

Introduction to Botany. Lecture 16

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- 3 Tissues
 - Origin of tissues



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Questions and answers

Quiz



Final question (3 points)

Why are there two places of vegetative reproduction in a scheme of the life cycle?



Final question (3 points)

Why are there two places of vegetative reproduction in a scheme of the life cycle?

- Because both haplont and diplont could clone themselves.



Life cycle

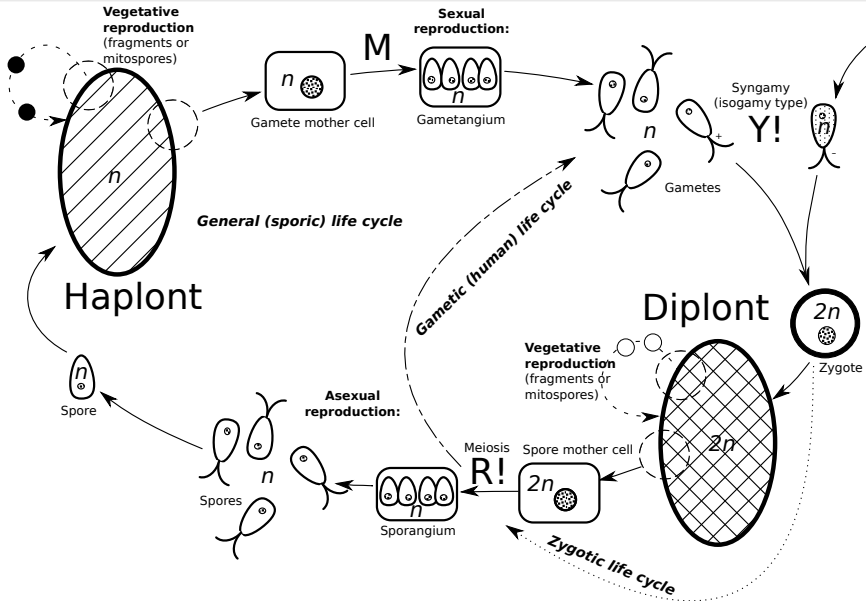
Basics



General life cycle: multicellular organism



General life cycle: multicellular organism



Life cycle

Evolution of life cycles

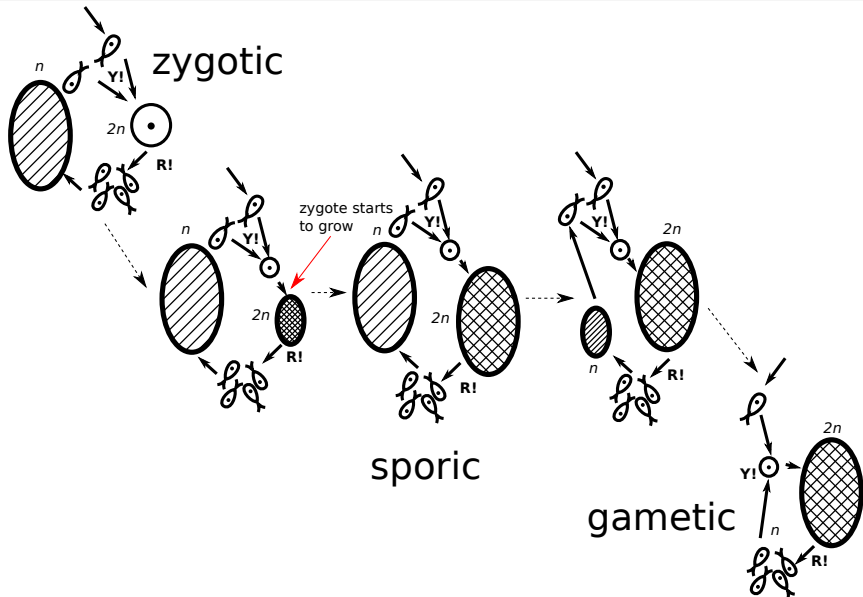


3 cycles

- **Zygotic:** $Y! \rightarrow R!$, no diplont, many protists
- **Gametic:** $R! \rightarrow Y!$, ho haplont, animals and few protists
- **Sporic:** both haplont and diplont, many protists and all plants₂



Diplonts grow, haplonts reduce



Why diplonts are better?

They have two variants of each gene!

- 1 **Dominance:** if one gene is deadly mutated, there is the second working variant
- 2 **Protein production:** two genes will give more protein
- 3 **Diversity:** if one gene is producing protein adapted to $+5...+30^{\circ}\text{C}$ and other—to $+10...+35^{\circ}\text{C}$, the organism may live under $+5...+35^{\circ}\text{C}$

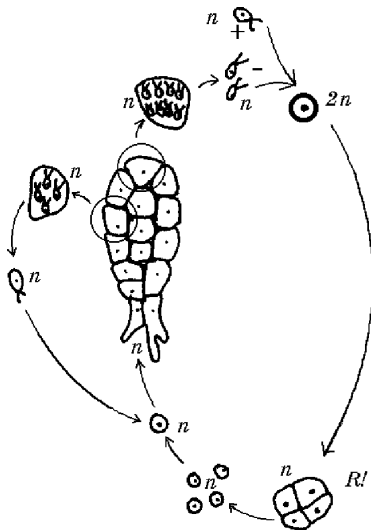


Life cycle

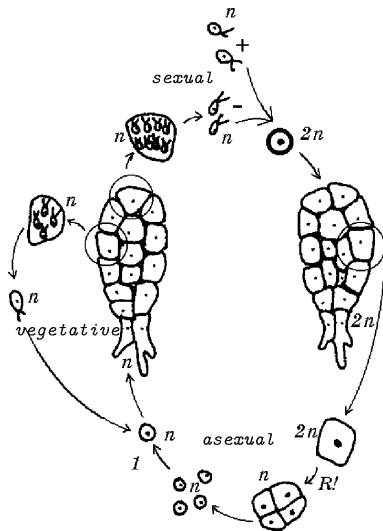
Diversity of life cycles



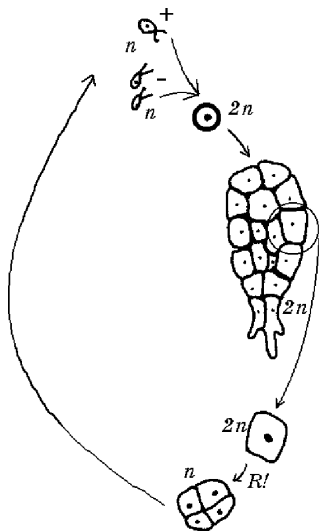
Zygotic life cycle: protists



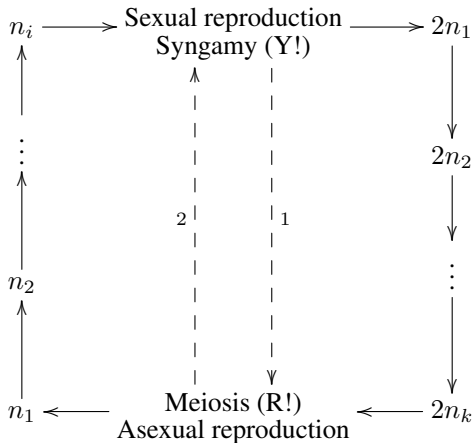
Sporic life cycle: plants



Gametic life cycle: animals



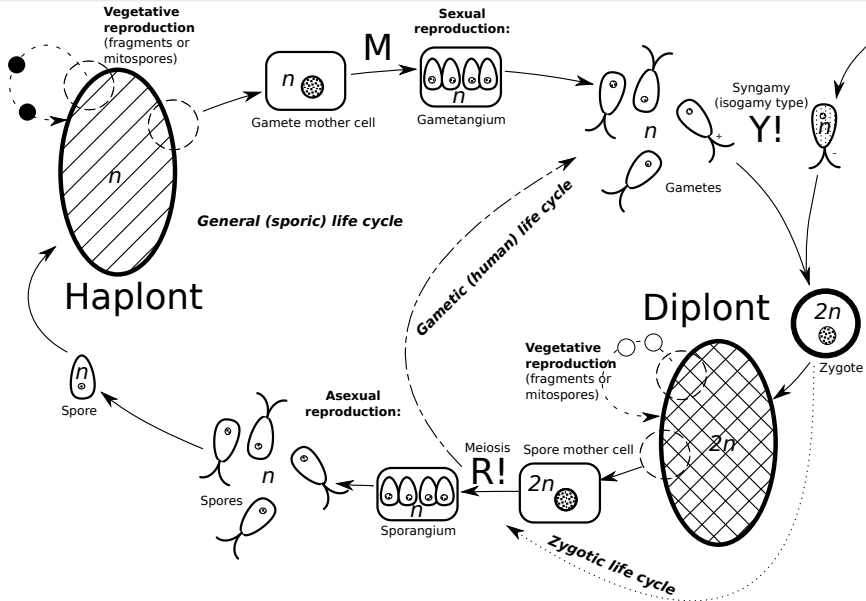
Life cycle math



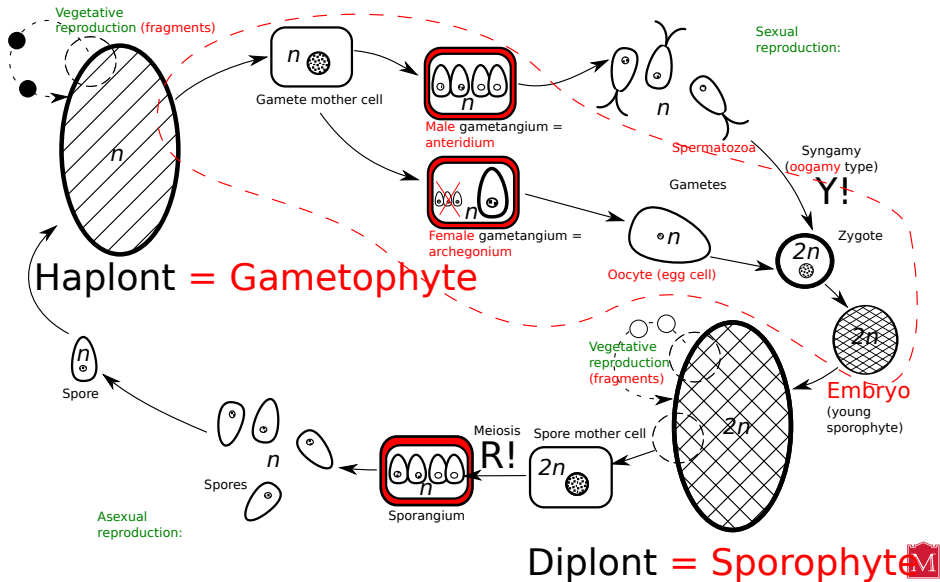
- 1 — zygotic cycle (Y!→R!);
 2 — gametic cycle (R!→Y!).



Life cycle (again)



Life cycle of plants₂



Tissues

Origin of tissues



Summary

- **Zygotic** life cycle has no *diplont*, **gametic** life cycle has no *haplont*, **sporic** life cycle has both *haplont* and *diplont*
- The evolution of life cycles goes from zygotic to sporic and then to gametic because “diplonts are better”



Final question (2 points)

Answers will be provided on your paper fragments, please check it
ASAP!



Final question (2 points)

Ask me a question about the current part of Botany course.

Answers will be provided on your paper fragments, please check it
ASAP!



For Further Reading



A. Shipunov.

Introduction to Botany [Electronic resource].

2016.

Mode of access:

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

