

Structure of Sporophyte, Anthoceros :-

1. External structure - The mature sporophyte is a thin elongated structure present on the dorsal surface of the thallus about 2-15 cm. in length. The young sporophyte is green in colour but at maturity it turns dark yellow or black from the apex to base.

The mature sporophyte consist of distinct foot and a capsule.

The foot is bulbous completely embedded in the tissue of the gametophyte.

The capsule appears as a long horn shaped at the dorsal surface of the thallus. Due to this type of structure it also called hornworts. There is no distinct seta but an intercalary meristematic zone present in between foot and capsule.

2. Internal structure - Foot is composed of vacuolated parenchymatous cells. The foot absorbs water and mineral nutrients from the gametophyte for the developing sporophyte.

Capsule is composed 4-6 layers of parenchymatous cells. The outer most is epidermis which externally outer side covered with thick layer of cuticle and stomatal opening with guard cell also found. The cells of capsule have chloroplast which make them capability to synthesize organic food by itself. but it depend upon

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gametophyte for water and mineral requirements.
Sporogenous tissue - develops like a cylinder
around columella from base to tip.

Flaxels are simple or branched and are composed
1-4 cells of irregular shape without thickening
bands.

Columella - is central sterile part of the
capsule extending almost to entire length.
It helps in dispersal of spores and conduction
of water to the adjacent cells/spores.

Dehiscence of Capsule -

At maturity the apex
of capsule turn yellow, black or brown
and loses water. At this stage narrow
slits appear in the capsule wall along the
narrow groove which gradually widens
and extend towards the base. Thus capsule
wall splits into two or four valves
depending on the species.

Young Gametophyte -

The haploid spore is
the mother cell of gametophytic generation
The spore wall is differentiated in to outer
thick exospore and inner thin smooth
endospore. The spores are uninucleated and
contain enough reserve food, oil and
colourless plastids.

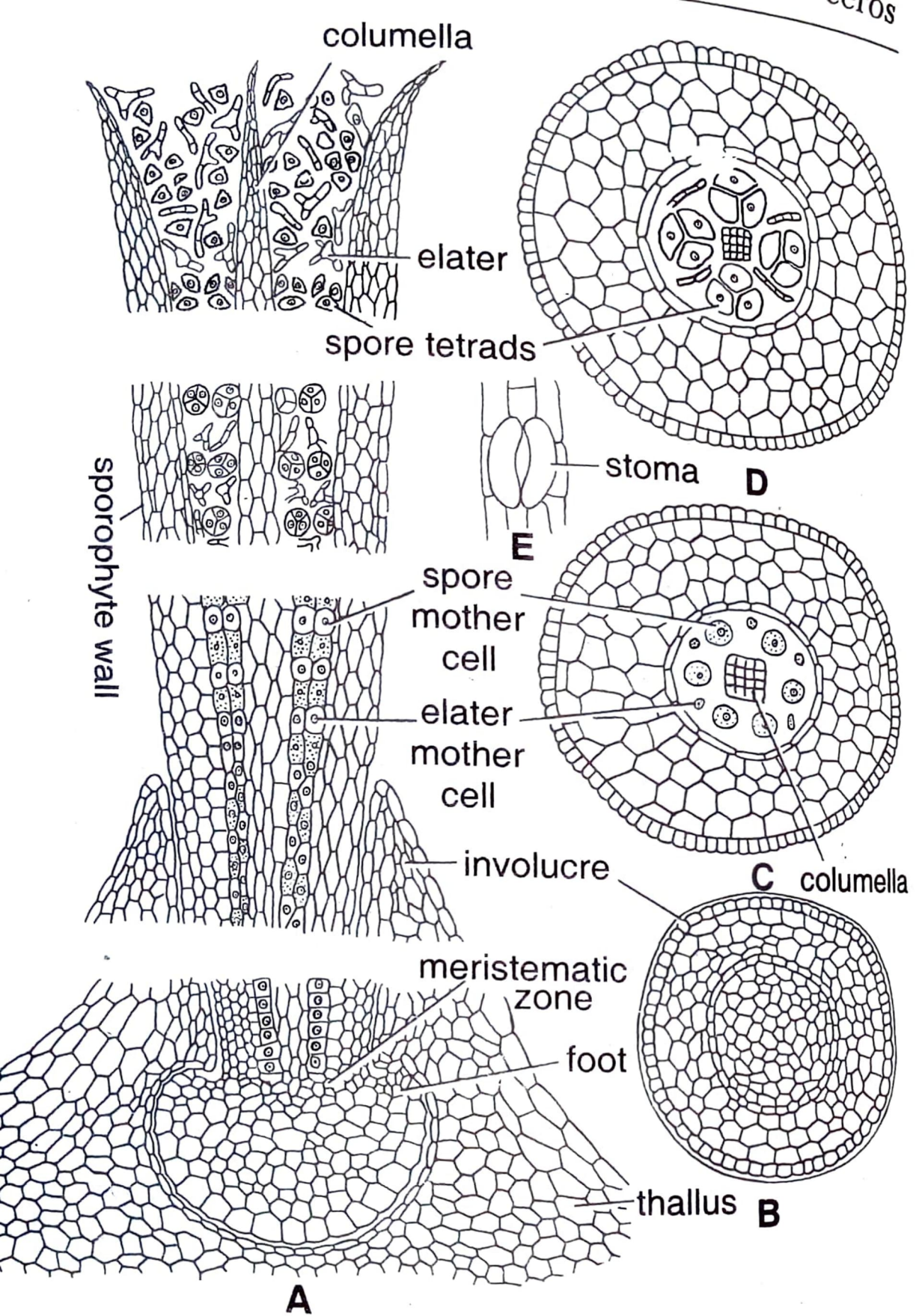


Fig. 6 A-E. *Anthoceros* : Sporophyte; A. Mature sporophyte in vertical section, **B-D.** Transverse sections of sporophyte at different levels, **E.** A stoma from the capsule wall.