

Dr. Priyanka Srivastava (Theory)

***Gnetum*: Reproduction (continued.....)**

Pollination:

Gnetum is wind-pollinated. The pollen grains are dispersed from the anther and remain suspended in the air for some time. Wind helps in carrying the pollen grains up to the micropylar tube of the ovule. The micropylar tube secretes a pollination drop of fluid in which certain pollen grains get entangled and reach up to the pollen chamber. The nucellus cells below the pollen chamber are full of starch. Due to the drying off of the fluid, the pollen grains are sucked into the micropylar canal and are finally collected in the pollen chamber. The mouth of the micropyle is then sealed from the outer environment due to the development of flage (a circular rim or an umbrella-shaped structure develops from the inner integument) and micropylar closing tissue (a tissue develops by the proliferation of the inner epidermis of integument at the level of flage).

Fertilization:

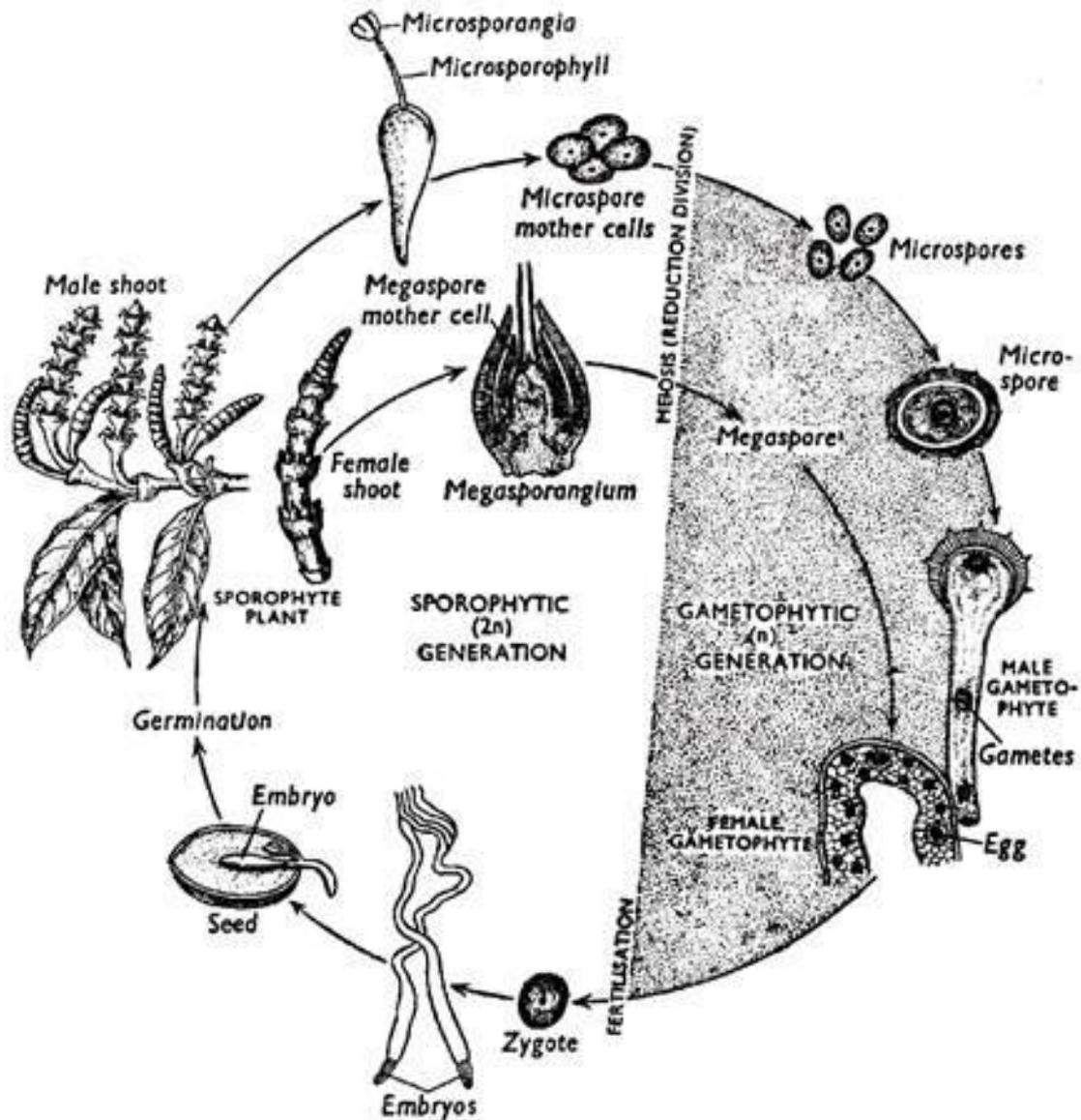
At the time of fertilization, the pollen tube pierces through the membrane of the female gametophyte just near to a group of densely cytoplasmic cells. The tip of pollen tube bursts and the male cells are released. One of the male cells enters the egg cell.

The male and female nuclei, after lying side by side for some time, fuse with each other and form the zygote. According to Swamy (1973), the only identifying features of the zygote are its spherical shape and dense cytoplasm. Both the male cells of a pollen tube may remain functional if two eggs are present close to the pollen tube.

Endosperm:

In all gymnosperms, except *Gnetum*, a cellular endosperm develops before fertilization. In *Gnetum*, the cell formation, although starts before fertilization, a part of the gametophyte remains free-nuclear at the time of fertilization. After fertilisation, the wall formation starts in

plumule. A persistent feeder is present up to a very late stage in the seed.



Gnetum: Life cycle

Reference:

<http://www.biologydiscussion.com/essay/gymnosperms/essay-on-the-life-cycle-of-gnetum-class-gnetopsida-gymnosperms-botany/76855>