

Introduction to Botany. Lecture 34

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- 1 Questions and answers
 - Quiz
- 2 Branching, thickening and seed
 - Origin of seed



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Questions and answers

Quiz



Final question (2 points)

What is botanical difference(s) between potato vegetable and sweet potato vegetable?

- Potato has buds and scales whereas sweet potato not.
- It means that potato is tuber whereas sweet potato is root.
- Consequently, potato will germinate whereas sweet potato will not.

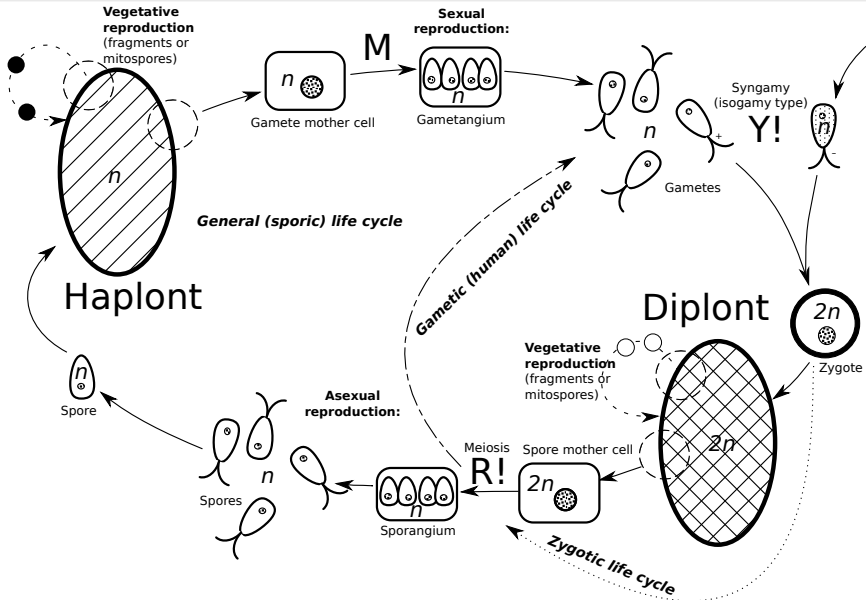


Branching, thickening and seed

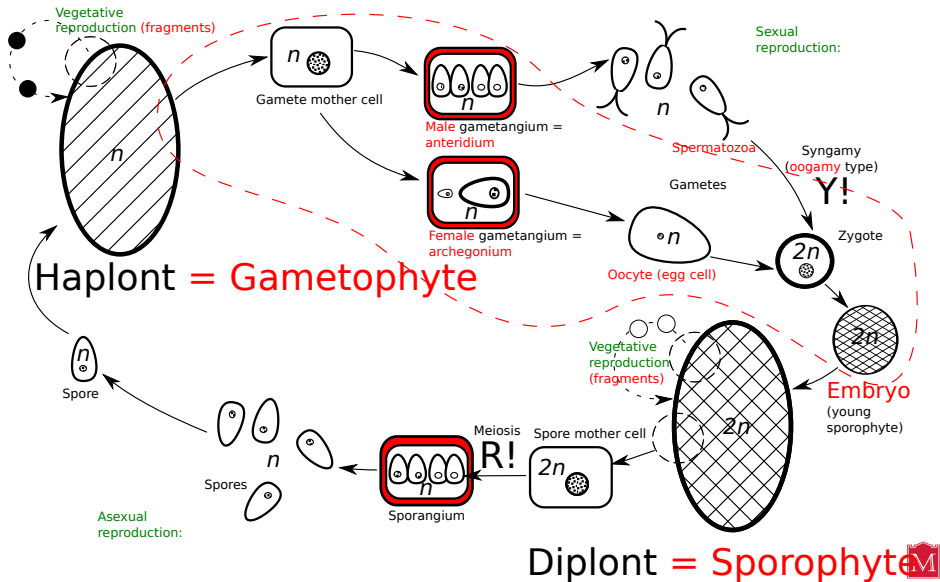
Origin of seed



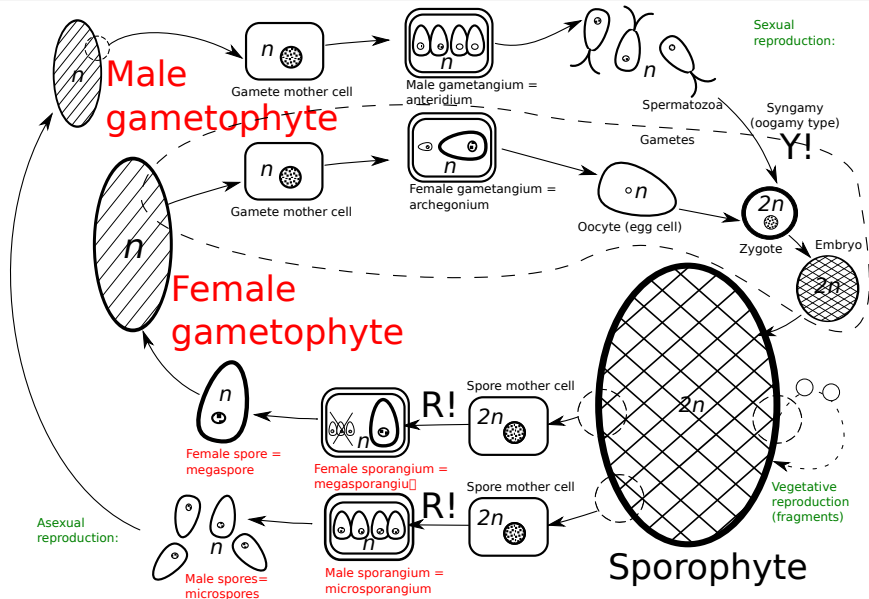
General life cycle



Life cycle of land plants: differences



Heterosporic cycle: differences

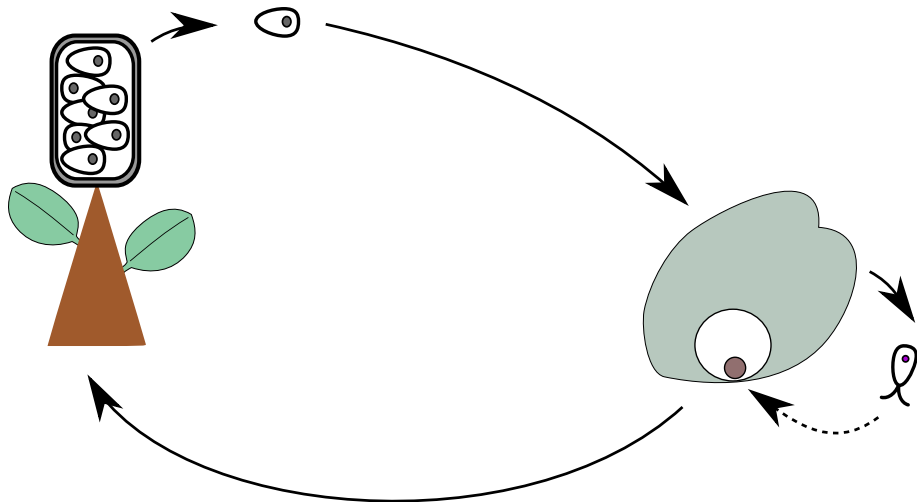


Origin of seed

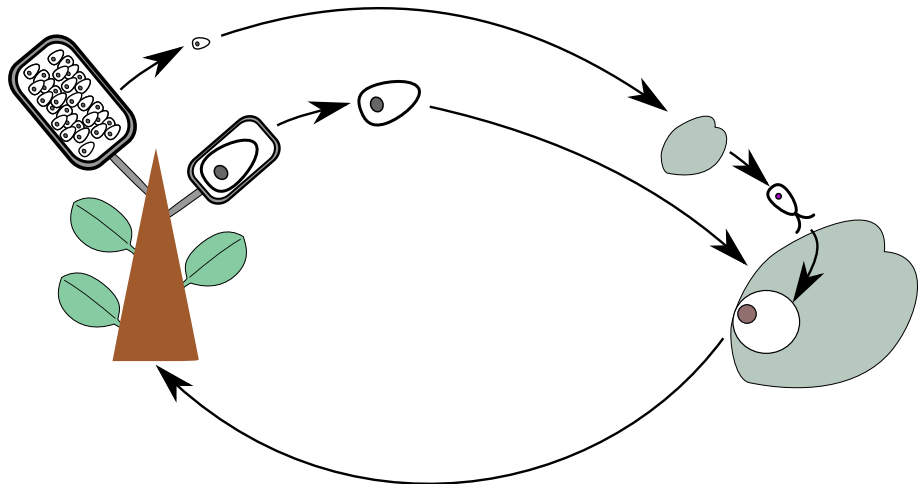
- “**Dinosaur problem**”: without control on the *r*-strategic gametophyte, *K*-strategic tree sporophyte cannot guarantee its reproduction
- **Seed is the result of enforced control of sporophyte over gametophyte**
- Growing of gametophytes, syngamy (fertilization) and growing of daughter sporophyte—everything happens **directly on mother sporophyte**



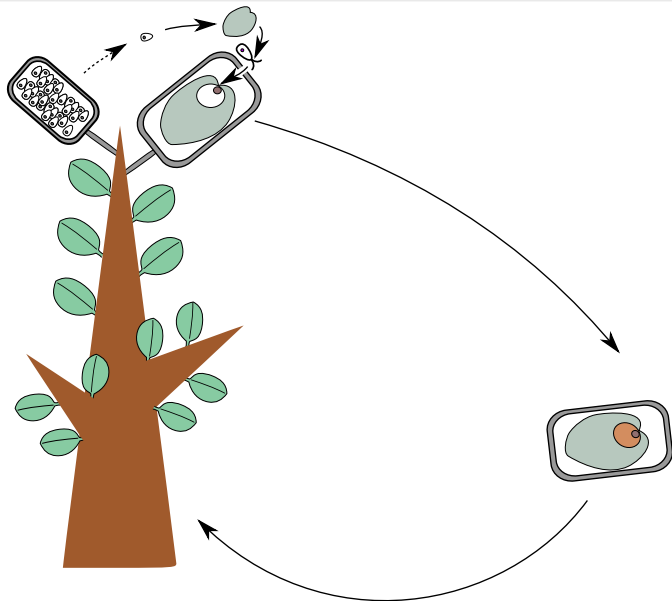
Seed origin: step I, homosporous



Seed origin: step II, heterospory



Seed origin: step III, seed



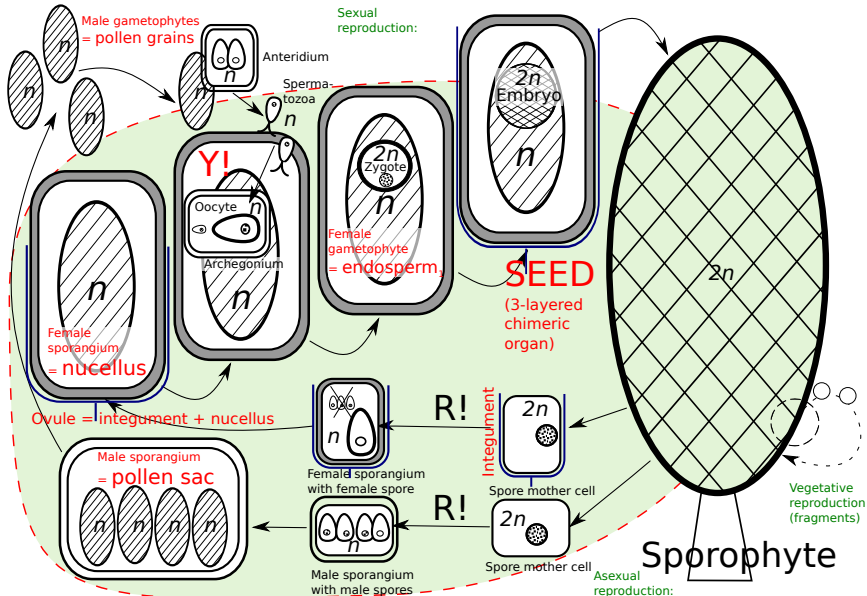
Seed plants have life cycle where almost all stages happen on mother sporophyte

Terms covered:

- Ovule and integument
- Nucellus and pollen sac
- Pollen grains and endosperm
- Seed



Seed plant cycle: differences



Summary: the seed

- Seed is a **chimeric organ** with three layers: (1) mother sporophyte tissue (integument + nucellus), (2) female gametophyte tissue (endosperm) and (3) daughter sporophyte (embryo)
- Biggest disadvantages of having seed are: (a) low probability of fertilization (pollination needed) and (b) overall slowness of cycle
- “Hot spots” of seed life cycle: (1) pollination with wind, insects or anything, (2) fertilization with **pollen tube** and (3) reduction of gametophytes



Final question (2 points)



Final question (2 points)

What is the seed from the life cycle view?



For Further Reading



A. Shipunov.

Introduction to Botany [Electronic resource].

2016.

Mode of access:

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

