



Desenvolvimento inicial GIMNOSPERMAE E ANGIOSPERMAE

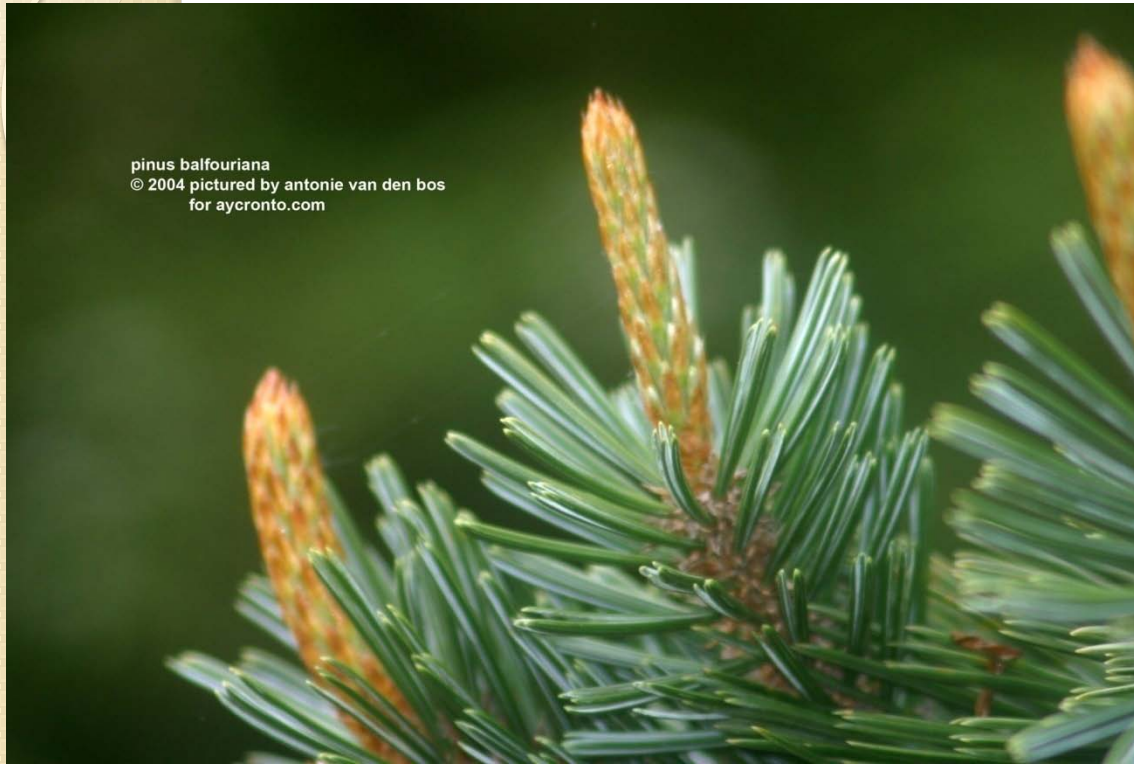


Megastróbilo

Microstróbilo

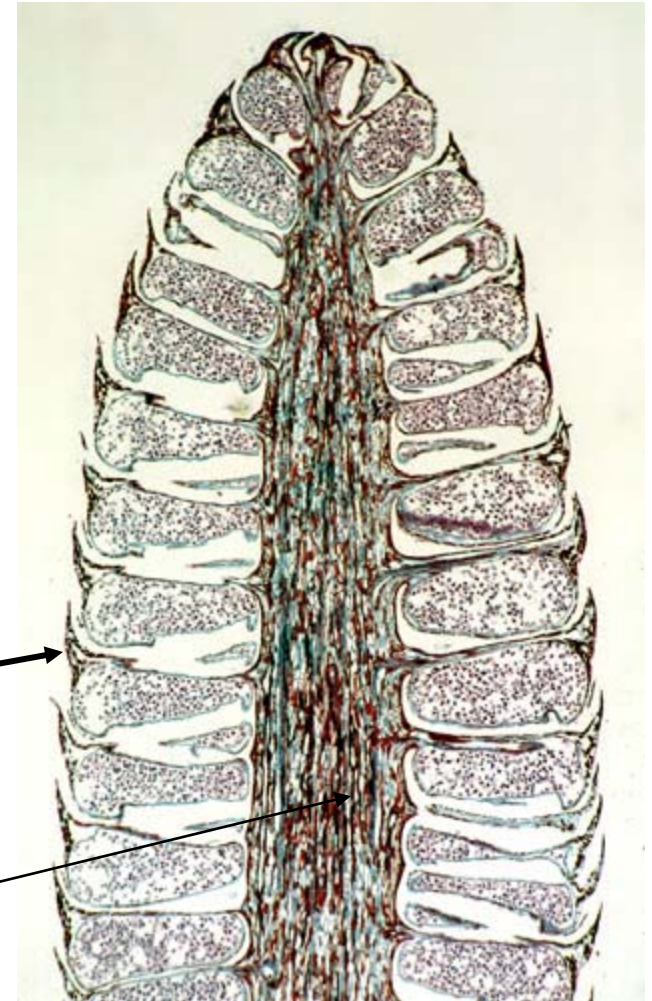
Cedrus libani A. Rich.

Pinaceae

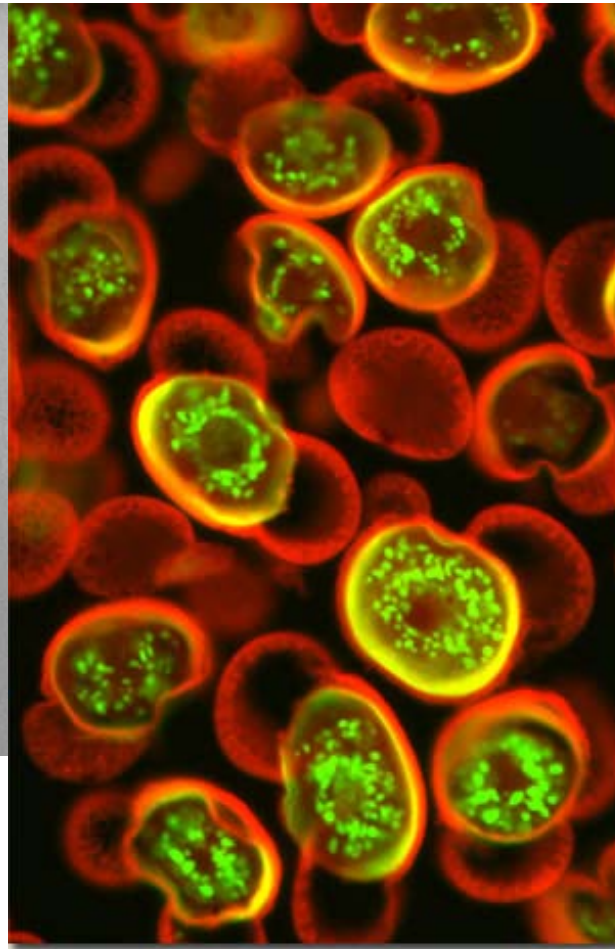


Microsporófilos com
Microsporângios maduros

Eixo da ramificação



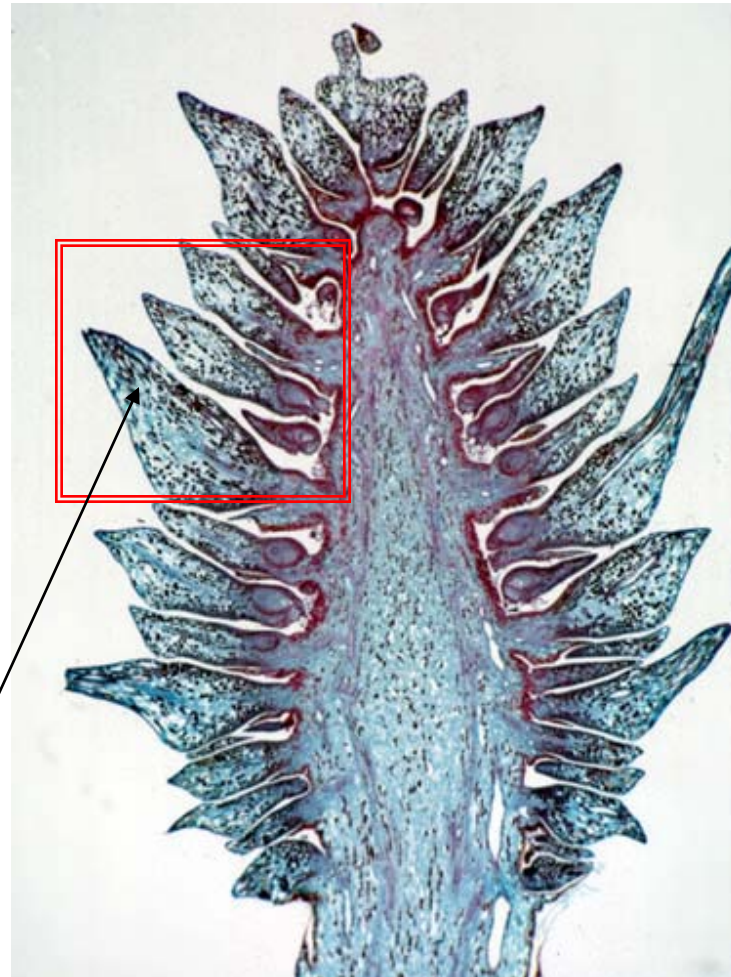
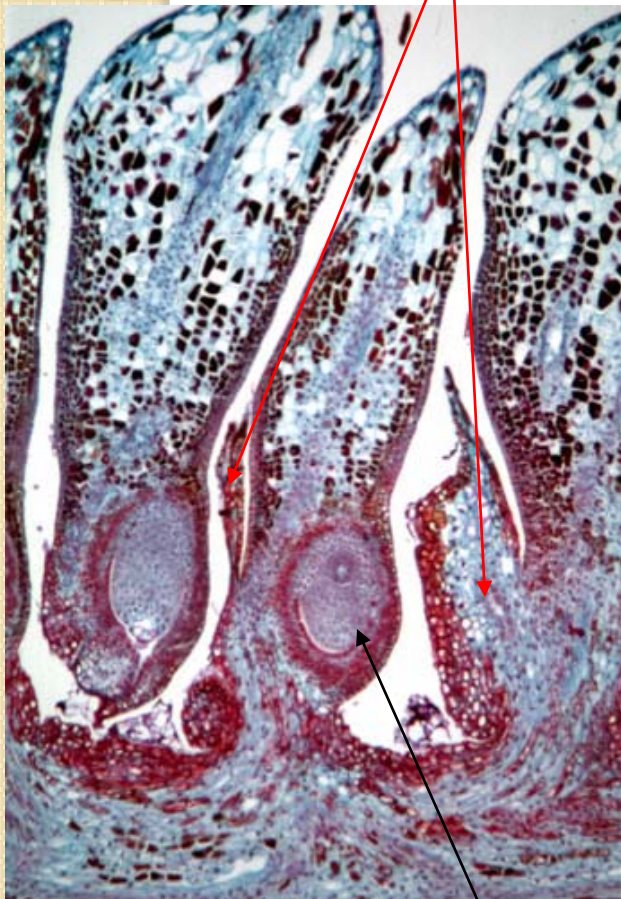
POLINIZAÇÃO ANEMÓFILA



Pinaceae

Megaesporófilo situados na face adaxial de escamas ou brácteas ovulíferas. Sob esta, a escama estéril. Consiste num eixo de ramificação do caule.

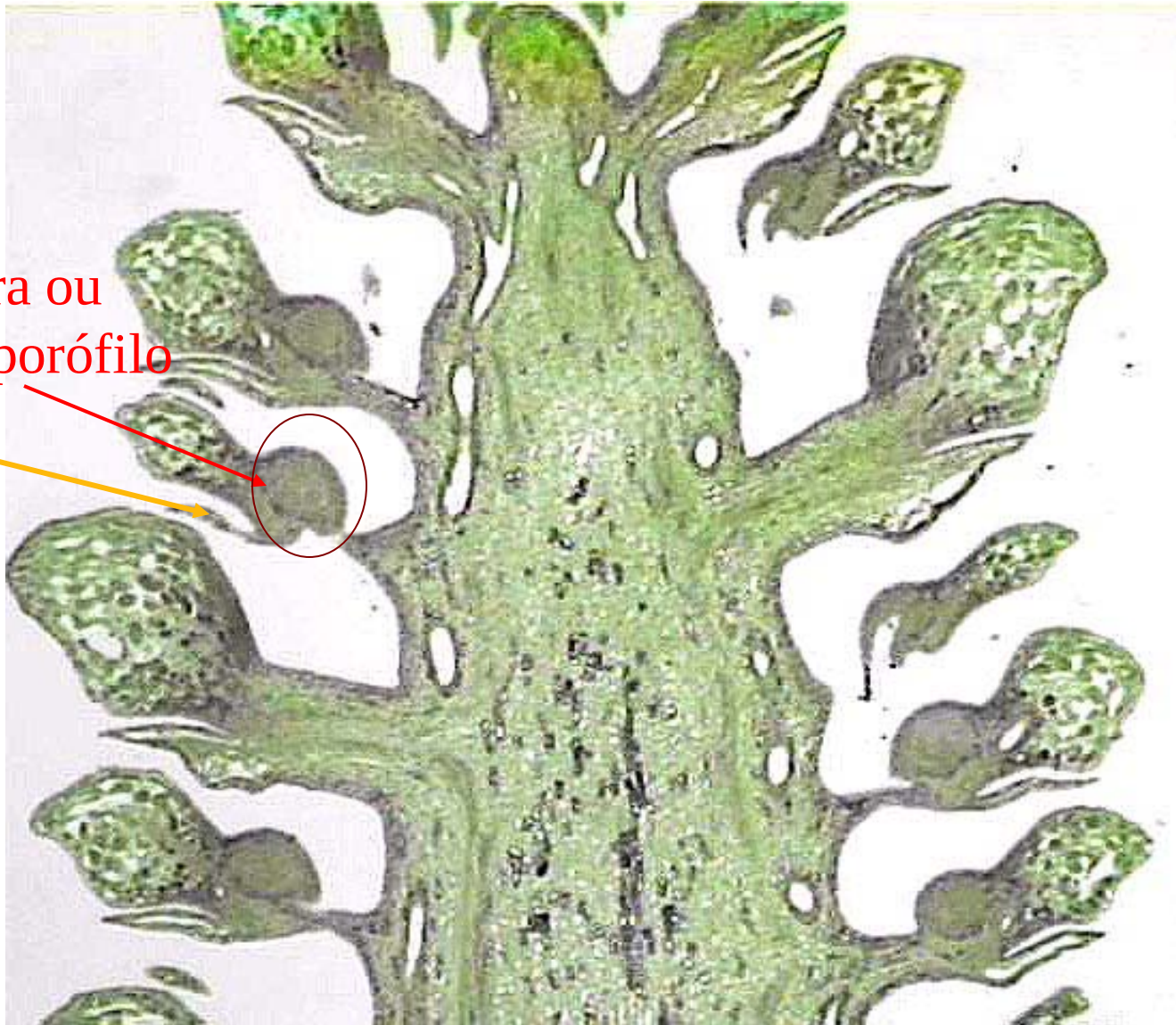
Escama estéril



Bráctea ou escama ovulífera

Bráctea
Ovulífera ou
Megaesporófilo

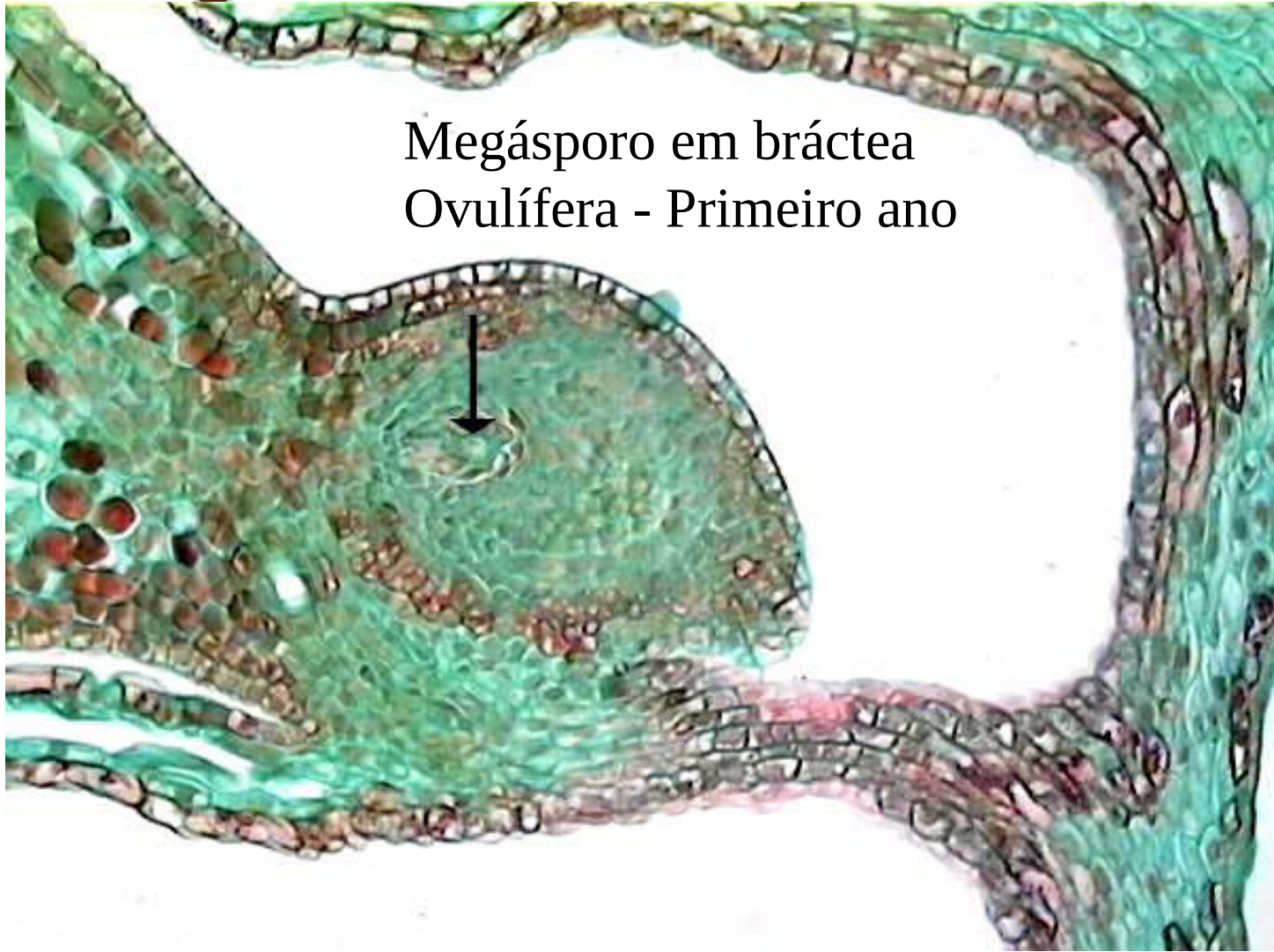
Bráctea
estéril



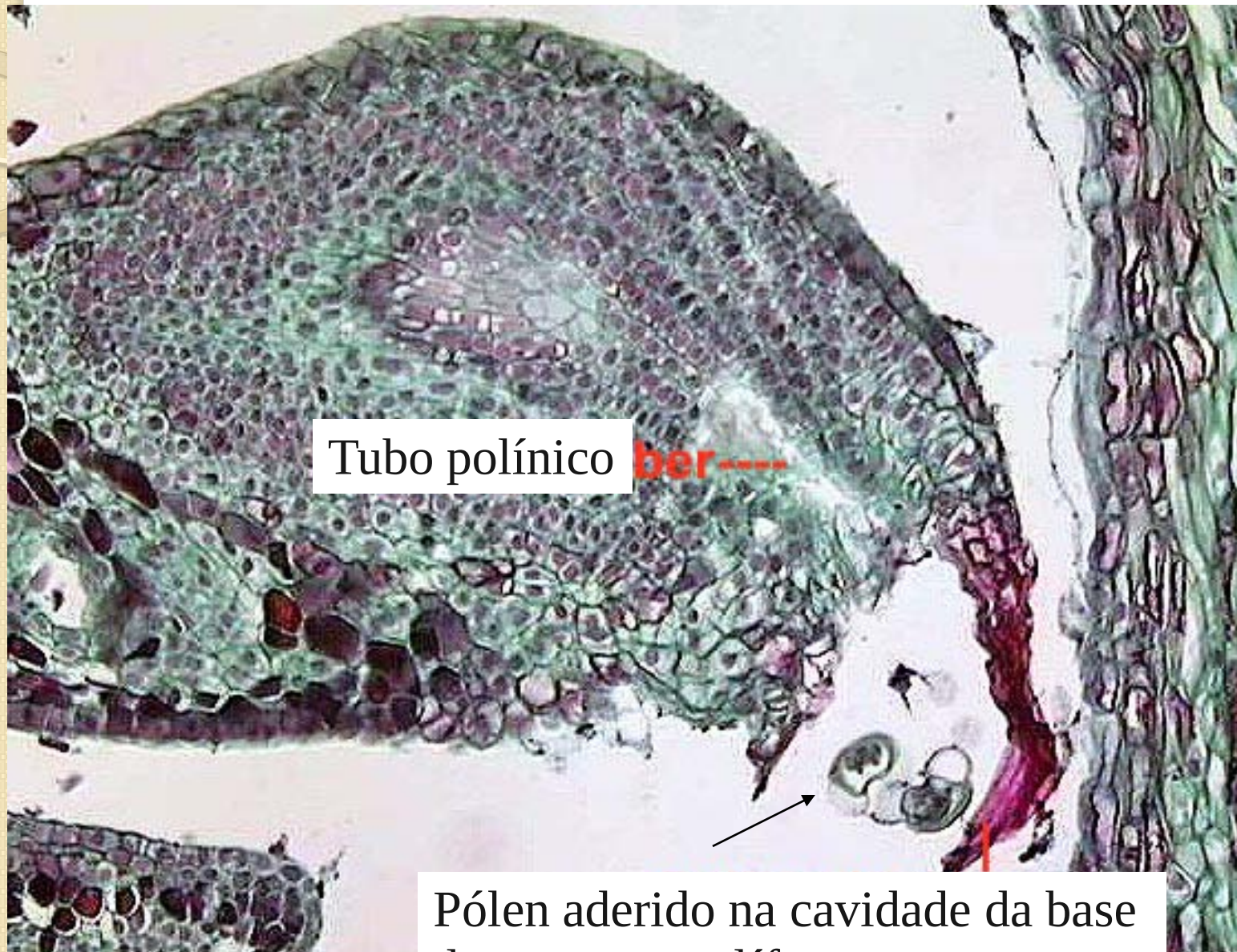
Megaestróbilo em seu primeiro ano

Megametófito Pinus

Megásporo em bráctea
Ovulífera - Primeiro ano



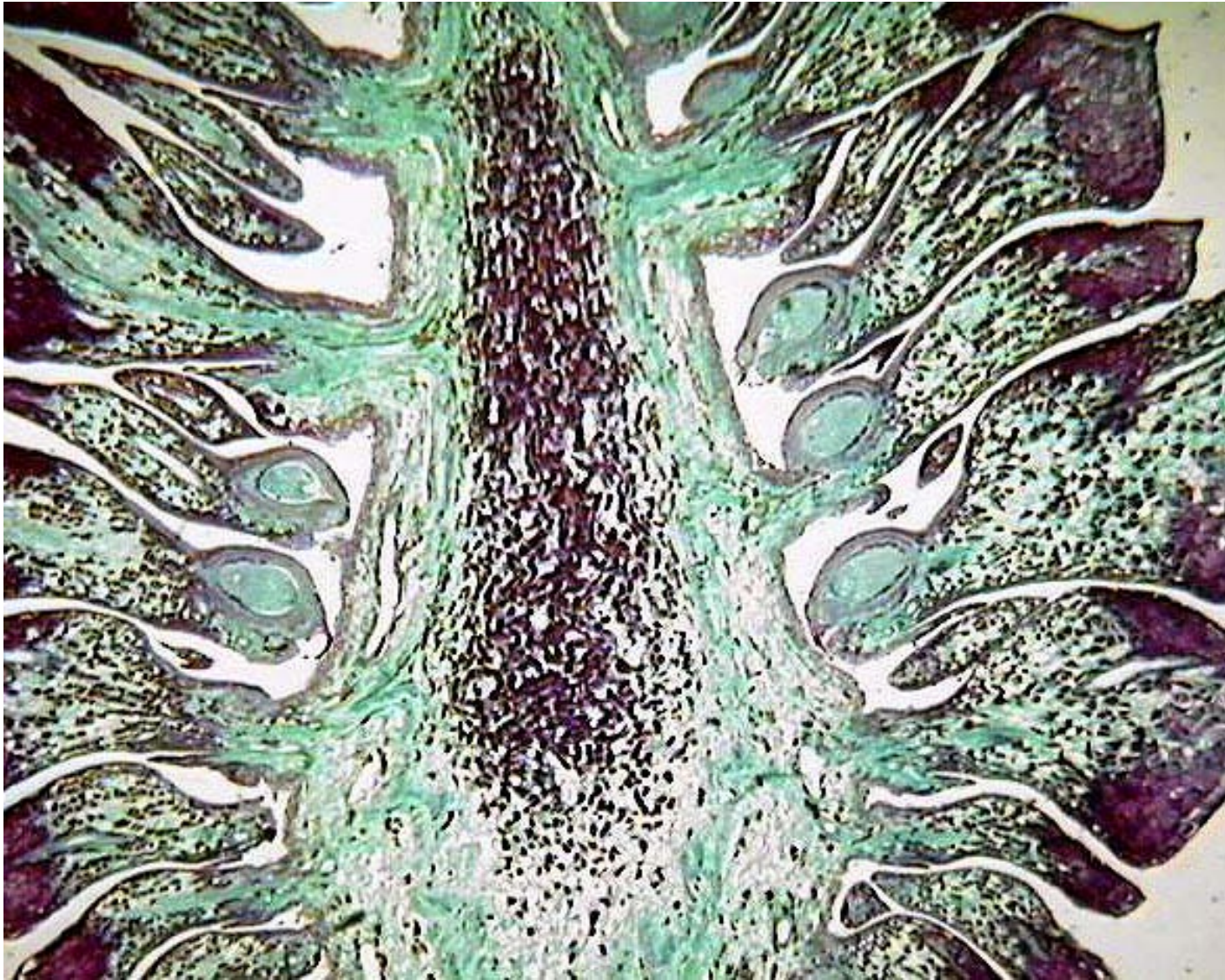
Pinus

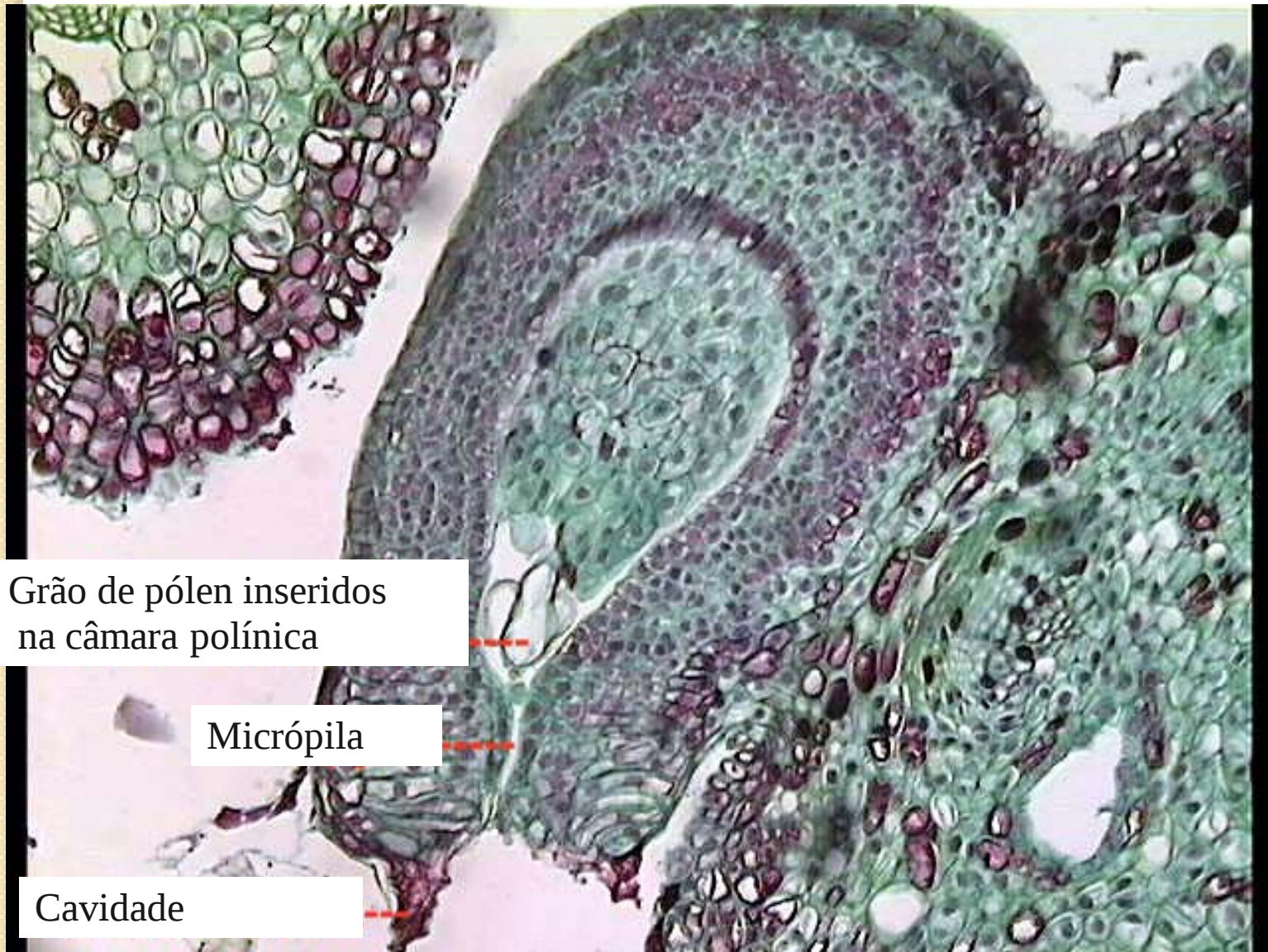


Tubo polínico ber----

Pólen aderido na cavidade da base
da escama ovulífera

Megastróbilo em seu segundo ano



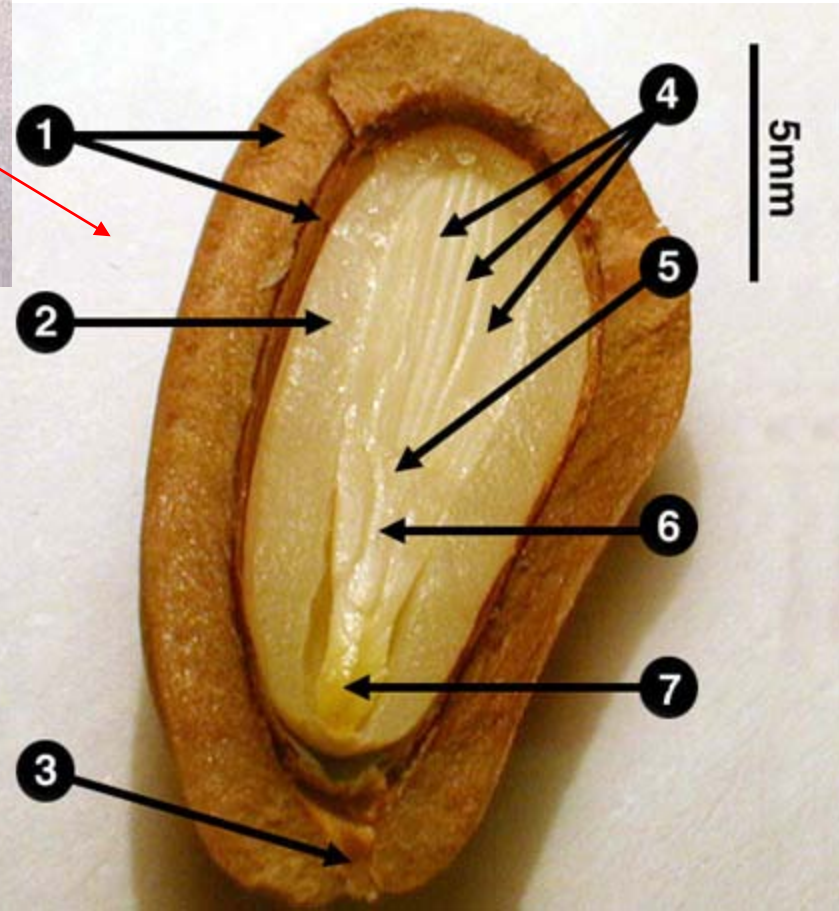


Grão de pólen inseridos
na câmara polínica

Micrópila

Cavidade

Pinaceae



Germinação

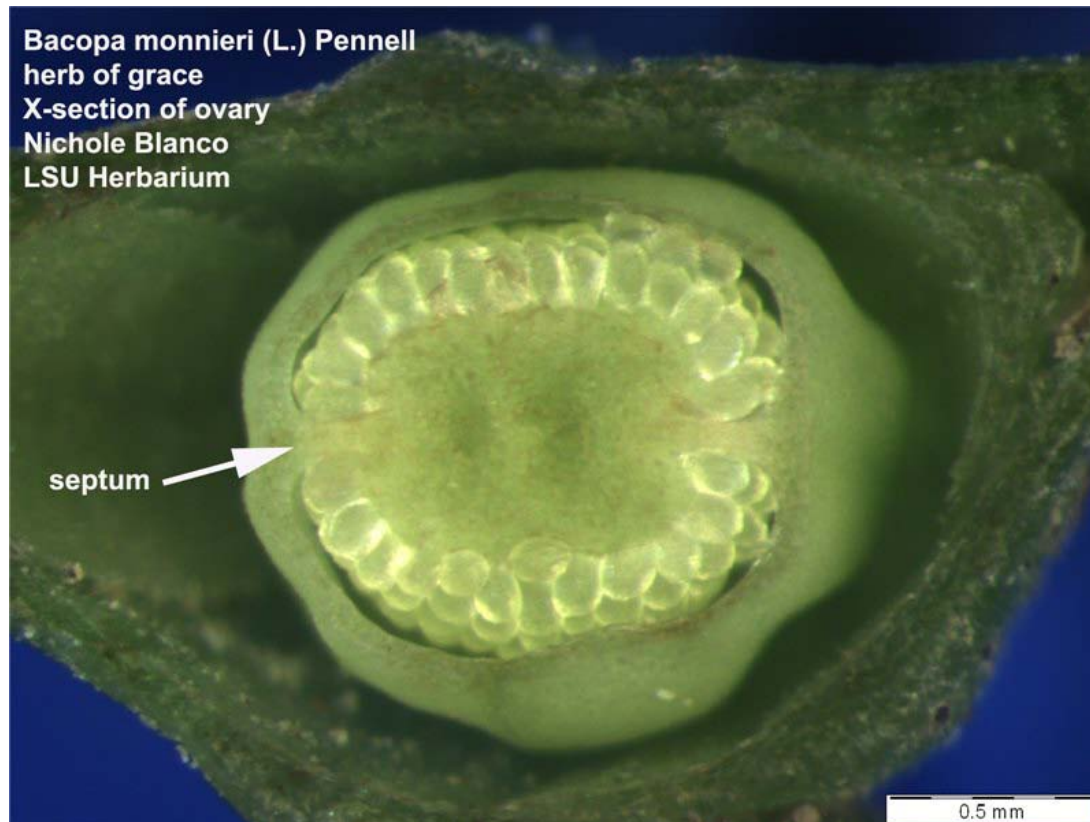


Anel de Folhas cotiledonares



ANGIOSPERMAE

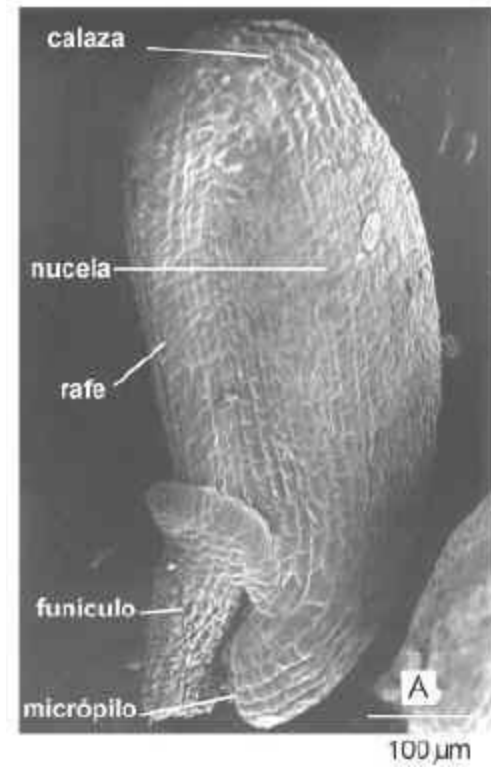
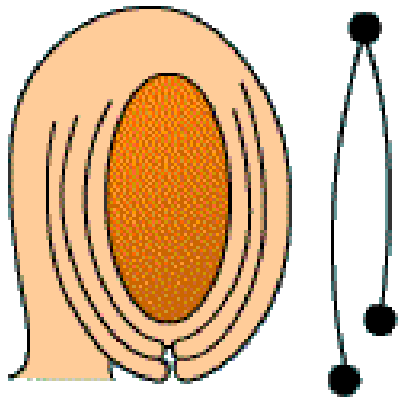
Rudimento seminal (= óvulos) inseridos no ovário



ANGIOSPERMAE



Óvulo anátropo (= invertido)



Rafe

= linha resultante da soldadura dos tegumentos em óvulos anátropos

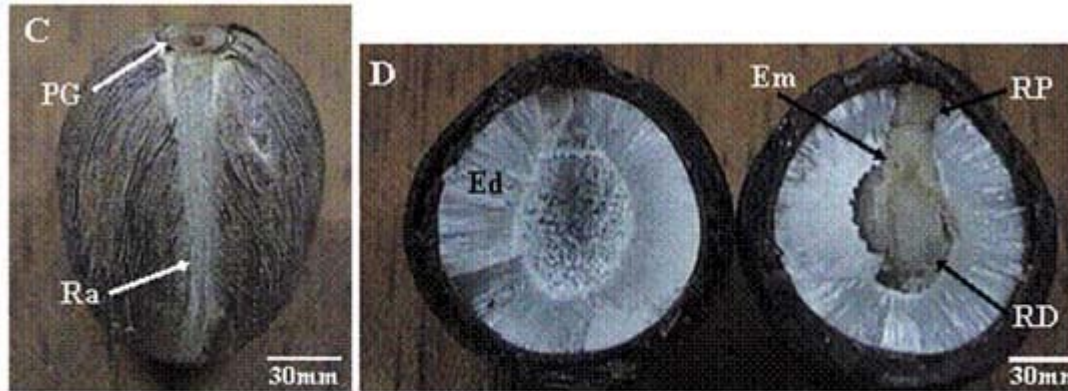
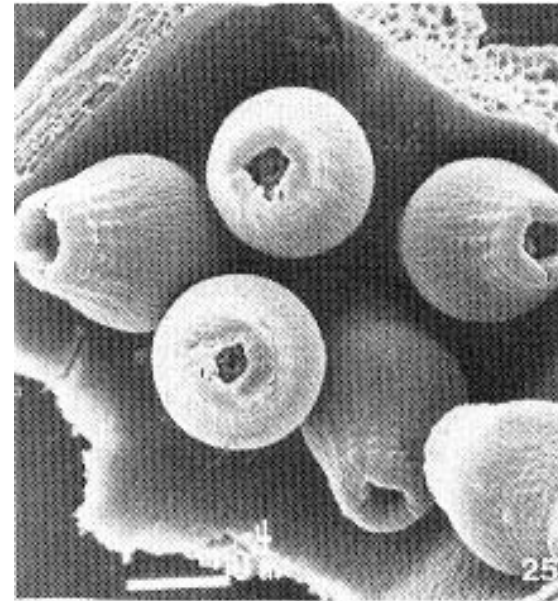
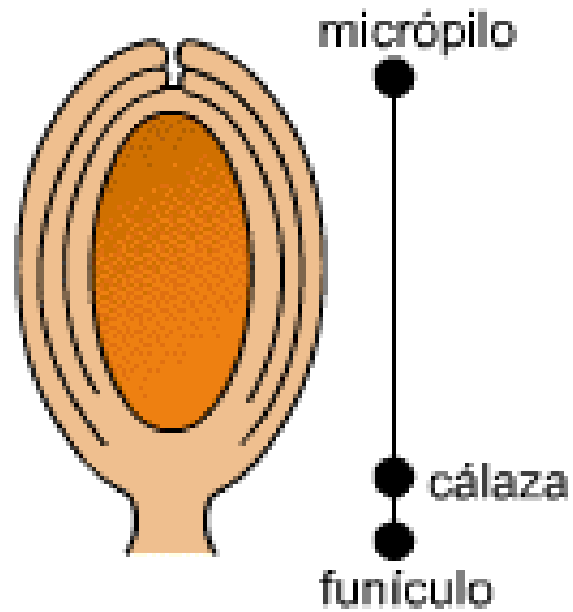
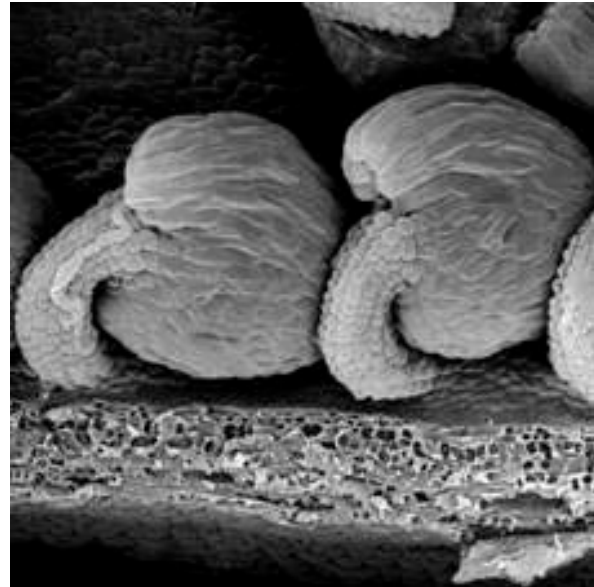
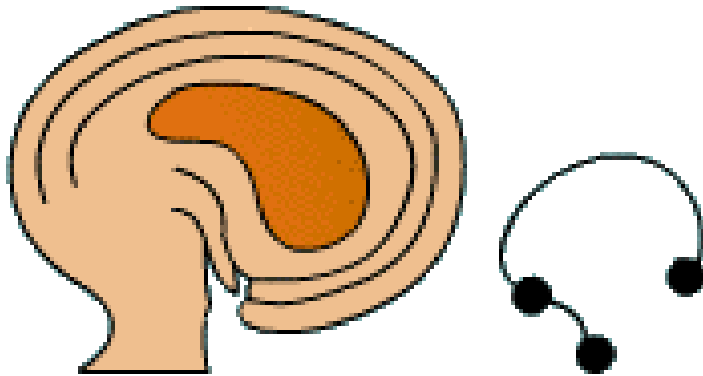


FIGURA 2. Semente de *Oenocarpus minor* Mart.: A-semente com detalhe das fibras endocárpicas; B-corte transversal da semente com detalhe do tegumento e endosperma; C-semente com detalhe do poro germinativo e da rafe; D-semente aberta longitudinalmente. Legenda: Ed-endosperma; EL-epiderme locular; Em-embrião; FV-feixe vascular; FE-fibras endocárpicas; PG-poro germinativo; Ra-rafe; RD-região distal; RP-região proximal; Te-tegumento.

Óvulo ortótropo (orto = reto, perpendicular)

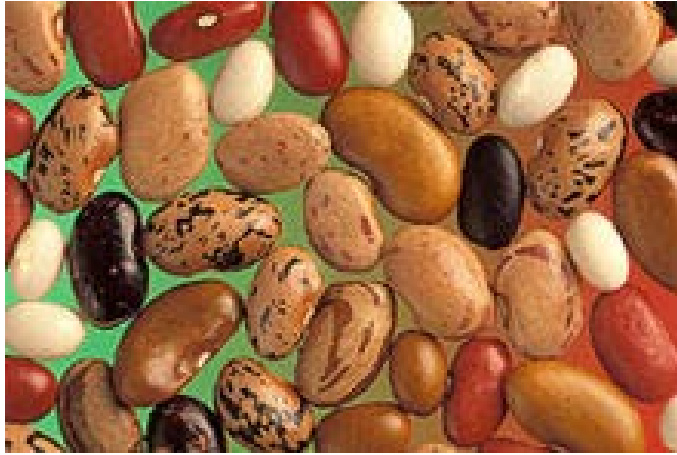


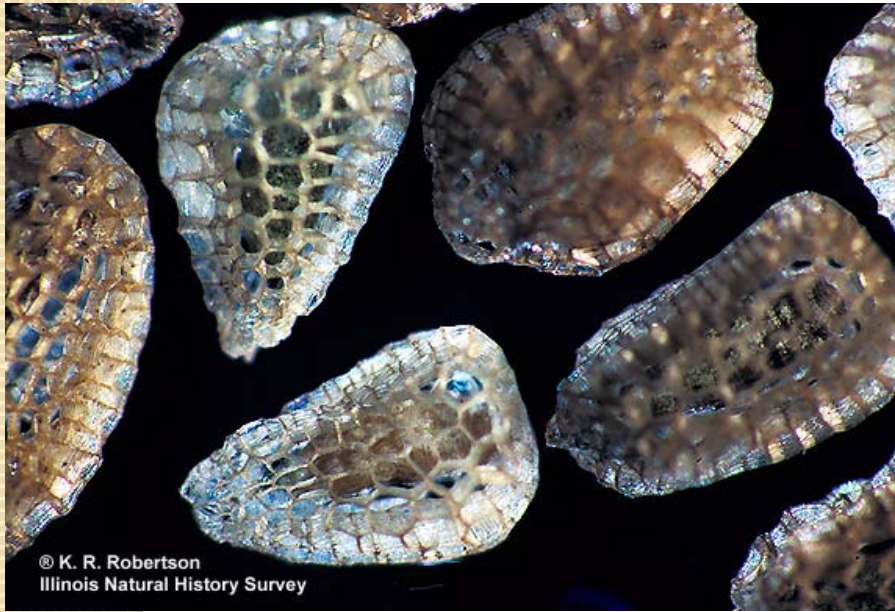
Óvulo campilódromo
(campil = curvo)



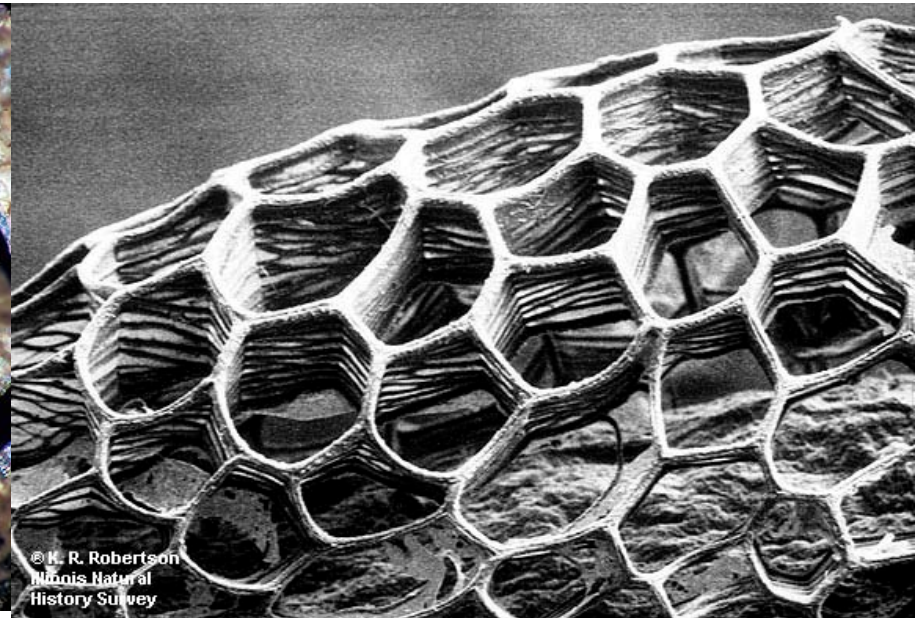
Hipertextos em morfologia de plantas vasculares
http://www.biologia.edu.ar/botanica/tema4/4_12ovulo.htm

Semente = óvulo fertilizado

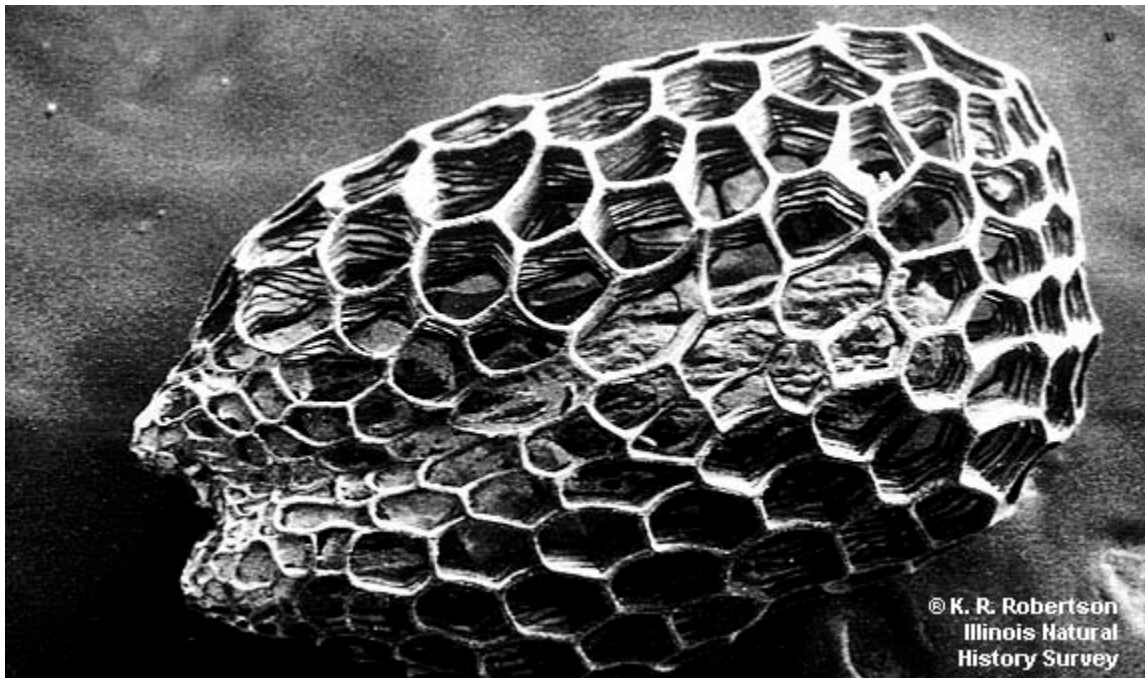




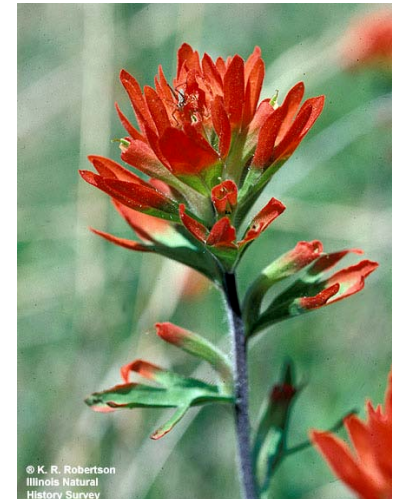
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Scrophulariaceae

Excrescências das sementes

Arilo



Excrescências das sementes

Carúncula



Tipos de reservas nas sementes

Oleaginosa - Girassol



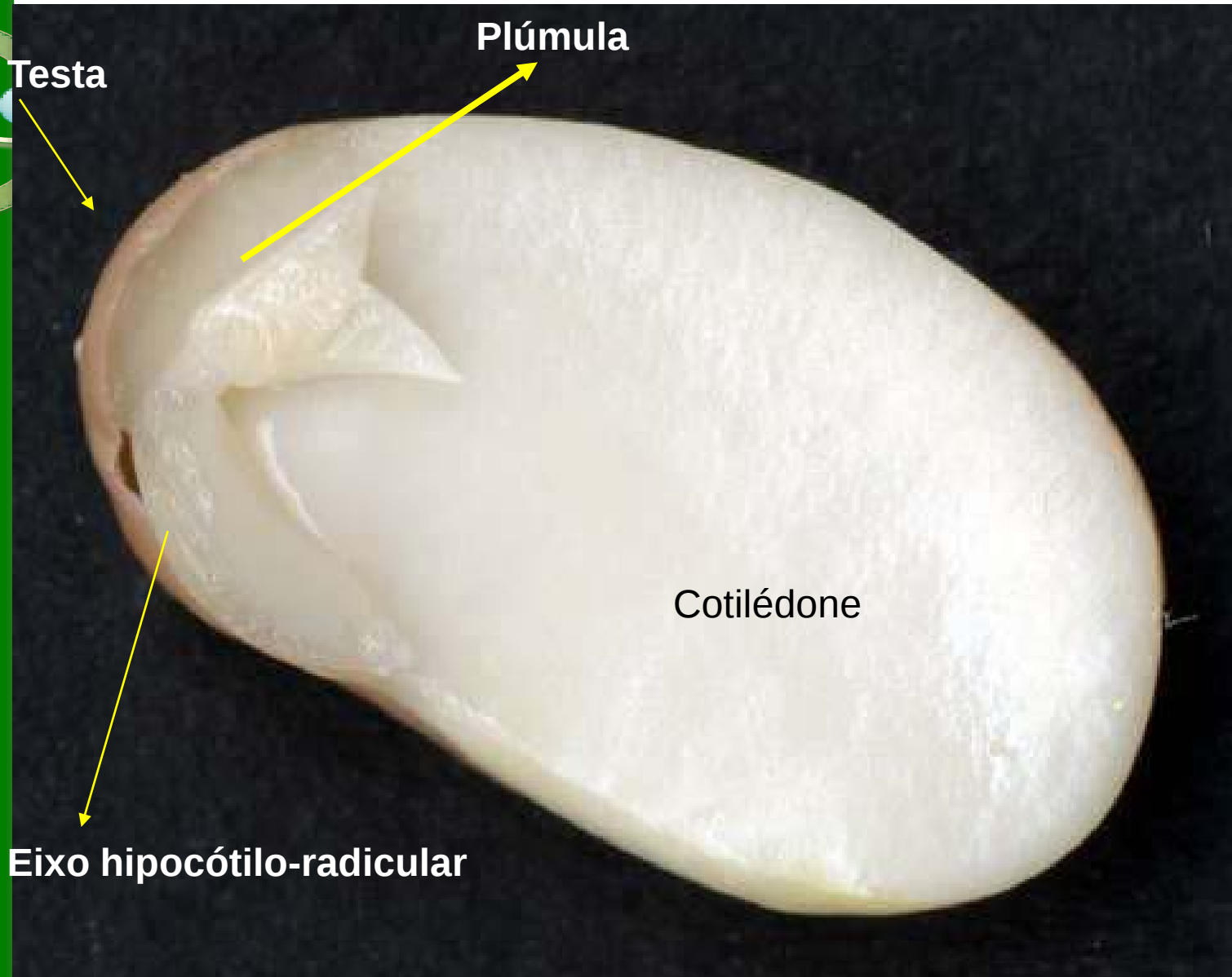
Amilácea - Jaca



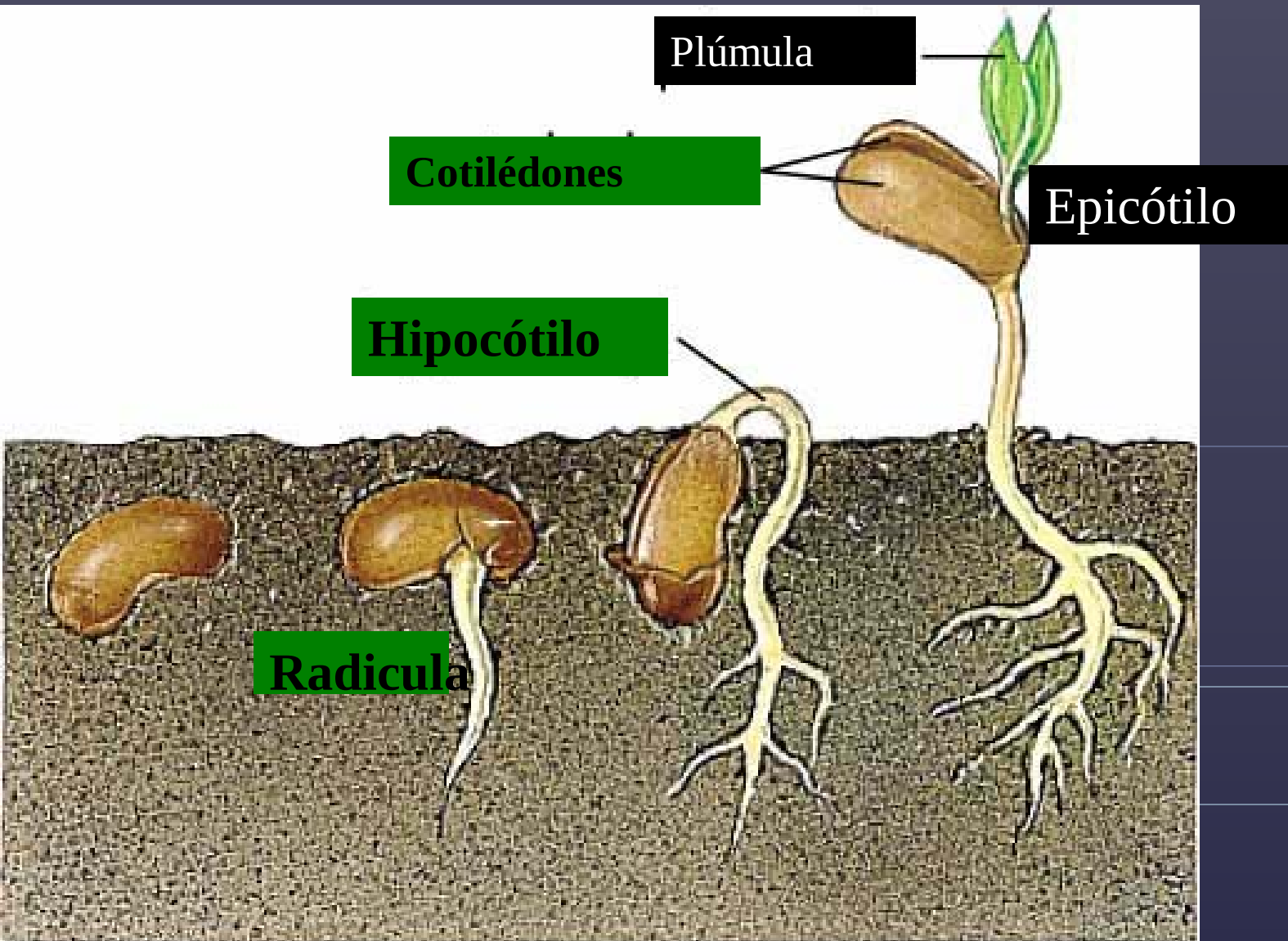
Proteica - Soja

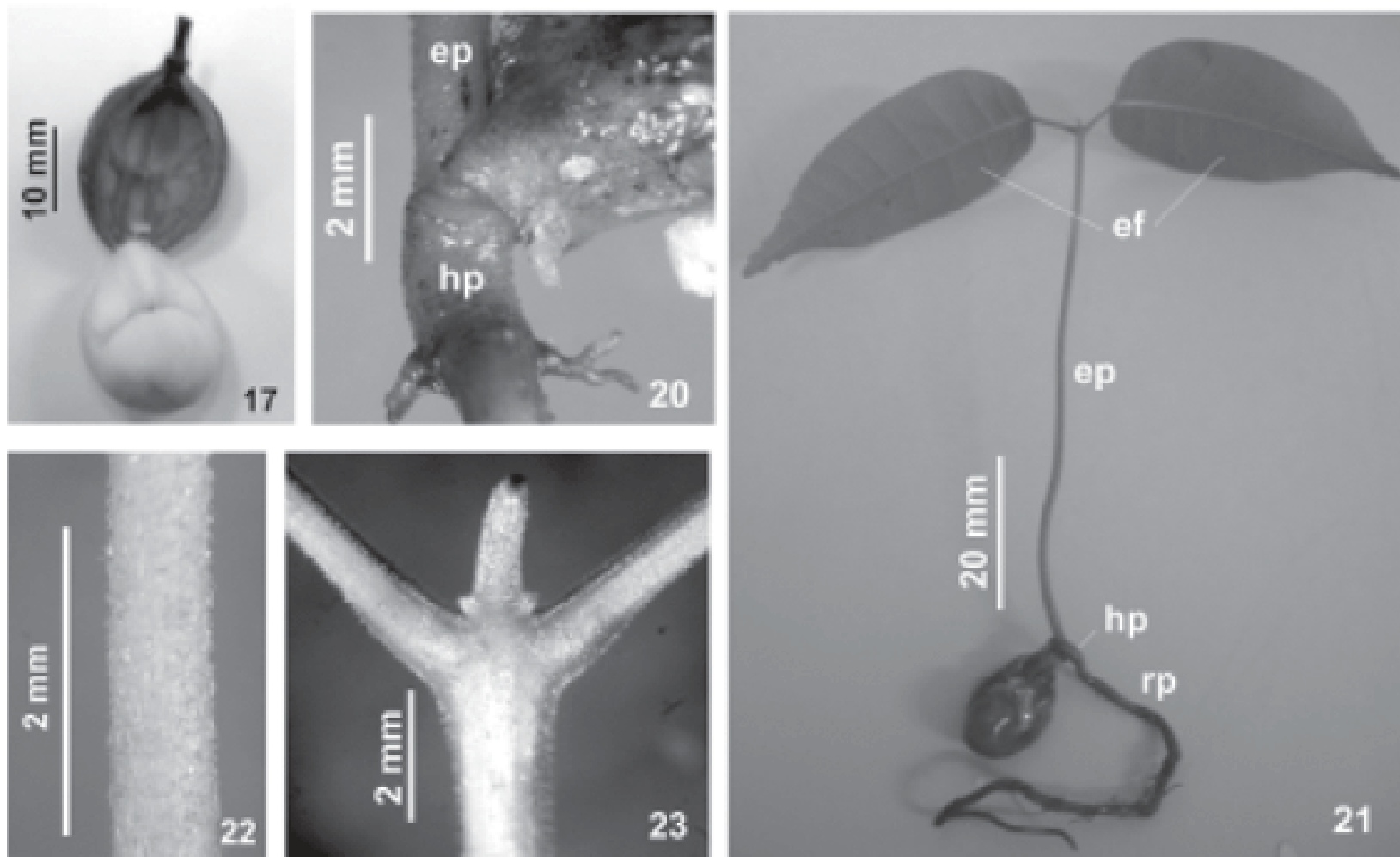


Embrião e semente de Angiospermas



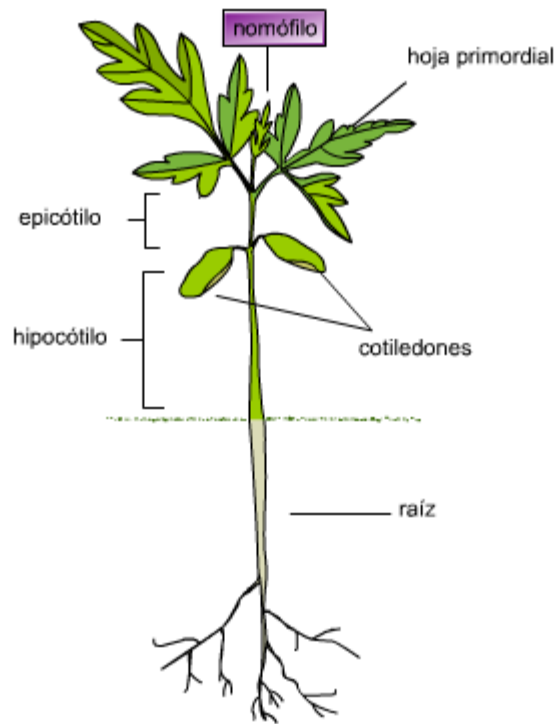
Embrião e semente





Figuras 16-23. *Protium spruceanum* (Benth.) Engl.. 16. Fruto maduro. 17. Fruto maduro aberto. 18. Pirênio. 19. Detalhe interno do pirênio com embrião subdesenvolvido. 20. Detalhe da plântula na região dos pecíolos cotiledonares. 21. Plântula. 22. Detalhe dos tricomas na plântula na região do epicótilo. 23. Detalhe dos tricomas na plântula nas regiões dos pecíolos e gemas. (rp = raiz primária, hp = hipocótilo, ep = epicótilo, ef = eófilos).

Plântula





Germinação do algodoeiro

<http://www.afd.be/~plant-ch/coton/conaiss/CScoton.htm>

