

# **Biologia Vegetal**

## Capt VII - Plantas com Flôr

# Plantas com Flôr

O ciclo de vida das angiospérmicas

A microsporógenese. Grãos de pólen. Tipos de grão de pólen.

Estrutura do óvulo e formação do ovário.

Síndromas reprodutivos e sua evolução

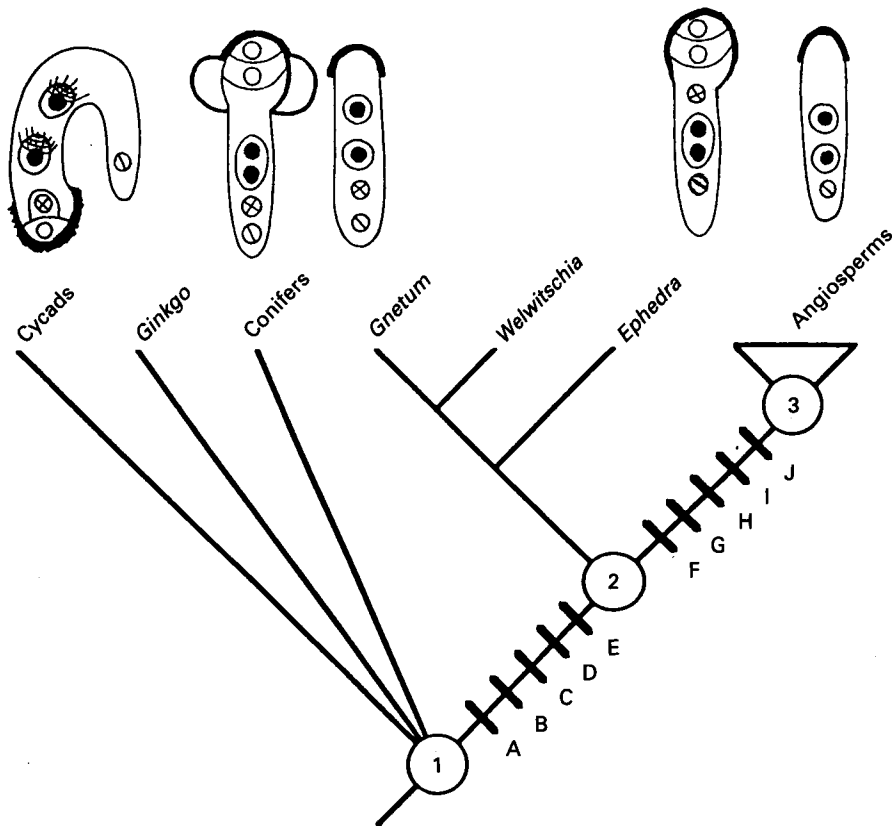
Evolução do processo reprodutivo nas Angiospérmicas

Endosperma: diplóide e triplóide

Filogenia das Angiospérmicas

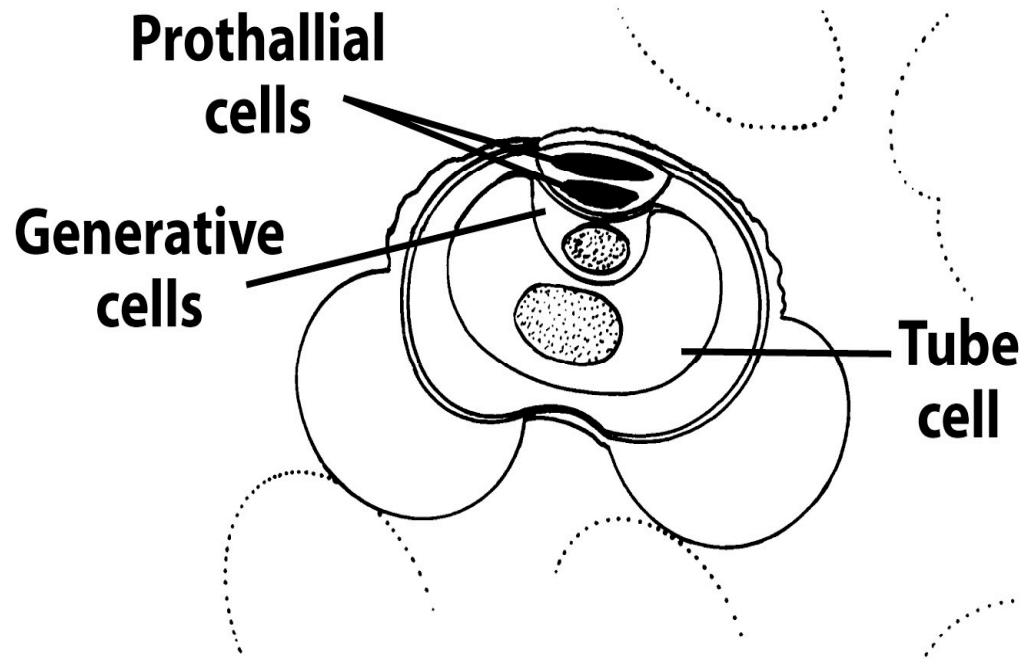
Diversidade de formas e de flores

# Evolução dos síndromas reprodutivos



- A- reprodução mais rápida
- B - gametófitos mais pequenos
- C - sifonogamia (cel. Espermática não móvel)
- D - retenção alveolar
- E - dupla fertilização
- F - posterior redução do gametófito feminino
- G - especialização parcial dos gametófitos
- H - perda dos arquegónios
- I - triploidia

# Grãos de pólen Gimnospérmicas

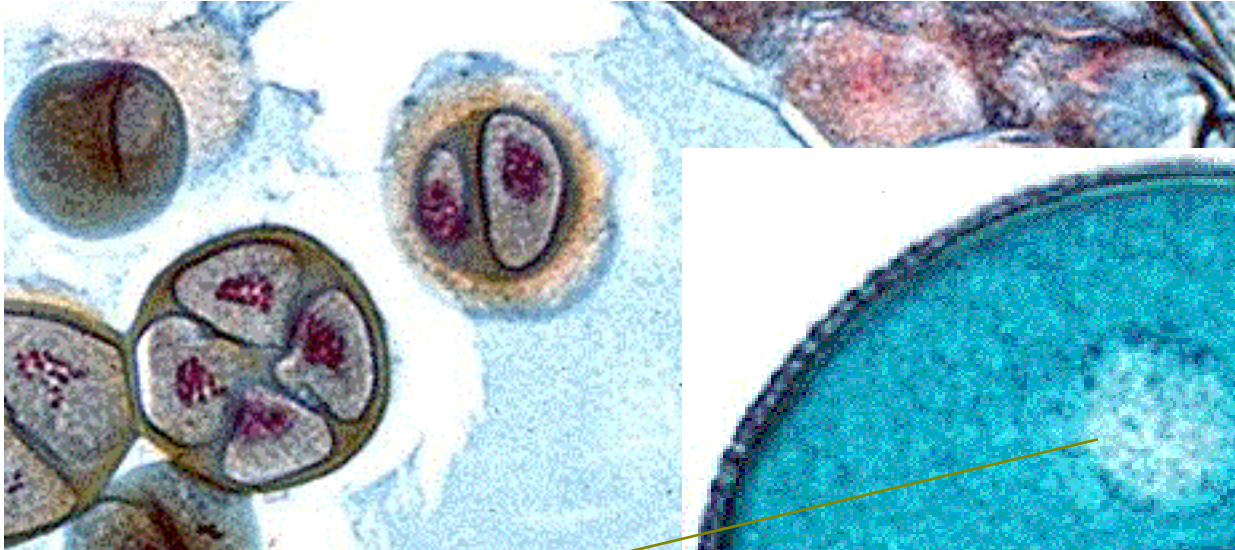


Microgametófito imaturo

2 células protaliais  
1 célula generativa  
1 célula do tubo

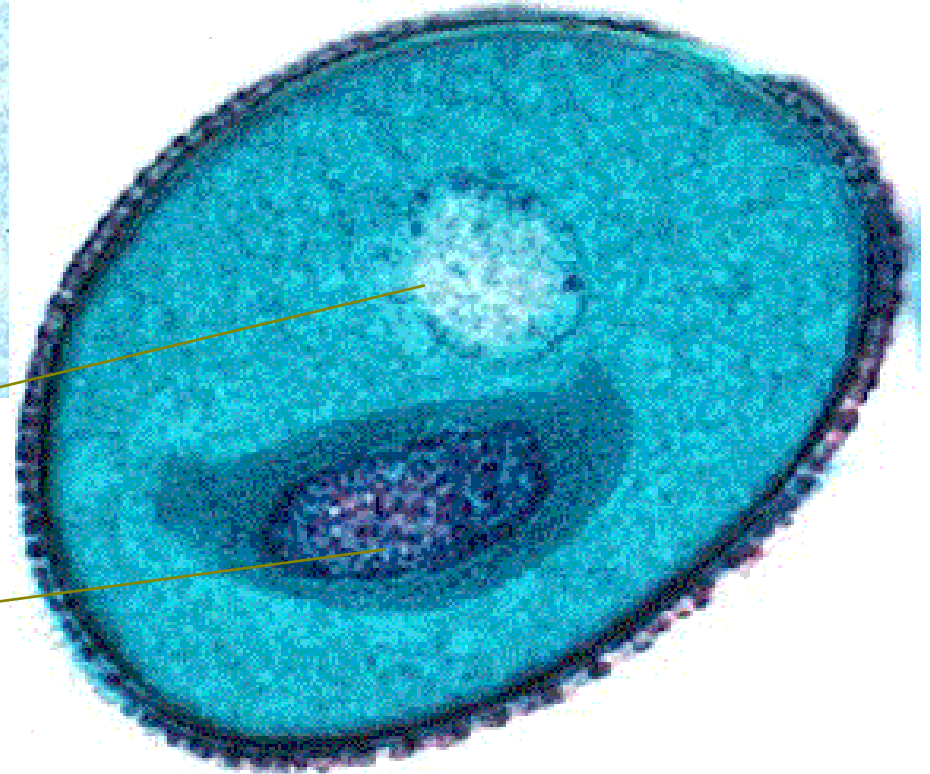
Figure 18-16 part 1  
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# Grão de pólen Angiospérmicas

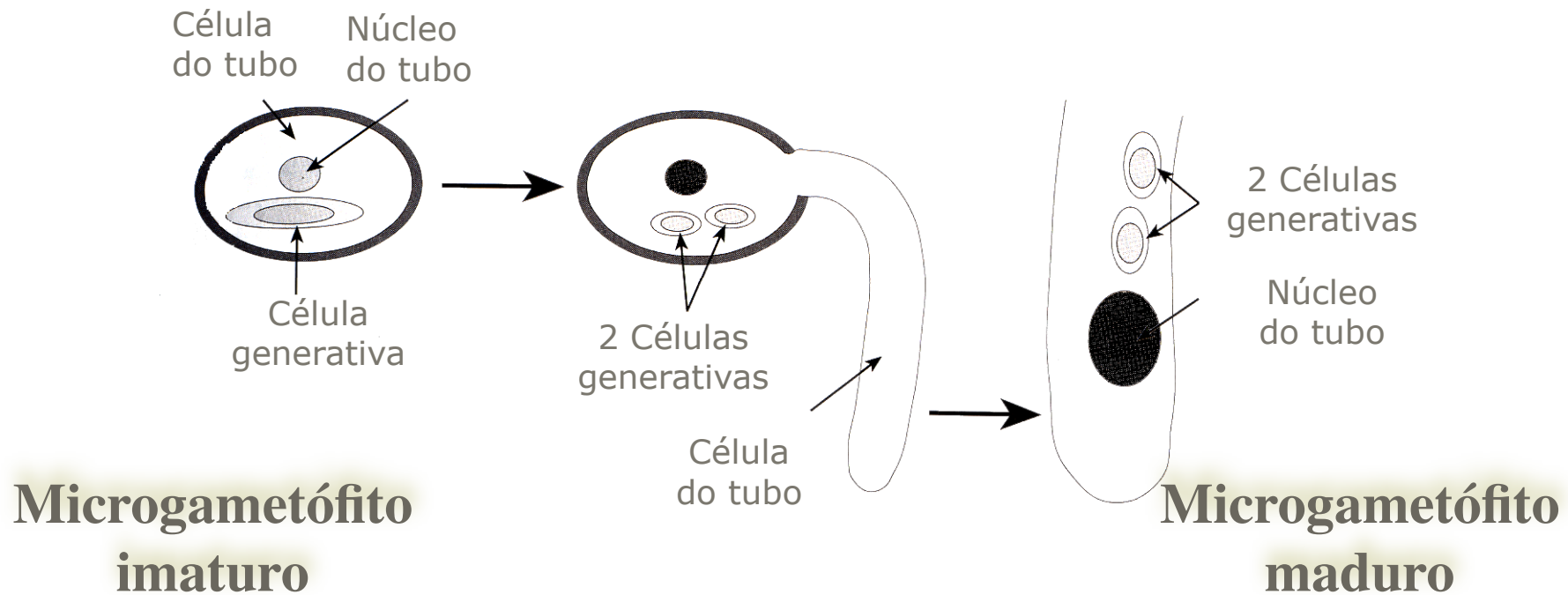


Núcleo do tubo

Núcleo generativo



# Grão de pólen - germinação





# Grãos de pólen

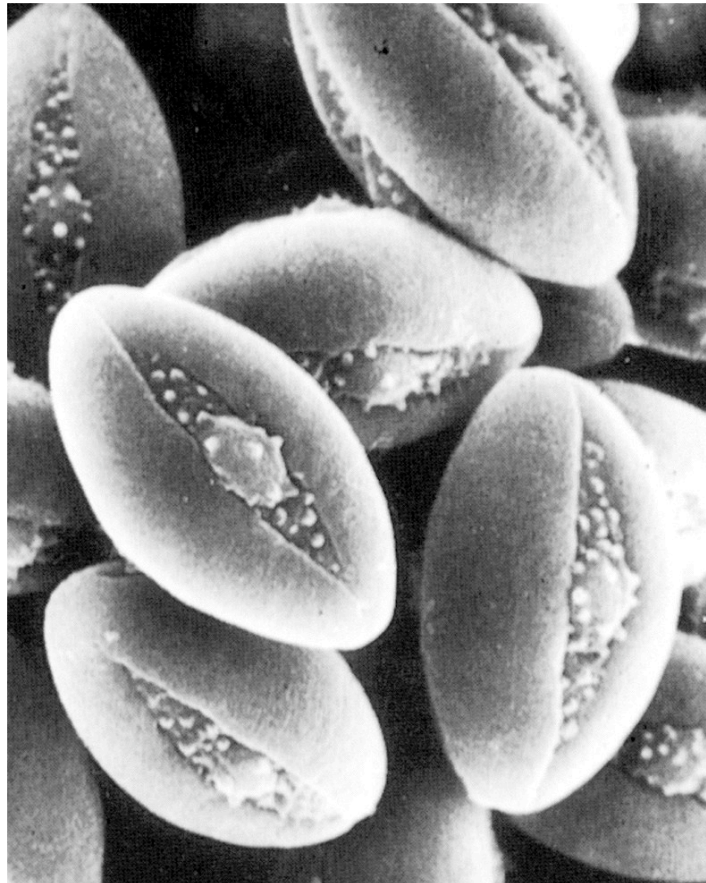


Figure 19-15a  
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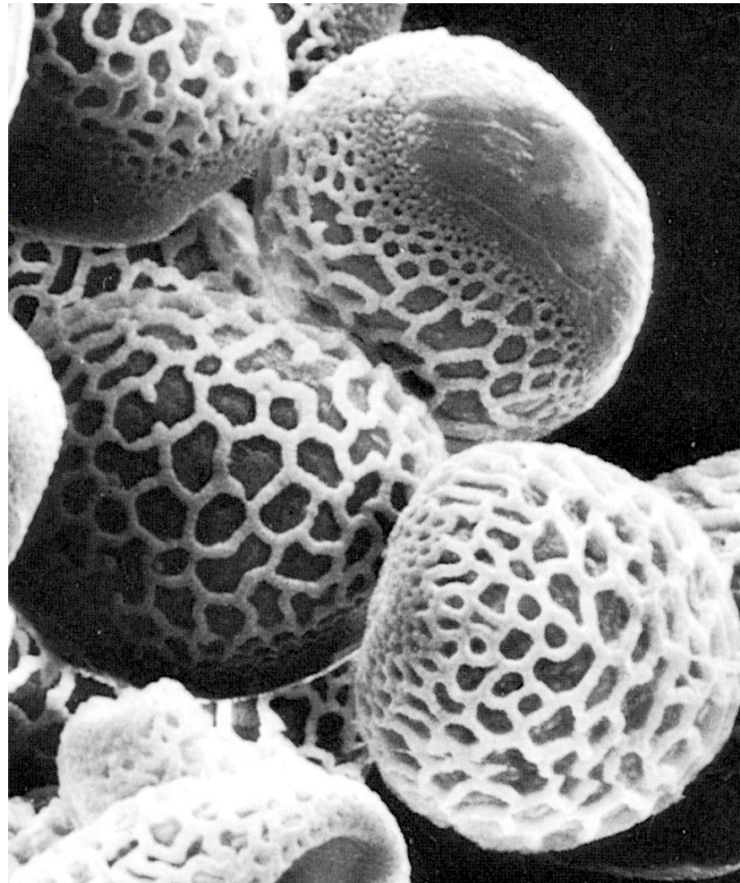
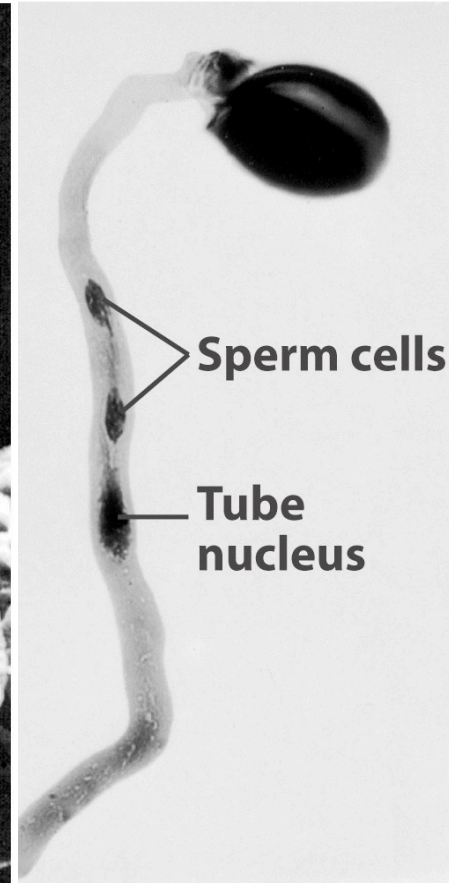
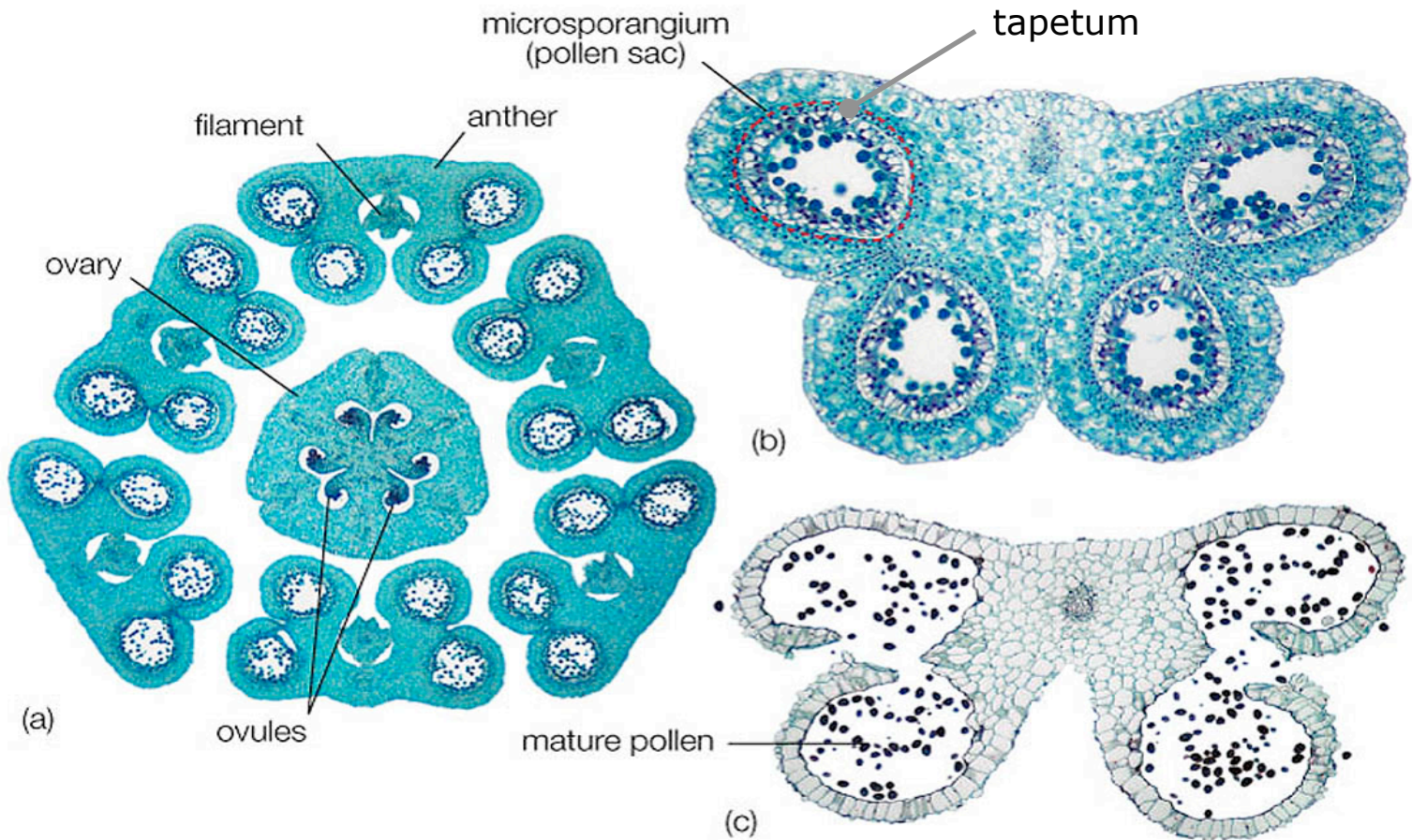


Figure 19-15b  
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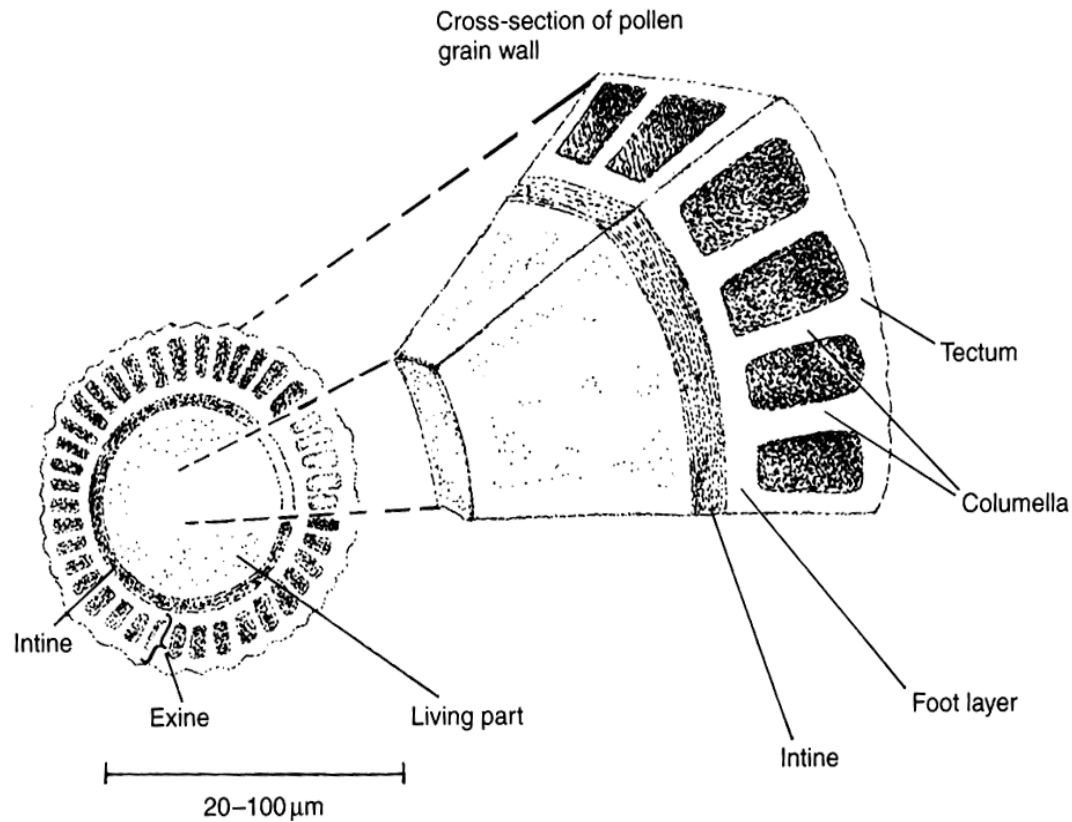
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# Microsporogénesese e grãos de pólen

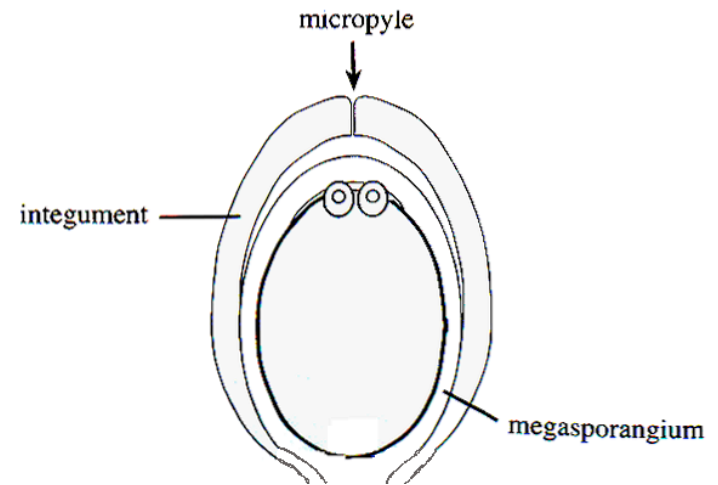
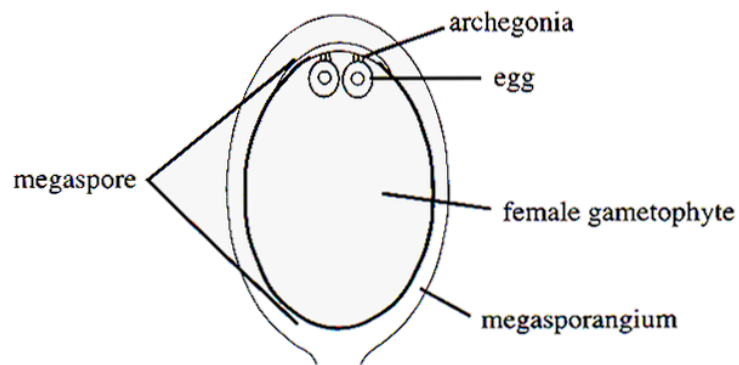




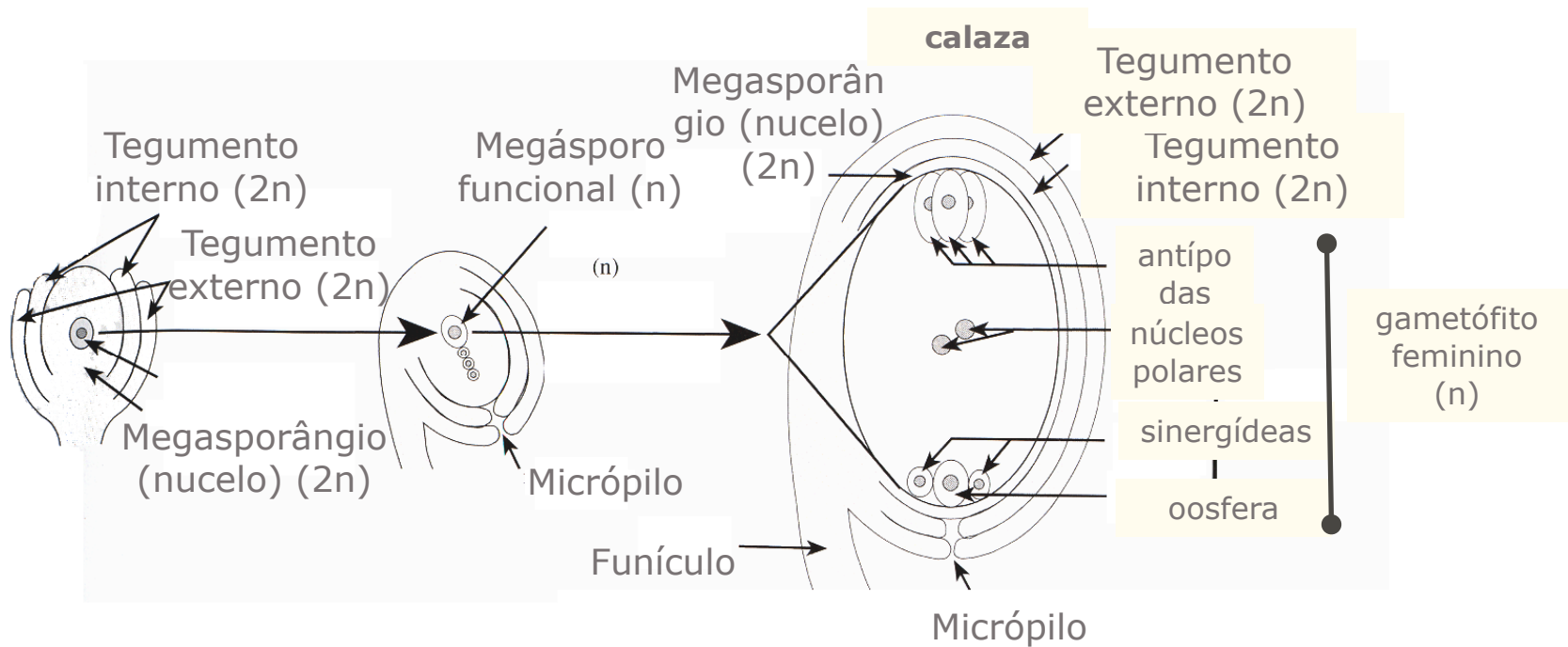
# Grãos de pólen



# Óvulo - Gimnospérmicas



# Óvulo Angiospérmicas



# Saco embrionário

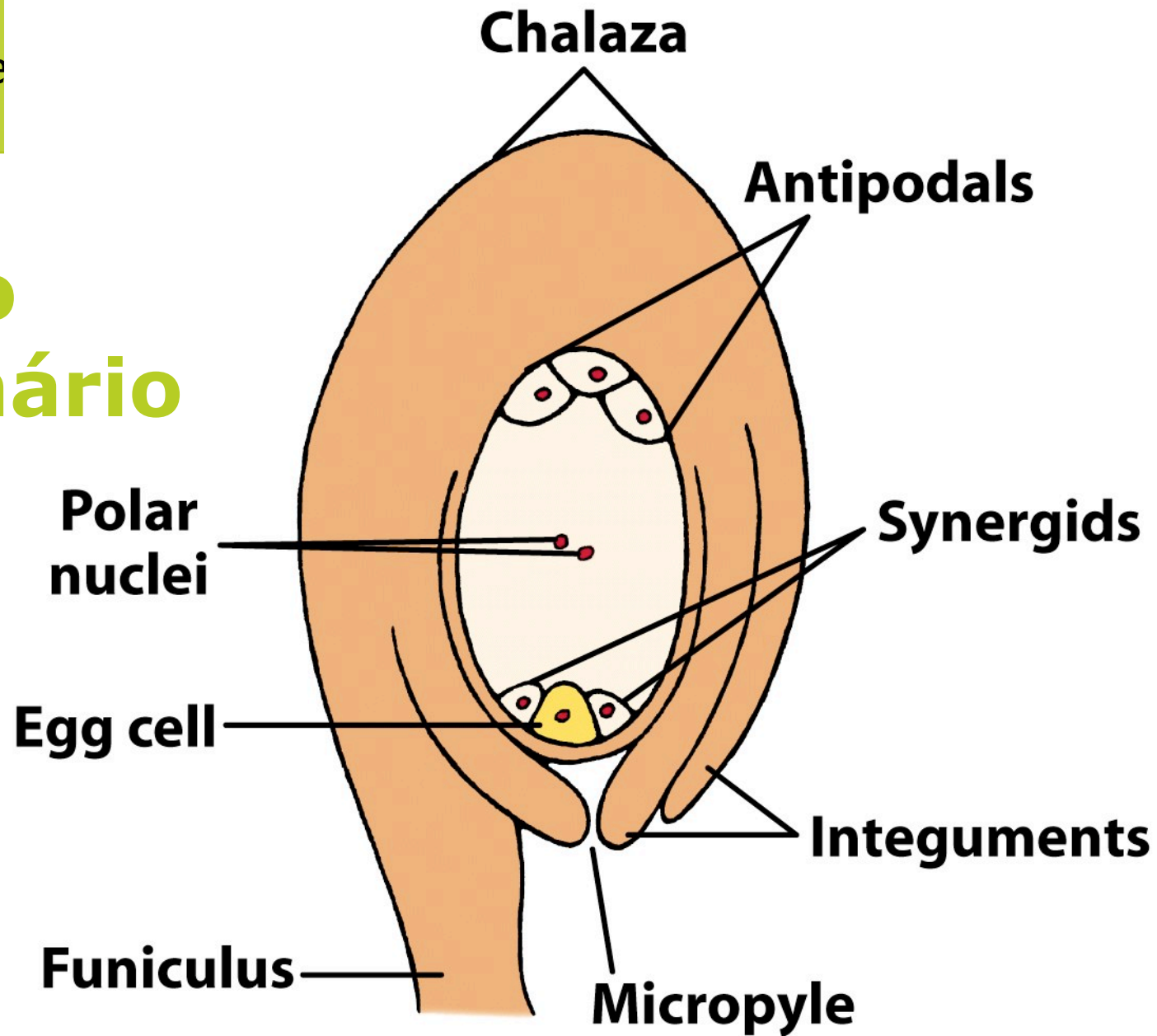


Figure 19-19  
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# Ovulo de Angiospérmica

Megasporocyte

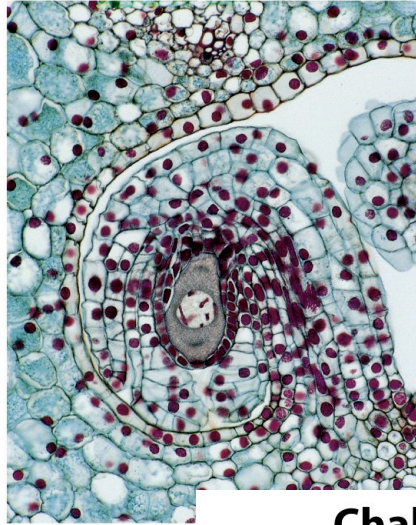
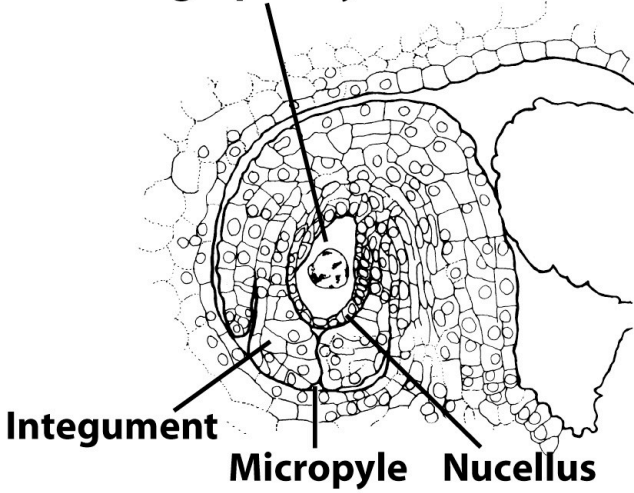


Figure 19-18b  
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Chalaza

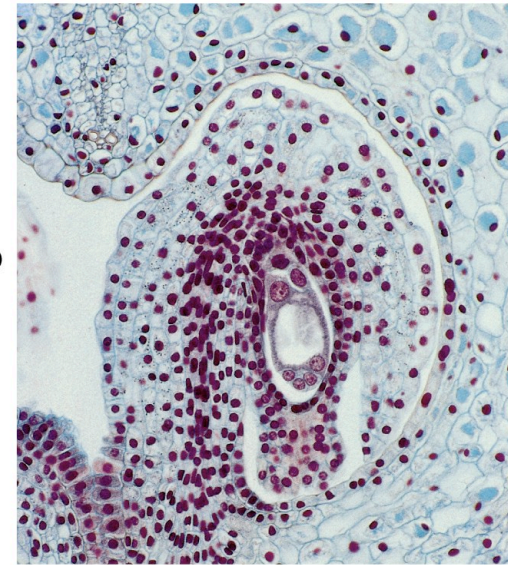
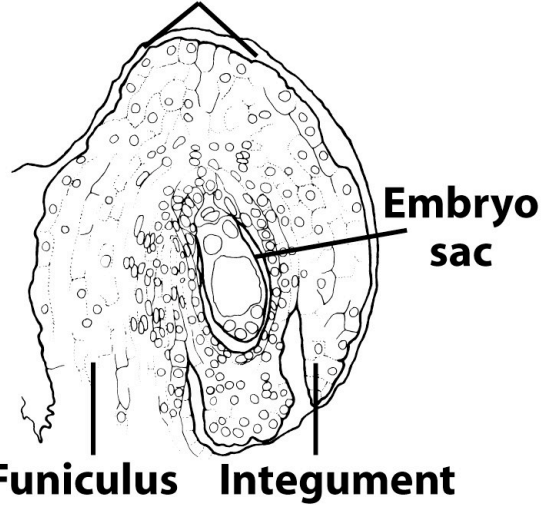
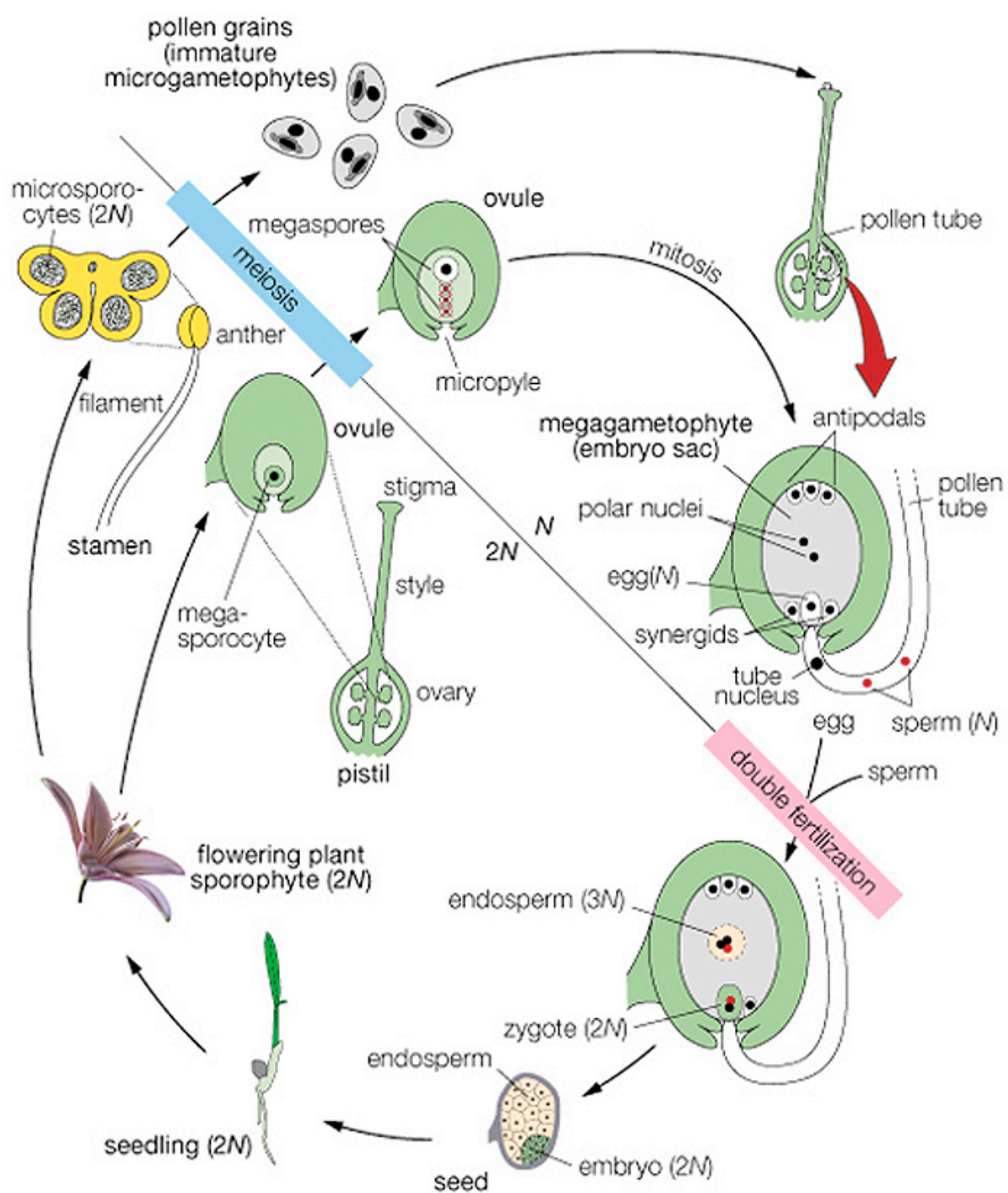


Figure 19-18c  
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# Ciclo de vida das Angiospérmicas



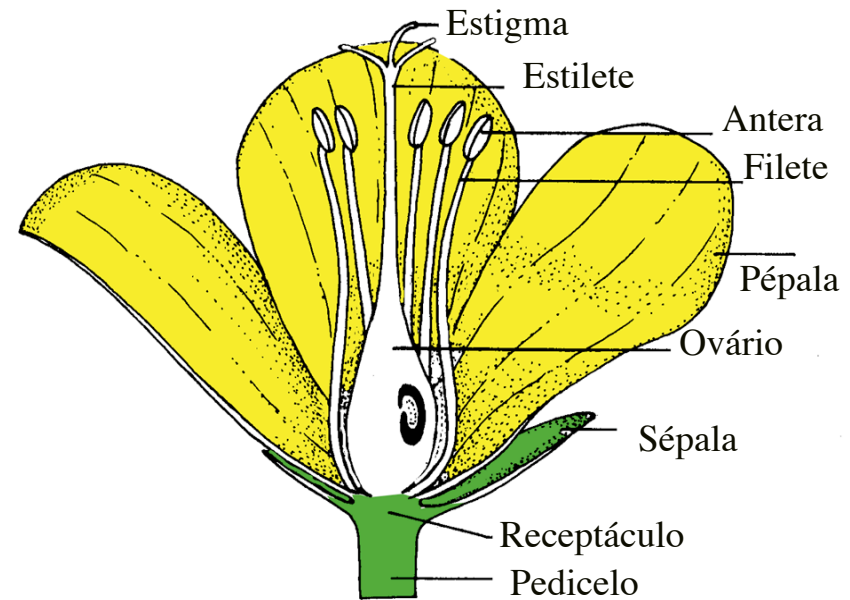
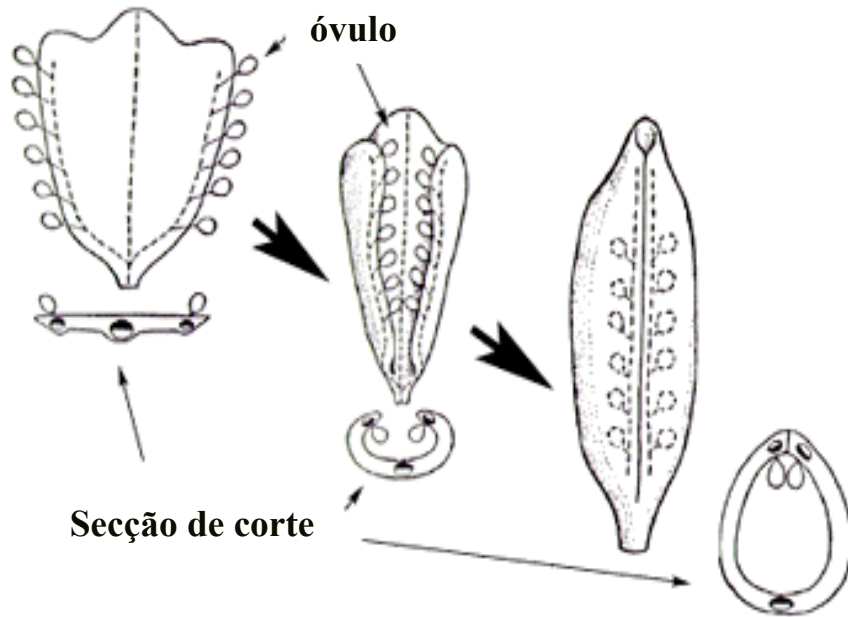
# O que são flores ?



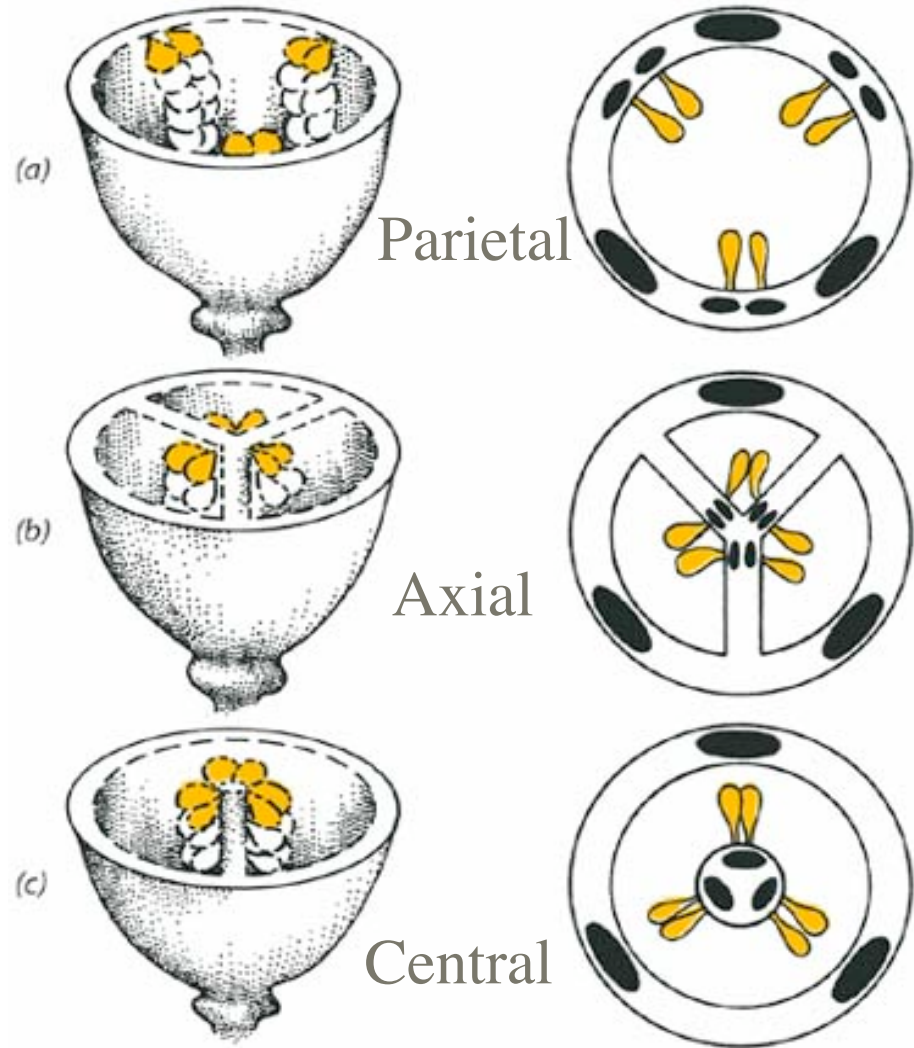
SurrIDGE C. *Nature* **432**, 161 (11 November 2004)

1790, *Die Metamorphose der Pflanzen*  
(*The Metamorphosis of Plants*), the  
poet and philosopher Johann Wolfgang  
von Goethe

# Óvulo, ovário e flôr



# Tipos de placentação





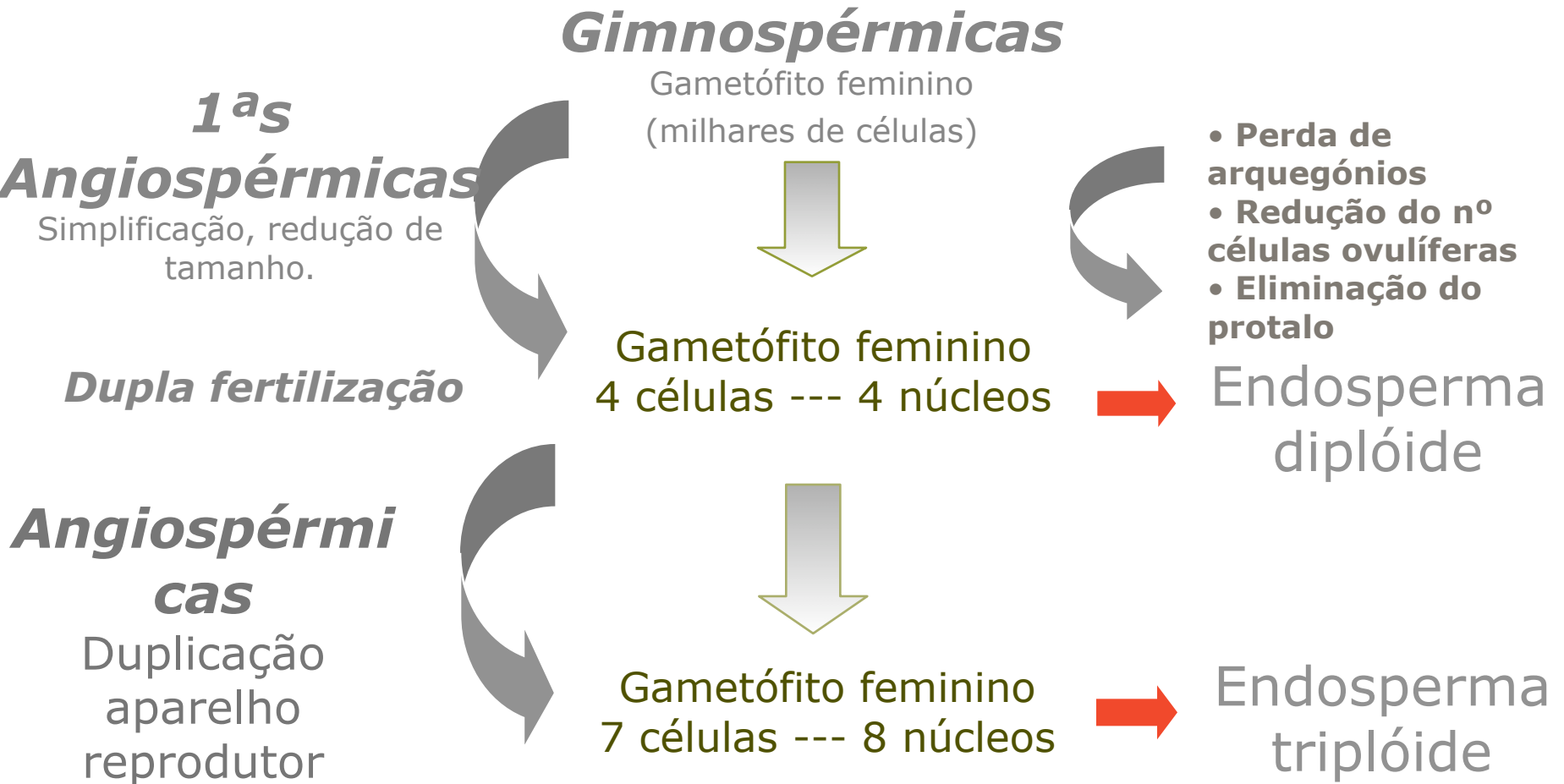


# Características evolutivas do síndrome reprodutivo das Angiospérmicas

Características	1ª Angiosp (20th sec)	1ª Angiosp. (actual)	Maior parte Angiosp.	<i>Zea mays</i>	<i>Arabidopsis thaliana</i>
Grão pólen	Bicelular	Bicelular	Bicelular	Tricelular	Tricelular
Gametófito fem.	7 cel., 8 nucleos	4 cel., 4 nucleos	7 cel., 8 nucleos	7 cel., 8 nucleos	7 cel., 8 nucleos
Endosperma	Triploide	Diploide	Triploide	Triploide	Triploide
Desenvol. endosperma	Nuclear ou celular	celular	Nuclear	Nuclear	Nuclear

Friedman & Williams, 2004. *Plant Cell* 16: 119-132

# Síndrome reprodutiva



# Referências

- Raven, Biology of Plants - Angiosperms Capt. 19
- Mauseth, Botany - Angiosperms, Capt 25
- Friedman & Williams 2004. The Plant Cell 16: 119-132.
- Friedman. 1995. Proc. Natl. Acad. Sci. 92: 3913-3917.
- Williams & Friedman. 2002. Nature 415: 522-526.