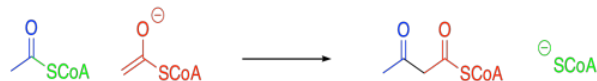


## 10.4: Solutions to Selected Problems

### Exercise 10.2.1:



### Exercise 10.2.2

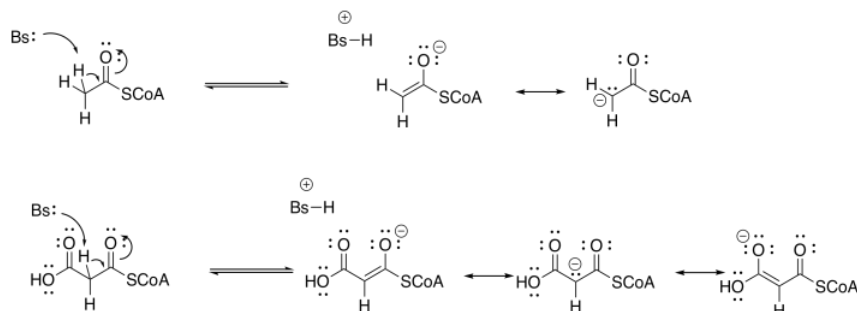
The product becomes conjugated. In general, the more conjugation there is in the product of an aldol addition, the more likely is a subsequent condensation (elimination or dehydration). However, other conditions can lead to the loss of water.

### Exercise 10.2.3:

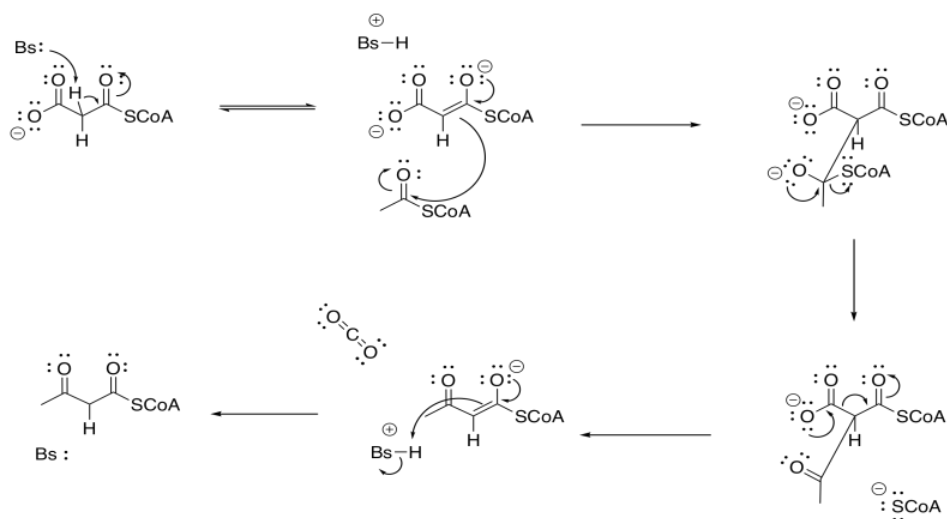
Entropy. The dehydration or elimination takes one molecule (the beta-hydroxy thioester) and converts it into two molecules (the water and the alpha,beta-unsaturated thioester). That change represents an increase in internal entropy. Because the entropy term in free energy is weighted by temperature ( $\Delta G = \Delta H - T\Delta S$ ), it predominates as the temperature rises.

### Exercise 10.3.1:

In the case of the malonyl enolate, there is additional delocalisation as demonstrated by resonance. This anion has extra stability.



### Exercise 10.3.2:



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