

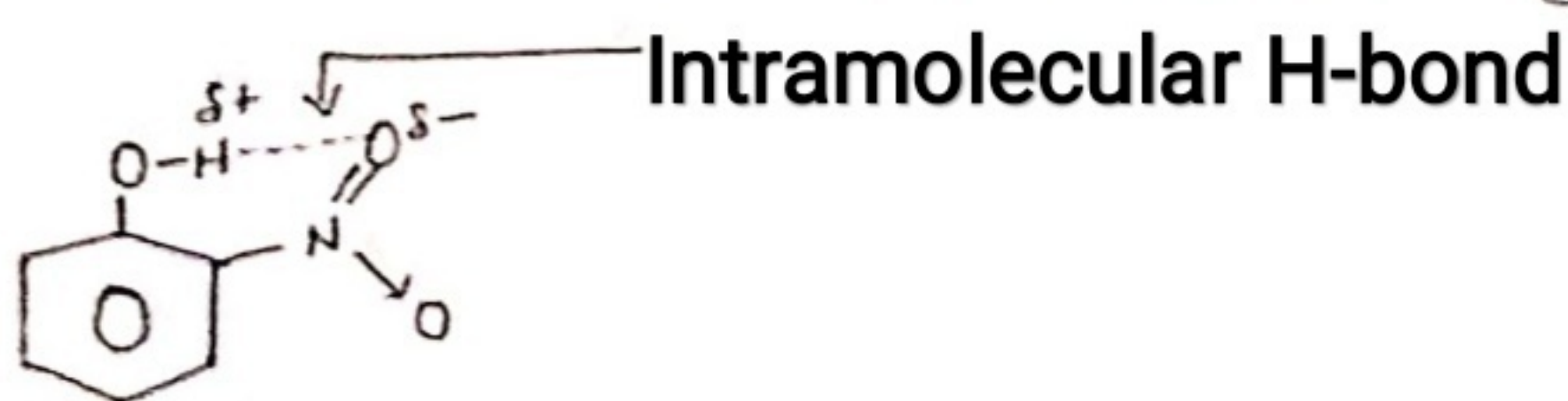
BONDING AND GENERAL CONCEPTS

Topic - H-bonding Continued..

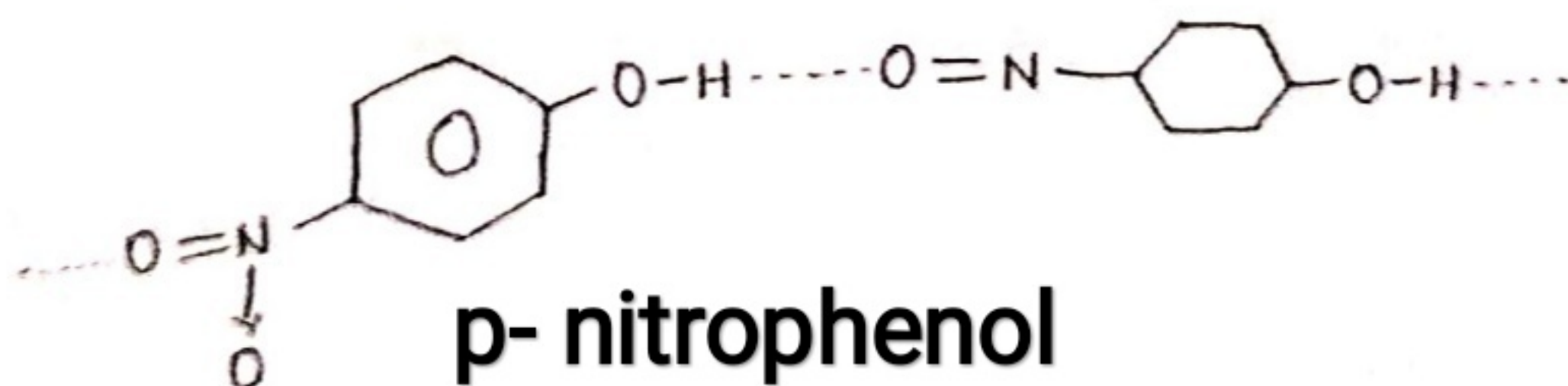
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Such H-bonding occurs between different atom within the same molecule.

This bonding is also called Chelation. It lowers the m.p, b.p and solubility.



Ortho nitrophenol



Intermolecular H-bond

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Effect of Hydrogen Bonding

Although a single hydrogen bond by itself is weak, all the molecules of a substance together form a great many hydrogen bonds.

Effect of H-Bonding on Boiling Point

Boiling points generally increase with higher molecular weight because of increased van-der Waals attractions. However, a hydrogen-bonded compound has a higher boiling point than would be predicted from molecular weight.

eg, $\text{CH}_3-\text{CH}_2-\text{OH}$ (Ethanol) has higher boiling point than methoxy methane ($\text{CH}_3-\text{O}-\text{CH}_3$). Though both have same mol. wt.

* Due to intermolecular H-bonding ethanol is a liquid at room temp. while methoxy methane is gas.

Effect of H-Bonding on Solubility

A compound that can form H-bonds with water tends to be far more soluble in water than a compound that cannot.