

## ❖ Aromaticity in Benzenoid and Nonbenzenoid Compounds

In order to understand the aromatic character of benzenoid and non-benzenoid compounds, we need to understand the aromaticity first.

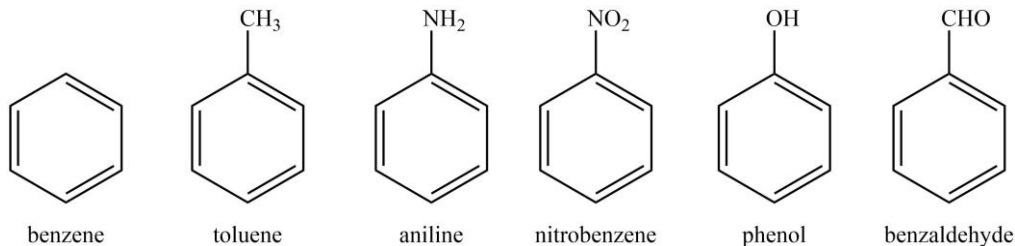
*The phenomenon of aromaticity in organic chemistry may simply be defined as a special property of planar cyclic geometries with a ring of resonating bonds that gives enhanced stability relative to other connective or geometric arrangements with the same atomic set.*

Aromatic compounds are quite stable and don't get fragmented easily to react with other chemical compounds. Organic compounds that don't have aromatic character are categorized as aliphatic compounds, which might be cyclic, but only aromatic rings have low reactivity character. Now because most common aromatic compounds are derived from benzene, the word aromatic generally refers to benzene derivatives. Nonetheless, many non-benzenoids also exist. Alternatively saying, these compounds can mainly be classified into two categories as given below.

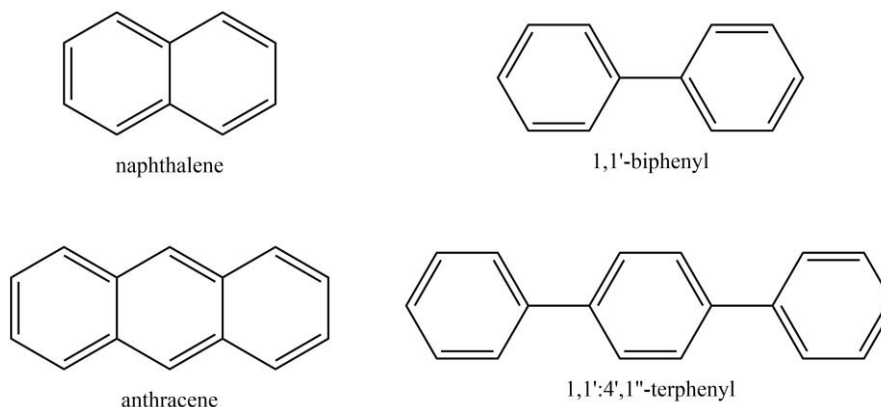
### ➤ Aromaticity in Benzenoid Compounds

Benzenoid aromatic compounds are the organic molecular species either with isolated benzene rings or with multiple benzene rings which fused to form a more complex structure. Therefore, these compounds can further be classified into monocyclic aromatic compounds and polycyclic aromatic compounds.

i) *Monocyclic aromatic compounds:*



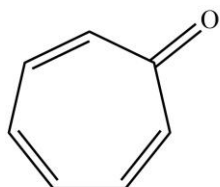
ii) *Polycyclic aromatic compounds:*



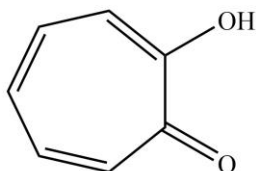
➤ **Aromaticity in Nonbenzenoid Compounds**

Nonbenzenoid aromatic compounds are the organic molecular species either with all carbons in the cycle or with one or more heteroatoms in the rings. Therefore, these compounds can further be classified into homocyclic (carbocyclic) aromatic compounds and heterocyclic aromatic compounds.

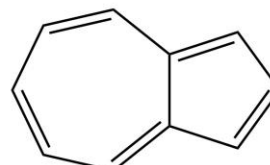
i) *Homocyclic aromatic compounds:*



tropone



tropolone



Azulene



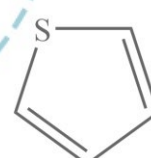
ii) *Heterocyclic aromatic compounds:*



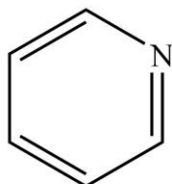
pyrrole



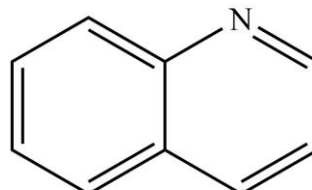
furan



thiophene



pyridine



quinoline

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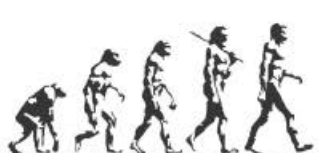
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# A TEXTBOOK OF ORGANIC CHEMISTRY

**Volume I**

**MANDEEP DALAL**



*First Edition*

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*Mandeep Dalal*

*(M.Sc, Ph.D, CSIR UGC – NET JRF, IIT-GATE)*

*Founder & Educator, Dalal Institute*

*E-Mail: dr.mandeep.dalal@gmail.com*

*www.mandeepdalal.com*

Mandeep Dalal is an Indian research scholar who is primarily working in the field of Science and Philosophy. He received his Ph.D in Chemistry from Maharshi Dayanand University, Rohtak, in 2018. He is also the Founder of "Dalal Institute" (India's best coaching centre for academic and competitive chemistry exams), the organization that is committed to revolutionize the field of school-level and higher education in Chemistry across the globe. He has published more than 40 research papers in various international scientific journals, including mostly from Elsevier (USA), IOP (UK), and Springer (Netherlands).

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