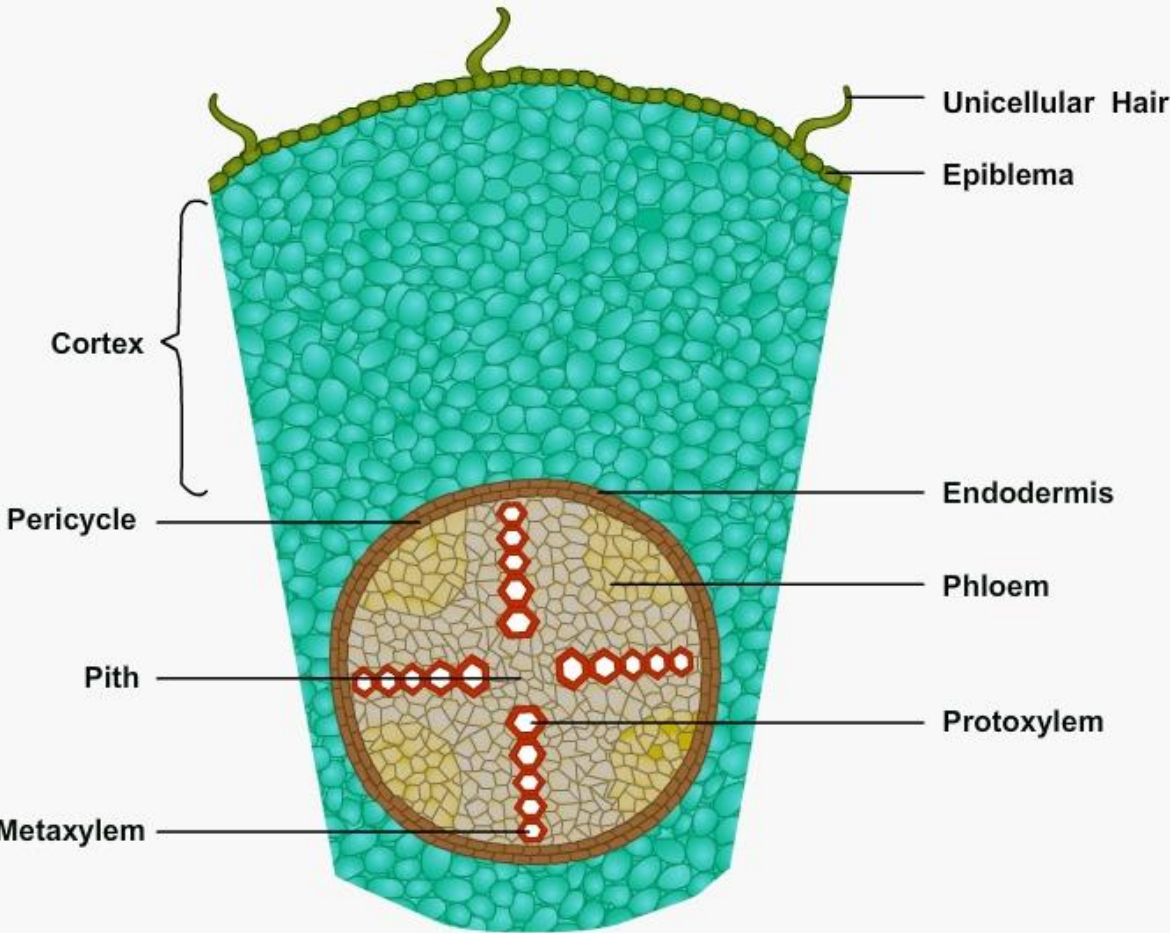


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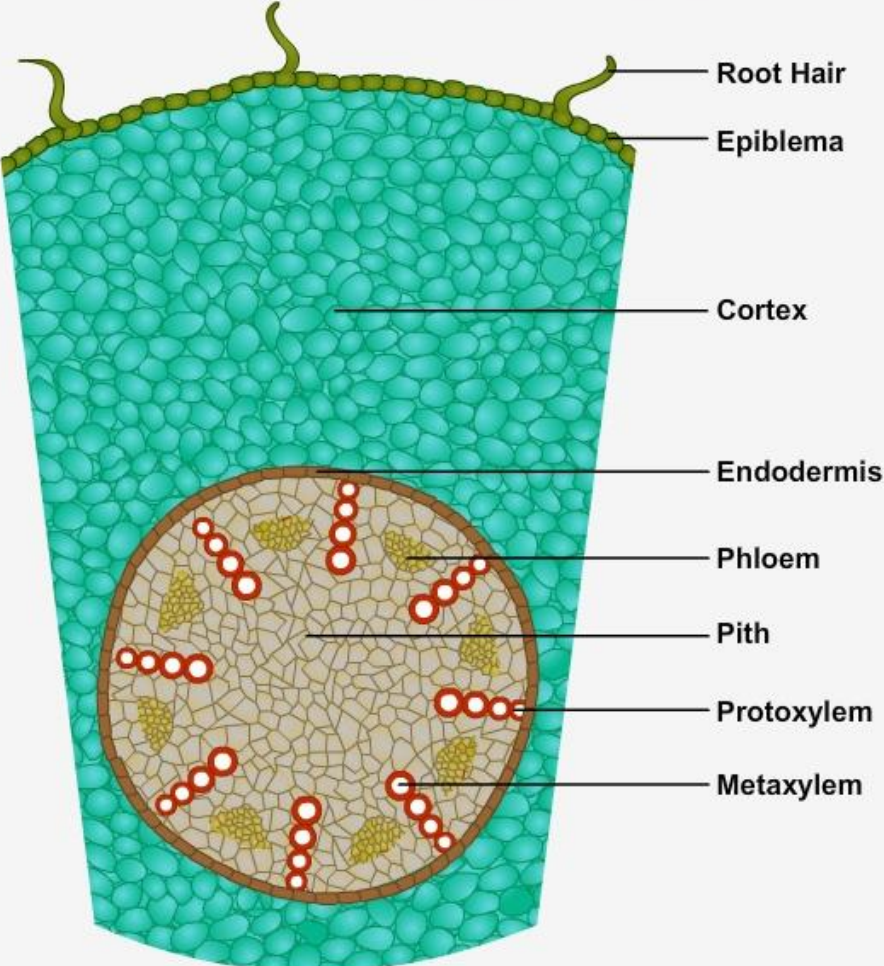
Dr. Aydan ACAR ŞAHİN
10th week

DICOT AND MONOCOT ROOT ANATOMY

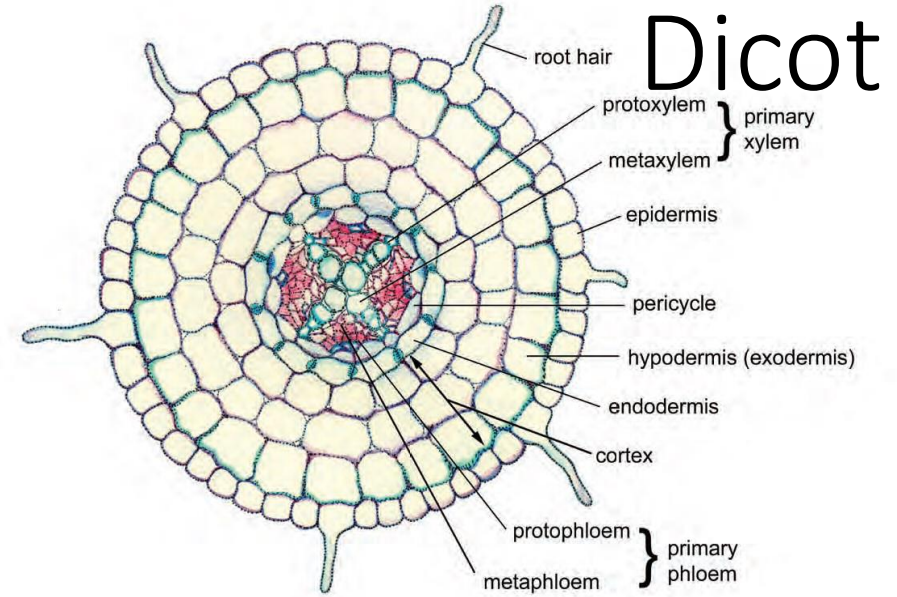
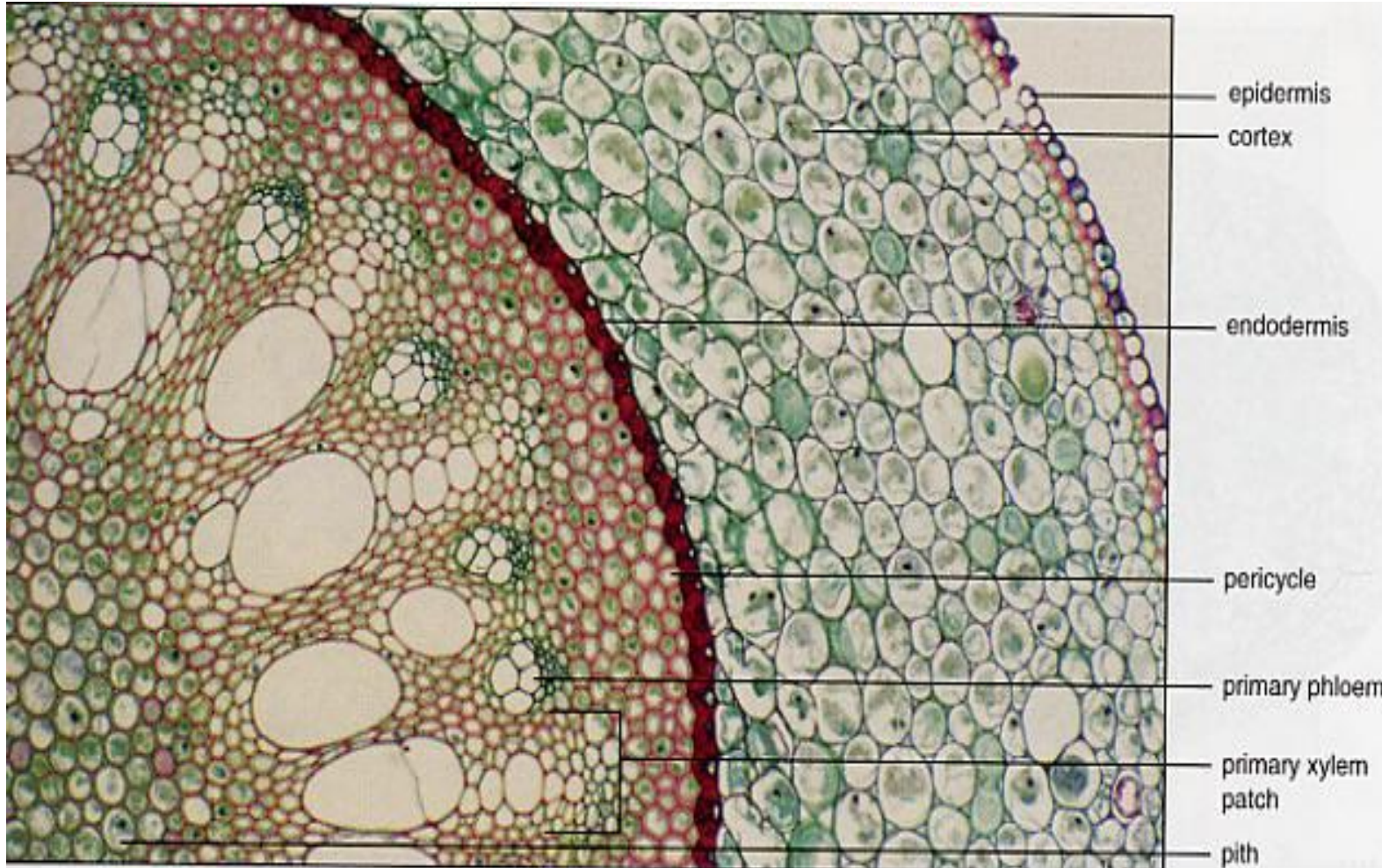
T.S. of Dicot Root



T.S of Monocot Root



Monocot



Dicot

- A higher magnification of the vascular cylinder shows the **tetrarch** arrangement (i.e., four protoxylem poles) of primary xylem with alternating regions of primary phloem, the **pericycle, endodermis**, and parenchyma cells in the **cortex**

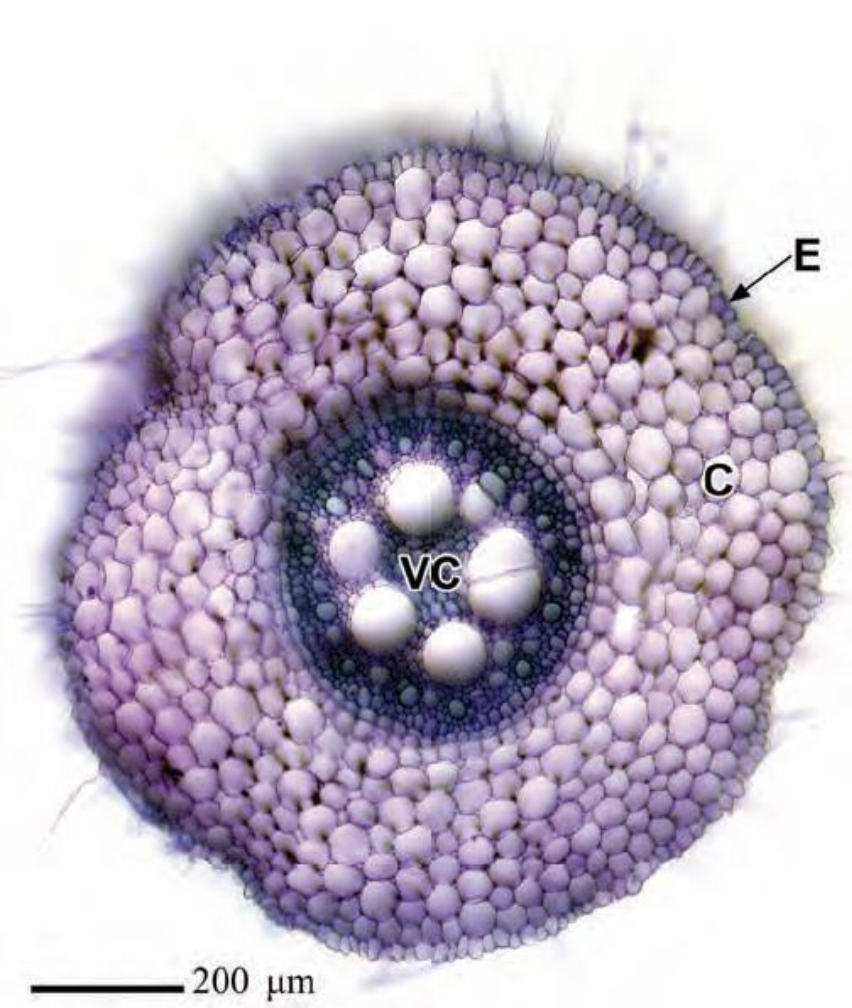


Figure 1. Transverse section of corn (*Zea mays*) root stained with TBO showing primary tissue organization. E = epidermis; C = cortex; VC = vascular cylinder.

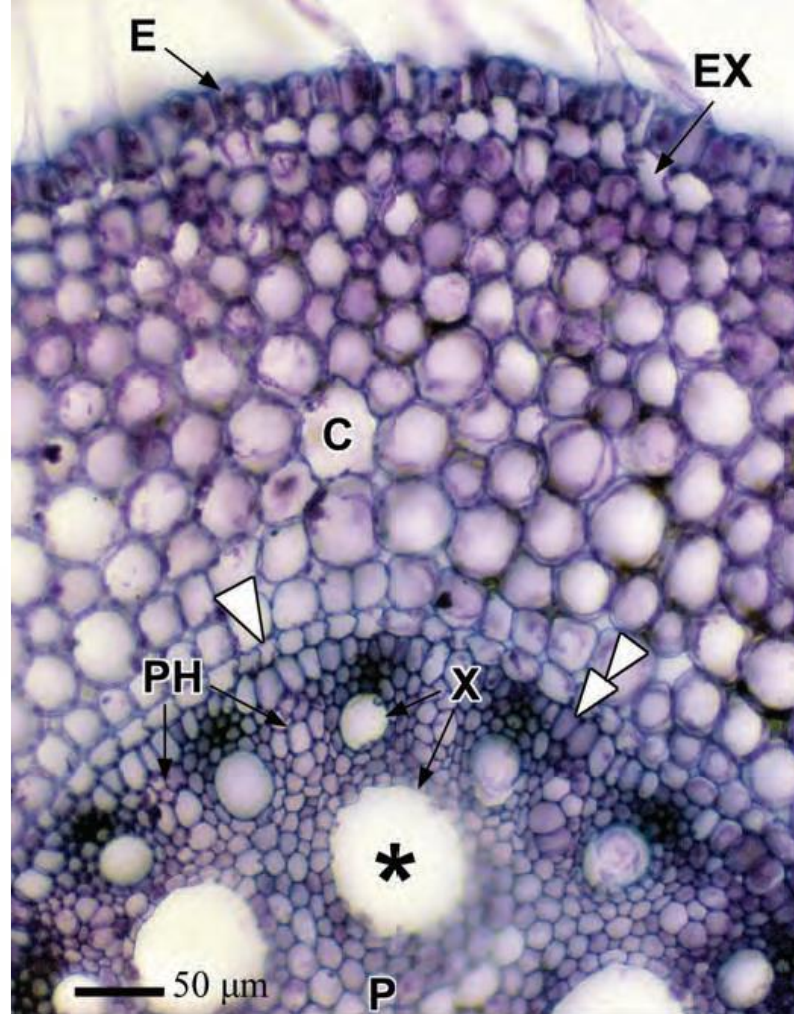


Figure 2. Transverse section of corn (*Zea mays*) root stained with TBO viewed at higher magnification. E = epidermis; EX = exodermis; C = cortex; arrowhead = endodermis; double arrowhead = pericycle; X = xylem; PH = phloem; P = pith. Large immature metaxylem vessels (*) are evident.

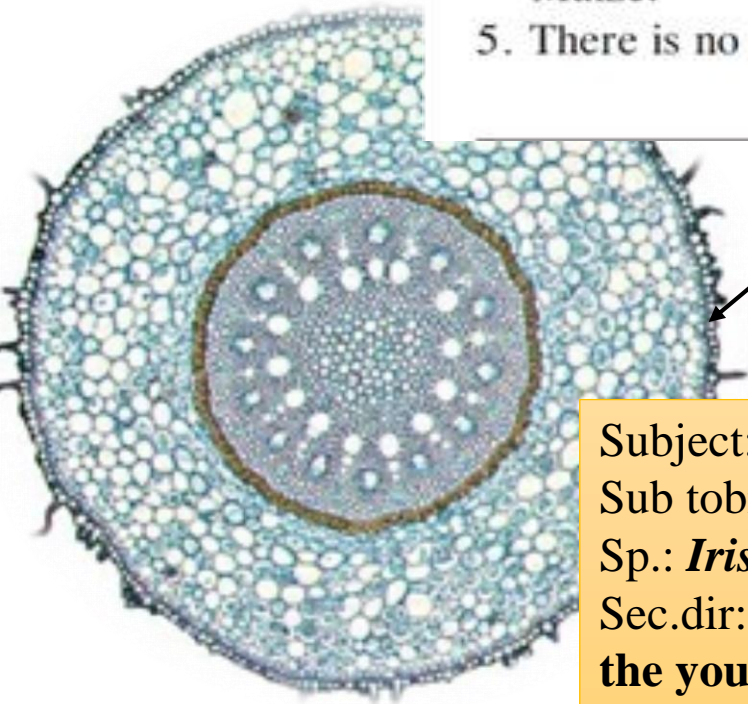
- A **uniseriate epidermis** (some of the cells of which have formed root hairs), a **cortex**, and **vascular cylinder** are evident at low magnification (Fig. 1). At higher magnification, the **exodermis** consisting of tightly packed cells, **endodermis**, **primary xylem**, and **primary phloem** are evident (Fig. 2).

• **Protoxylem**, large mature early

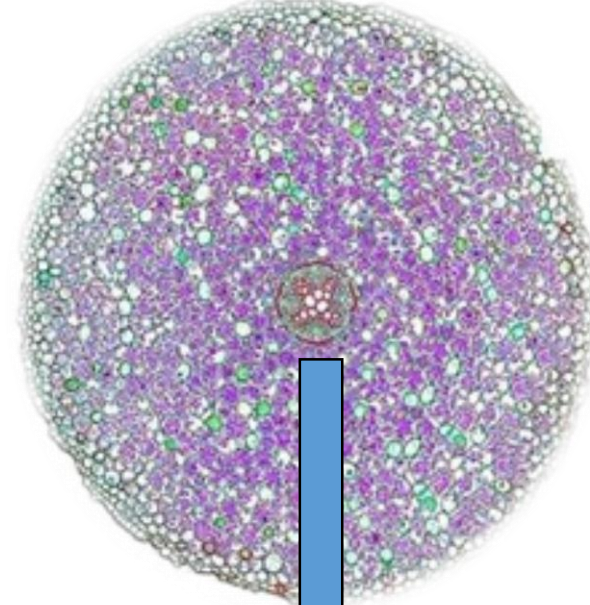
Monocot vs Dicot

Difference between monocot and dicot root

Monocot roots	Dicot roots
1. Xylem is polyarch .	1. Xylem is usually tetrarch .
2. Pith is usually large at the centre.	2. Pith is usually absent.
3. Metaxylem vessels are generally circular in cross section.	3. Metaxylem vessels are generally polygonal in cross section.
4. Conjunctive tissue is sclerenchymatous in Maize.	4. Conjunctive tissue is usually parenchymatous.
5. There is no secondary growth.	5. Secondary growth is generally present.



Subject: **Primary root anatomy**
 Sub topic: **Monocotyledone root**
 Sp.: ***Iris sp.***
 Sec.dir: **transversal section from the young root**



Subject: **Primary root anatomy**
 Sub topic: **Dicotyledone root**
 Sp.: ***Ranunculus aquatilis***
 Sec.dir: **transversal section from the young root/Ready preparation**