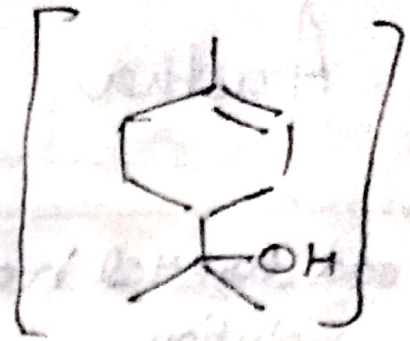


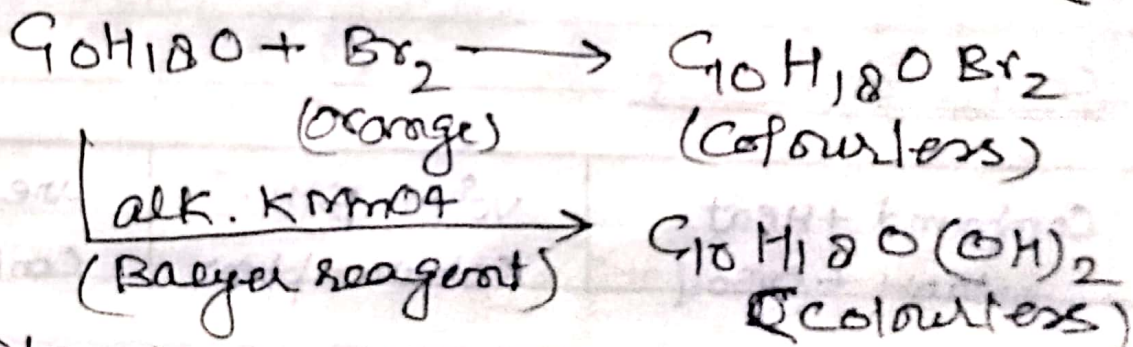
α -Terpineol $C_{10}H_{18}O$



α -Terpineol naturally found in oil of cajeput, oil of petitgreen & oil of camphor. It is an optically active & found in (+), (-) & (\pm) optically forms.

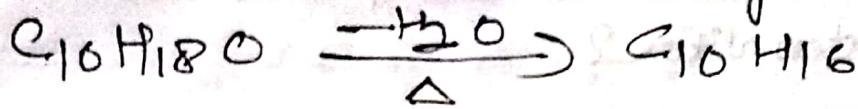
Constitution: (i) The elemental analysis & mol. wt. determination confirms its mol. formula is $C_{10}H_{18}O$.

(ii) It decolourise orange colour of bromine, pink colour of Baeyer reagent which indicate that it contain $>C=C<$ bond.

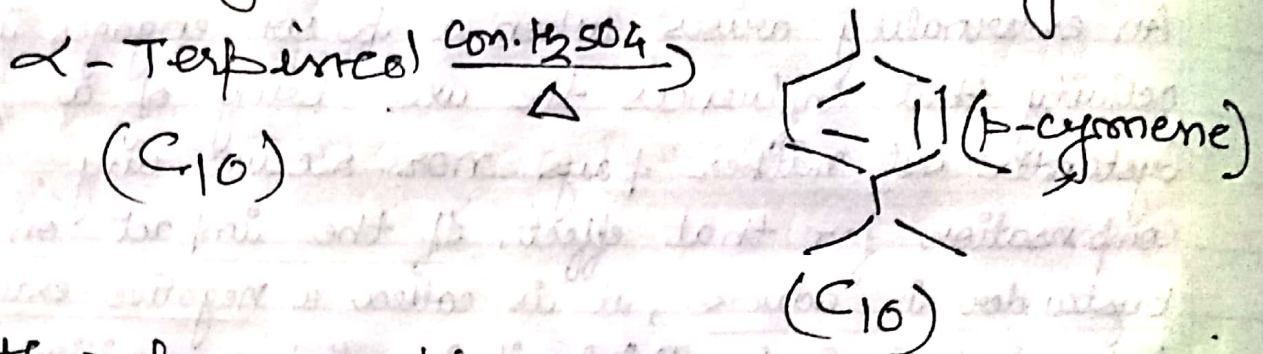


(iii) It gives white ppt. with Lucas reagent at room temp., indicate that it has 3° alcoholic grp. It doesn't dissolve or react with alkali (NaOH/KOH), shows that $-OH$ grp. is not phenolic in nature but alc. It doesn't oxidise easily which shows that $-OH$ grp. may be 3° .

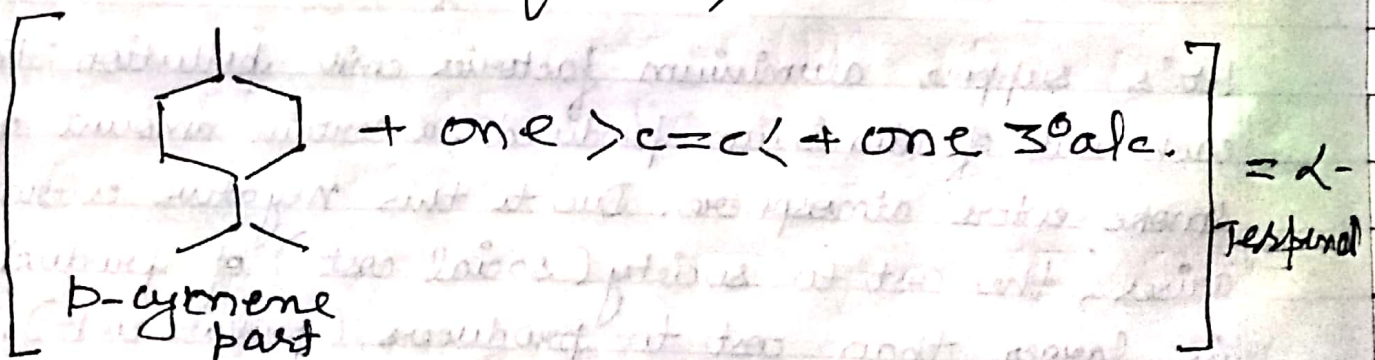
The 3° nature of -OH grp. is evidenced that it readily undergoes dehydration & form terpene having $>C=C<$.



(iv) α -terpineol when heated with conc. H_2SO_4 , it produce β -cymene structure, this shows that it has monocyclic structure containing 10c.



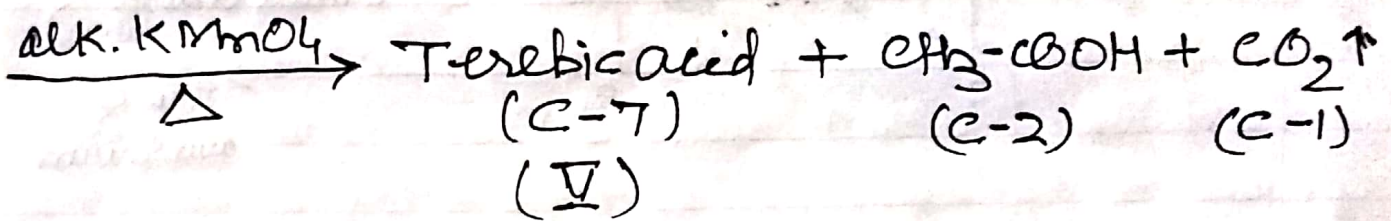
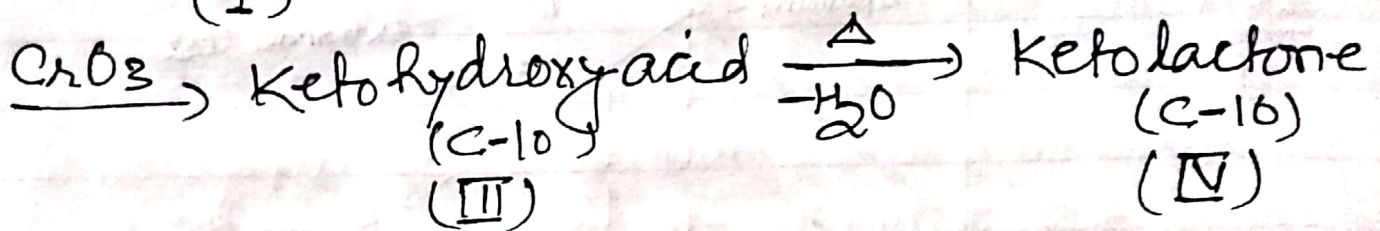
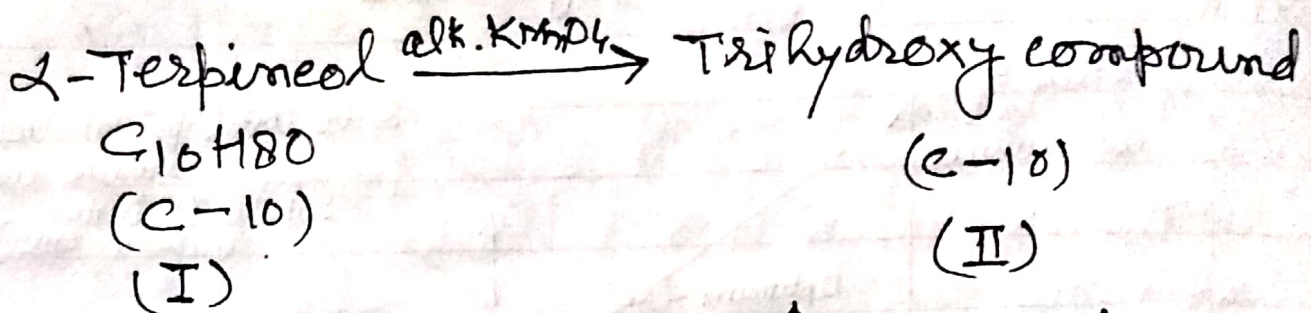
Therefore considering one $>C=C<$ & one 3° alc. & monocyclic structure the framework of α -terpineol can be assumed as follow,



v) Position of $>C=C<$ & 3°-OH grp. :

The position of $C=C$ & -OH grp. have been determined by its gradual \rightarrow

Oxidation involving loss of no. of carbon atoms. The experiment performed by Wallach, as below.



(a) Compound (III) & (IV) form by breaking of glycolic linkage $\left(\begin{array}{c} > \text{C} - \text{C} < \\ | \quad | \\ \text{HO} \quad \text{OH} \end{array} \right)$ of compound (II). It prove that $> \text{C} = \text{C} <$ present in ring structure, since (III) & (IV) does not degrade no. of carbon atoms but having same no. of carbon atoms (C-10).

(b) The formation of (IV) from (III) show that compound (III) is a γ -hydroxy acid which on heating form ketolactone, (IV).

The lactonization of (IV) into (V) is possible only when -OH grp. was cont'd - Next Lect. - - - -