

Dr. Priyanka Srivastava (Theory)

Gnetum: Reproduction

Gnetum is dioecious and the reproductive structures are organised into cones or strobili. These cones are organised into inflorescences, generally of panicle type. Sometimes the cones are terminal in position.

A cone consists of a cone axis, at the base of which are present two opposite and connate bracts. Nodes and internodes are present in the cone axis. Whorls of circular bracts are present on the nodes. These are arranged one above the other to form cupulas or collars. Flowers are present in these collars. Upper few collars may be reduced and are sterile in nature.

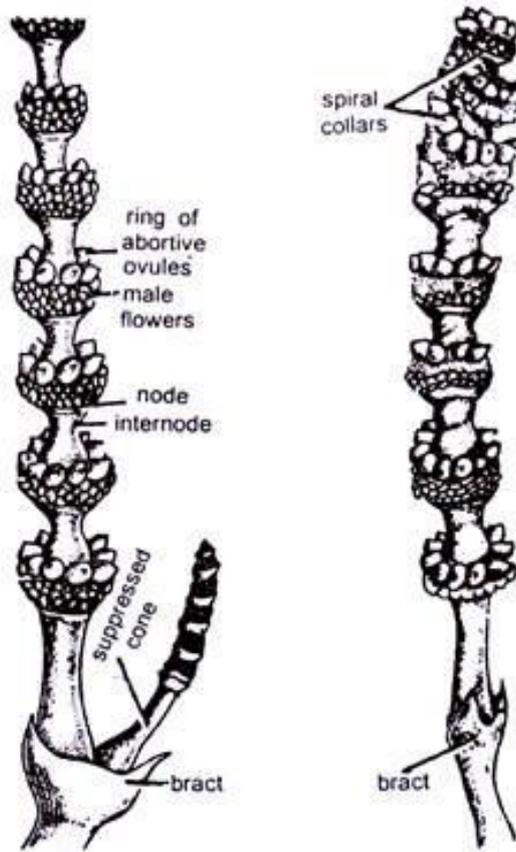
Male Strobilus and Male Flower:

Male strobilus is a compound structure. The male flowers are arranged in definite rings above each collar (bracts) on the nodes of the axis of male cone. The number of rings varies between 3-6. The male flowers in the rings are arranged alternately. 12-25 male flowers are arranged in 3-6 rings above each collar. There is a ring of abortive ovules or imperfect female flowers just above the rings of male flowers



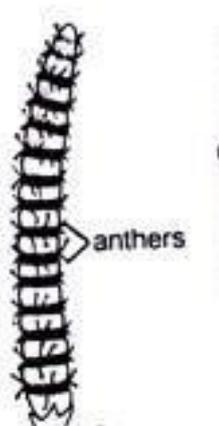
Male strobilus

Gnetum: Flowering branch with male strobili

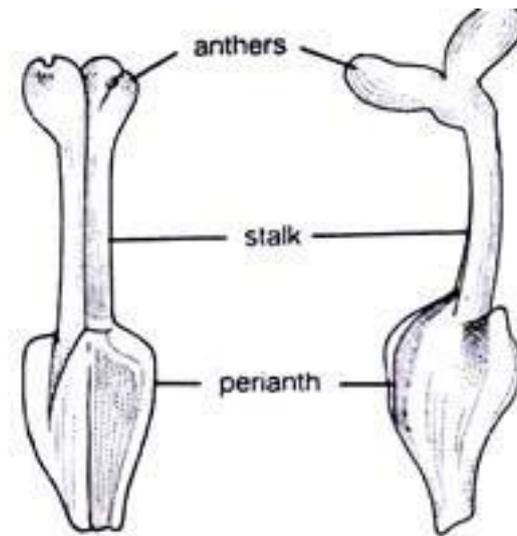


Gnetum: Flowering branch with male cone

Each **male flower** contains two coherent bracts which form the perianth. Two unilocular anthers remain attached on a short stalk enclosed within the perianth. At maturity, when the anthers are ready for dehiscence, the stalk elongates and the anthers come out of the perianth sheath.



Gnetum: A male cone



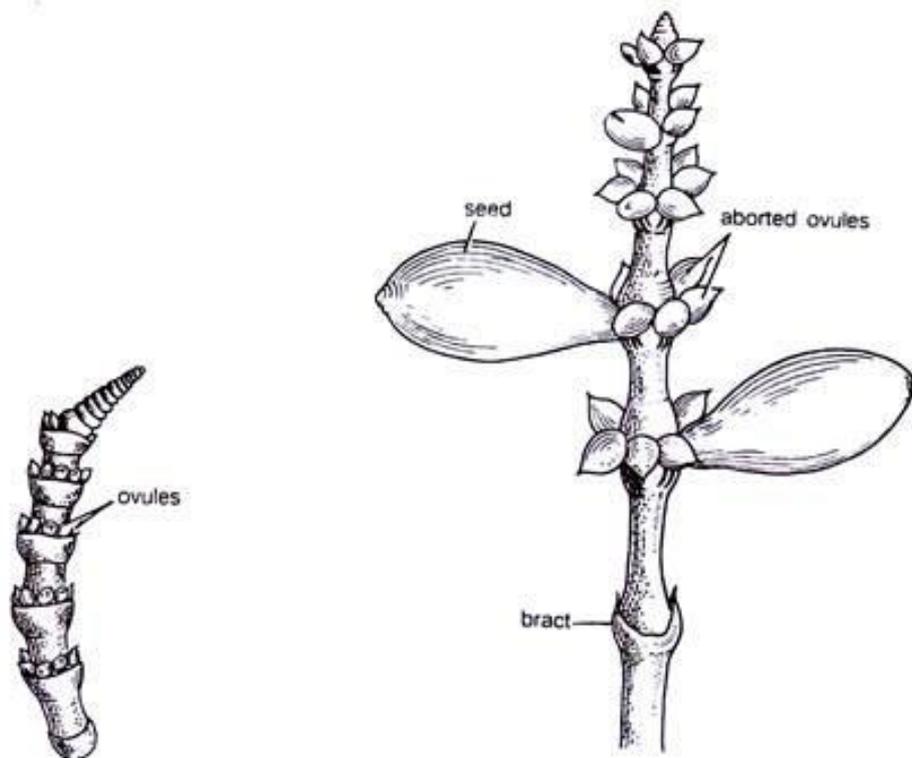
Gnetum: Male flower with anthers

Female Strobilus:

The **female strobilus** is very much similar to that of the male strobilus in the young stage. The female strobilus consists of an axis bearing several whorl of collars arranged one above the other. A ring of 4-10 ovules (female flowers) is present above each collar. The male flowers are not found in the female strobilus. The upper few collars are devoid of ovules and are thus sterile.



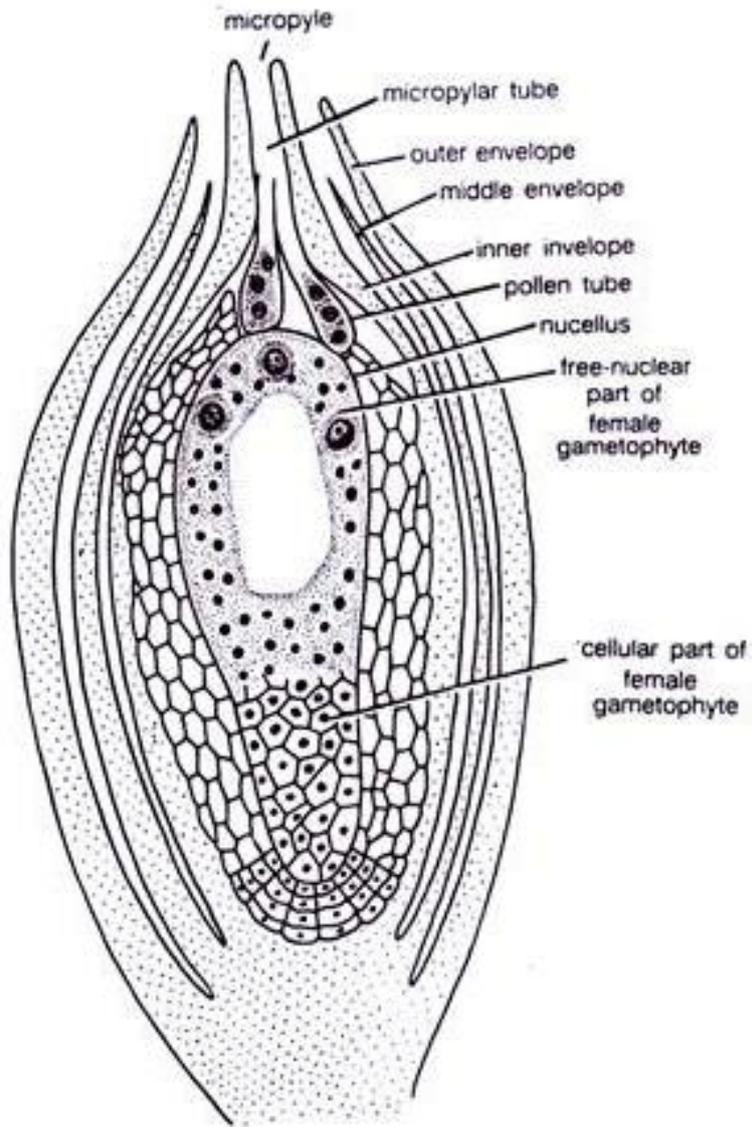
Gnetum: Flowering branch with female strobilus



Gnetum: Female cone with ovules and seed

Female Flower or Ovule:

A single **ovule represents a female flower**. The ovule is stalked or may be sessile or even sessile. The ovules are orthotropous, crassinucellate (with massive nucellar tissue) and are protected by three envelopes. The outer envelope which becomes thickened and succulent at maturity is considered to be the perianth corresponding to the perianth of male flower. The middle and the inner envelopes are actually the integuments. Numerous laticiferous ducts and sclerides are present in the perianth with some epidermal stomata. The middle envelope is called the outer integument which is anatomically similar to the outer envelope. The inner envelope, i.e., the inner integument, elongates beyond the middle envelope to form the micropylar tube or style. The nucellus contains the female gametophyte. There is no nucellar beak in the ovule of *Gnetum*.



Gnetum: L. S. Ovule