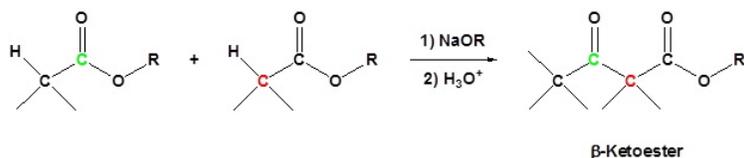


22.5: The Claisen Reaction

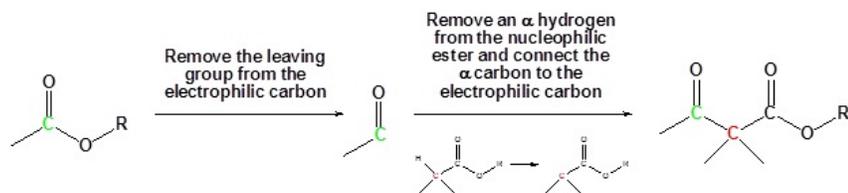
Because esters can contain α hydrogens they can undergo a condensation reaction similar to the aldol reaction called a **Claisen Condensation**. In a fashion similar to the aldol, one ester acts as a nucleophile while a second ester acts as the electrophile. During the reaction a new carbon-carbon bond is formed. The product is a β -keto ester. A major difference with the aldol reaction is the fact that hydroxide cannot be used as a base because it could possibly react with the ester. Instead, an alkoxide version of the alcohol used to synthesize the ester is used to prevent transesterification side products.

Claisen Condensation

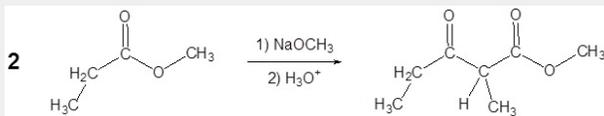
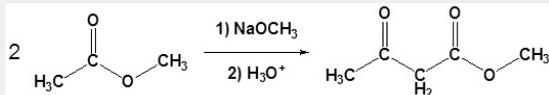
Basic reaction



Going from reactants to products simply



Example 1: Claisen Condensation

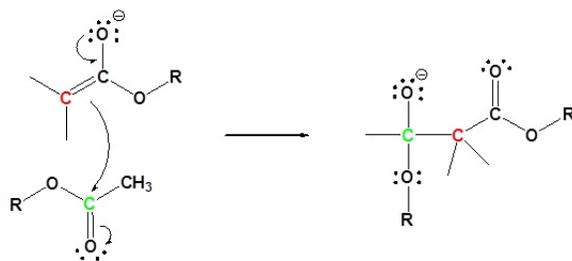


Claisen Condensation Mechanism

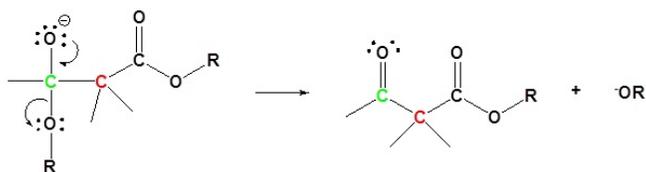
1) Enolate formation



2) Nucleophilic attack



3) Removal of leaving group



Contributor

- Prof. Steven Farmer ([Sonoma State University](#))

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