ECOLOGICAL ANATOMY

[T.Y.B.Sc. SEM-VI; PAPER-II; UNIT-II]

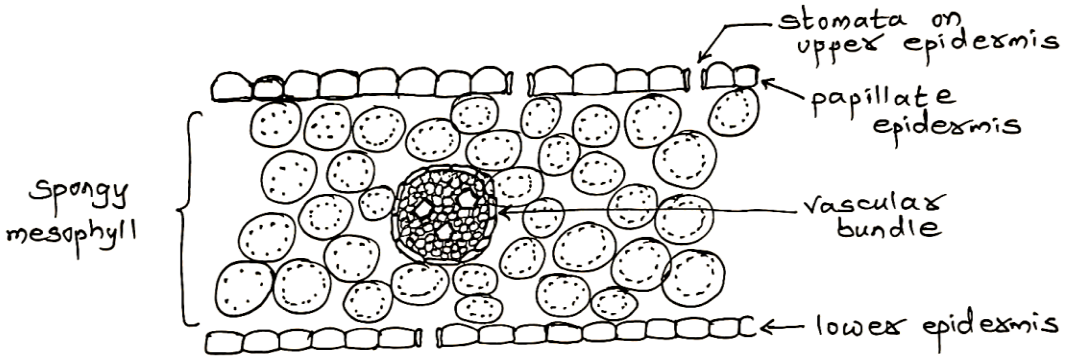
SCIOPHYTES

1) These are plants that grow in shade, thereby receiving indirect or filtered sunlight. Thus it is defined as "plants that endures or thrives best at lowered light intensity".
2) Due to less light available, the colour of the plants vary from pale green to variegated.
3) In some plants, anthocyanin pigment is dominant and hence plants can be variously coloured.
4) Since there is more humidity in shade conditions, therefore the rate of transpiration is low. Thus it leads to some phenomenon like guttation which is commonly seen in such plants.
5) Sciophytes are also known as 'photophobous plants' and they reach their saturation level in only 20% sunlight.
6) Examples of sciophytes – *Coleus, Pepromia, Primula*, etc.

Shade-plants essentially follow strategies of optimum use of available energy and conservation of energy. The adaptations include the following features:

- Thinner leaves
- Higher chlorophyll content per unit leaf volume
- Lens shaped epidermal cells that focuses the incoming light rays into and within the mesophyll cells
- A red-cell layer that reflects outgoing light rays back into the mesophyll
- Greater allocation of available energy to defence mechanisms against herbivory.

Ecological anatomy of *Pepromia* leaf:



- Upper surface is papillate with a curved surface without any cuticle. The papillate surface helps in capturing solar energy from refracted ray.
- Mesophyll comprises of only 2-3 layers of undifferentiated cells. Palisade tissue is absent.
- Lower epidermis is single layered.
- Stomata are present on both the epidermal surfaces.

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