

Topic: Gnetum; Structure of Sporophytic Plant Body

B.Sc. Botany Hons. II

Paper: III Group: A

Dr. Sanjeev Kumar Vidyarthi

Department of Botany

Dr. L.K.V.D. College, Tajpur, Samastipur

L.N. Mithila University, Darbhanga

Sporophyte of *Gnetum*

Gnetum resembles very much in its characteristics to an angiosperm than a gymnosperm. Based on the studies of 58 characteristics, *Gnetum* shares more than 60% of the characteristics with angiosperm and about 30% characteristics with gymnosperm. *Gnetum* is easily mistaken for a dicot plant unless it is in flowering or fruiting stage. The plant body is differentiated into root, stem and leaves.

Root of *Gnetum*

External Morphology:

Gnetum shows a typical tap root system which is profusely branched. The mature roots show normal secondary growth.

Internal Structure:

- Internally, the root of *Gnetum* resembles the root of angiosperm.
- The root is differentiated into the outermost layer, epidermis, multilayered cortex and diarch vascular cylinder.
- The cortex consists of polygonal or oval-shaped parenchymatous cells containing starch grains.
- The thick-walled fibre cells are often present in the cortex.
- A single-layered endodermis encircles a multilayered pericycle.
- The primary vascular cylinder is diarch, radial and exarch.
- The secondary growth in roots is of normal type.
- The arcs of cambium form below the phloem groups and above the xylem groups which join together to form a cambium ring.

- The secondary xylem consists of tracheids possessing uniseriate bordered pits with conspicuous Bars of Sanio.
- The vessels are also present.
- The pits on the vessels are bordered or simple, small and multiseriate with or without inconspicuous Bars of Sanio.
- The xylem ray is composed of thin-walled parenchymatous cells containing starch grains.
- The phloem consists of sieve cells and parenchyma.
- The periderm is formed due to the extrastelar secondary growth.