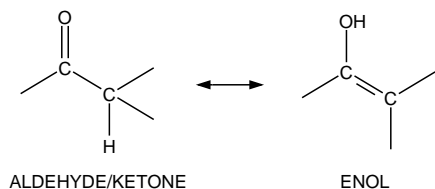
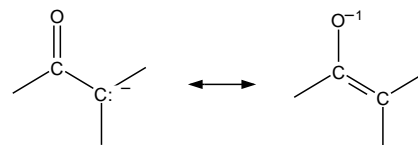


# CHEM 20482 - Basic Organic Chemistry - Chapter 18 Review Enols and Enolates

## Structure of Enol

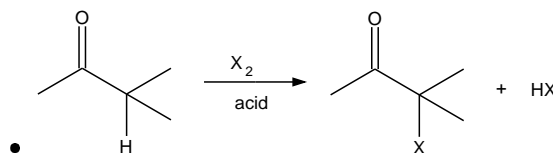


## Enolate Resonance

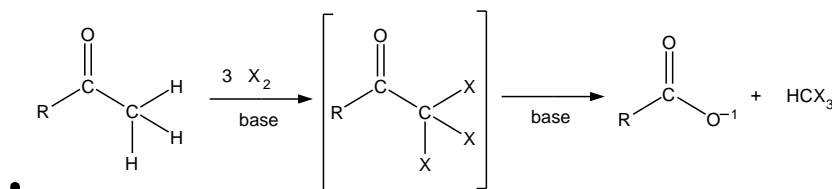


Acidity of  $C_{\alpha}$ -H emphasized.  $pK_a \sim 16-20$ .  $\beta$ -diketones more acidic ( $pK_a \sim 9$ )

## $\alpha$ -Halogenation

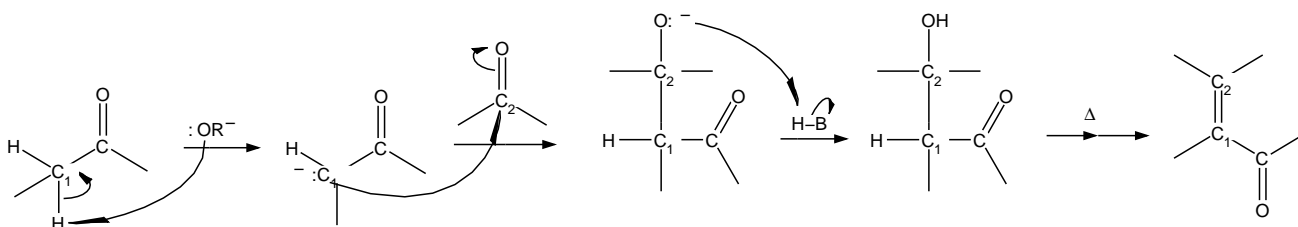
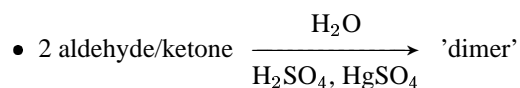


*Know mechanism (p. 758)*



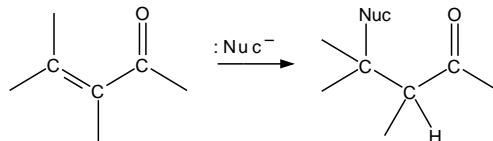
*Reaction with methyl ketone shown*

## Aldol Condensation



- Mixed aldol reactions possible. Best if:

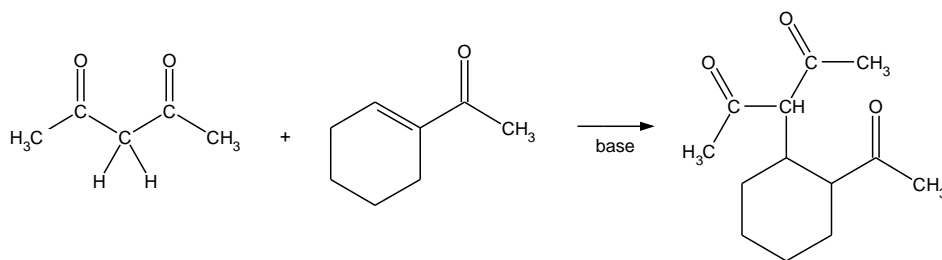
- Only one reactant can form enolate
- One reactant more reactive carbonyl (ex.: aldehyde better than ketone)

**Conjugate Addition**

Reaction with strong nucleophiles (Grignard,  $\text{LiAlH}_4$ , etc.) react directly with carbonyl carbon. Weakly basic, poorer nucleophiles often react in conjugate manner shown above. Examples include  $\text{RS}^-$ ,  $\text{CN}^-$ , and amines.

**Micheal Reaction**

- $\beta$ -diketone +  $\alpha,\beta$ -unsaturated ketone  $\xrightarrow{\text{base}}$  conjugate addition product.



Ex.: