

Introduction to Botany. Lecture 3

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Outline

1 Questions and answers

2 Plant cell

- Structure of cell

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- 2 Plant cell
 - Structure of cell

Previous final question: the answer

What is the difference between plants₁ and plants₂?

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What is the difference between plants₁ and plants₂?

- Plants₁: Primarily photosynthetic organisms:
 - Plants₂: Multi-tissued green terrestrial eukaryotes; they have *photosynthesis + nucleus + tissues*
 - Other organisms (like cyanobacteria, lichens, algae); they do not have all three together



Parasitic plants

- Half-parasites (like *Comandra*, bastard toad-flax or mistletoe) have chlorophyll
- Mycoparasites (like *Pterospora*) interact with fungi
- Full parasites may be root (like *Hydnora*), stem (like dodders) or internal (only flowers will appear on surface, like *Pilostyles*)
- Stem parasites like dodder (*Cuscuta* spp., Convolvulaceae) and *Cassytha* (Lauraceae) are harmful for many cultivated plants, especially from legume and aster families



Bastard toadflax



Pterospora



Hydnora



Pilostyles



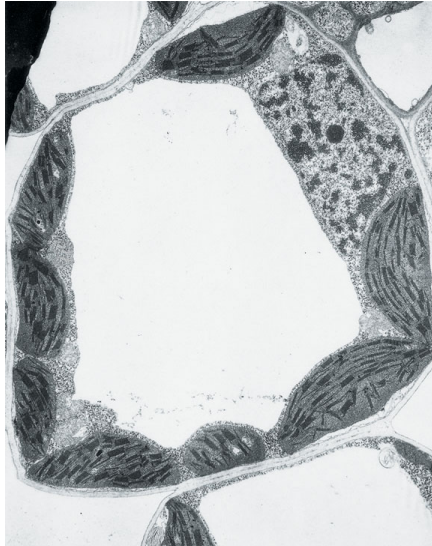
Dodder



Plant cell

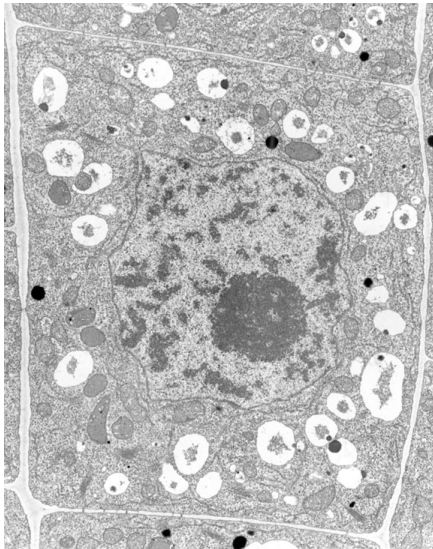
Structure of cell

Leaf cell (TEM)



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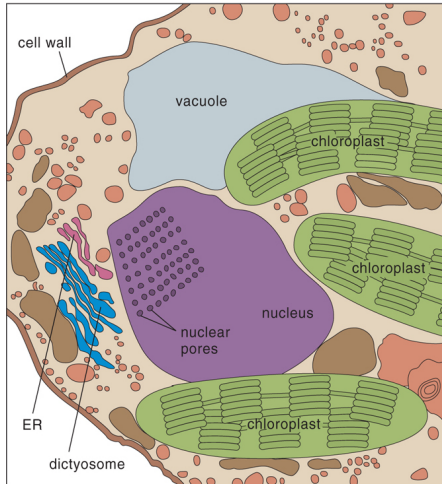
Root cell (TEM)



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Cell

Final question (2 points)

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What is the difference between chloroplasts and mitochondria?

Summary

- Plant parasites (especially those lacking chlorophyll) are not strictly under definition of plants₂ or even plants₁ but have very close relatives among them. Therefore, we regard them as plants.
- Vacuole, chloroplasts and cell wall are three most important cell parts specific to plants.
- While chloroplasts are synthesizing organic compounds, mitochondria produce most of ATP (energy source) in the plant cell.



For Further Reading



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