

تسمية عديدة الحلقات

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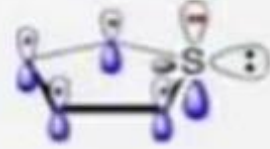
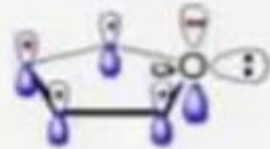
Other 5-membered aromatic heterocycles.



Furan



Thiophene

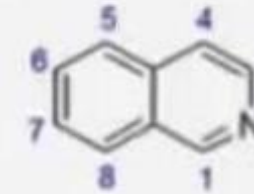
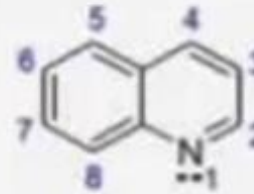
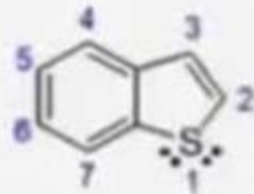
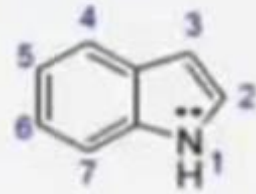
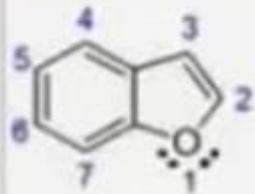


Resonance Stabilization Energies

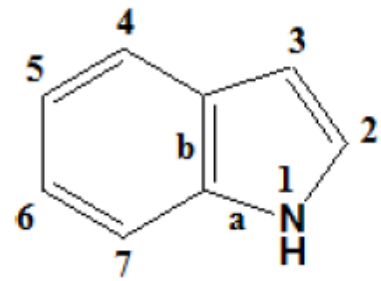
Compound	RSE (kcal/mol)
benzene	
thiophene	
pyridine	
pyrrole	
furan	

Other Important Heterocycles

1. Fused ring systems (bicyclic)

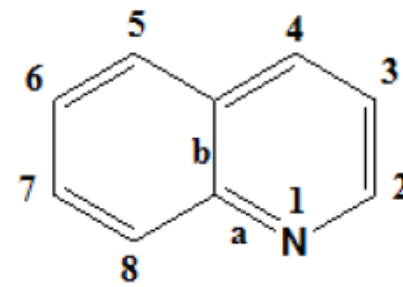


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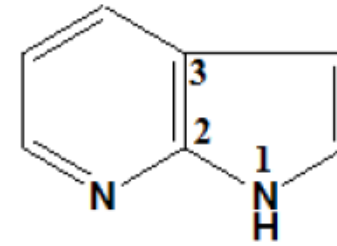
Benzo[1,2-b]pyrrole

1H-indole

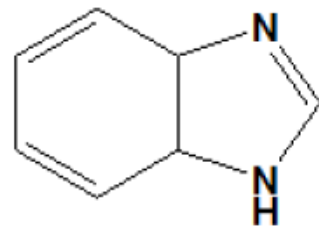


Benzo[1,2-b]pyridine

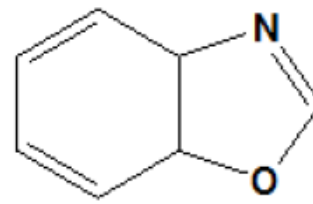
quinoline



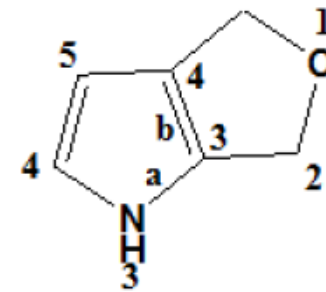
1H-azolo[2,3-b]azine



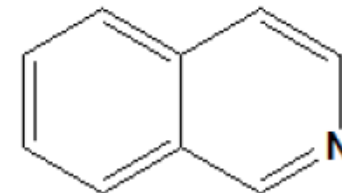
Benzo[1,2-d]-1,3-diazole



Benzo[1,2-d]-1,3-Oxazole

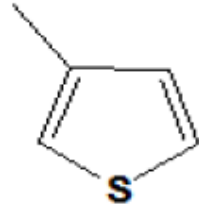


3H-Oxo[3,4-b]azole

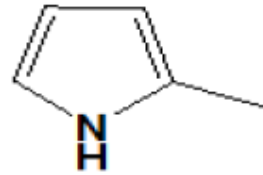


Isoquinoline

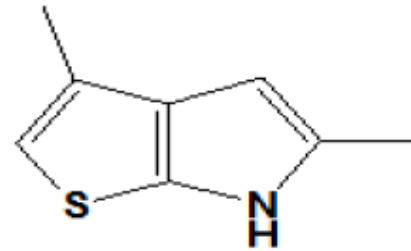
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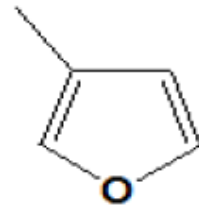
3-Methylthiophene



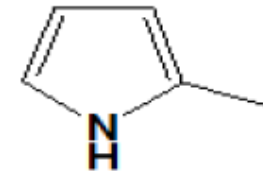
2-Methyl-1H-pyrrole



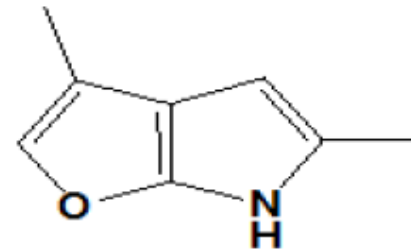
3,5-Dimethyl-6H-thieno[2,3-b]pyrrole



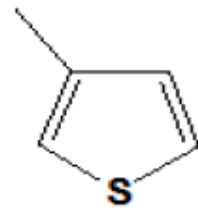
3-Methylfuran



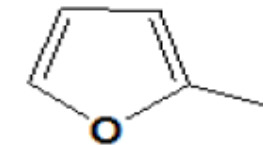
2-Methyl-1H-pyrrole



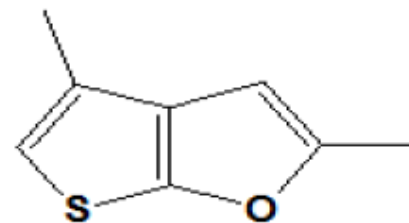
3,5-Dimethyl-6H-furo[2,3-b]pyrrole



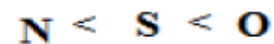
3-Methylthiophene



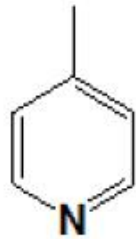
2-Methylfuran



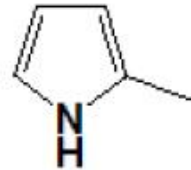
2,4-Dimethylthieno[2,3-b]furan



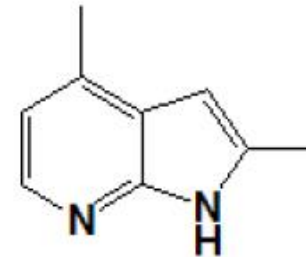
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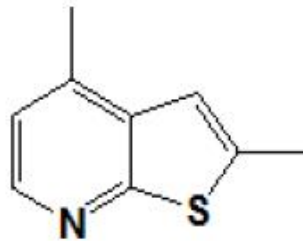
4-Methylpyridine



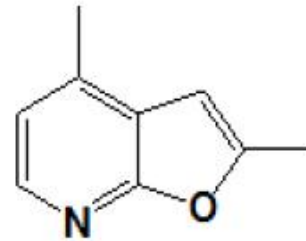
2-Methyl-1*H*-pyrrole



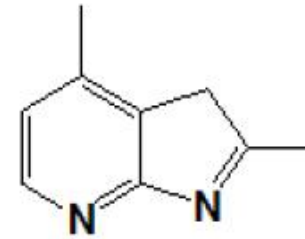
2,4-Dimethyl-1*H*-pyrrolo[2,3-*b*]pyridine



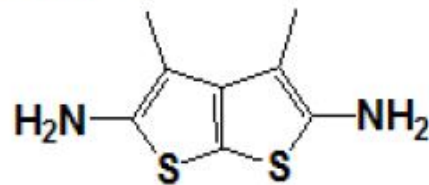
2,4-Dimethylthieno[2,3-*b*]pyridine



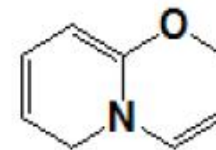
2,4-Dimethylfuro[2,3-*b*]pyridine



2,4-Dimethyl-3*H*-pyrrolo[2,3-*b*]pyridine

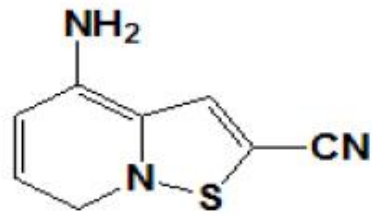


2,5-Diamino-3,4-dimethylthieno[2,3-*b*]thiophene

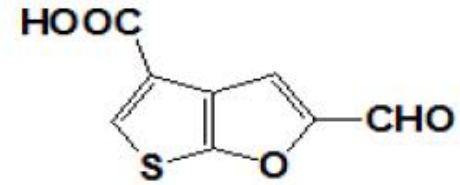


2,6-Dihydropyrido[2,1-*b*][1,3]oxazine

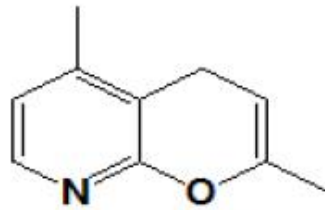
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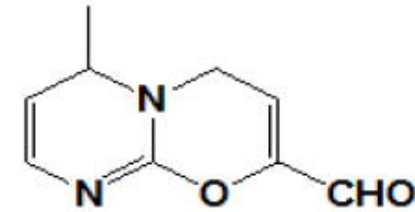
4-Amino-7*H*-isothiazolo[2,3-*a*]
pyridine-2-carbonitrile



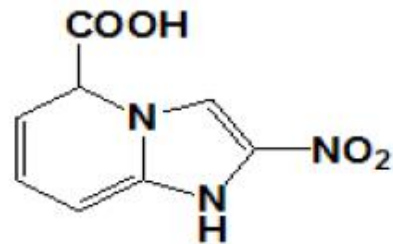
2-Formylthieno[2,3-*b*]
furan-4-carboxylic acid



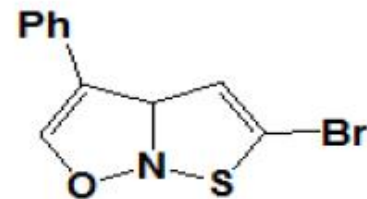
2,5-Dimethyl-4*H*-pyrano[2,3-*b*]pyridine



6-Methyl-4,6-dihydropyrimido
[2,1-*b*][1,3]oxazine-2-carbaldehyde



2-Nitro-1,5-dihydroimidazo[1,2-*a*]
pyridine-5-carboxylic acid



5-Bromo-3-phenyl-3*aH*-isothiazolo
[2,3-*b*]isoxazole

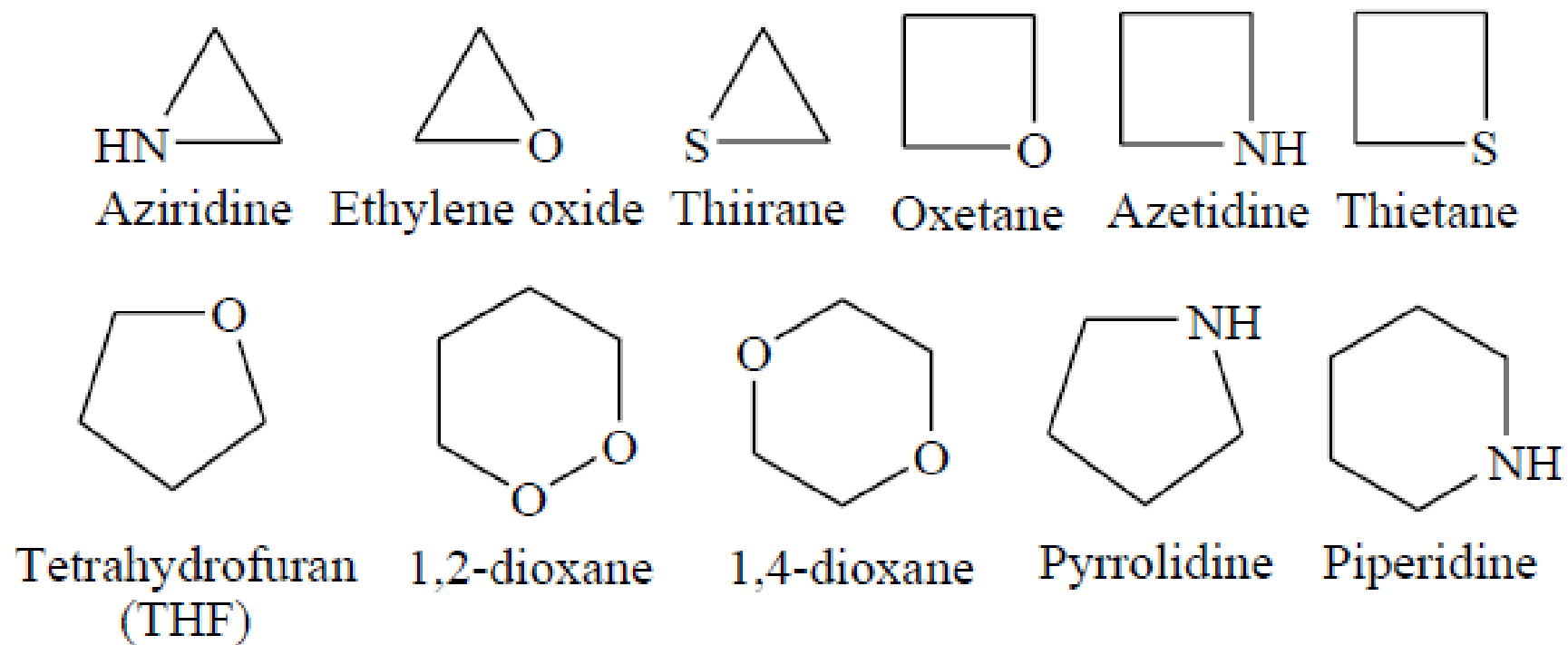


Figure 1. Examples of aliphatic heterocyclic compounds

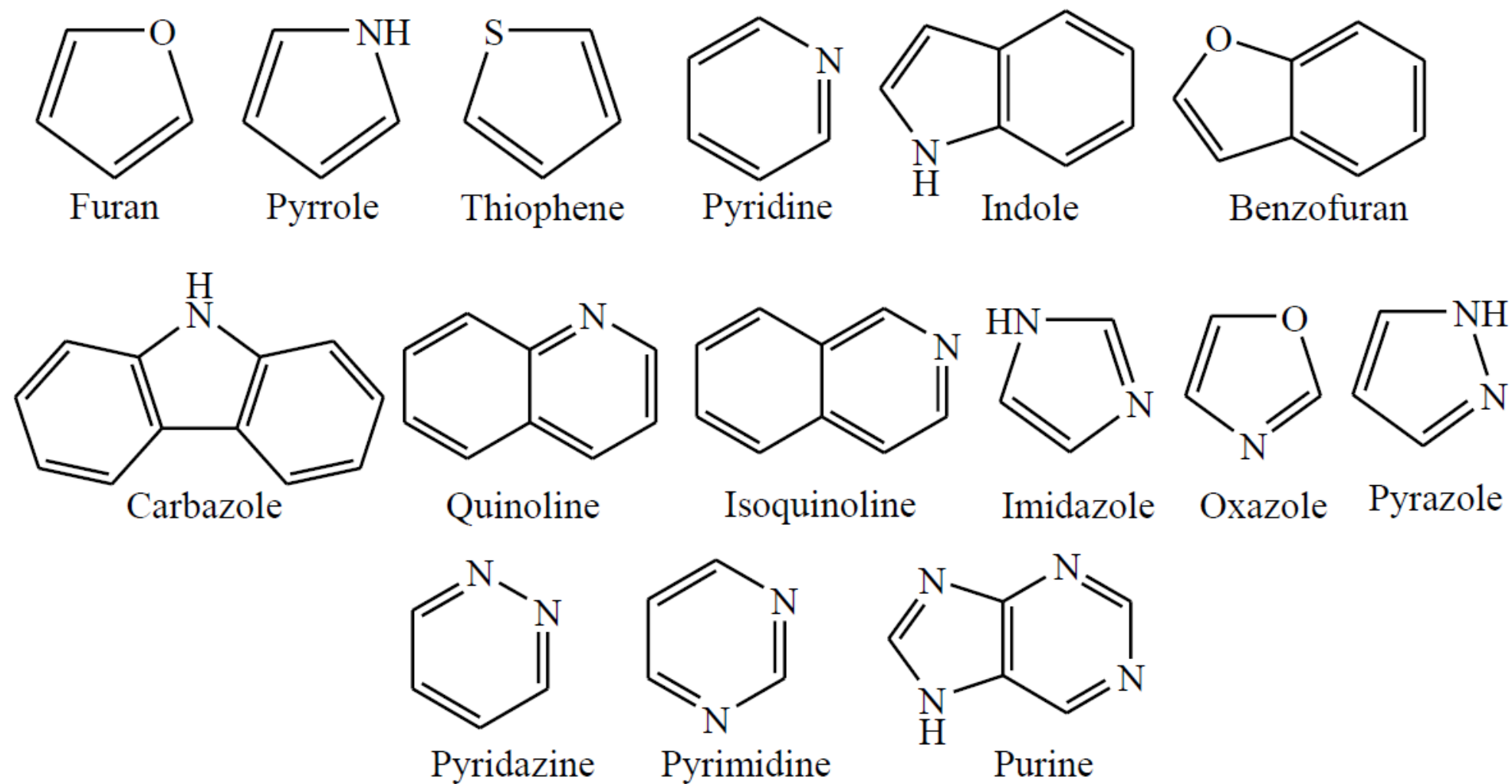


Figure 2. Examples of aromatic heterocyclic compounds

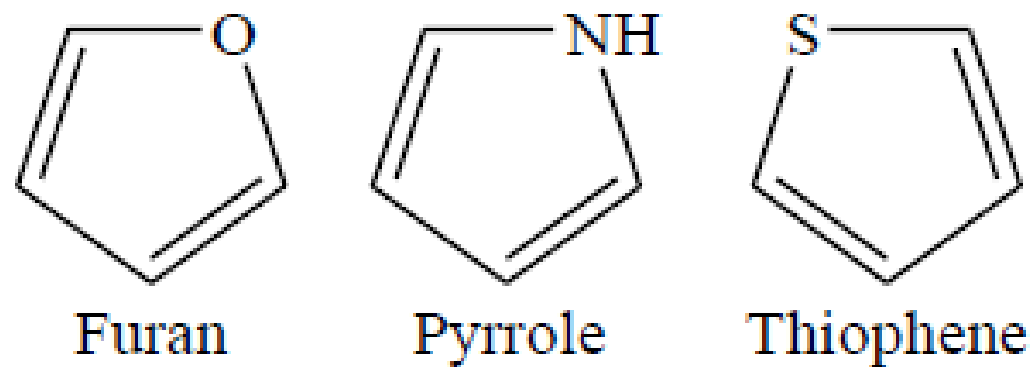


Figure 3. Five member heterocyclic compounds with one hetero atom

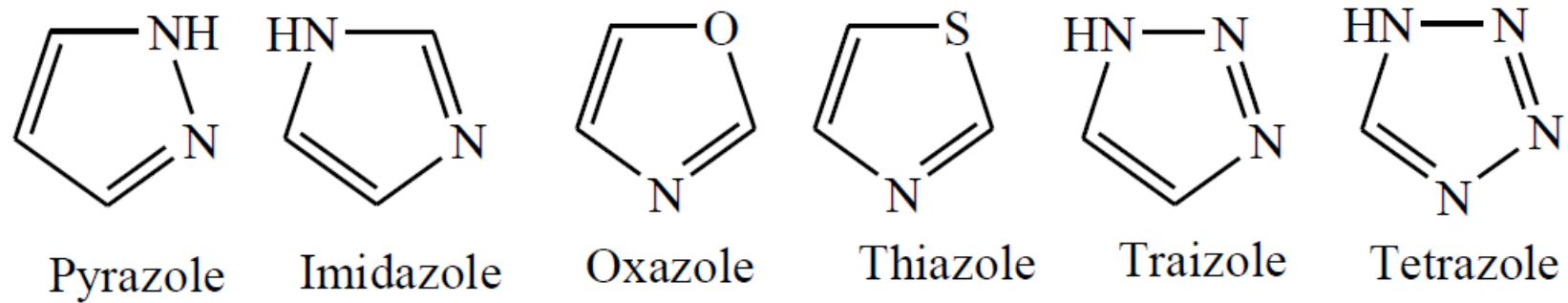
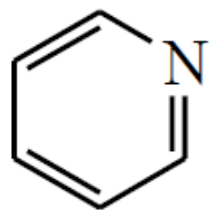
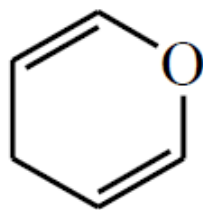


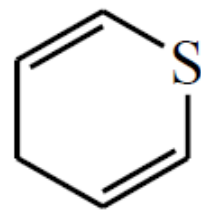
Figure 4. Five member heterocyclic compounds with two hetero atom



pyridine



4H-pyran



4H-thiopyran

Figure 5. Six member heterocyclic compounds with one hetero atom