Hydrocarbon 1 is called benzyne.

![Hydrocarbon 1](image)

Derivatives of 1 are called benzenes or arynes.

eg:

![Benzyne Derivatives](image)

If each triply bonded carbon atom in a benzyne molecule is sp-hybridized, as is typical of triply bonded carbon atoms, there would be severe angle strain in the molecule. It is more likely that each triply bonded carbon atom in a benzyne molecule is sp\(^2\)-hybridized, in which case two sp\(^2\)-hybridized orbitals that are not parallel to each other overlap laterally to form the pi bond that is not part of the loop of pi electrons (2).

![Benzyne Pi Bond](image)

In either case, the pi bond in a benzyne molecule that is not part of the loop of pi electrons would be very weak, which is consistent with the observation that, despite being aromatic, benzenes are extremely unstable and reactive. If generated in isolation, benzenes undergo rapid dimerization.

eg:

![Benzyne Dimerization](image)

**Mechanism**

**Step 1:**
Step 2:

see also benzyne mechanism

Contributors

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