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Steroids

Steroids and Hormones

1. Gestagenic Hormes → Progesterone.

Ans:→ progesterone:→ It is one of the most important members of gestrones.

Constitution

(i) Molecular formula of progesterone is $C_{21}H_{30}O_2$.

(ii) presence of two ketonic group:→ It forms dioxime with hydroxylamine.

(iii) presence of 3-double bond:→ When Catalytically reduced. it takes up three molecules of hydrogen forming diol showing the presence of one double bond because two hydrogen molecules are utilized in the formation of two-CHOH groups. Thus the parent hydrocarbon of progesterone is $C_{21}H_{34}$ which corresponds to the general formula ($C_{n}H_{2n-6}$) for tetracyclic Compounds.

(iv) presence of Steroid nucleus:→ X-ray analysis shows the presence of Steroid nucleus

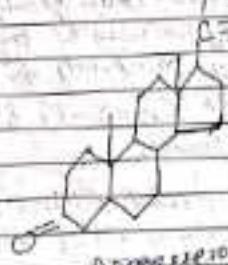
which is further confirmed by its synthesis from Cholesterol and Stigmasterol.

VI presence of an α,β-unsaturated ketonic group: ∴ The progesterone is very sensitive to Baeyer's indicating the presence of α,β-unsaturated ketonic group.

VII presence of $CH_3-\overset{O}{\overset{\|}{C}}-$ group: ∴ When progesterone is heated with any halogen and then it give haloform i.e it undergoes haloform reaction. This reaction indicates that progesterone containing

$CH_3-\overset{O}{\overset{\|}{C}}-$ group.

On the basis of above discussion the structure of progesterone is written as:-



progesterone.