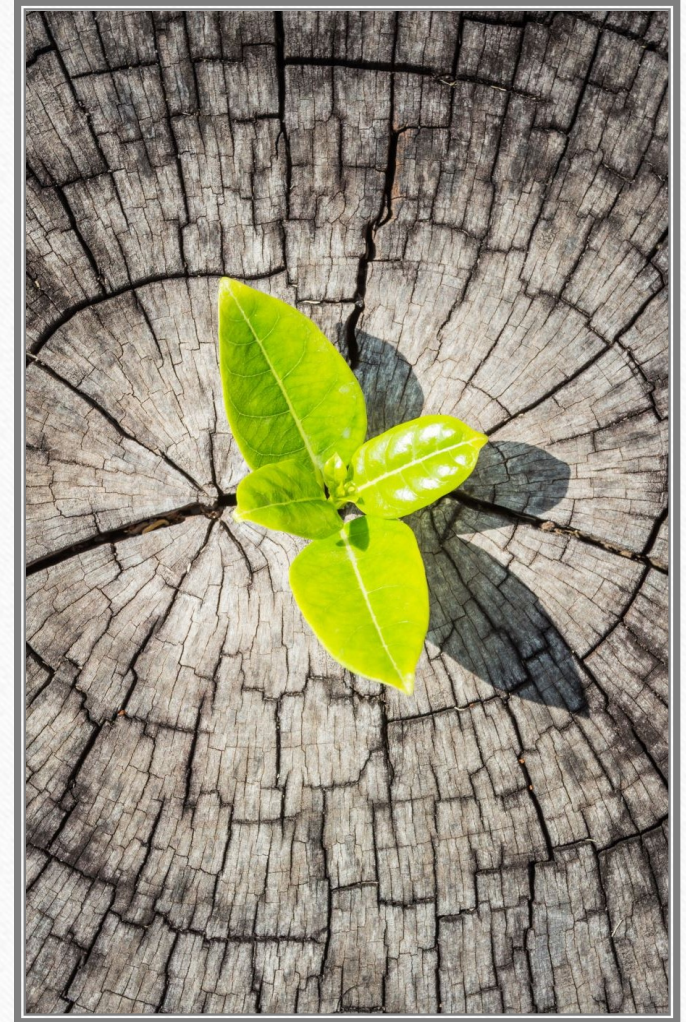


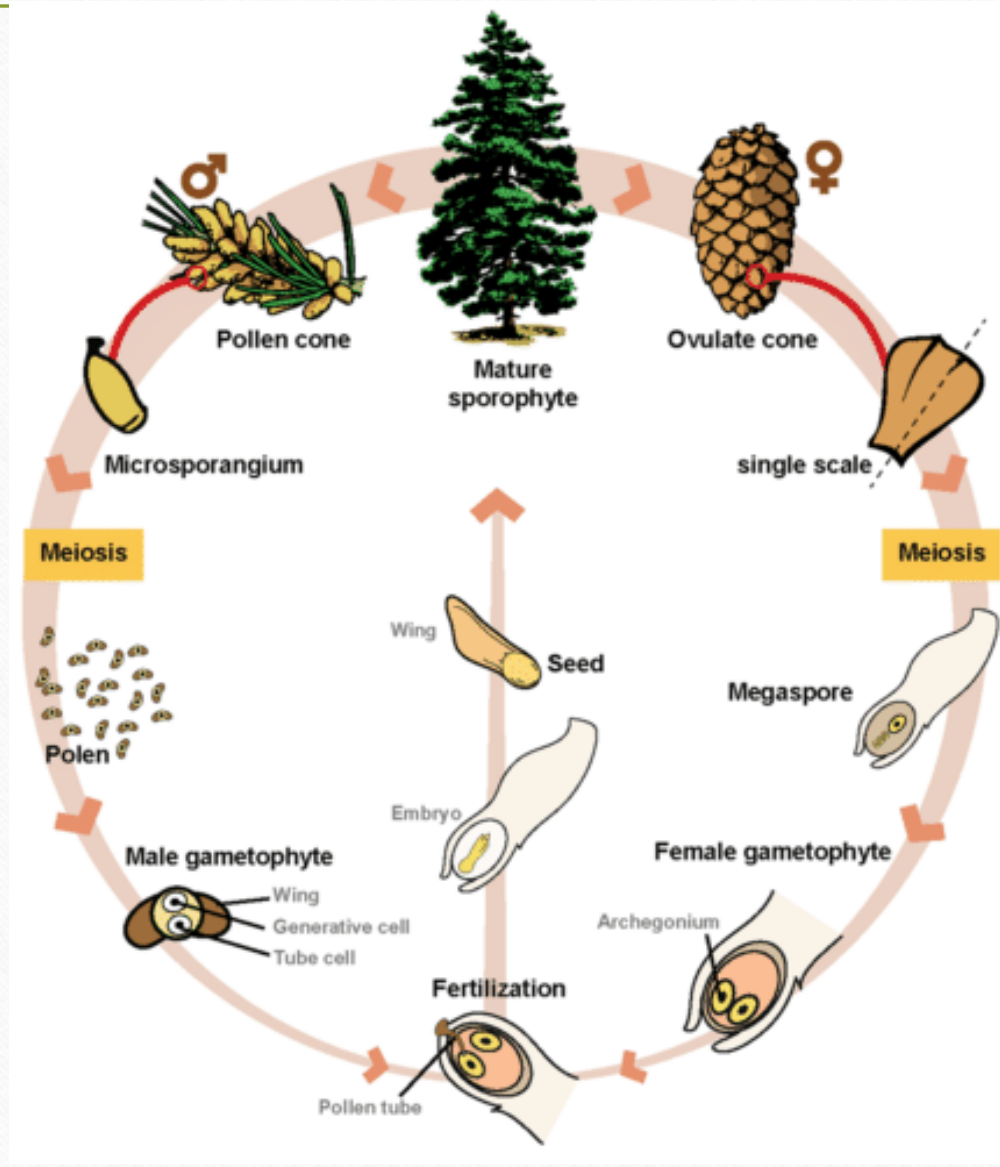
# Vývoj samčího a samičího gametofytu, opylení, oplodnění, embryogeneze u nahosemenných

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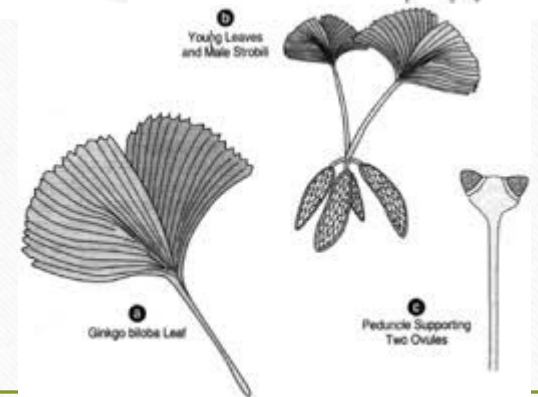
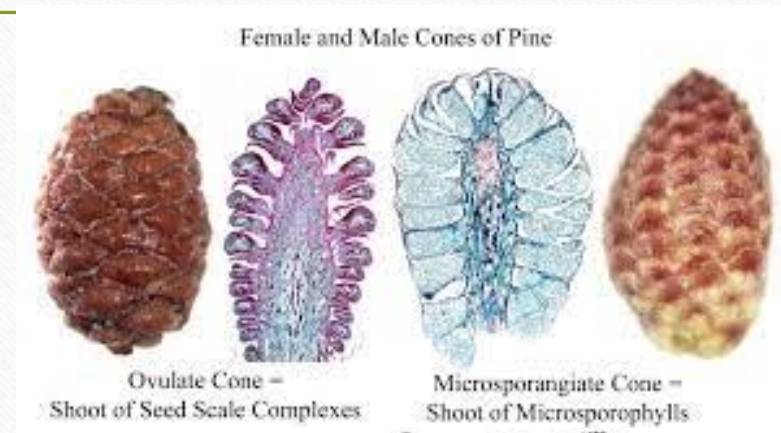
Mgr. Hana Cempírková, Ph.D.,

Rostlinná embryologie, podzimní semestr 2022

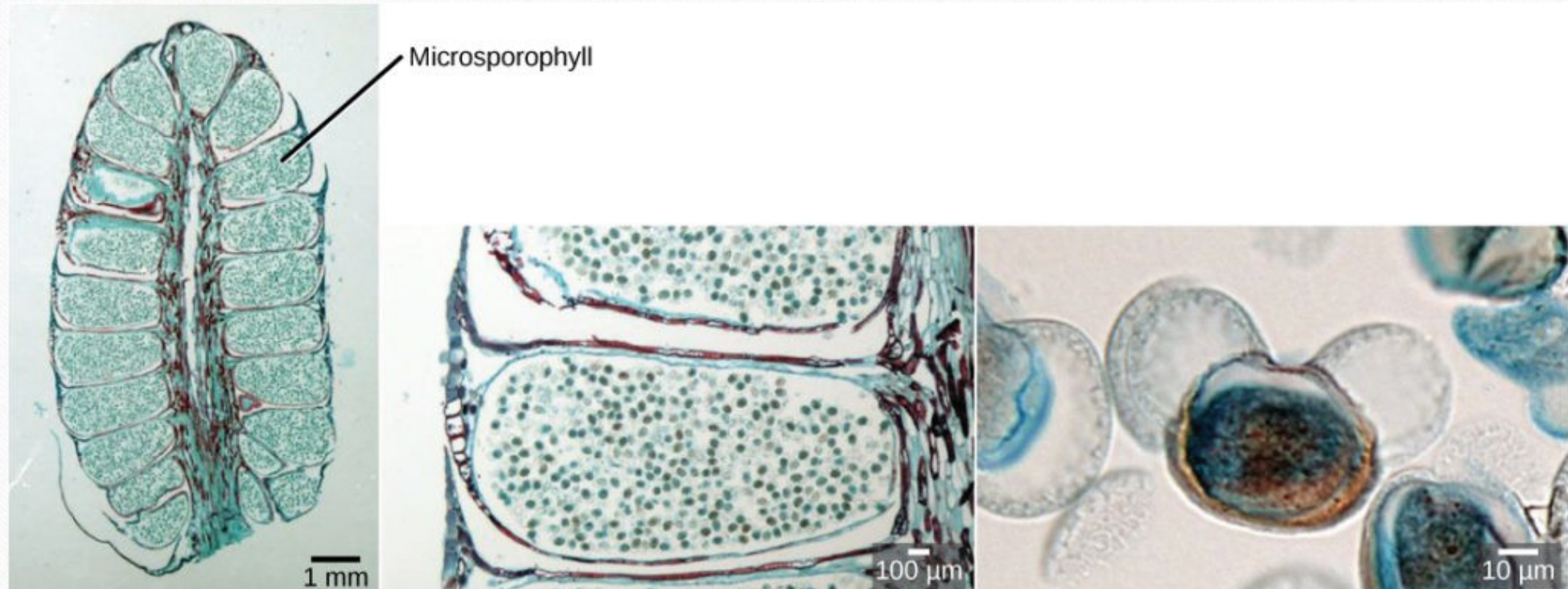




# Šišťice (strobilus) – místo vývoje gamatofytů a embrya

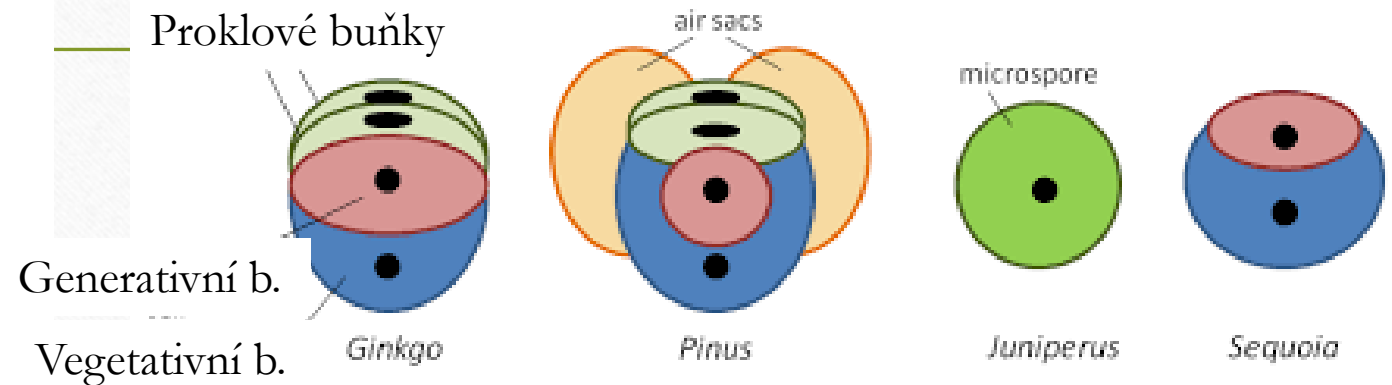
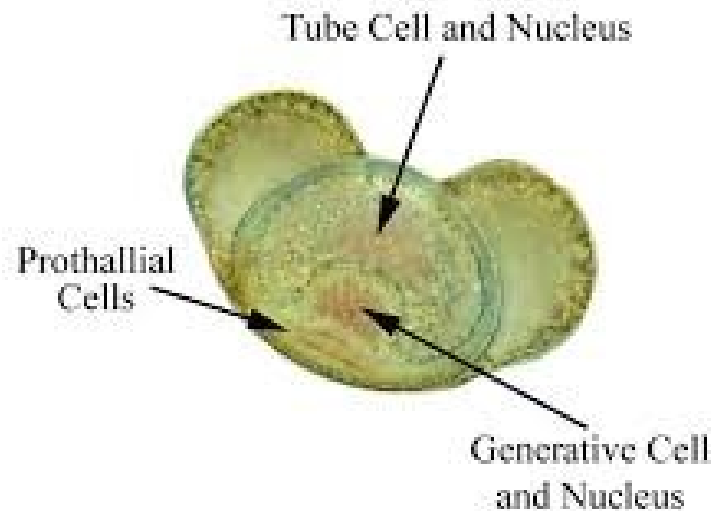
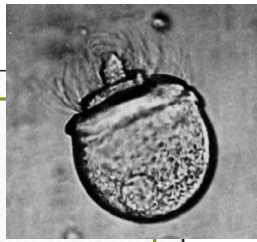


# Samčí gametofyt



Mikrosporocyty v mikrosporangiu → mikrospory → pylové zrno (samčí gametofyt)

# Vývoj pylového zrna nahosemenných



4 až 5 mitóz v různých stádiích (před a po opylení)

- Mikrospora → prothalliové (proklové) buňky (degenerují) a antheridiová buňka
- Antheridiová buňka → vegetativní a generativní buňka
- Generativní buňka (po opylení) → dvě spermatické buňky

# Vývoj pylového zrna borovice (Pinus)

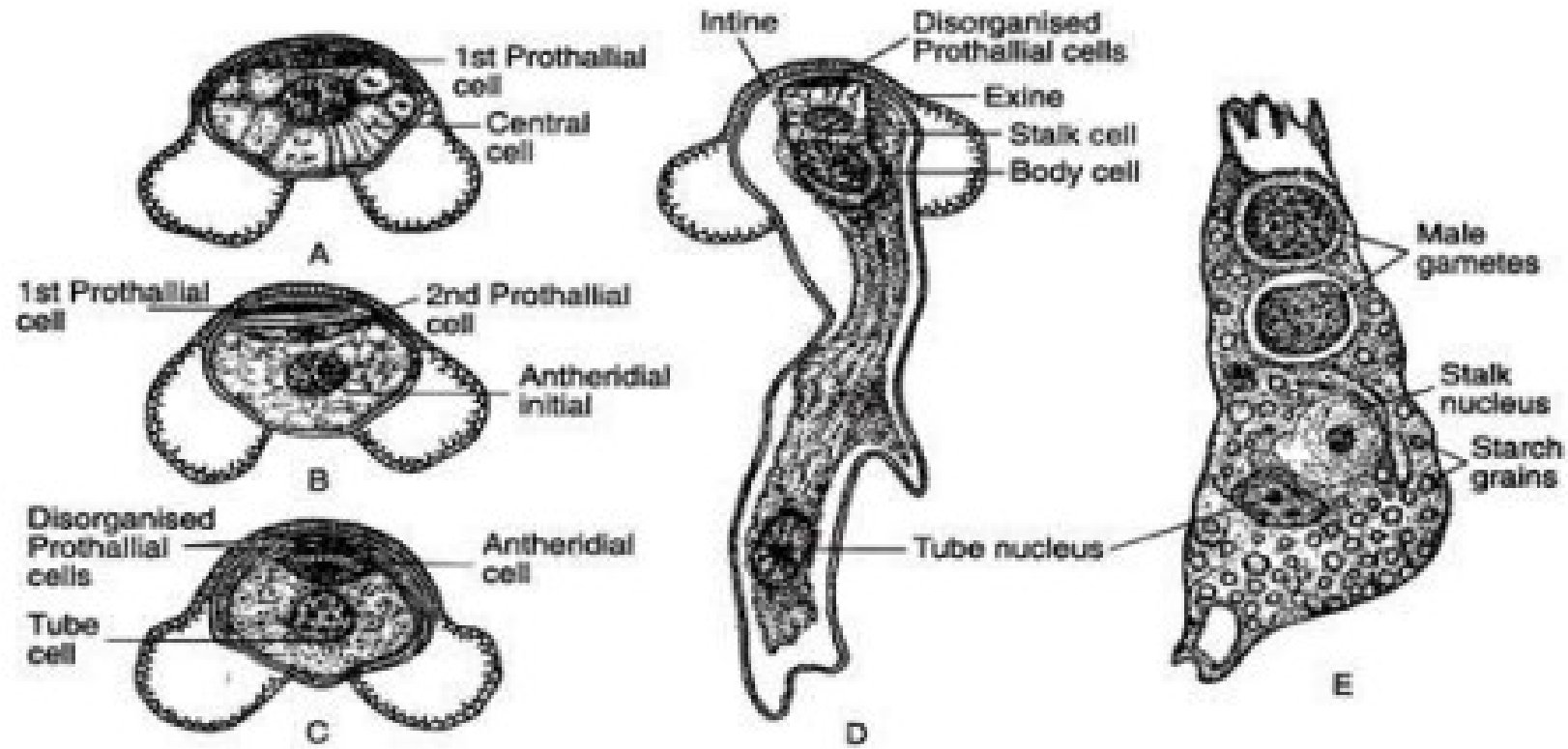
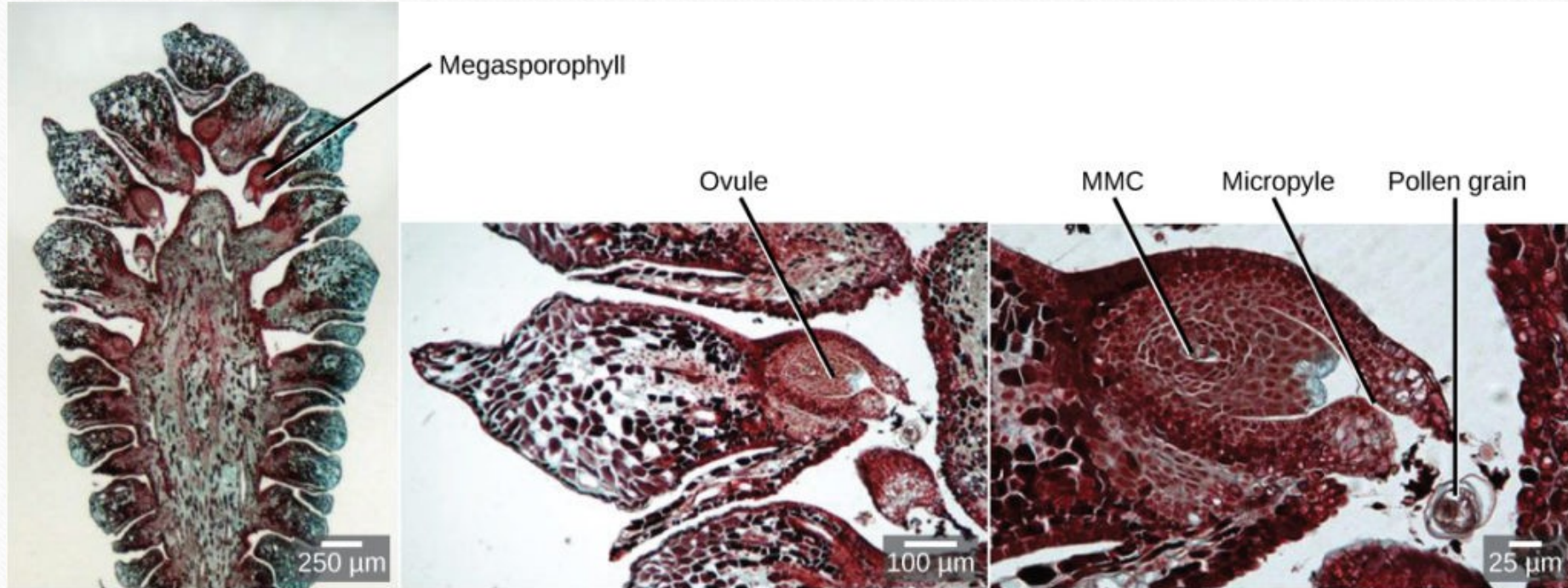
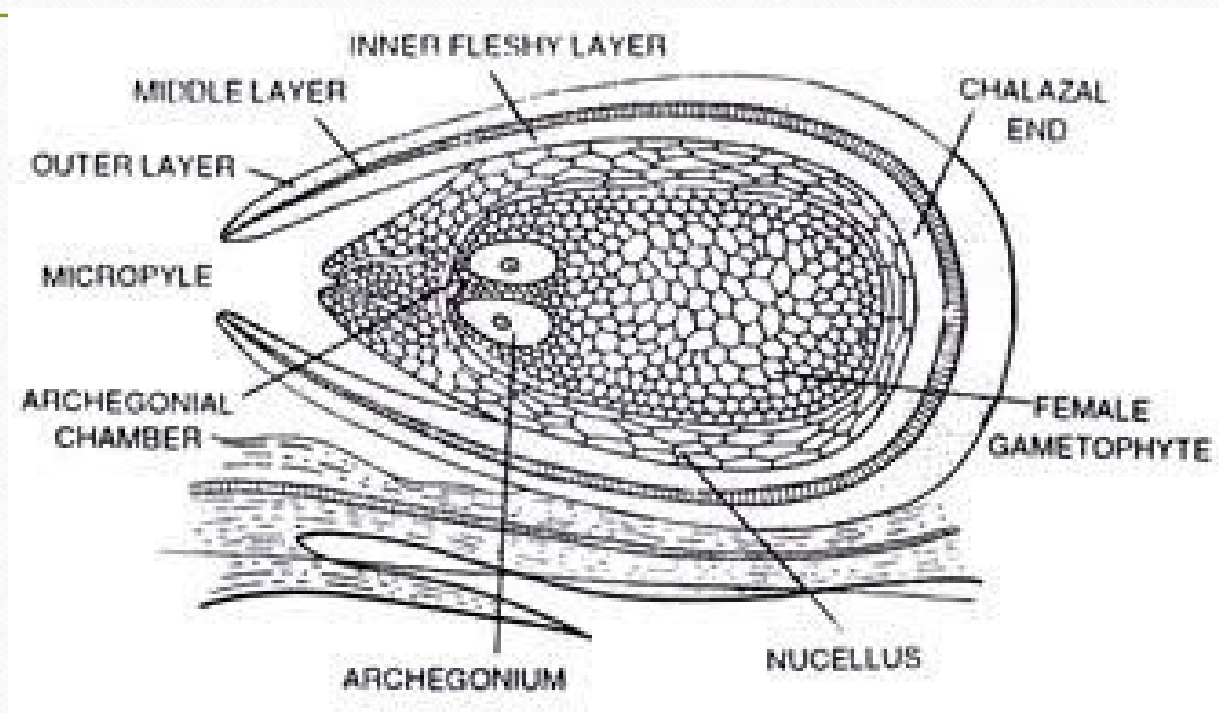


Fig. 1.65 : *Pinus* : A-E. The stages in the development of male gametophyte

# Samičí gametofyt



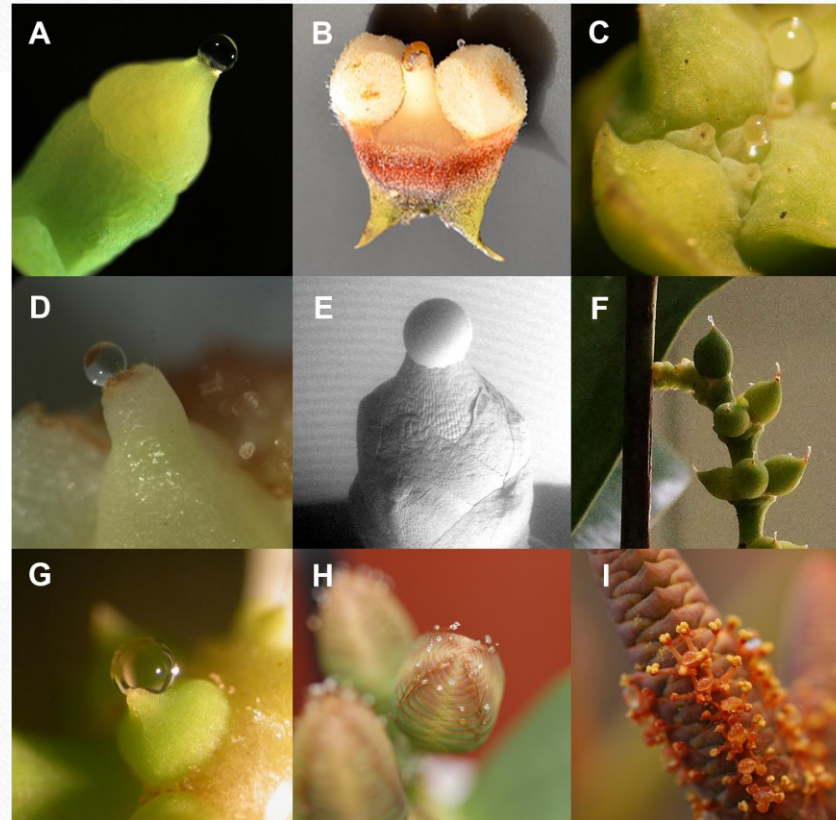
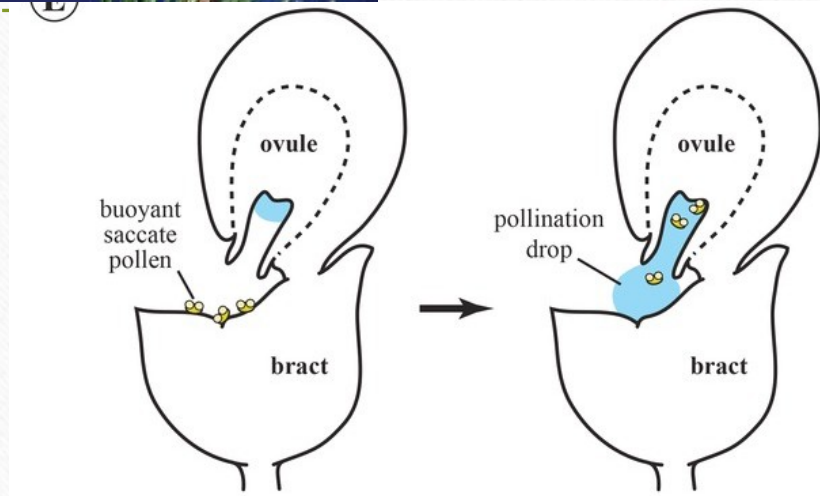
# Zralé vajíčko borovice







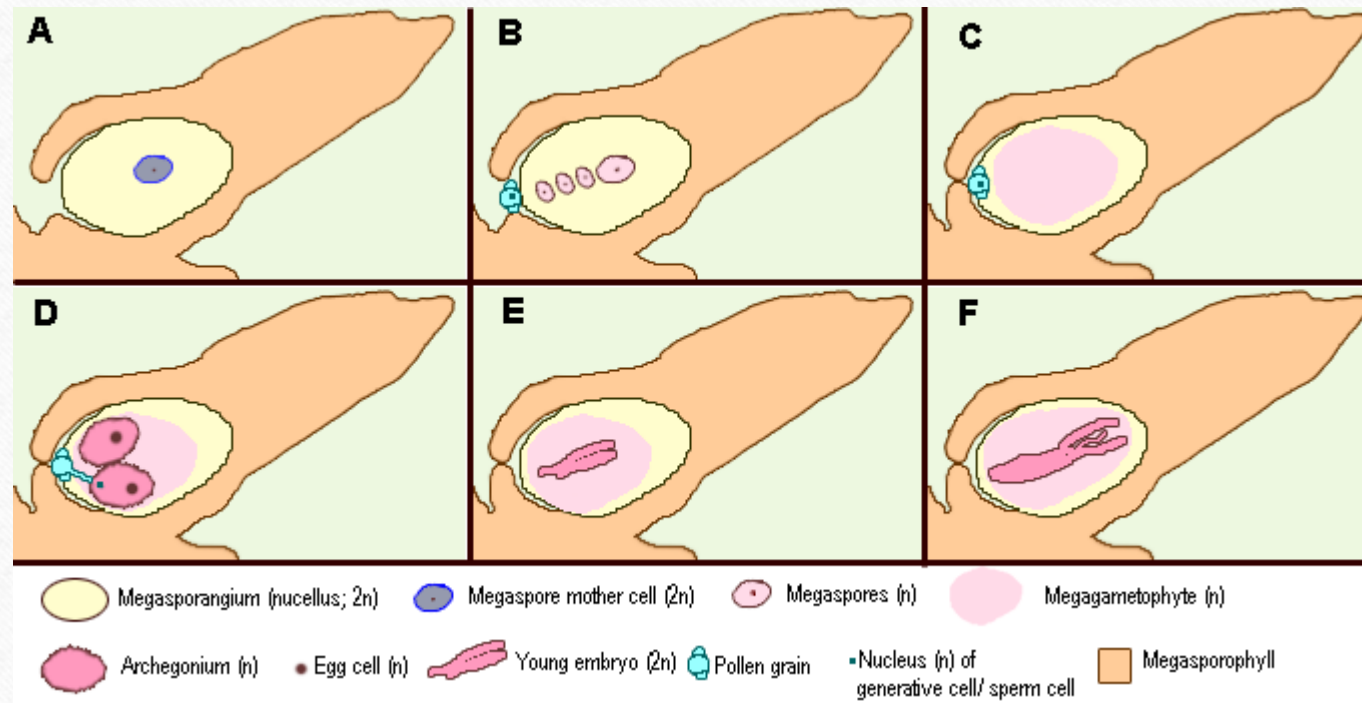
# Opylení u nahosemenných



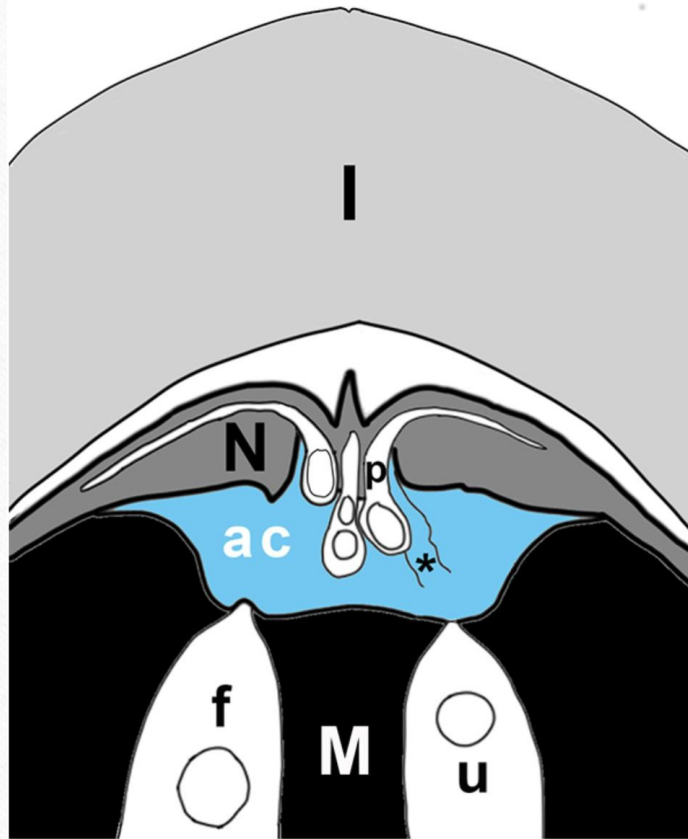
Polinační kapky

# Opylení a oplodnění

- krátká vzdálenost mezi opylením a oplozením
- dlouhá doba mezi opylením a oplozením



# Oplození



I = integument

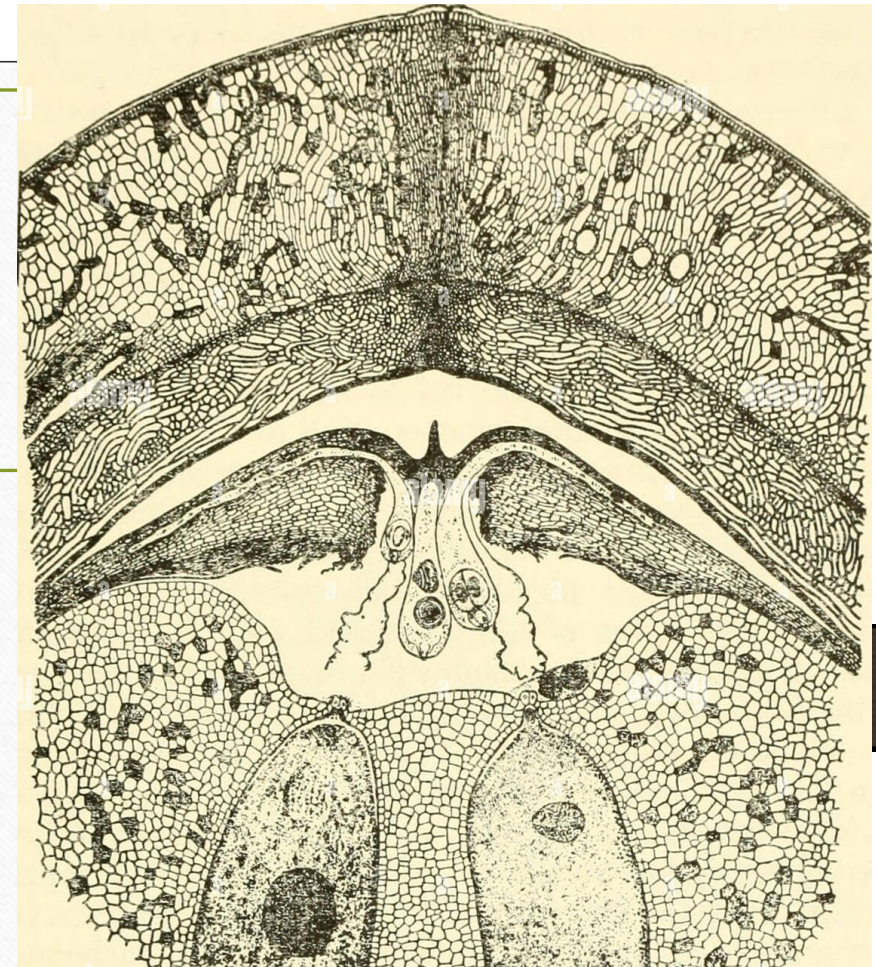
N = nucellus

M = megagametofyt

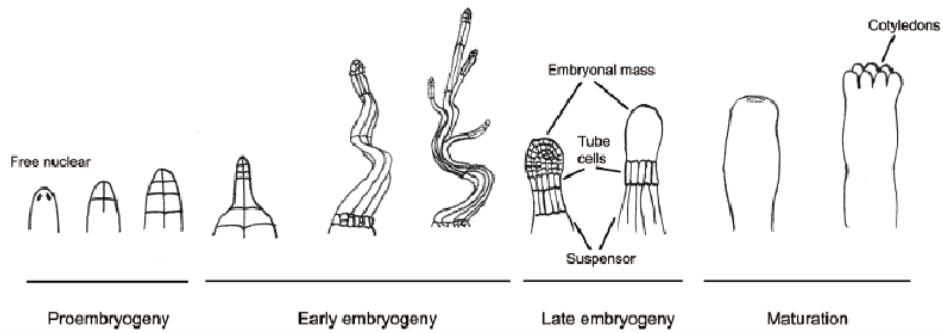
f, u = oplodněné (fert.) a  
neoplodněné (unfert.)  
archegonium

ac = archegoniální komůrka

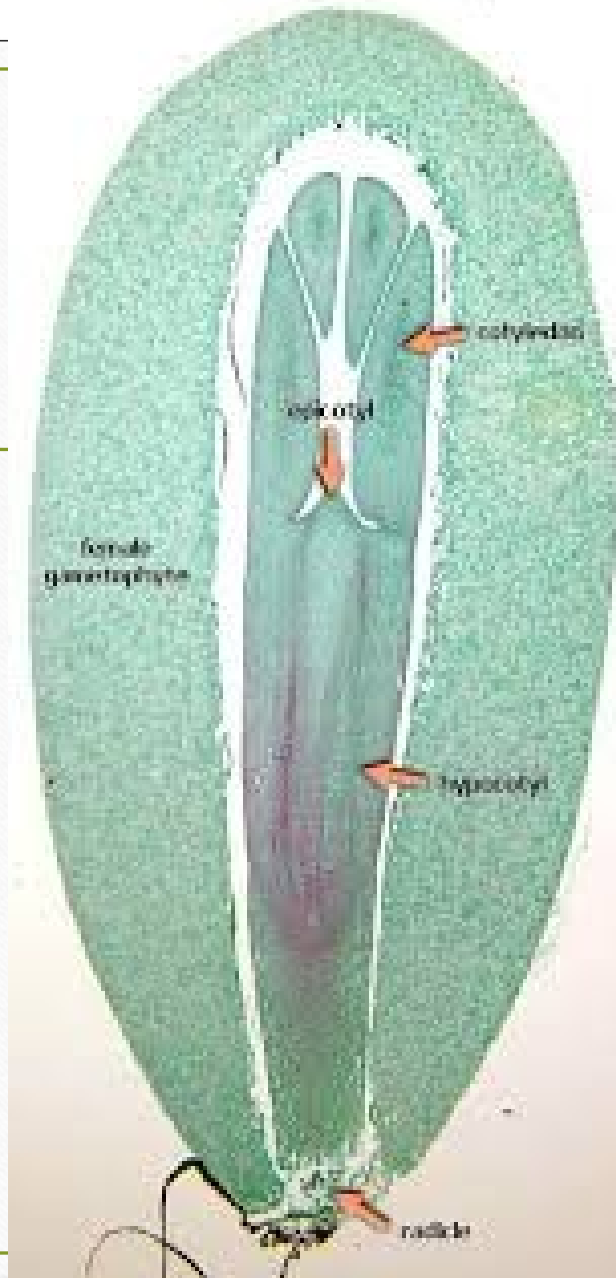
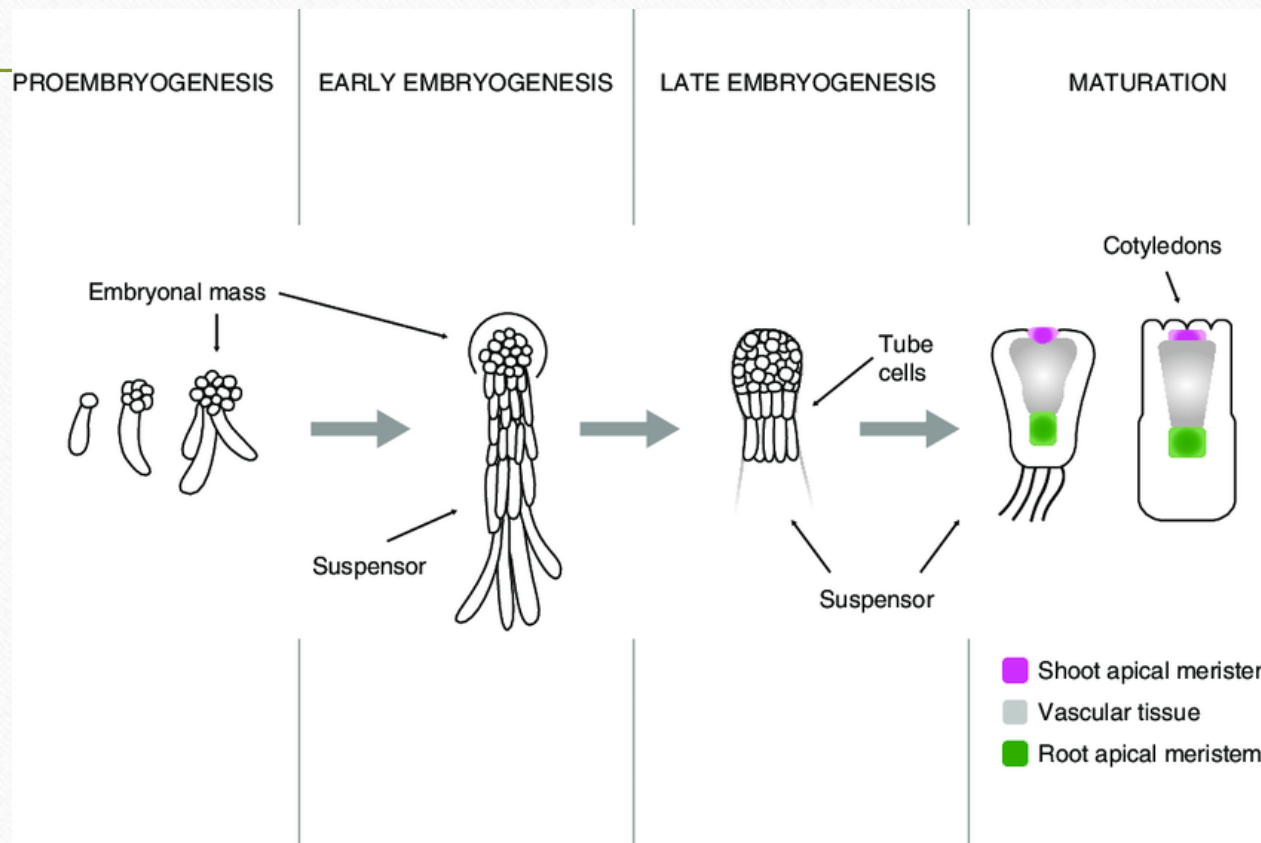
p = pylová láčka



Cleavage polyembryony



# Vývoj embrya



# Dozrívání semen v šiškách



# Semena



Smrk



Piniové oříšky



Ginkgo biloba



Jedle

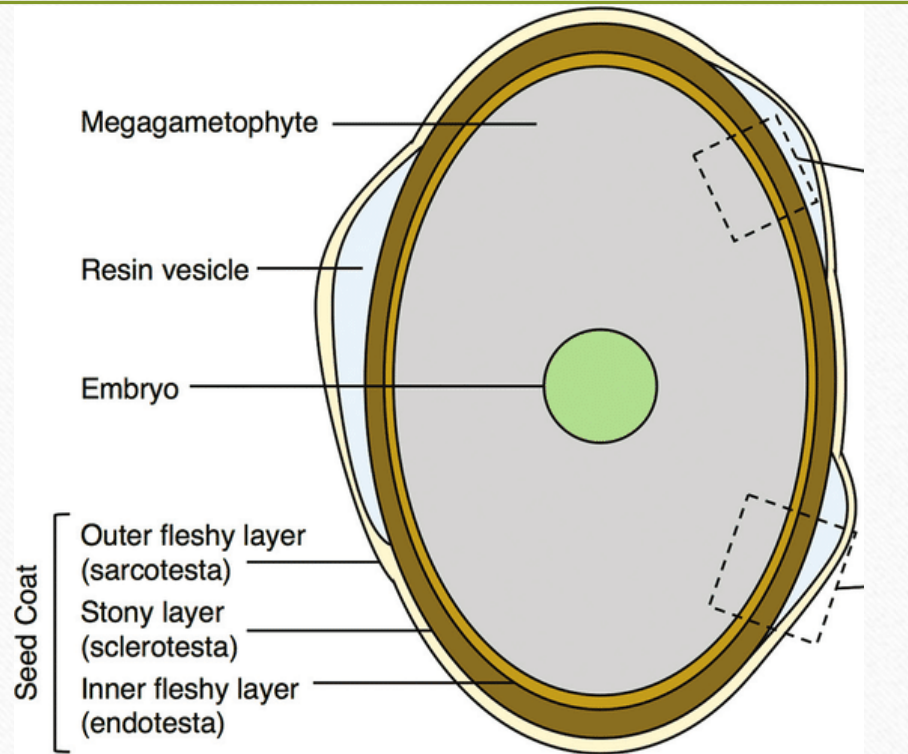


Araucarie

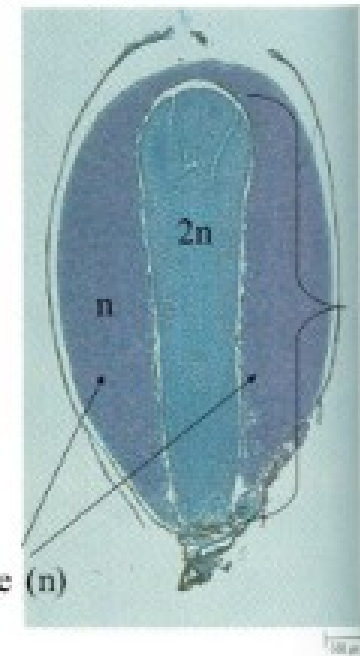
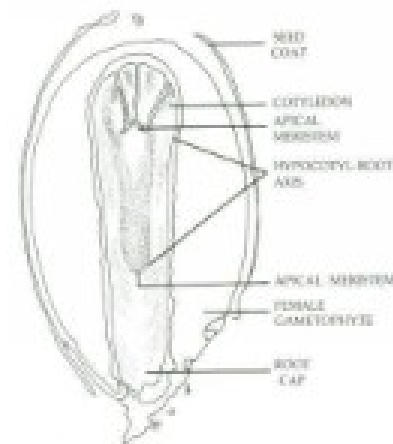


Tis

# Stavba semene



Pine seed showing embryo (baby sporophyte) within nutritive tissue, surrounded by a seed coat



Gametophyte (n)

embryo (2n)

# Shrnutí

