THEORIES REGARDING THE ORGANISATION OF SHOOT APEX
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- Apical Cell Theory
- Histogen theory
- Tunica-corporus theory
APICAL CELL THEORY

- This theory proposed by Karl Nageli and Hofmeister in 1958 and supported by Wolff.

- According to Nageli and Hofmeister, the apical meristem is composed of a single apical cell and the entire plant is developing from this single apical cell.

- It is only applicable to Bryophytes and some Pteridophytes and some higher algae (Fucus, Dictyota & Sargassum)
Histogen Theory

- It was proposed by Hanstein (1870).
- According to him, the root and shoot apices are distinguished into three meristematic regions or three layers of cells called histogens.
- They are:
  a) Dermatogen giving rise to Epidermis
  b) Periblem produces Cortex & endodermis
  c) Plerome forms stele with vascular tissues and pith
Organization of shoot apex proposed by Hanstein
Tunica-corpus Theory

- It was proposed by Schmidt (1924) to describe shoot apex.
- According to this theory the shoot apex can be differentiated into two regions of unlike structure and appearance.
- There is a central core, the corpus with large cells dividing irregularly to result in volume growth.
- It is surrounded by an outer enveloping layer the tunica.
- Tunica cells are smaller and divide mainly anticlinally to epidermis and outer cortex.
- The corpus may be one to many layered and produces inner cortex, Procambium and pith.
Shoot apex according to tunica- corpus theory
Organization of shoot apex according to histogen concept

Organization of shoot apex according to tunica-corpus concept