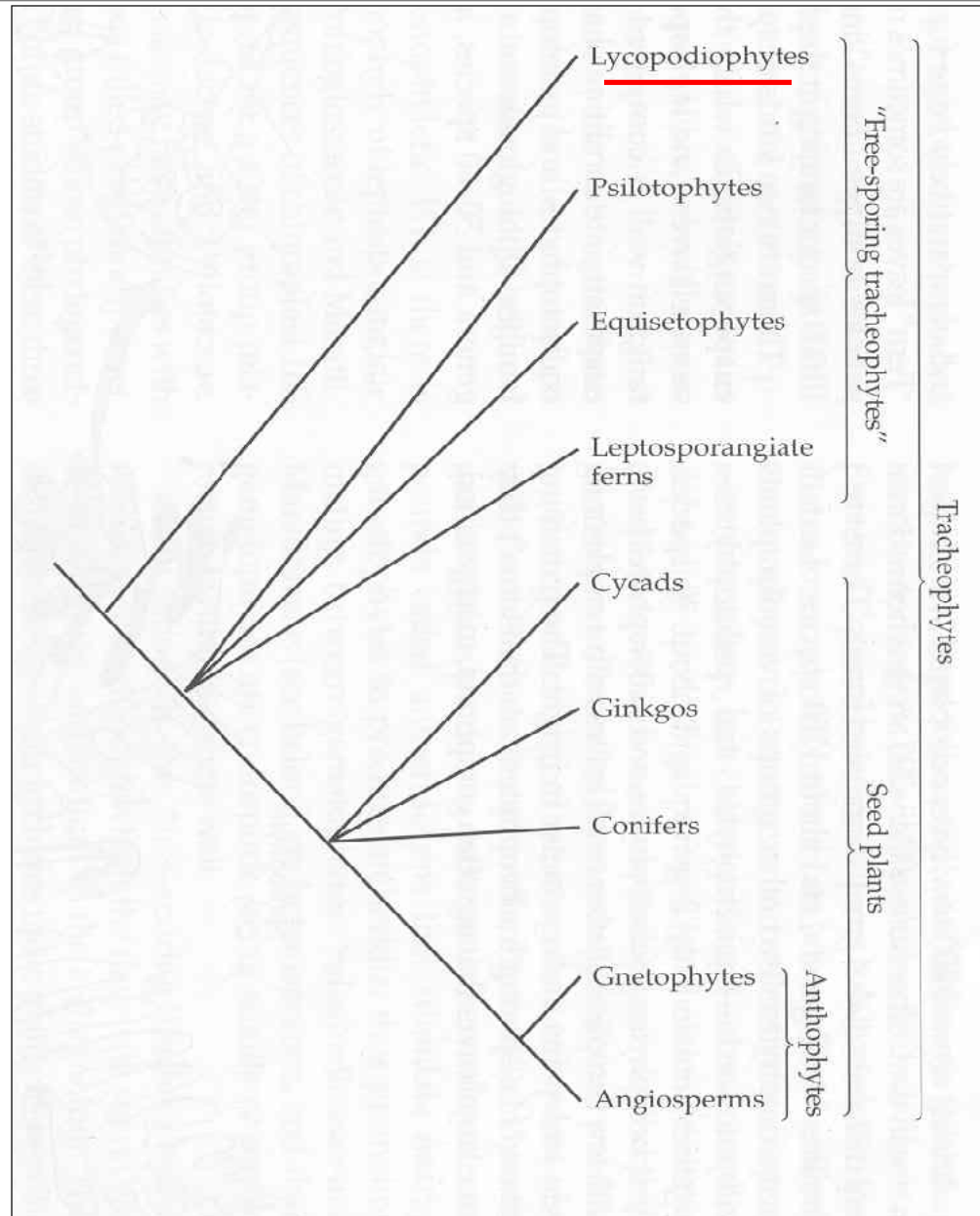


Cévnaté rostliny



Lycopodiophyta

3 řády:

Lycopodiales (plavuňotvaré)



Selaginellales (vranečkotvaré)



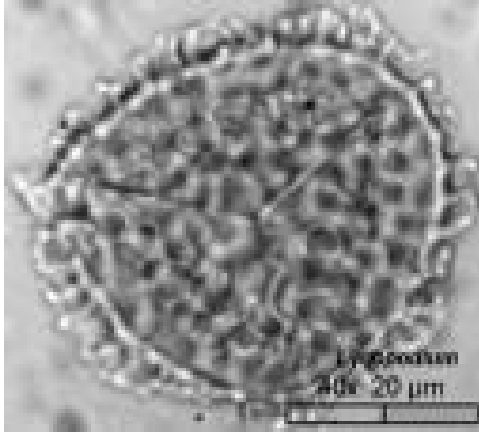
Isoëtales (šídlatkotvaré)



Lycopodiophyta

Lycopodiales

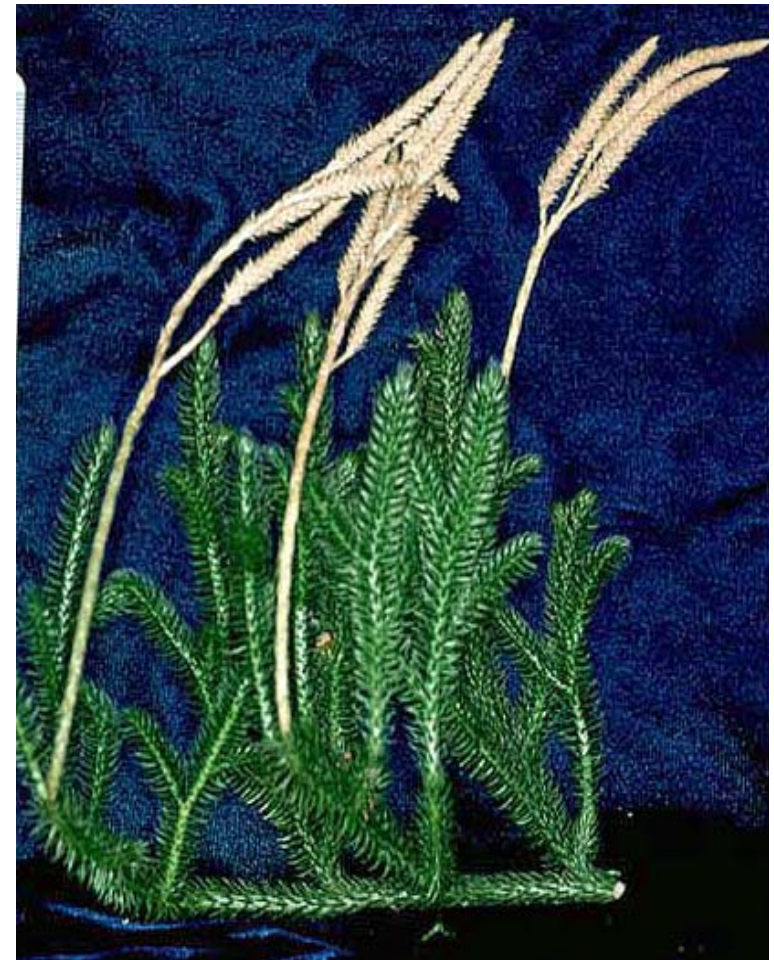
trilétní spora



isosporie

vždy koncové strobily
sporofyl x trofofyl
pseudomonopodiální větvení

plektostélé



Lycopodiophyta

Lycopodiales

Lycopodiaceae (plavuňovité)

L. annotinum *Lycopodium clavatum* *Lycopodiella inundata* *Diphasiastrum complatum*
(p. pučivá) (plavuň vidlačka), (plavuňka zaplavovaná) (plavuník zploštělý)



Huperziaceae

(vrancovité)

Huperzia selago

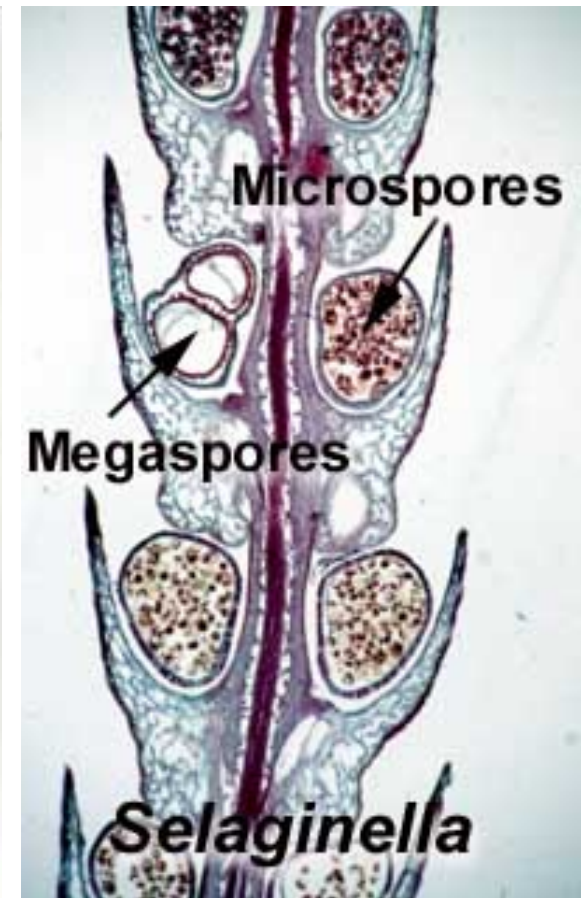
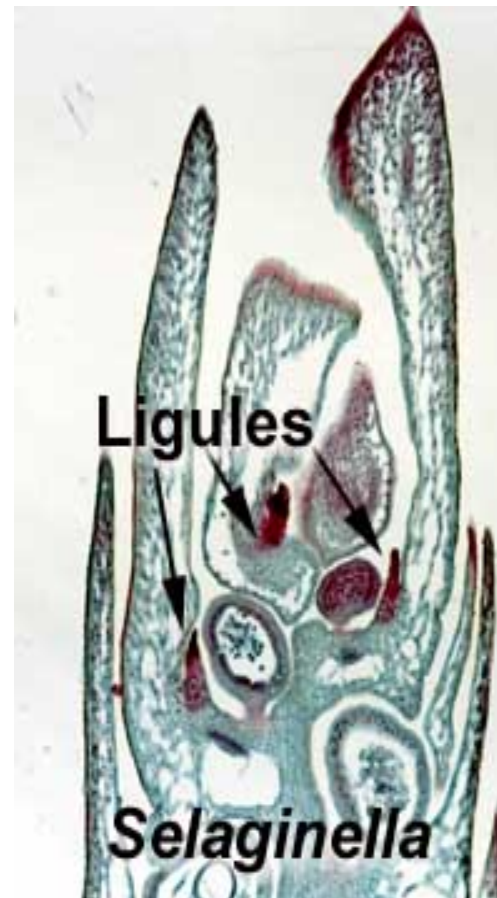
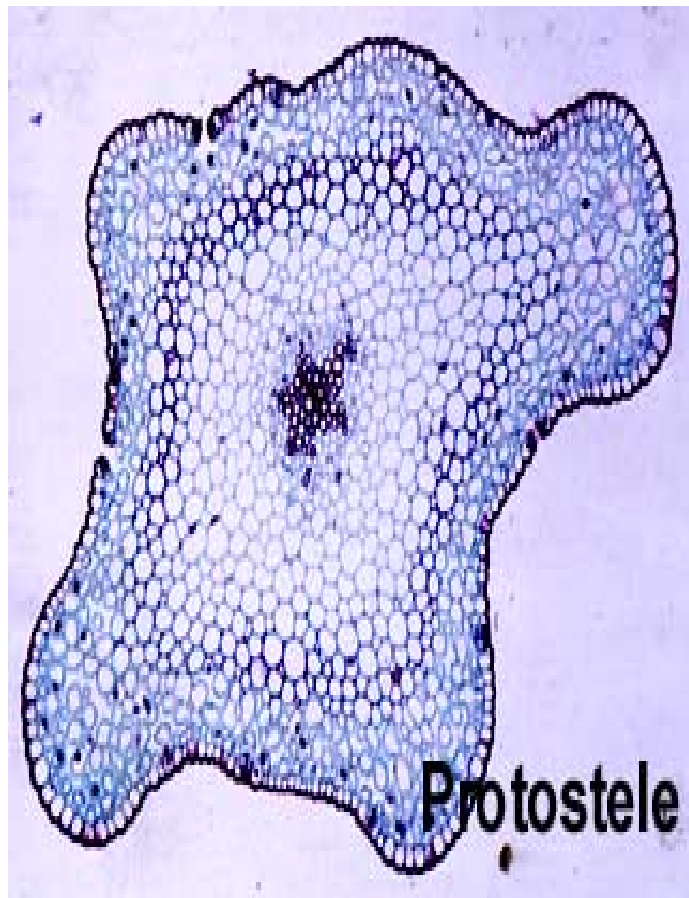
(vranec jedlový)



Lycopodiophyta

Selaginellales
Selaginellales

heterosporie



Lycopodiophyta

Selaginellales

Selaginella selaginoides
(vraneček brvitý)



S. helvetica
(vranečka švýcarská)



Lycopodiophyta

Selaginellales

Selaginella sp.

dichotomické větvení

pseudomonopodium

anizofylie

angulární list

rhizofor



Lycopodiophyta

Isoëtales

Isoëtaceae – šídlatkovité
protostélé
heterosporické
lingulátní
polyciliátní spermatozoidy
sporangia v jamkách (fovea)
vodní (vlhkomilné)



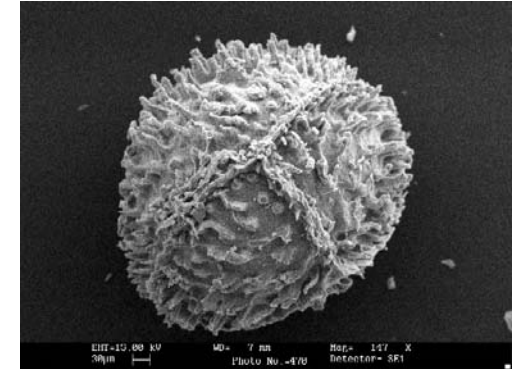
Lycopodiophyta

Isoëtales

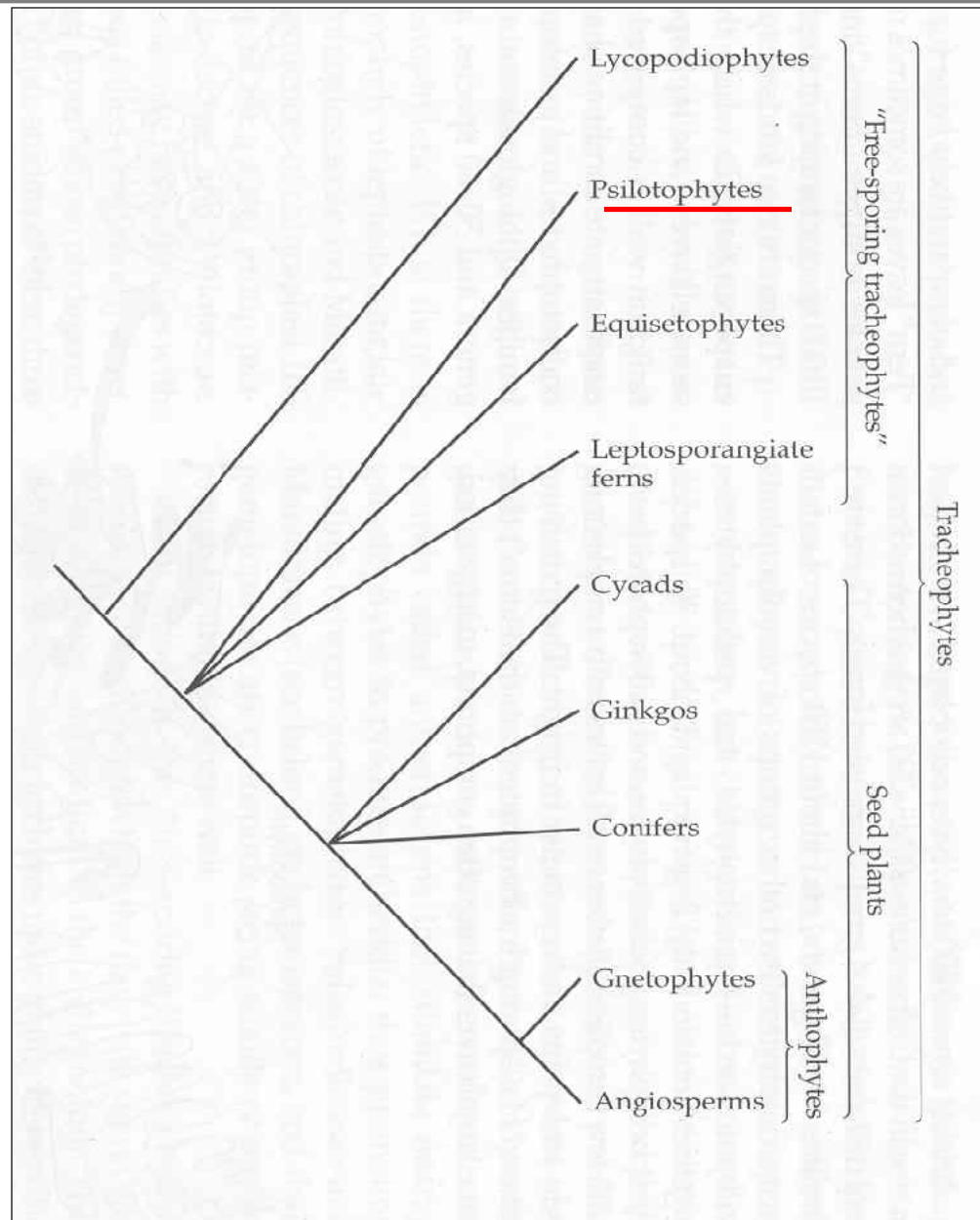
Isoëtes lacustris (šídlatka jezerní)
Černé jezero - Šumava



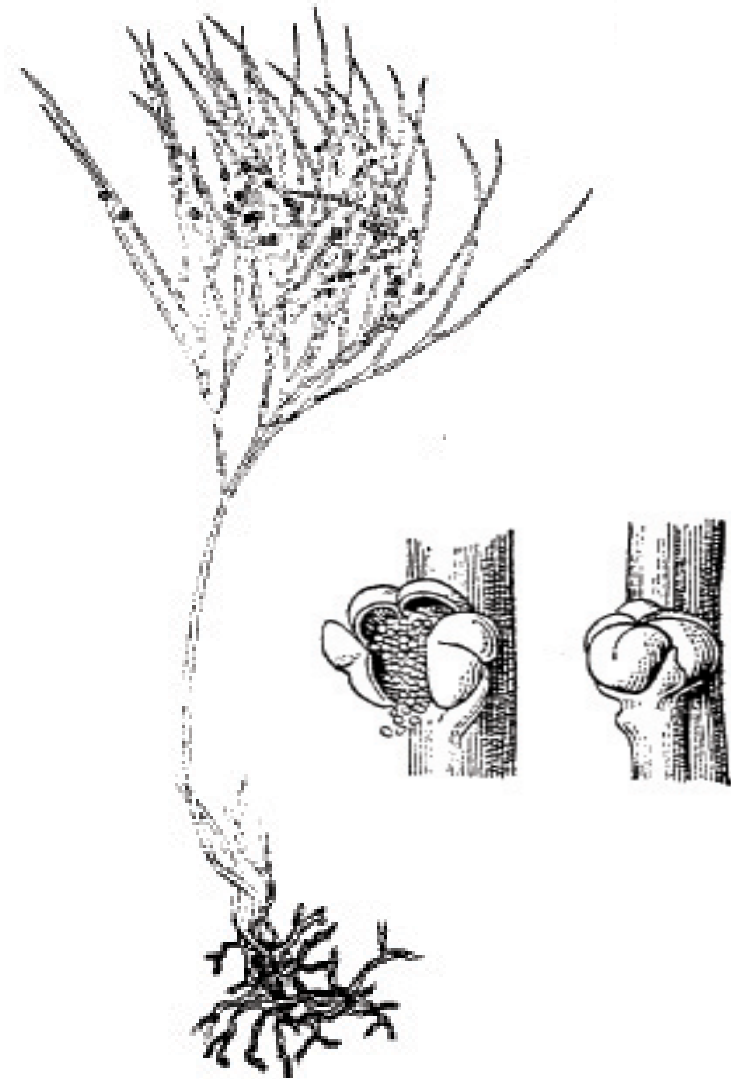
Isoetes echinospora (šídlatka ostnovýtrusná)
Plešné jezero - Šumavě



Cévnaté rostliny



PSILOTOPHYTA



Psilotum nudum – habitus

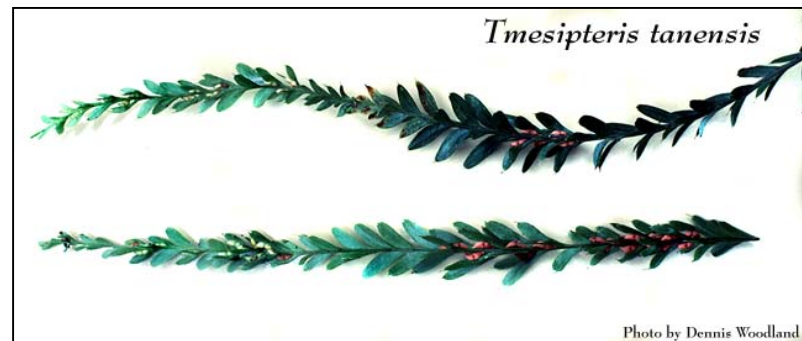
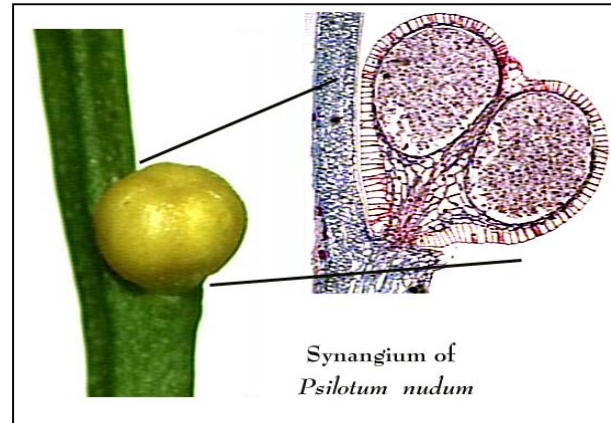
Psilotophyta

PSILOTALES

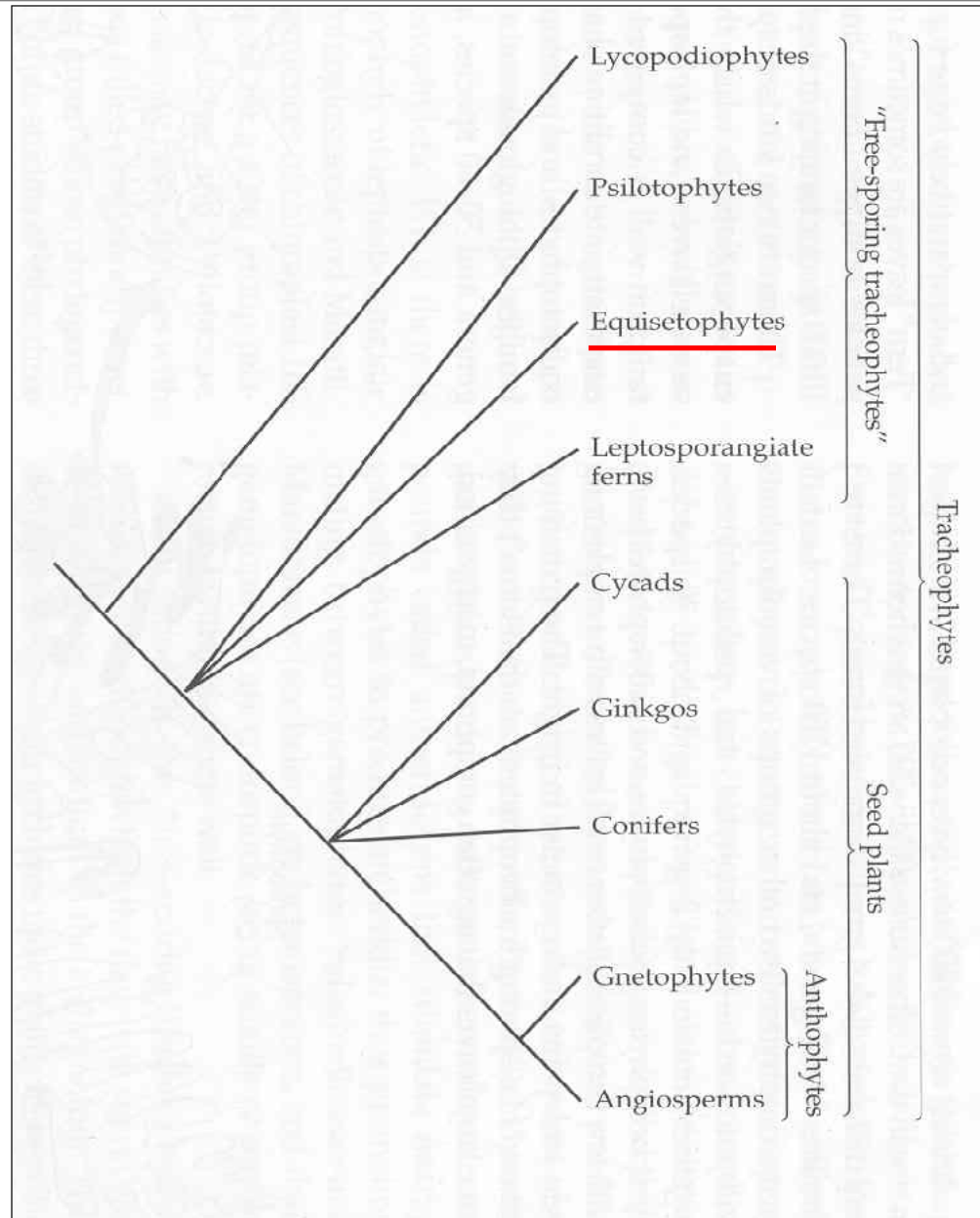
Psilotopsida - Psilotales - Psilotaceae

Psilotum

Tmesipteris



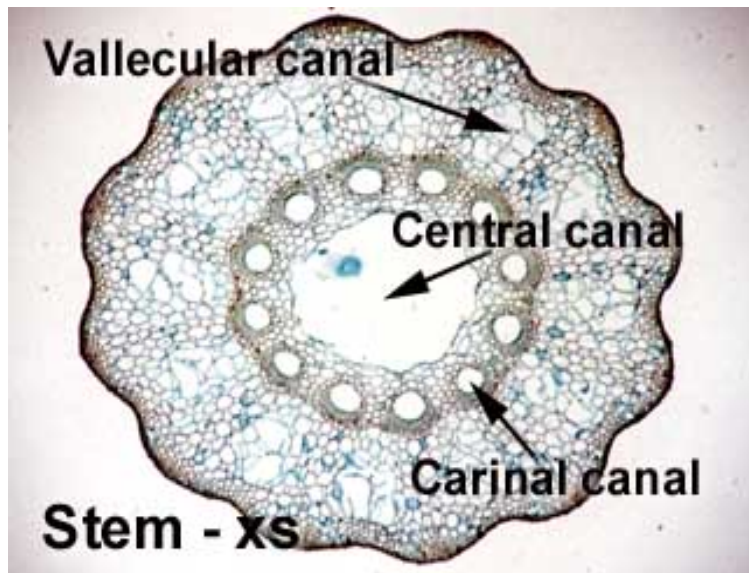
Cévnaté rostliny



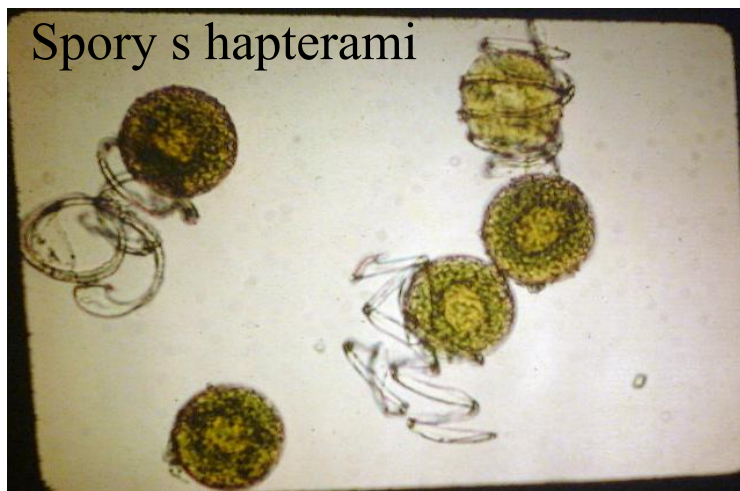
Equisetophyta

Equisetaceae

Arthrostélé v internodiích



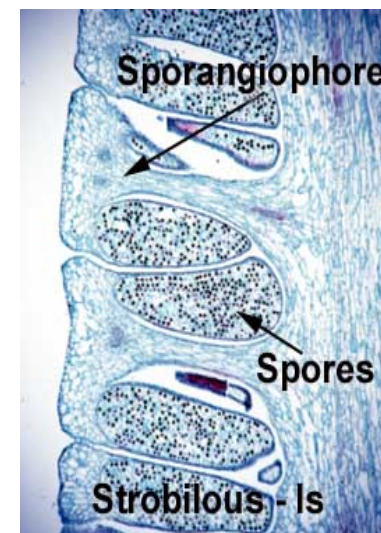
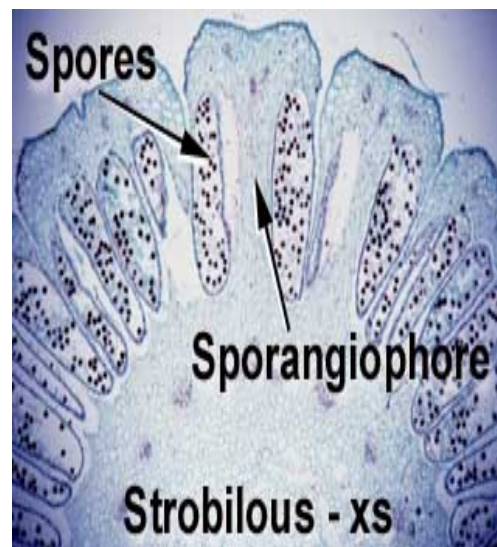
Valekulární - pod rýhami (v asimilačním parenchymu)
Karinární - pod žebry (v protoxylému)



strobilus



sporangiofor



Equisetophyta

Equisetaceae

Hippochaete hyemalis

(cídivka zimní)

výtrusnicový klas na vrcholu hrotitý



Equisetophyta

Equisetaceae

Equisetum fluviatile *E. palustre*

(p. poříční)



(p. bahenní)



E. sylvaticum

(p. lesní)



E. pratense

(p. luční)



Equisetophyta

Equisetaceae

E. arvense
(p. rolní)

E. telmateia
(p. největší)

