

# Lycopodiidae

- Enacije (nisu vaskularizovane ili jesu samo pri osnovi), mikrofilii
- Ligula
- Sporofili, trofofilii
- Bubrežaste sporangije
- Strobilusi, sporonosne zone
- Izospore (dvopolni gametofit), heterospore (jednopolni gametofit)
- Dihotomija, nejednaka dihotomija
- Adventini korjeni, bez korjenovih dlaka

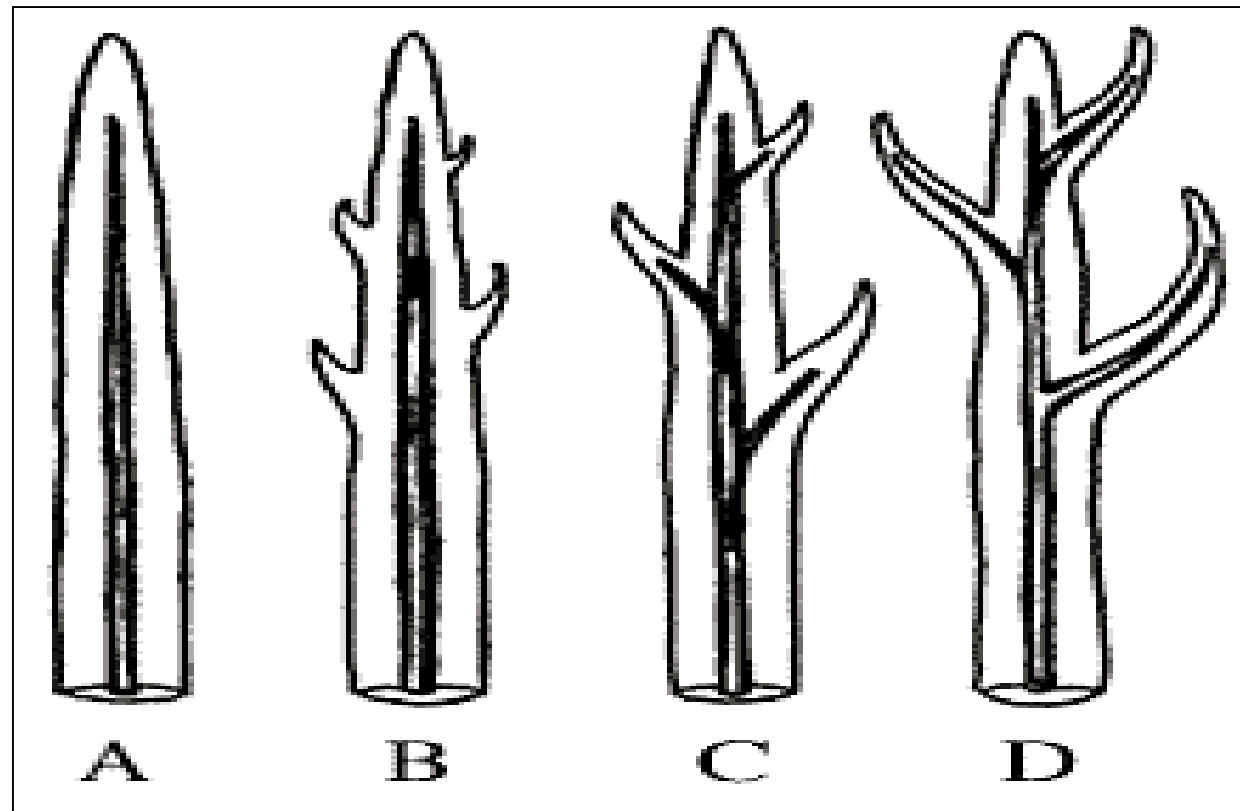
Vaskularizacija kod *Zosterophyllum*, *Sawdonia*, *Asteroxylon* i *Leclercqia* (Kenrick i Crane, 1997).

(A) *Zosterophyllum* (gola osovina, ovalna protostela),

(B) *Sawdonia* (enacije, bez provodnih elemenata)

(C) *Asteroxylon* (enacije sa provodnim elementima koji zalaze u njenu osnovu),

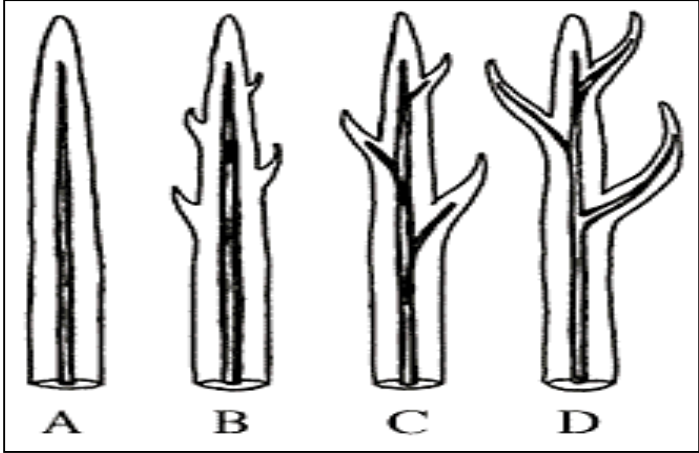
(D) *Leclercqia* (osovina sa vaskularizovanim mikrofilima).



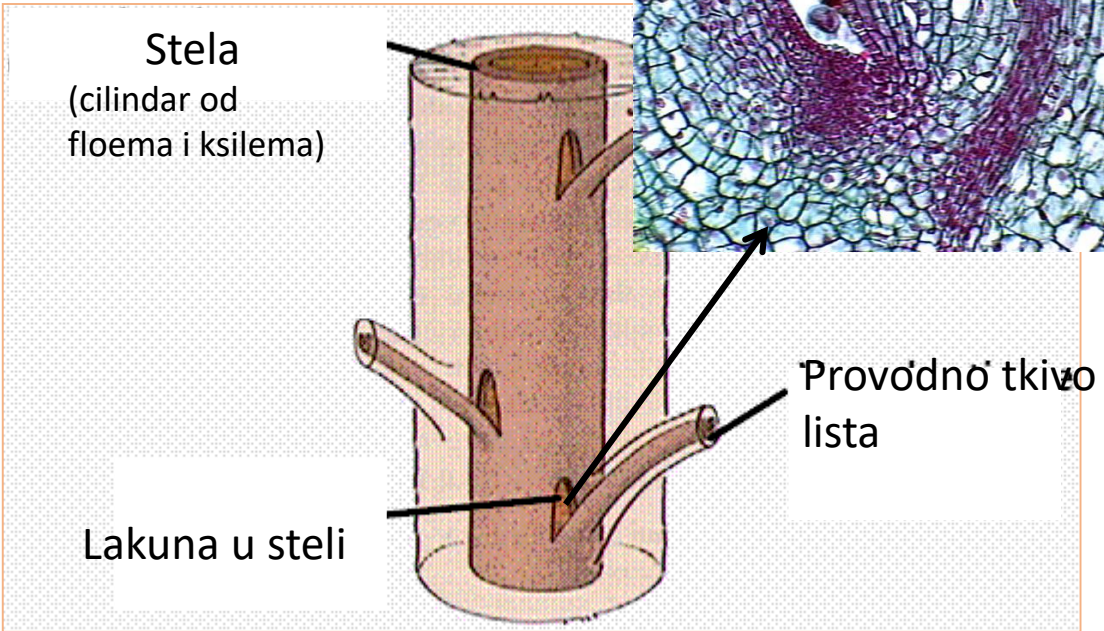
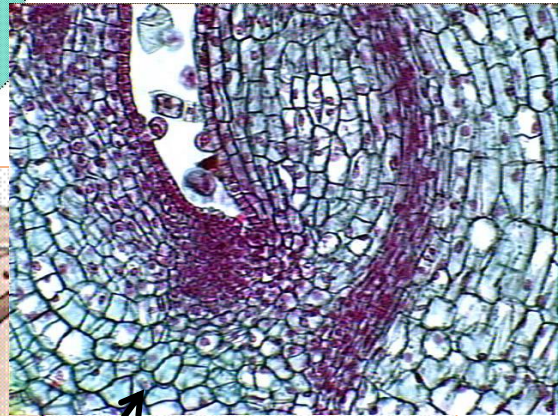
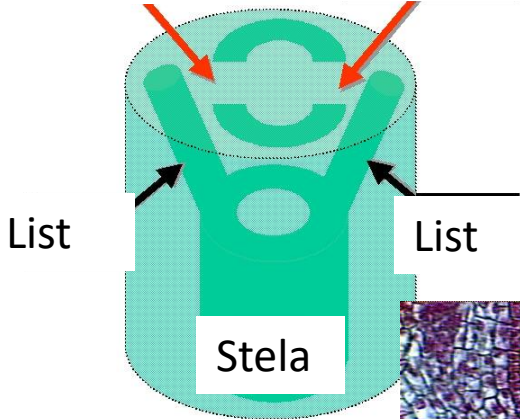
Enacije i mikrofilii- bez lakuna u steli

# Telomni listovi- sa lakunama u steli

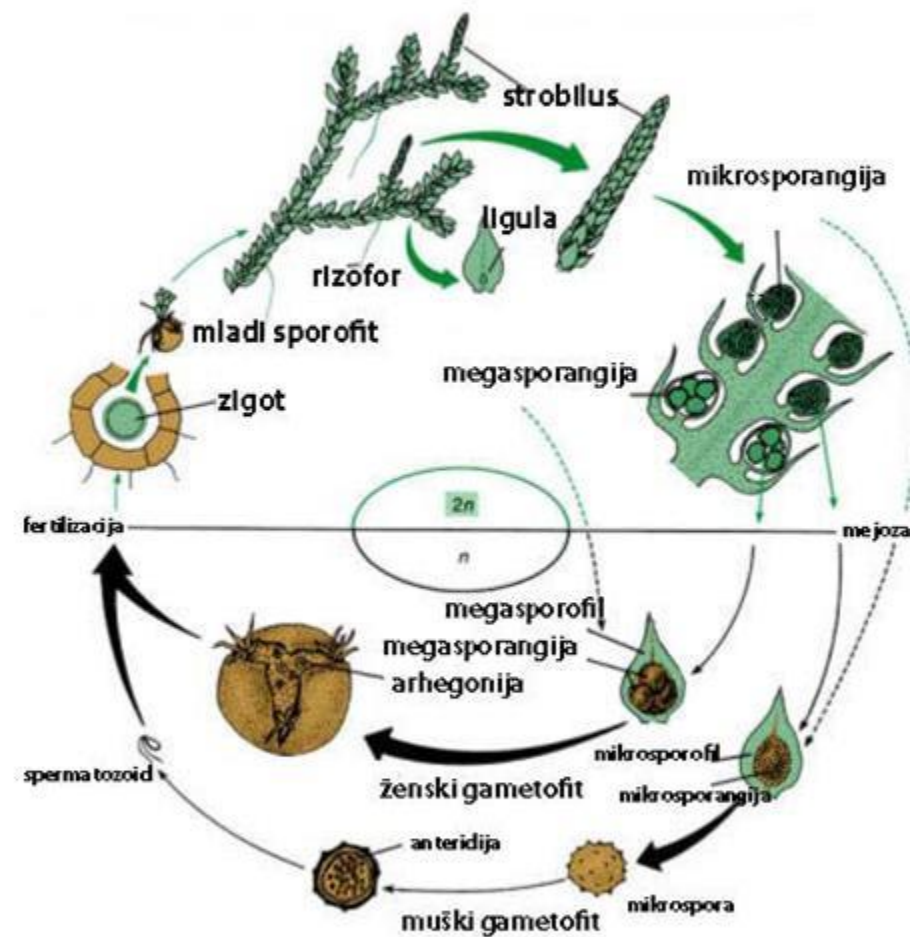
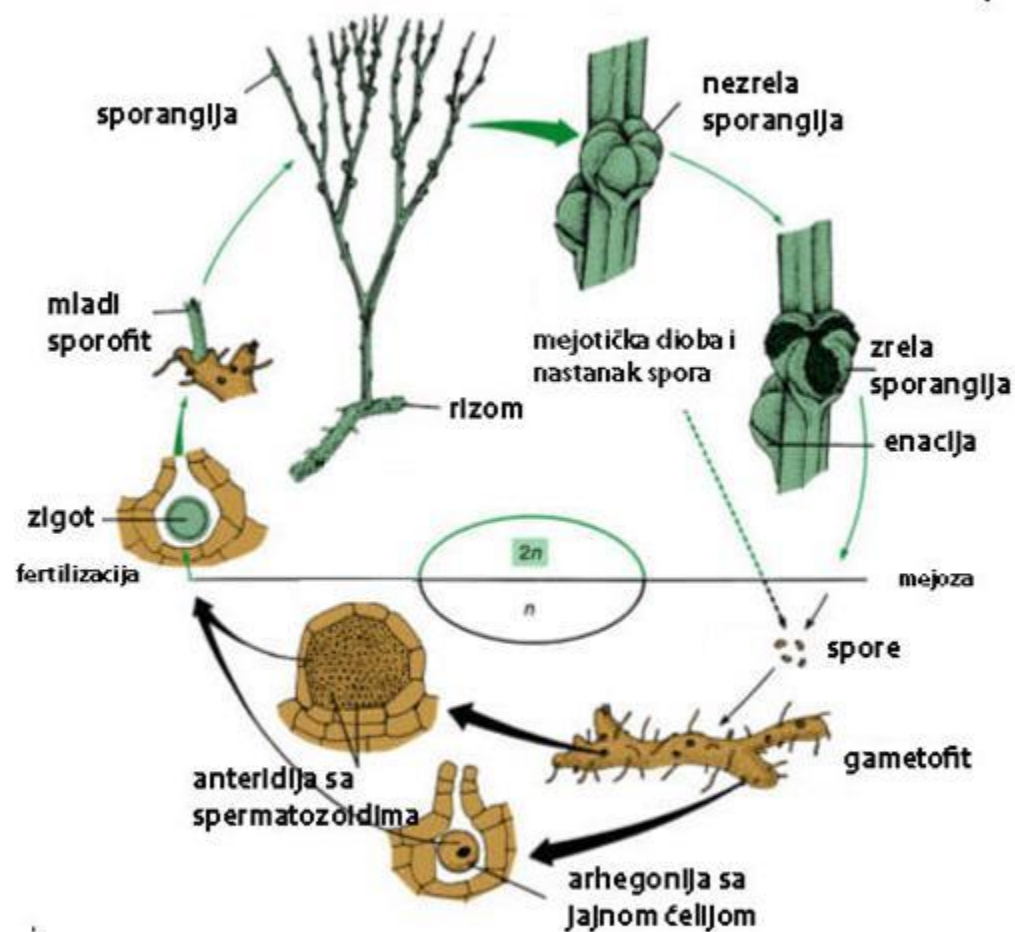
Enacije, mikrofilii- bez lakuna u steli



Lakuna u steli      Lakuna u steli



# Ciklus razvića izo- i heterospornih prečica



Jednodomo, jednopolno

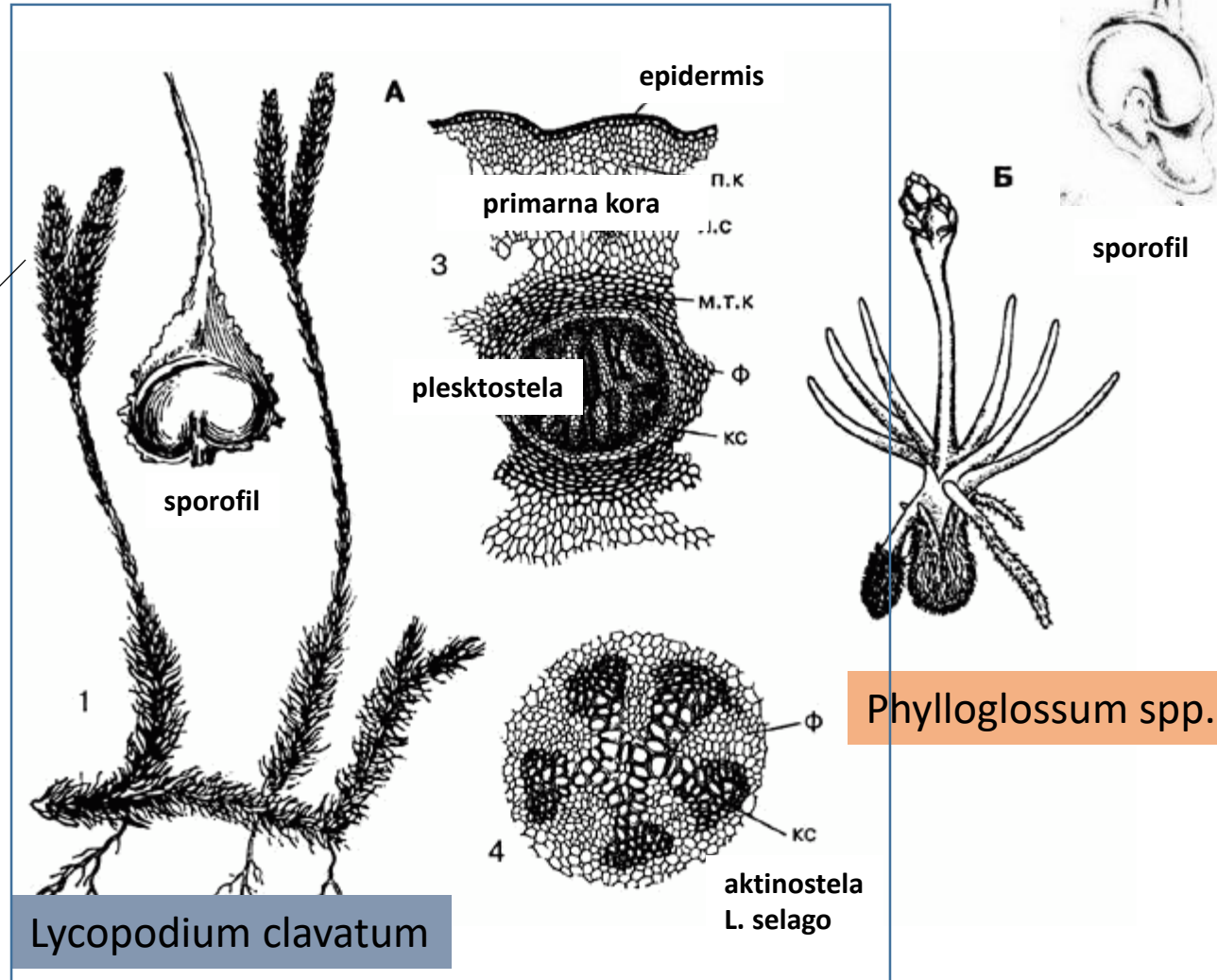
Sporofit: ..... Gametofit generacija: .....

# Recentni predstavnici

- o. Lycopodiales
- o. Selaginellales
- o. Isoetales

o. Lycopodiales  
fam. Lycopodiaceae

Strobilus  
(izosporni!)



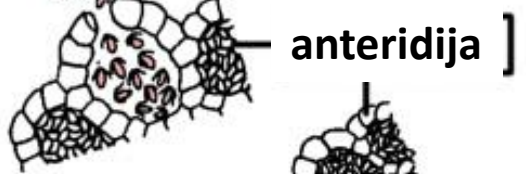
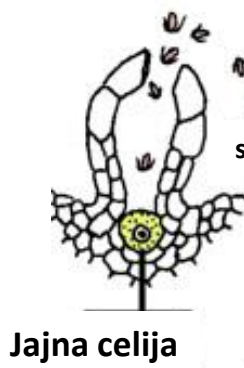
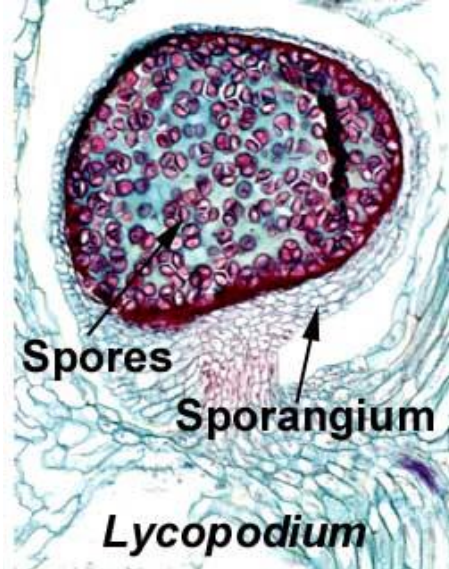
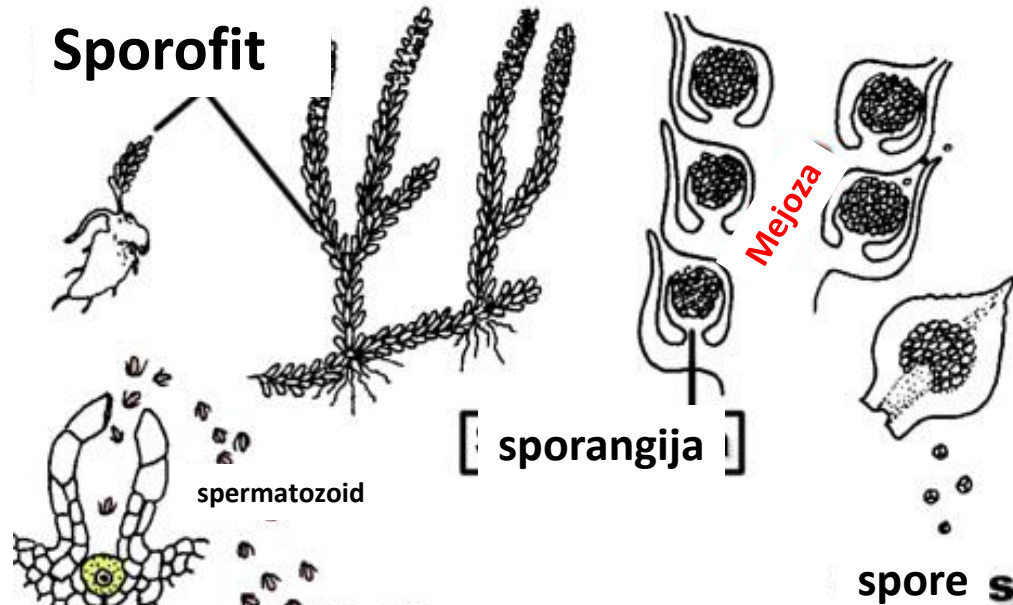
*Lycopodium clavatum*

*Phylloglossum* spp.

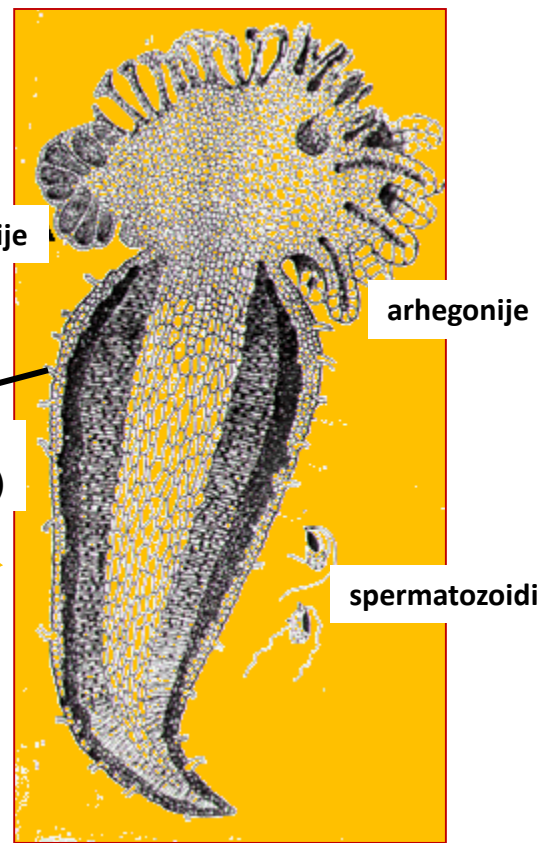
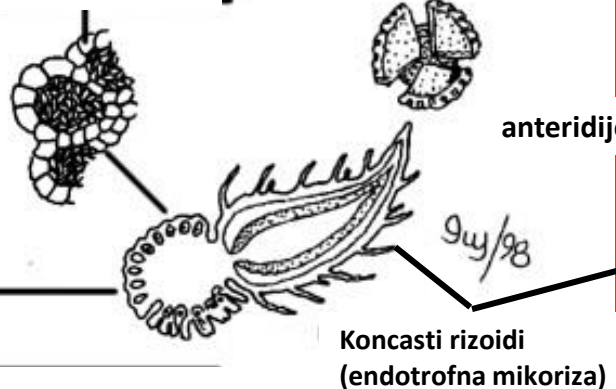
*Lycopodium* (*Huperzia*, *Phlegmariurus*), *Phylloglossum* ...



# Sporofit



# Gametofit (vodi podzemni nacin zhivota)







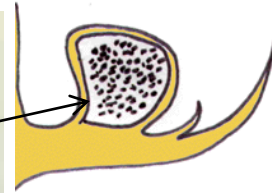
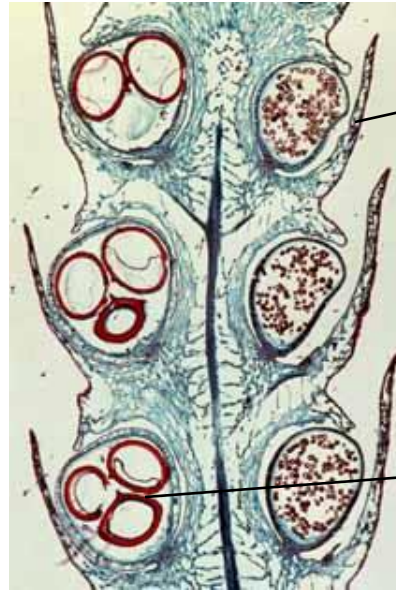
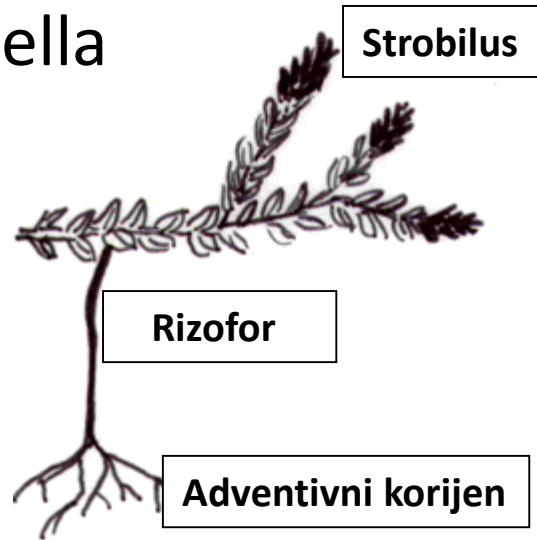
*Huperzia selago* (syn. *Lycopodium selago*)



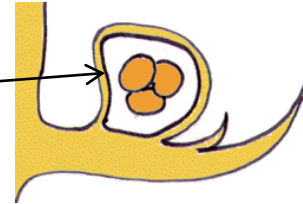
*Lycopodium annotinum*



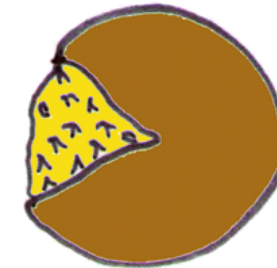
o. Selaginellales  
fam. Selaginellaceae  
g. Selaginella



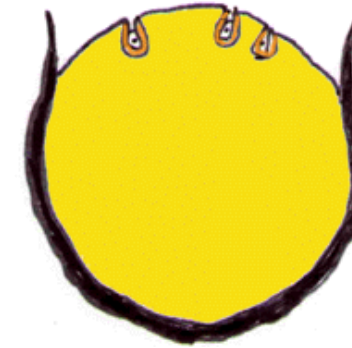
mikrosporangija



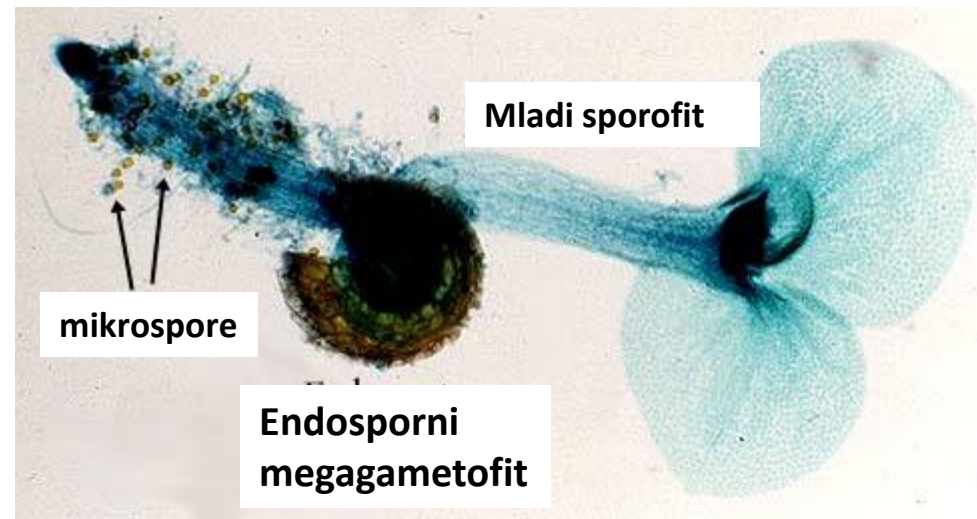
megasporangija



Mikrospore kojoj nastaje 128 ili 256 miliona spermatozoida



Megaspora sa megagametofitom (protalijum sa arhegonijama)

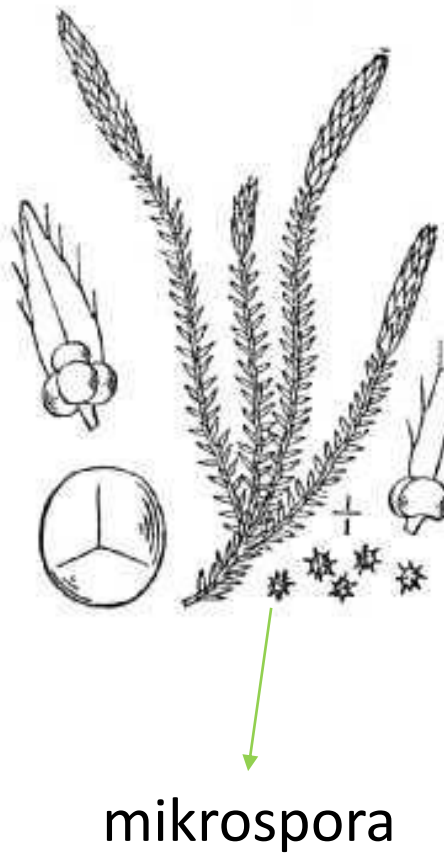




*Selaginella denticulata*



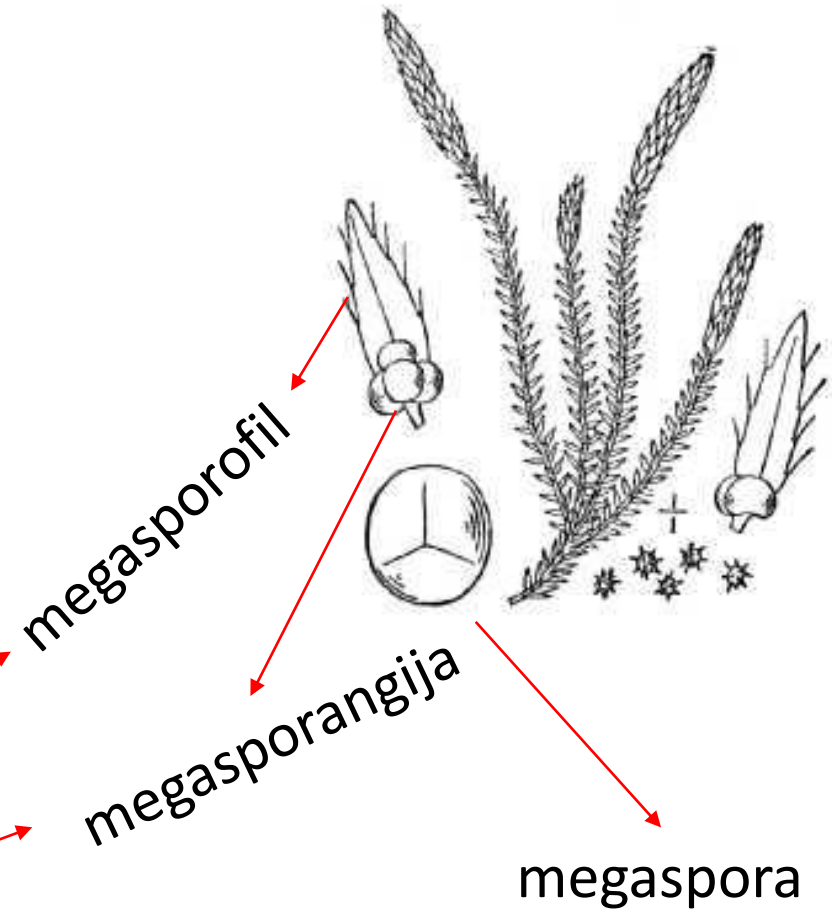




mikrosporofil  
mikrosporangija



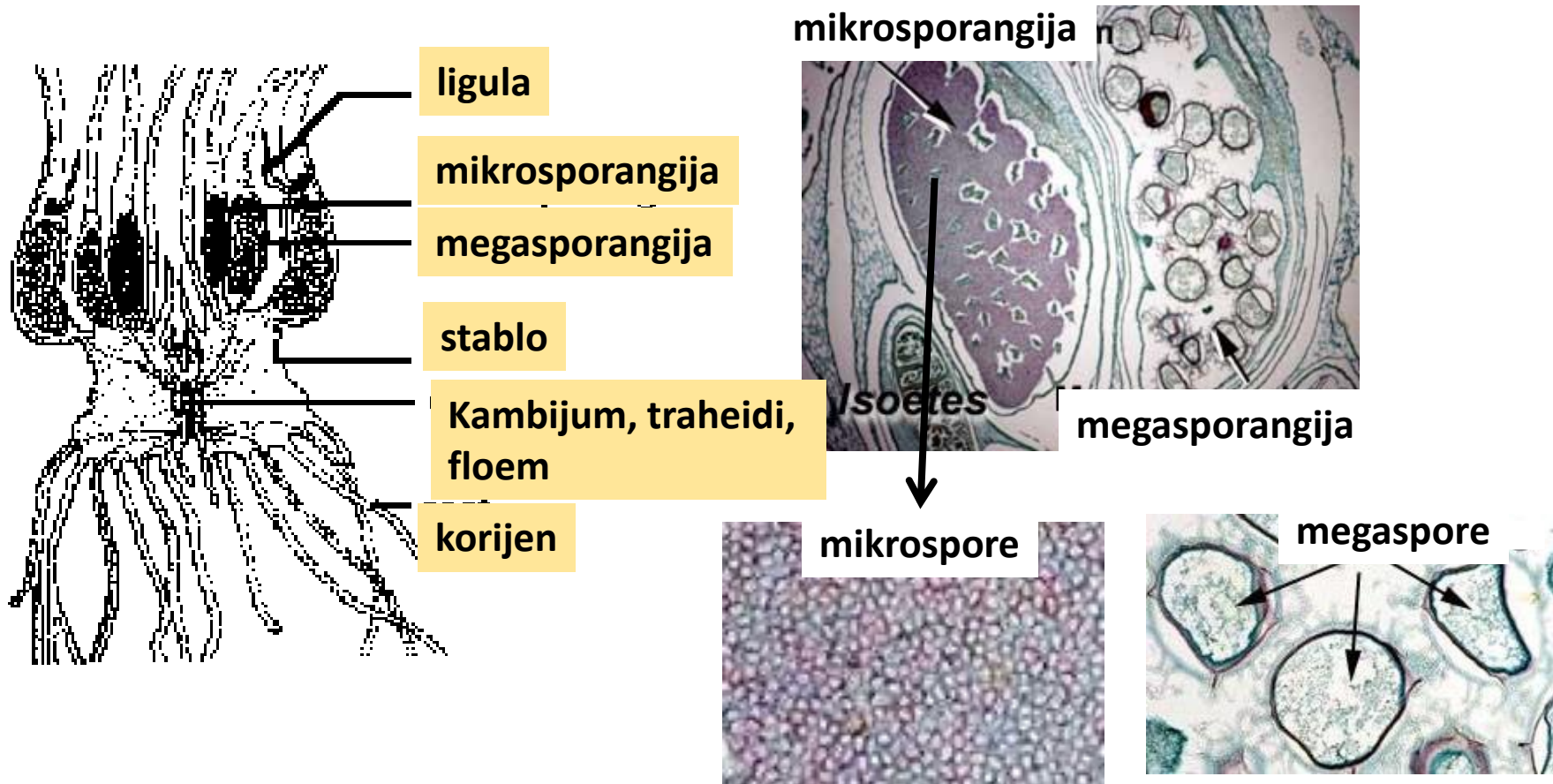
*Selaginella selaginoides*



megasporofil  
megasporangija  
megaspore



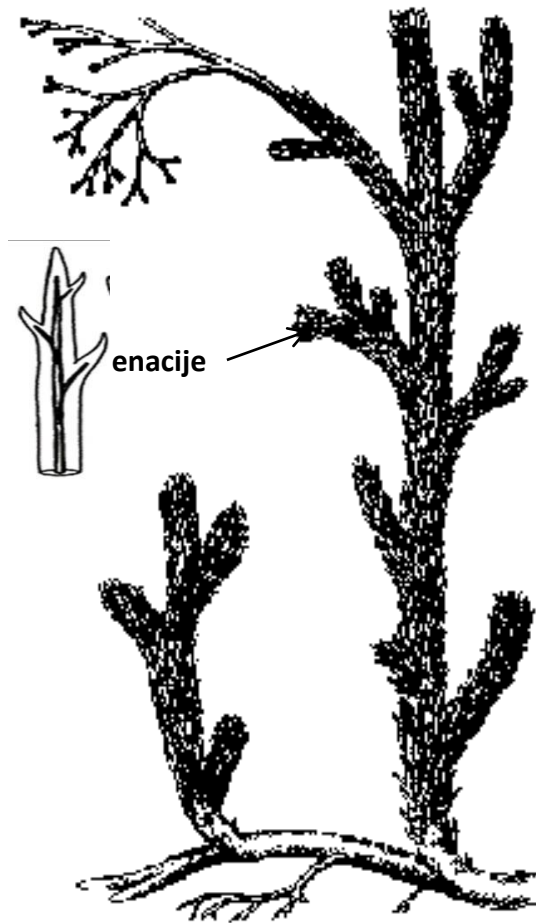
o. Isoetales  
fam. Isoetaceae  
g. Isoetes



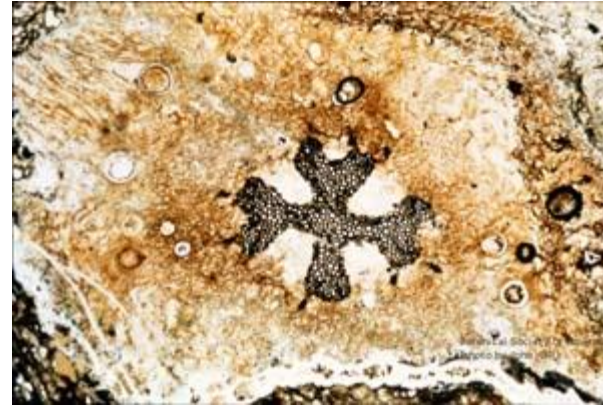
# Fossilni predstavnici

- o. Asteroxylales (†)
- o. Protolepidodendrales (†)
- o. Lepidodendrales (†)

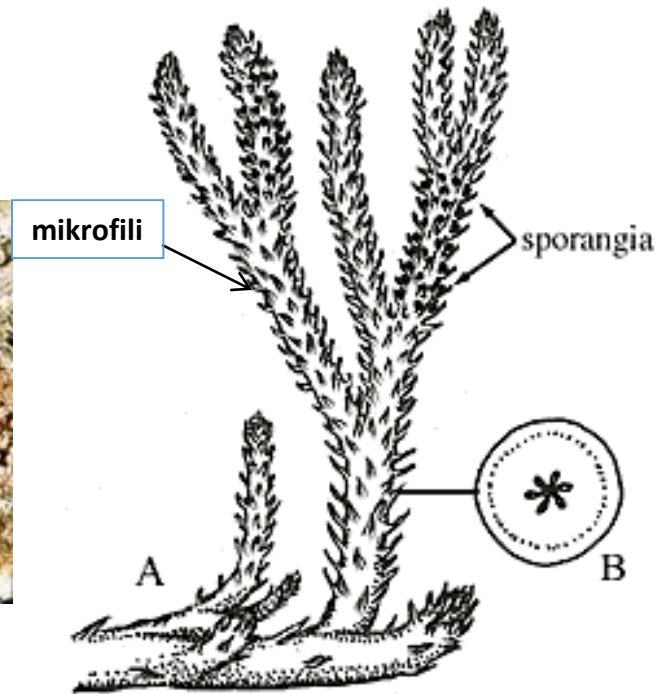
## o. Asteroxylales (†)



**Asteroxylon sp.**



Presjek kroz stablo  
(zvjezdasti ksilem, drvo).

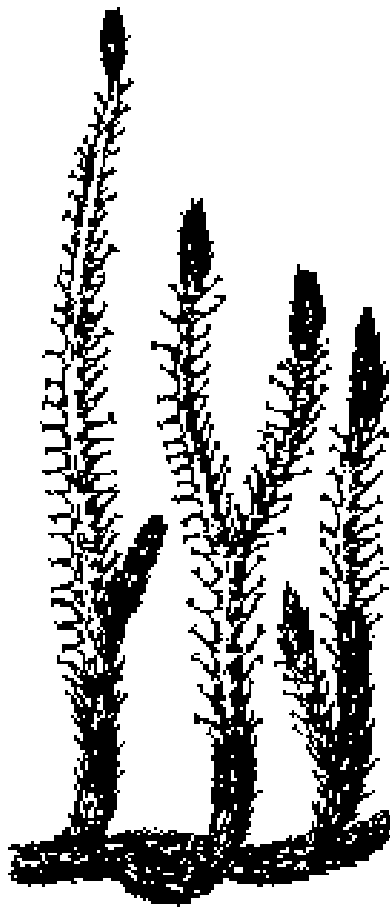


**Drephanohycus sp.**

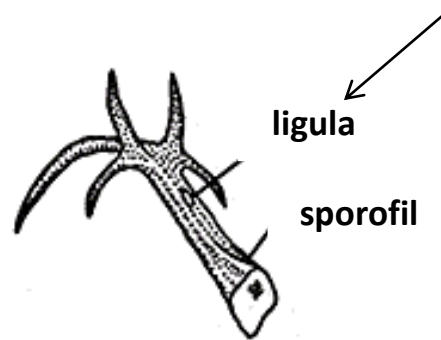


## o. Protolepidodendrales (†)

(viljuškasti listovi)



Protolepidodendron sp.



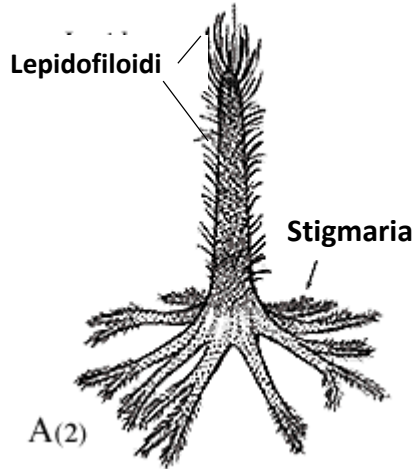
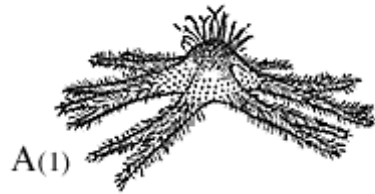
Kod recentnih prečica iz  
klase Lycopodiopsida  
ligula ne postoji!!!

Mikrofilii *Leclercqia sp.*,  
sporangija se nalazi  
adaksijalno tačno ispod  
jezička **ligule**.

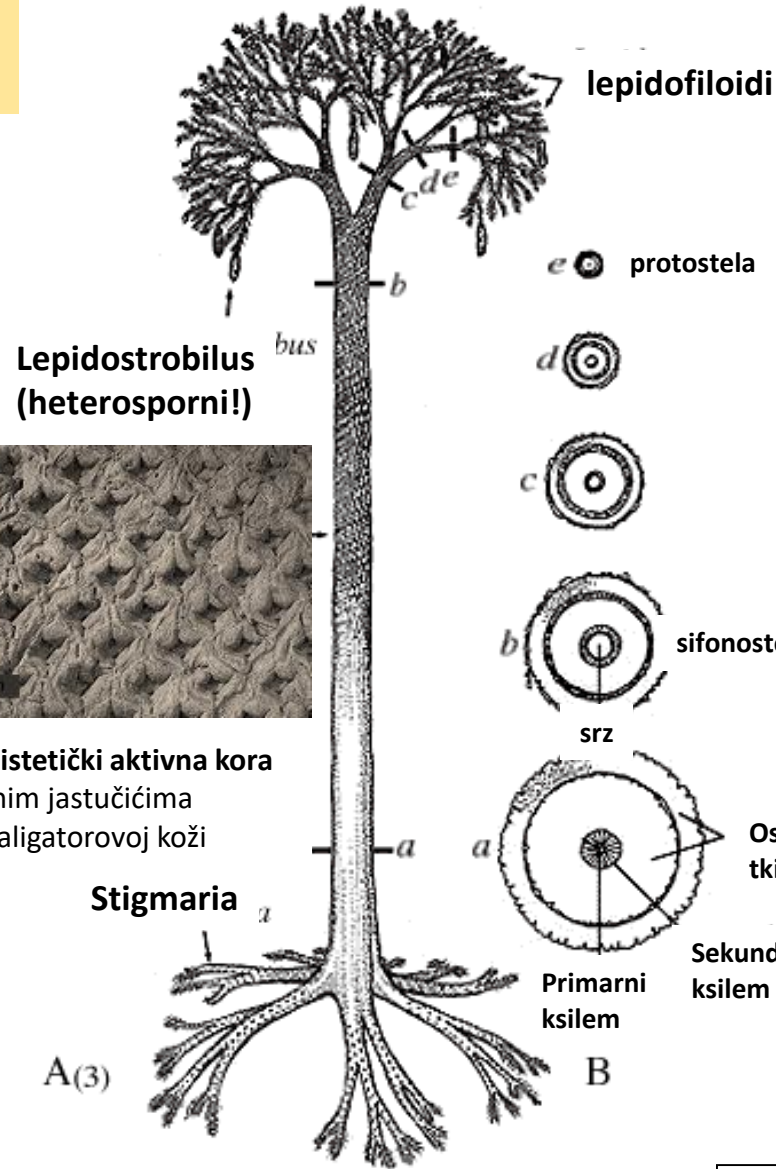
Archaeosigillaria- još jedna izosporna prečica sa  
ligulom!

# o. Lepidodendrales (†)

**Lepidodendron sp.  
(razviće)**



„korasto drveće“



Fotosistetički aktivna kora sa lisnim jastučicama nalik aligatorovoj koži

Monokarpne biljke!!!

**Sigillaria sp.**



**Pleuromeia sp.**

