

Introduction to Botany. Lecture 23

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- 1 Questions and answers
- 2 Leaf
 - Anatomy of leaf
 - Ecological adaptations of leaves



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Previous final question: the answer

Please draw the **entire** (*whole*, not dissected), **ovate** leaf with **acute** apex, **cordate** base, **serrate** margin and **hyphodromous** venation.

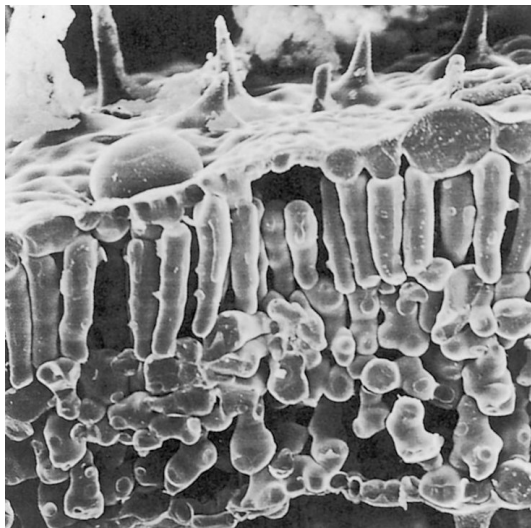


Leaf

Anatomy of leaf



Palisade and spongy cells



palisade mesophyll

spongy mesophyll

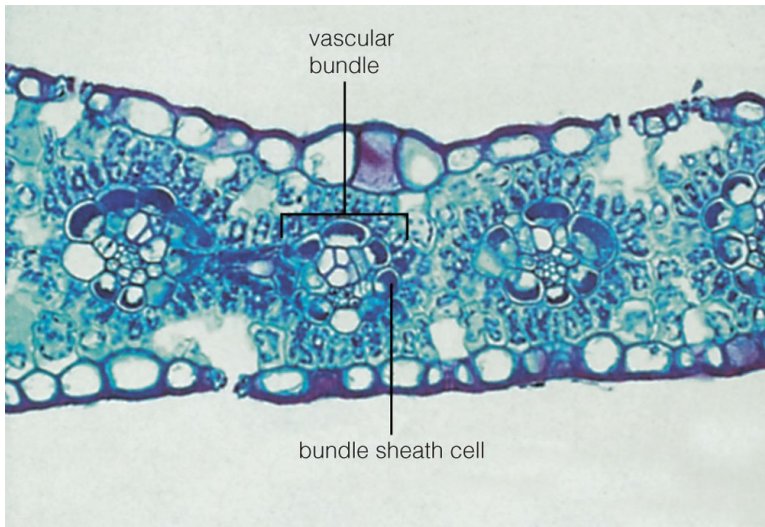


Veins/vascular bundles

- Phloem typically faces downwards, xylem—upwards
- Bundles of C_4 -plants have additional bundle sheath cells



Bundle sheath cells



Leaf

Ecological adaptations of leaves



Plants and water

- Xerophytes: sclerophytes and succulents (stem and leaf)
- Mesophytes
- Hygrophytes
- Hydrophytes



Leaf succulent (*Crassula argentea*)



mesophyll
cells



Xerophyte leaf—needle of pine (*Pinus contorta*)

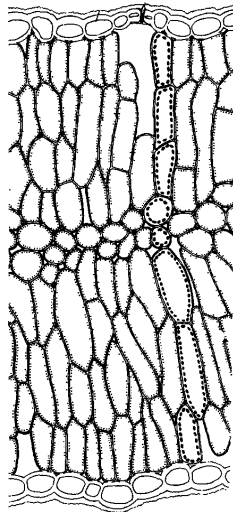
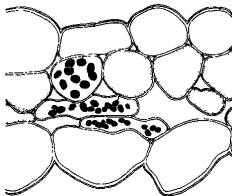


Plants and light

- Sciophytes
- Heliophytes



Sciophyte and heliophyte



Oxalis acetosella and *Sylphium laciniatum*



Final question (2 points)



Final question (2 points)

Which plants have more palisade mesophyll—heliophytes or sciophytes?



Summary

- Water deficit results in either sclerophyte or succulent adaptations
- Water excess results in hygrophyte or even hydrophyte adaptations



For Further Reading



A. Shipunov.

Introduction to Botany [Electronic resource].

2010—onwards.

Mode of access:

http://ashipunov.info/shipunov/school/biol_154



Th. L. Rost, M. G. Barbour, C. R. Stocking, T. M. Murphy.

Plant Biology. 2nd edition.

Thomson Brooks/Cole, 2006.

Chapter 6.

