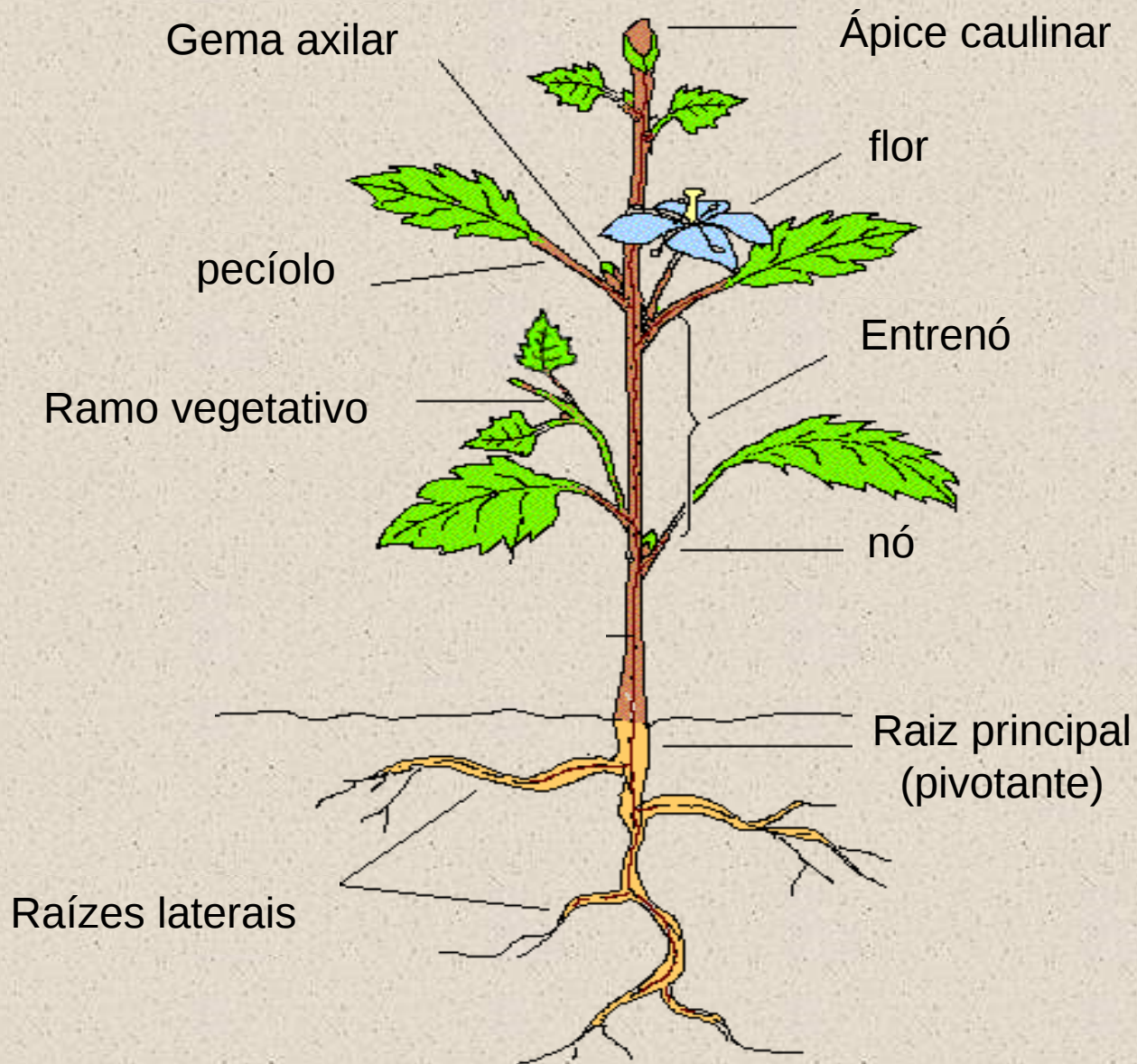


Folha

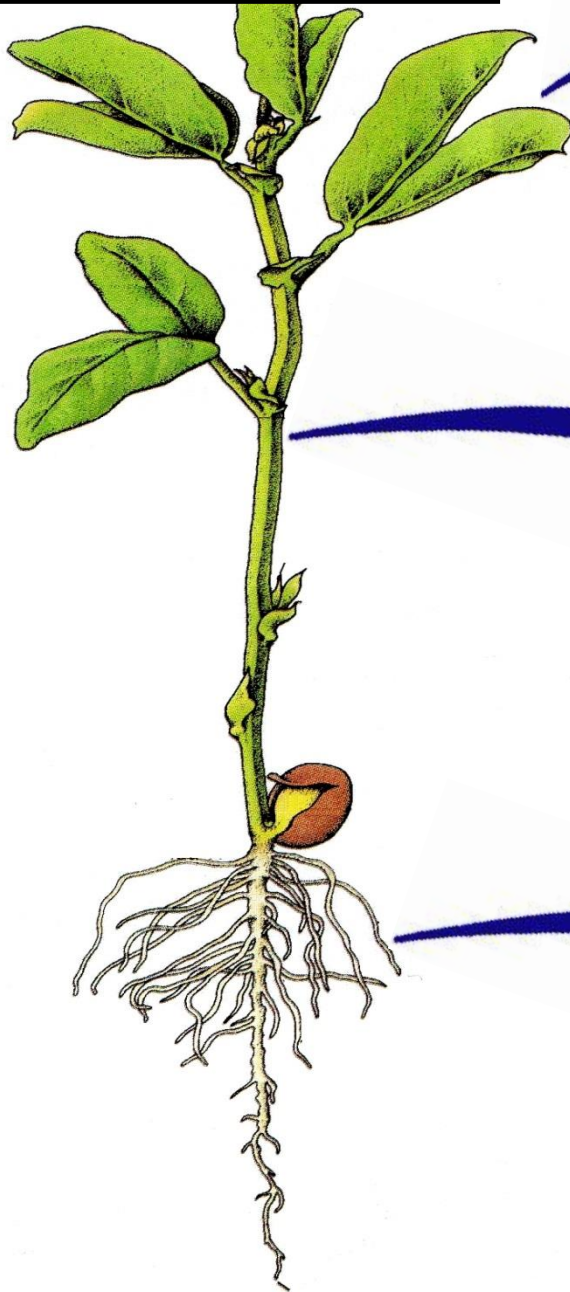
Prof. Dr. Diego Demarco

Assistam esta aula online em

<http://eaulas.usp.br/portal/video.action?idItem=23312>

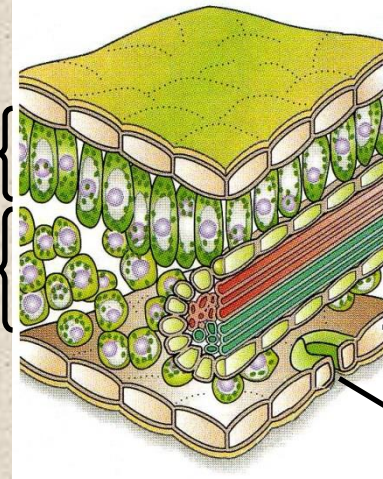


Tecidos Vegetais



Parênquima
Paliádico

Parênquima
Lacunoso



Epiderme

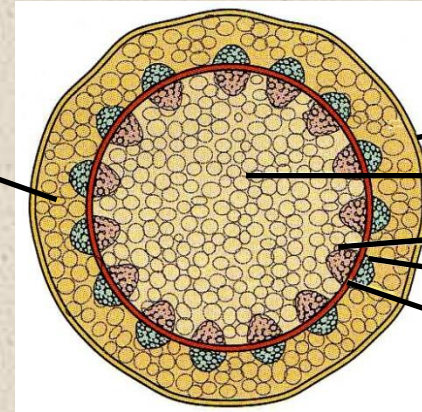
Xilema

Floema

Epiderme

Estômato

Córtex



Epiderme

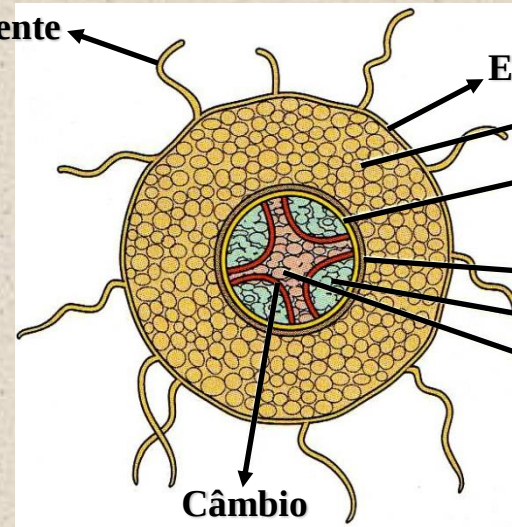
Medula

Xilema

Floema

Câmbio

Pêlo absorvente



Epiderme

Córtex

Periciclo

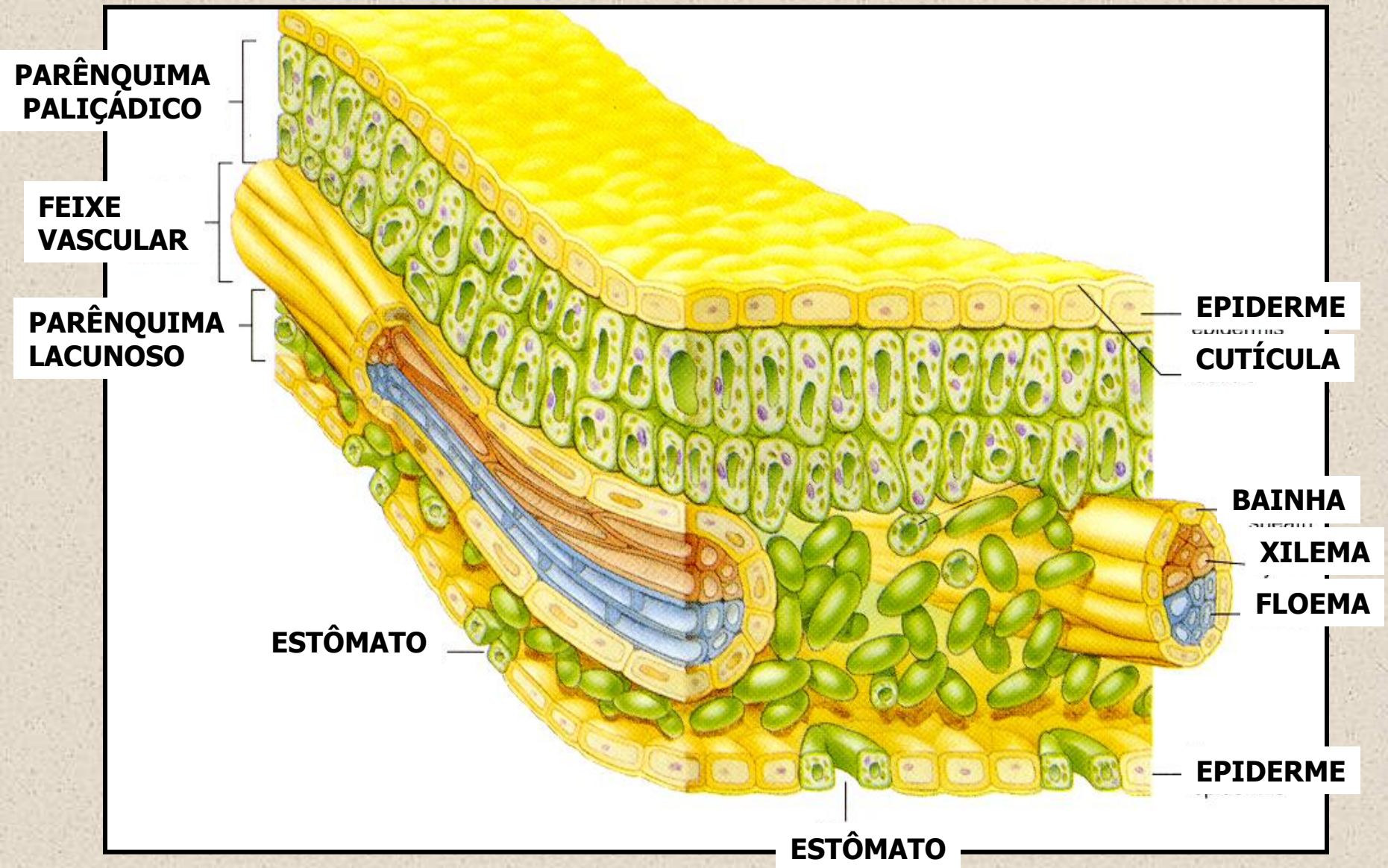
Endoderme

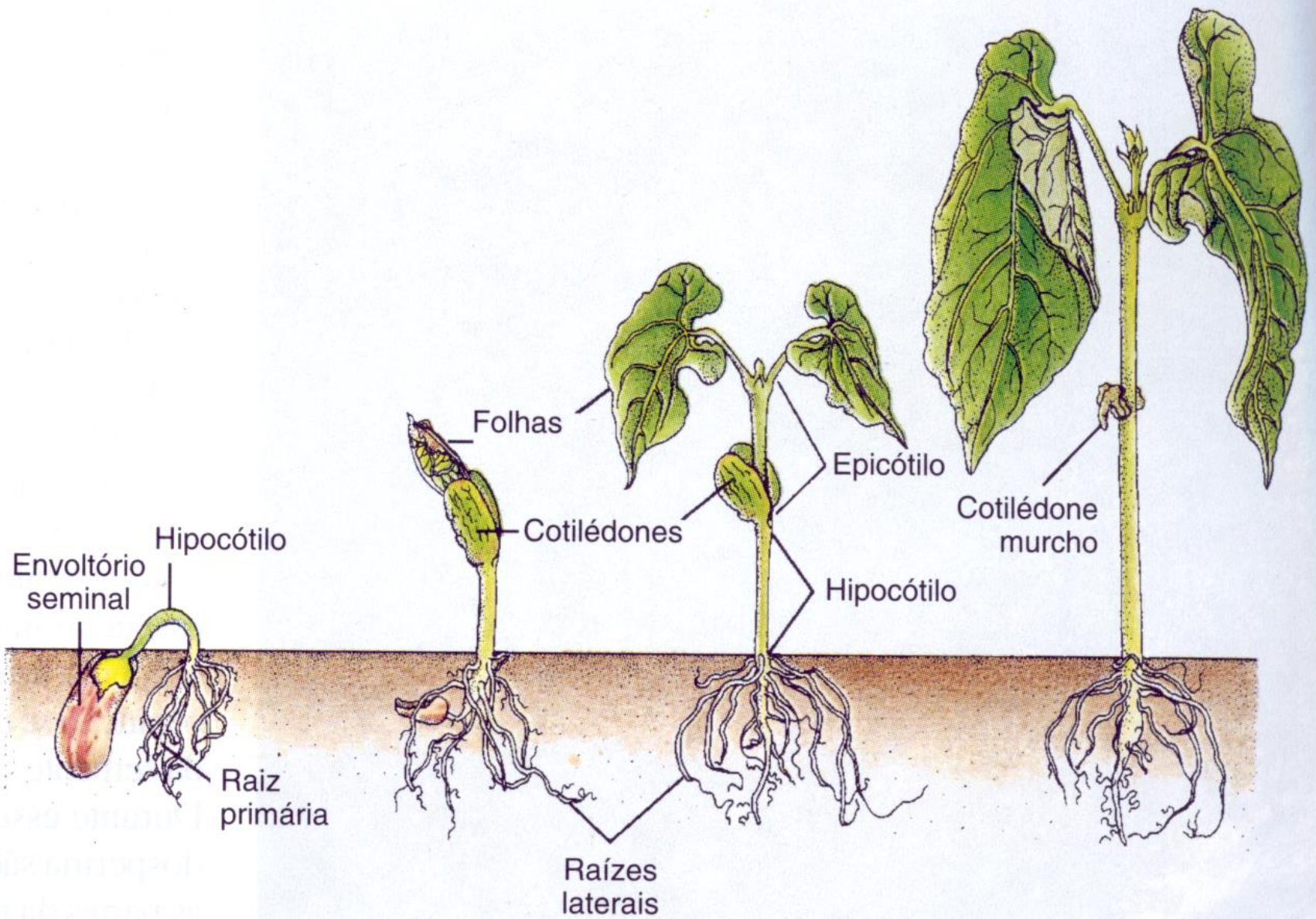
Floema

Xilema

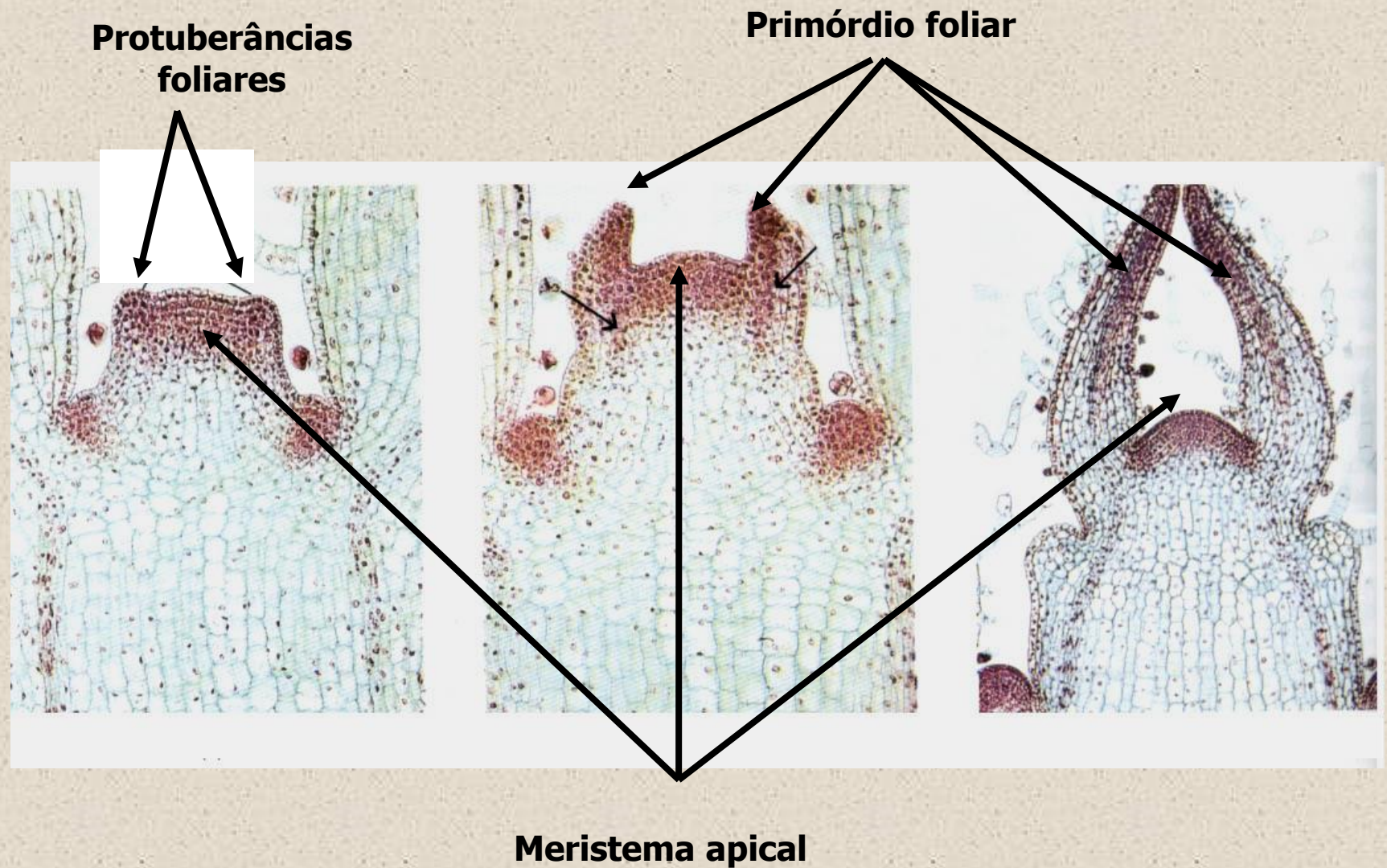
Câmbio

FOLHA- Estrutura geral-

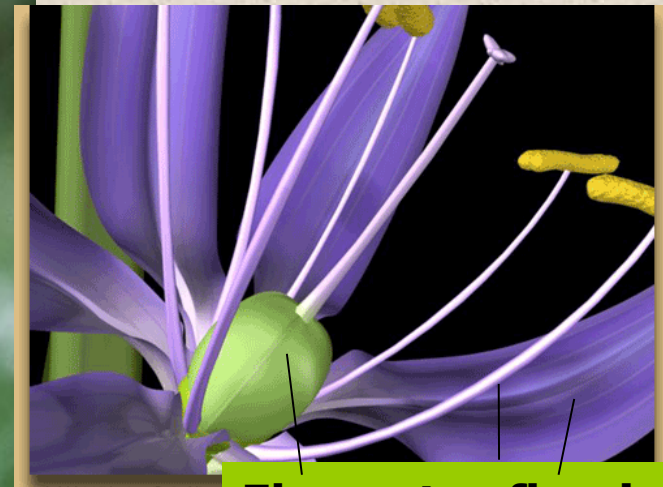




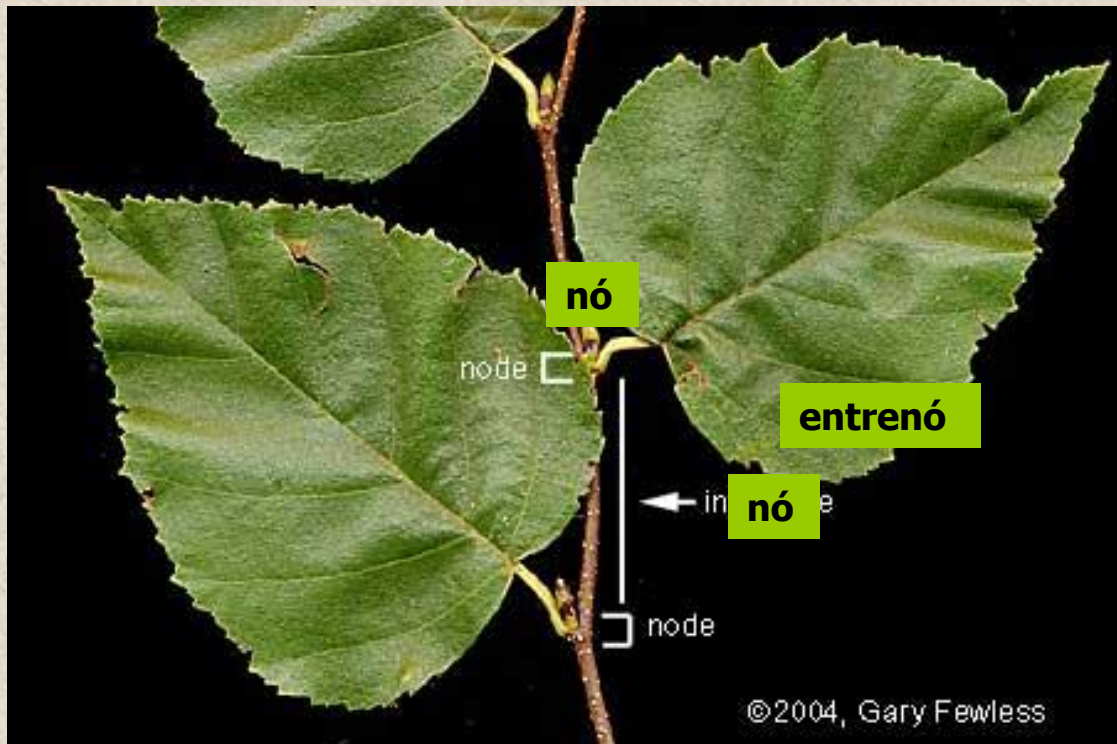
Desenvolvimento da folha



TIPOS DE FOLHA (FILOMAS)



Morfología foliar básica



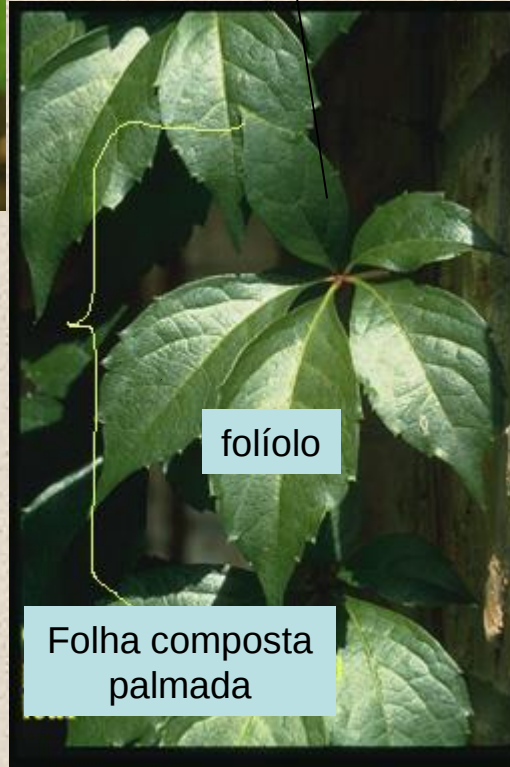
FOLHAS SIMPLES



LOBADAS



FOLHA COMPOSTA DIGITADA/PALMADA



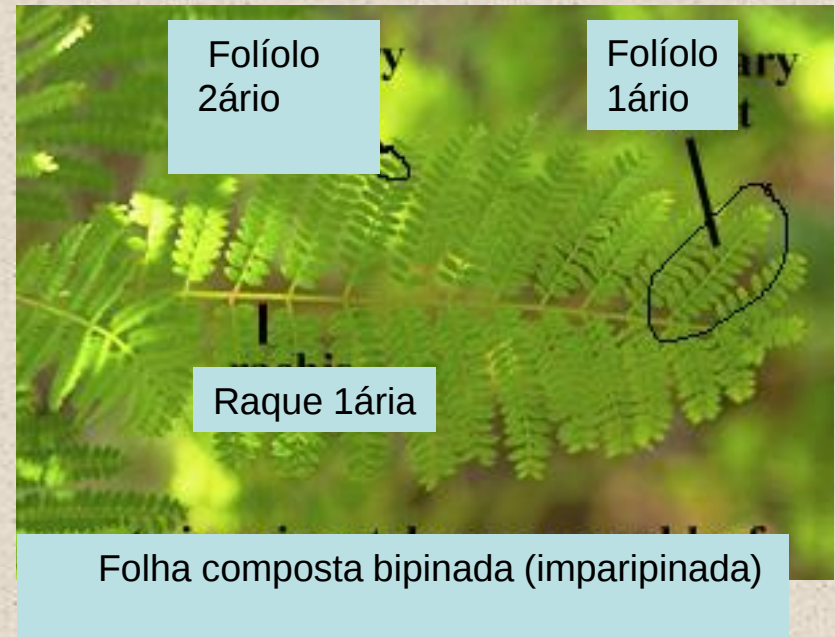
folíolo

Folha composta
palmada

FOLHAS COMPOSTAS PINADAS



Folha composta paripinada



Folíolo
2ário

Folíolo
1ário

Raque 1ária

Folha composta bipinada (imparipinada)

FILOTAXIA



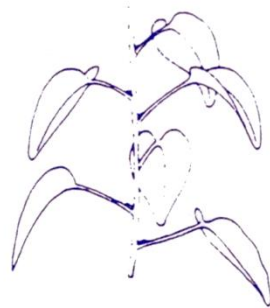
ALTERNA



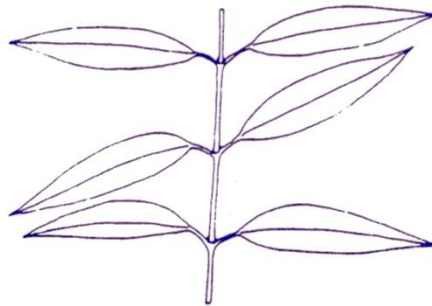
OPOSTA



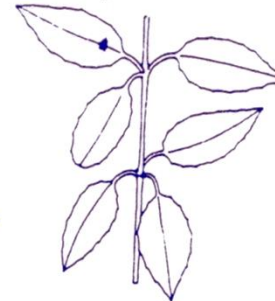
VERTICILADA



B. Alternate



C. Opposite



D. Whorled

Tipos básicos de venação



Pinada



Palmada



Paralelinérvea



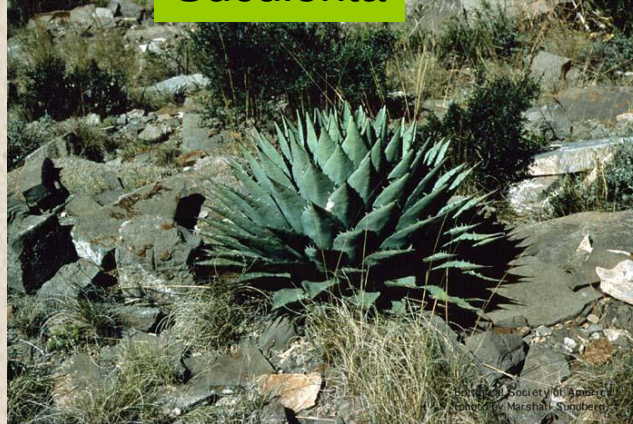
Curvinérvea

Modificações foliares

Planta carnívora



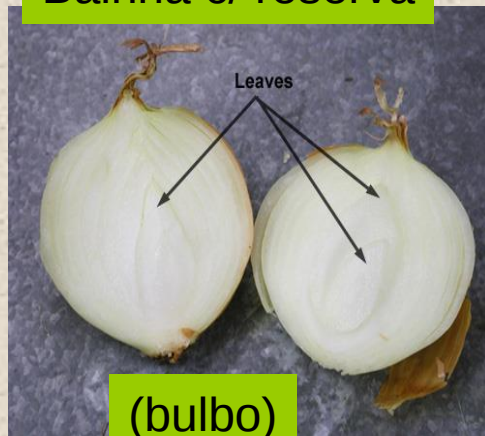
Suculenta



Gavinha (folíolo)*



Bainha c/ reserva



(bulbo)

Filódio = pecíolo



Espinho*



*Pode ser ramo ou folha inteira

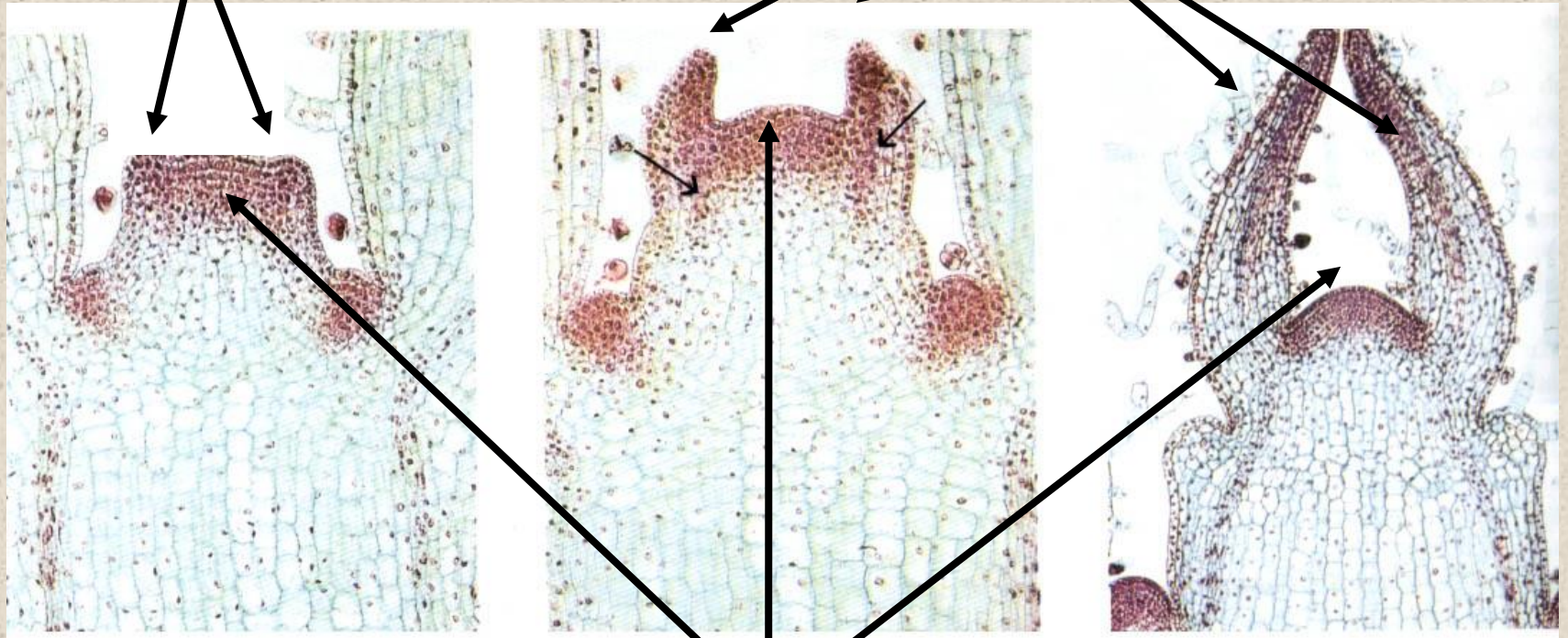
Brácteas



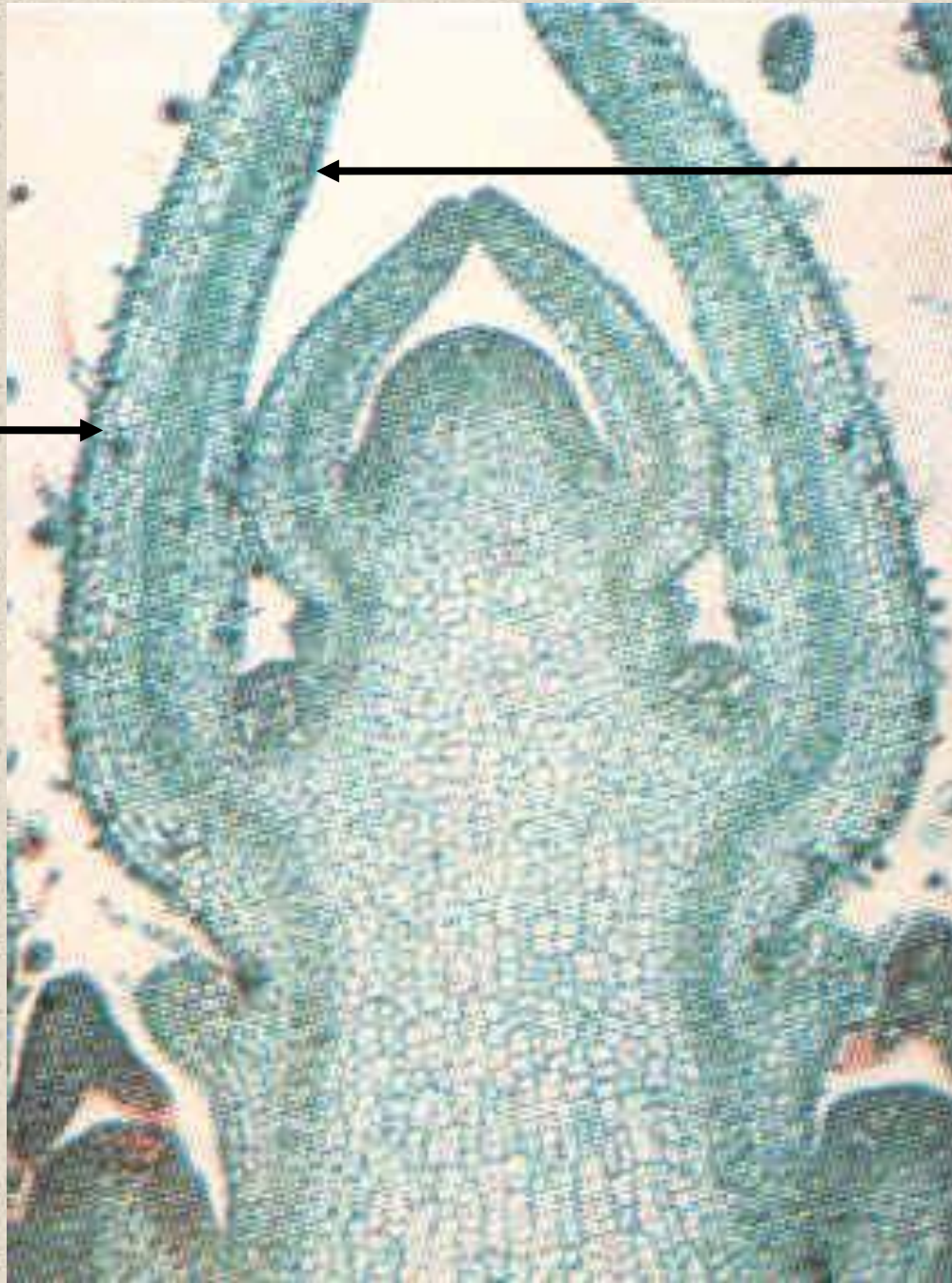
Ontogênese foliar

**Protuberâncias
foliares**

Primórdio foliar



Meristema apical



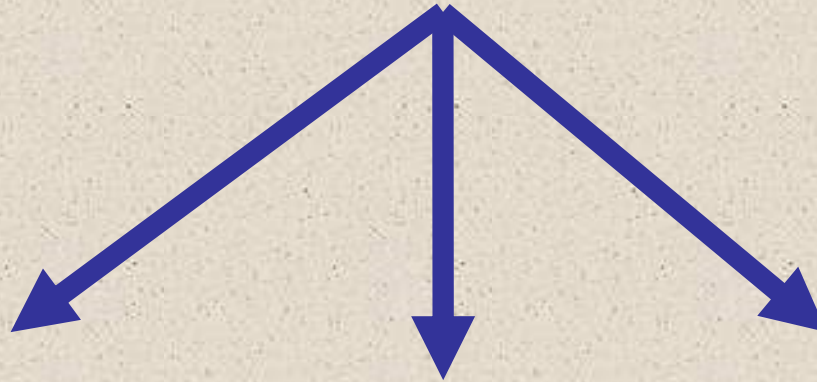
Face adaxial:

- Superior
- Ventral

Face abaxial:

- Inferior
- Dorsal

Promeristema



Protoderme

Meristema
Fundamental

Procâmbio



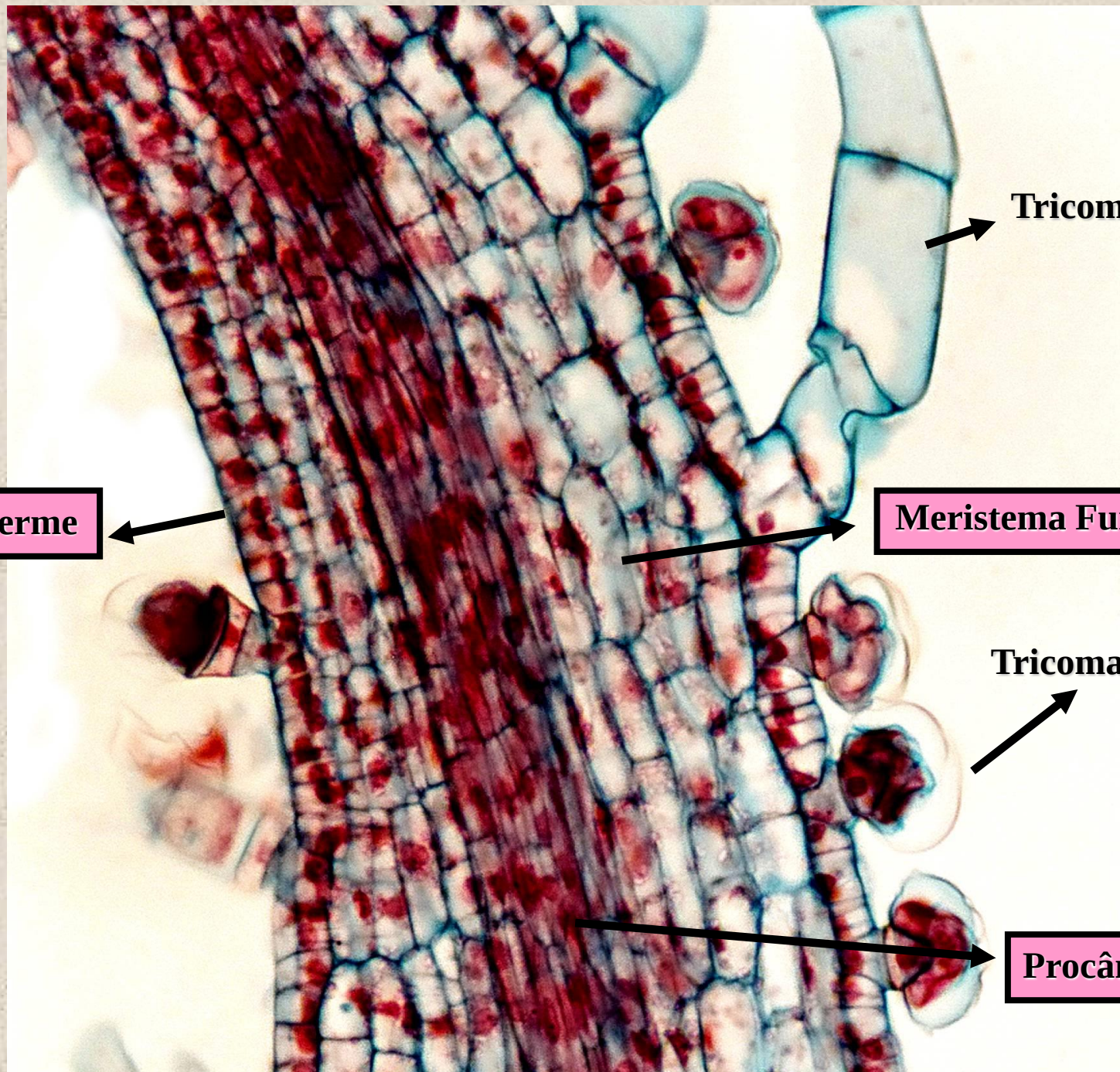
Epiderme



Tecido Fundamental



Tecido Vascular



Tricoma tector

Protoderme

Meristema Fundamental

Tricoma glandular

Procâmbio

Estrutura geral da folha

Epiderme

Mesofilo

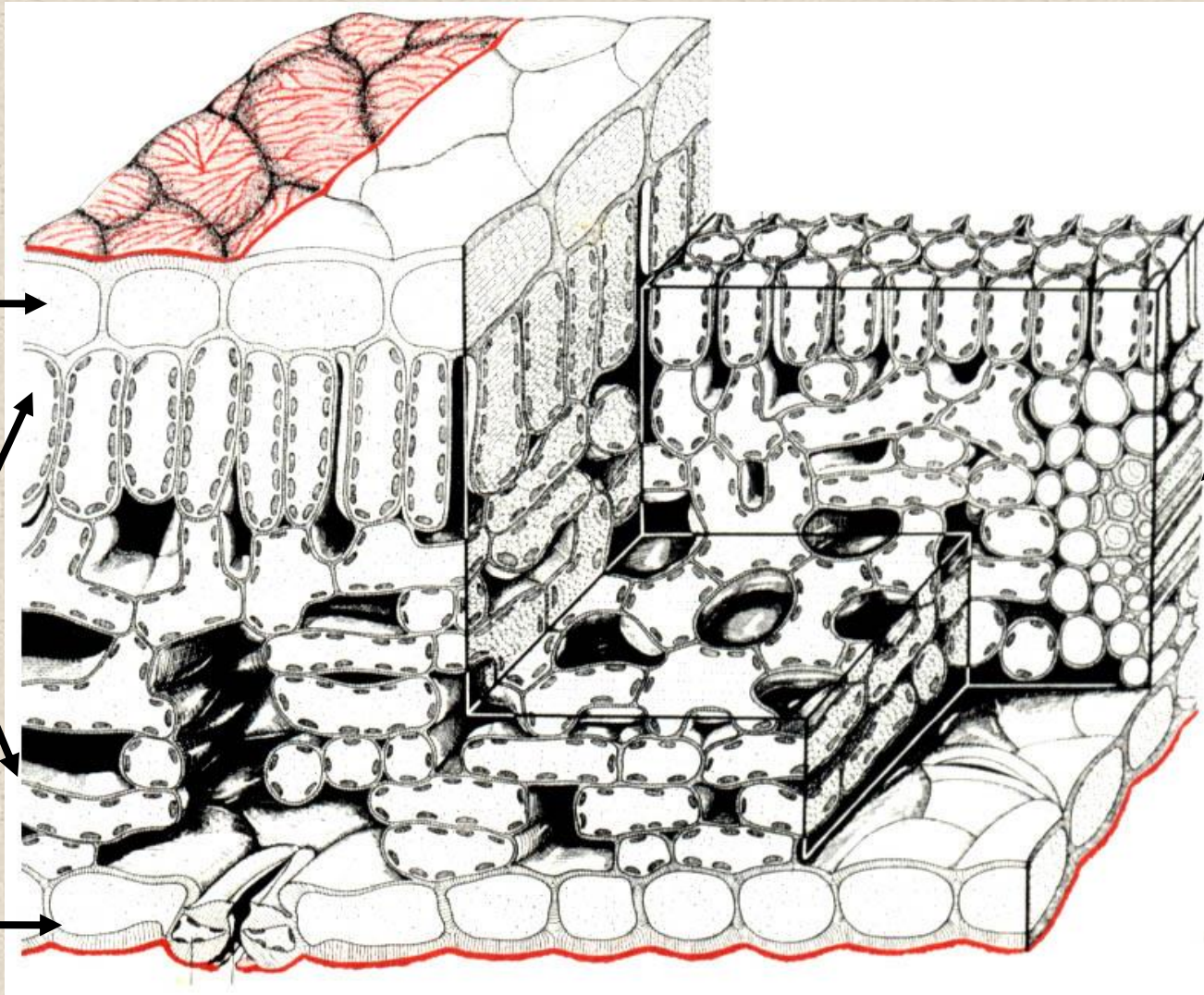
Feixe vascular

Epiderme

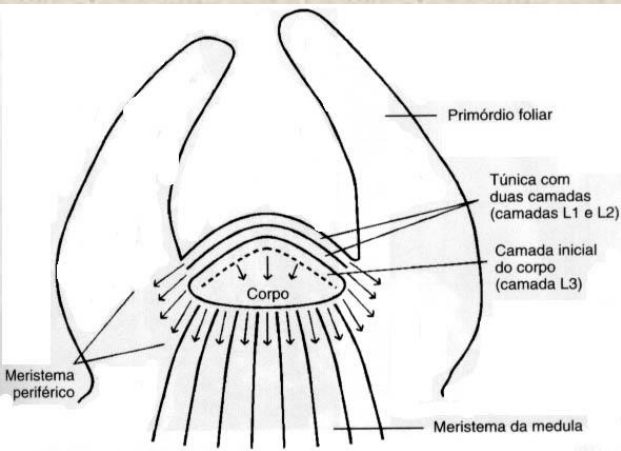
Mesofilo

Epiderme

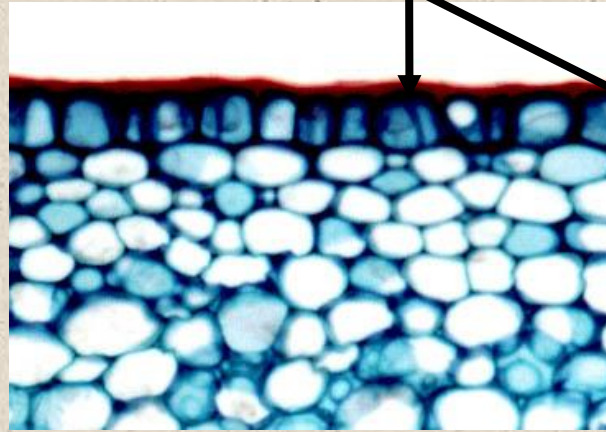
Feixe vascular



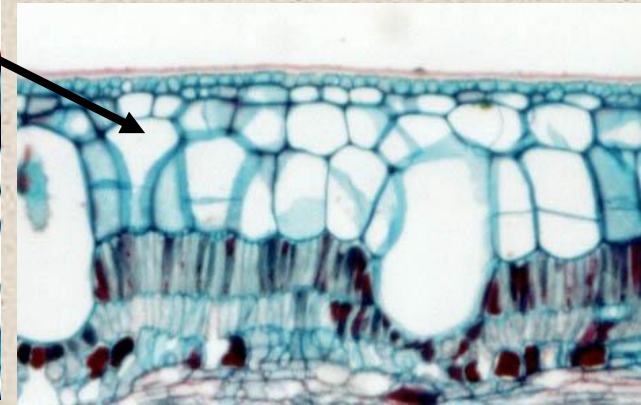
Epiderme



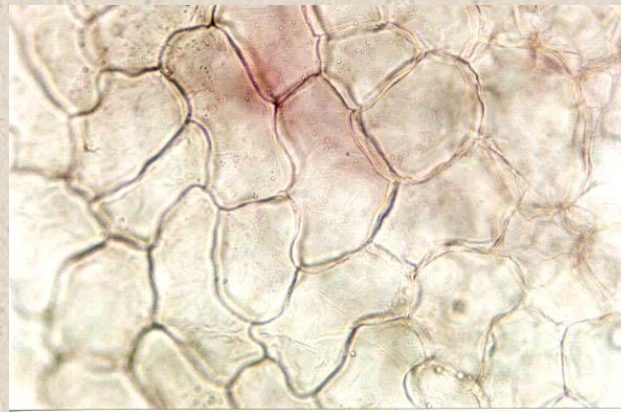
epiderme



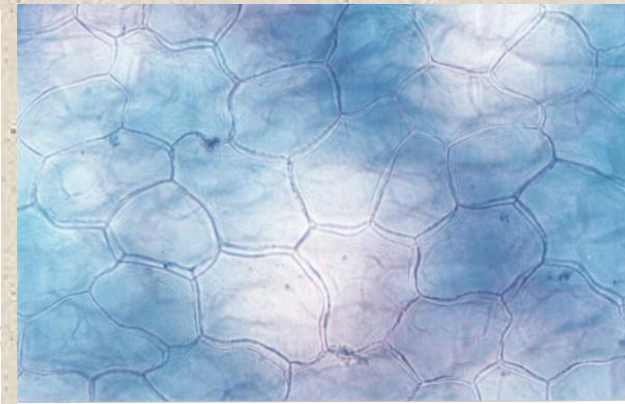
Vista transversal



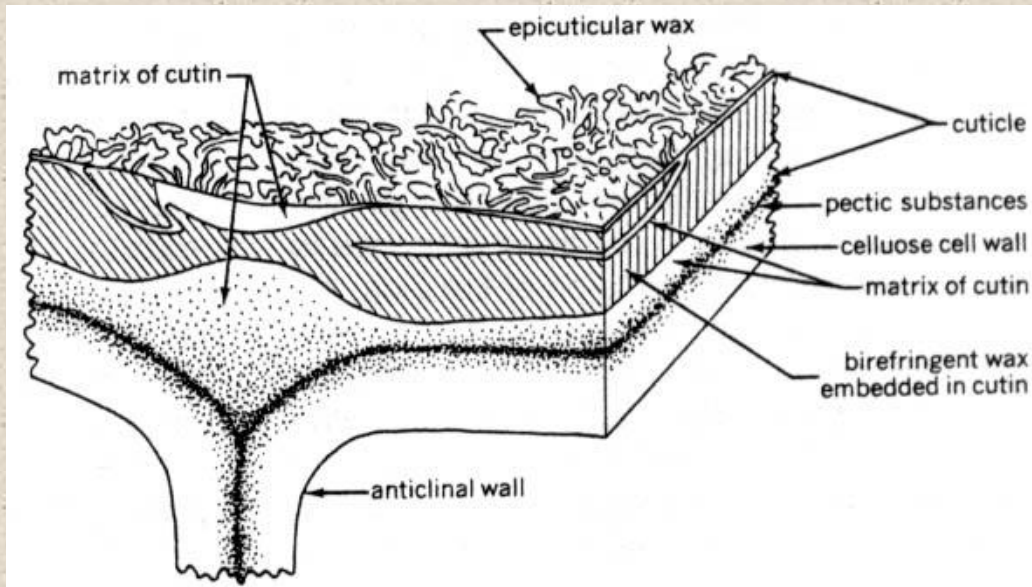
Vista frontal



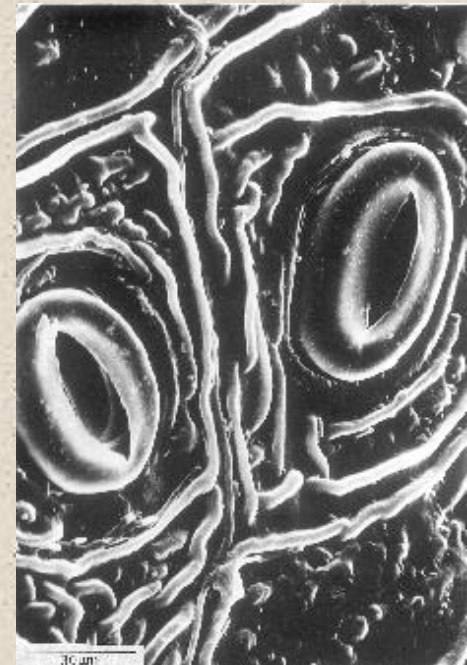
Céls. ordinárias



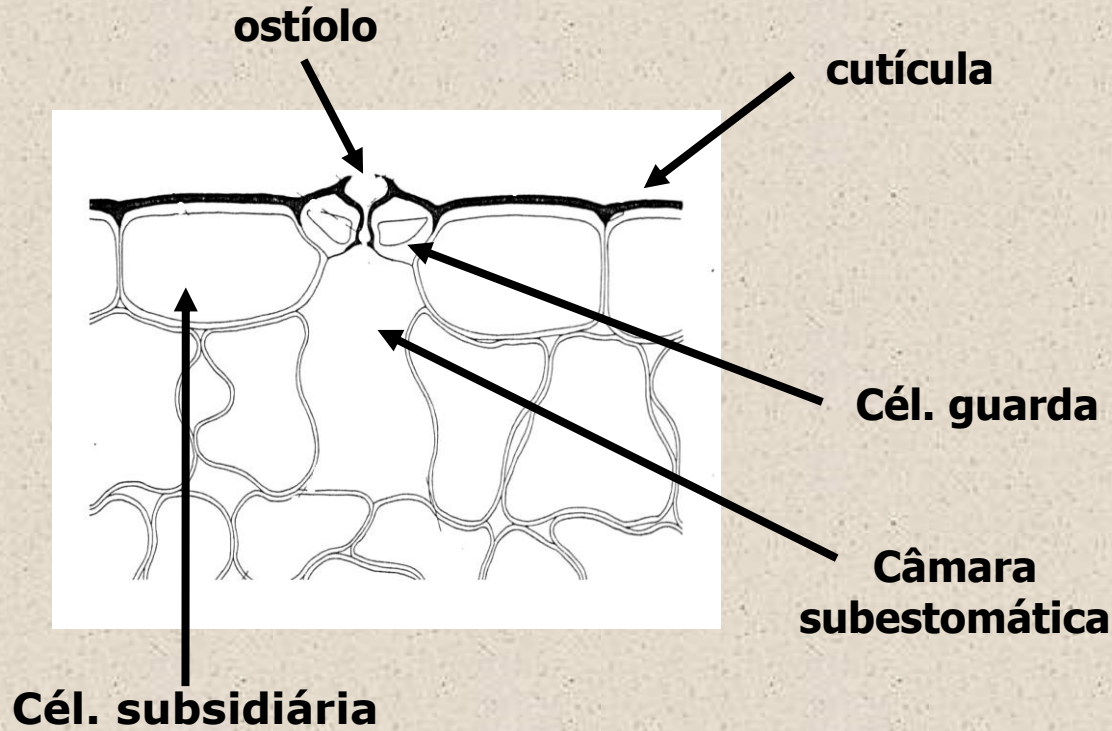
Cutícula: parede periclinal externa da epiderme



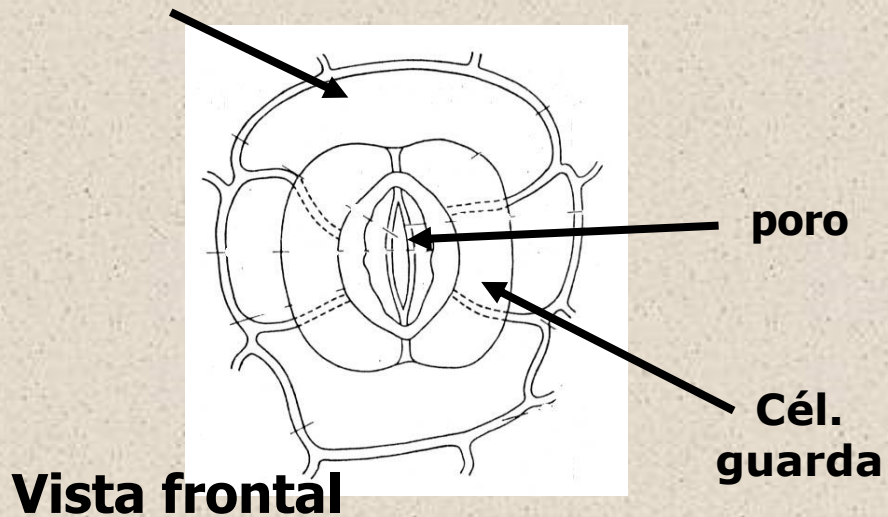
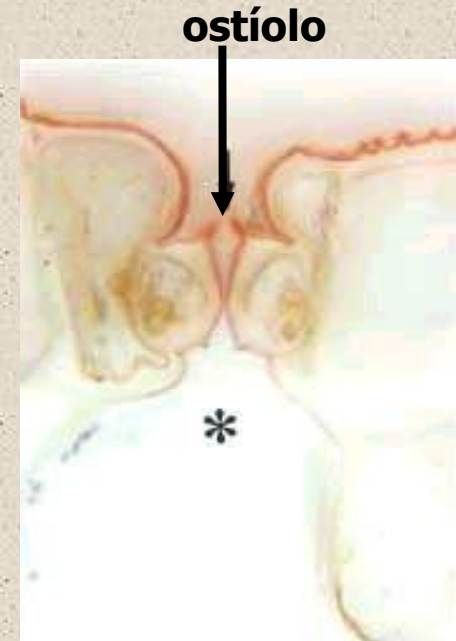
cera



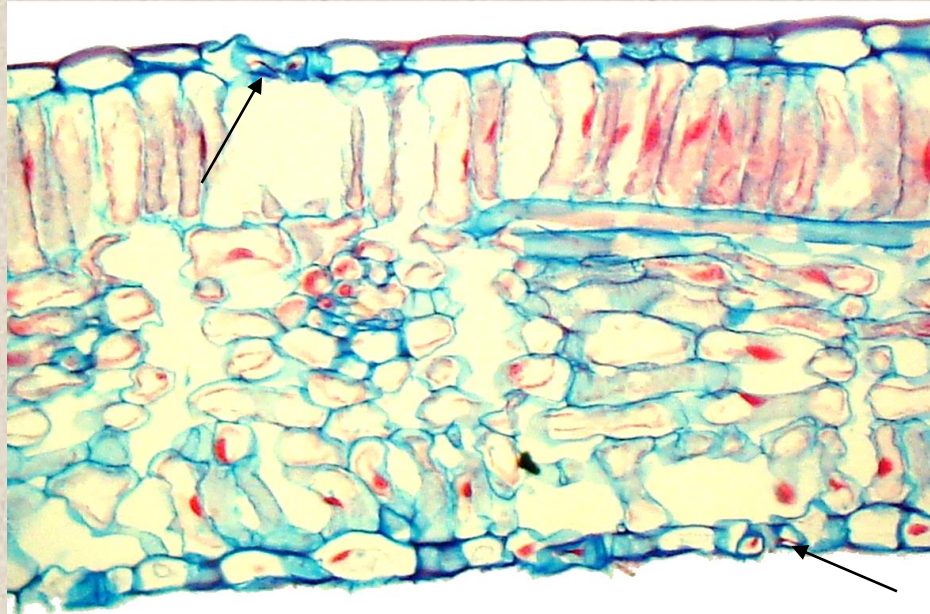
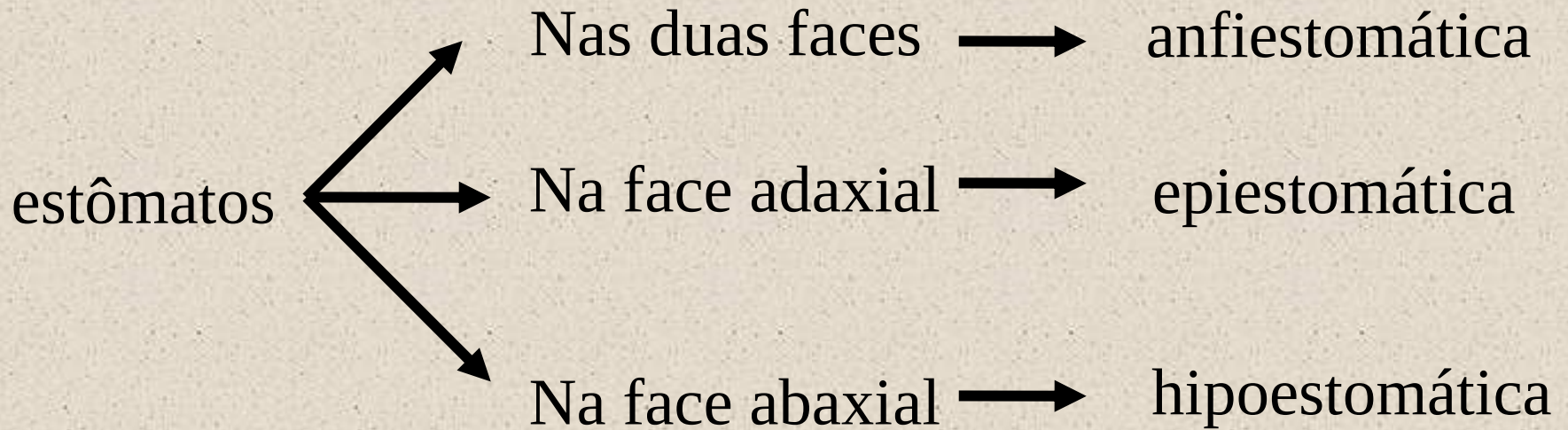
Estômatos



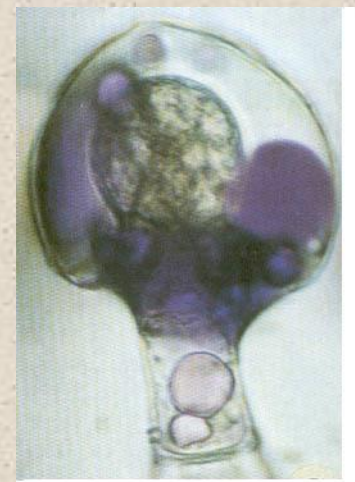
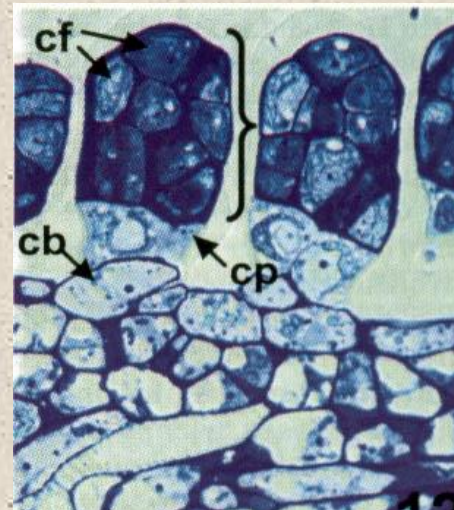
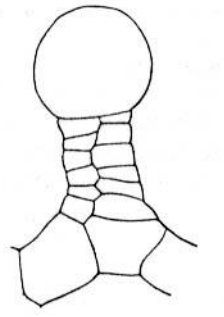
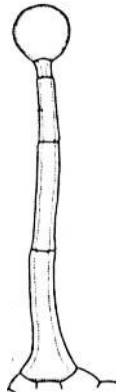
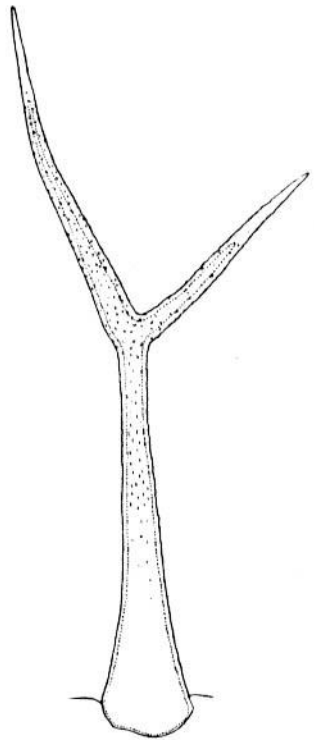
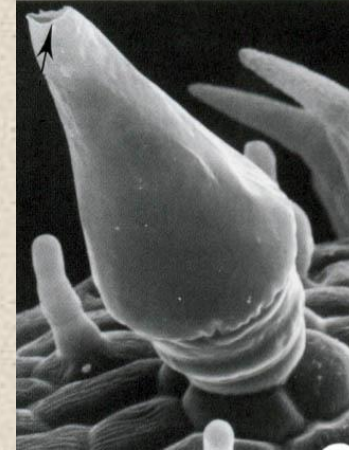
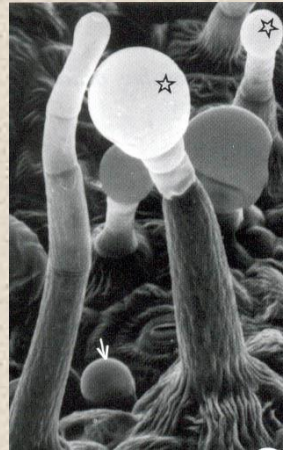
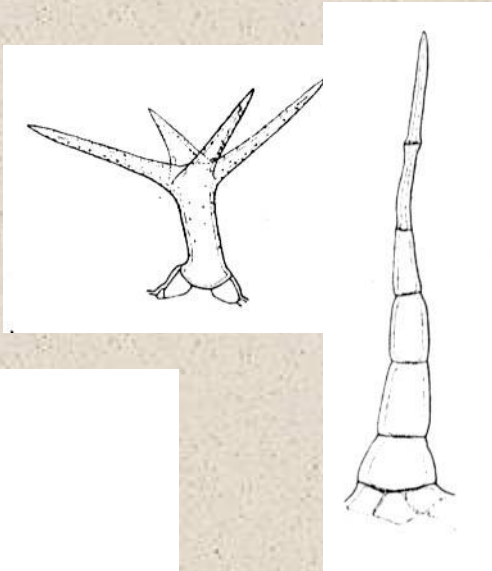
Vista transversal



Distribuição dos estômatos na epiderme foliar

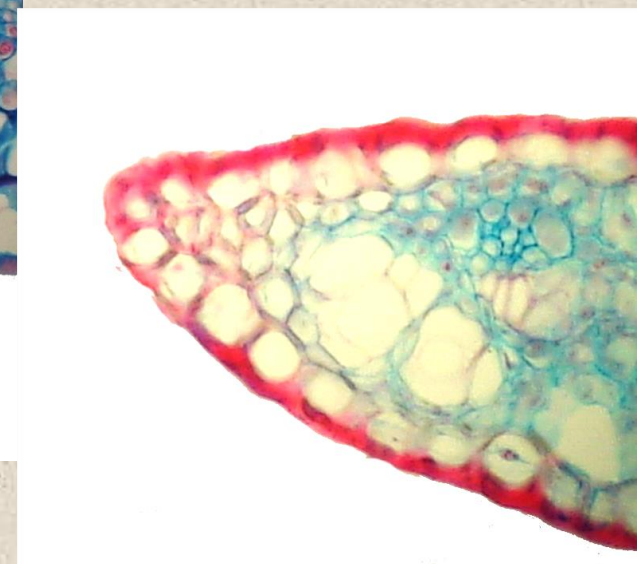
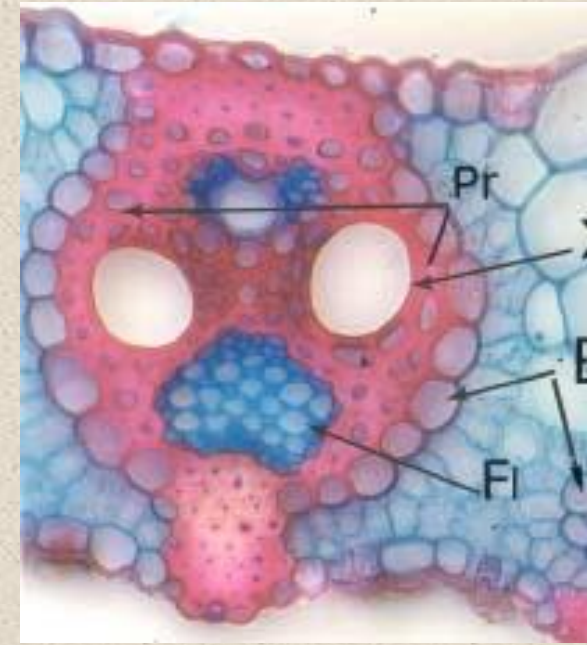
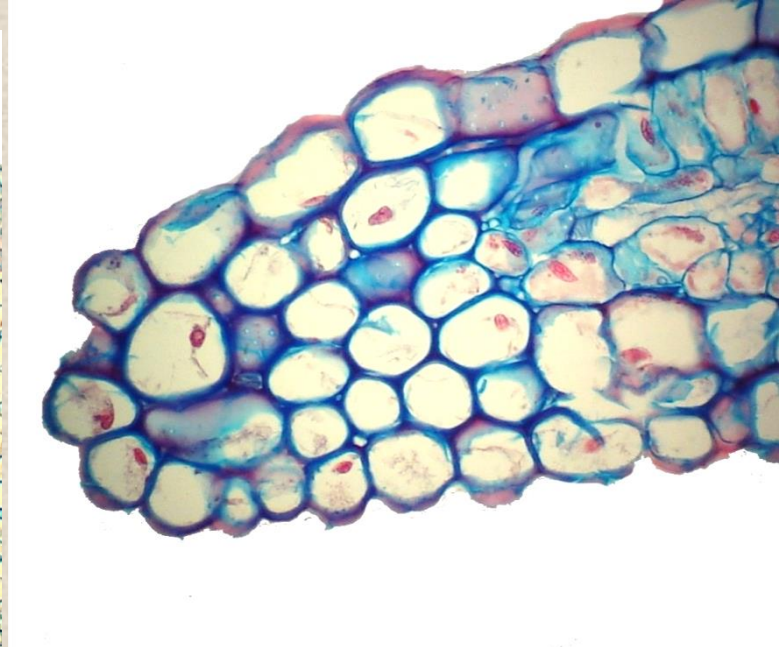
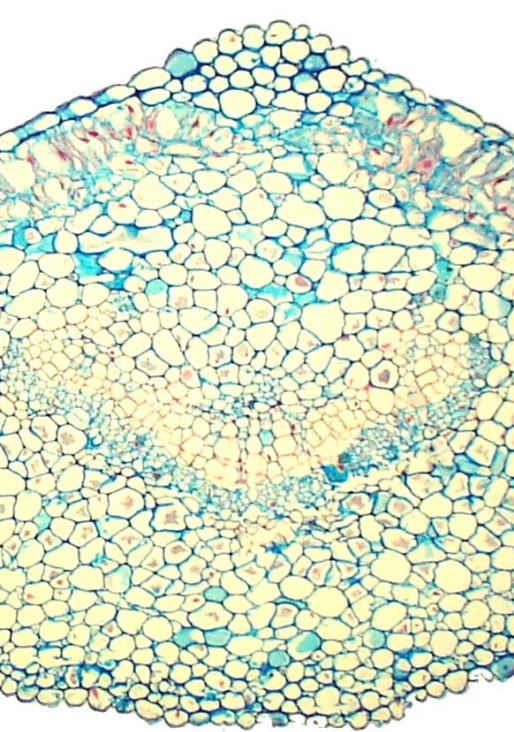


Indumento: tricomas tectores e/ou secretores

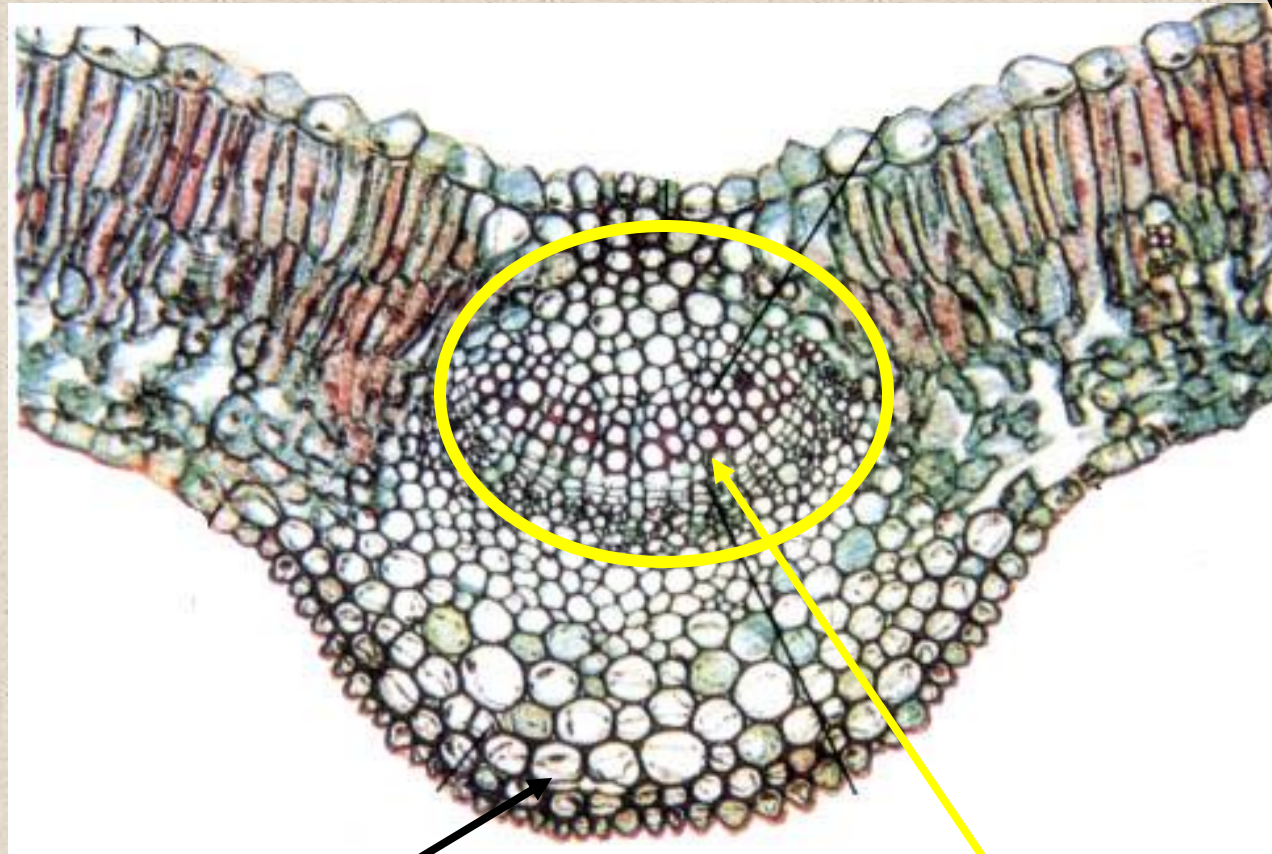


Tecido de sustentação

- colênquima – eudicotiledôneas
- esclerênquima – monocotiledôneas



Mesofilo foliar



**Epiderme
adaxial**

**Parênquima
paliçádico**

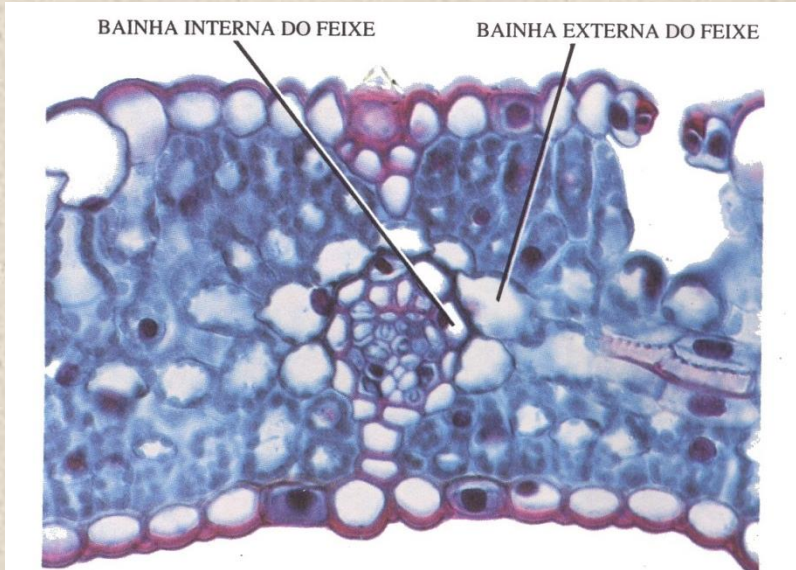
**Parênquima
lacunoso**

**Epiderme
abaxial**

Colênquima

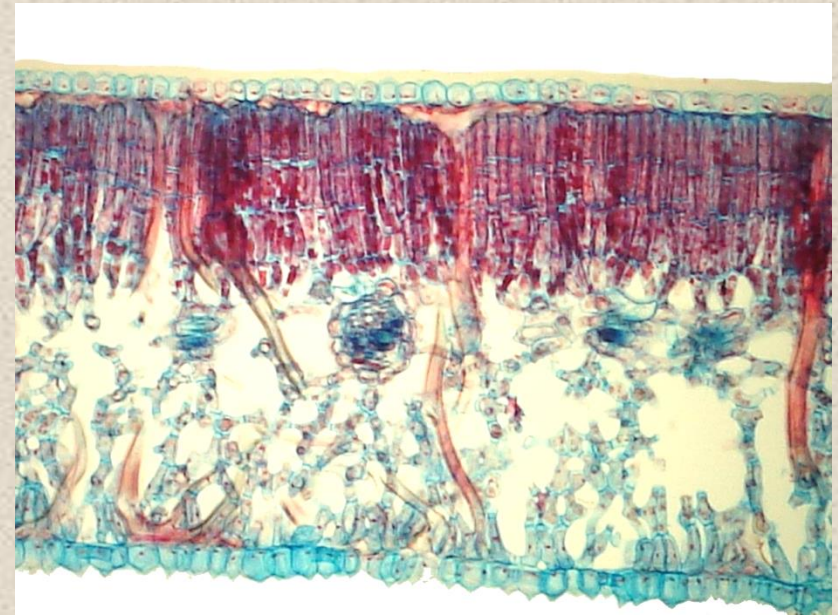
Feixe vascular

Variações do mesofilo:

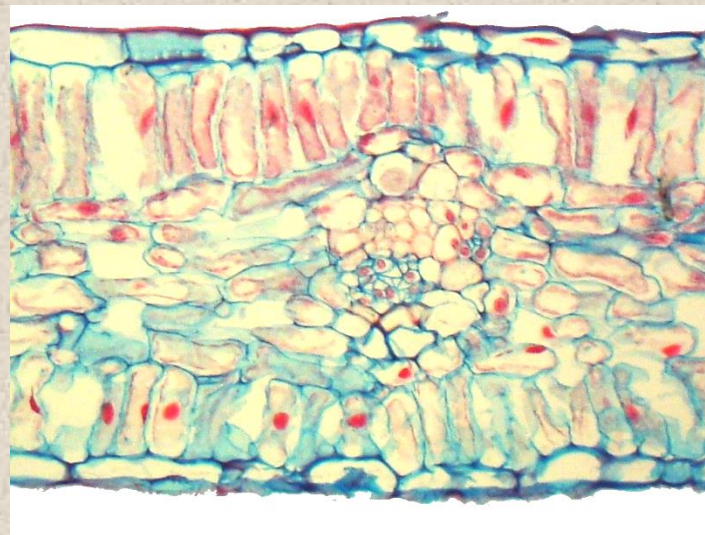


Homogêneo

Isobilateral



Dorsiventral



← paliçádico

← lacunoso

← paliçádico

Venação



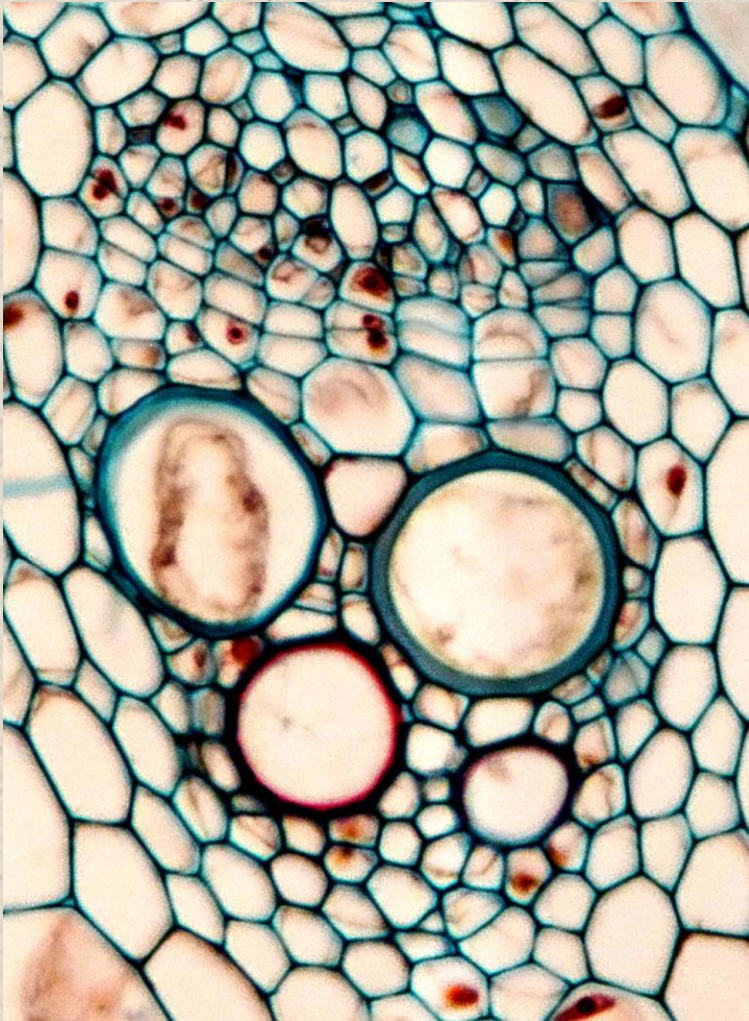
paralela



reticulada

- Venação reticulada – nervuras de diferentes tamanhos (nervura principal, secundárias, terciárias etc.)

Tipos de Feixes Vasculares



Colateral

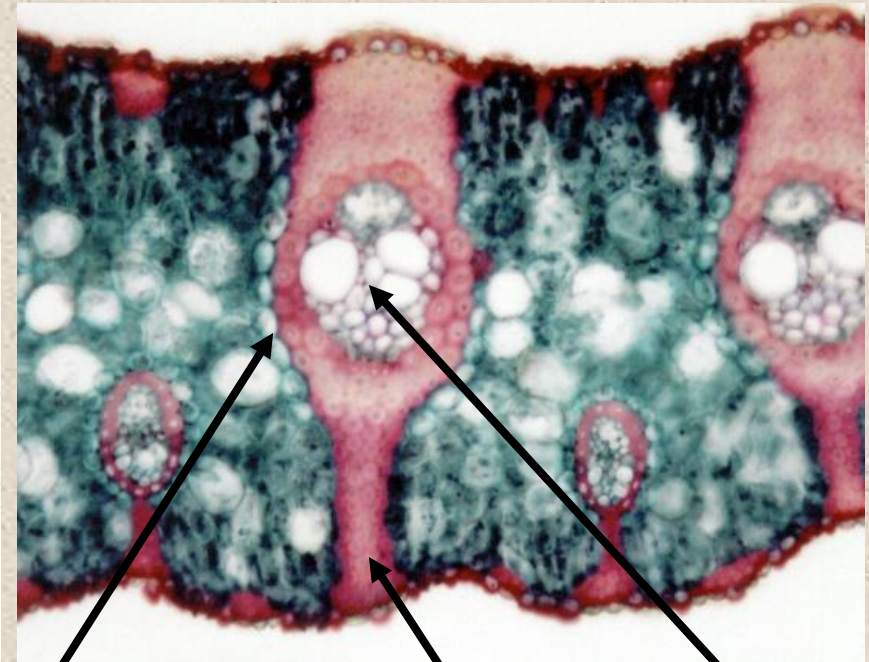
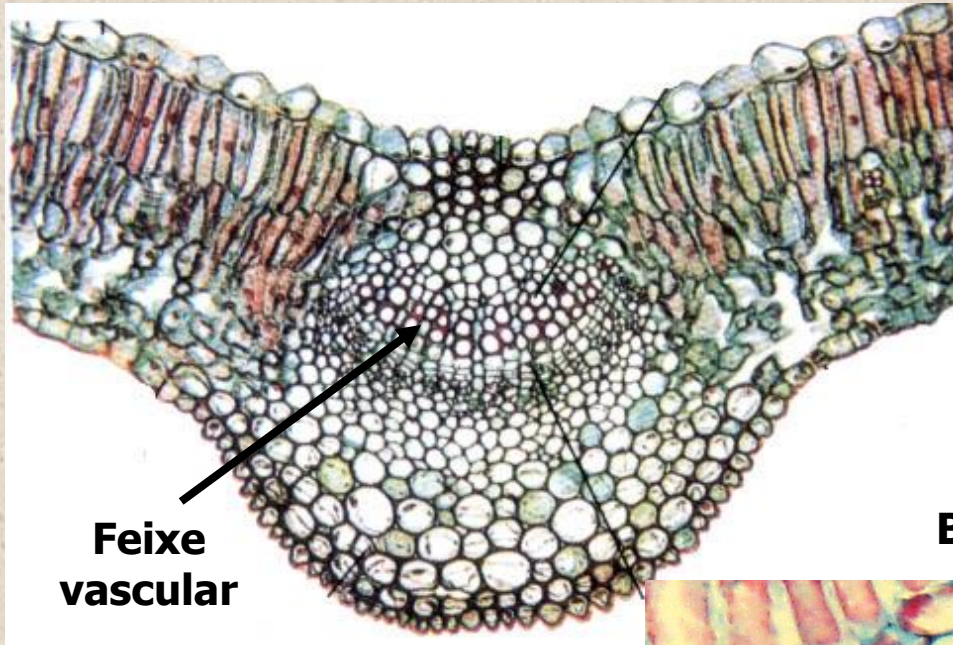


Bicolateral

Nervura central

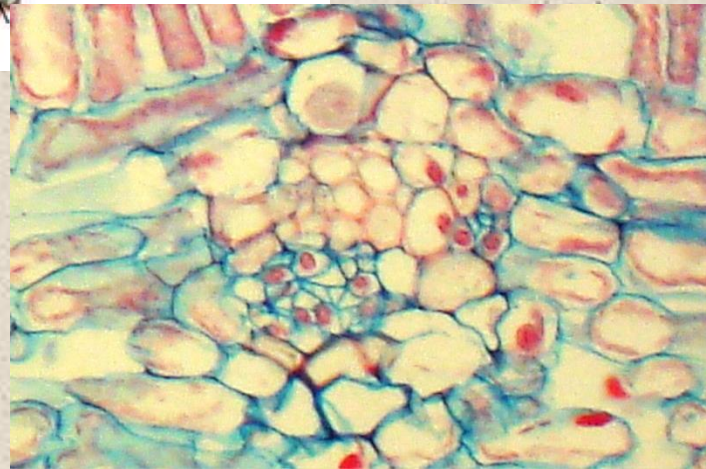
Monocotiledônea

Dicotiledônea



Bainha feixe vascular

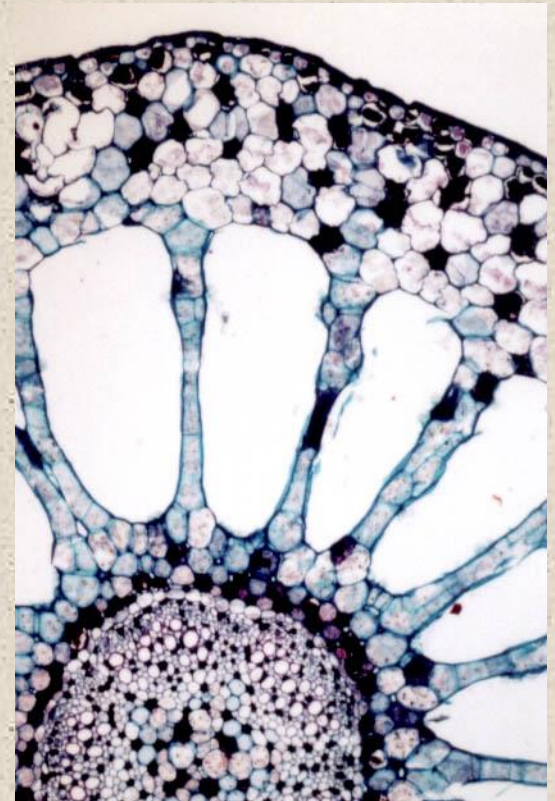
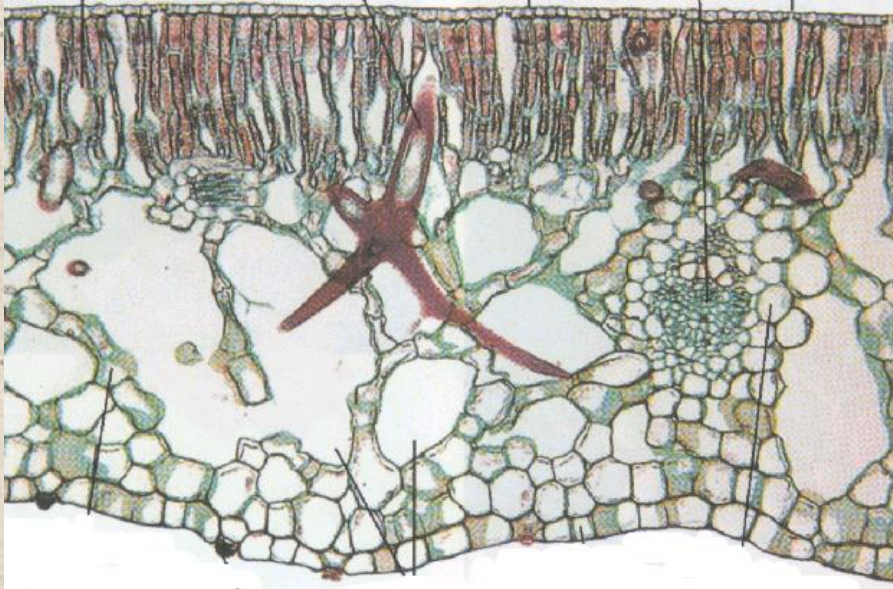
Feixe vascular



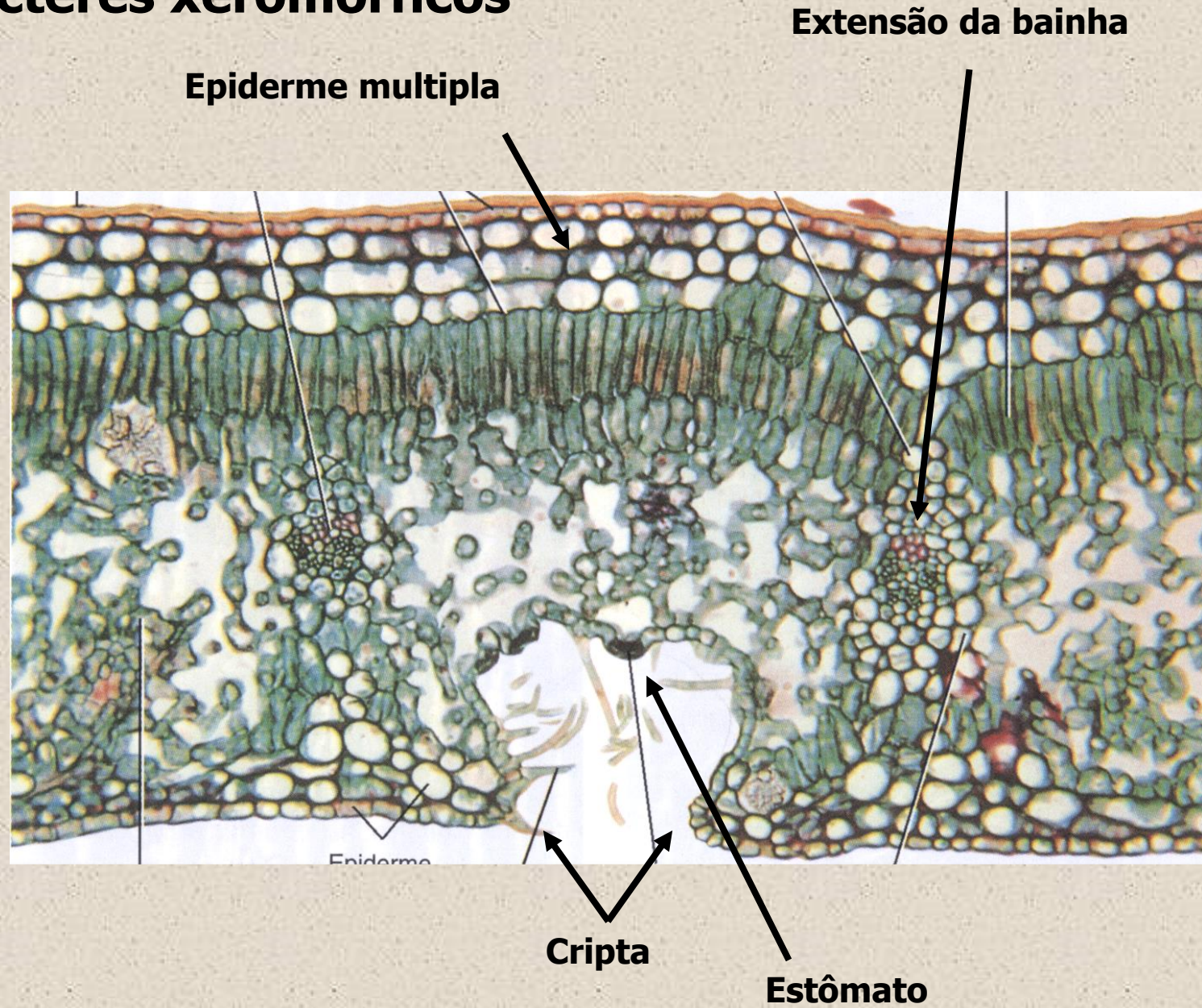
Extensão da bainha do feixe vascular

Variações foliares promovidas pelo ambiente

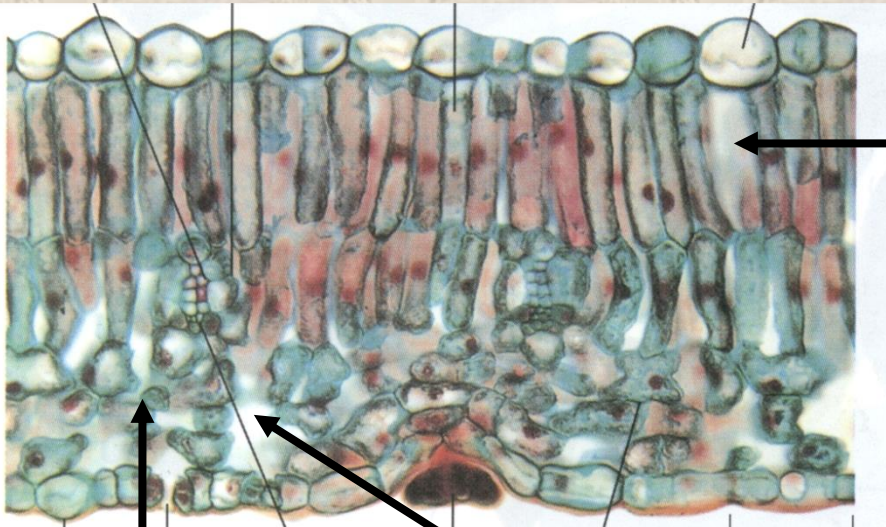
Caracteres hidrofíticos - Plantas aquáticas



Caracteres xeromórficos



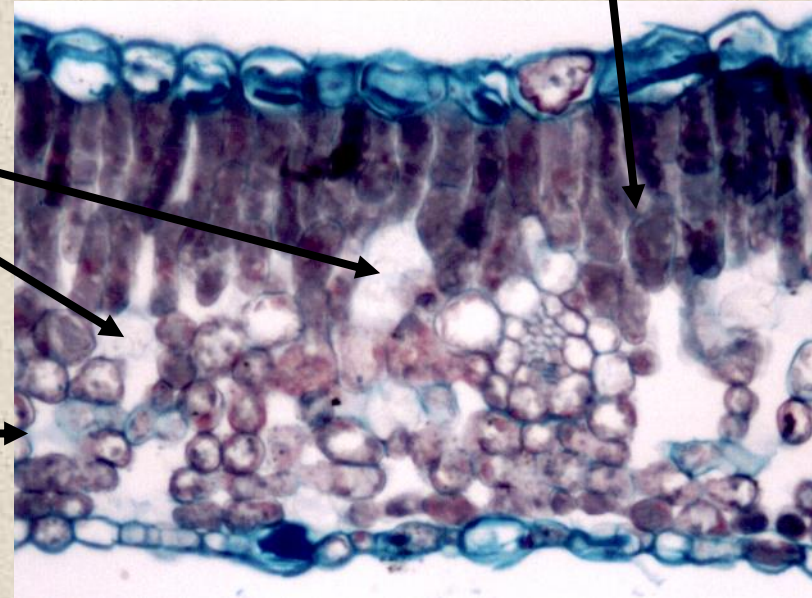
Caracteres mesofíticos



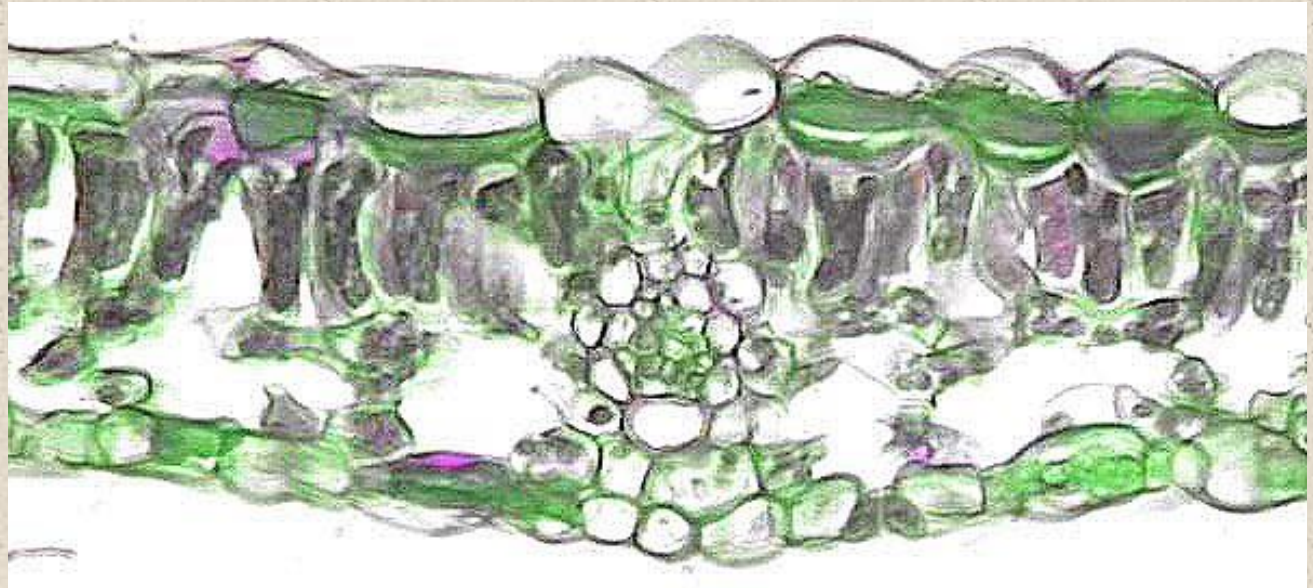
**Parênquima
paliçádico**

**Espaços
intercelulares**

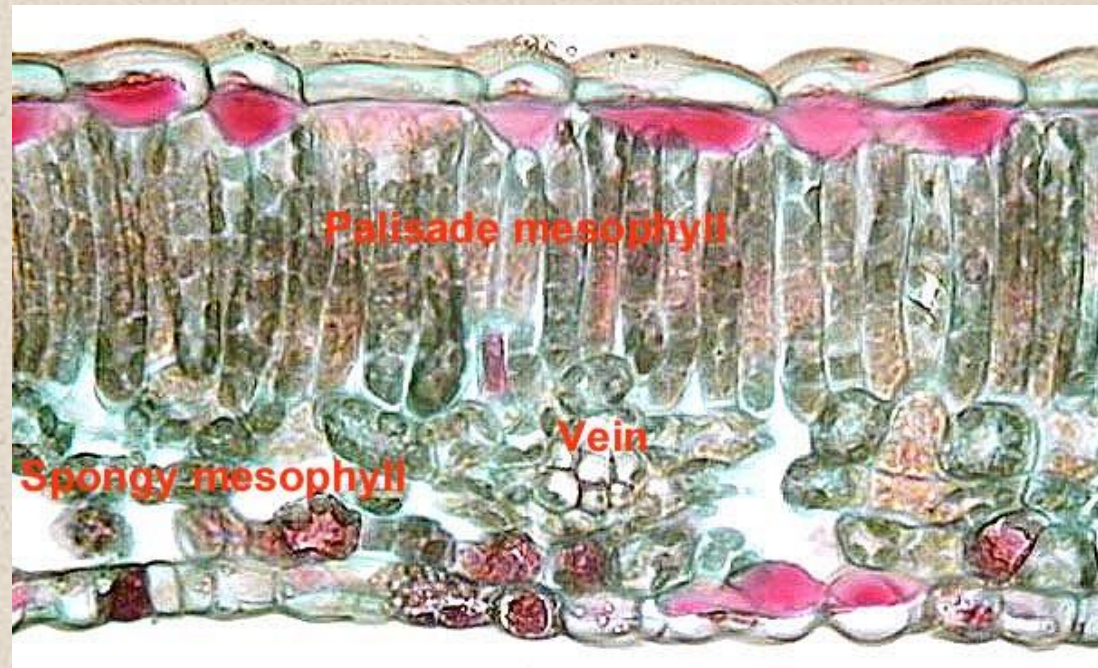
**Parênquima
lacunoso**



folha de sombra

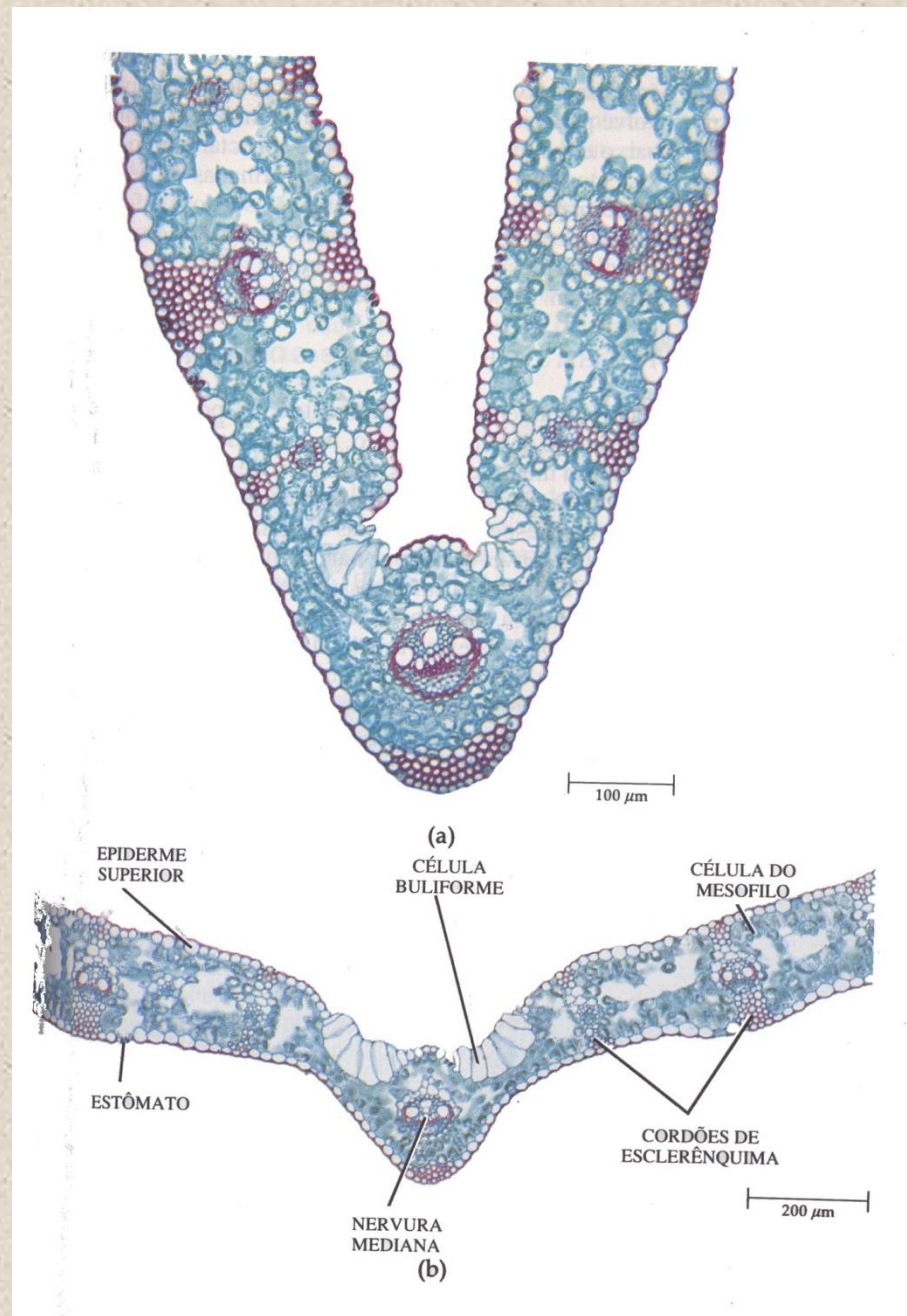
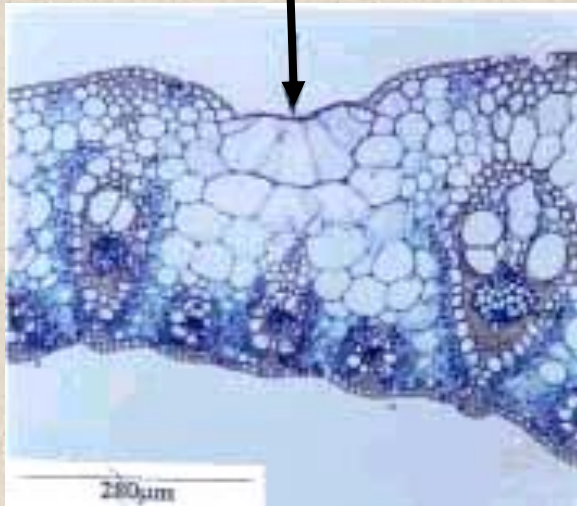


folha de sol

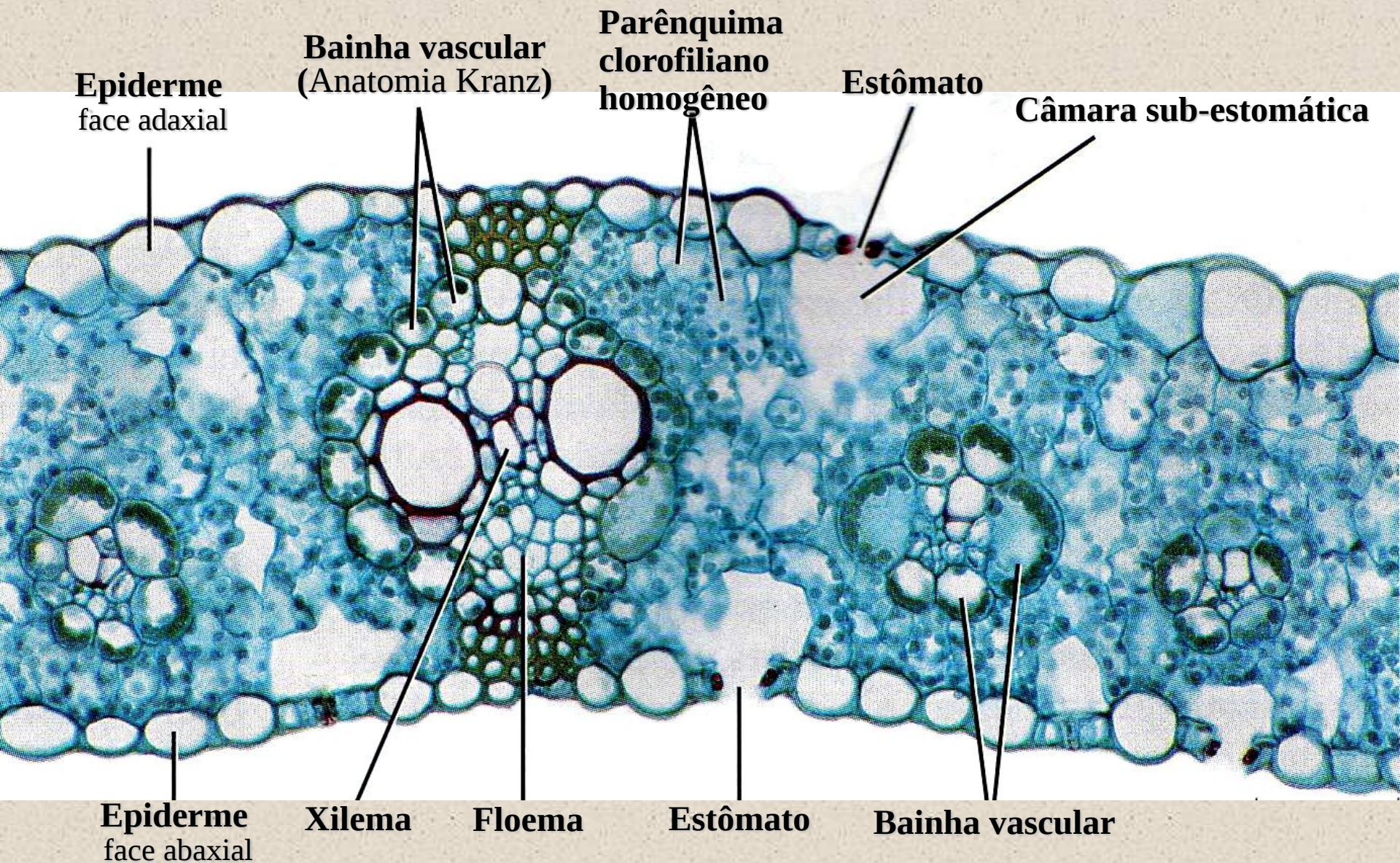


Gramíneas

**Célula
buliforme**



Anatomia da Folha do Milho



Dúvidas?

diegodemarco@usp.br