Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (Second Year)

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Paper Code: BOC 103

Paper Title: Plant Anatomy and Embryology

Unit: 02

Module Name: Structure of Monocot root

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Name of the Presenter: Ms. Diksha D. Naik

Notes

Structure of Monocot root

Anatomically, the monocot root has been differentiated into the following parts:

1. **Epidermis:** It is the outermost layer. Also called as piliferous layer, epiblema or rhizodermis. It is uniseriate, but in orchids it is multiseriate. Cells are rectangular in shape, thin walled, and parenchymatous without any intercellular spaces. Cuticle and stomata are absent. Some epidermal cells comes out to form unicellular root hairs.

2. **Cortex:** It is present below epidermis. Cortex is well developed and differentiated into outer, middle and inner cortex. Cells are thin walled, parenchymatous and loosely packed with intercellular spaces. Starch grains are present in the cortex. Outer layer of the cortex is called exodermis having thick walled and lignified cells.

3. **Endodermis**: It is the innermost layer of cortex. Cells are large, barrel shaped without any intercellular spaces. Uniseriate.It shows presence of casparian band and passage cells.

4. **Pericycle:** It is the outermost layer of the vascular cylinder. Cells are thin walled and parenchymatous. It is either uniseriate or multiseriate.

5. **Vascular Bundle:** It is inner to pericycle. Xylem and Phloem are present in a ring. Vascular bundles are radial, polyarch (more than 6). Xylem is exarch having metaxylem towards the centre and protoxylem towards periphery. In between xylem and phloem, conjunctive tissue is present which provides mechanical support.

6. **Pith:** is large, located at the centre. Cells are parenchymatous or sclerenchymatous, loosely packed with intercellular spaces.