile e cloro orientano il gruppo entrante nelle posizioni indicate



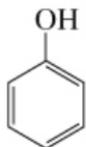
+



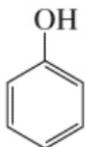
Scala di acidità



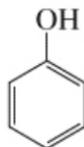
$pK_a = 10.20$



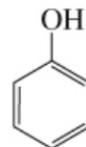
$pK_a = 10.19$



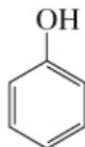
$pK_a = 9.95$
fenolo



$pK_a = 9.38$



$pK_a = 7.66$

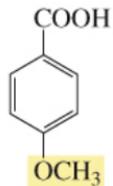


$pK_a = 7.14$

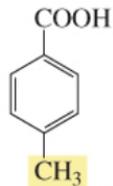


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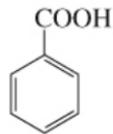
Scala di acidità



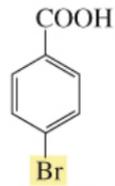
$pK_a = 4.47$



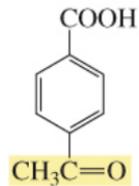
$pK_a = 4.34$



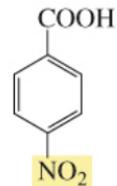
$pK_a = 4.20$



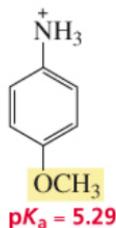
$pK_a = 4.00$



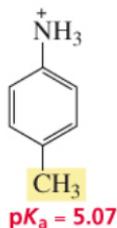
$pK_a = 3.70$



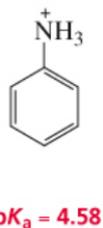
$pK_a = 3.44$



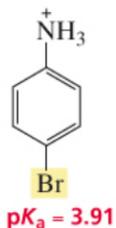
$pK_a = 5.29$



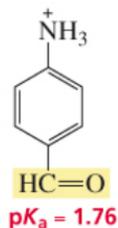
$pK_a = 5.07$



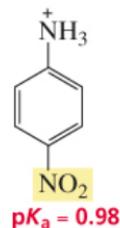
$pK_a = 4.58$



$pK_a = 3.91$



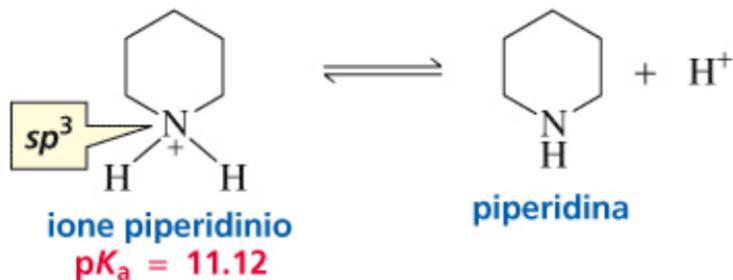
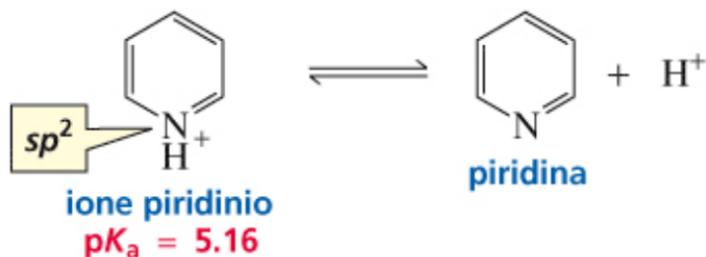
$pK_a = 1.76$



$pK_a = 0.98$

ammine

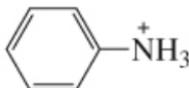
Confronto della basicità delle ammine



Sistemare in una scala di basicità crescente le seguenti specie chimiche:
Propanammina, anilina, ione amiduro,



ione ammonio
 $\text{p}K_a = 10.8$



ione anilinio
 $\text{p}K_a = 4.58$

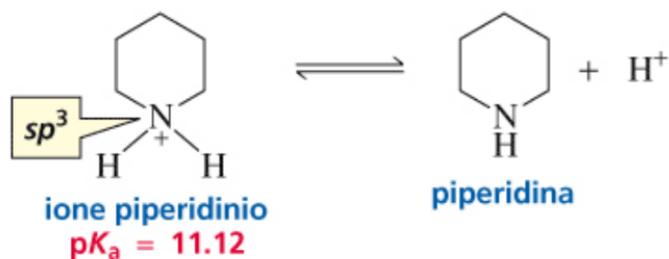
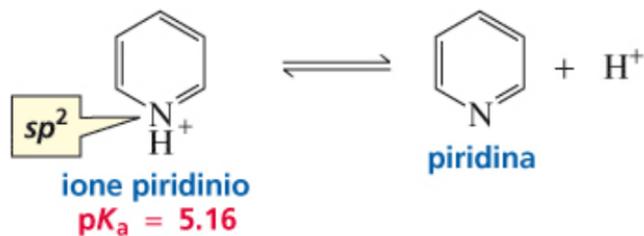


ammina
 $\text{p}K_a = 40$



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Sistemare in una scala di basicità crescente le seguenti specie chimiche:
Piridina, piperidina



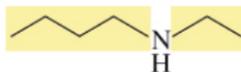
Scrivere la struttura di un'ammina primaria, una secondaria e una terziaria assegnando il nome IUPAC.

Scegliere una delle ammine e descrivere il meccanismo di:

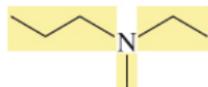
- Una reazione in cui l'ammina funge base
- Una reazione in cui l'ammina funge da nucleofilo



un'ammina primaria
1-pentanamina
pentilammina



un'ammina secondaria
N-etil-1-butanamina
butiletilammina



un'ammina terziaria
N-etil-N-metil-1-propanamina
etilmetil-1-propilammina

nome sistematico:
nome d'uso:

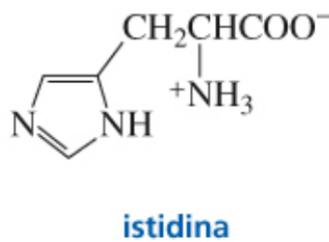
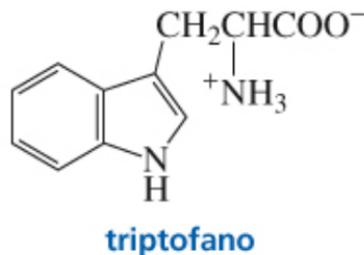
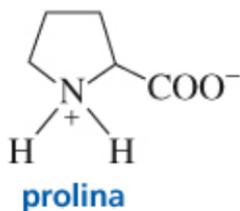
un'ammina è una base



un'ammina è un nucleofilo



Scrivere la struttura prevalente di ciascuna delle molecole sotto riportate in soluzione acquosa a pH 7,4 e a pH 2.



Sintesi dell'anilina

