Plant Histology

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(3)

Plant tissues

Plant tissues are broadly classified into two categories based on their capacity of cell division.:

- (1) Meristematic tissues
- (2) Permanent tissues.

Meristem is a type of tissue system in plants, composed of a mass of undifferentiated cells and their primary function is to take part in the growth of plants.

Permanent tissues are differentiated tissues doing specific functions such as conduction, providing mechanical support or carrying out photosynthesis etc. Permanent tissues are originated and differentiated from meristematic tissues.

Meristematic tissue

- ***Meristematic tissue*** *is group of immature cells that has capacity of division and redivision.*

- The term meristem was coined by **Nageli** (1858). Meristemsin plants are found in apex of stem, root, leaf primordia, vascular cambium, cork cambium, etc.

- Meristems are continuously dividing tissues of the plant.
- They are responsible for **primary** (elongation) and **secondary (**thickness) growth of the plant.
- Secondary tissues such as, cork, wood are also occured due to activity of meristematic tissue.

- Meristems are divided into two types criterions:

1. *Classification based on position in the plant body*

- Apical meristem

- Lateral meristem

-Intercalary meristem

2. *Classification based on nature of cell giving the meristem*

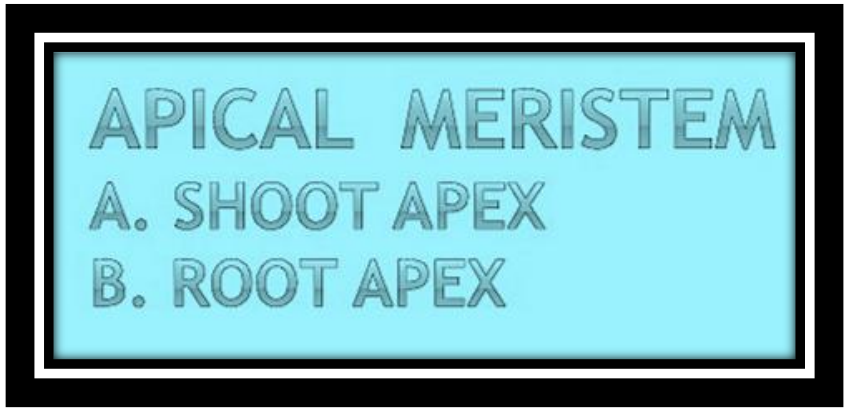
- Primary meristem

- Secondary meristem

- **1. *Classification based on position in the plant body***

Apical Meristem

- Apical meristems are found at tip of stem, roots and leaves. They are also called as **APICAL CELL** or apical initial. The activity of apical meristem causes increase in the length of **shoot and root.** Apical meristem produces the primary structure of plants.



A. Apical Meristems –Shoot Apex:

FOR ANGiOSPERMS

APICAL CELL THEORY (NAGELİ, 1858)

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HISTOGEN THEORY (HANSTEIN, 1868)

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THE TUNİCA-CORPUS THEORY

(SCHMİDT, 1924)

THE TUNİCA-CORPUS THEORY

- Tunica: -single layer, forms epidermis
-with smaller cells corpus
- shows only anticlinal division which is responsible for surface growth.

- Corpus: - central core
- with larger cells than tunica
- shows divisions in all planes which is responsible for volume growth