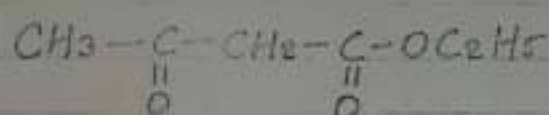


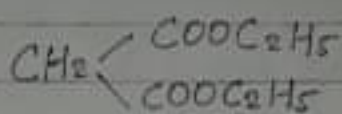
Active Methylene Group

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The class of compounds which contain methylene group $-CH_2-$ directly bonded to two strongly electronegative (electron attracting) group. Such as $C=O$, CN , $COOH$, $COOC_2H_5$ are called Active methylene compounds. $-CH_2-$ group is acidic and reactive. Acetoacetic ester and malonic ester is the example of Active methylene compound.



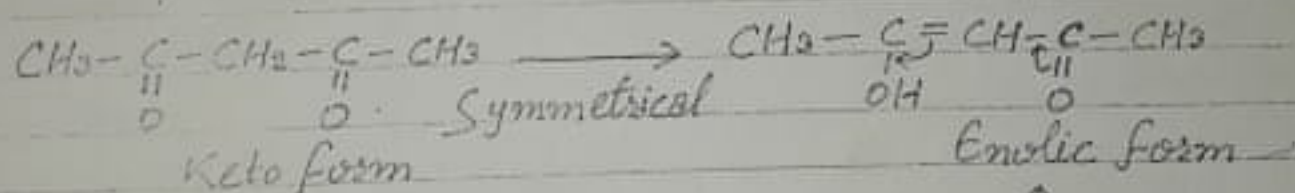
Acetoacetic ester



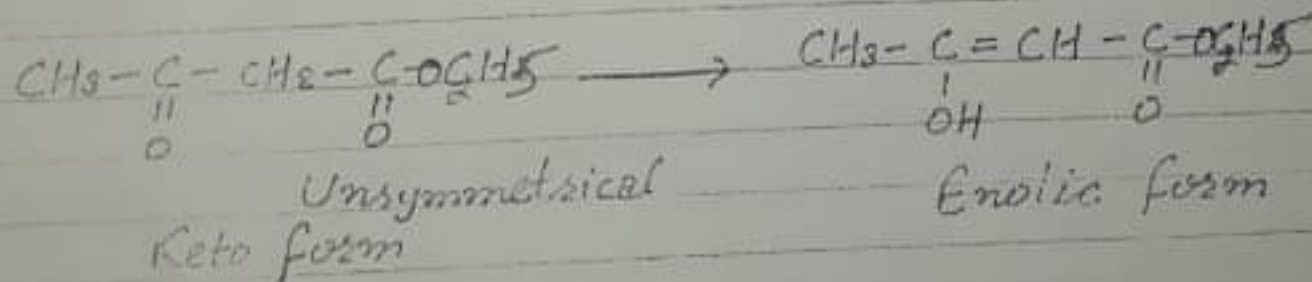
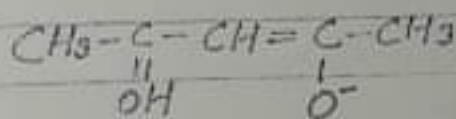
Malonic ester

The H-atom of methylene group called α -H-atom being present on C-atom next to the functional group on other side. Such compounds exist in keto-enol tautomerism.

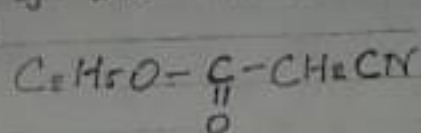
If the compound is symmetrical the H-atom of the methylene group migrates to either of the keto group but if compound is unsymmetrical only one form is present exclusively and the migration of H-atom depends upon the inductive effect of the alkyl or other group present in either side of the $-CH_2-$ group.



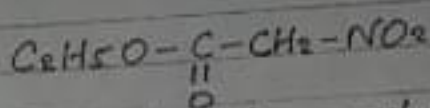
Acetyl acetone



Other of the Active Methylene Compound are given below:



Ethyl cyano acetate
(Cyano acetic ester)



Ethyl nitro acetate
(Nitro acetic ester)

In such compounds H-atom of $-\text{CH}_2$ group can be easily replaced by sodium or potassium. These sodio-derivatives serve the starting point for a number of synthetic product.