

GERANIOL ($C_{10}H_{18}O$) - 3,7-Dimethyl-2,6-octadien-1-ol.

Geraniol is the alcohol corresponding to geraniol. It is found in the oils of rose (40 to 50%), palmarose (70 to 80%), geranium, eucalyptu, and citronella.

Isolation :- Geraniol is obtained from the cheap oil of palmarosa. The oil is treated with anhydrous calcium chloride with which geraniol forms a crystalline addition product. This crystalline addition product is then decomposed with water to give pure geraniol.

Structure of Geraniol :-

The structure of Geraniol has been deduced as follows -

1. Elemental analysis and molecular weight determination show that the molecular formula of geraniol is $C_{10}H_{18}O$.
2. Geraniol reacts with bromine (2 molecules) to form the tetrabromo derivatives (2,3,6,7-tetrabromo-3,7-dimethyl-1-octene). This indicates the presence of two carbon-carbon double bonds in the geraniol molecule.
3. Geraniol does not form oxime with hydroxylamine. This indicates the absence of aldehyde ($-CHO$) or ketone ($-CO-$) group.
4. Geraniol can be obtained by the reduction of citral-a (geraniol) with sodium amalgam or ethyl or isopropyl alcohol in the presence of an aluminium alkoxide catalyst (Meerwein-Ponndorf-Verley reduction). Geraniol also undergoes oxidation to give citral-a. These reactions indicate the presence of primary alcohol group in geraniol and its relationship with citral-a.

The above facts clearly show that geraniol has the following structure. In structure of geraniol methyl and the $-CH_2OH$ group are cis to each other.



