

MBOTCC-6  
Unit - V

M.Sc. Sem-II  
(2018-20)

## DOUBLE FERTILIZATION

(Short Answer type)

(i) Fertilization or syngamy (= Amphimixis) involves the fusion of opposite sex ( $\sigma$  and  $\rho$ ) cells or gametes. Normally one male gamete fuses with the egg ( $\rho$  gamete) during fertilization process in all plant groups except the angiosperms.

(ii) Angiospermic fertilization is unique in the whole plant kingdom as two male gametes fuse with two different nuclei (including one  $\rho$  gamete) in the process.

(iii) Two male gametes carried inside the growing pollen tube are released into the embryo sac. The pollen tube penetrates the nucellus and reaches the embryo sac either through the micropyle (paragametic) or through the chalaza (Chalazogamic) or by piercing the integuments (mesogamic).

(iv) Ultimately the tip of the pollen tube bursts and both the male gametes are discharged.

(v) One of the two male gametes fuses with the egg ( $\rho$  gamete) lying in the middle of the egg apparatus. This is the first act of gametic union which represents actual event of fertilization and forms the Zygote.

(vi) The second male gamete fuses with the two polar nuclei (both haploid) or their fusion product called secondary fusion nucleus (diploid) resulting in the formation of a triploid primary endosperm nucleus. This is called diffuse involvement fusion.

(vii) The above act of fusion of two male gametes in the process of angiospermic fertilization was first observed by Nawaschin (1898) in Lilium and Fritillaria species, and came to be known as double fertilization.

(viii) Now it is well established that double fertilization is a regular feature of angiosperms. This kind of uniqueness in fertilization.

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