

Introduction to Biology. Lecture 25

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- 1 Where we are
 - Plants
- 2 Plants
 - Origin of plant tissues
- 3 Genetics and inheritance
 - Meiosis



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Where we are Plants



Primordial plant cell

- Cell wall: primary (cellulose) and secondary (cellulose + lignin and suberin)
- Chloroplasts with thylakoids
- Turgor: vacuole and cell wall pressures
- Plasmodesmata



Plants

Origin of plant tissues



Origin of tissues and organs of plants: first steps



Terms associated with origin of plants

- Thallus
- Epidermis
- Cuticle
- Transpiration
- Stomata, guard cells
- Compound tissues
- Ground tissue
- Supportive tissues
- Shoot system
- Absorption tissue, mycorrhiza
- Root system



Three main phyla of plants

- **Bryophyta:** mosses
No roots, leaves thin or absent, withstand desiccation
- **Pteridophyta:** ferns and allies (like clubmosses and horsetails)
Roots adventitious, leaves are not associate with buds, stem-like or scale-like, water-savers
- **Spermatophyta:** seed plants (including conifers and flowering plants)
Body with two poles, typical leaves associate with buds, water-savers

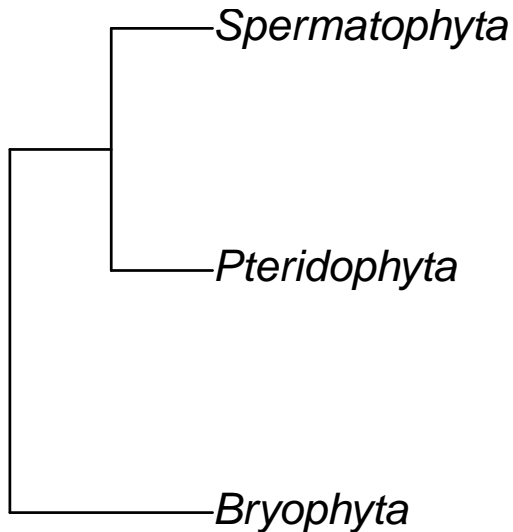


Three main phyla of plants

- **Bryophyta:** mosses
No roots, leaves thin or absent, withstand desiccation, **gametophyte dominance**
- **Pteridophyta:** ferns and allies (like clubmosses and horsetails)
Roots adventitious, leaves are not associate with buds, stem-like or scale-like, water-savers, **sporophyte dominance, no seeds**
- **Spermatophyta:** seed plants (including conifers and flowering plants)
Body with two poles, typical leaves associate with buds, water-savers, sporophyte dominance, **seeds**



Phylogeny of these three phyla



Genetics and inheritance

Meiosis



Exchange and renovation of DNA

- To sustain with the ever-changed environment, organisms must evolve
- To evolve, they need a genetic diversity: different genotypes in different organisms
- To be genetically diverse, they need a process of genetic exchange
- One of ways of exchange is a sexual process in a form of **syngamy**
- However, constant syngamy will result in constant increase of DNA amount
- Meiosis is a counterbalance to syngamy



For Further Reading



Plant tissues.

http://en.wikipedia.org/wiki/Tissue_%28biology%29#Plant_tissues



Plants.

<http://en.wikipedia.org/wiki/Embryophyte>



[From the lab]: Mendel's laws.

http://en.wikipedia.org/wiki/Mendelian_inheritance

