

UNIVERSIDADE FEDERAL DO OESTE DO PARÁ

BOTÂNICA ANATOMIA DA RAIZ

Professora: Cristina Aledi Felsembrugh

Anatomia da Raiz

Funções:

- 1- Fixação;
- 2- Absorção;
- 3- Reserva;
- 4- Condução.

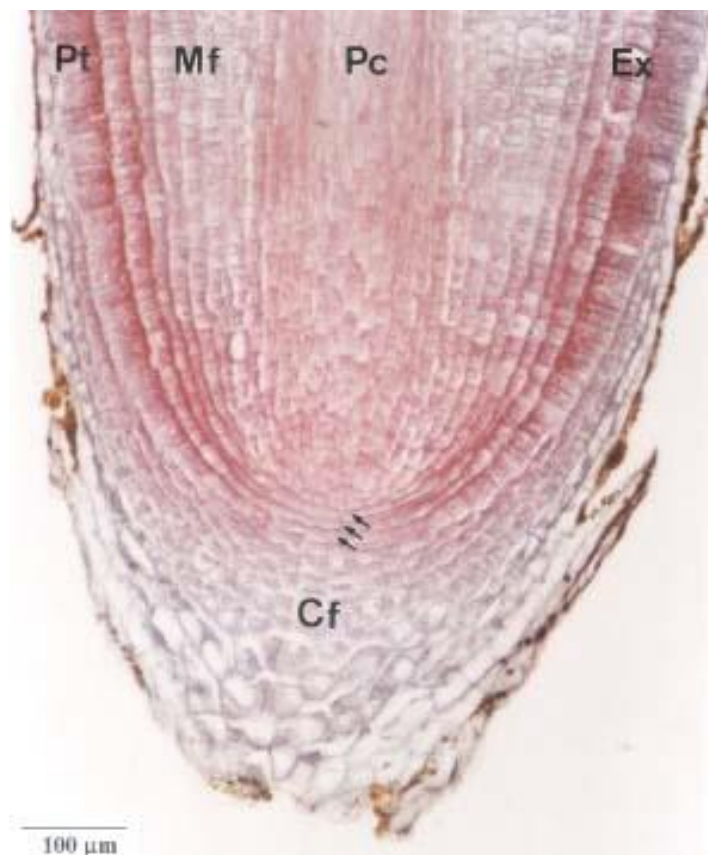
- Desenvolvimento

- meristema apical radicular

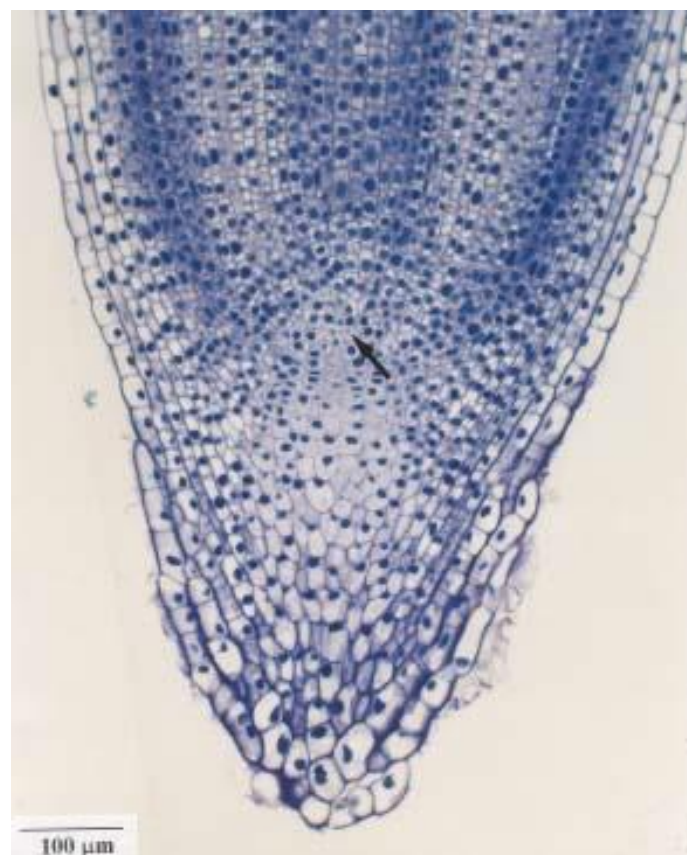
- **Coifa:** proteção
mucilagem

Organização:

Apical do tipo fechado

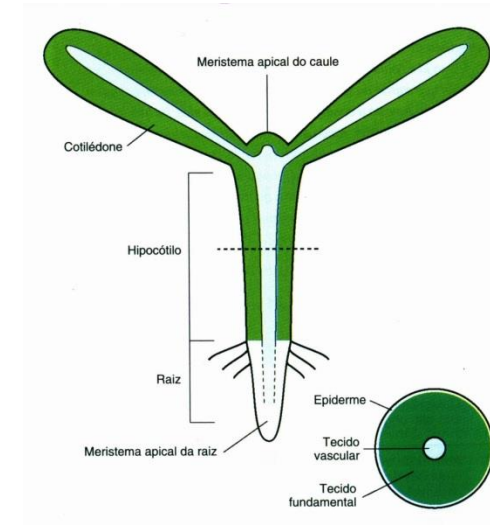
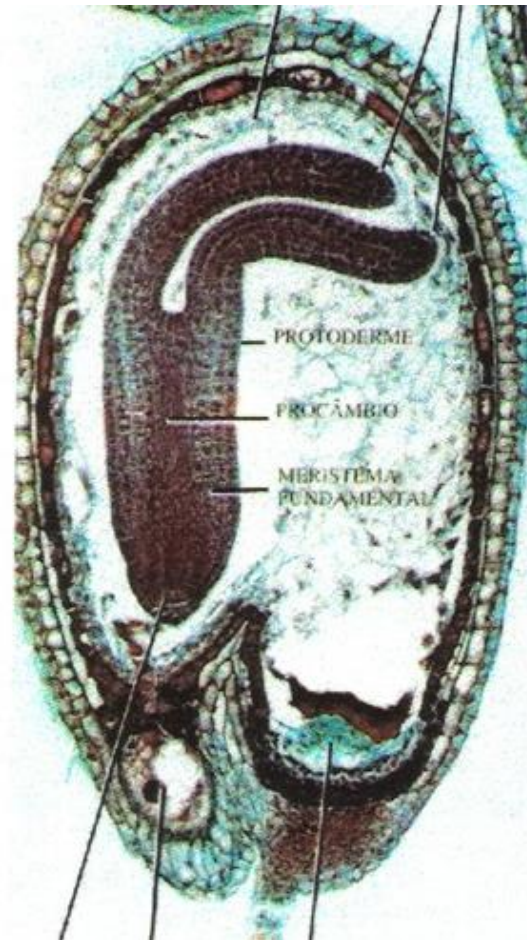
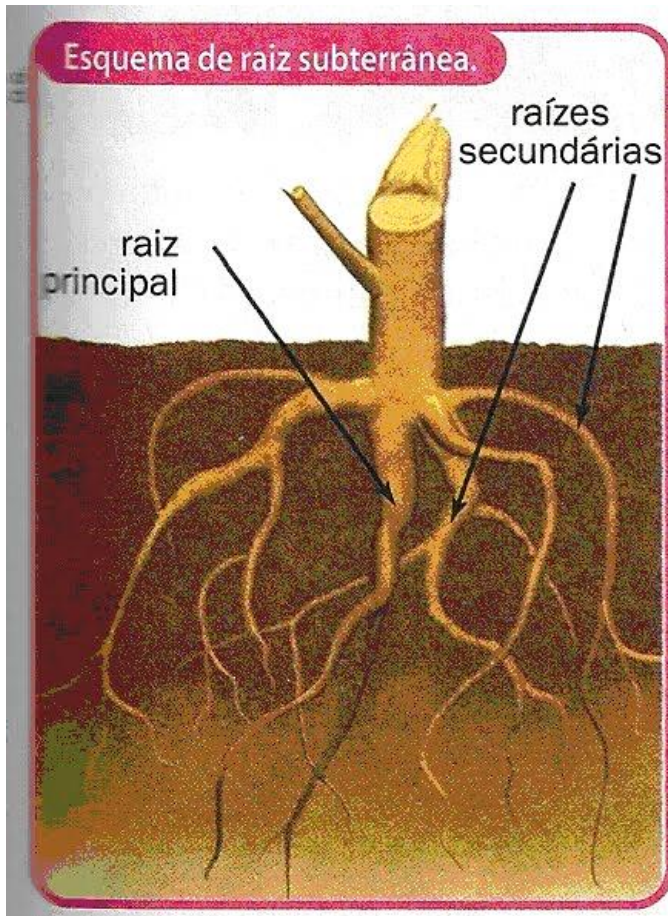


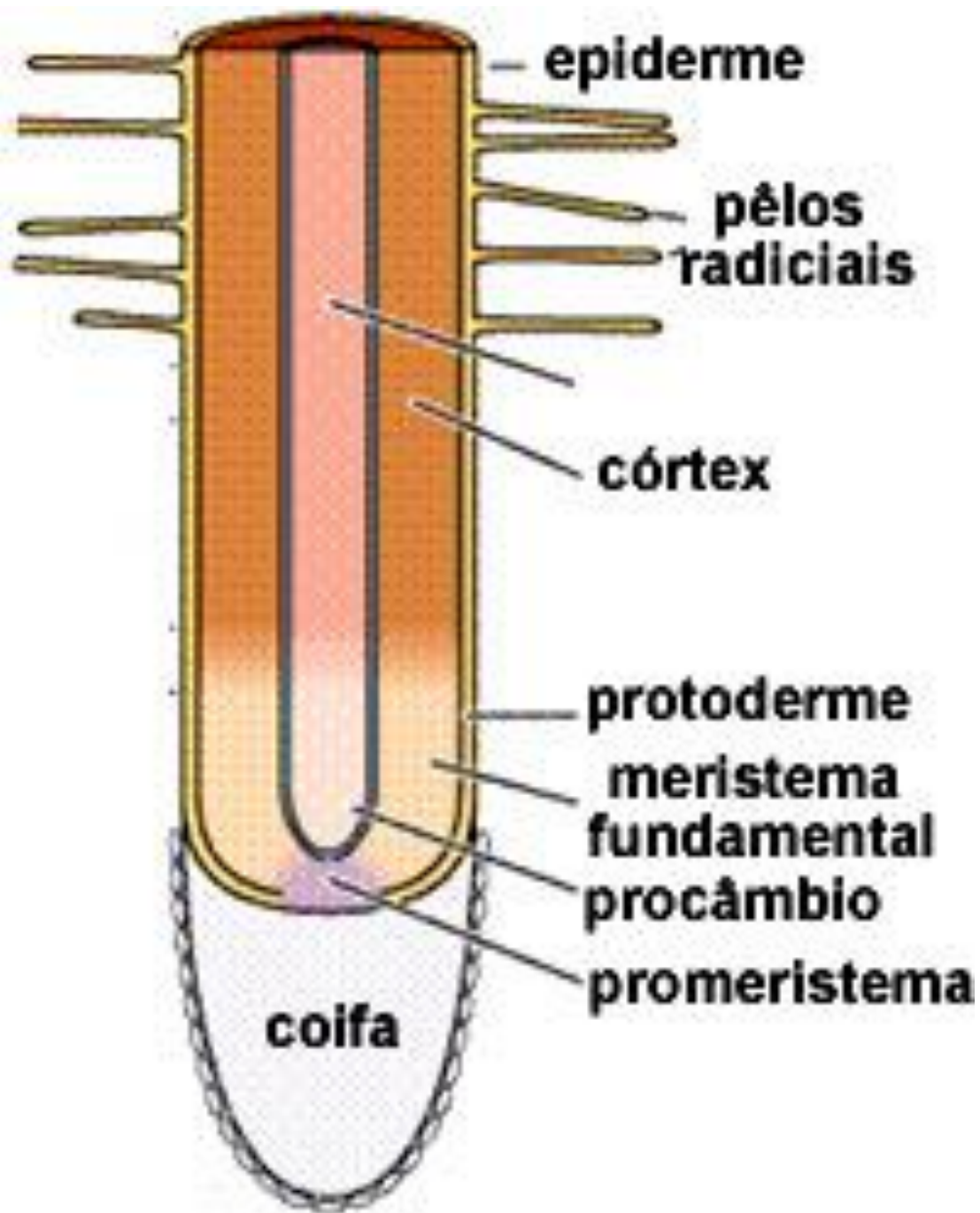
Apical do tipo aberto



ORIGEM DA RAIZ

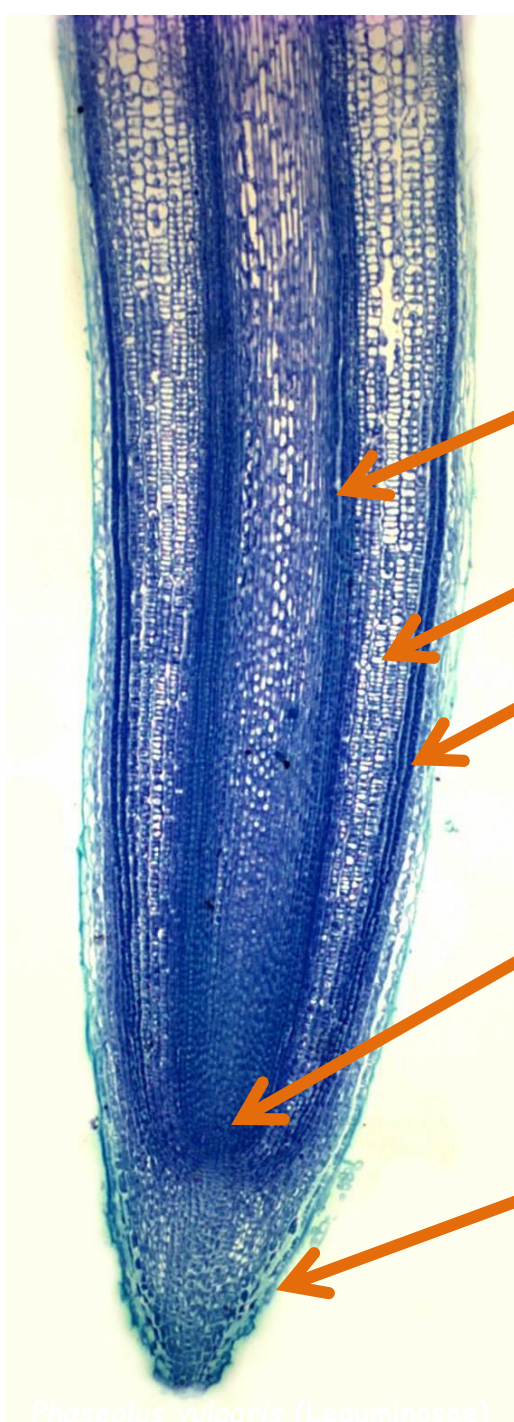
- Raiz primária: origina-se do meristema radicular do embrião.
- Raiz secundária: origina-se do periciclo (procâmbio)



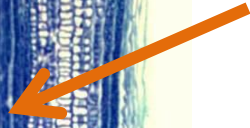


Estrutura primária

RAIZ: origem



PROCÂMBIO



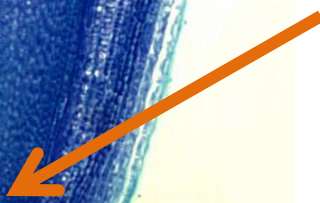
MERISTEMA
FUNDAMENTAL



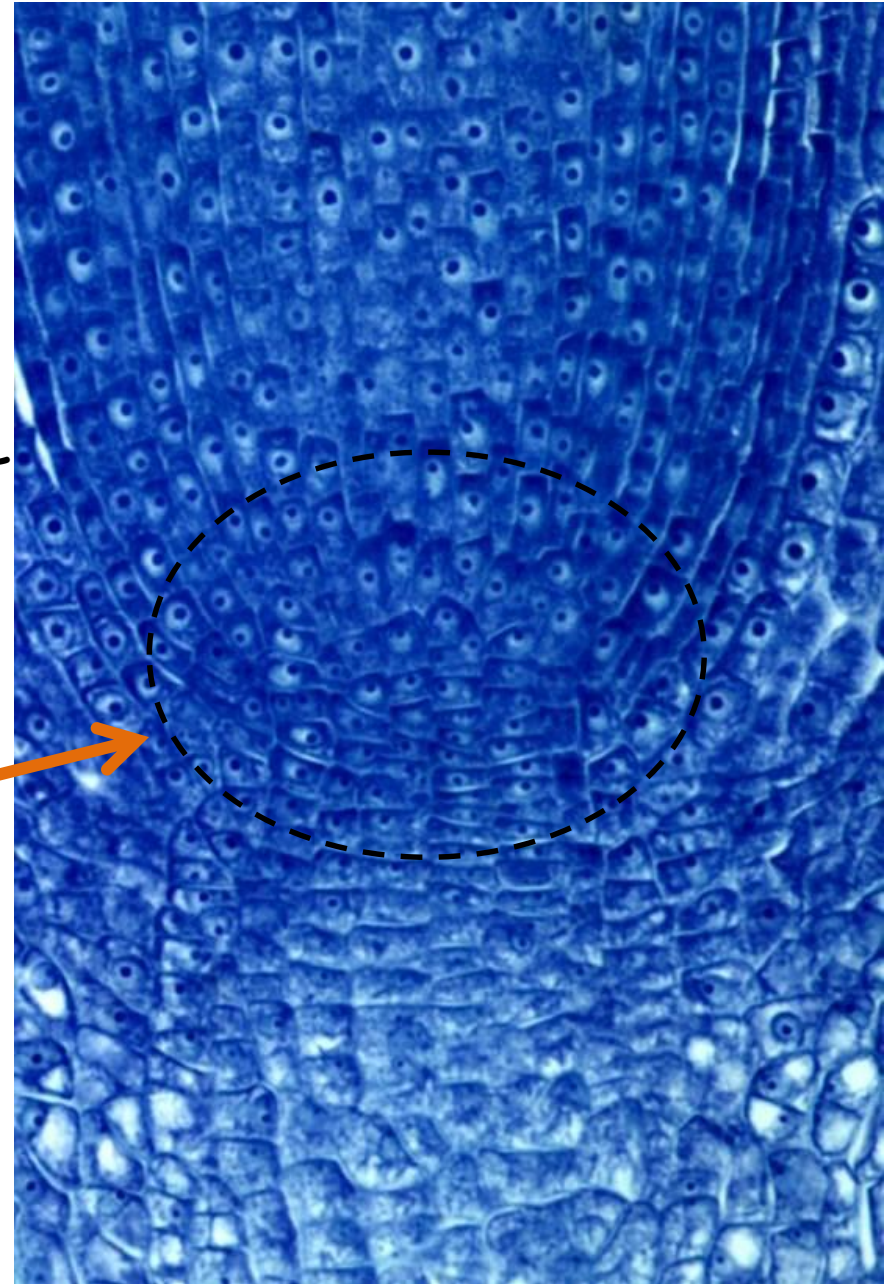
PROTODERME



PROMERISTEMA



COIFA



Estrutura Primária:

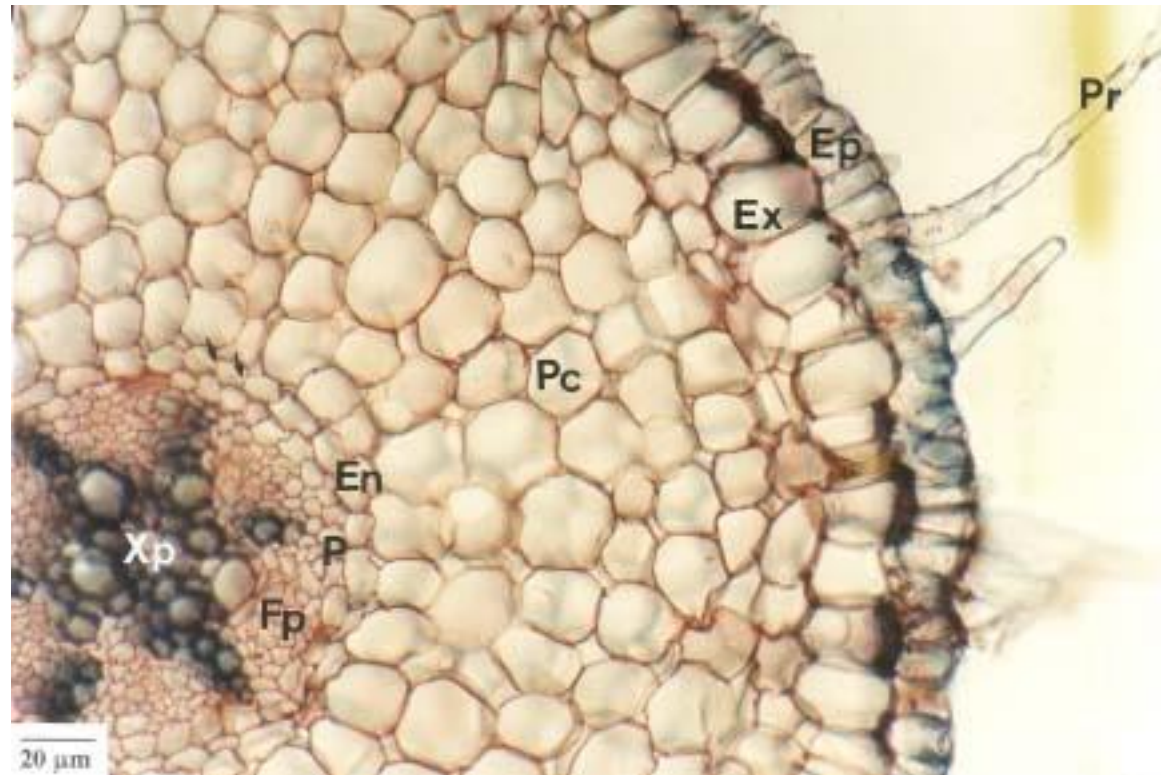
- O corte transversal:
- Dérmico
 - Fundamental
 - Vascular

Epiderme: unisseriada; pelos radiculares.

Córtex: entre a epiderme e o cilindro vascular.

Endoderme: seletividade, refluxo .

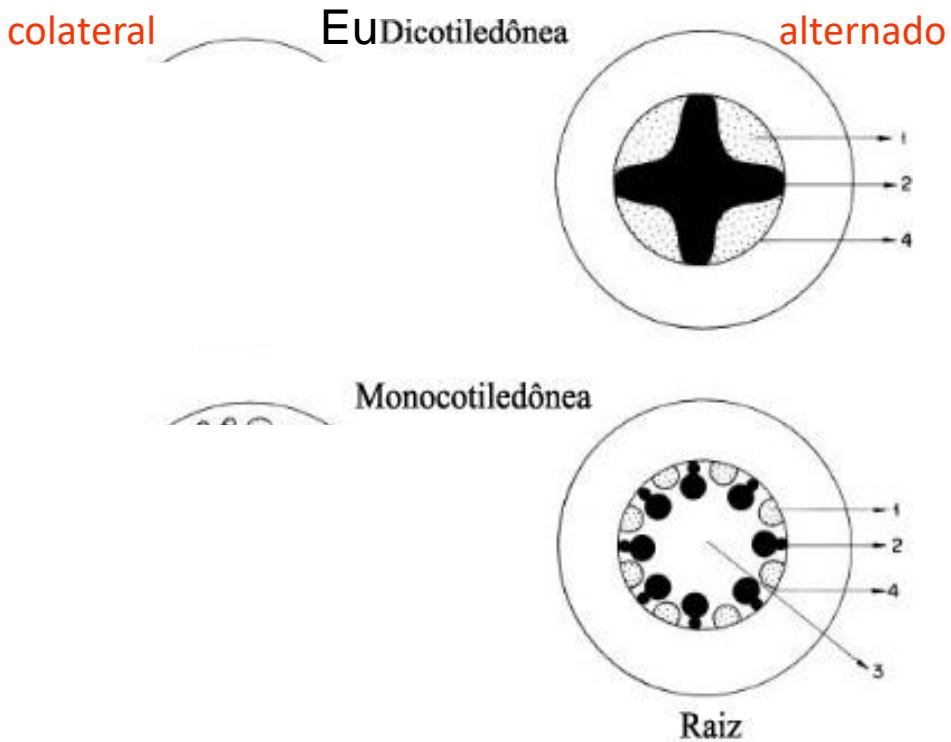
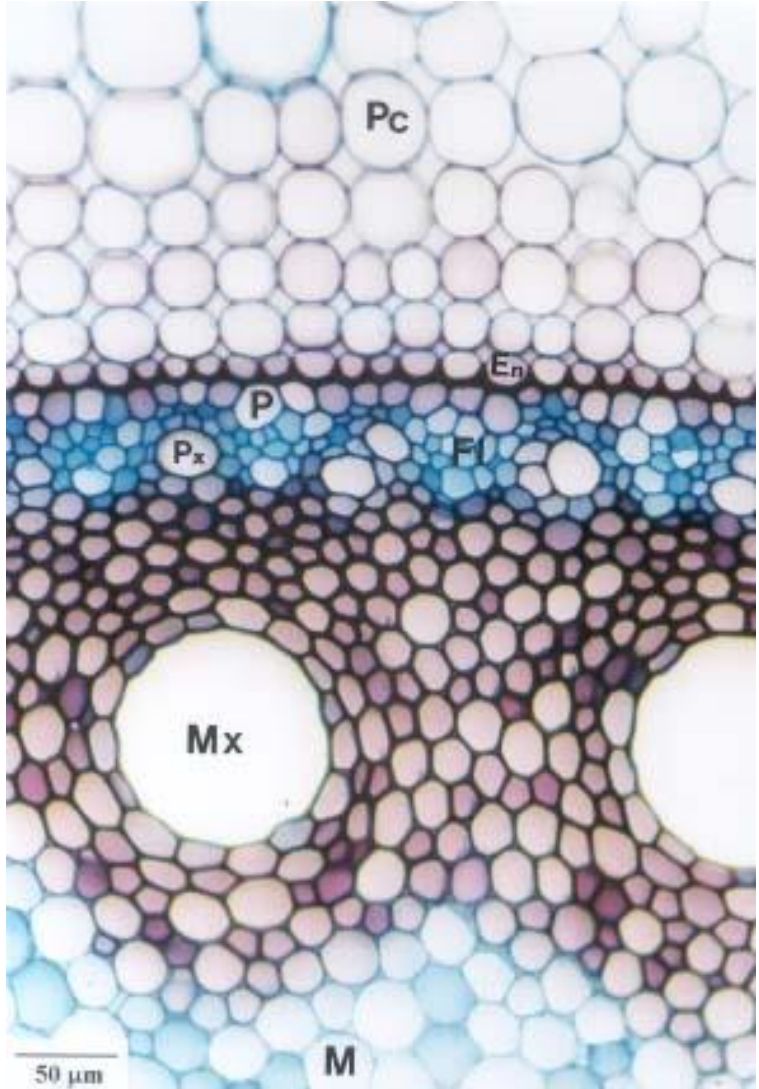
- estrias de Caspary

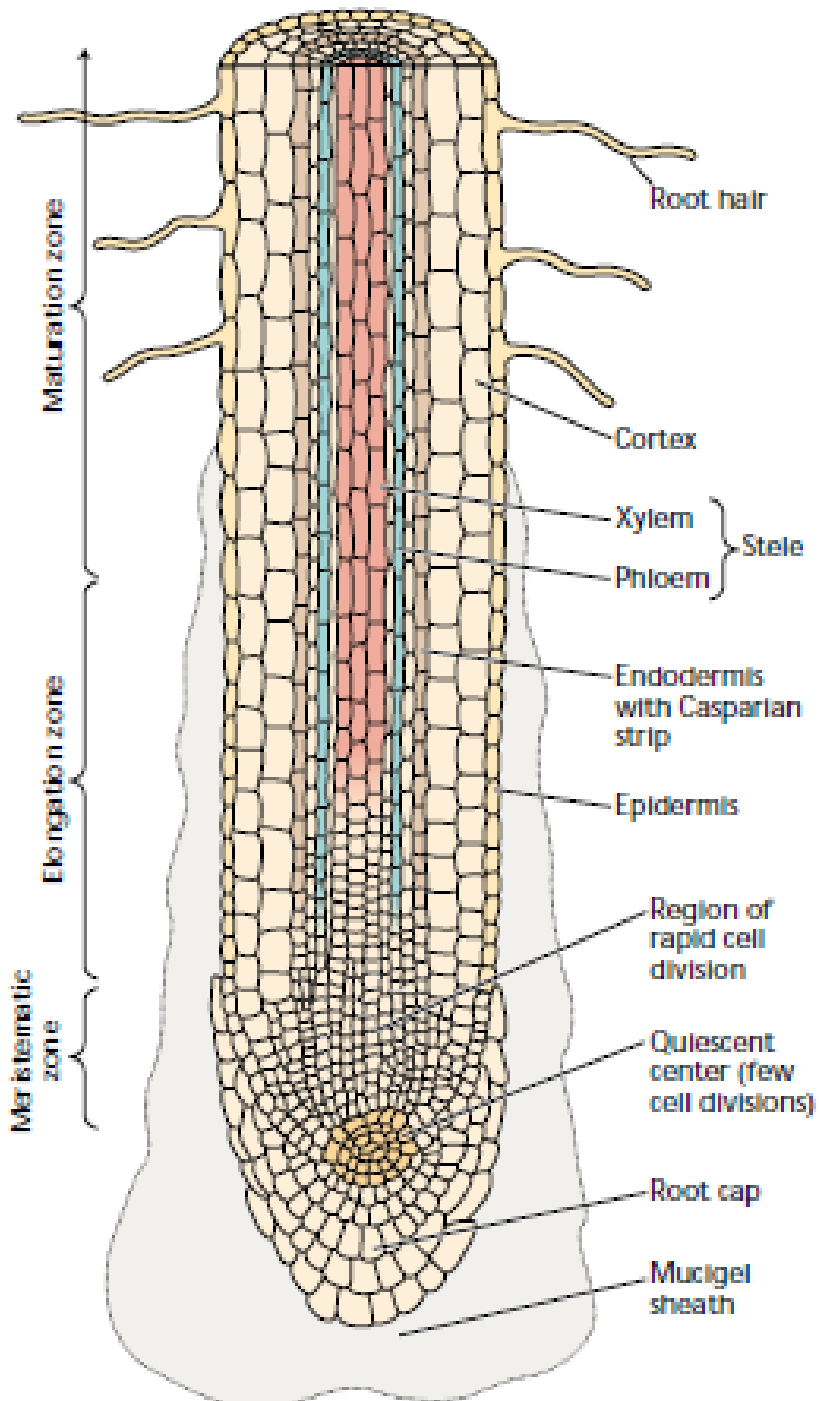


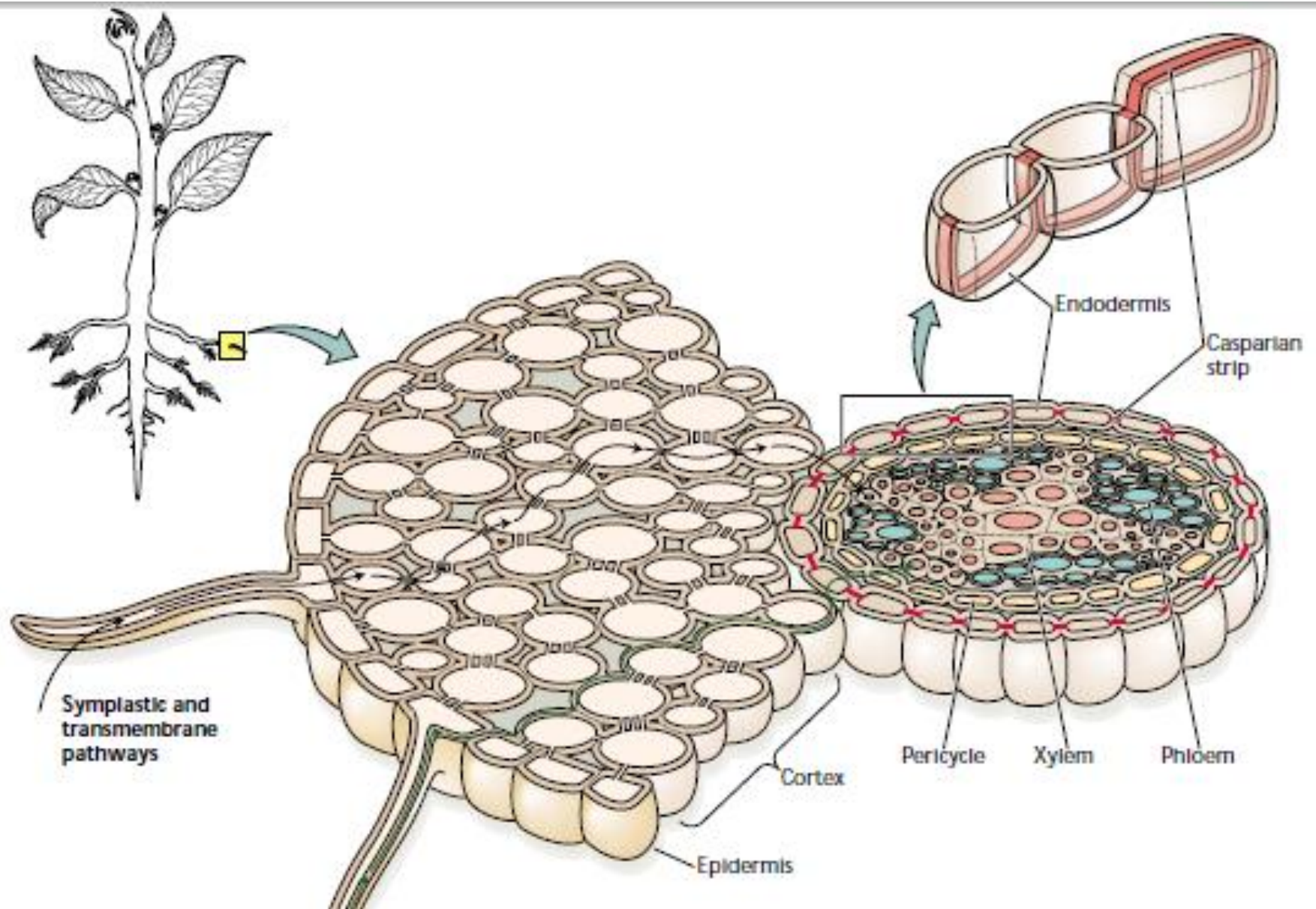
Cilindro vascular:

- Periciclo
- Tecidos vasculares

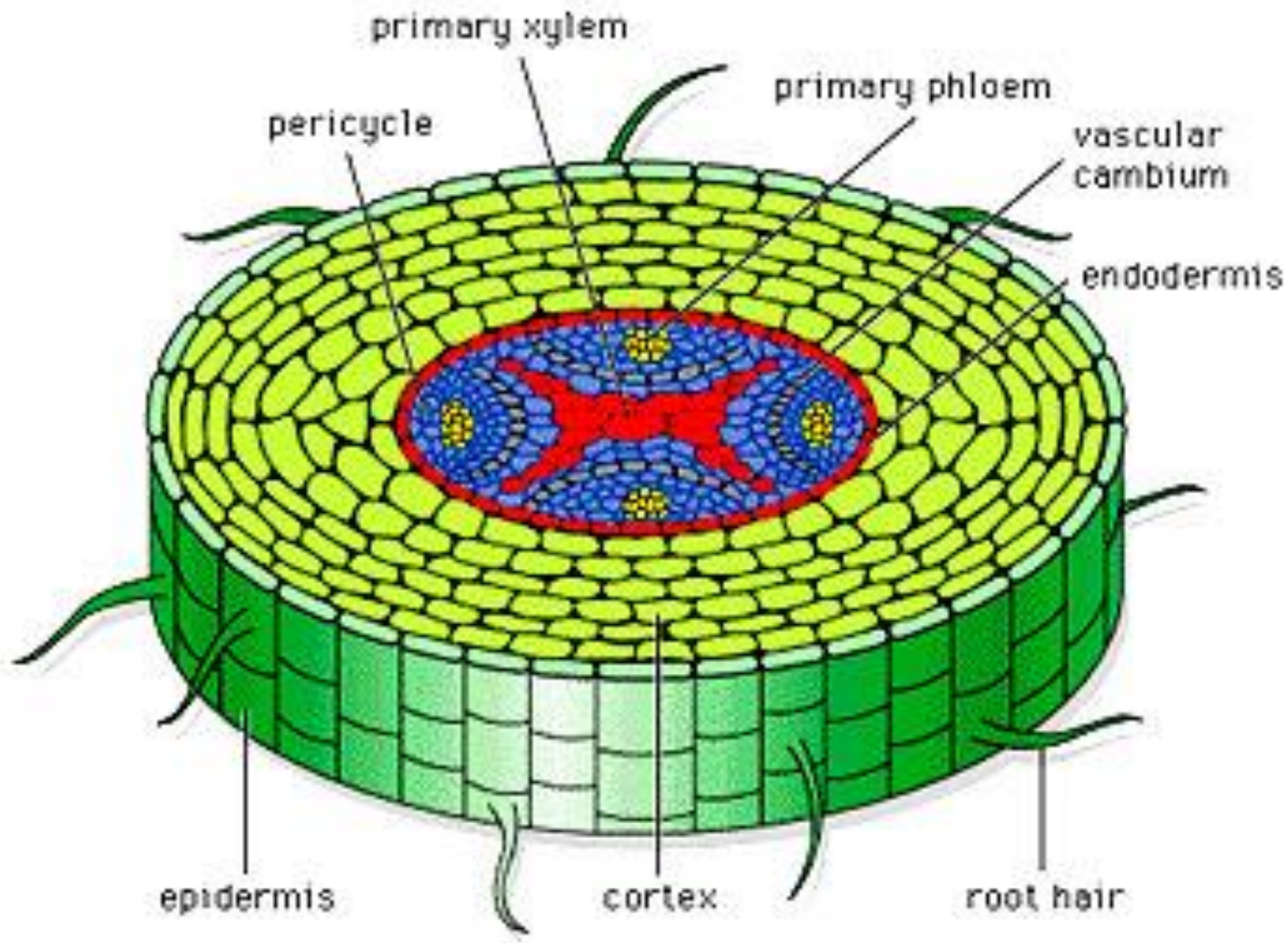
Os tecidos vasculares primários da raiz apresentam arranjo e desenvolvimento distinto do caule:

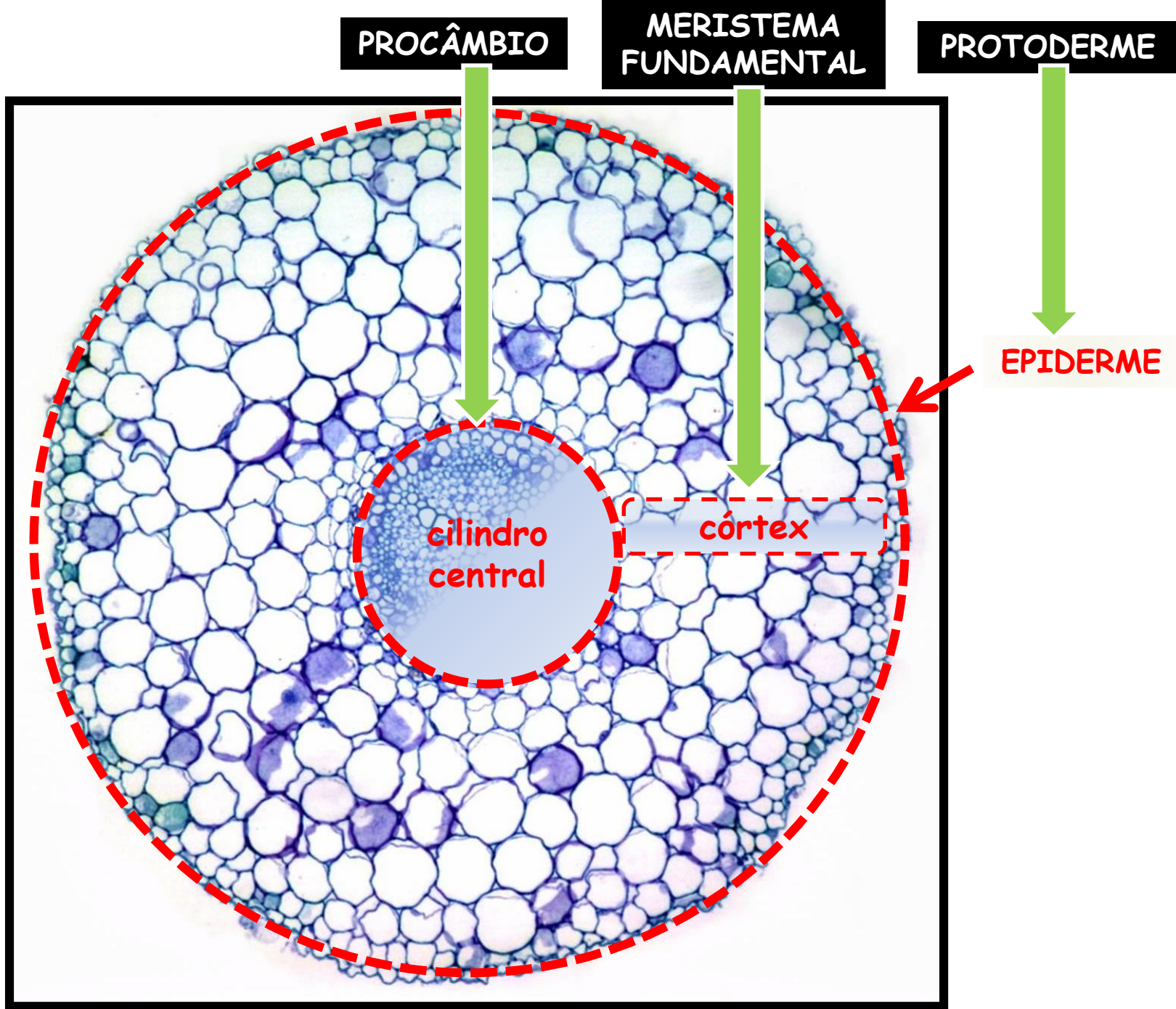






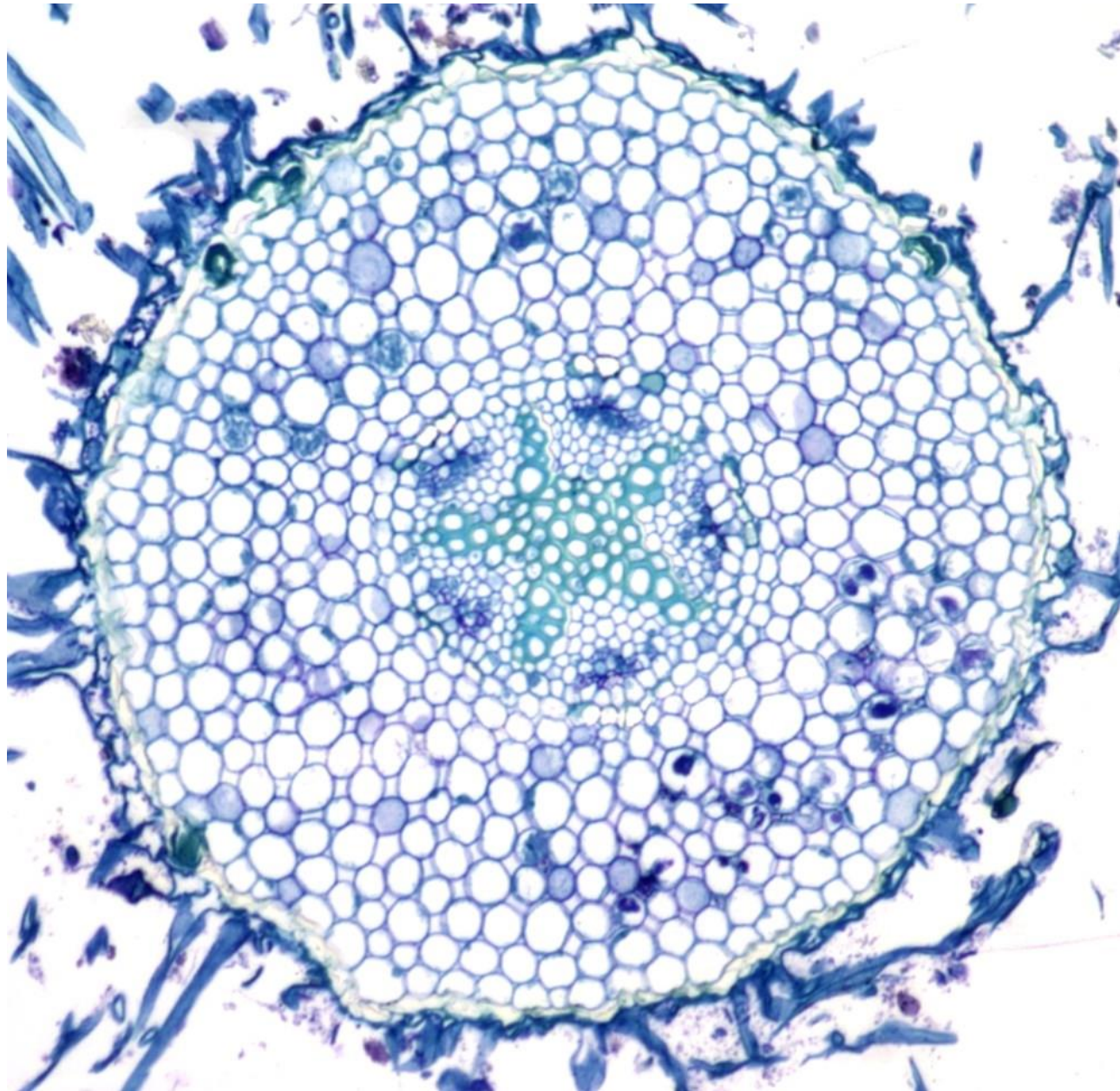
RAIZ EM CORTE TRANSVERSAL





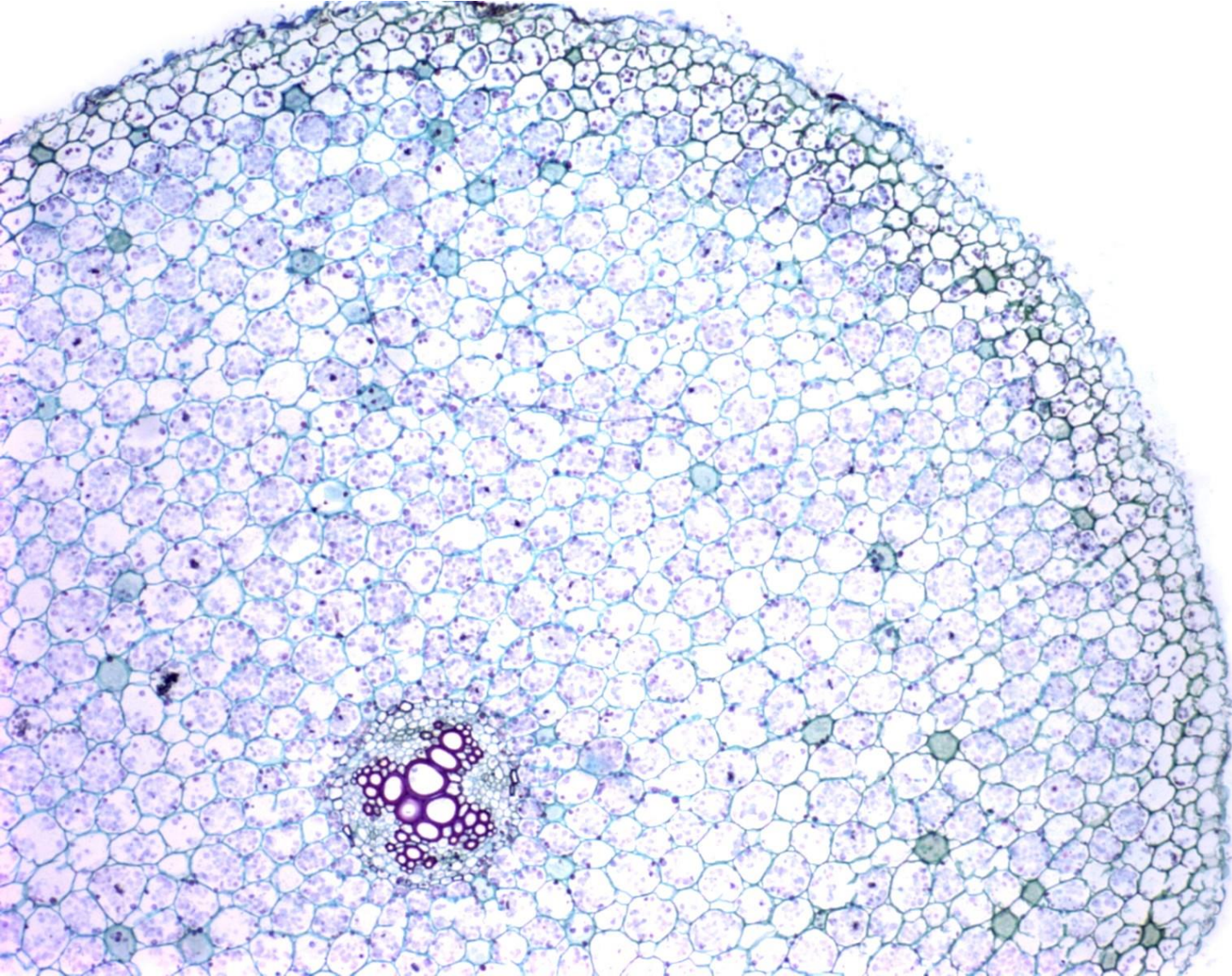
Phaseolus vulgaris (Leguminosae)

CÓRTEX: parênquima de preenchimento



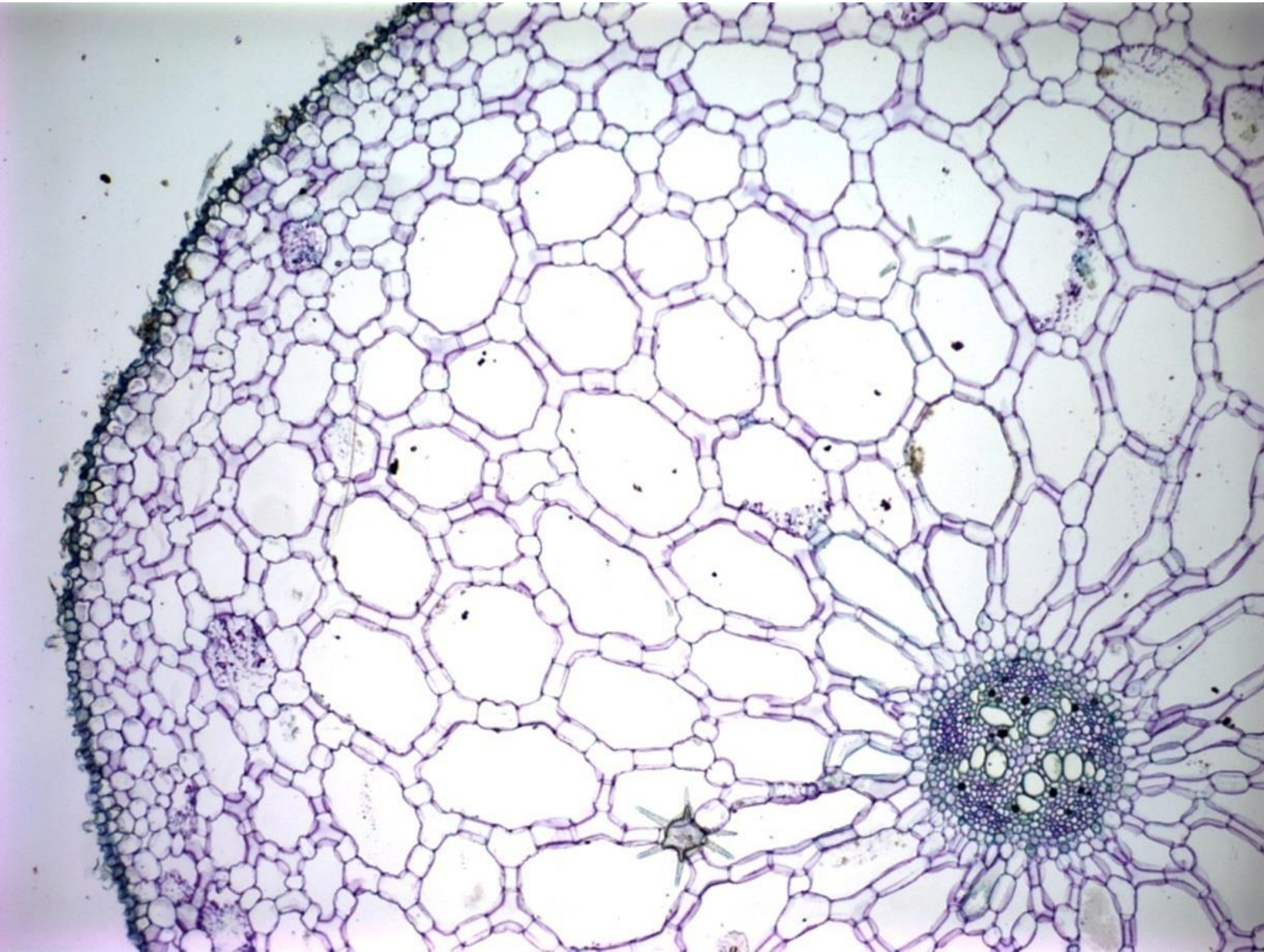
Tynanthus fasciculatus (Bignoniaceae)

CÓRTEX: parênquima de reserva



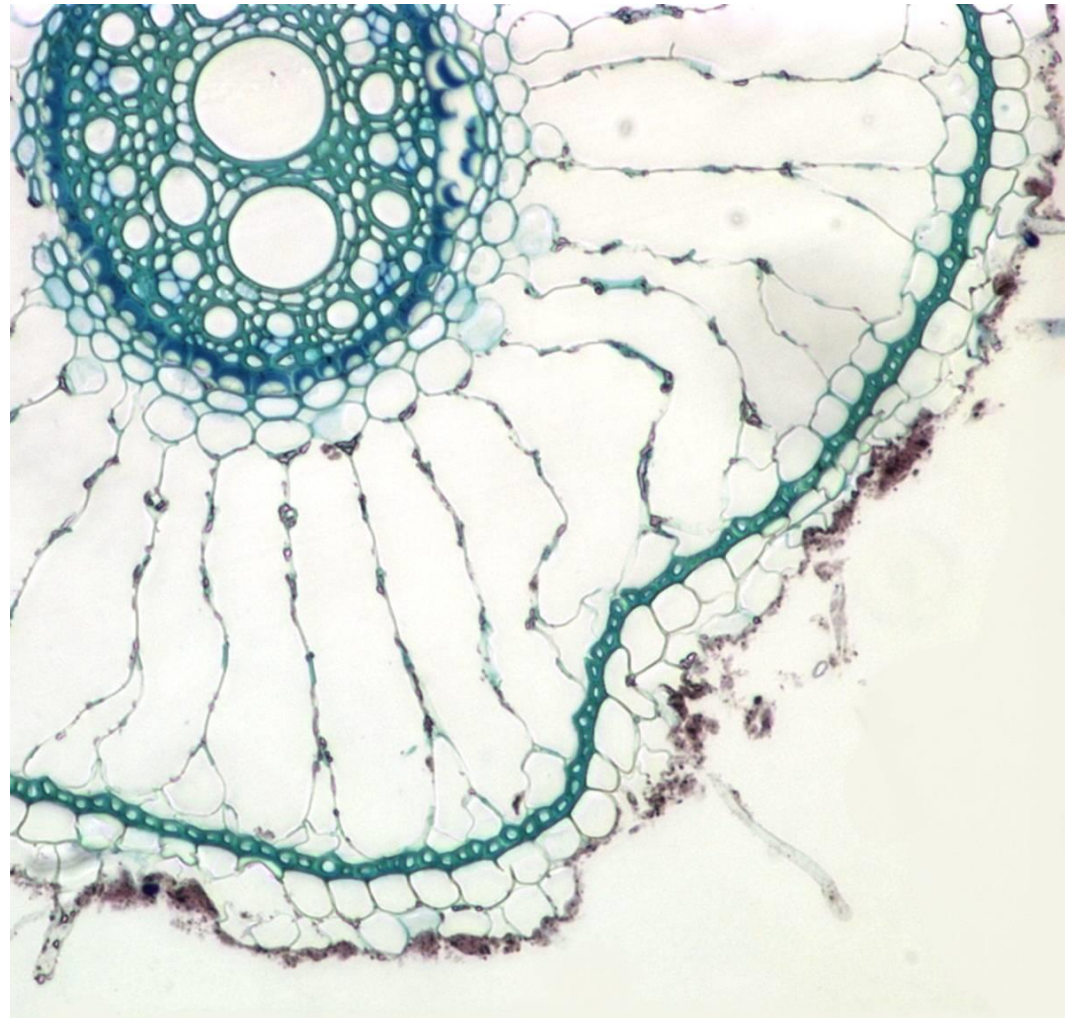
Ranunculus sp. (Ranunculaceae)

CÓRTEX: parênquima aerífero



Nymphaea sp. (Nymphaeaceae)

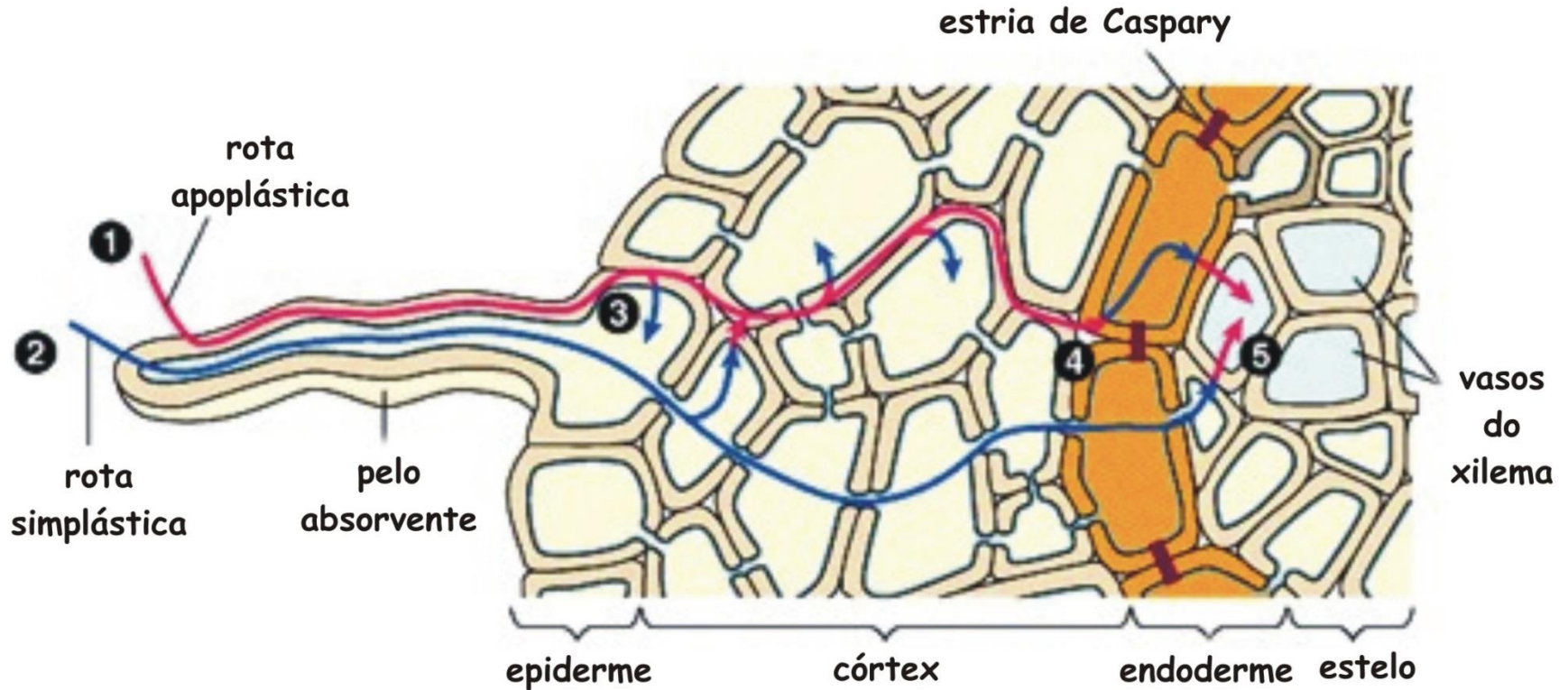
CÓRTEX: parênquima aerífero



Oryza sativa (Poaceae)

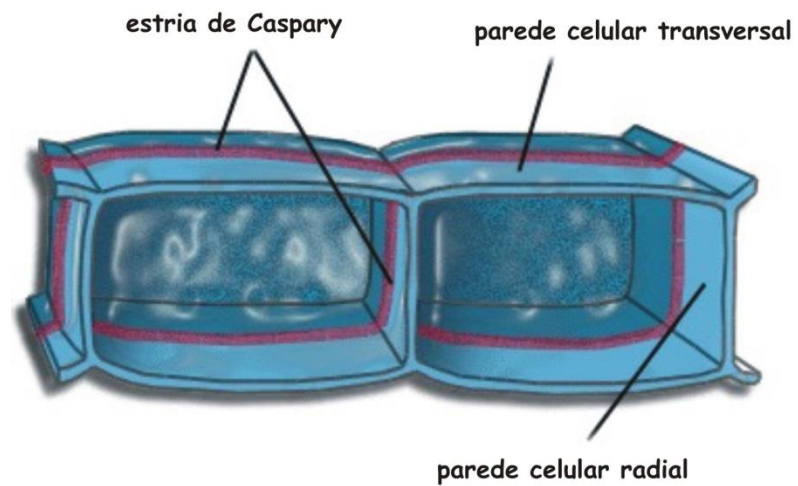
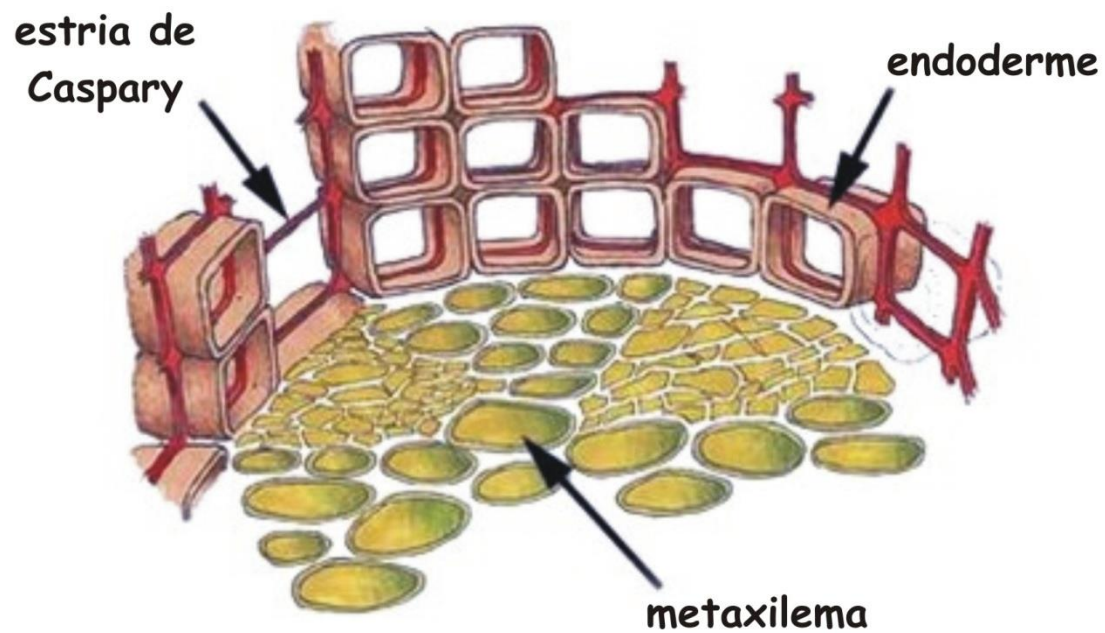
CÓRTEX: endoderme

Rota apoplástica: via espaços intercelulares e parede celular

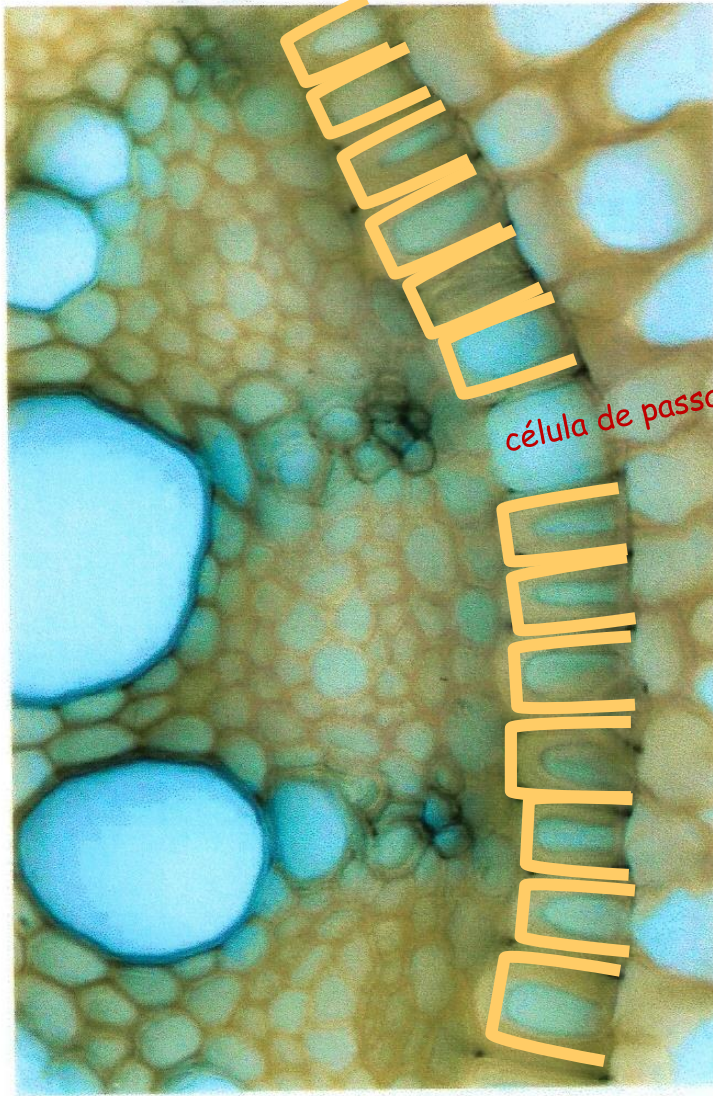


Rota simplástica: através da membrana plasmática ou dos plasmodesmos

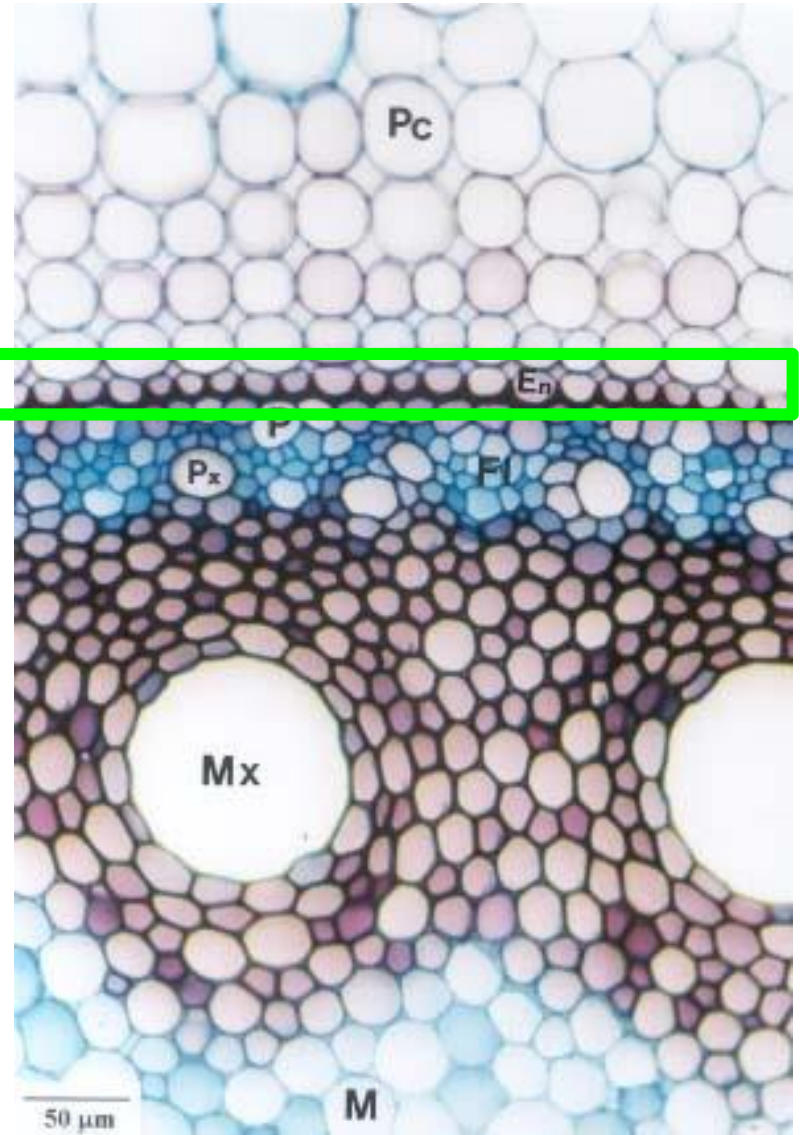
CÓRTEX: endoderme



CÓRTEX: endoderme



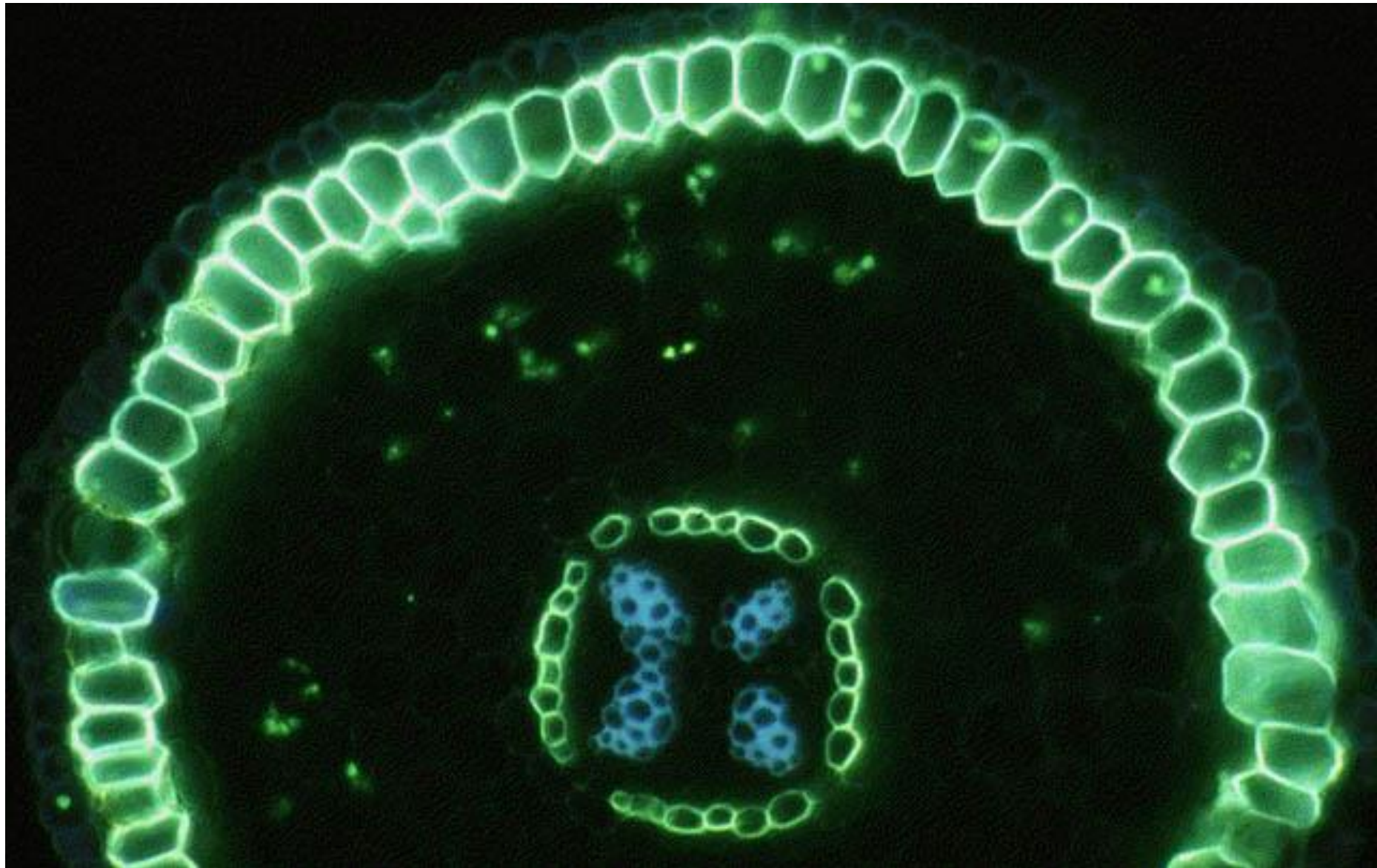
célula de passagem



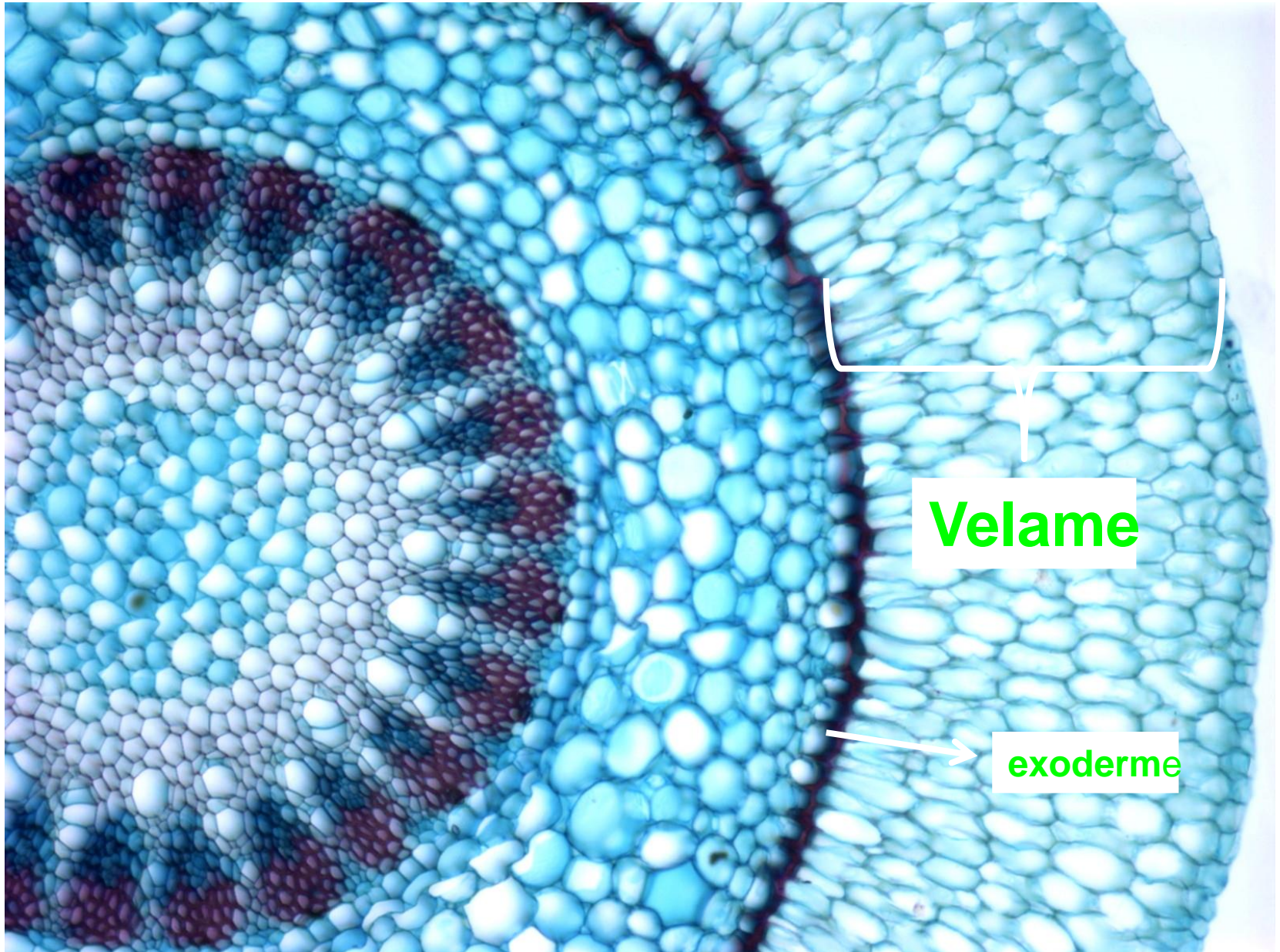
50 μm

M

CÓRTEX: exoderme



CÓRTEX: exoderme

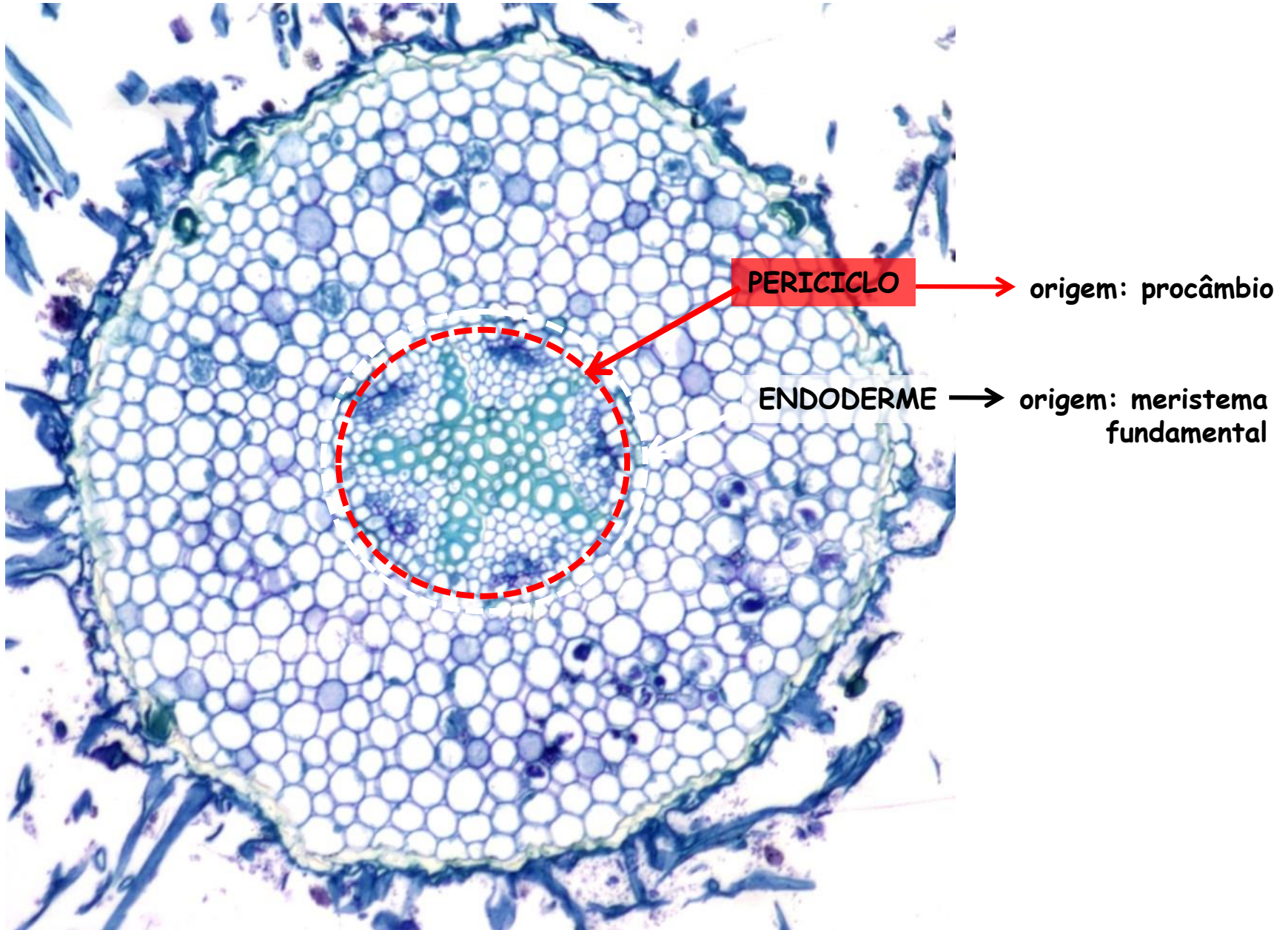


CÓRTEX: exoderme



Oryza sativa (Poaceae)

ESTELO: periciclo

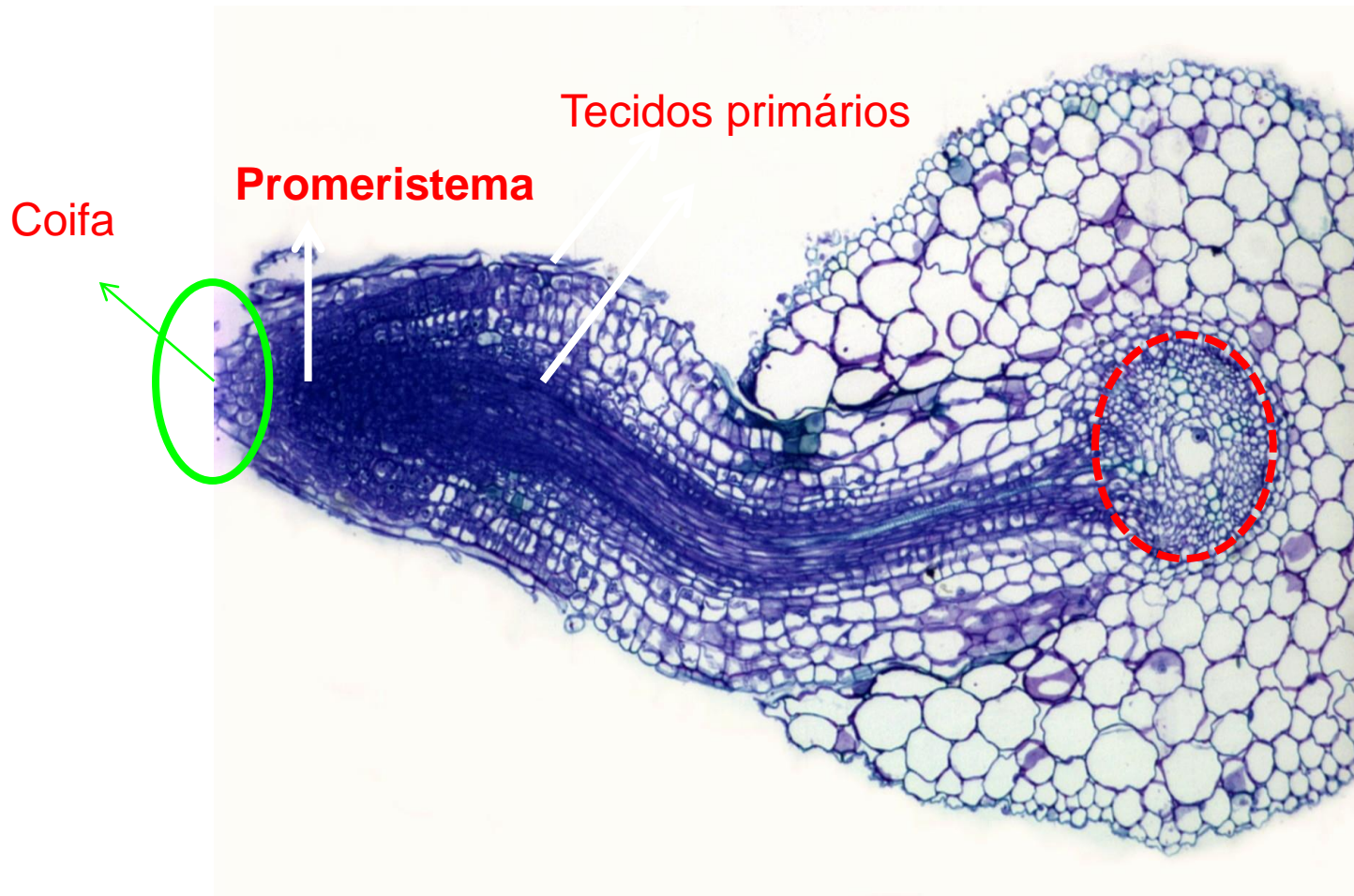


Phaseolus vulgaris (Leguminosae)

ESTELO: periciclo - formação de raízes laterais

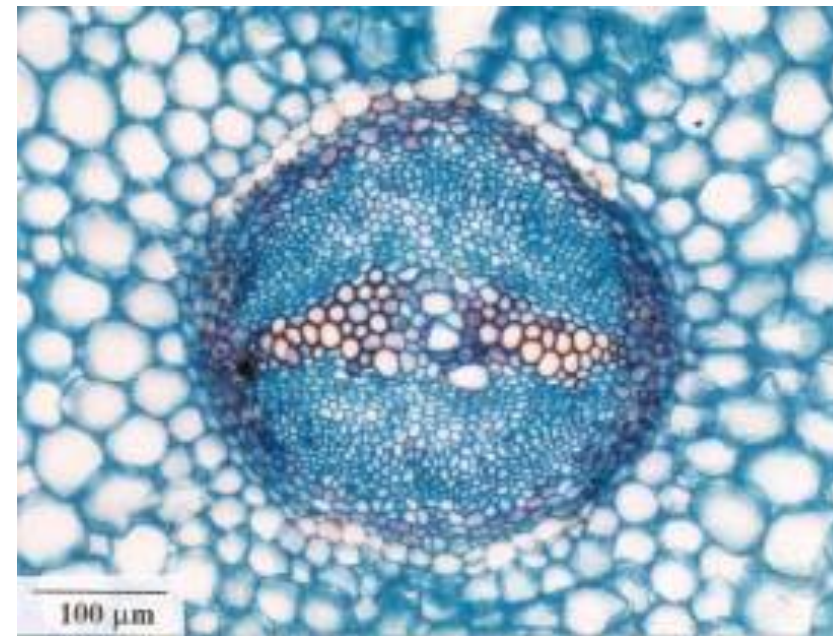
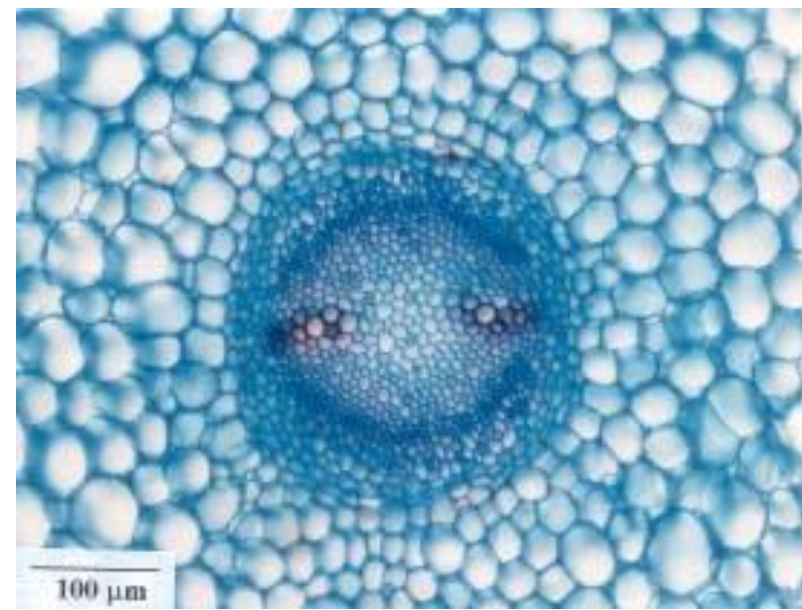
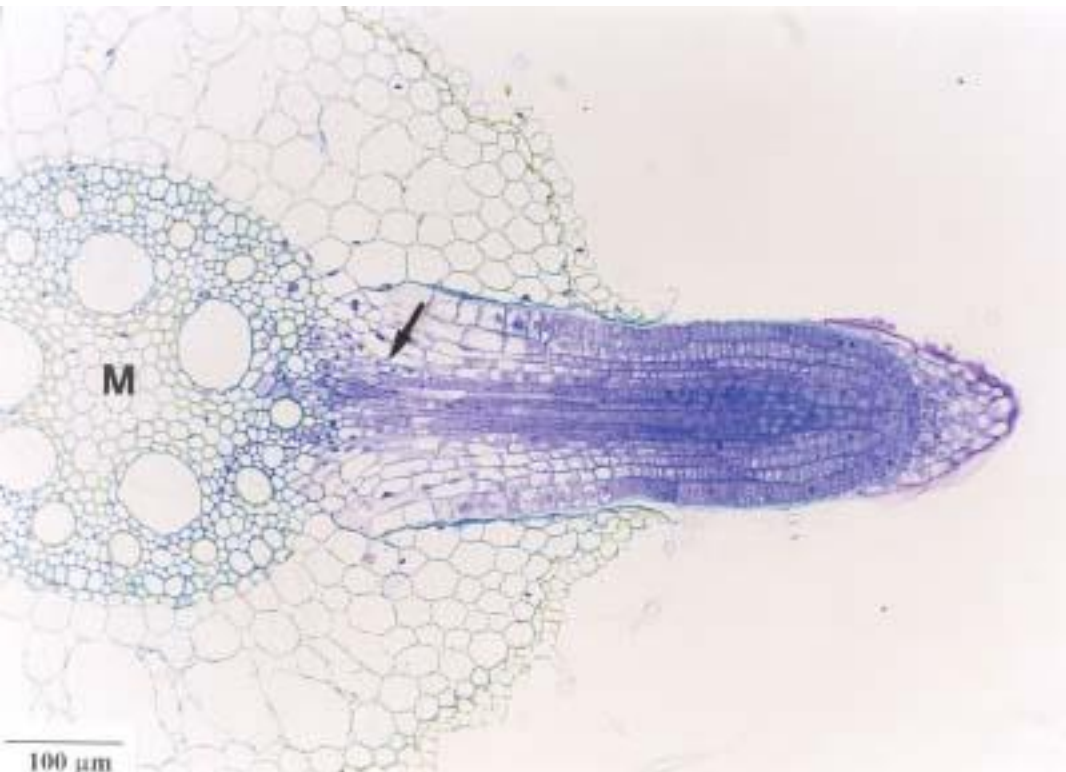
Aparecem na zona de ramificação

Origem endógena (divisões anticlinais e periclinais do per

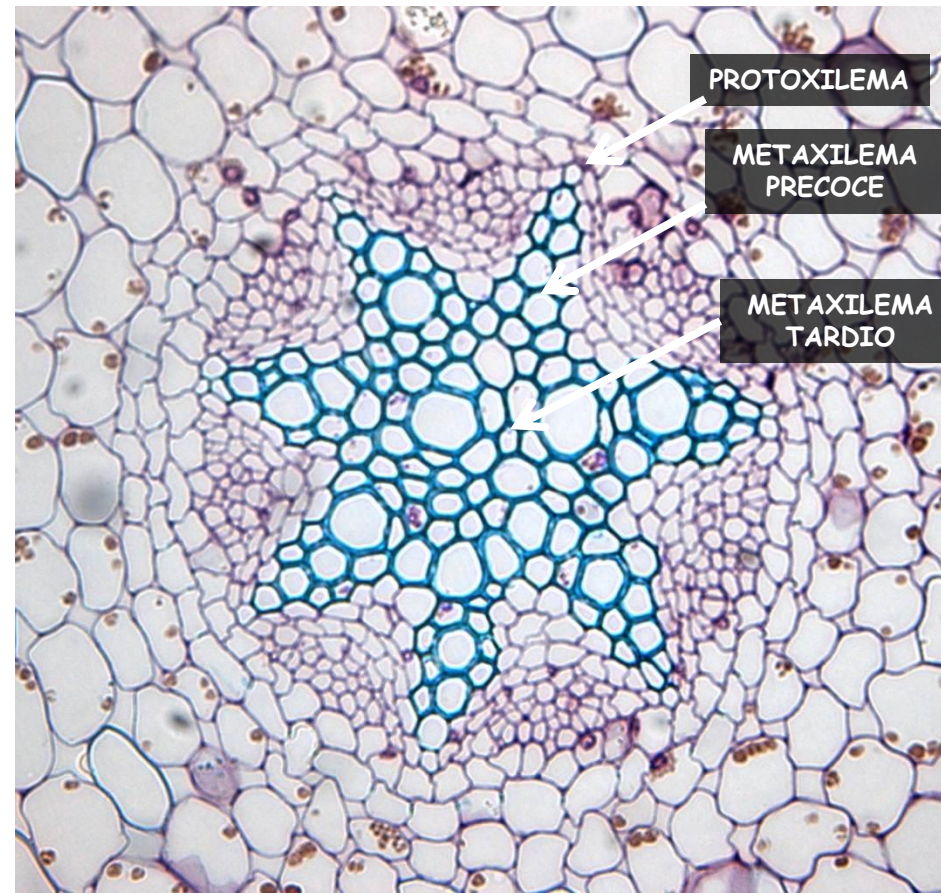
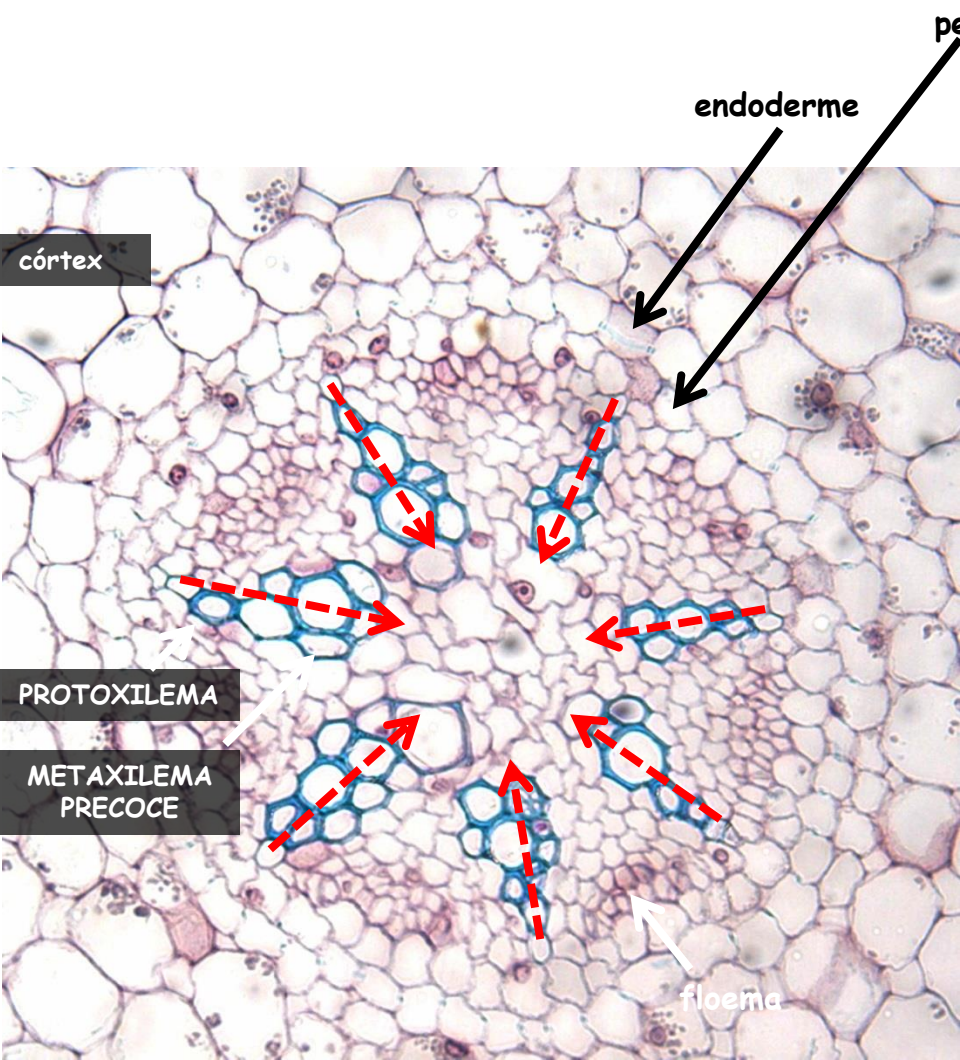


Phaseolus vulgaris (Leguminosae)

- Maturação centrípta (exarco)
- Cilindro vascular: Oco ou sólido
 - diarca; triarca; tetraarca.
 - poliarca.



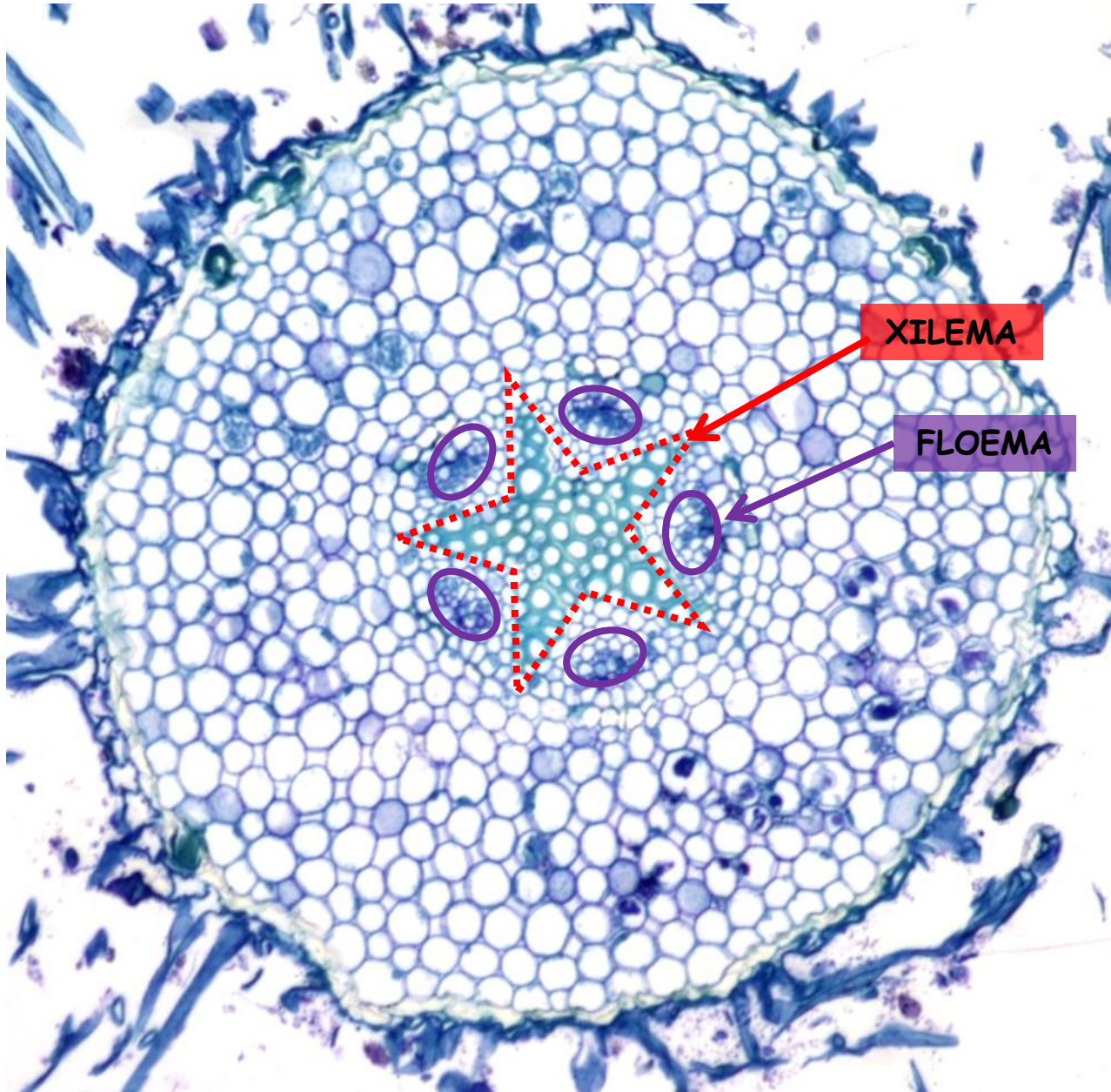
ESTELO: maturação do xilema centripeta (exarca)



Bixa orellana (Bixaceae)

RAIZ É UM ÓRGÃO EXARCO !

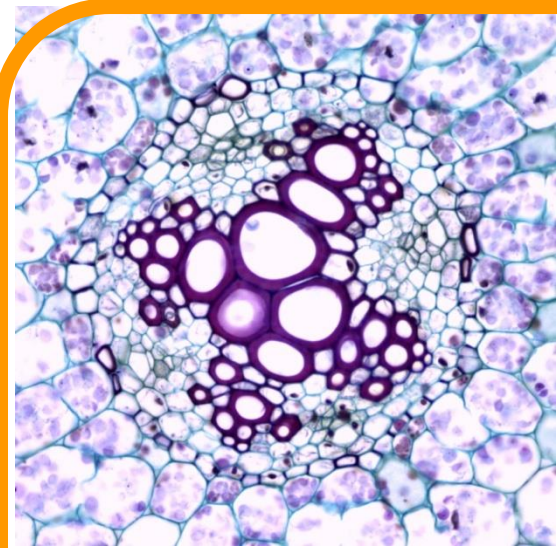
ESTELO: xilema e floema alternados



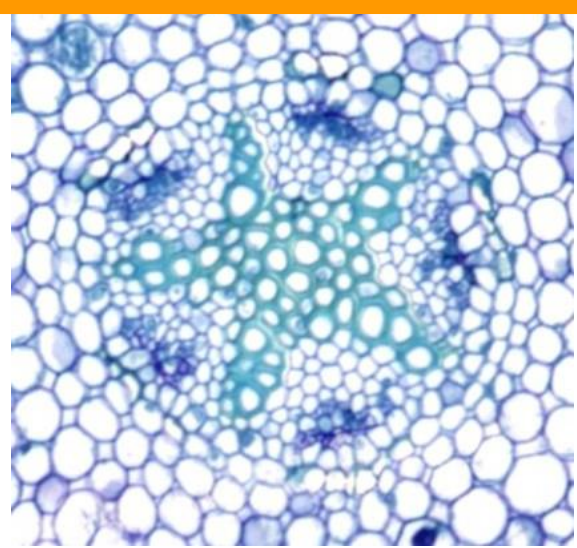
NÃO HÁ
FORMAÇÃO DE
FEIXES
VASCULARES NA
RAIZ !

Há cordões ou arcos
do xilema
alternados com
floema.

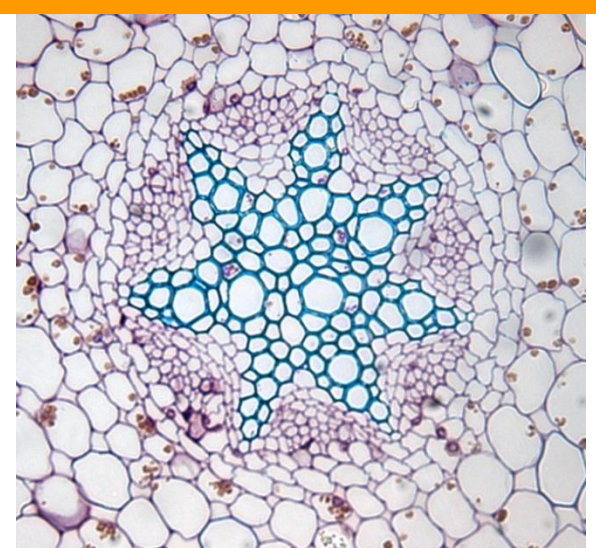
ESTELO: variações



TETRARCA



PENTARCA



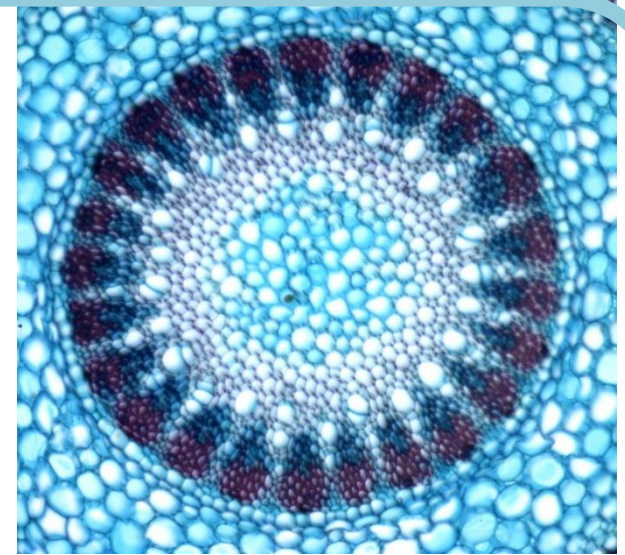
HEPTARCA

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MONOCOTILEDÔNEAS



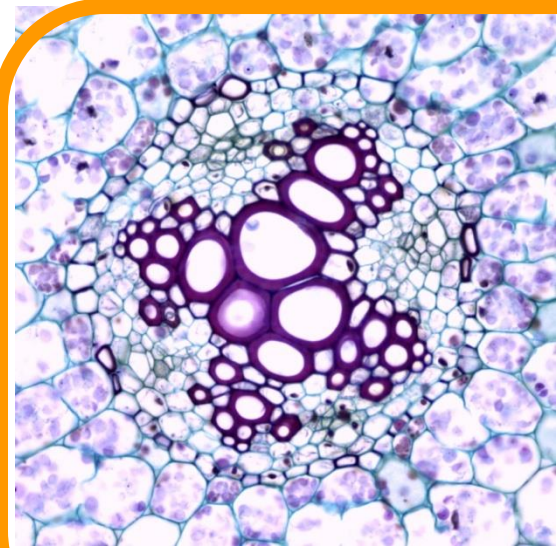
POLIARCA



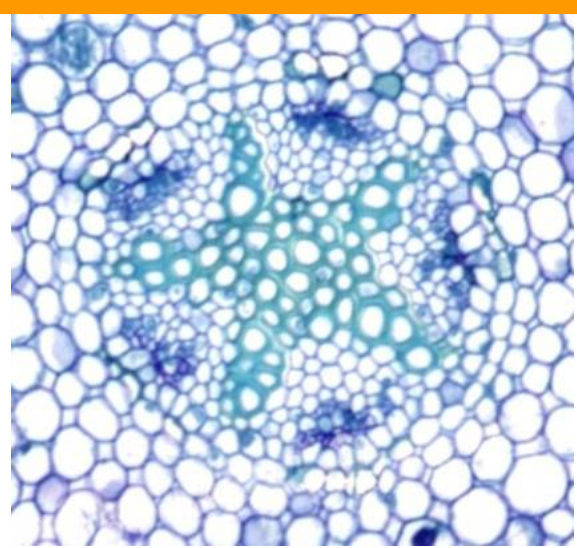
POLIARCA

ESTELO: variações

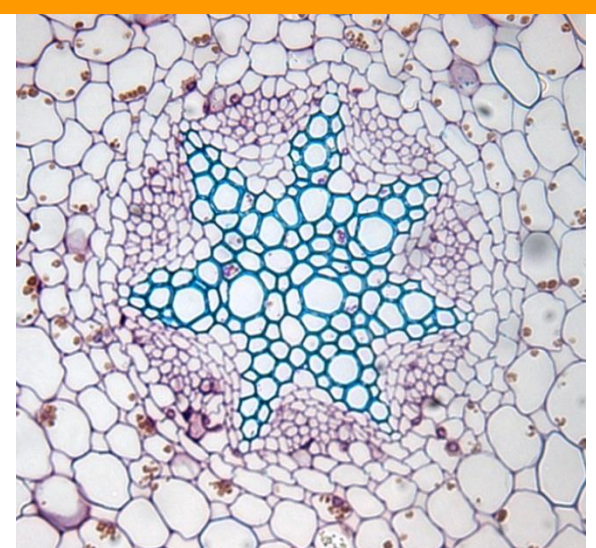
Classificação dos cordões vasculares



TETRARCA



PENTARCA



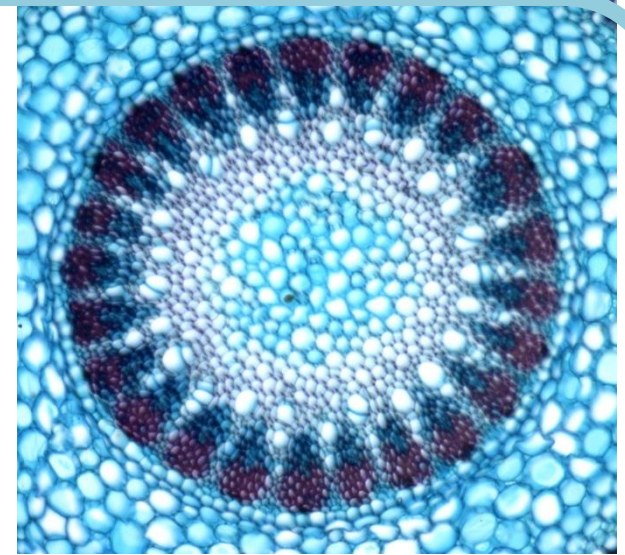
HEPTARCA

PROTOSTELO

SIFONOSTELO
(medula no centro)



POLIARCA



POLIARCA

RAIZ: crescimento secundário

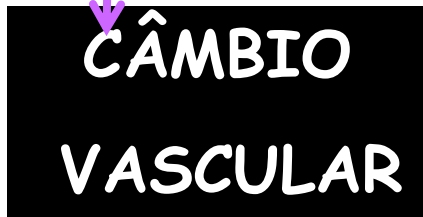




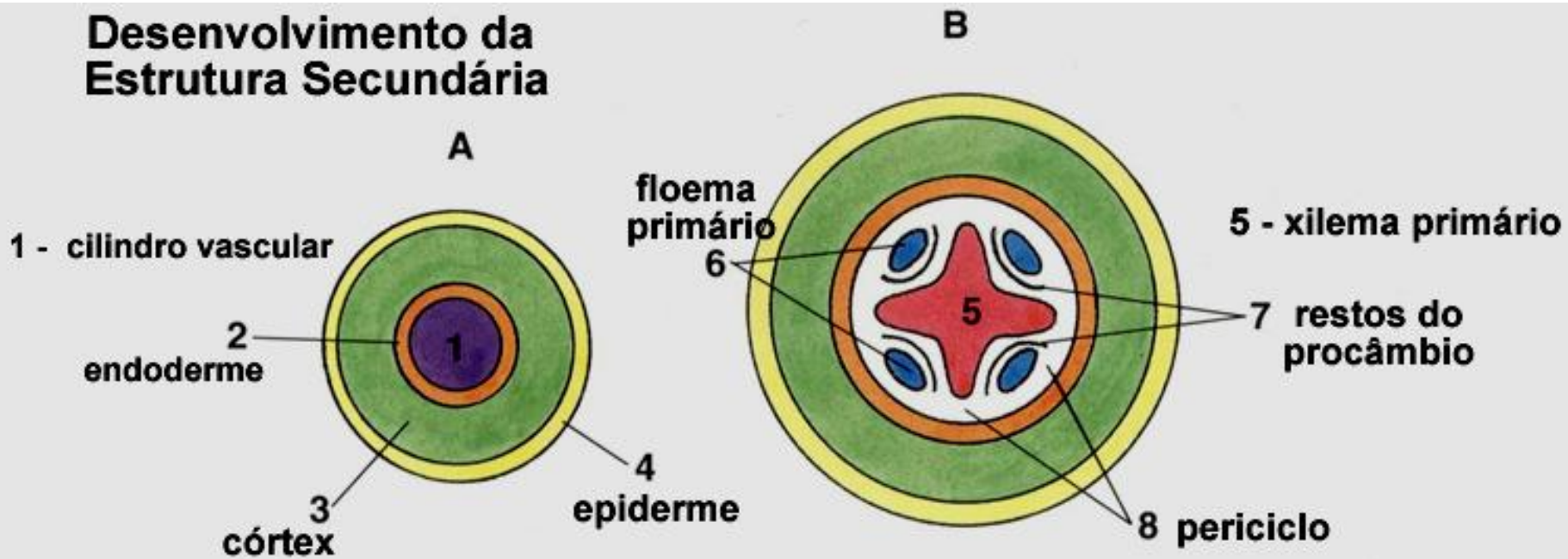
Periciclo

+

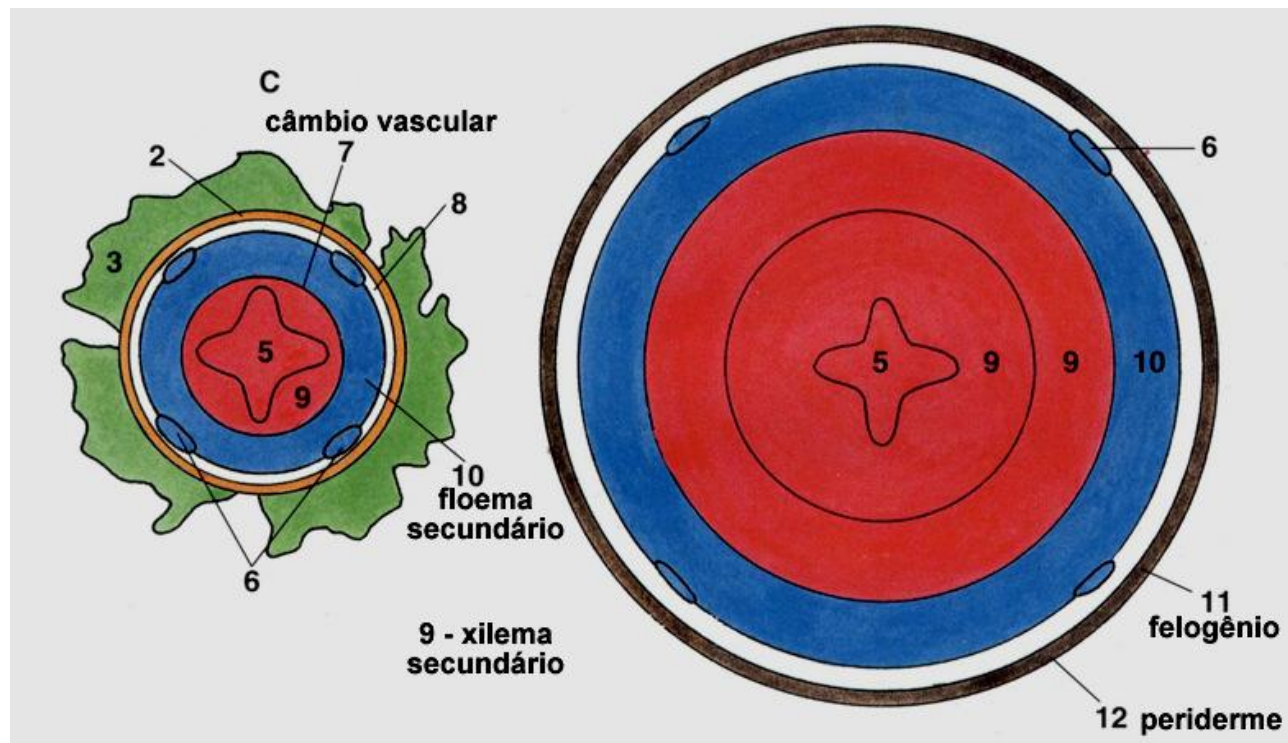
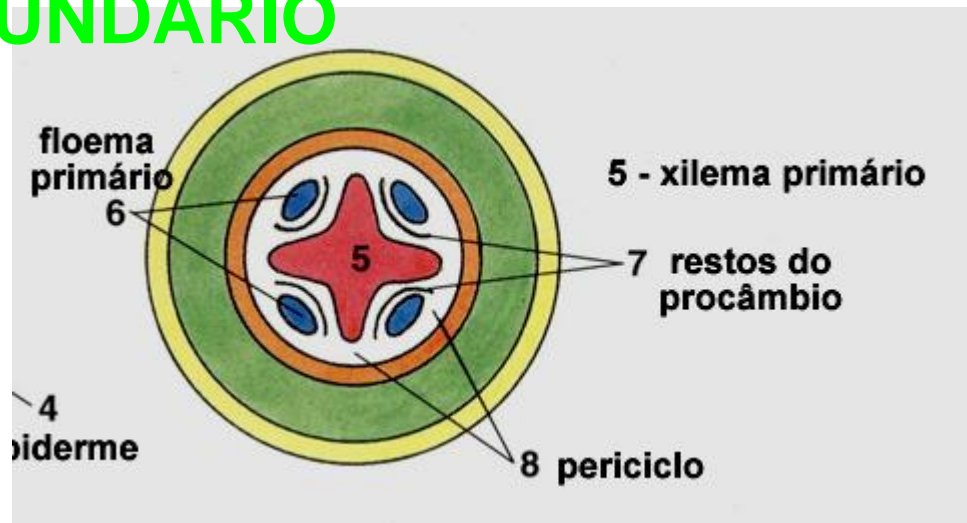
Células procambiais



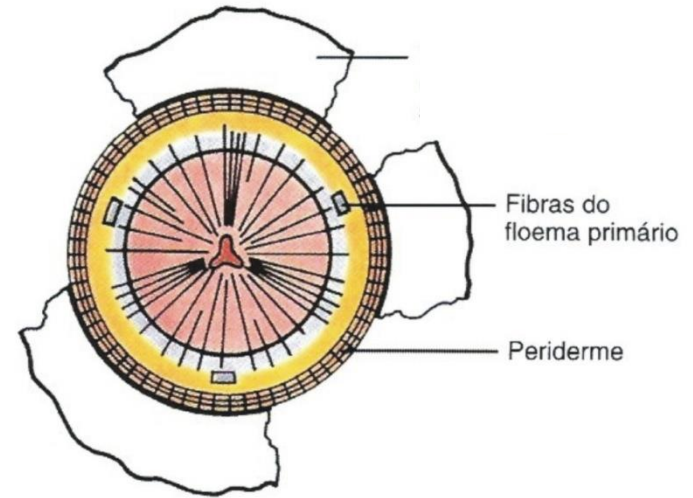
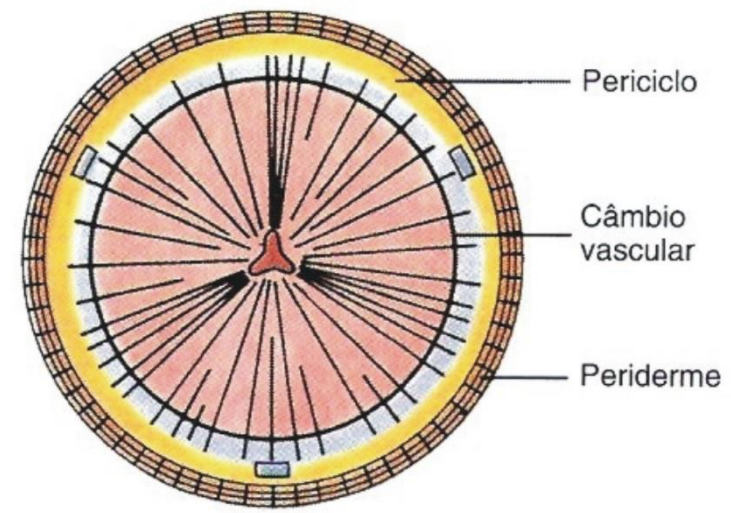
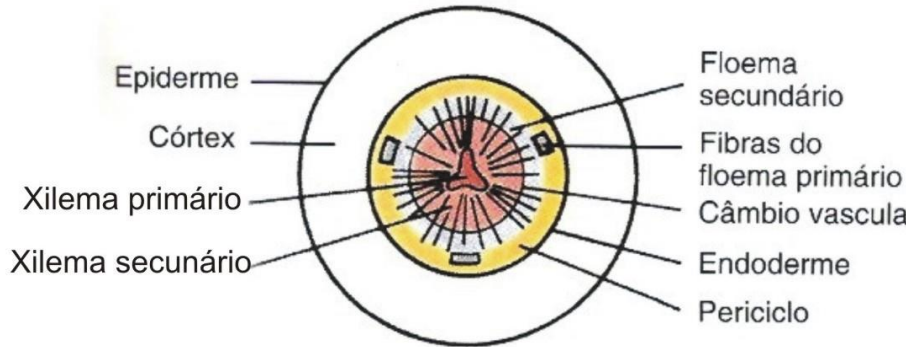
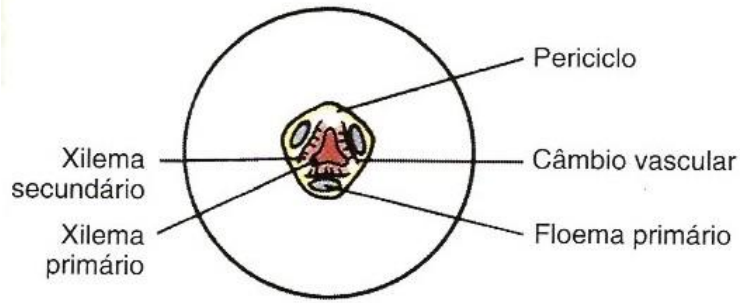
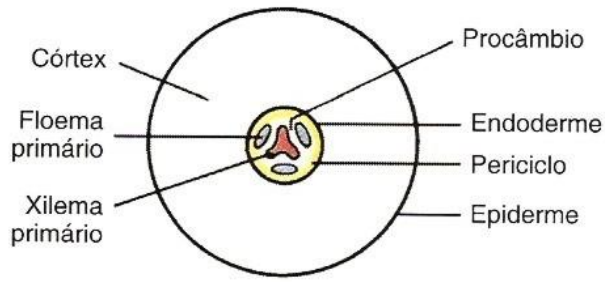
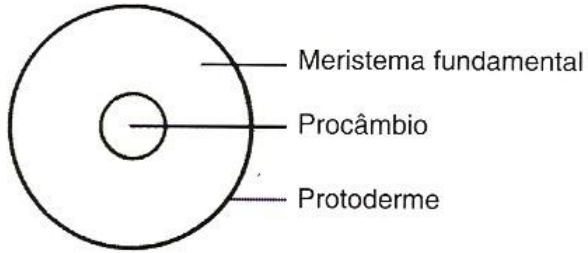
Desenvolvimento da Estrutura Secundária



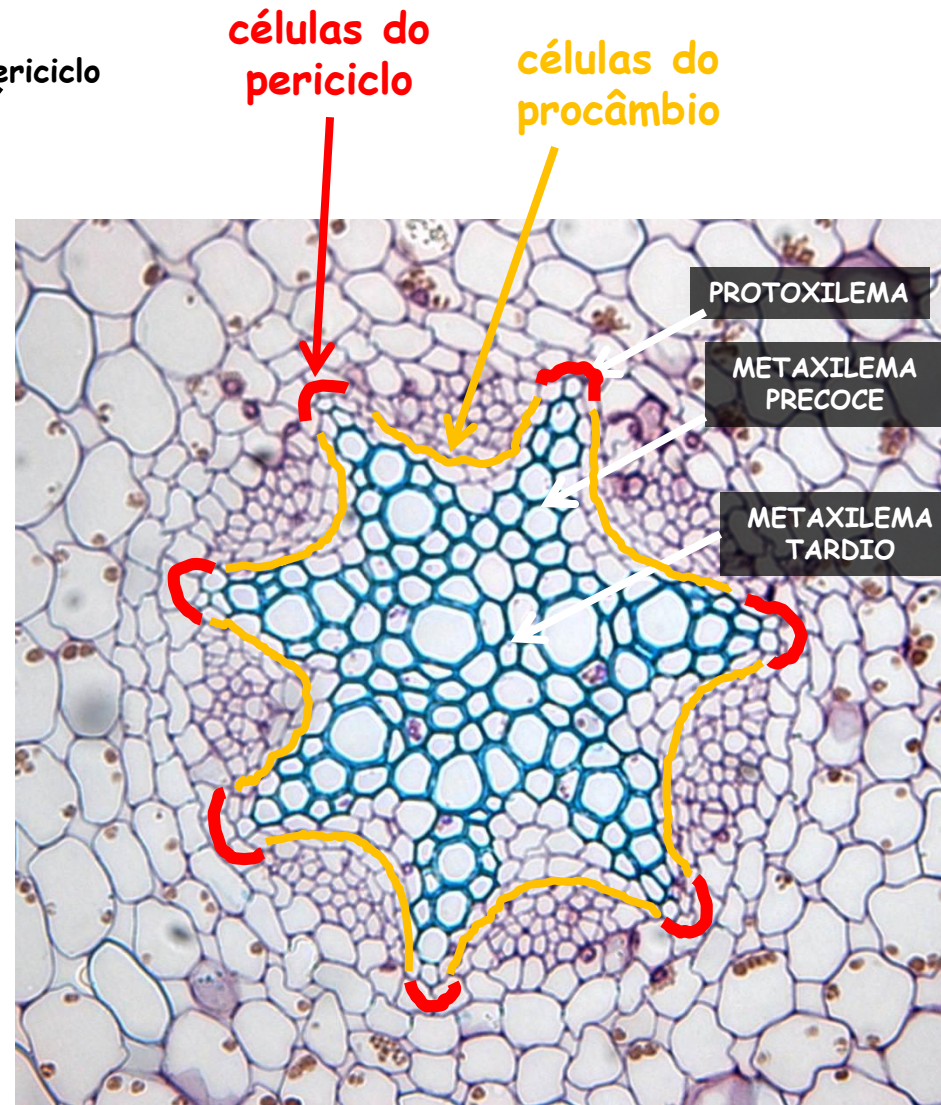
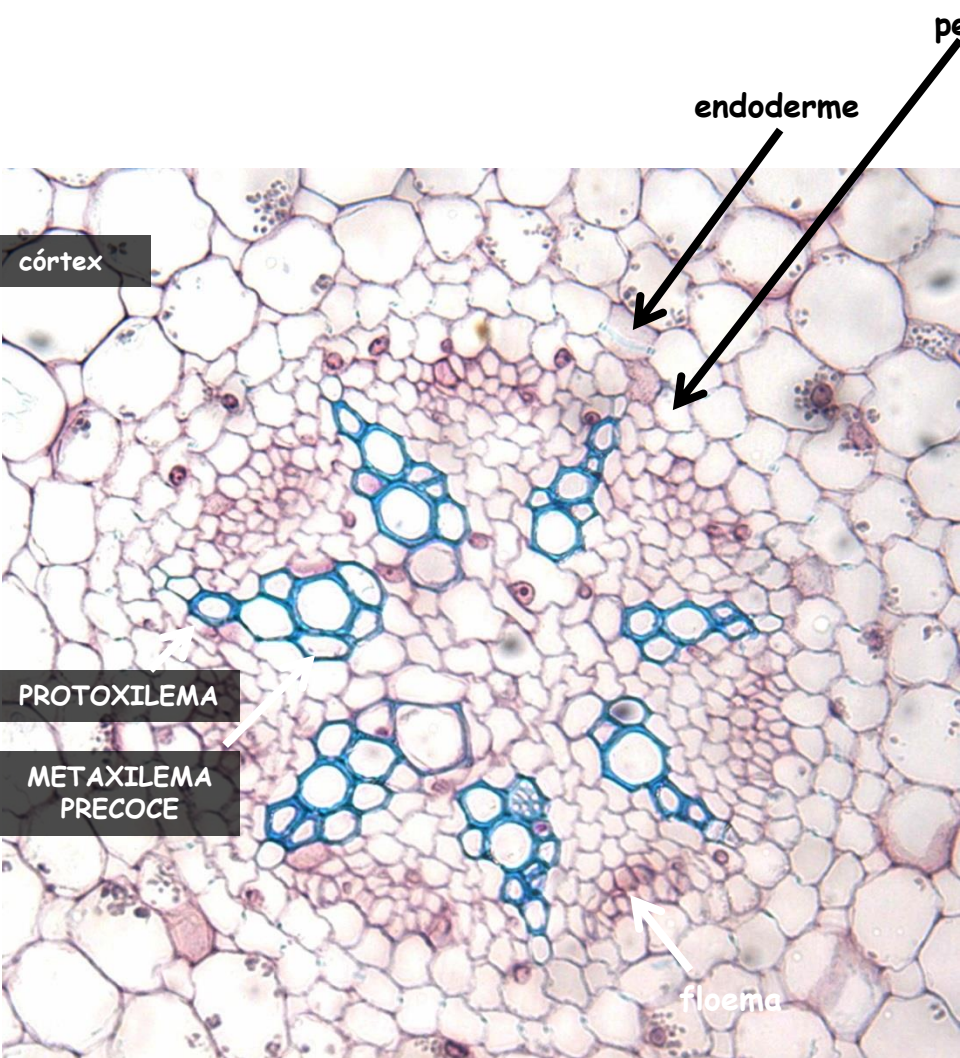
RAIZ: CORTE CRESCIMENTO SECUNDÁRIO



RAIZ

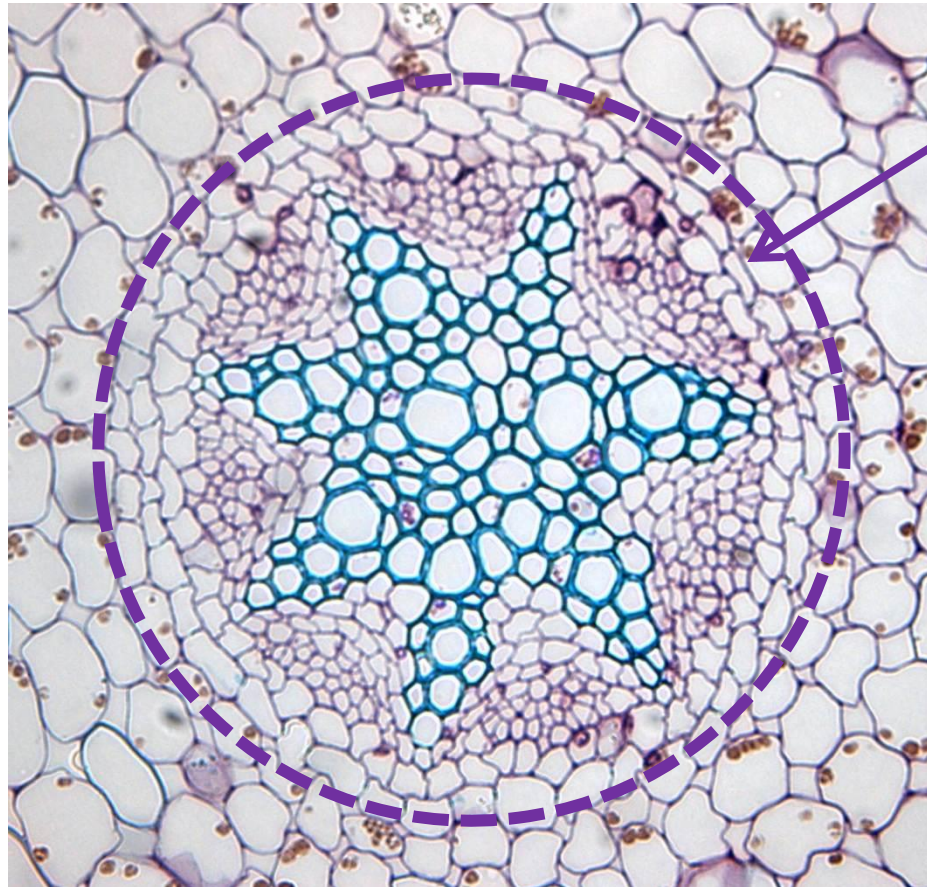


CÂMBIO VASCULAR



Bixa orellana (Bixaceae)

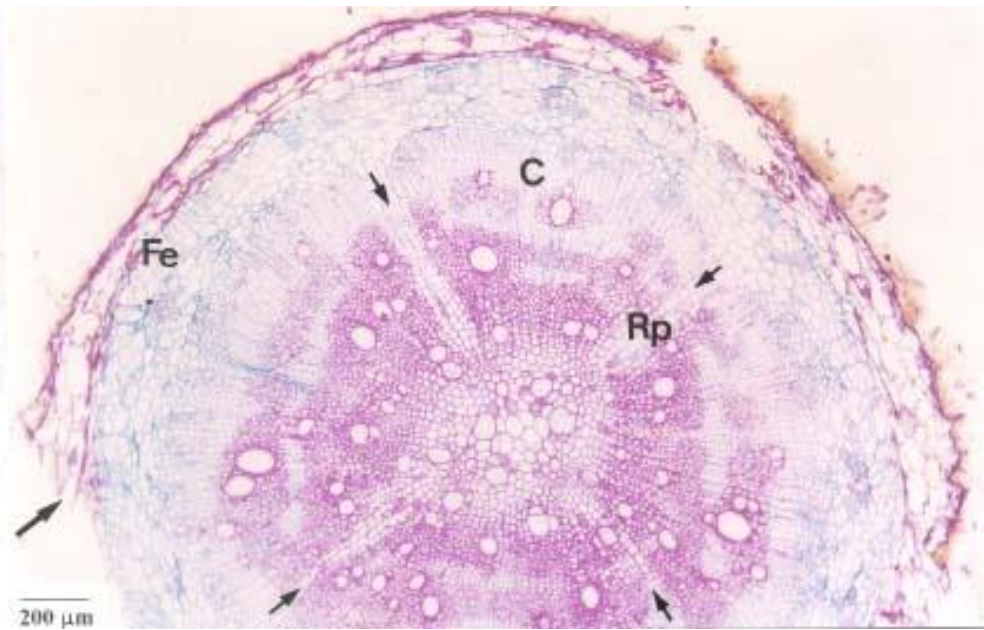
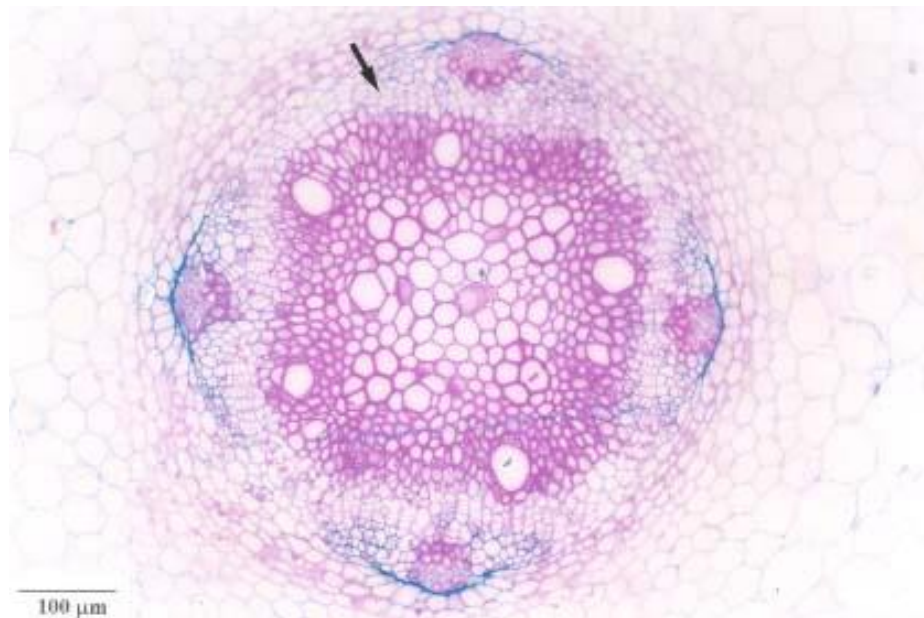
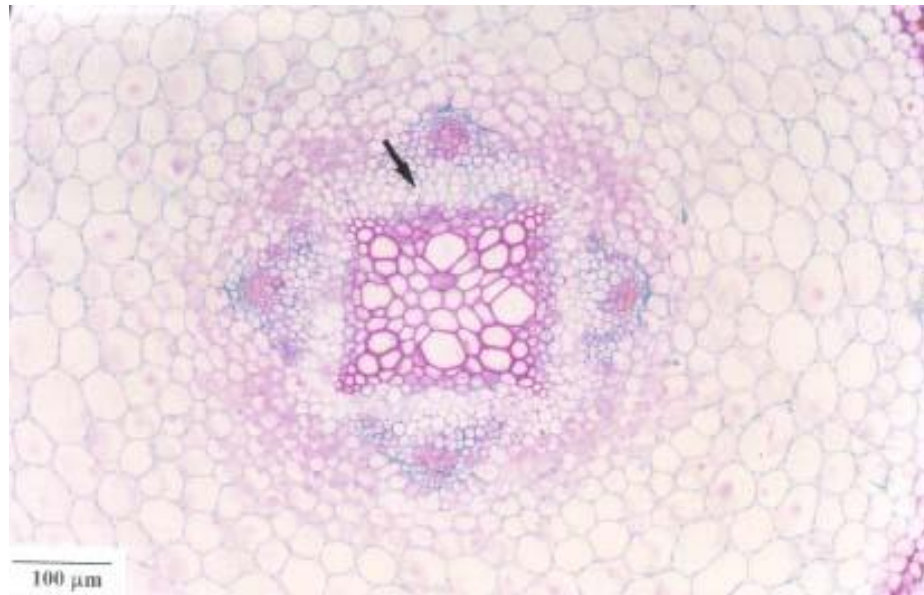
FELOGÊNIO

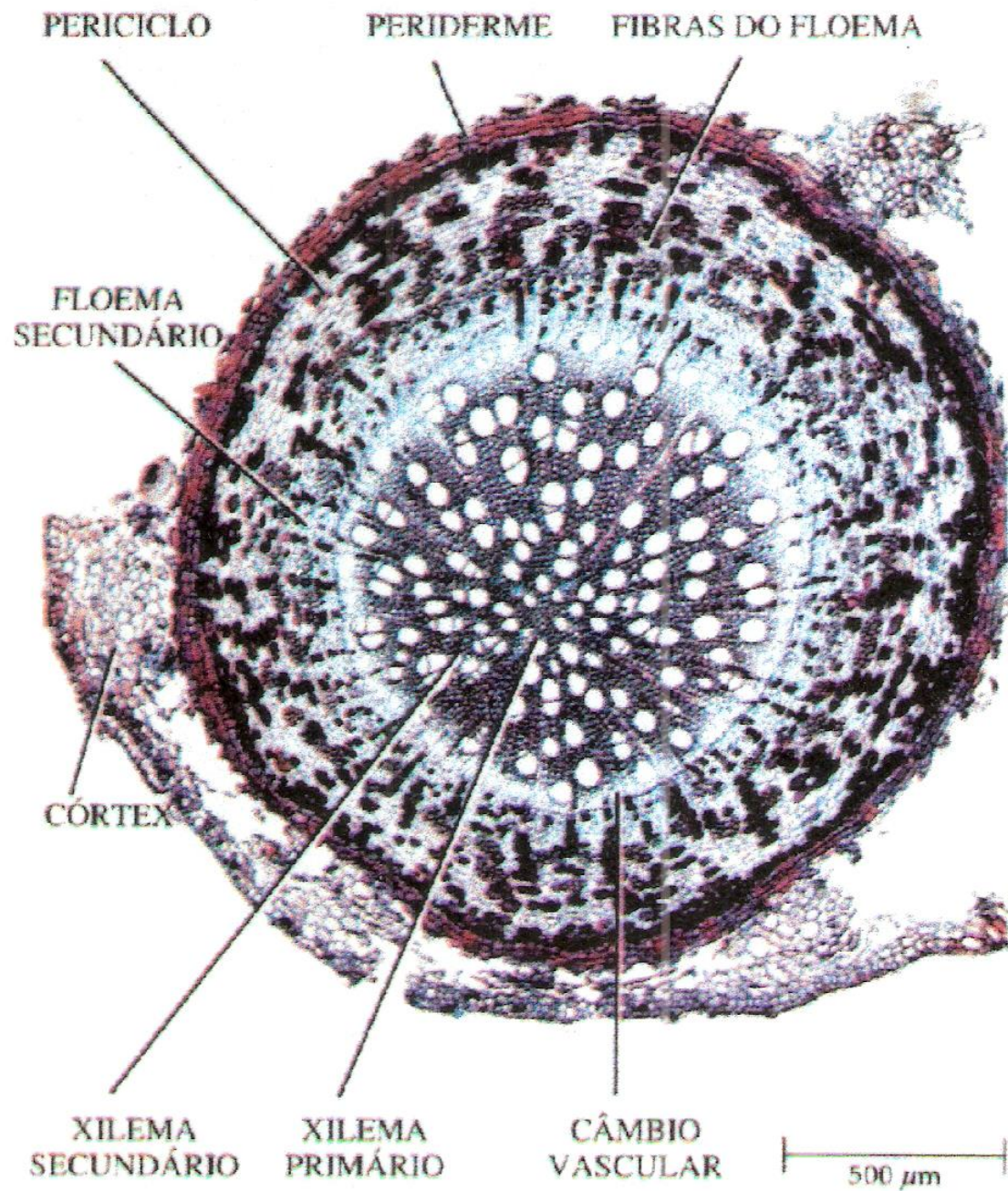


periciclo

Estrutura Secundária:

- Câmbio vascular
- Felogênio





Corte transversal de raiz de salgueiro (*Salix* sp.)

CAULE

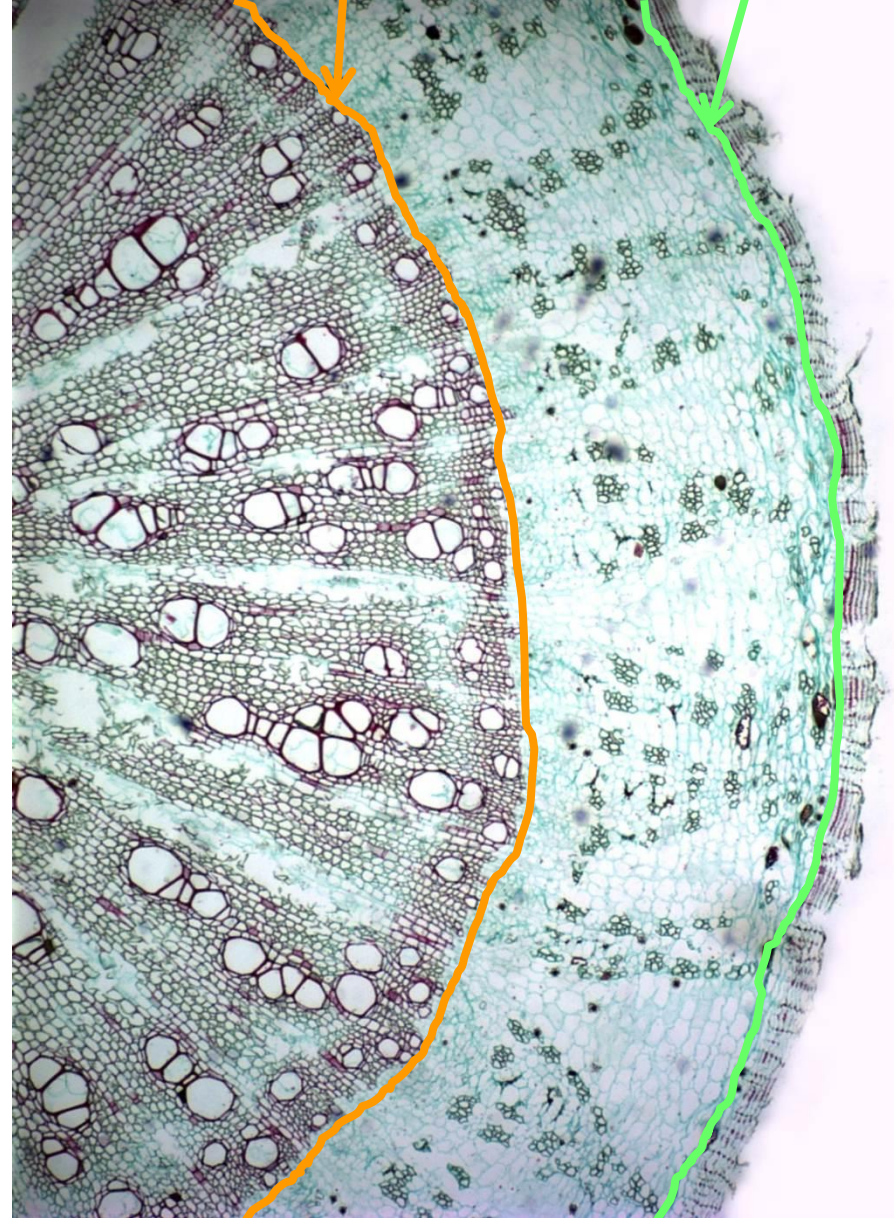
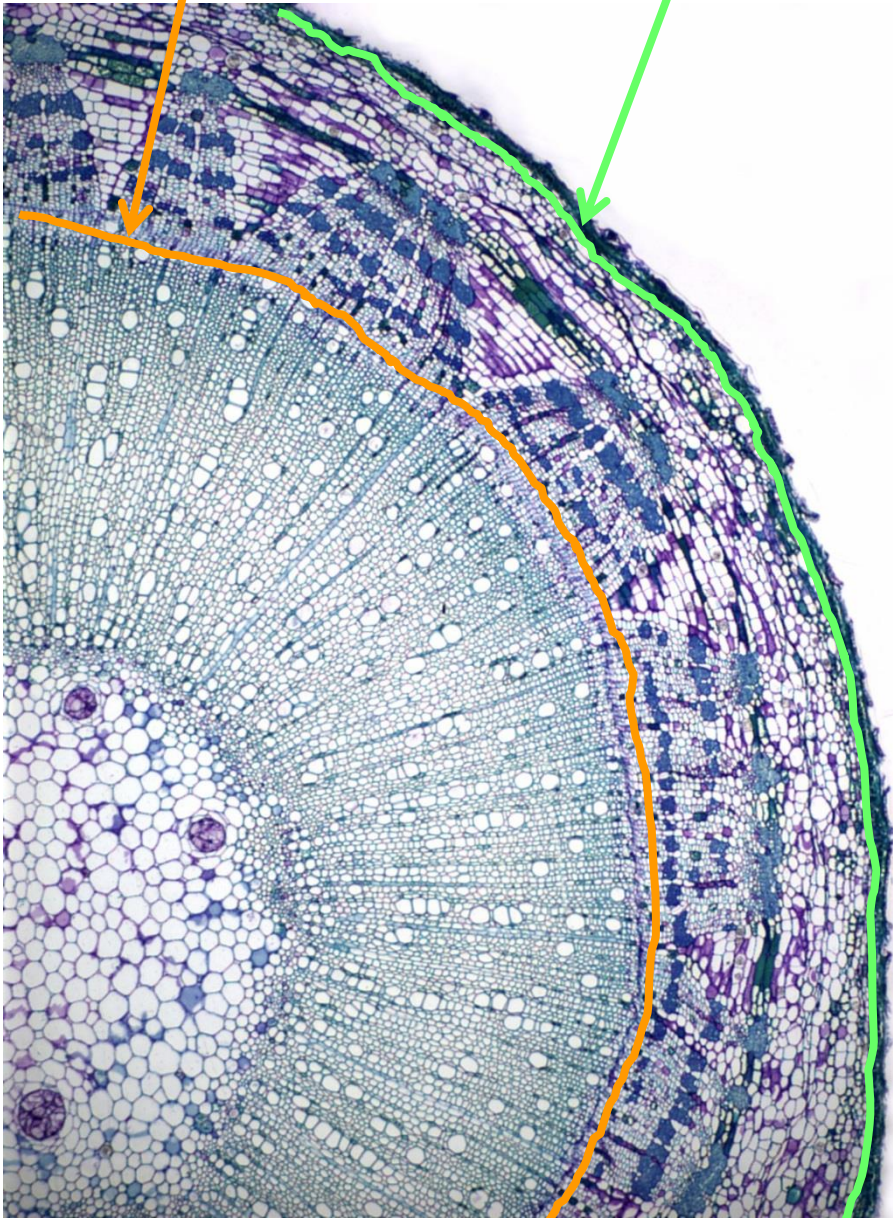
RAIZ

CÂMBIO VASCULAR

FELOGÊNIO

CÂMBIO VASCULAR

FELOGÊNIO



Questões:

- 1- Quais as funções da raiz?**
- 2- Qual a importância e função da endoderme?**
- 3- Caracterize anatomicamente o sistema vascular das raízes em crescimento primário.**
- 4- Qual a função da coifa?**