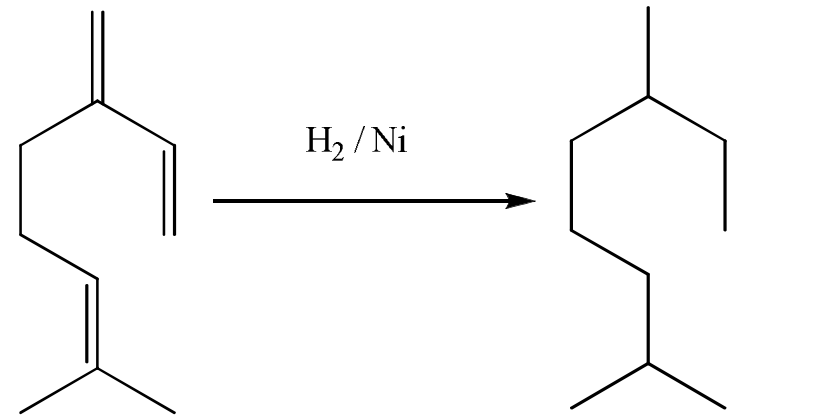
A-Acyclic monoterpenes

1-Myrecene $C_{10}H_{16}$



$C_{10}H_{16}$ $C_{10}H_{22}$ = CnH2n+2

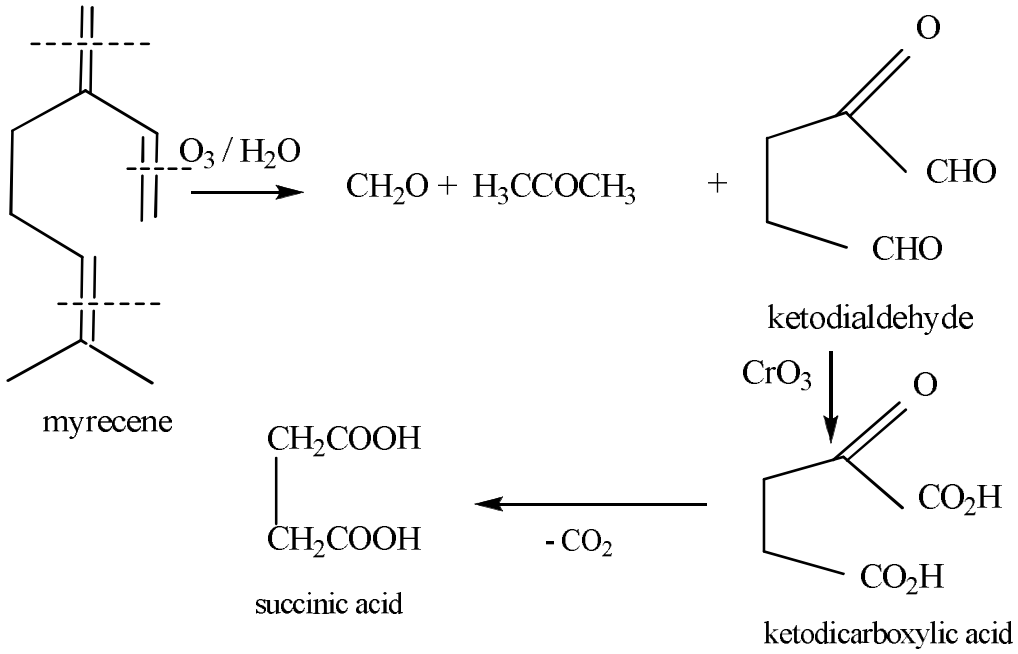
myrecene decane

This means that myrecene reacted with three molecules of hydrogen ,and three molecules of bromine ,thus, myrecene contains *three* double bonds .

The M.F. of decane is C_nH_{2n+2} , means that myrecene is acyclic compound.

Myrecene reacted with one molecule of maleic anhydride to give an adduct , this means that myrecene contain *two* conjugated double bonds , and the *third* is separated.

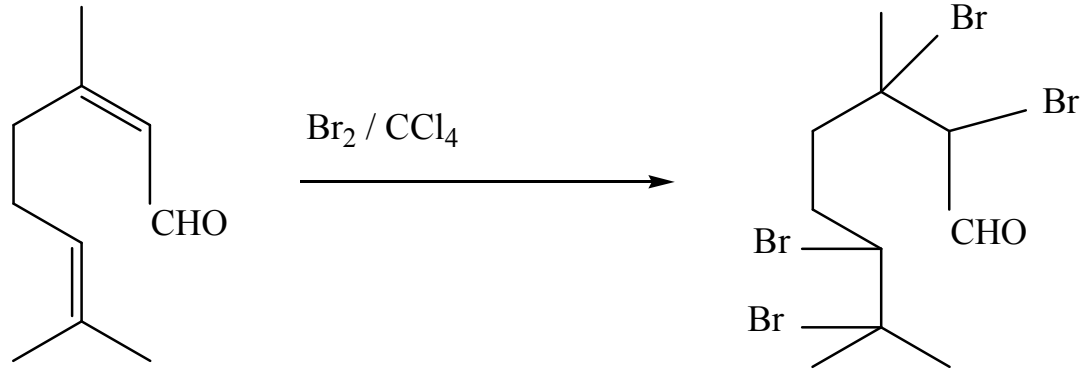
Degradative oxidation is used to indicate position of the *third* double bond .



Thus , myrecene has the above structure .

2- Citral M.F. $C_{10}H_{16}O$

Citral forming tetrabromo derivative on reacting with bromine , thus , citral contains two double bonds .

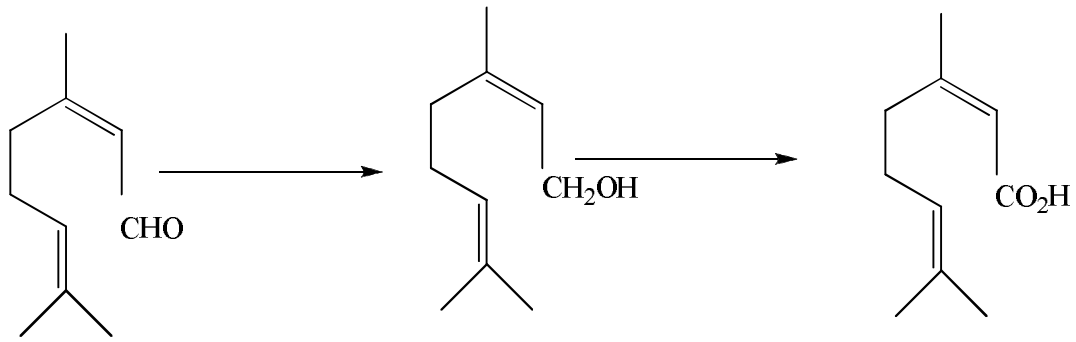


citral tetrabromo derivative

These two double bonds are separated , because citral did not react with maleic anhydride to form an adduct (*no D.A.R.*) .

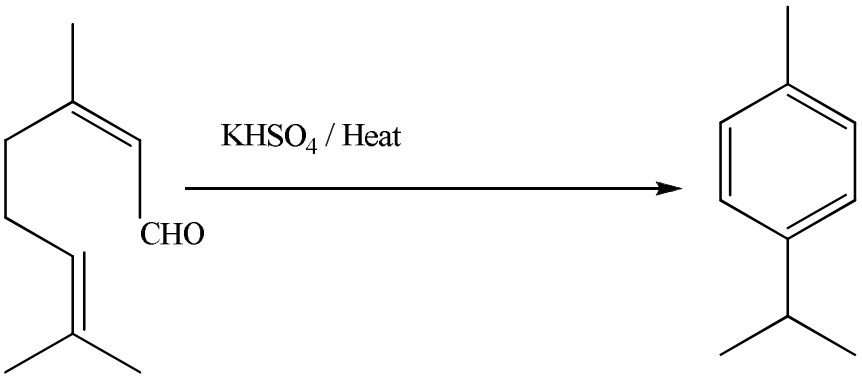
The oxo group of citral may be an aldehyde or ketone since it was condensed with hydrazine or hydroxyl amine to give the hydrazone or an oxime respectively .

Since citral reduced to geraniol (primary alcohol) , then oxidized to geranic acid (mono carboxylic acid) , without loss of carbons during the oxidation process , thus , citral is an aldehyde not ketone .



Citral geraniol geranic acid

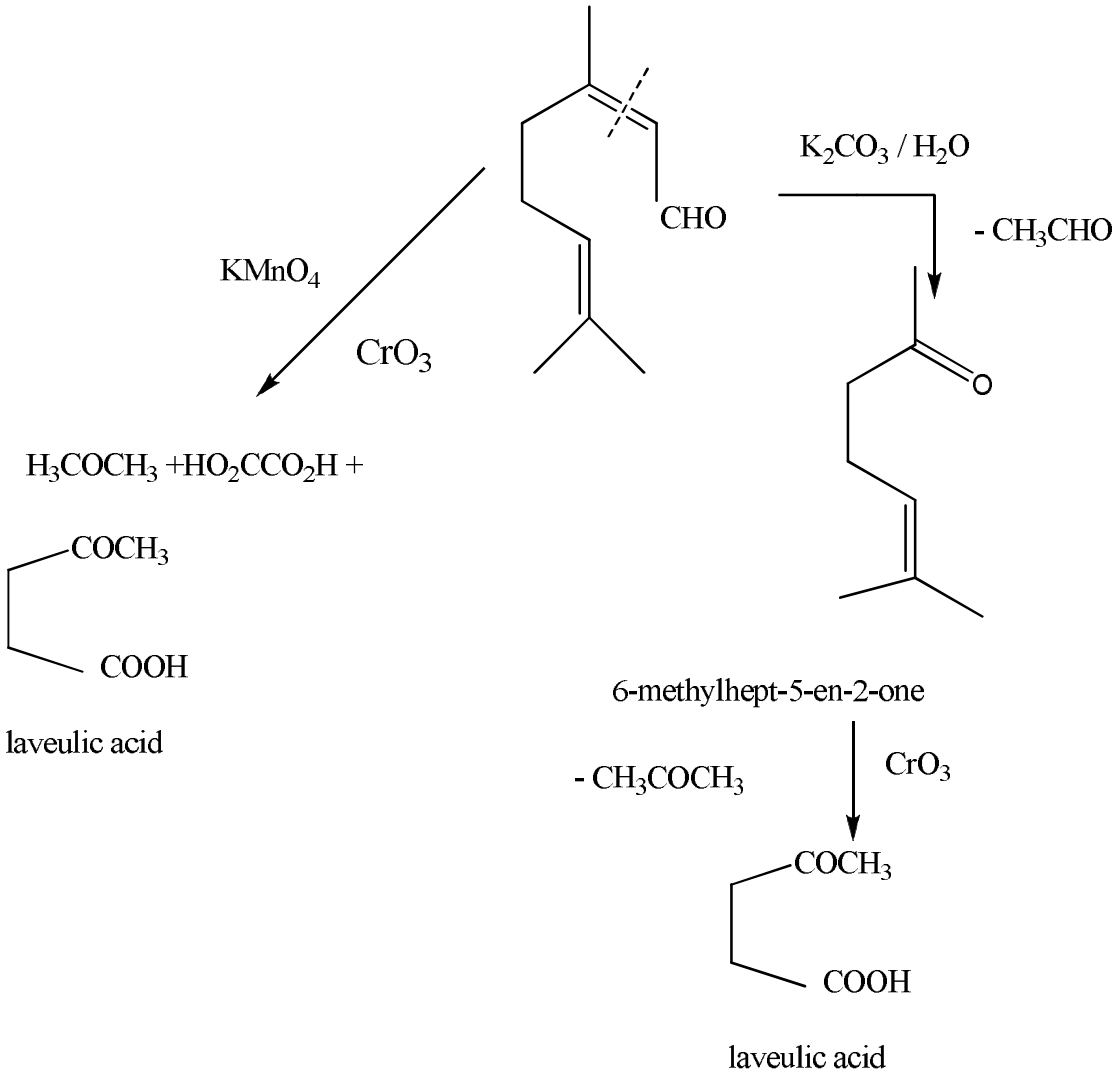
$C_{10}H_{16}O$ $C_{10}H_{18}O$ $C_{10}H_{16}O_2$



citral p-cymene

The above equation indicates that , citral give p-cymene on heating with $KHSO_4$,this means that citral consists of two isoprene units joined together head to tail .Also,indicates position of methyl group with respect to isopropyl group.

Thus ,positions of the formyl group and the double bonds can be indicated by *degradative oxidation* .



Reaction of citral with aqueous potassium to give 6-methylhept-5-en-2-one means that citral is α,β-unsaturated aldehyde .