

Topic: Taxus; Reproduction
B.SC. Botany Hons. II
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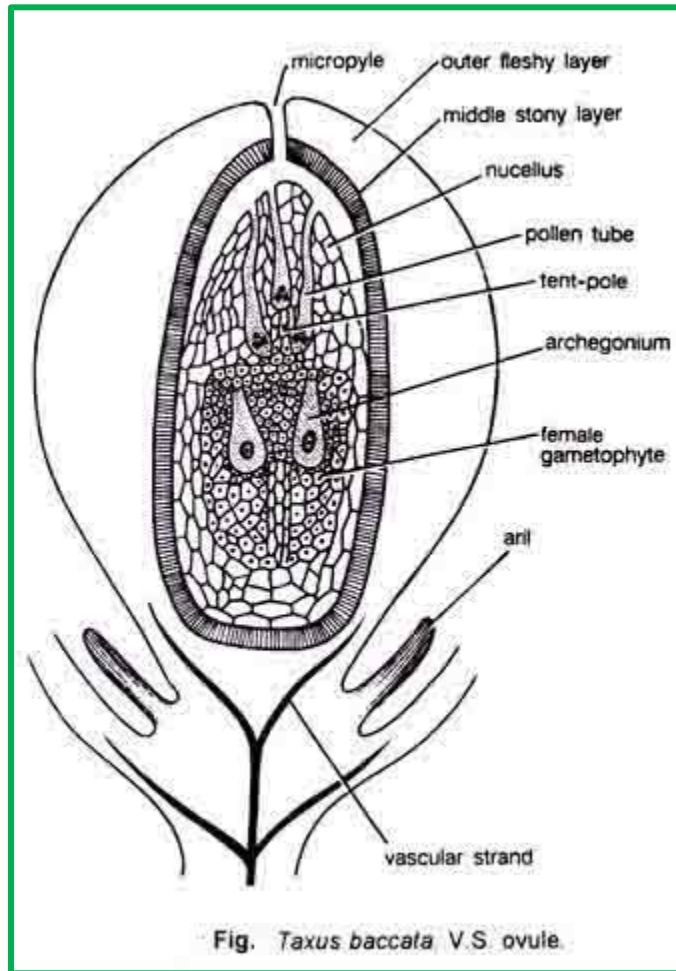
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Ovule:

- The ovule is somewhat rounded or oval in shape and orthotropous.
- A single thick integument is present. Integument is free from the nucellus right up to its base forming a long micropyle.
- The integument is differentiated into outer fleshy, middle stony and inner fleshy layers.
- Two vascular strands enter the integument from the base of the ovule and reach up to its top.
- A ring-like outgrowth develops from the base of the integument. It surrounds the entire ovule. It is called 'aril' or 'cupule'.
- Aril is green and saucer-shaped when young but at maturity it is red and cup-shaped.



- The aril also receives two vascular bundles but they are very minute and rudimentary.
- Pollen chamber and nucellar beak are absent in *Taxus*.
- The apex of the female gametophyte changes into a flask-shaped structure called tent-pole. The tent-pole disappears in the later stages.

Generally, up to 10 archegonia develop in the female gametophyte but sometimes as many as 25 archegonia may appear. In the young ovule an archesporial initial develops hypodermally in the nucellus.

It divides periclinally forming an outer parietal cell and an inner primary sporogenous cell. The latter divides again to form many sporogenous cells, of which generally one or more start to behave as megaspore mother cells.

The megaspore mother cell divides meiotically to form four megaspores which remain arranged in a linear tetrad. Generally, the lowermost megaspore remains functional and the remaining three degenerate. The functional megaspore nucleus divides, re-divides and develops ultimately into a multicellular gametophyte.

Morphological Nature of the Aril:

The morphological nature of the aril has been quite controversial. Strasburger (1872) considered aril as an expansion of the axis. Sinnott (1913) compared the aril of *Taxus* with that of the epimatium of Podocarpaceous ovules while Jager (1899) considered aril as the second integument. According to Dupler (1920) the aril is equivalent to an outer fleshy layer in *Taxus*.

Pollination:

- The pollen grains in *Taxus* are released in a uni-nucleate stage (Branscheidt, 1939) and are carried by wind to the micropyle of the ovule.
- This happens somewhere in March when the ovule secretes a pollination drop that almost fills the whole of micropyle and exudes out of it.
- The pollen is caught in this drop which later dries and is sucked in on to the nucellar apex.