

**STUDY NO.:** 12

**NAME OF THE STUDY:** STUDY ON ANATOMY OF MONOCOT ROOT

A thin transverse section (T.S.) of supplied specimen under compound microscope shows the following tissues:

**Epiblema:** Uniseriate, outermost layer, parenchymatous, some cells are larger and some are smaller, no inter cellular spaces, cell wall is thin, unicellular root hair may present.

**Ground tissue:** It extends from below the epidermis to centre and is differentiated into the following zones:

**I. General cortex:** Large area, multilayered, parenchymatous, having intercellular spaces, loosely arranged, oval or round shape.

**II Endodermis:** The innermost layer of the cortex, barrel shaped parenchyma, without intercellular spaces, casparian strips are present.

**III. Pericycle:** Single layer, ring like, parenchymatous, occurs immediately beneath the endodermis.

**IV. Conjunctive tissue:** Parenchymatous tissue, which is found in around the vascular bundles, known as conjunctive tissue.

**V. Pith:** Large and well developed

**Vascular tissue:** The arrangements of vascular bundles are radial i.e. they are arranged on different radii, Bundles are numerous and referred as polyarch. Each bundle is composed of xylem and phloem.

**Xylem vessel:** Exarch, consists of protoxylem and metaxylem vessel.

**Phloem:** Consists of sieve- tubes, companion cells and phloem parenchyma

**Identification:**

1. It is a **root** because

- i) Vascular bundles are radial i.e., xylem and phloem lie in the different radius.
- ii) Xylem is exarch i.e., metaxylem towards the centre and protoxylem towards the periphery.

2. It is a **monocot root** because

- i) Xylem vessel round shape.
- ii) Vascular bundle more than six.

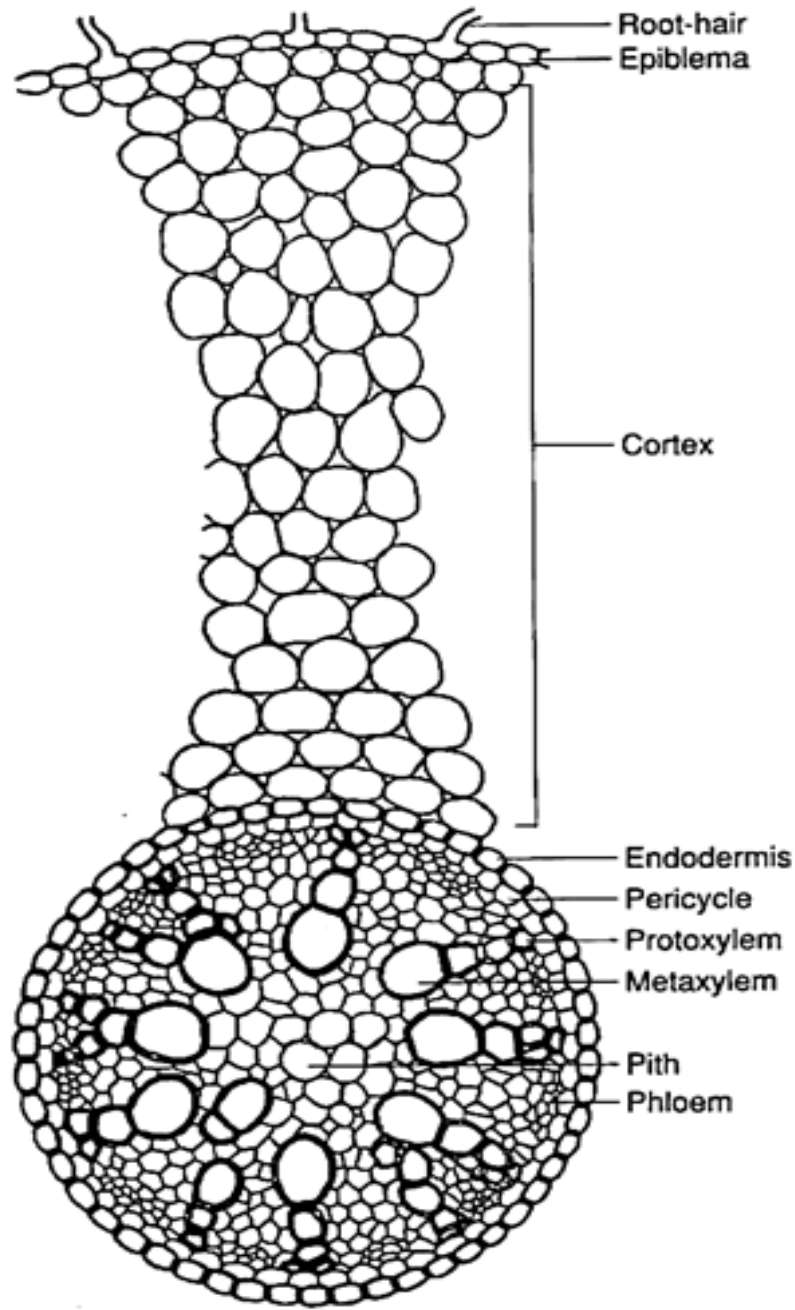


Fig.: T.S. of monocot root (*Colocasia* root)