

## Benzil-Benzilic Acid Rearrangement

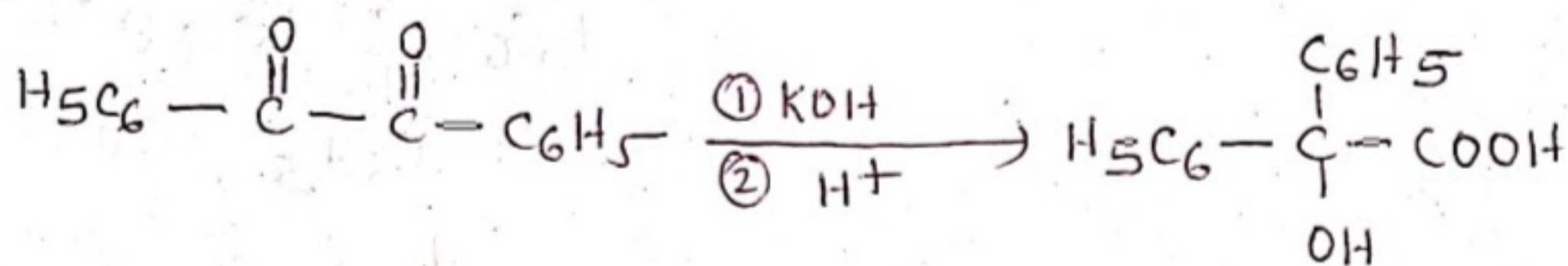
(Lecture-6)

\*  $\alpha$ -diketones (Benzils) on treatment with a base, rearrange to give the salt of  $\alpha$ -hydroxy acids (benzilic acid) and the reaction is known as Benzil Benzilic Acid Rearrangement.

\* Salts of  $\alpha$ -hydroxy carboxylic acid initially formed on acidification yield the hydroxy carboxylic acid.

For example;

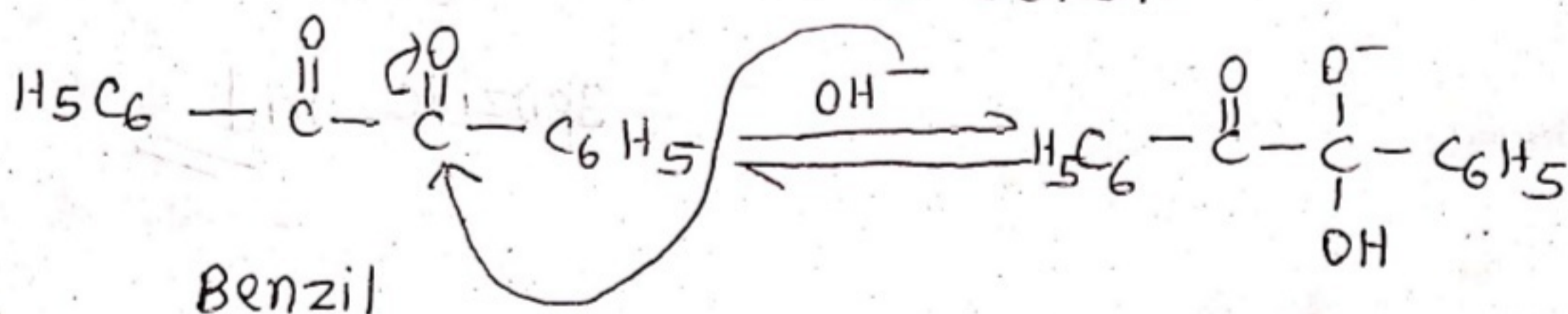
Benzil on treatment with KOH, followed by acidification yield benzilic acid.



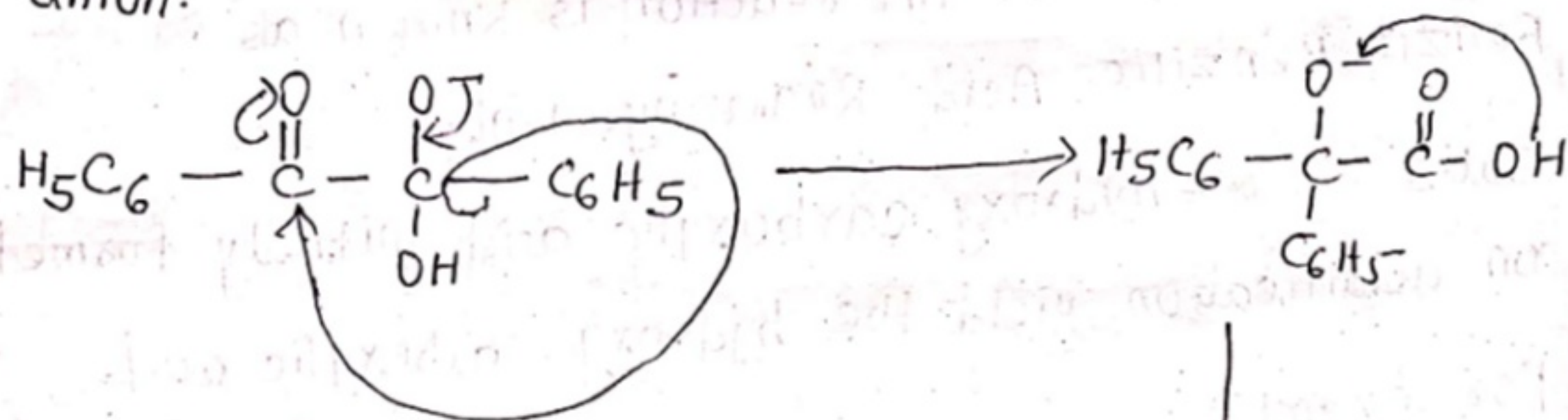
Benzilic Acid

### Mechanism

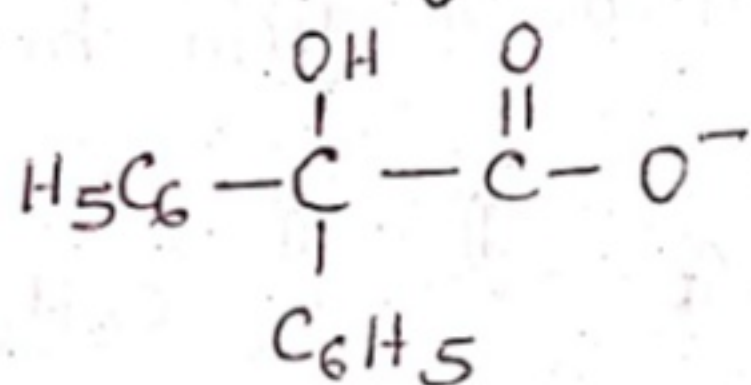
The mechanism of Benzil-benzilic acid rearrangement starts with a reversible nucleophilic addition of hydroxide ion to benzil.



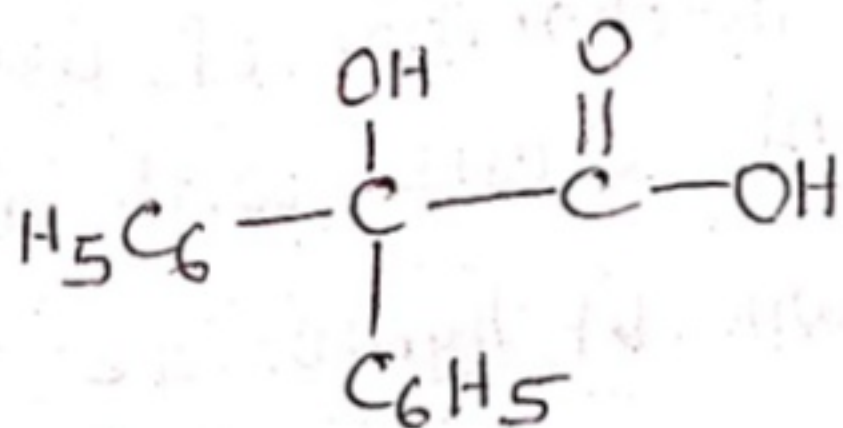
\* The resulting hydrate anion undergoes rearrangement by migration of aryl group, followed by shift of proton to give resonance stabilized carboxylate anion.



Proton shift



H<sup>+</sup>



Benzilic Acid.

**Name Reactions**

**Chapter-5, Paper-IV**

**Group-B(Organic Portion)**

**Degree-II (Hons.)**

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