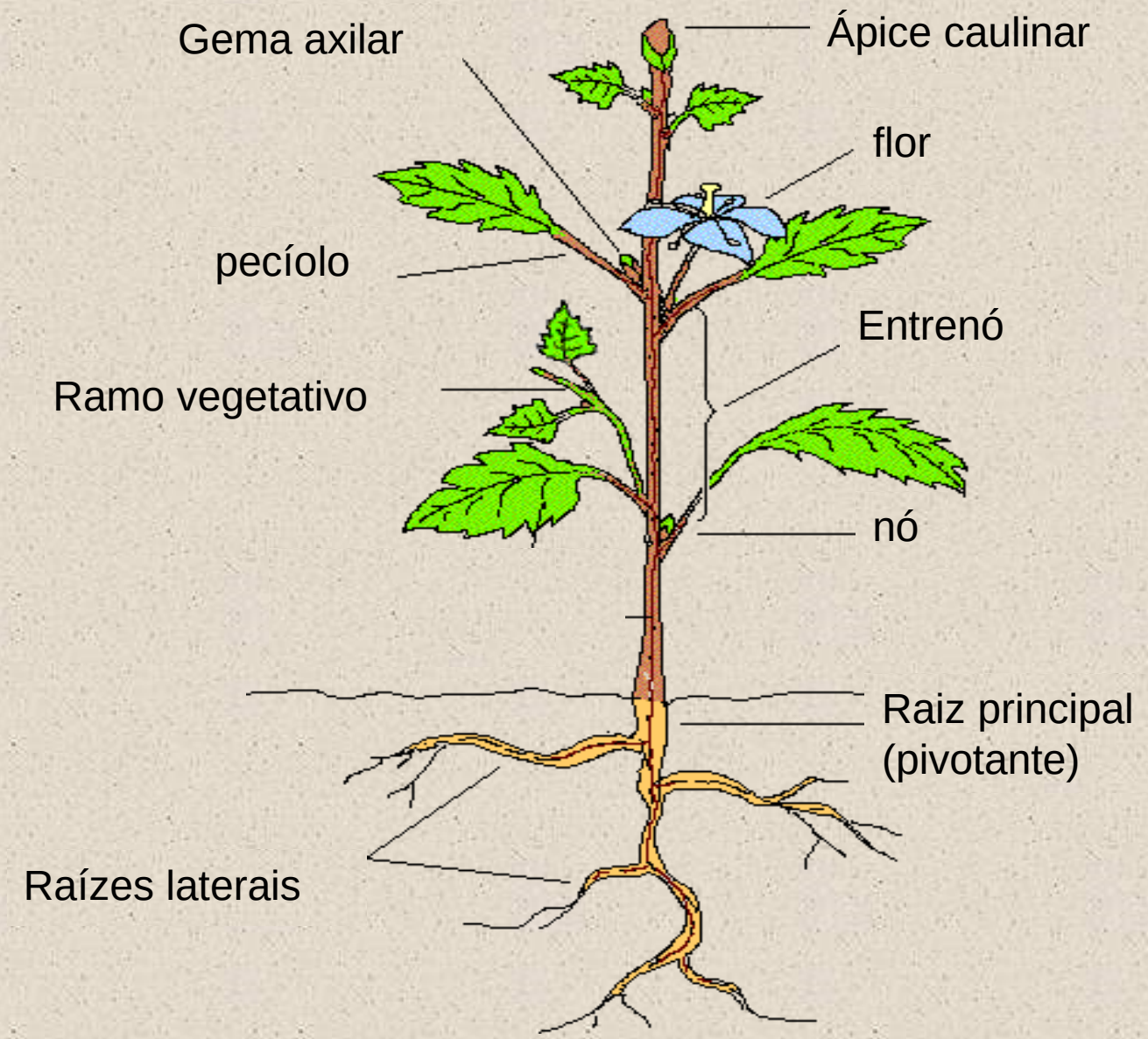
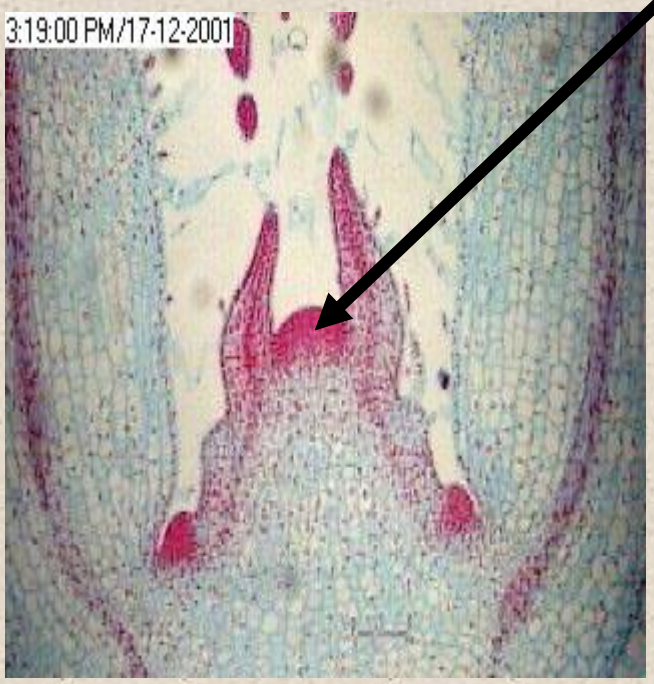
Caule

Prof. Dr. Diego Demarco

Assistam esta aula online em
http://eaulas.usp.br/portal/video.action?idItem=23147


Gema axilar
Ápice caulinar
flor
pecíolo
Entrenó
Ramo vegetativo
nó
Raiz principal
(pivotante)
Raízes laterais

Gemas apical e axilar

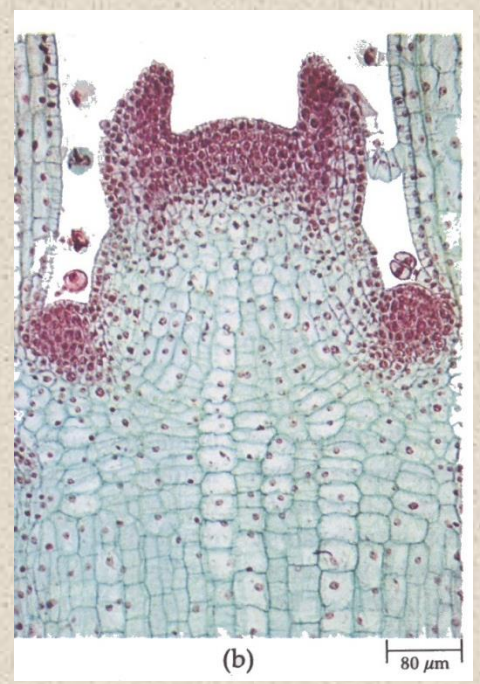




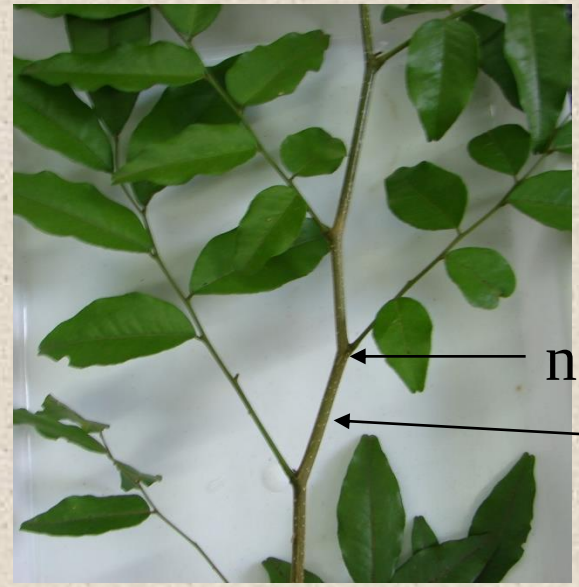


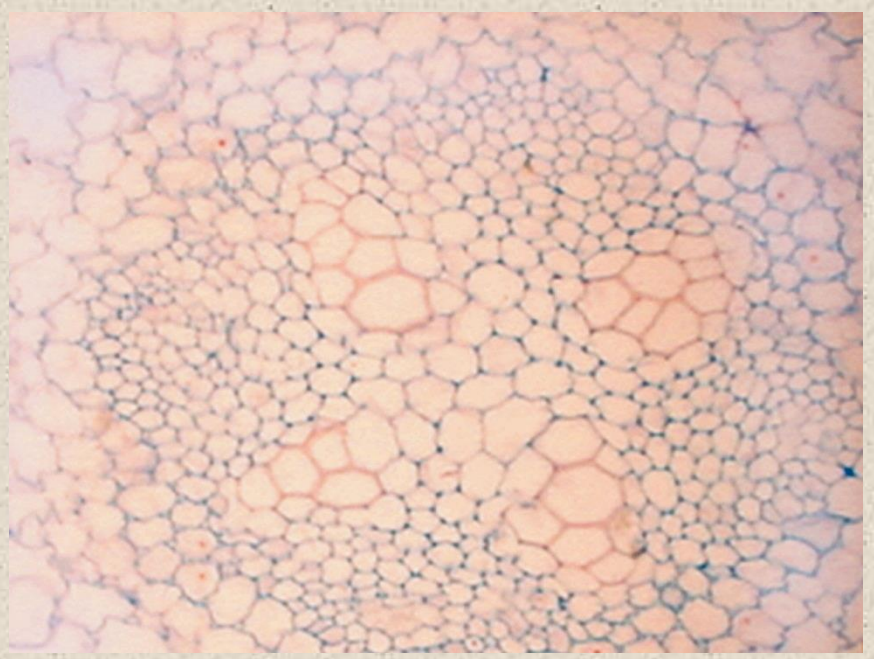


Morfologia de caules

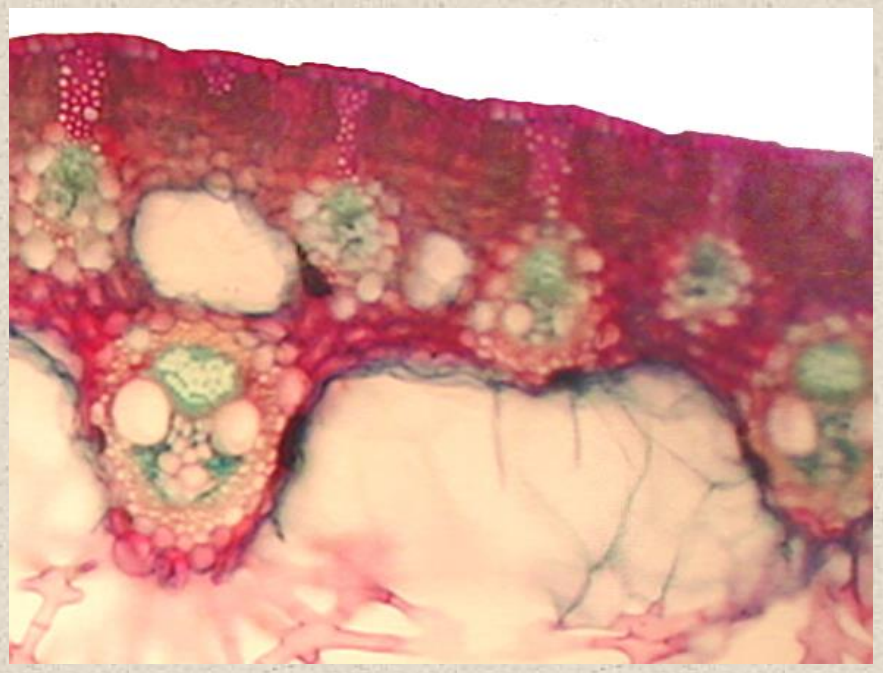


Ápice caulinar





alternos



opostos

Quanto ao hábito

• Erva – pouco desenvolvido e com pouca ou nenhuma lignificação



• Arbusto – tamanho médio inferior a 5m, resistente e lenhoso, ramifica a partir da base





• Árvore – tamanho superior a 5m, com tronco nítido e sem ramos na porção inferior; a parte ramificada constitui a copa



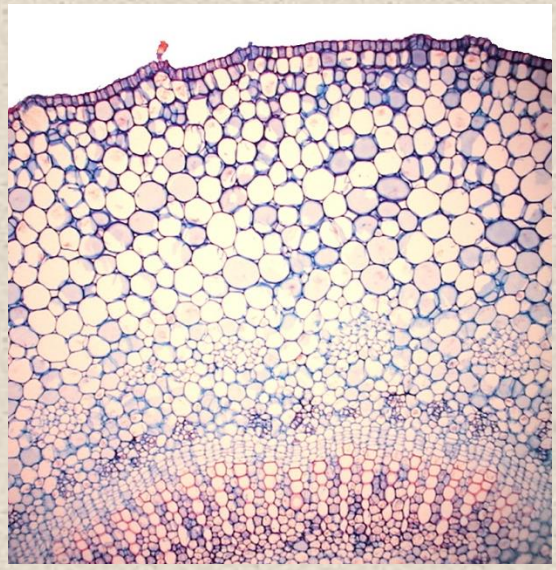
- Liana – trepadeira ou cipó





Quanto à consistência

- Herbáceo – não lignificado
- Lenhoso – lignificado e resistente



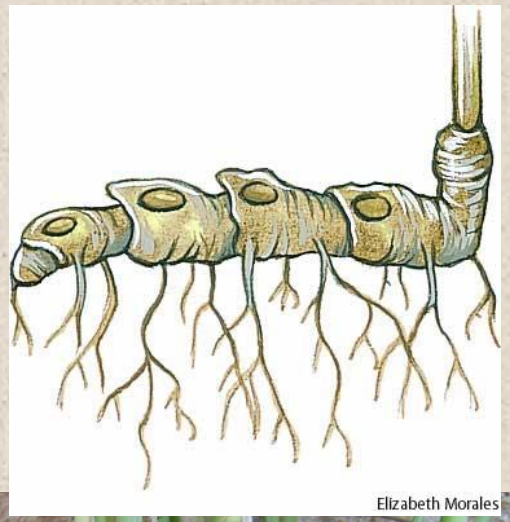




Subterrâneos

- Rizoma

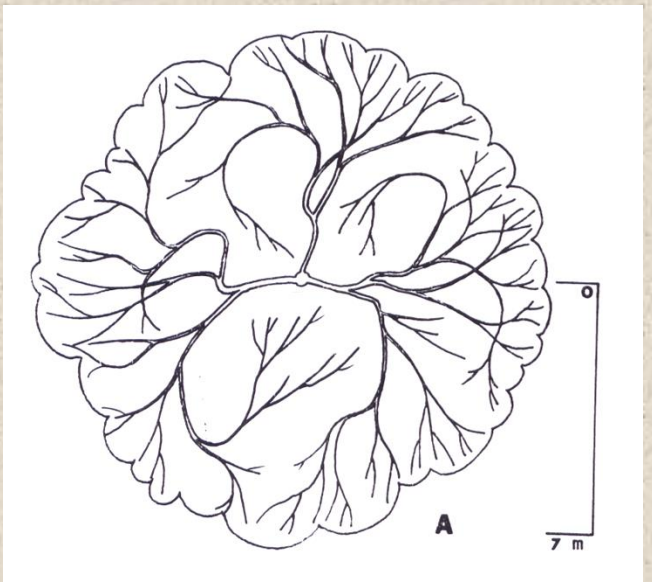


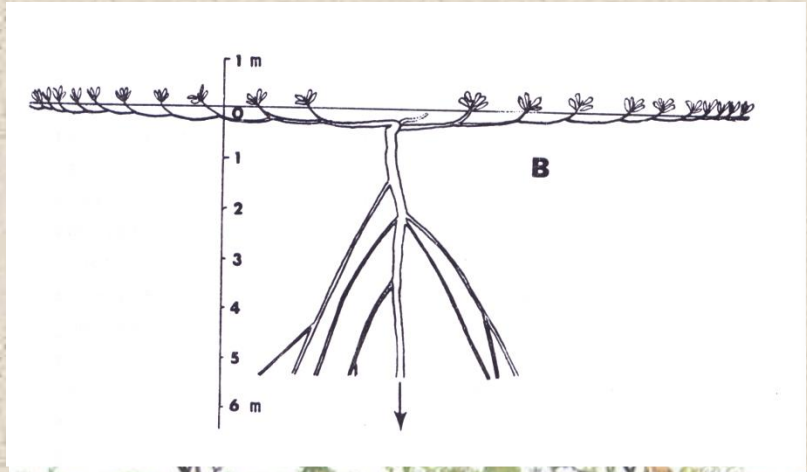






• Sóbole – sistema caulinar subterrâneo difuso; ramos caulinares de crescimento horizontal e superficial





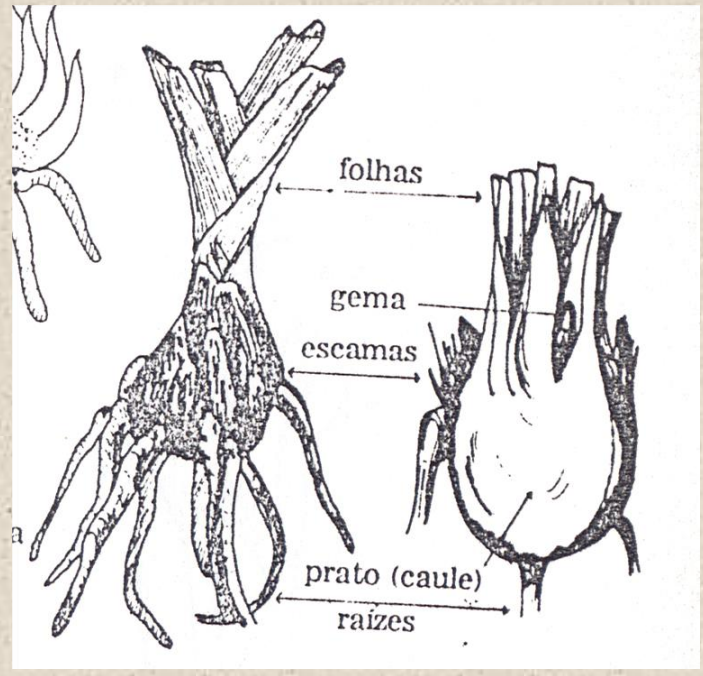
• Tubérculo – caule dilatado pelo armazenamento de reservas. Ex: batata





•**Bulbo**

• Cormo (bulbo sólido)





Bulbo escamoso – folhas (escamas)

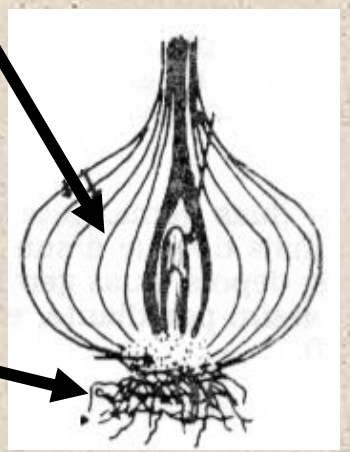
. Ex: lírio





Bulbo tunicado Ex: cebola





Adaptações

• Cladódio – caule verde, achatado ou até laminar lembrando folhas, que estão ausentes ou são rudimentares. Ex: cacto









ESPINHOS: ramos ou folhas modificados

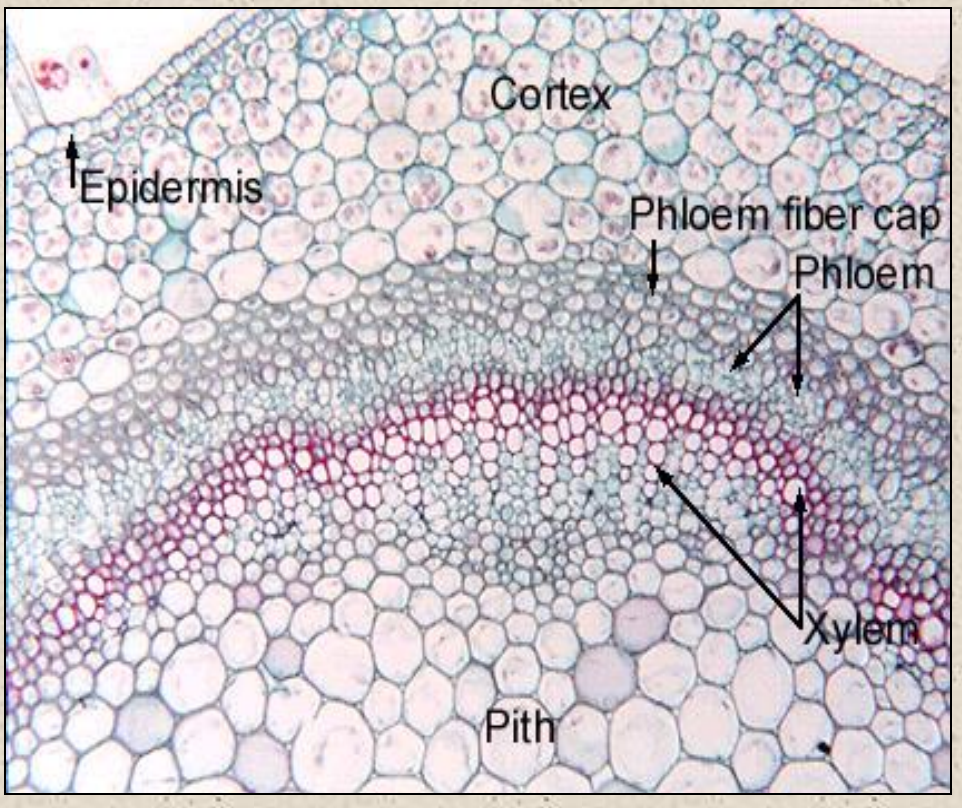


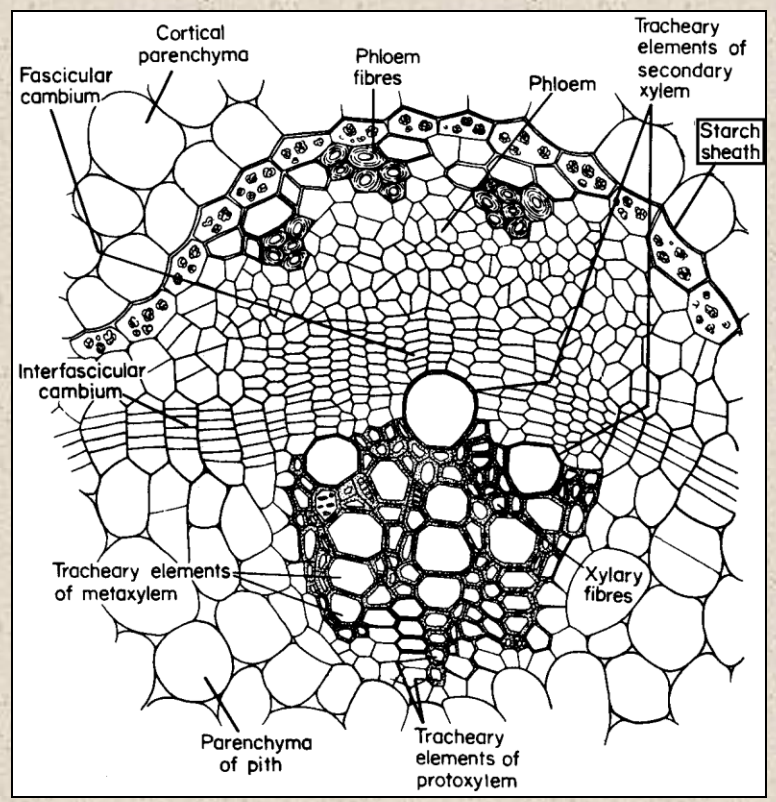


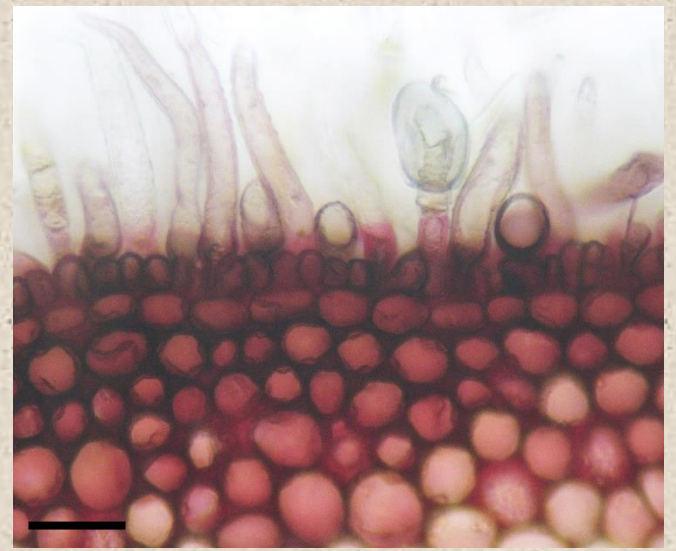
CAULE

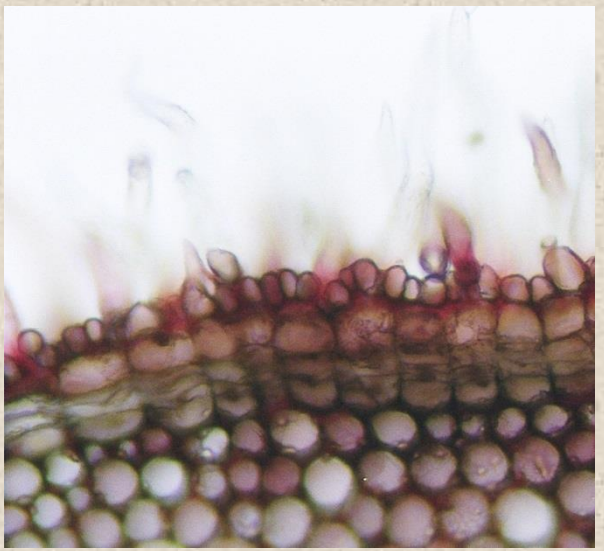
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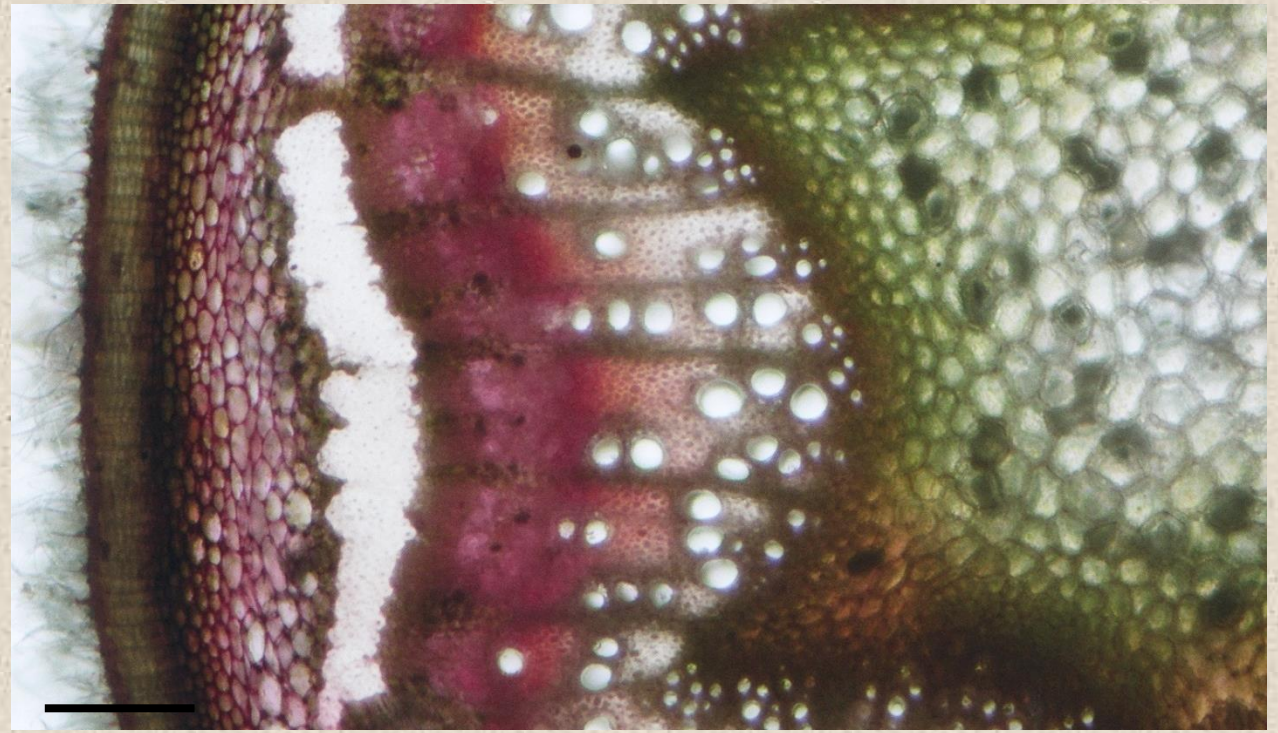
Tecido de revestimento
Tecido fundamental
Tecido vascular





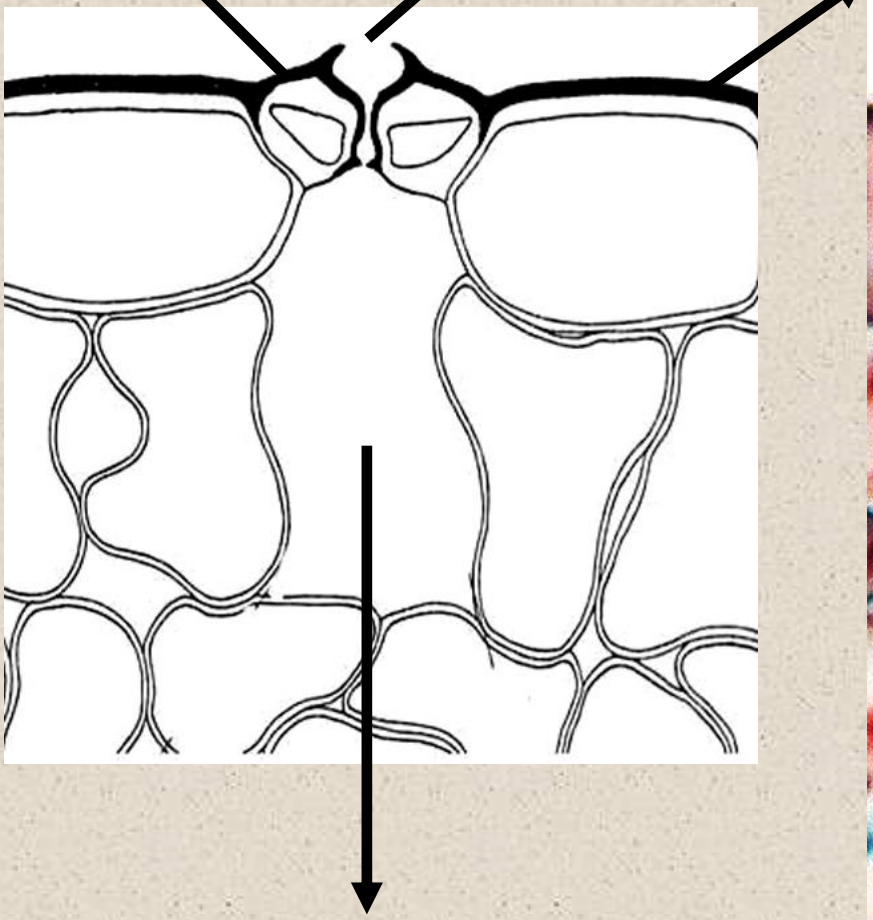


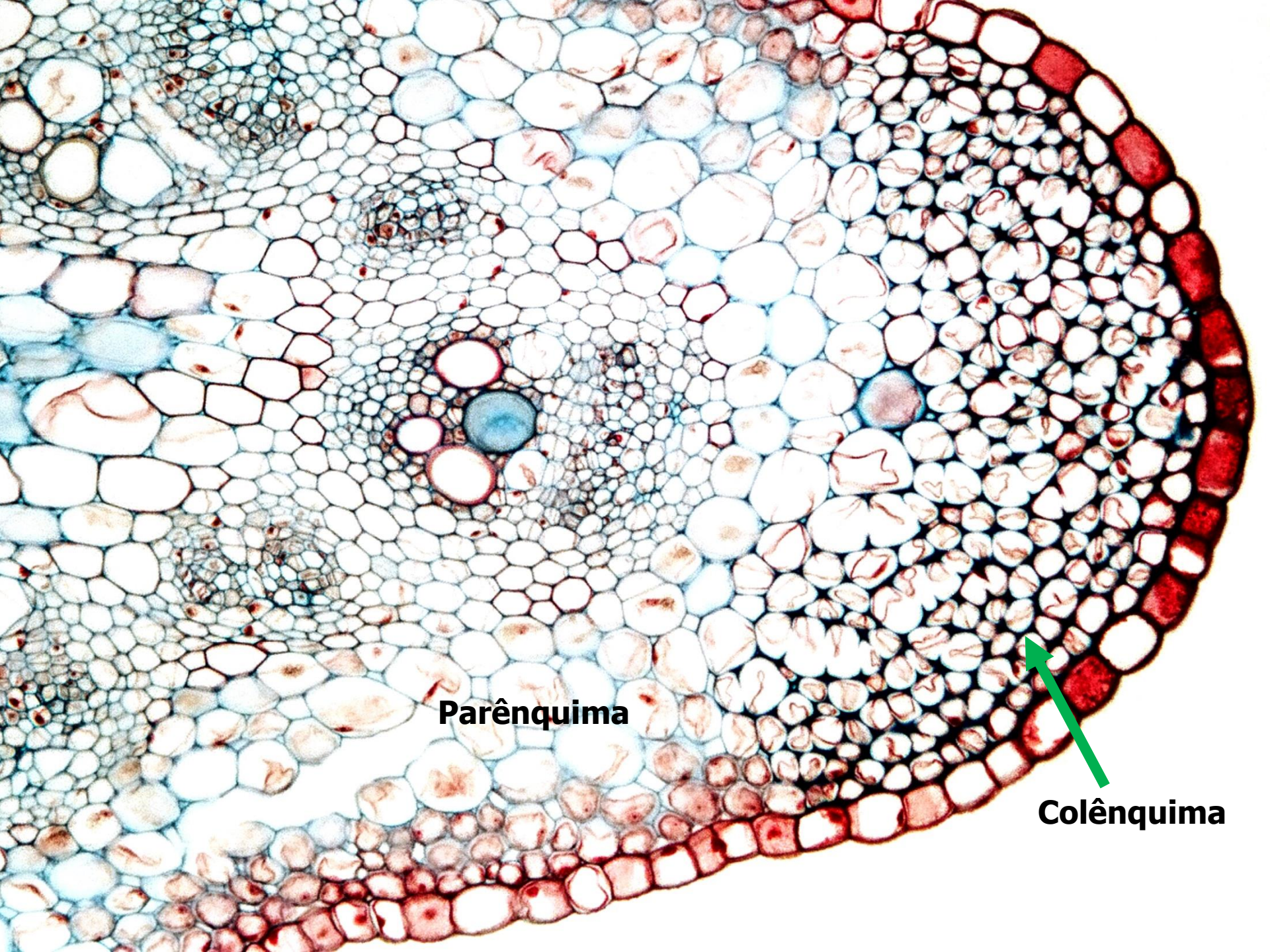




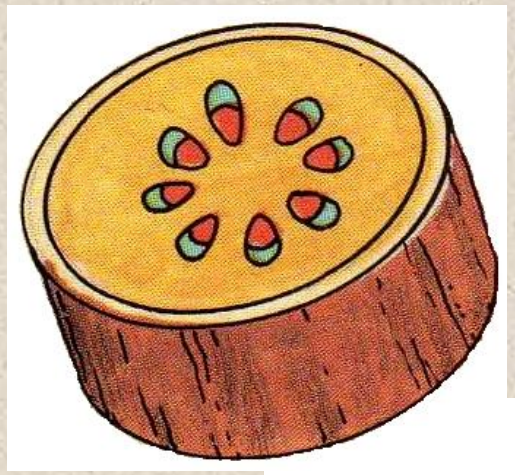
Tricomas tectores e glandulares

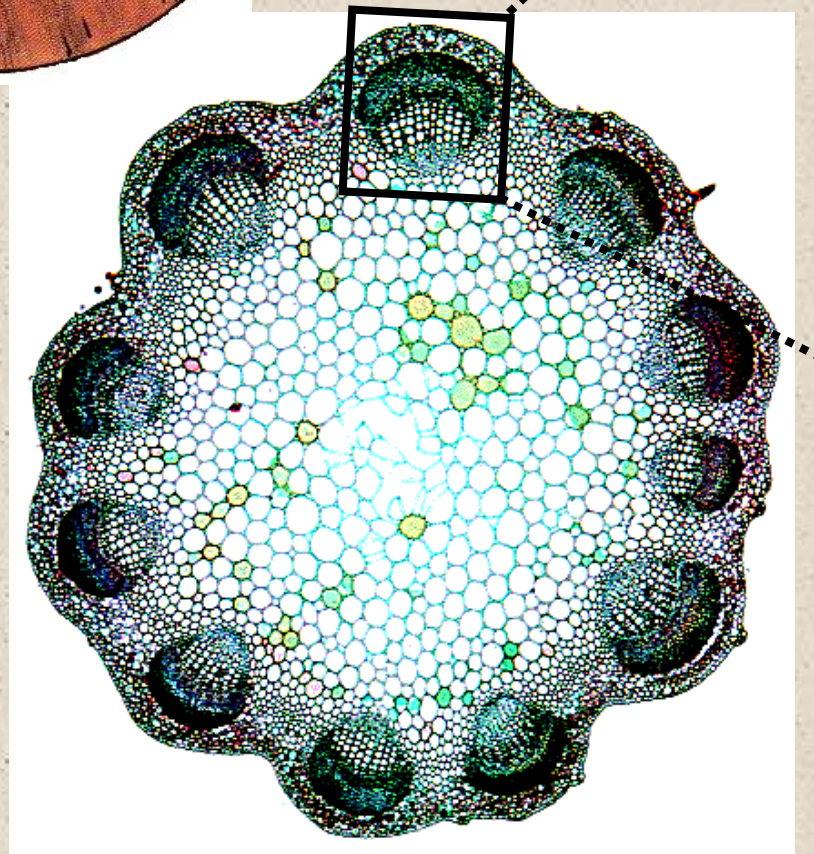
Estômato – corte transversal

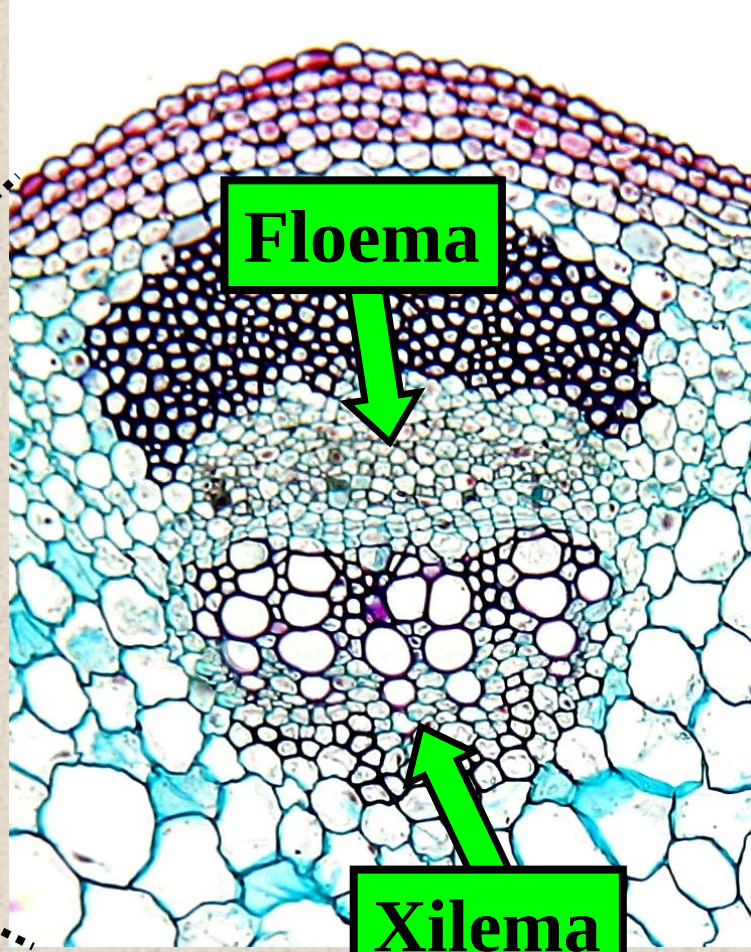



Parênquima
Colênquima

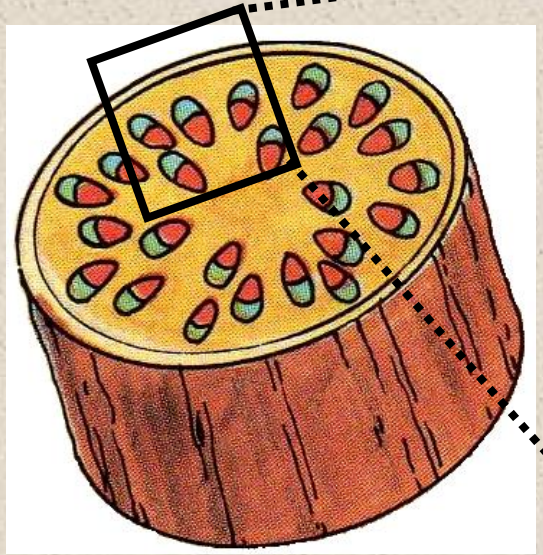
Eudicotiledônea

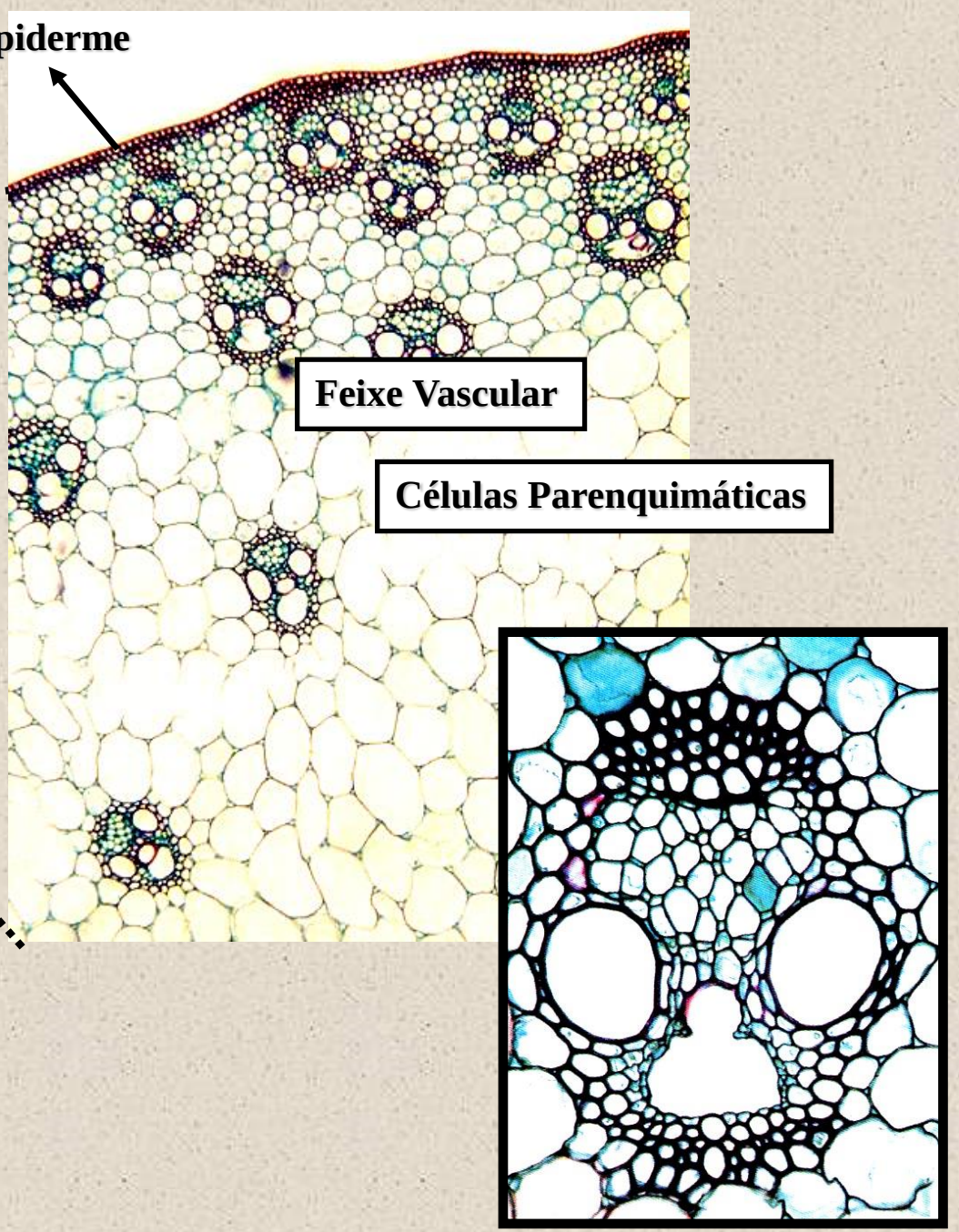






Feixe vascular

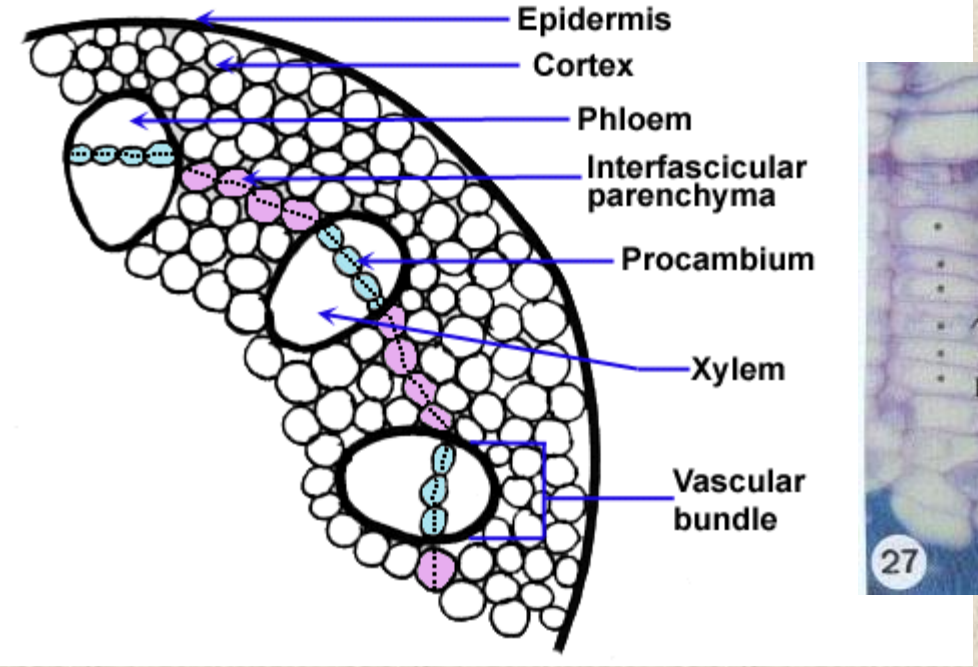


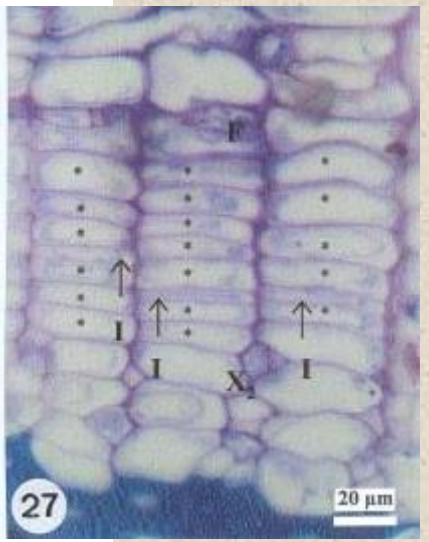


CÂMBIO VASCULAR

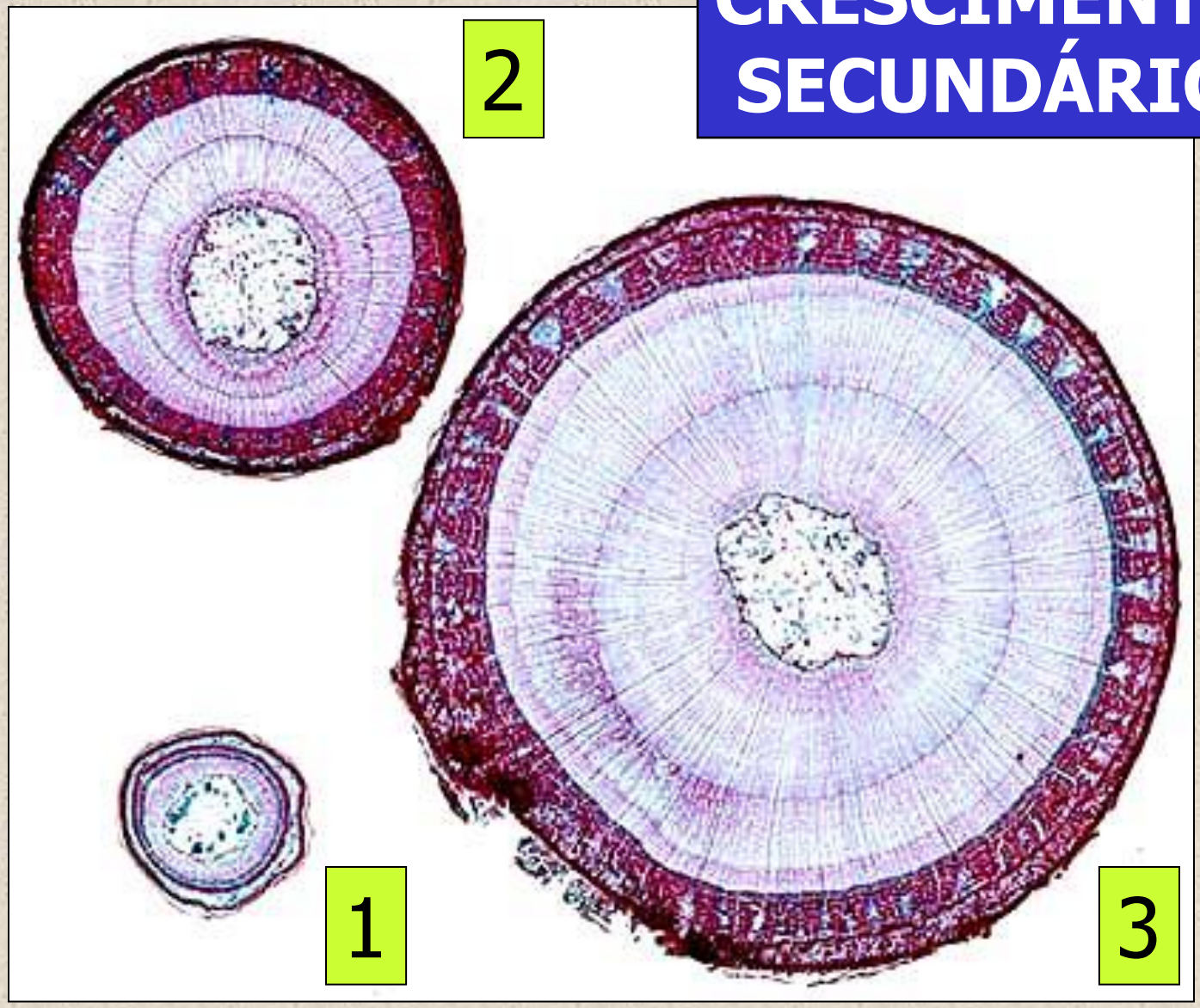
- Meristema lateral = crescimento secundário

- **Estrutura:**
  - Câmbio fascicular = origem procâmbio
  - Câmbio interfascicular = origem parênquima interfascicular

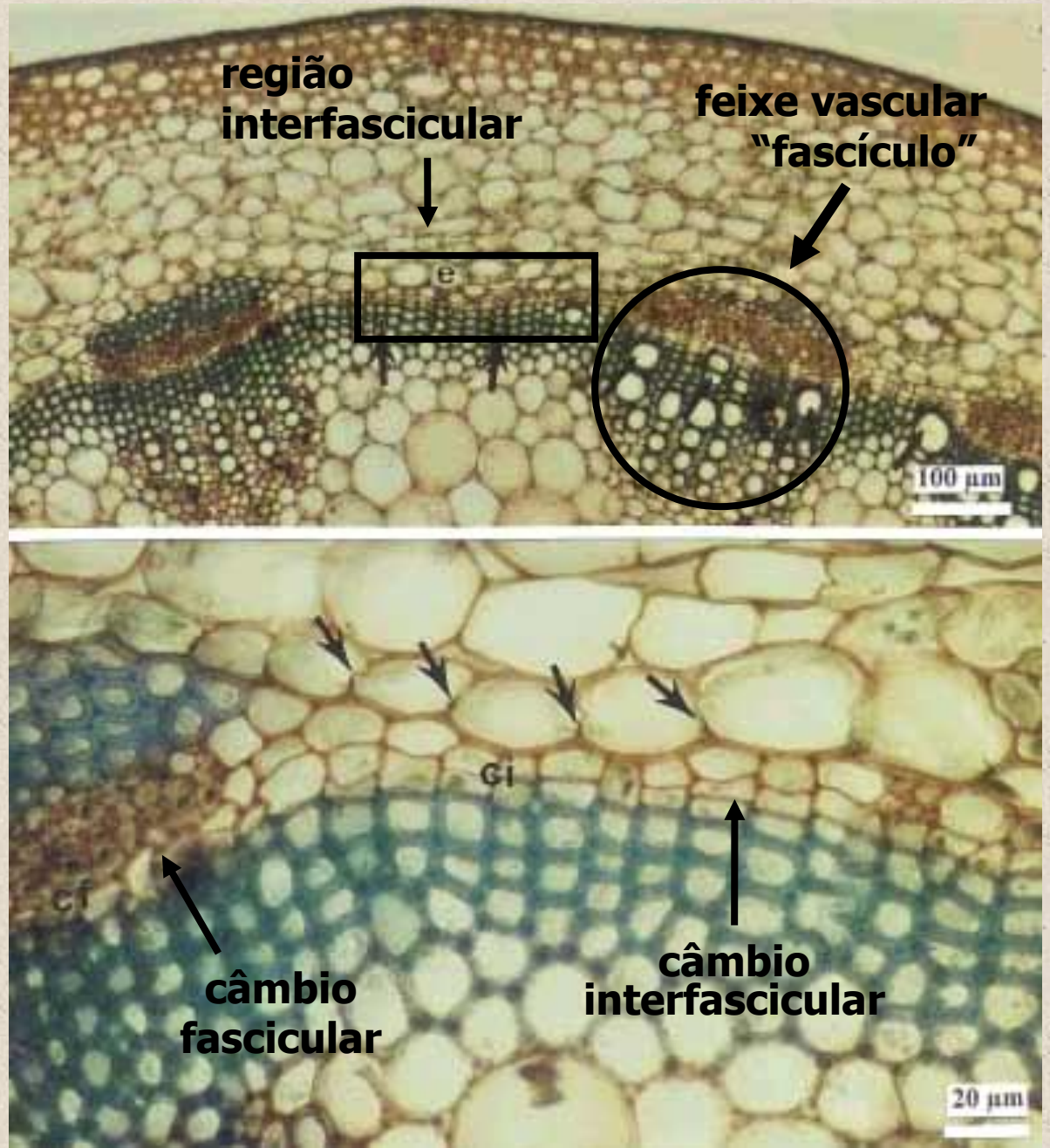


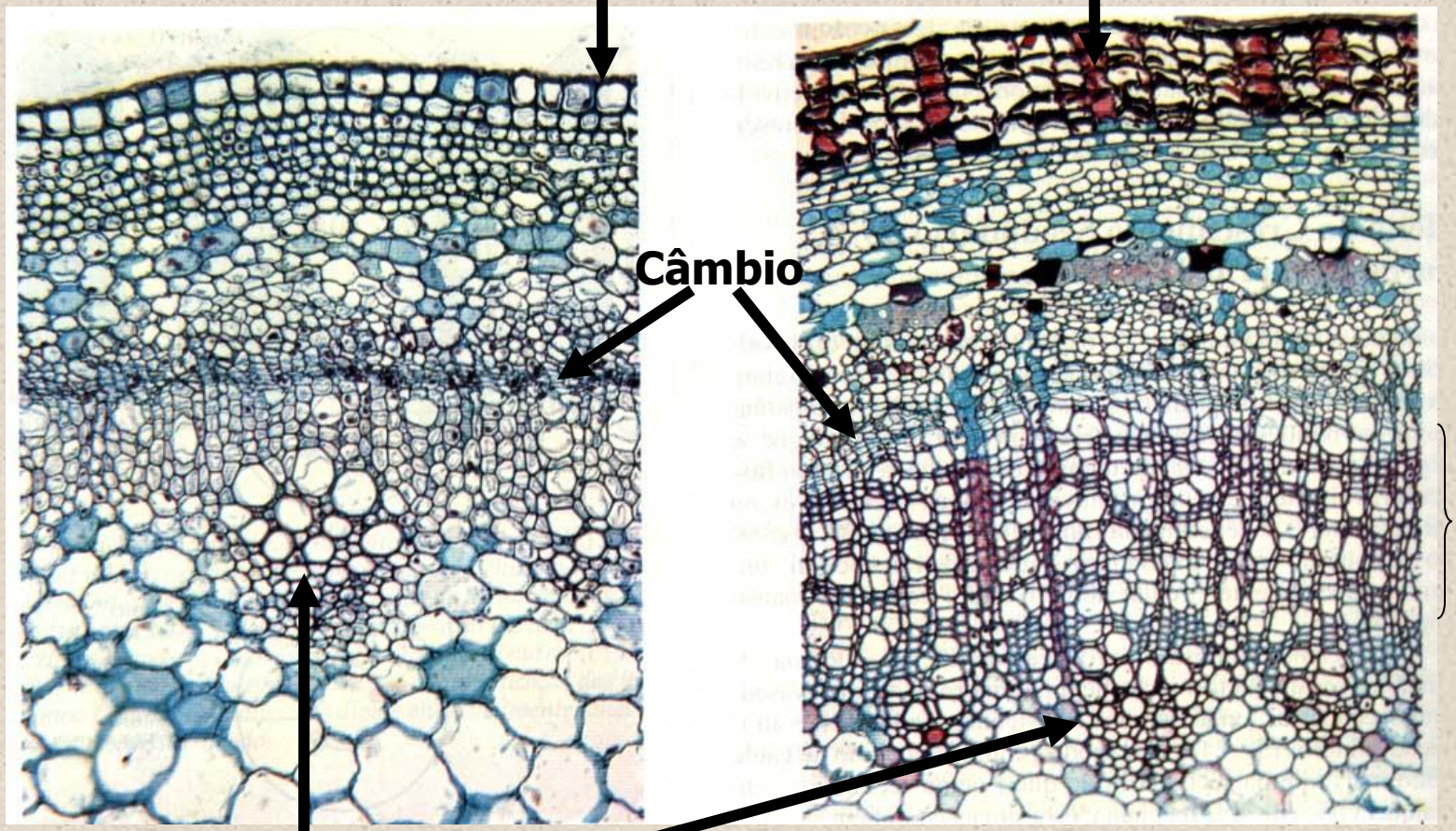


CRESCIMENTO SECUNDÁRIO



Sistema Vascular Secundário

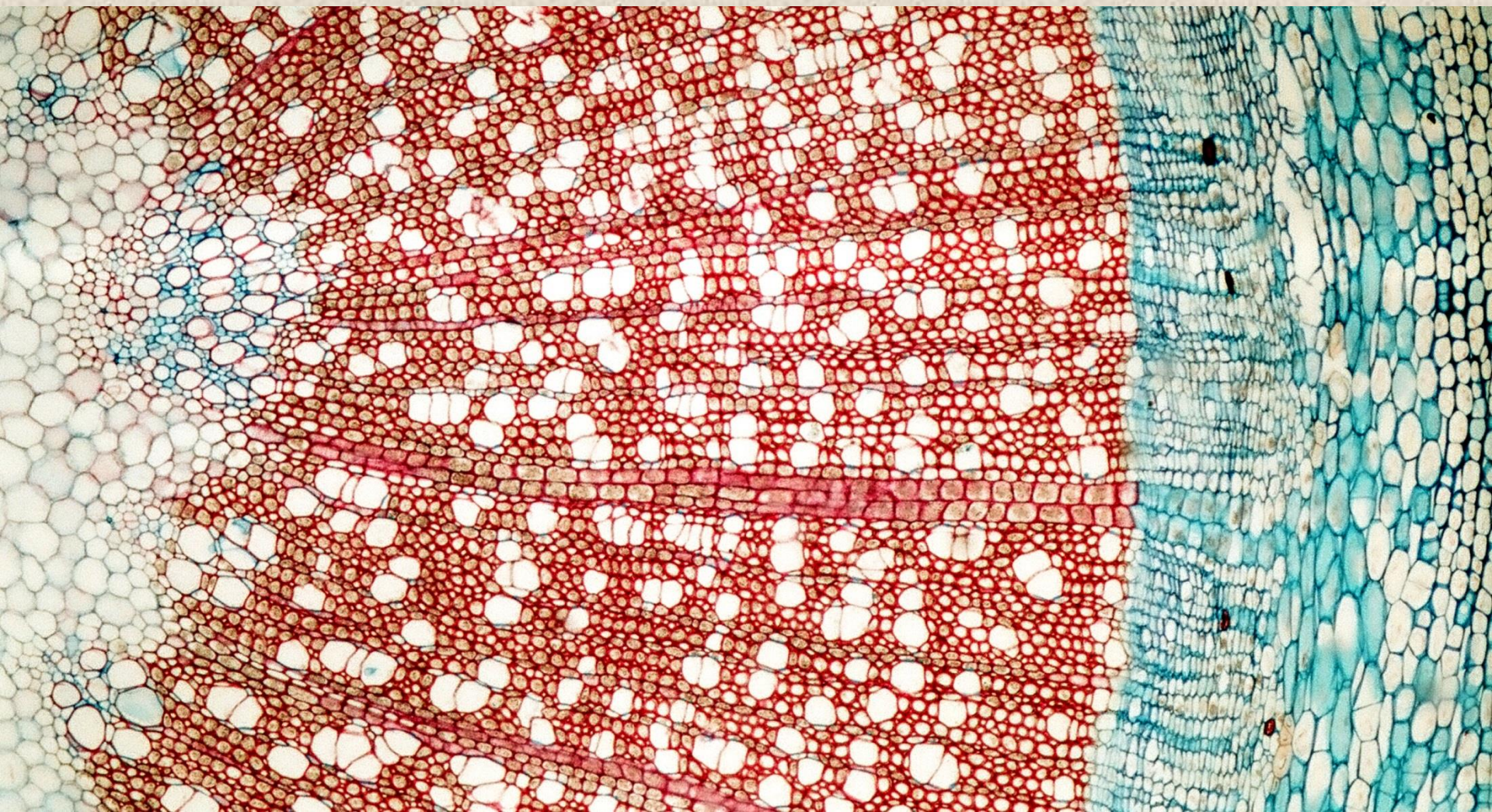


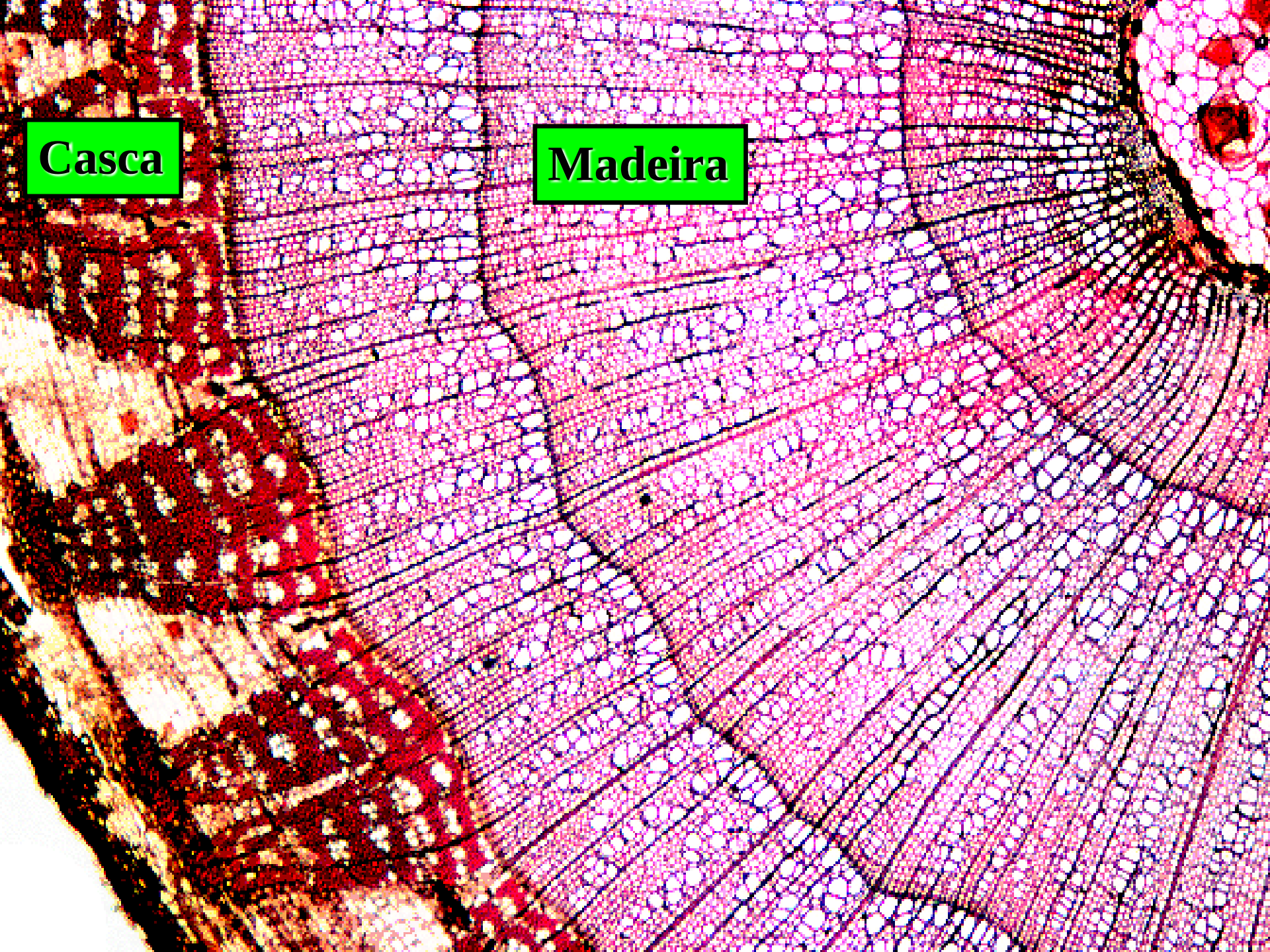


Sambucus

Caule em estrutura secundária

Medula* – xilema 1 – xilema 2 – câmbio – floema 2 – floema 1 – córtex* - periderme




Casca
Madeira

CASCA

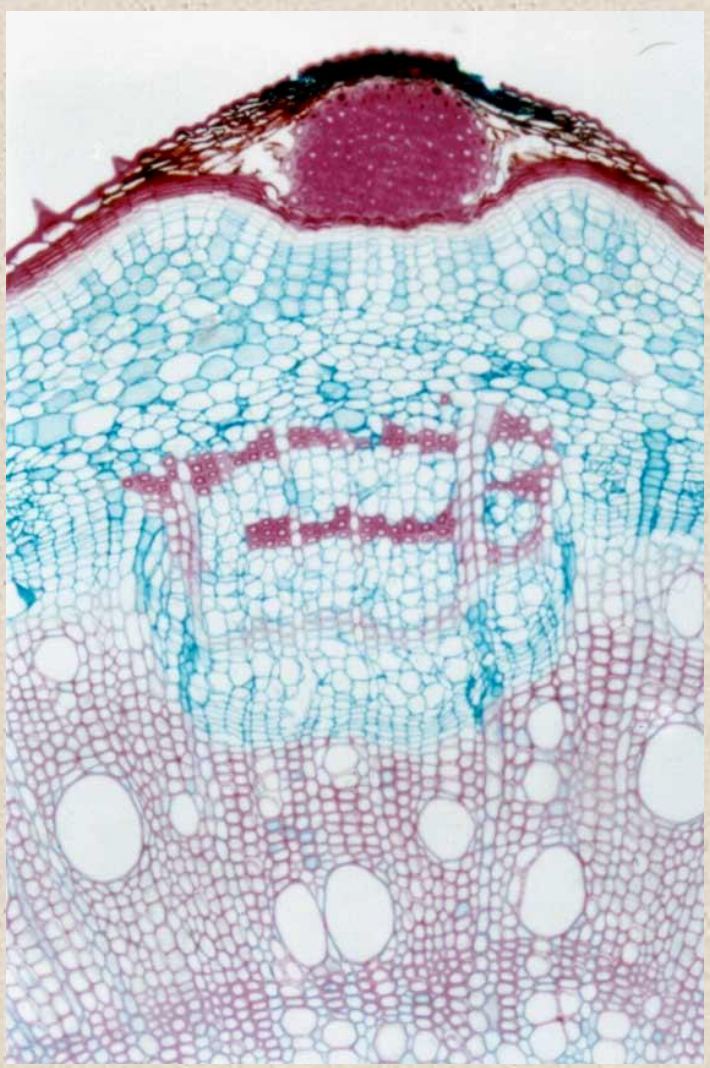




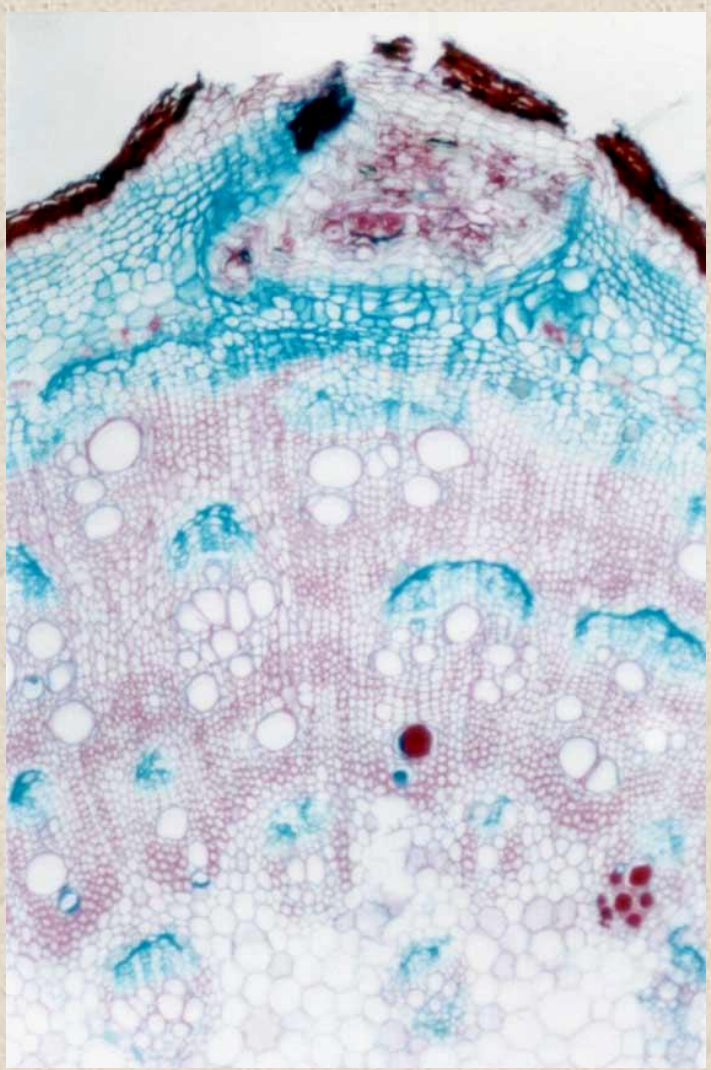


Atividade não usual do câmbio vascular

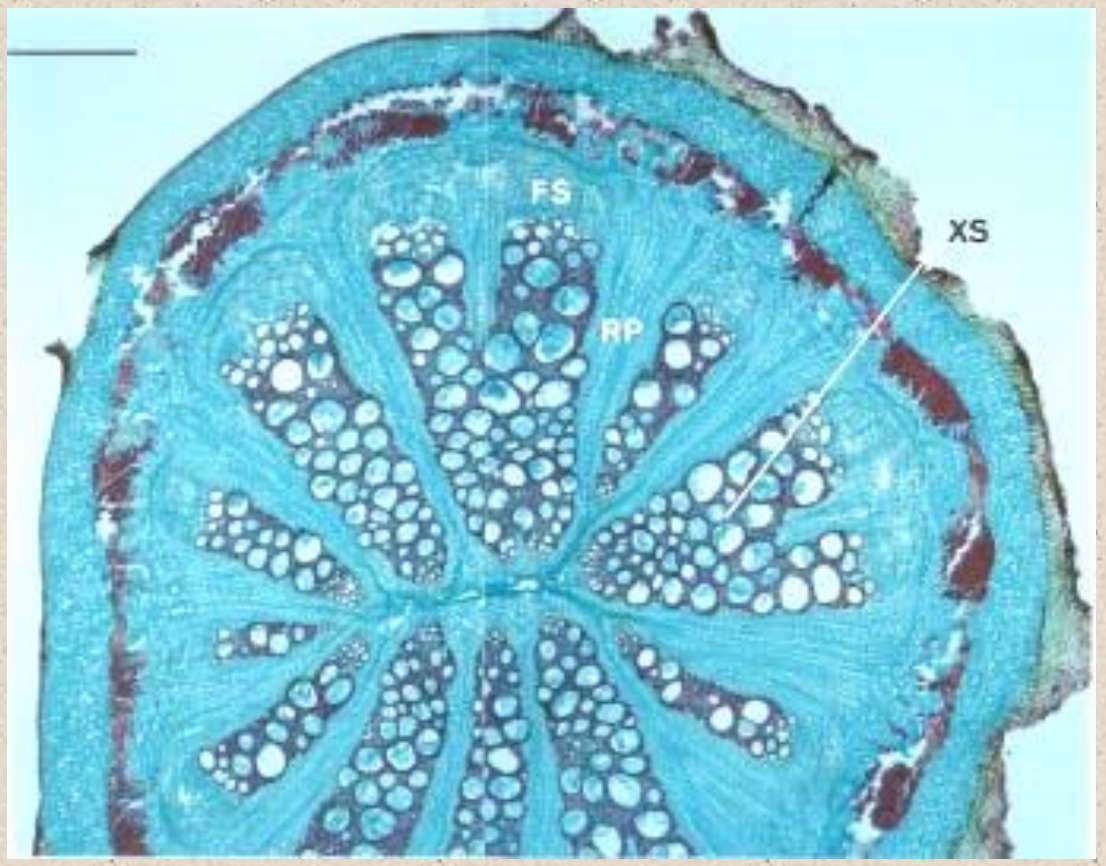
"caules anômalos"



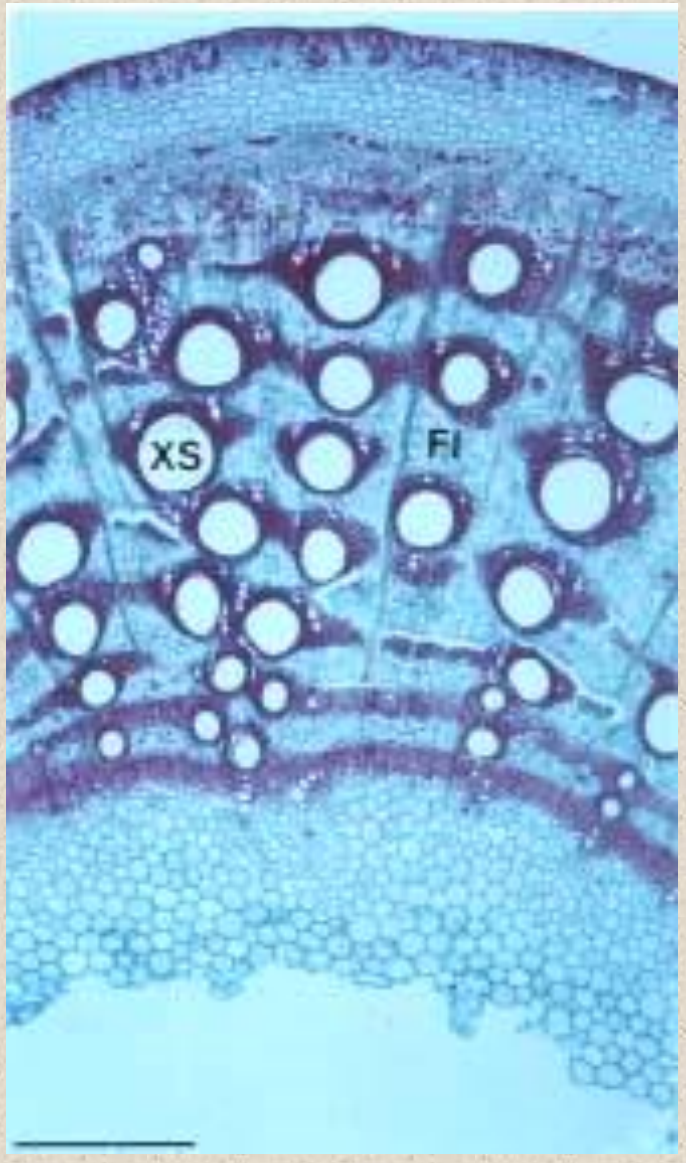
Pirostegya



Bougainvillea

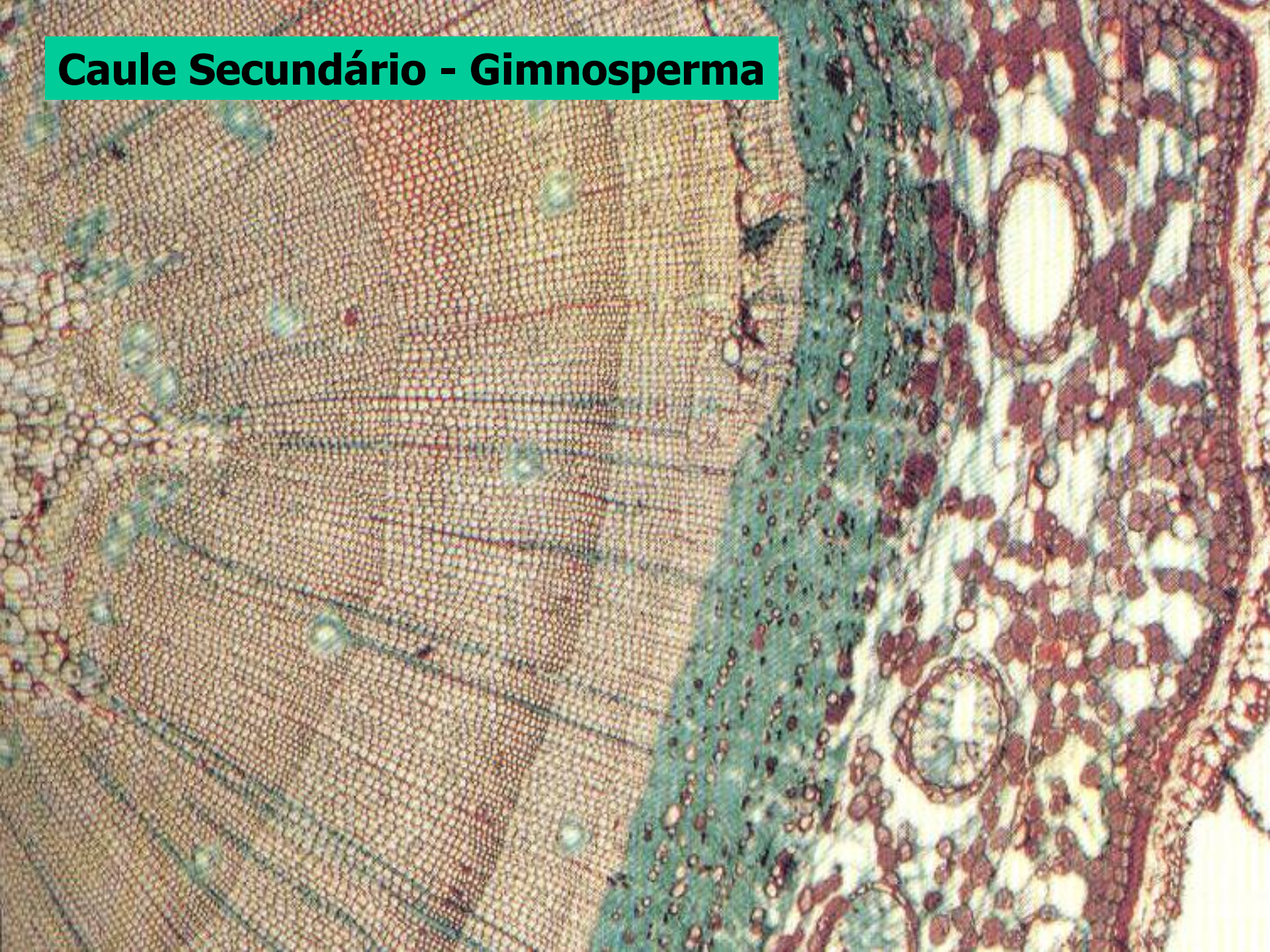


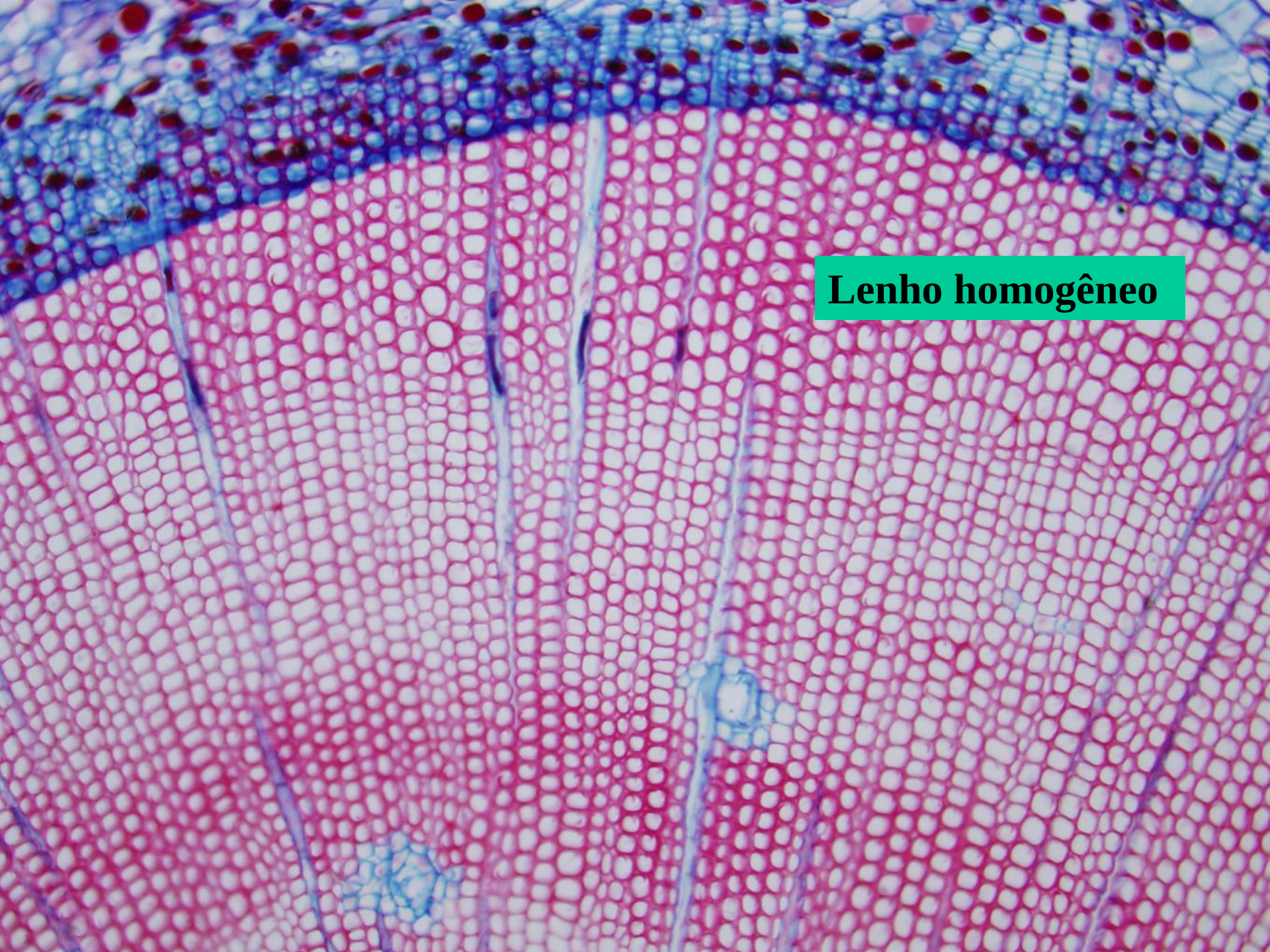
Aristolochia



Thumbergia

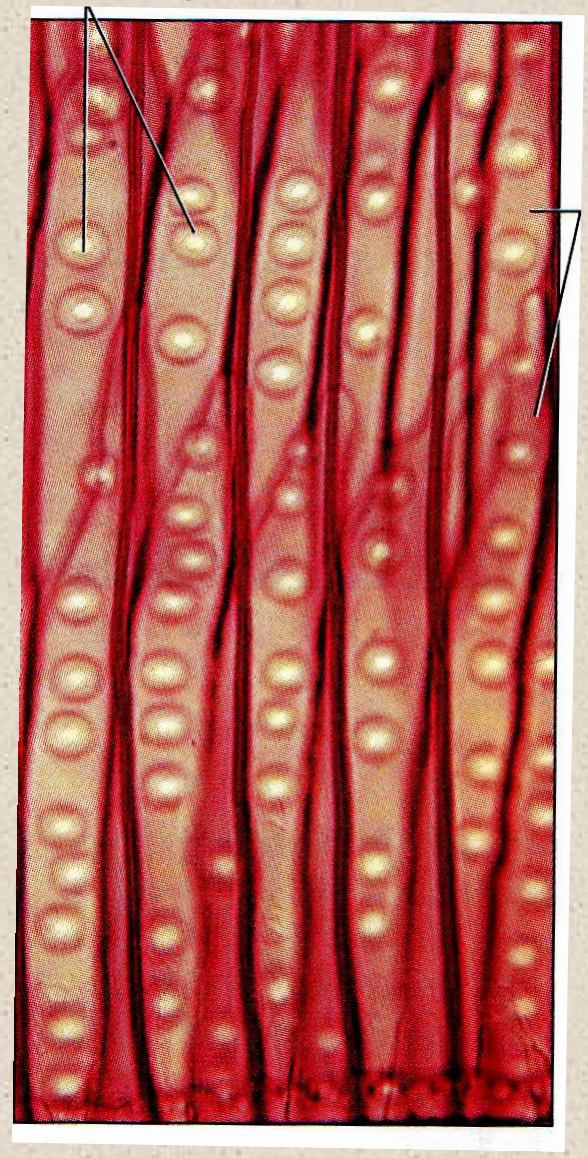
Caule Secundário - Gimnosperma

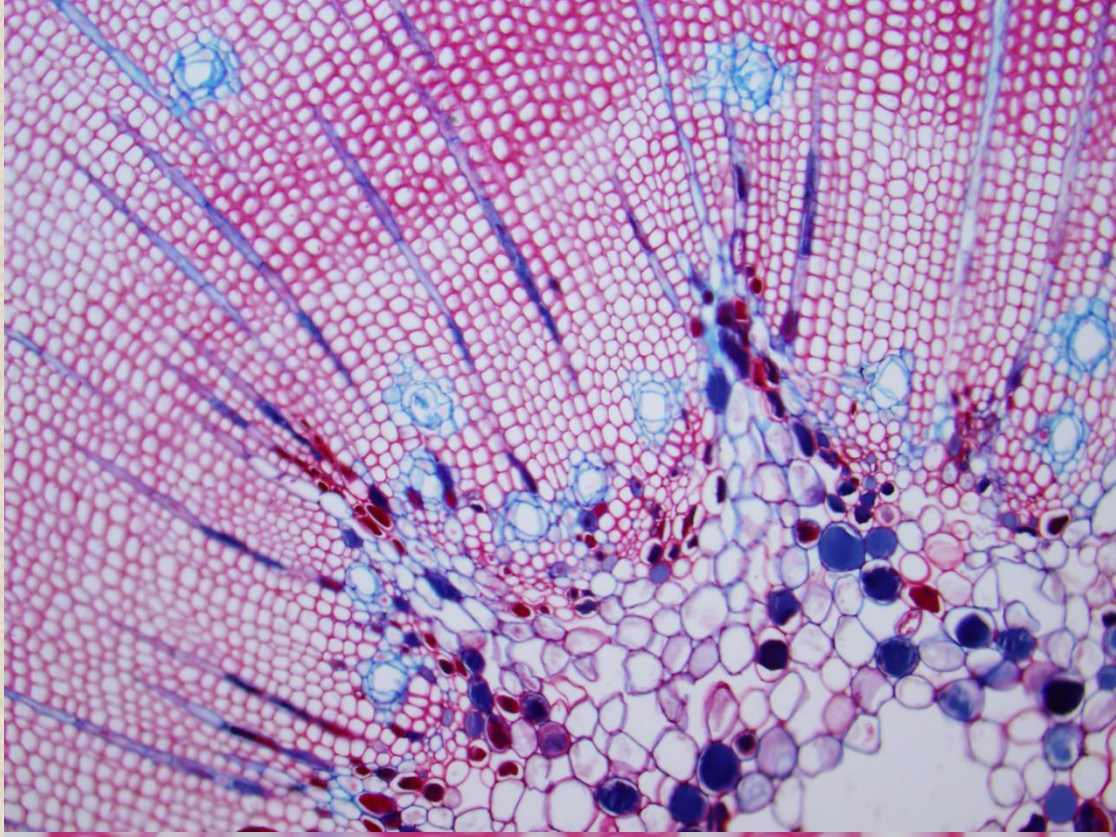


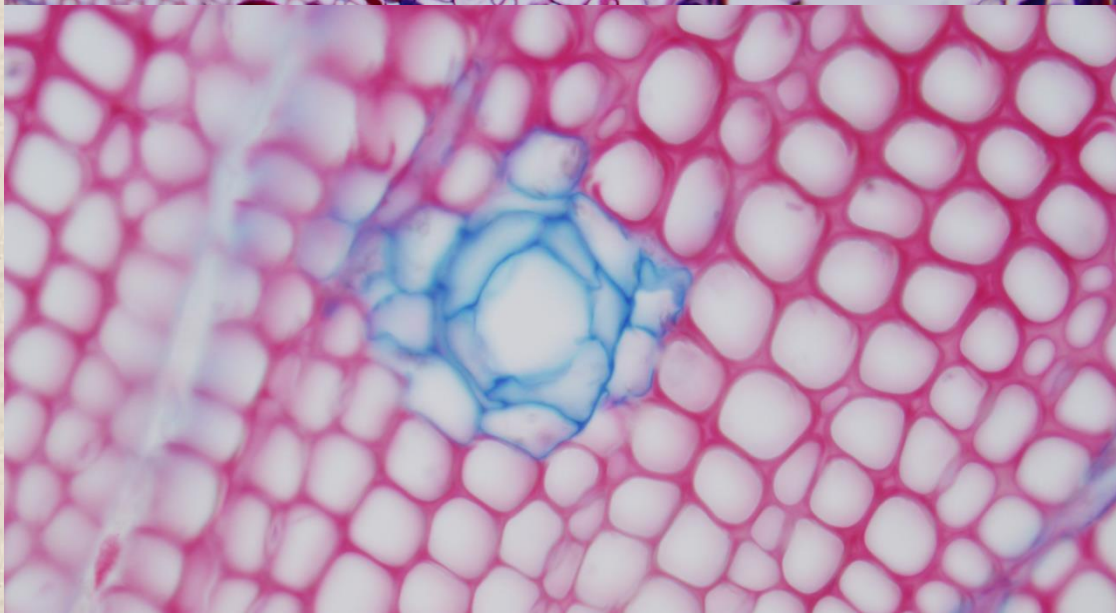

Lenho homogêneo

Traqueídes

Pontoação

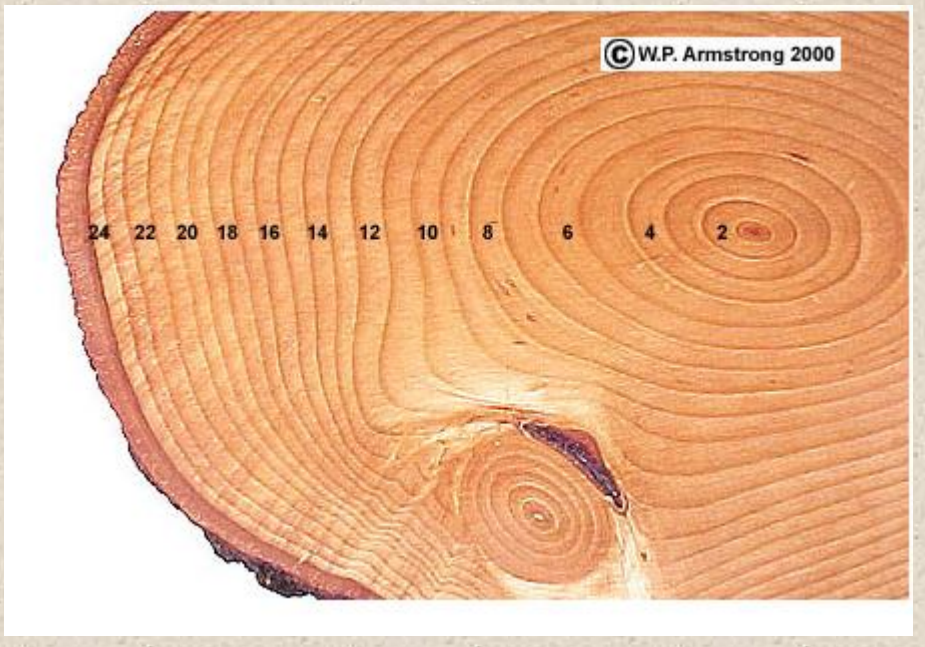




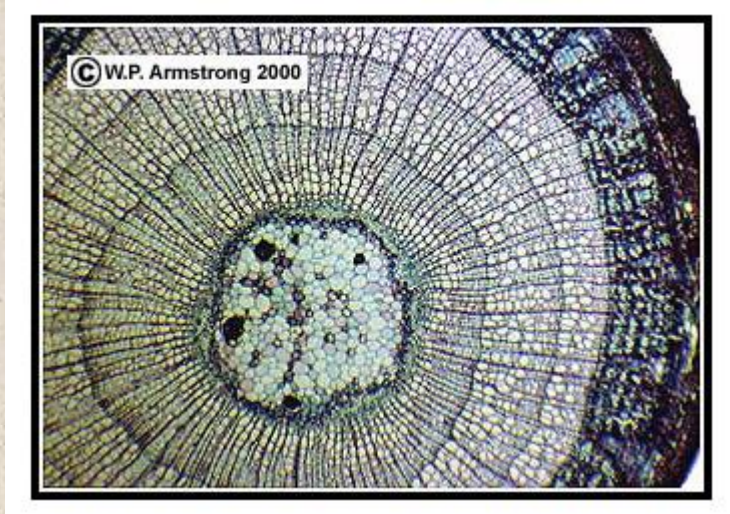


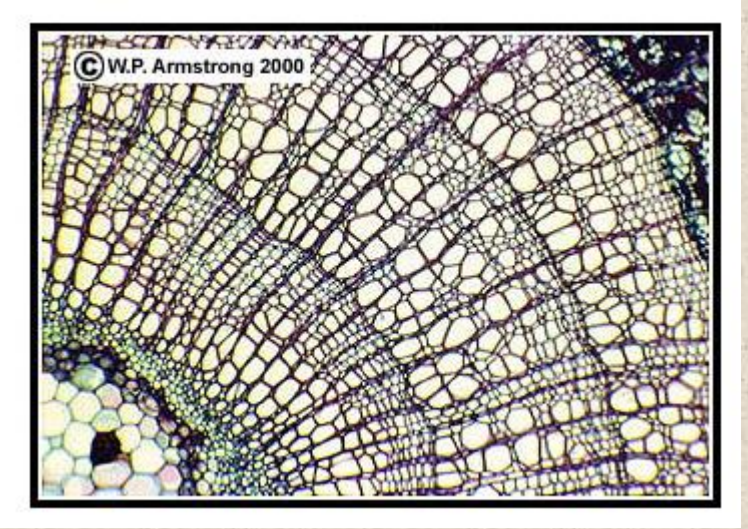
Anéis de crescimento

(angiosperma)



Tilia americana





Anéis de crescimento

(gimnospermas)



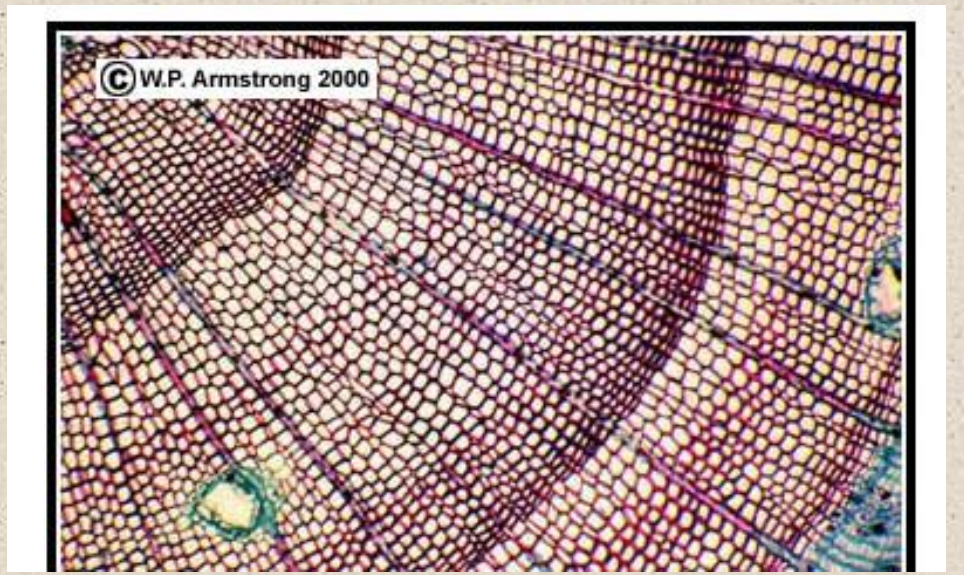
Pseudotsuga menziesii



Pinus ponderosa



Pinus taeda



Dúvidas?

diegodemarco@usp.br