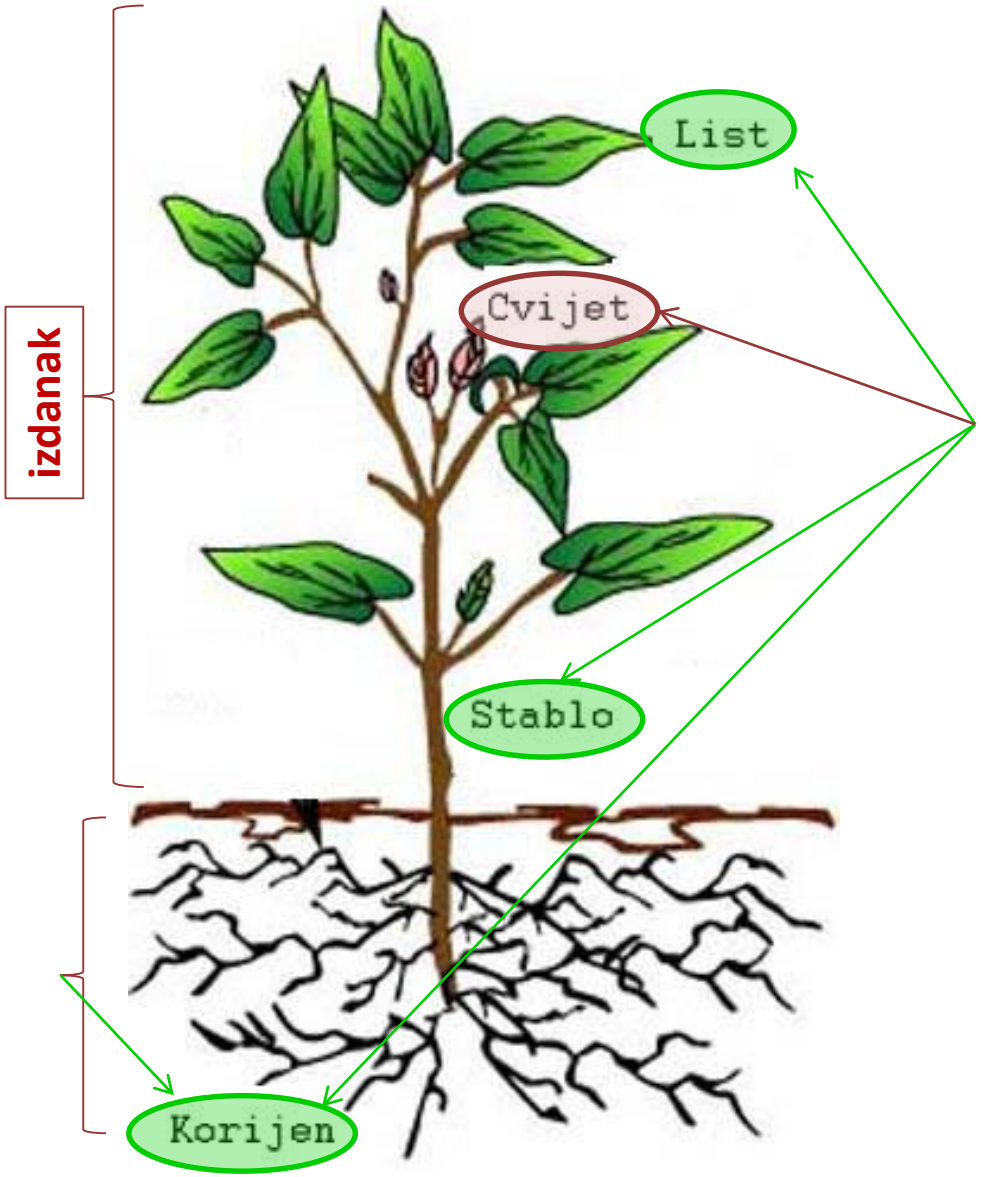
ORGANOGRAFIJA



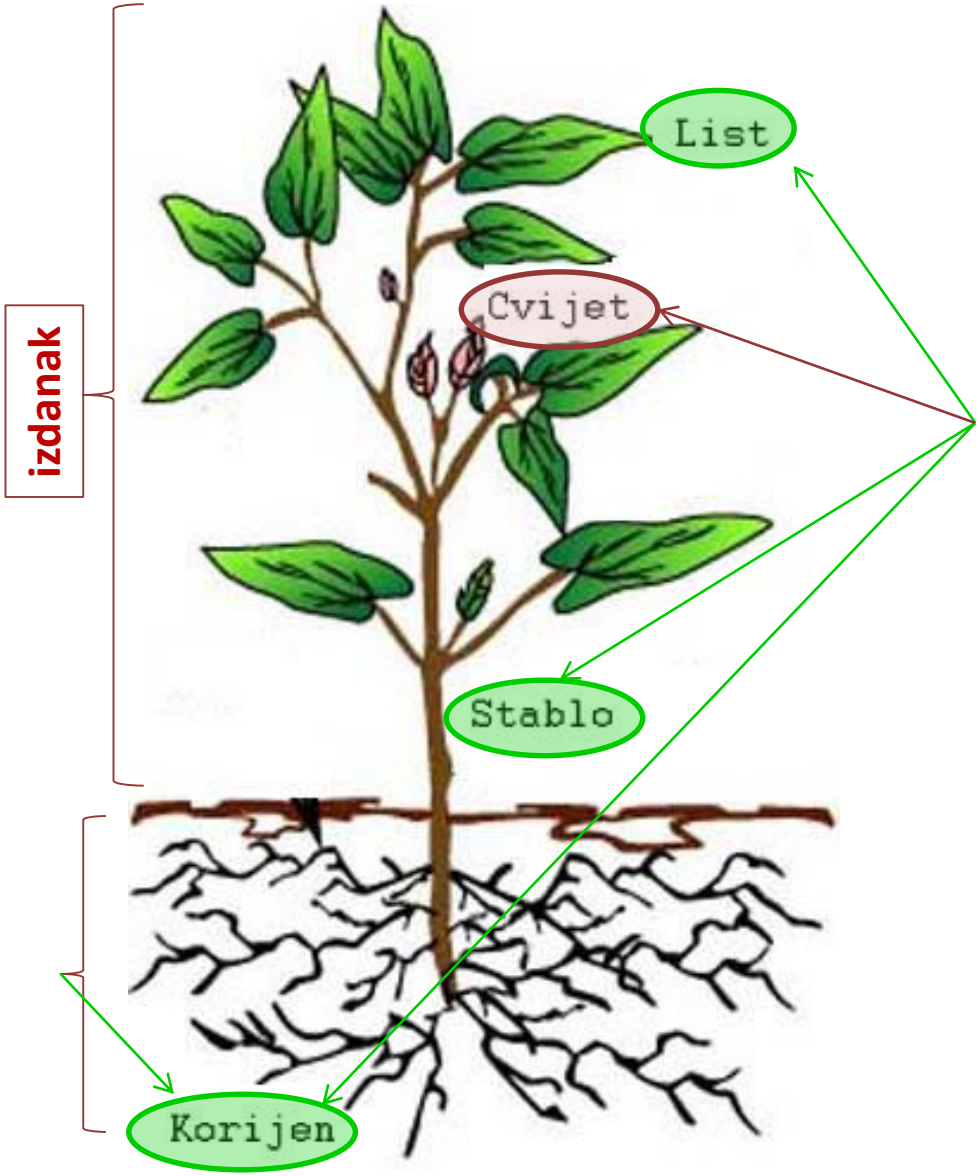
Organ- dio biljnog tijela koji vrši određenu funkciju!

Vegetativni i reproduktivni!

Adventivni!
(adventivan= sporedan, ne raste na svom mjestu)

Analogni (ista funkcija), homologni (isto porijeklo).

Metamorfozirani organi…

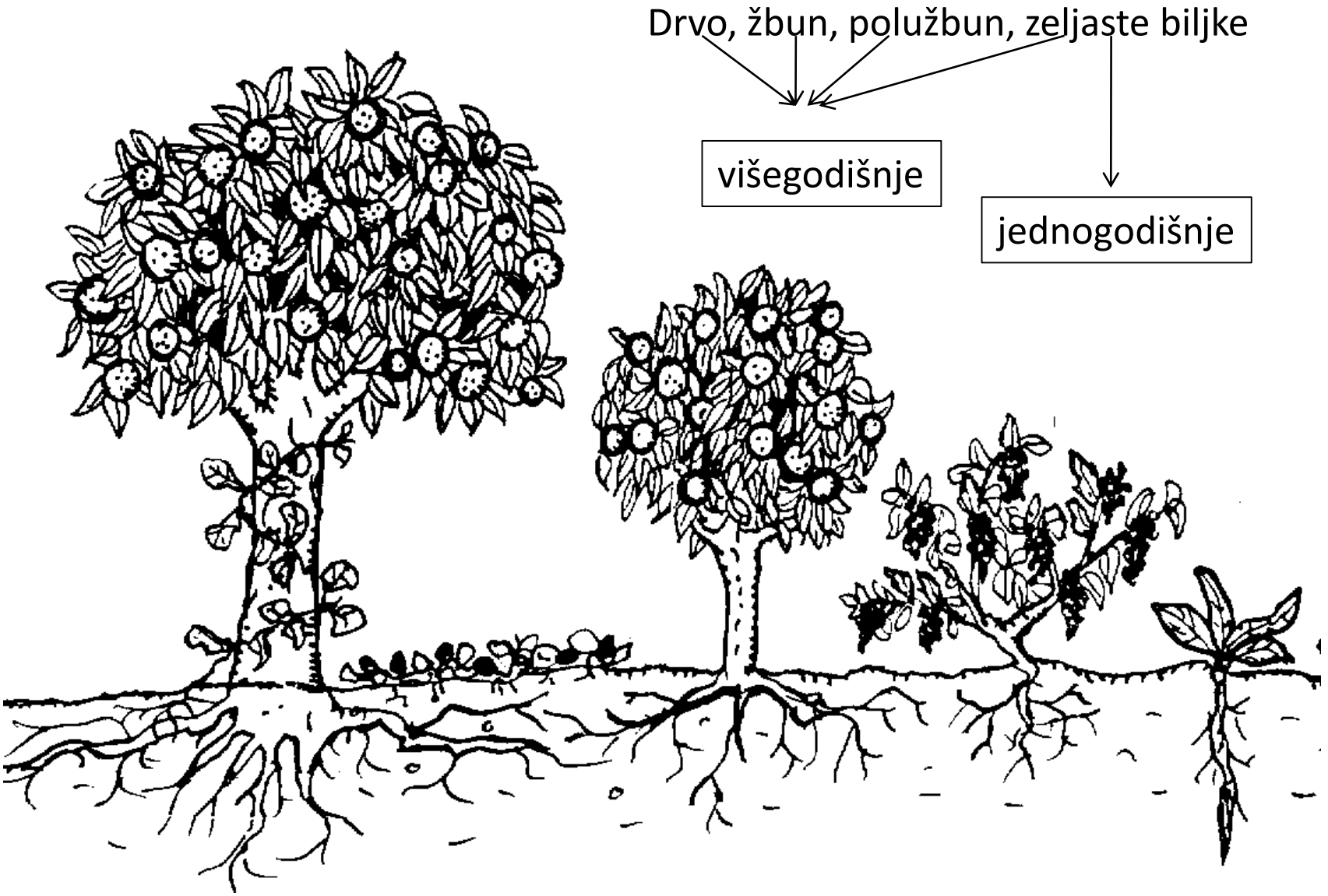


Izdanak

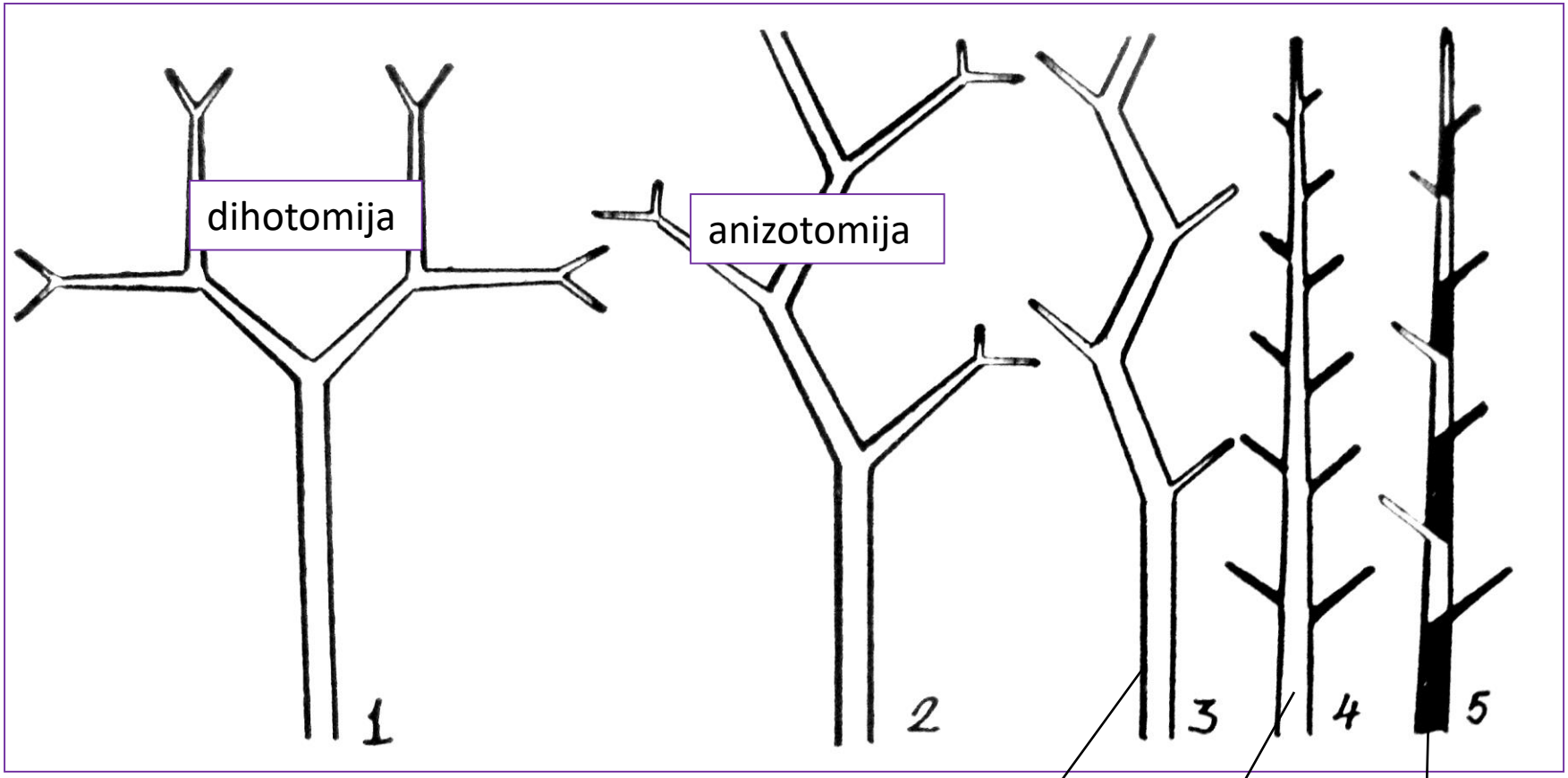
(stablo + listovi + reproduktivne strukture)

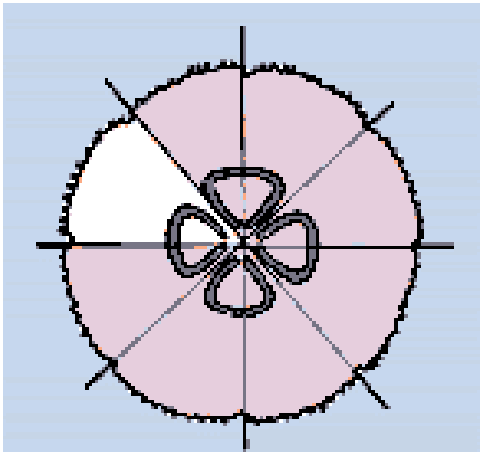
Korijen

Forme stabla

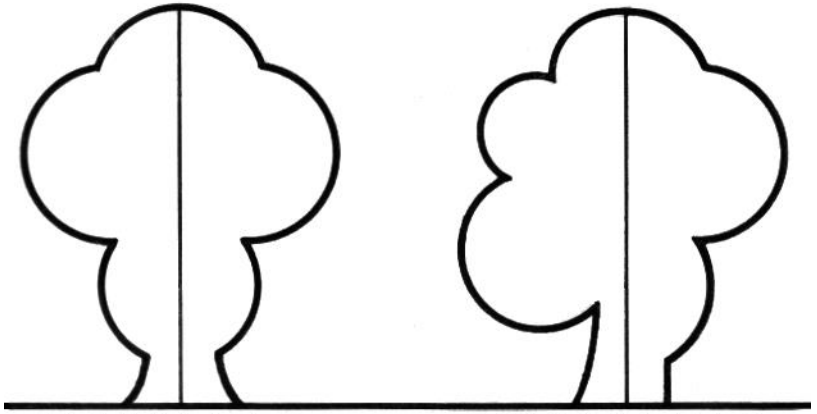


Tipovi grananja





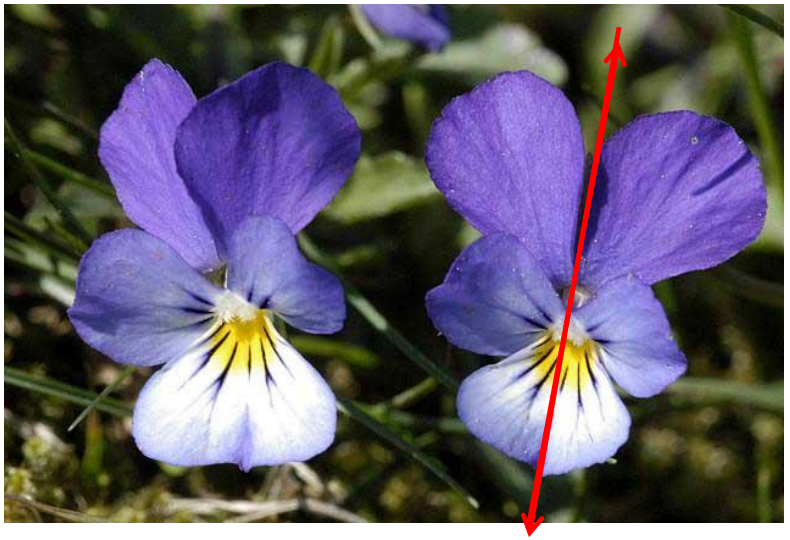
Polisimetrija =
(radijalna simetrija)



Bilateralna simetrija

Asimetrija

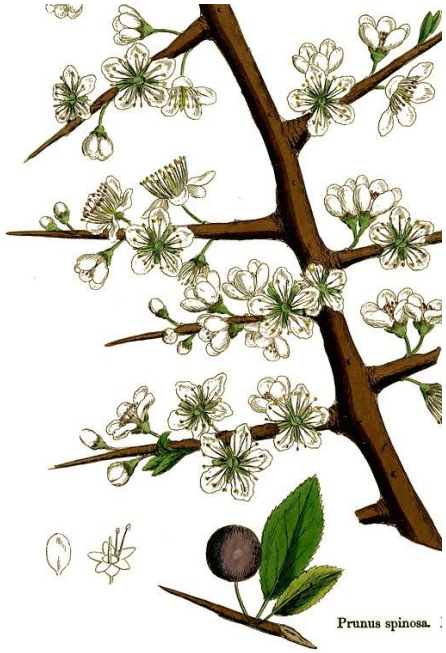
- Simetrija cvijeta: polisimetričan= aktinomorfan, pravilan; monosimetričan= zigomorfan, nepravilan cvijet



Metamorfoze izdanka

- Fotofilni izdanak (nadzemni)
- Geofilni izdanak (podzemni)

Metamorfoza izdanka u trn



Metamorfoza izdanka u rašljike

Filokladije

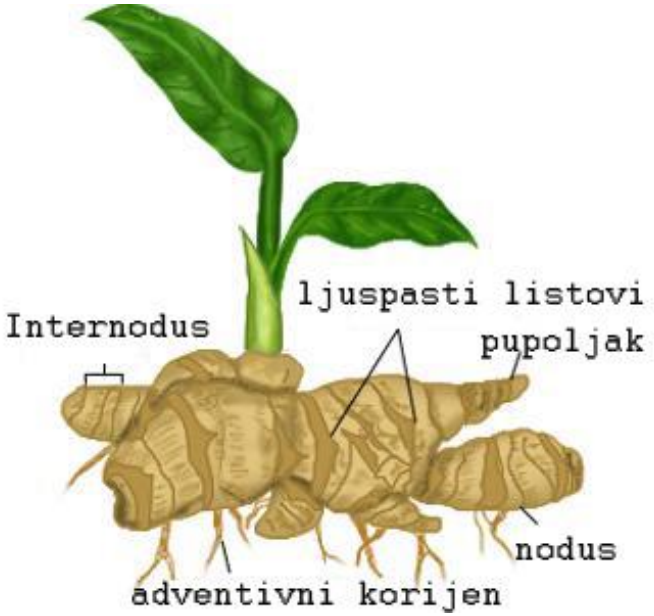
Fotofilni izdanci

Sukulente

Geofilni izdanci (rizomi, stolone, krtole i lukovice)

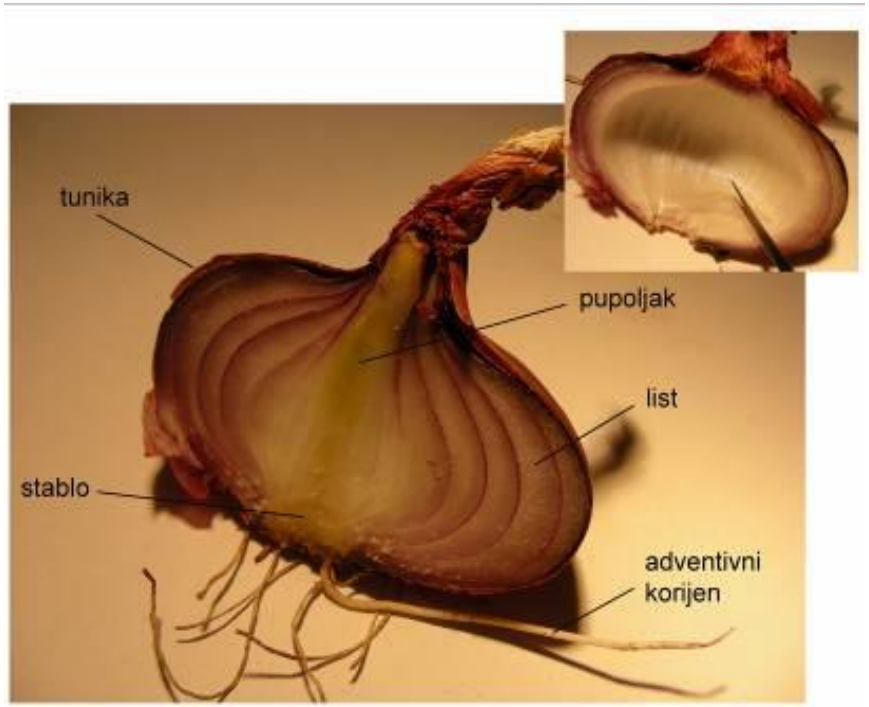
Rizomi

(horizontalni, uspravni, monopodijalni, simpodjalni)

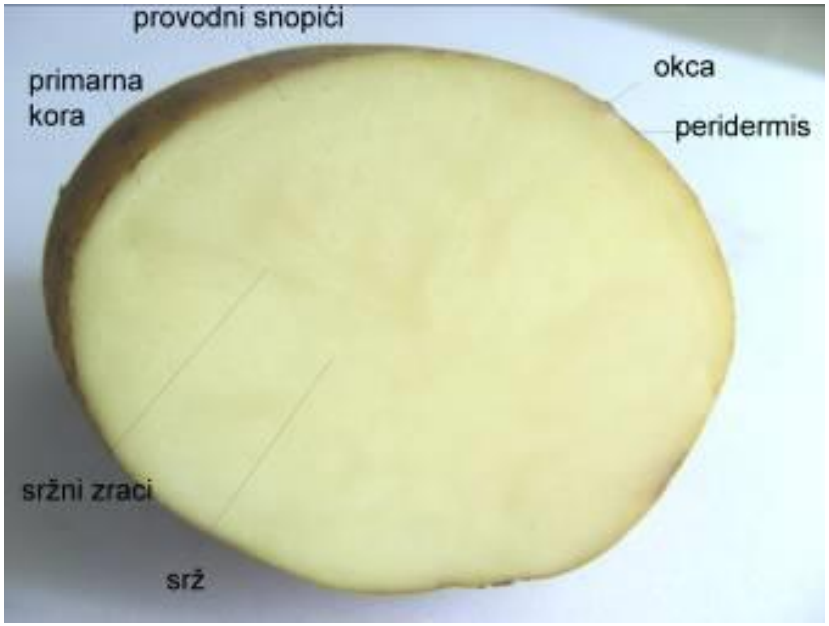


Rizom đumbira

Rizom kisele paprati

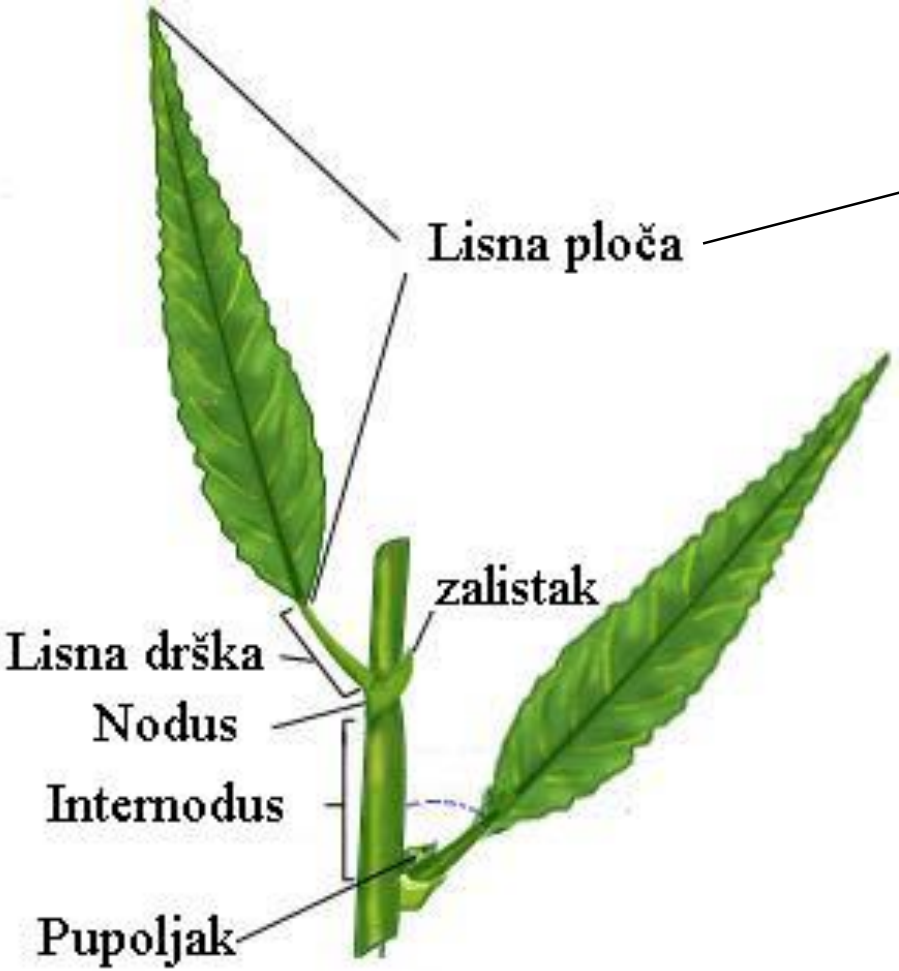


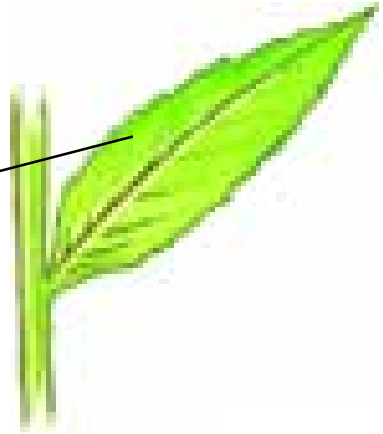
Lukovica



Krtola

LIST





KATEGORIJE LISTOVA

-Kotiledoni

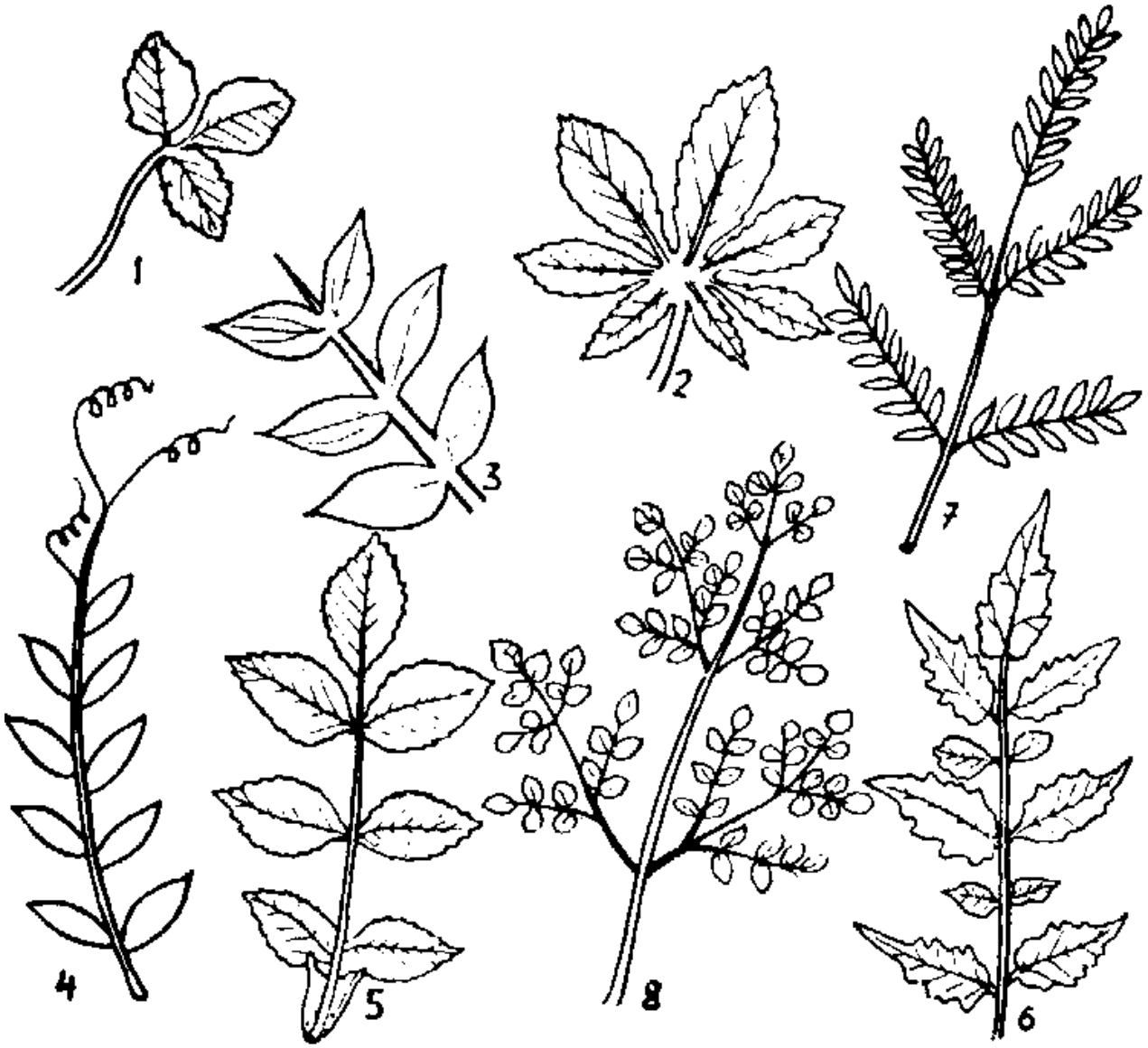
-Profile

-Brakteje-gornje lišće

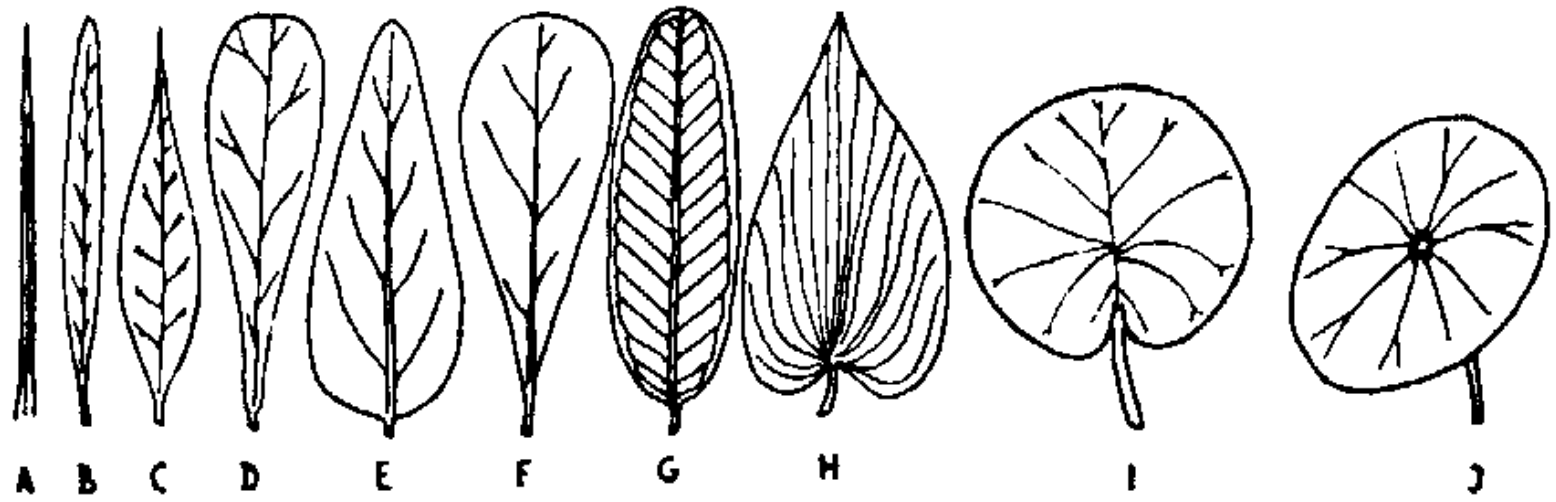
-Ljuspasto lišće –donje

-Srednje lišće-asimilaciono (pravo)

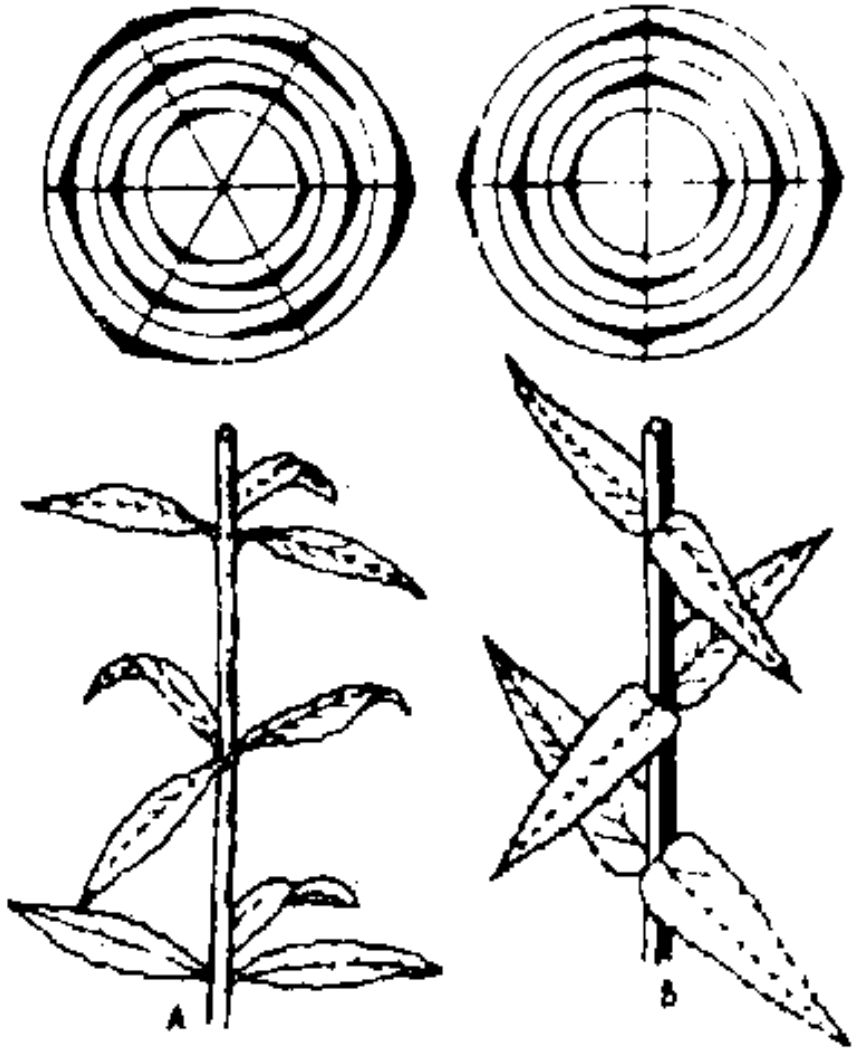
-Lišće u zoni cvjetova



Sl. 308. Složeno građeni listovi: 1 — tročlan; 2 — prstasto složen; 3 — parno perasto složen; 4 — parno perast list sa listićima pretvorenim u rašljike; 5 — neparno perasto složen; 6 — isprekidano perasto složen; 7 — dvojno perasto složen; 8 — trojno perasto složen



Sl. 309. Oblici liske nekih listova: A — igličast; B — linearan; C — lancetast; D — lopatičast; E — jajast; F — objajast; G — eliptičan; H — srcast; I — okrugao; J — peltatan list



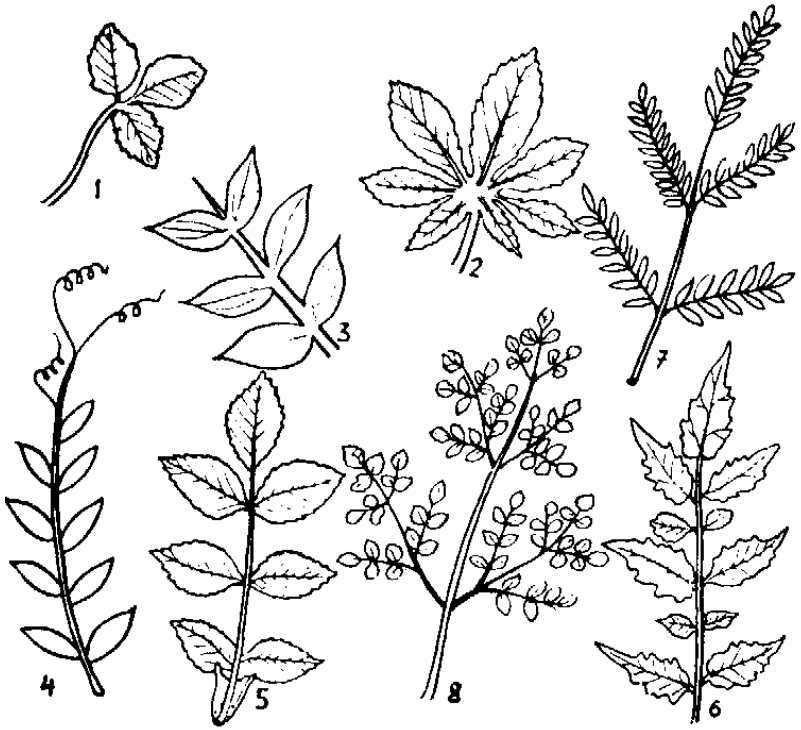
Sl 109. Pršljenast raspored listova: A — tri lista u pršljenju, B — dva lista u pršljenju (naspraman raspored) (po Tatiću i sar.)

Nervatura …

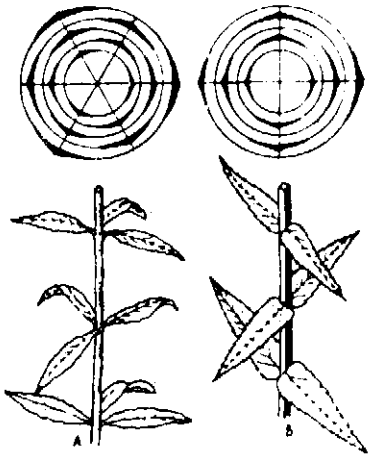
Zalisci

Forma lista

Raspored listova



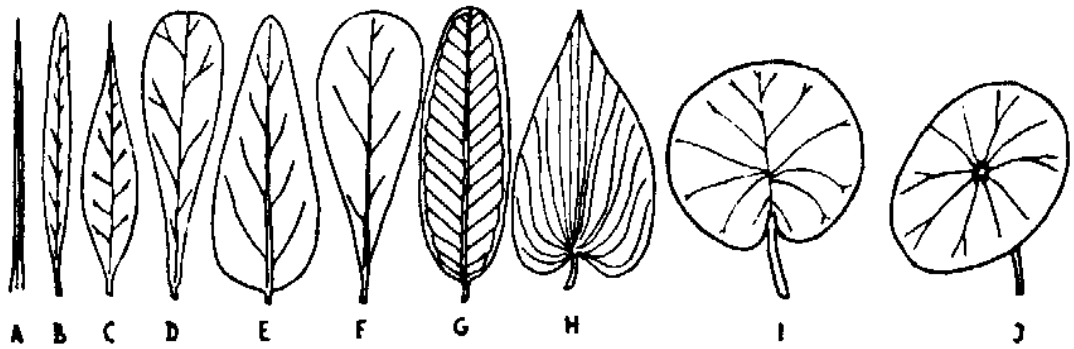
Sl. 308. Složeno građeni listovi: 1 — tročlan; 2 — prstasto složen; 3 — parno perasto složen; 4 — parno perast list sa lističima pretvorenim u rašljike; 5 — neparno perasto složen; 6 — isprekidano perasto složen; 7 — dvojno perasto složen; 8 — trojno perasto složen



Sl. 109. Prsljenast raspored listova: A — tri lista u prsljenju, B — dva lista u prsljenju (naspraman raspored) (po Tatiću i sar.)

Nervatura …

Zalisci

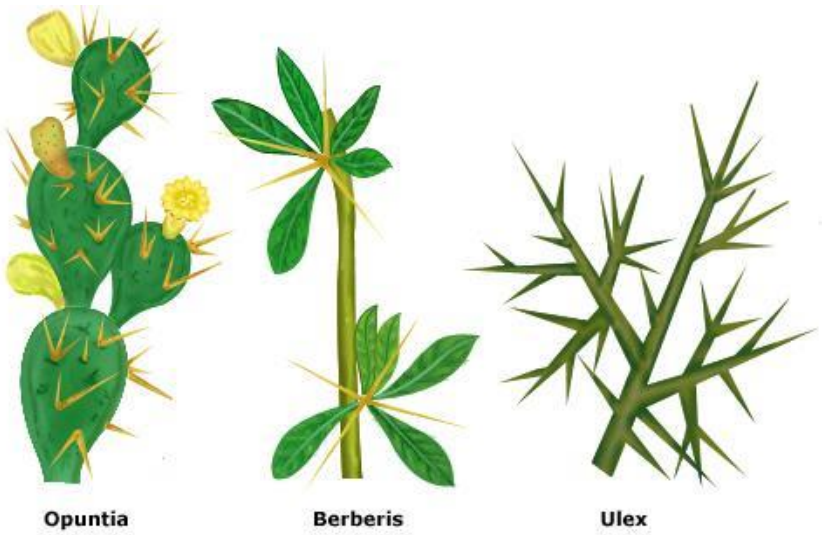


Sl. 309. Oblici liske nekih listova: A — igličast; B — linearan; C — lancetast; D — lopatičast; E — jajast; F — objajast; G — eliptičan; H — srcast; I — okrugao; J — peltatan list

METAMORFOZE LISTA

Metamorfoza lista u rašljiku

Metamorfoza lista u trn



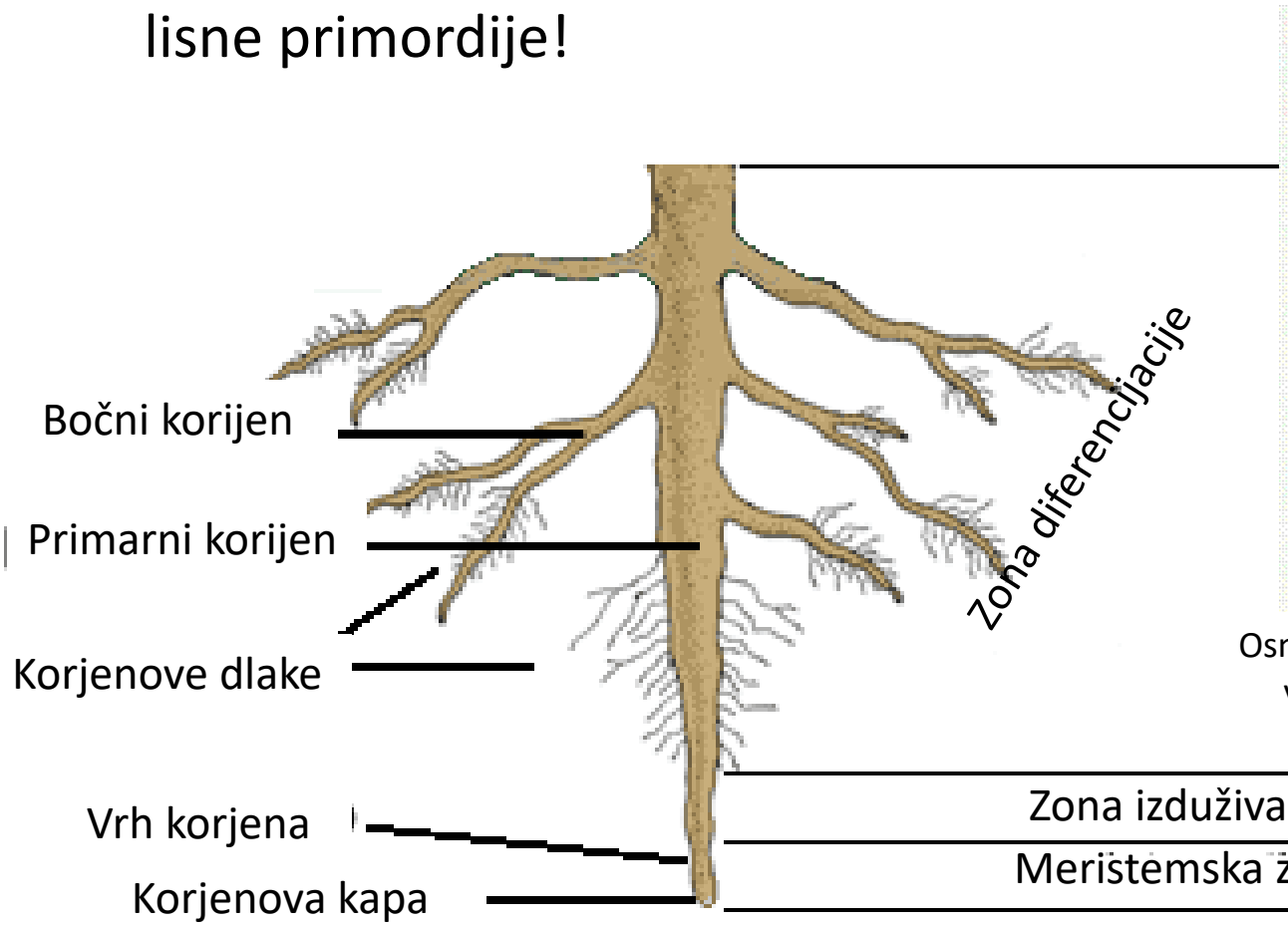
rašljika

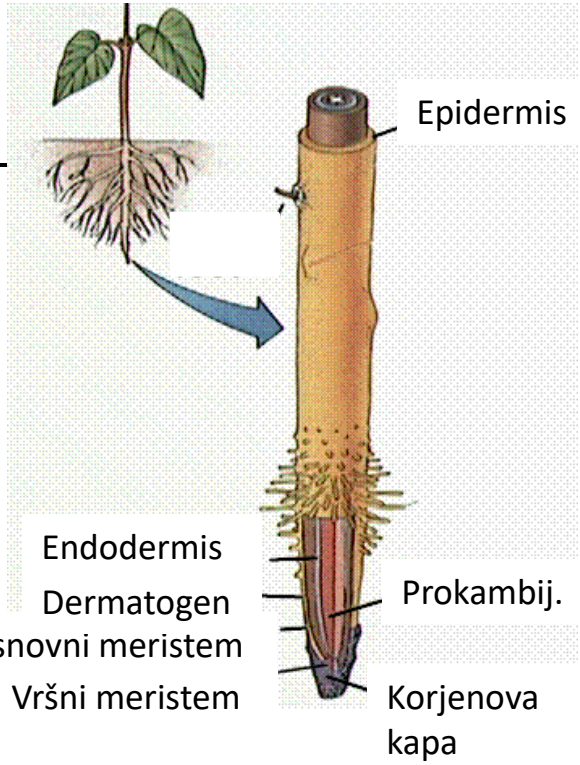
Metamorfoza lisne drške u filodije

Listovi kao organi za magacioniranje hrane

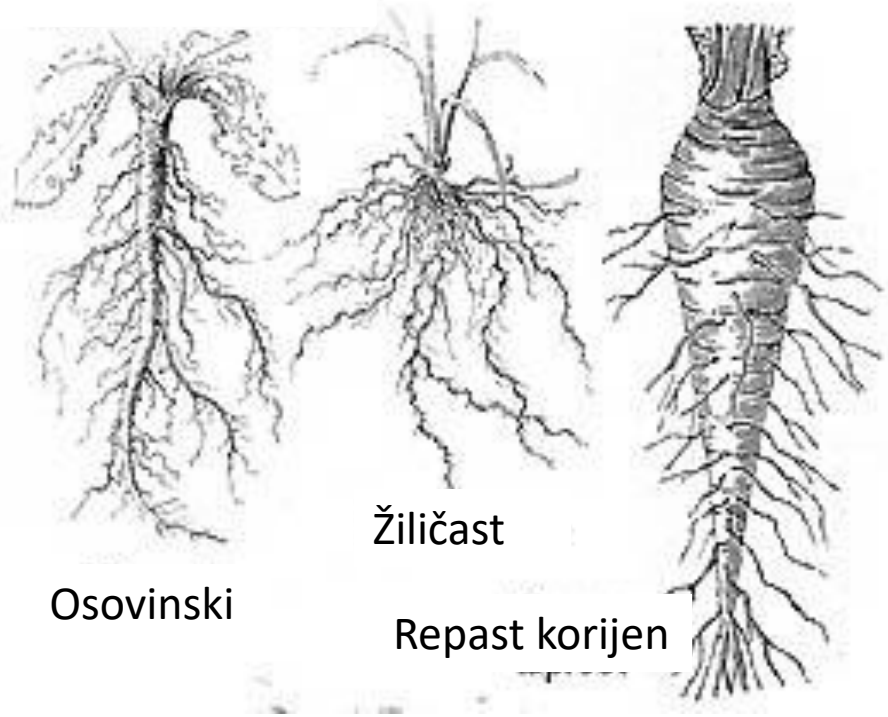
Korijen

- Podzemni organ radijalne simetrije na kojem se ne obrazujuju lisne primordije!





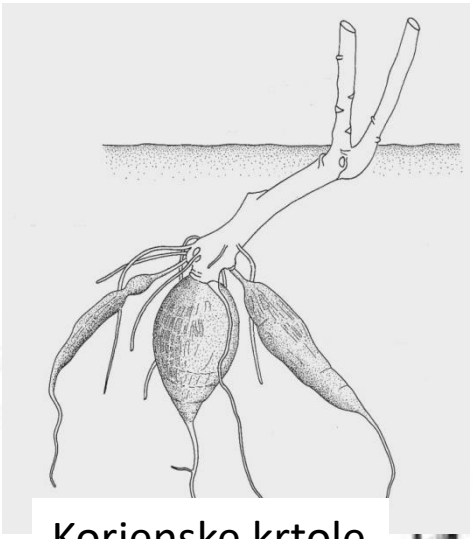
Tipovi korjena i metamorfoze



Osovinski

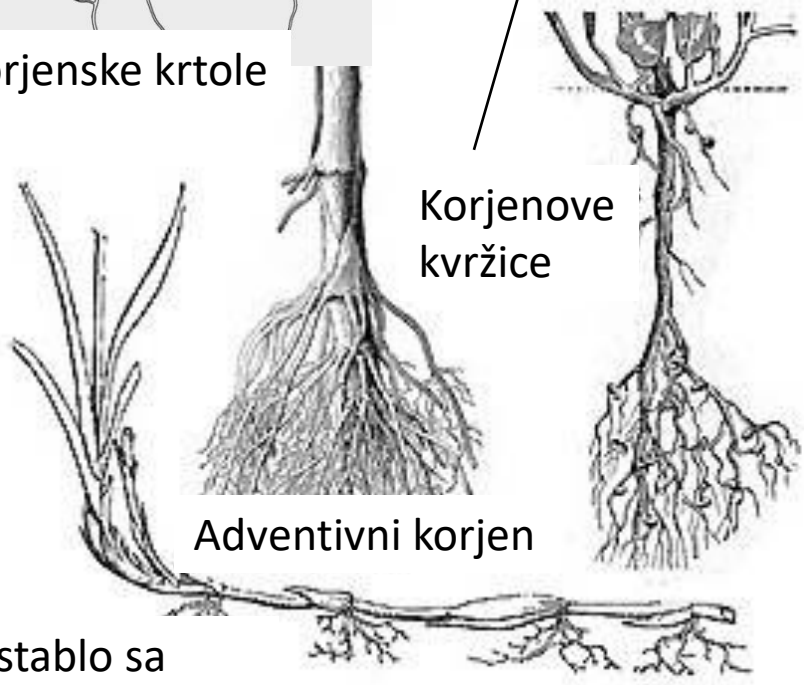
Žiličast

Repast korijen



Korjenske krtole

Mikoriza



Korjenove kvržice

Adventivni korjen

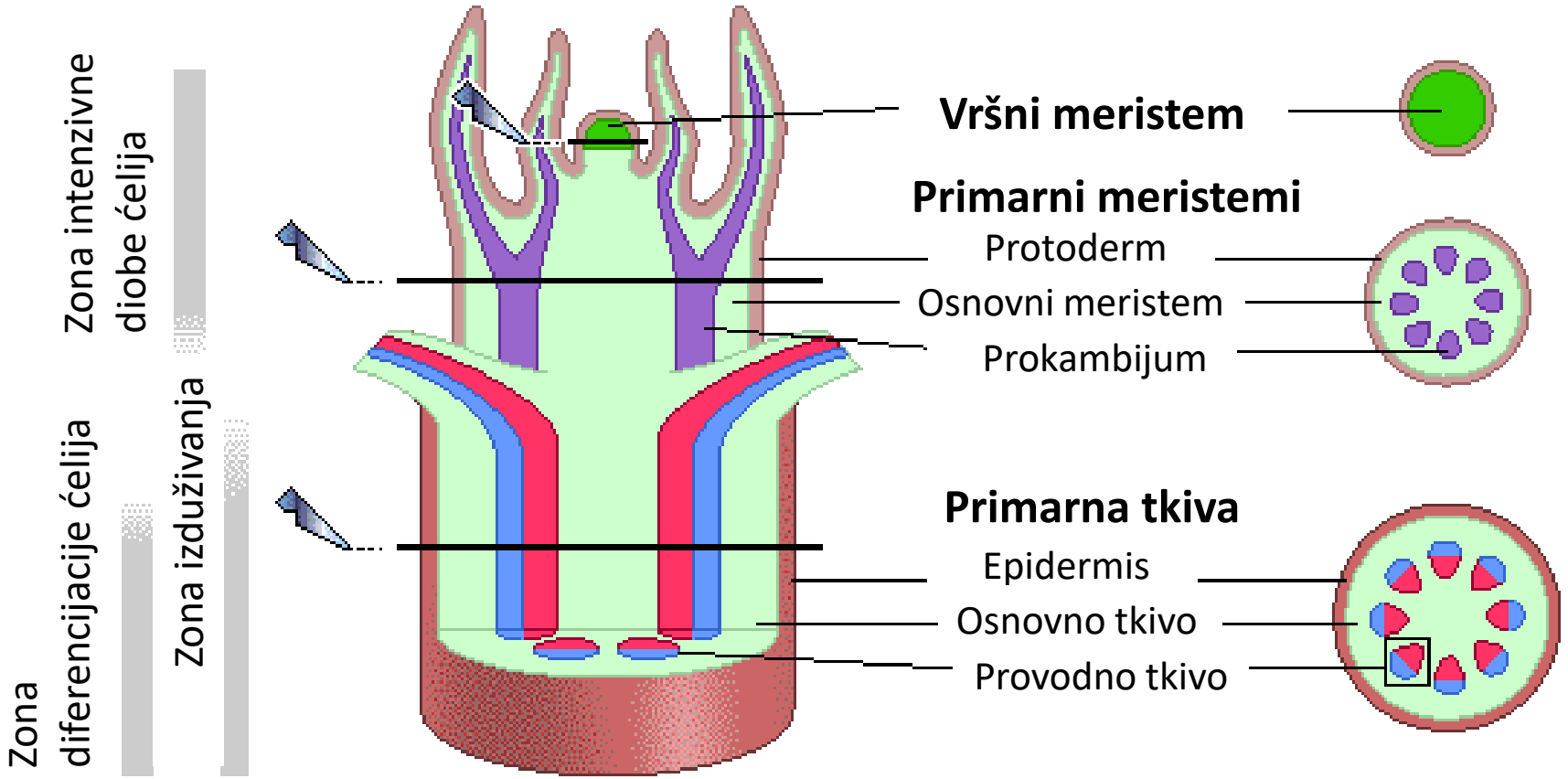
Puzeće stablo sa adventivnim korjenima

Kontraktilni korjenovi
Vazdušni korjenovi
Korjenovi za provjetravanje
Daskasti korjenovi
Asimilacioni korjenovi

ANATOMSKA GRAĐA BILJNOG TIJELA

Primarna građa
Sekundarna građa

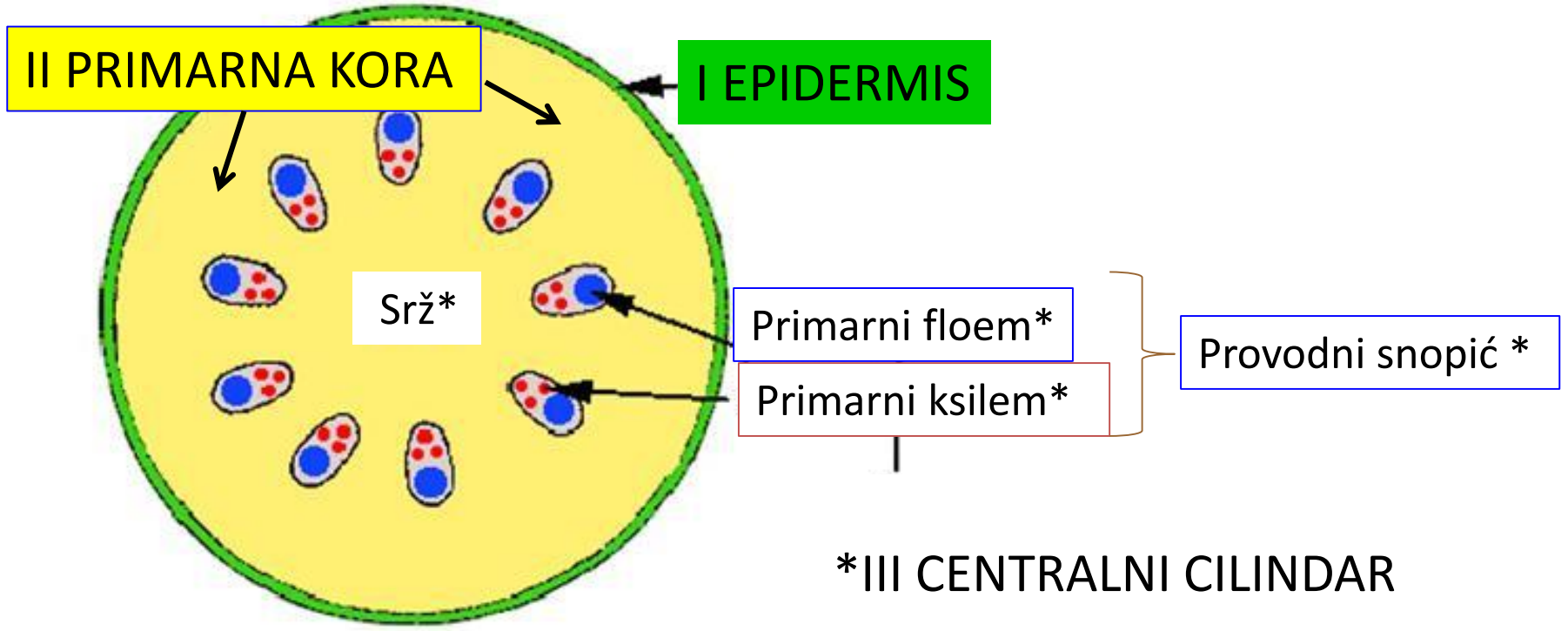
Primarna građa stabla- opšta shema!



Osnovno tkivo= parehnim + mehanički elementi

Primarna građa stabla dikotiledonih biljaka

Opšta primarna građa:
Epidermis, primarna kora, centralni cilindar



Elementi primarne kore

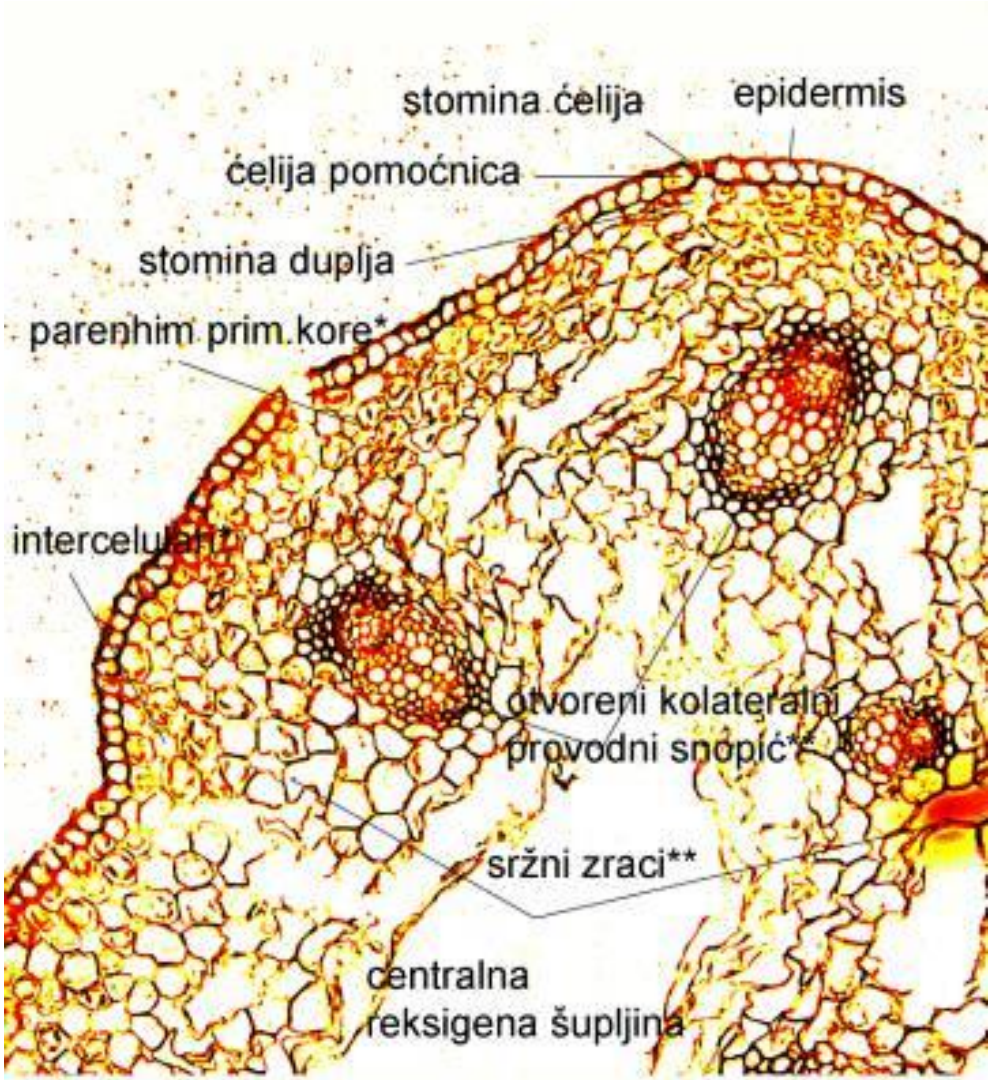
- Parenhimske ćelije
- Mehaničke ćelije
- Endodermis= skrobna sara

Elementi centralnog cilindra

- Pericikl
- Provodni snopići ili provodni cilindar
- Srž

- **Pericikl:**

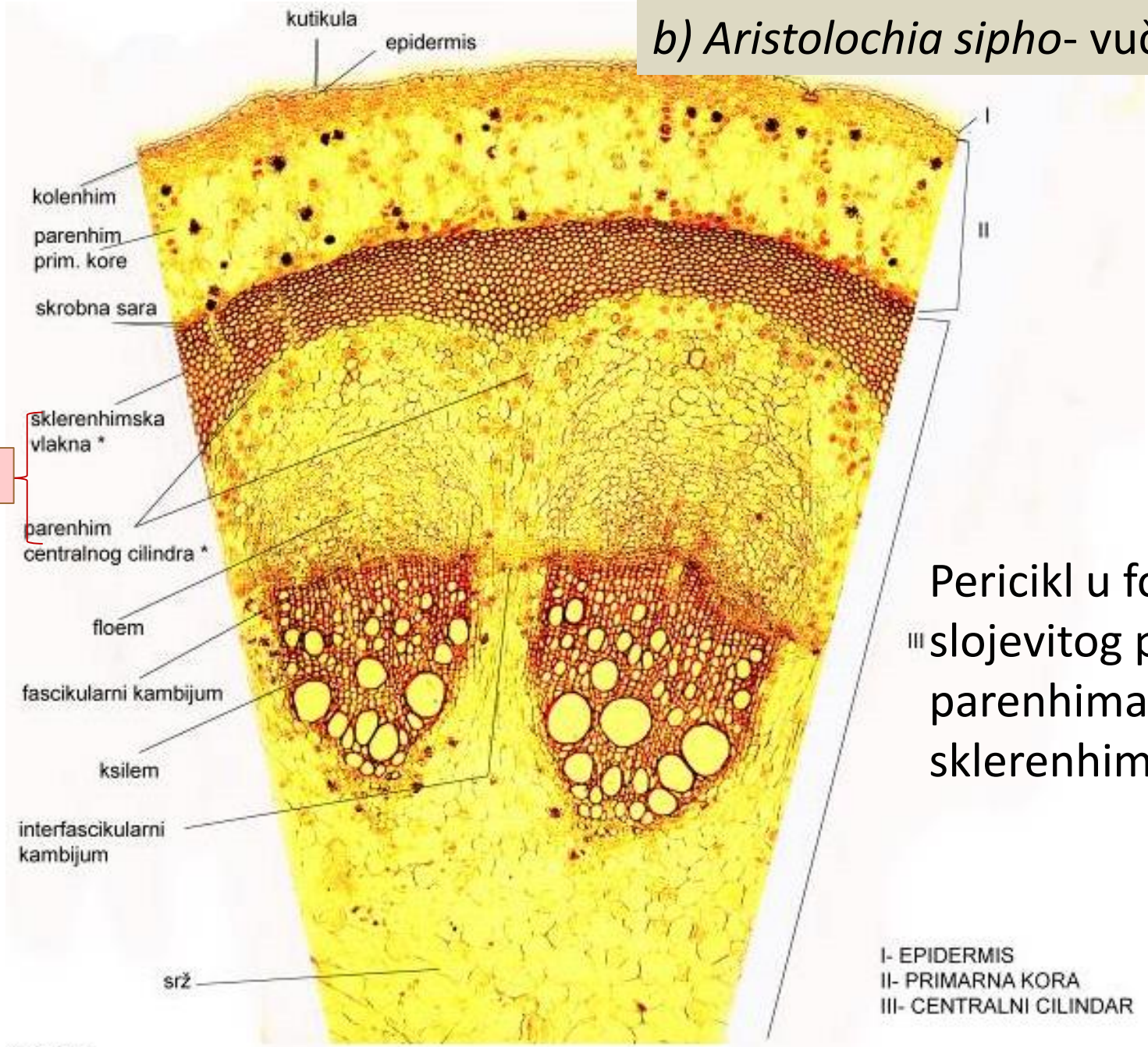
a) Parenhimske ćelije
b) Prsten od sklerenhimskog i parenhimskog tkiva
c) Trake sklerenhima i parenhima koje se naizmjenično smjenjuju



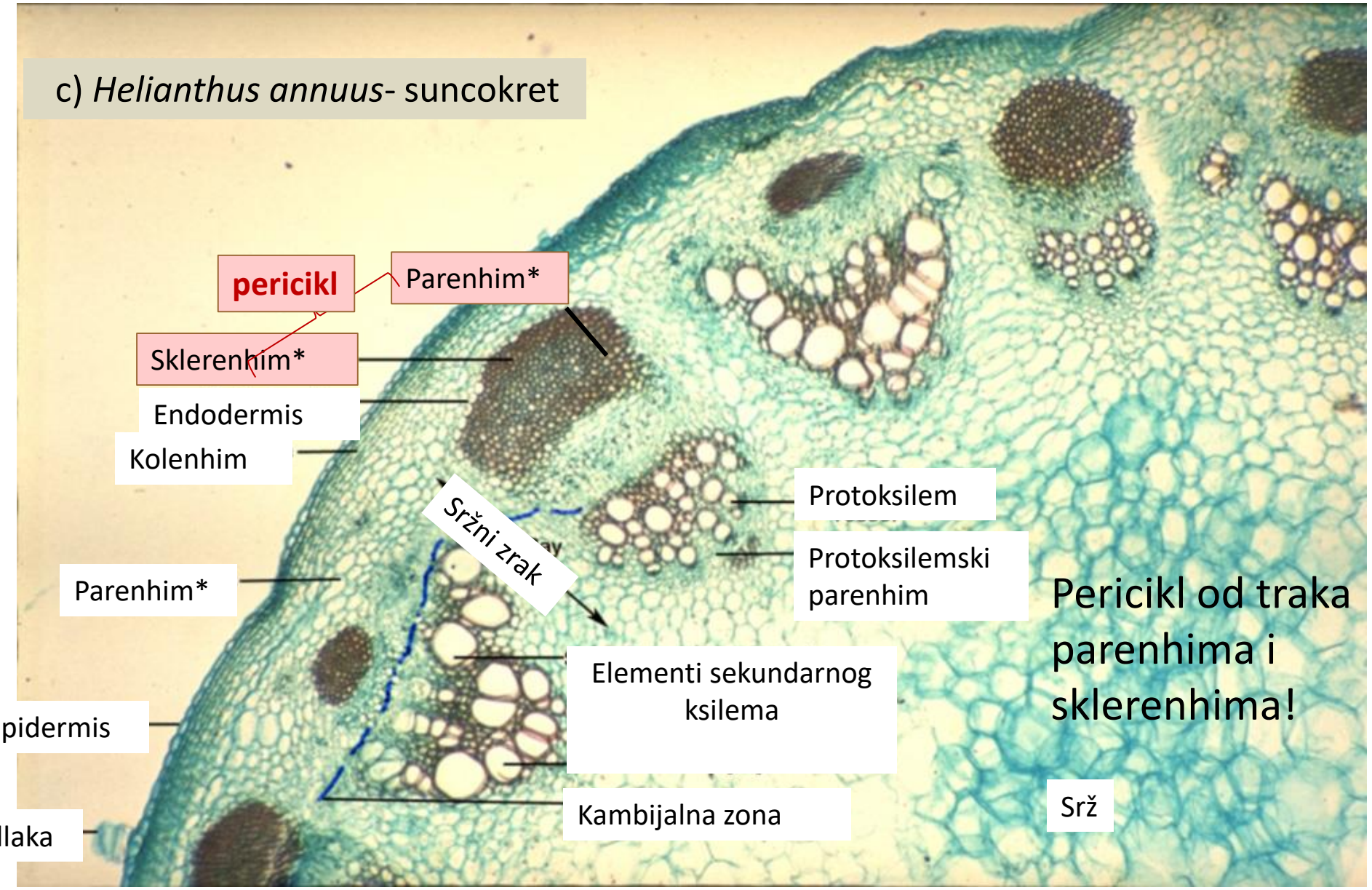
a) Ranunculus sp.- ljutić

Parenhimatični pericikl!

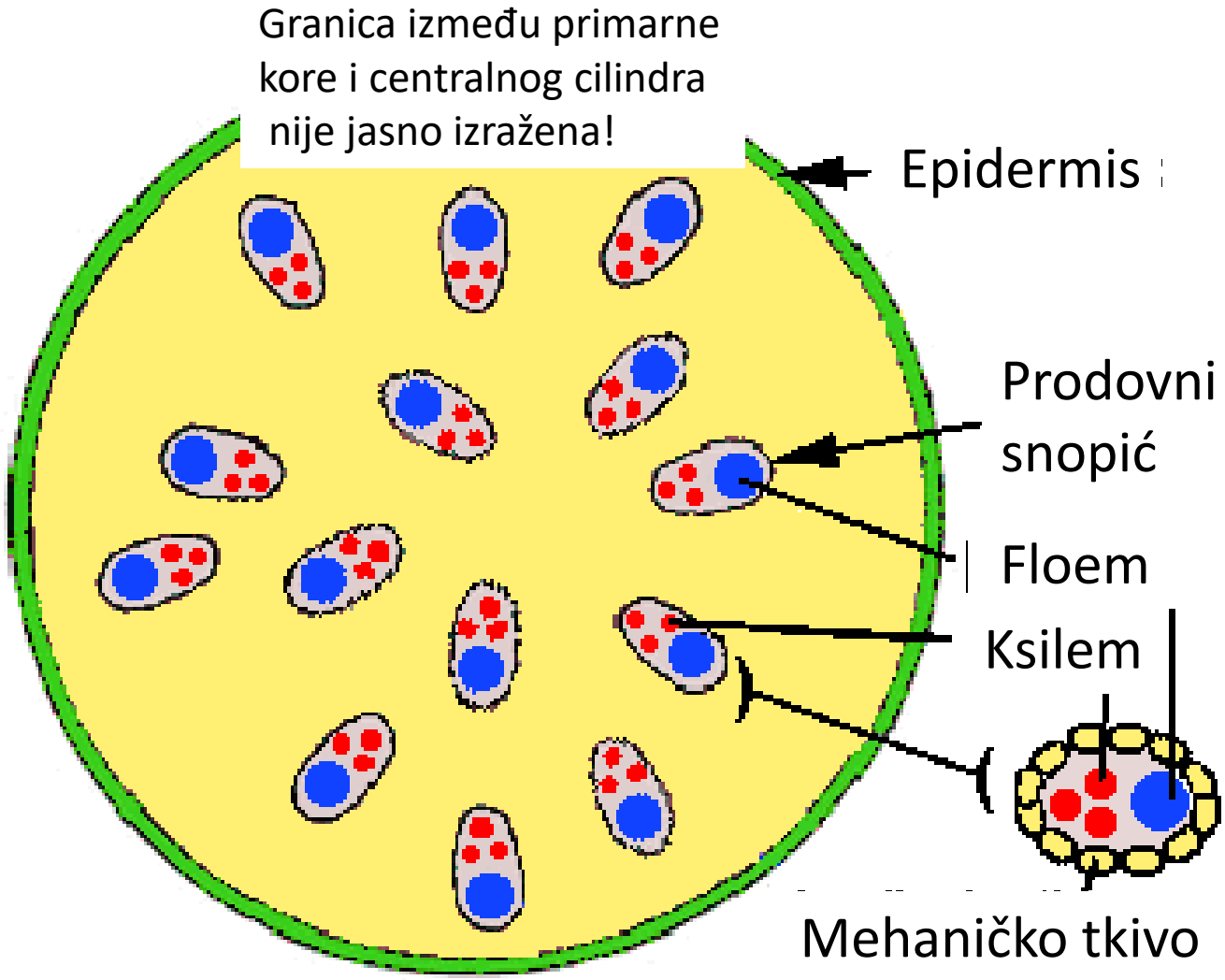
b) Aristolochia sipho- vučja jabuka



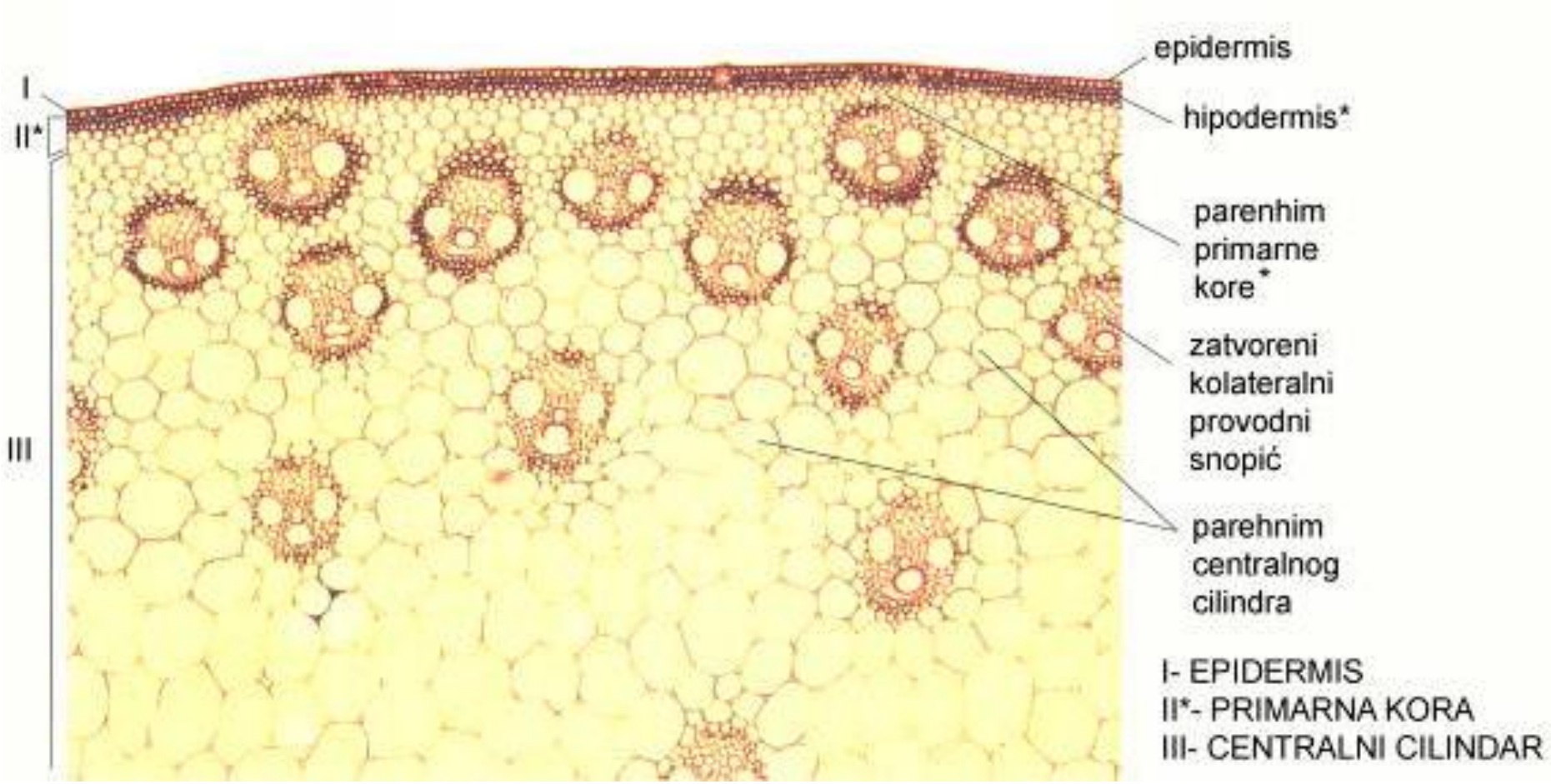
Pericikl u formi slojevitog prstena od parenhima i sklerenhima!


c) *Helianthus annuus*- suncokret
pericikl
Parenhim*
Sklerenhim*
Endodermis
Kolenhim
Sržni zrak
Protoksilem
Protoksilemski parenhim
Parenhim*
Elementi sekundarnog ksilema
Epidermis
Kambijalna zona
dlaka
Pericikl od traka parenhima i sklerenhima!
Srž

Primarna građa stabla monokotiledonih biljaka



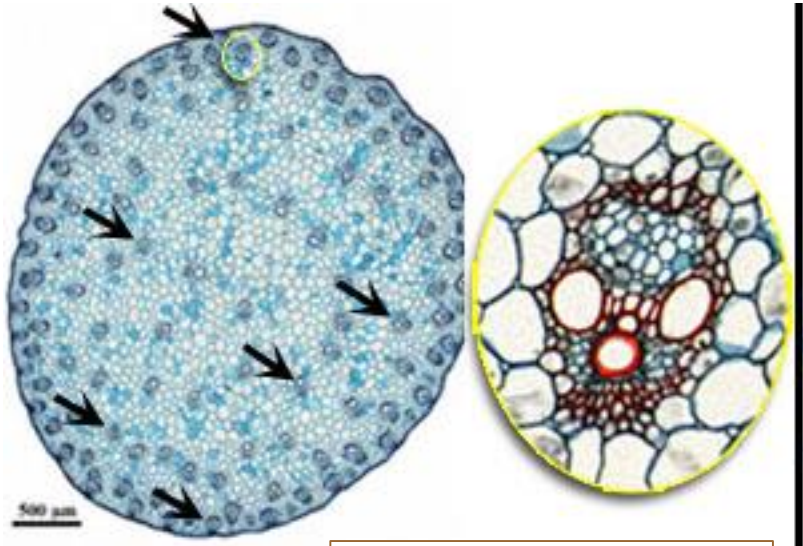
Zea mays – kukuruz



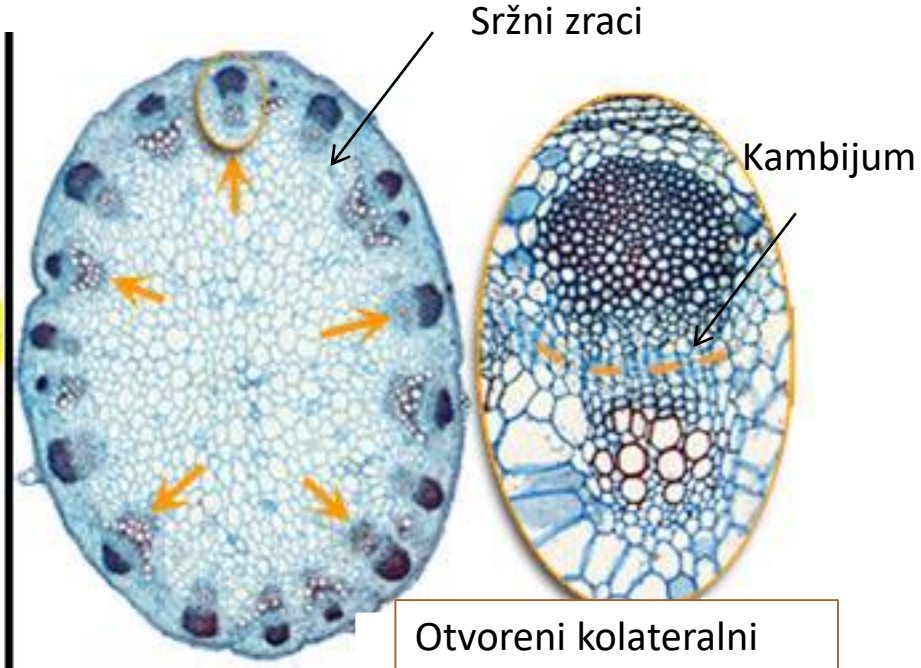
Uporedna shema primarne građe stabla mono- i dikotiledonih biljaka

PRIMARNO STABLO MONOKOTILA

PRIMARNO STABLO DIKOTILA

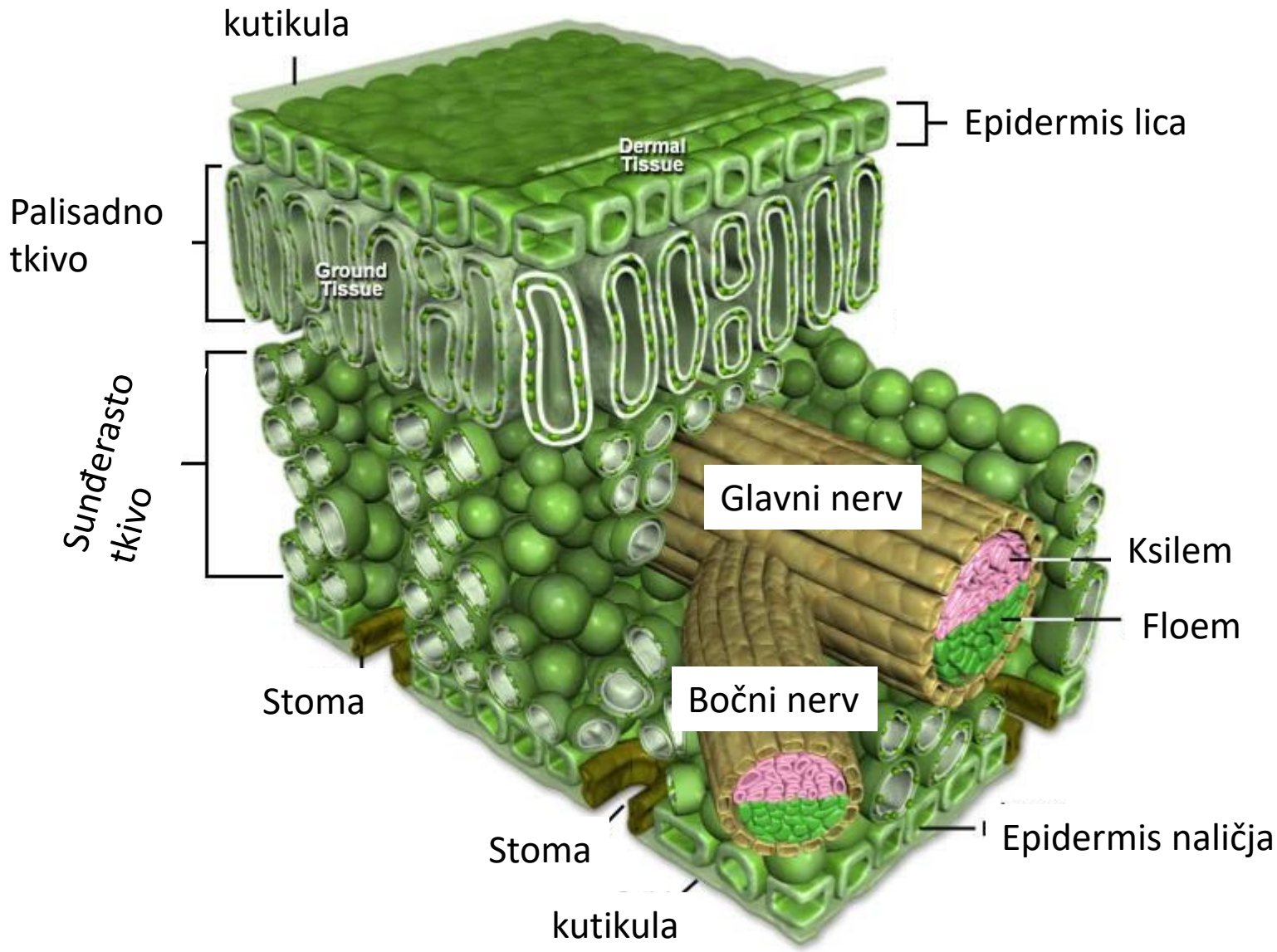


Zatvoreni kolateralni provodni snopić

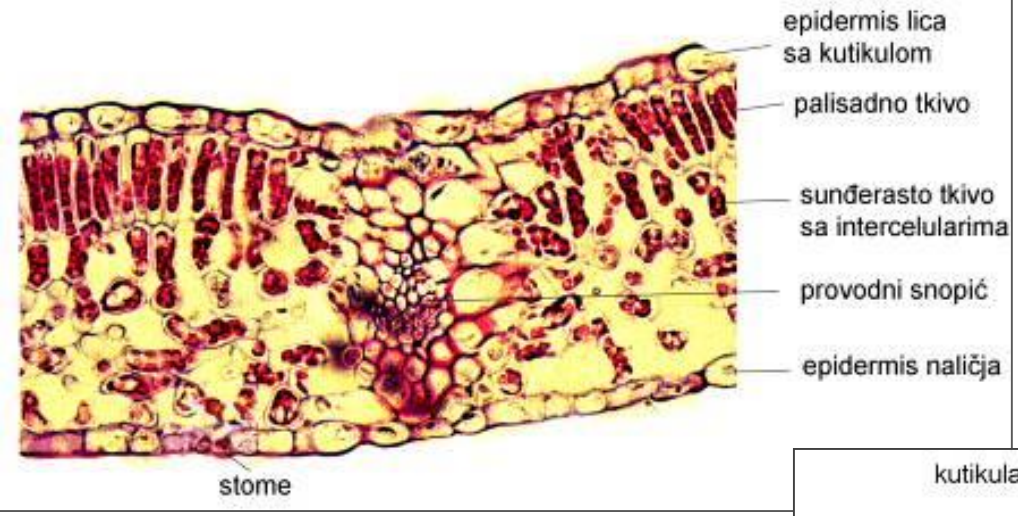


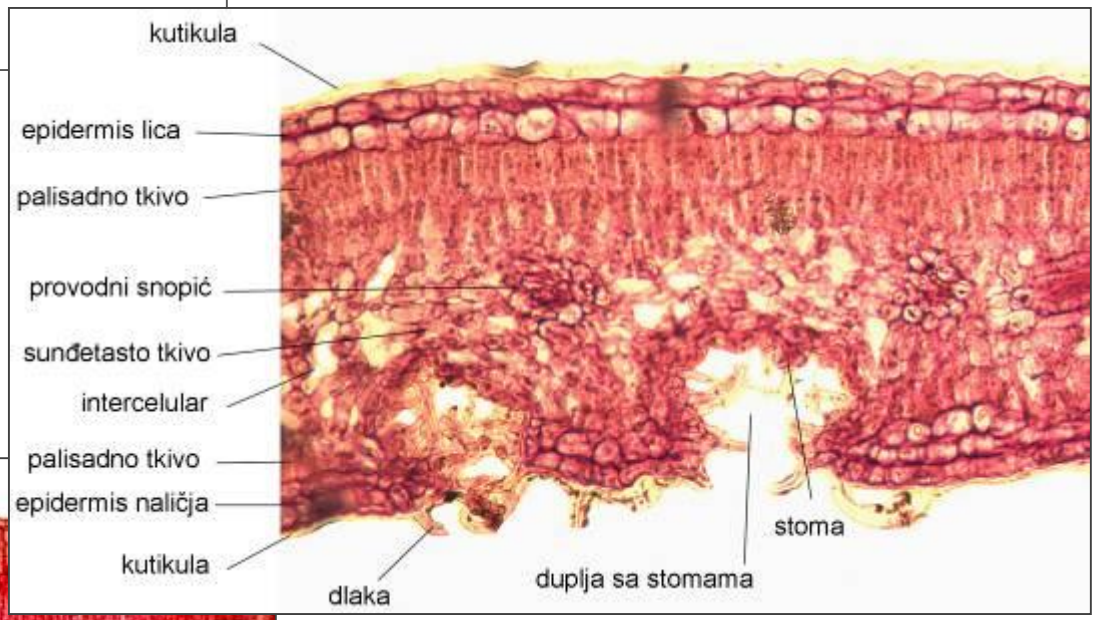
Otvoreni kolateralni provodni snopić

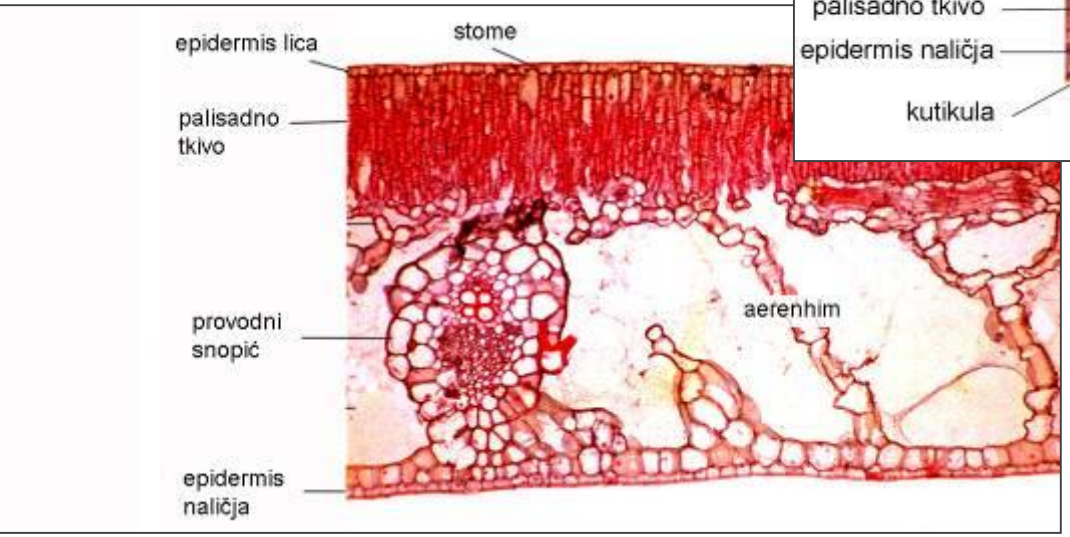
Anatomska građa lista

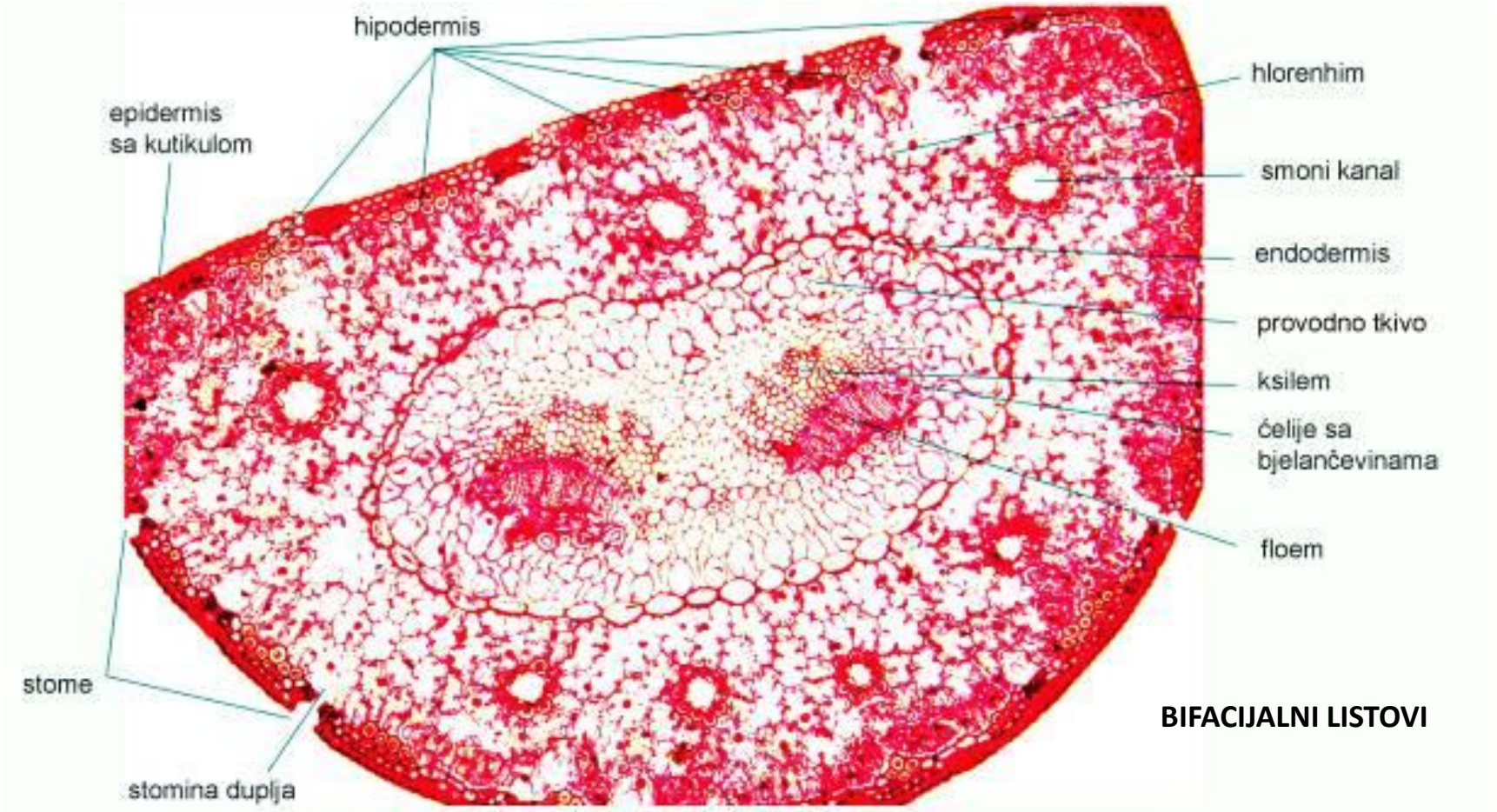


list


epidermis lica
sa kutikulom
palisadno tkivo
sunđerasto tkivo
sa intercelularima
provodni snopić
epidermis naličja
stome


kutikula
epidermis lica
palisadno tkivo
provodni snopić
sunđetasto tkivo
intercelular
palisadno tkivo
epidermis naličja
kutikula
dlaka
duplja sa stomama
stoma


epidermis lica
stome
palisadno
tkivo
provodni
snopić
aerenhim
epidermis
naličja



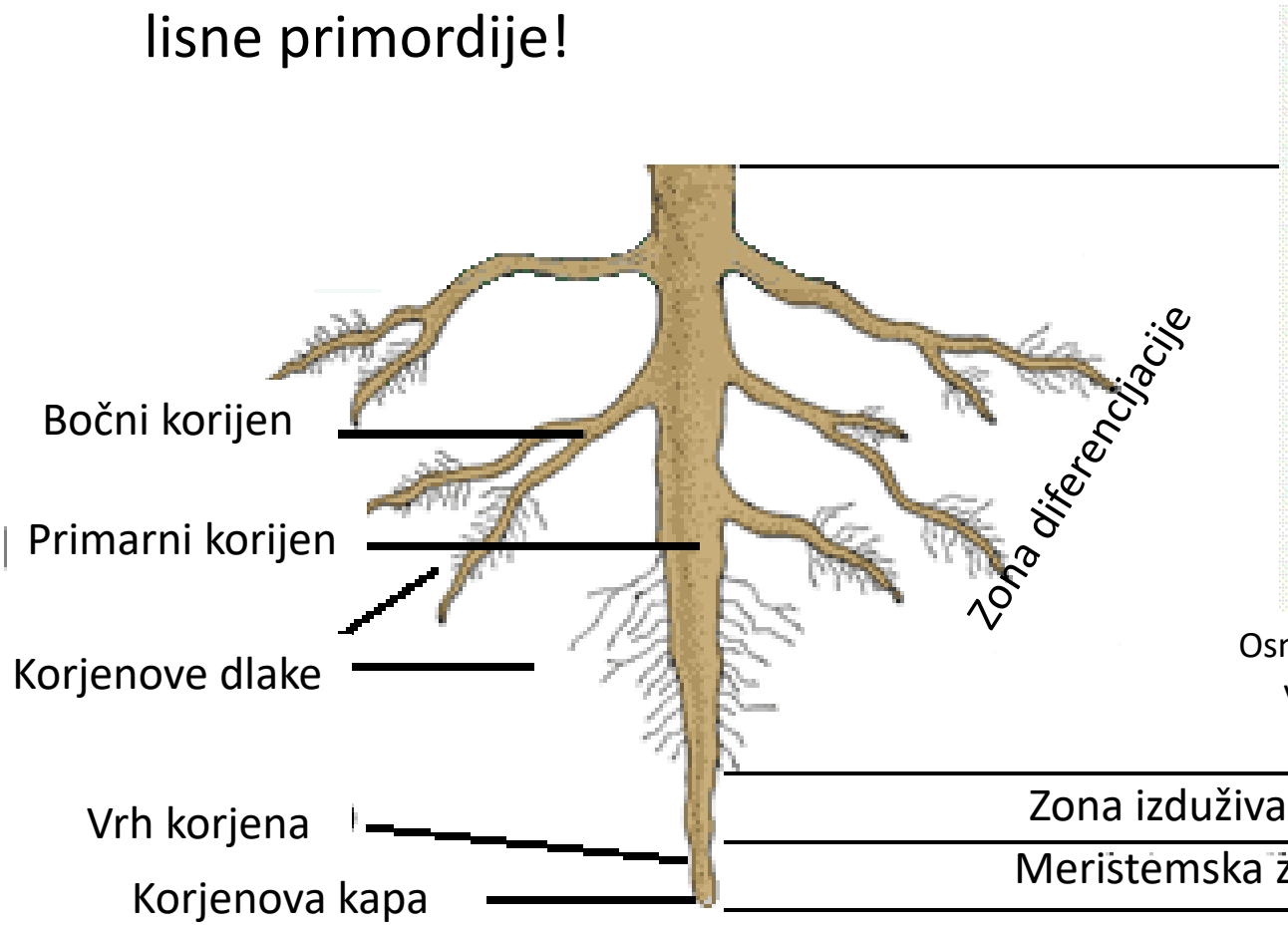
BIFACIJALNI LISTOVI

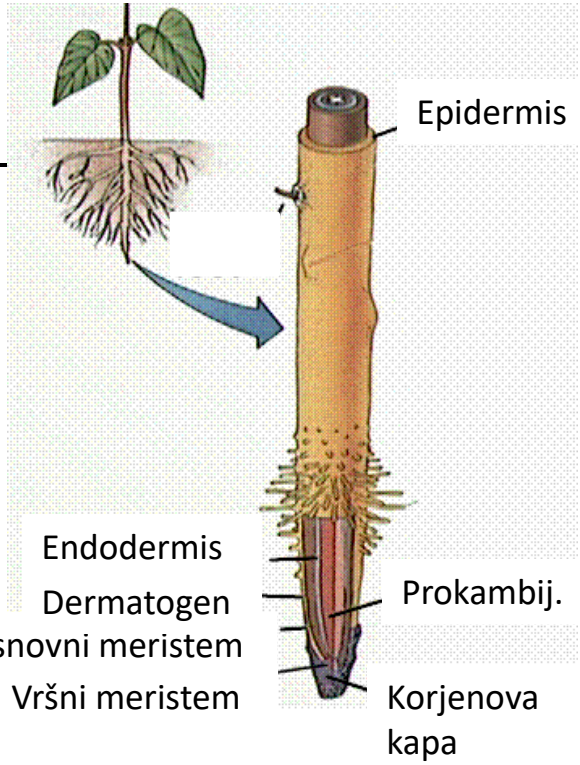
EKVIFACIJALAN LIST

UNIFACIJALA LIST

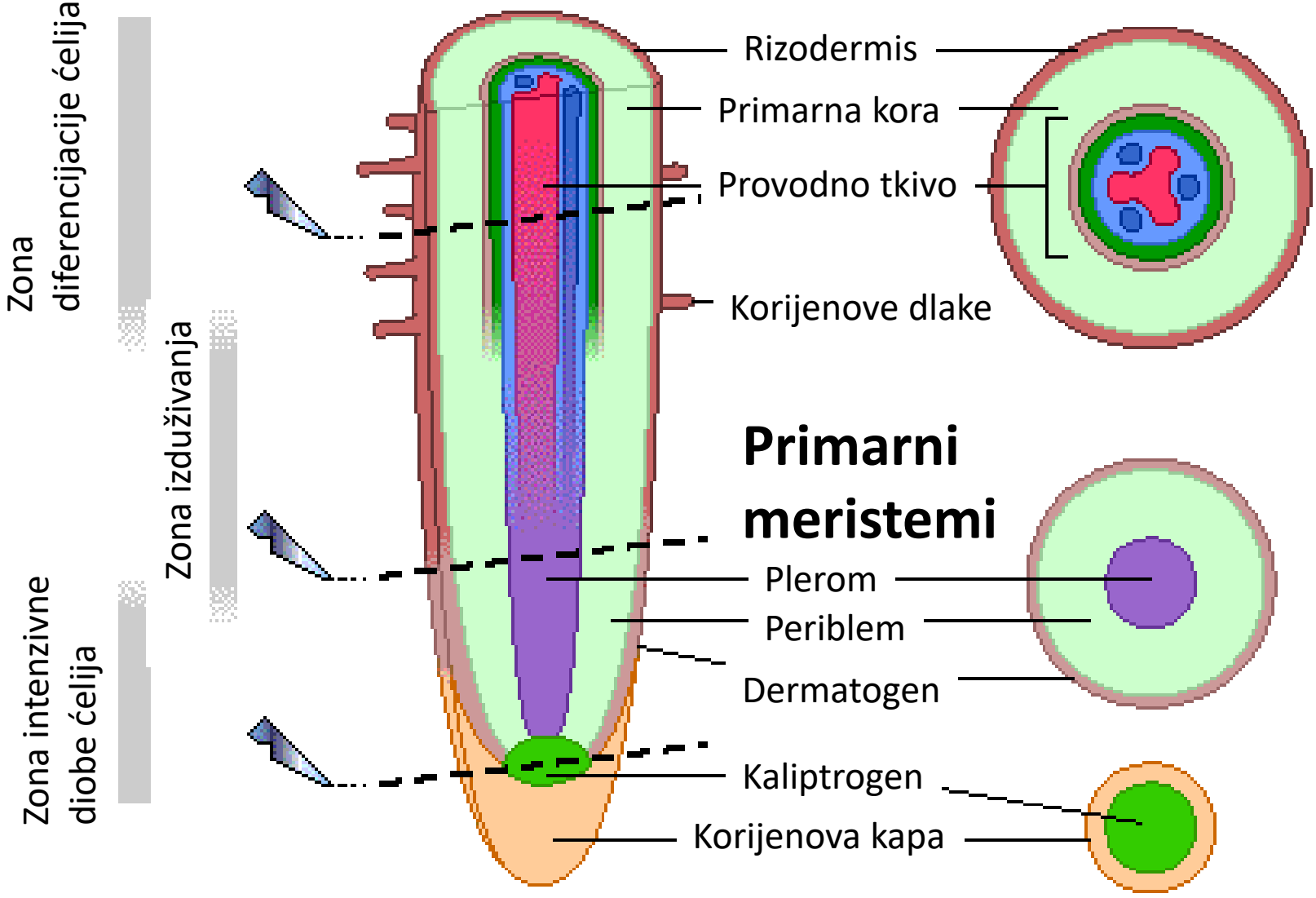
Korijen

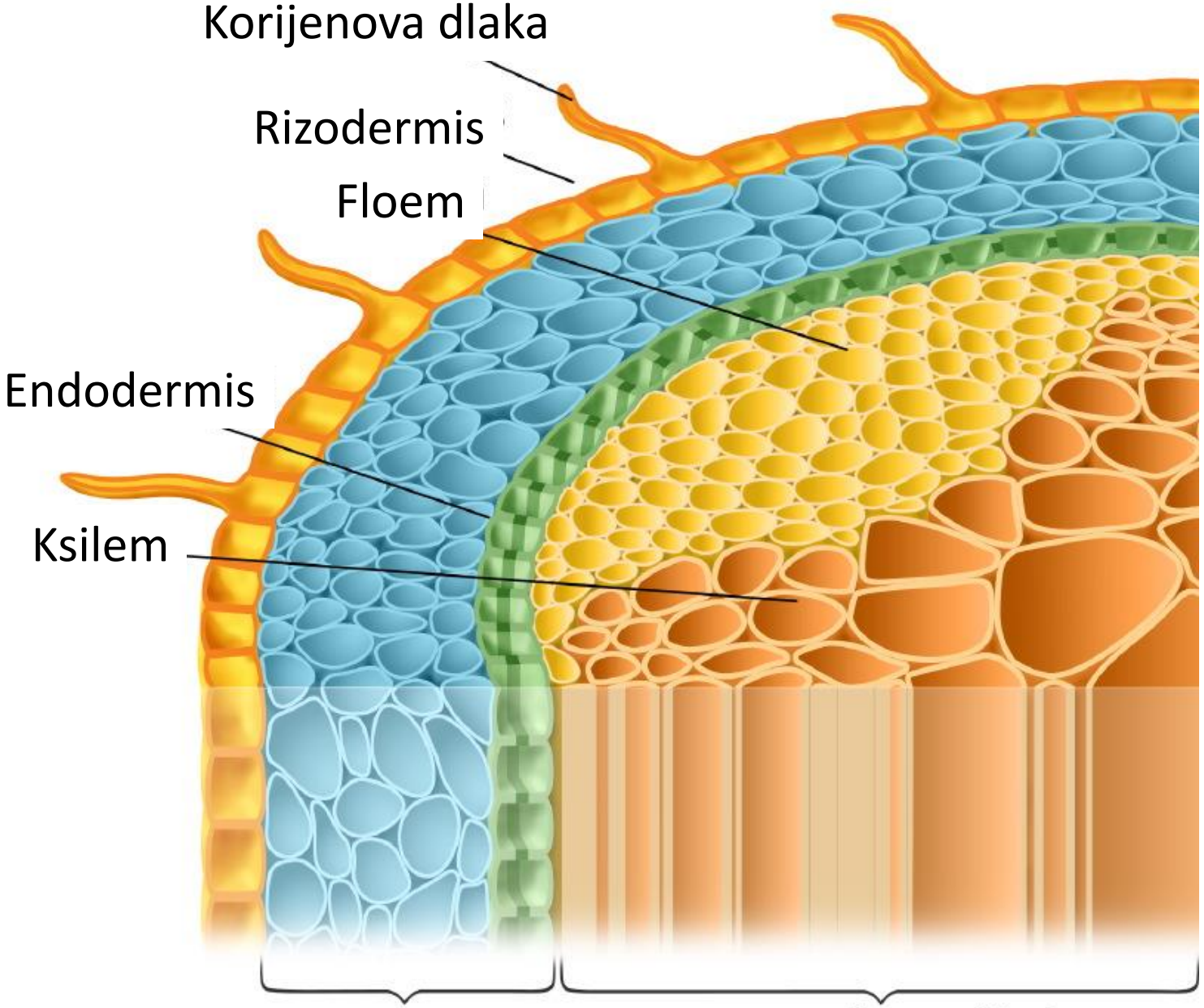
- Podzemni organ radijalne simetrije na kojem se ne obrazujuju lisne primordije!



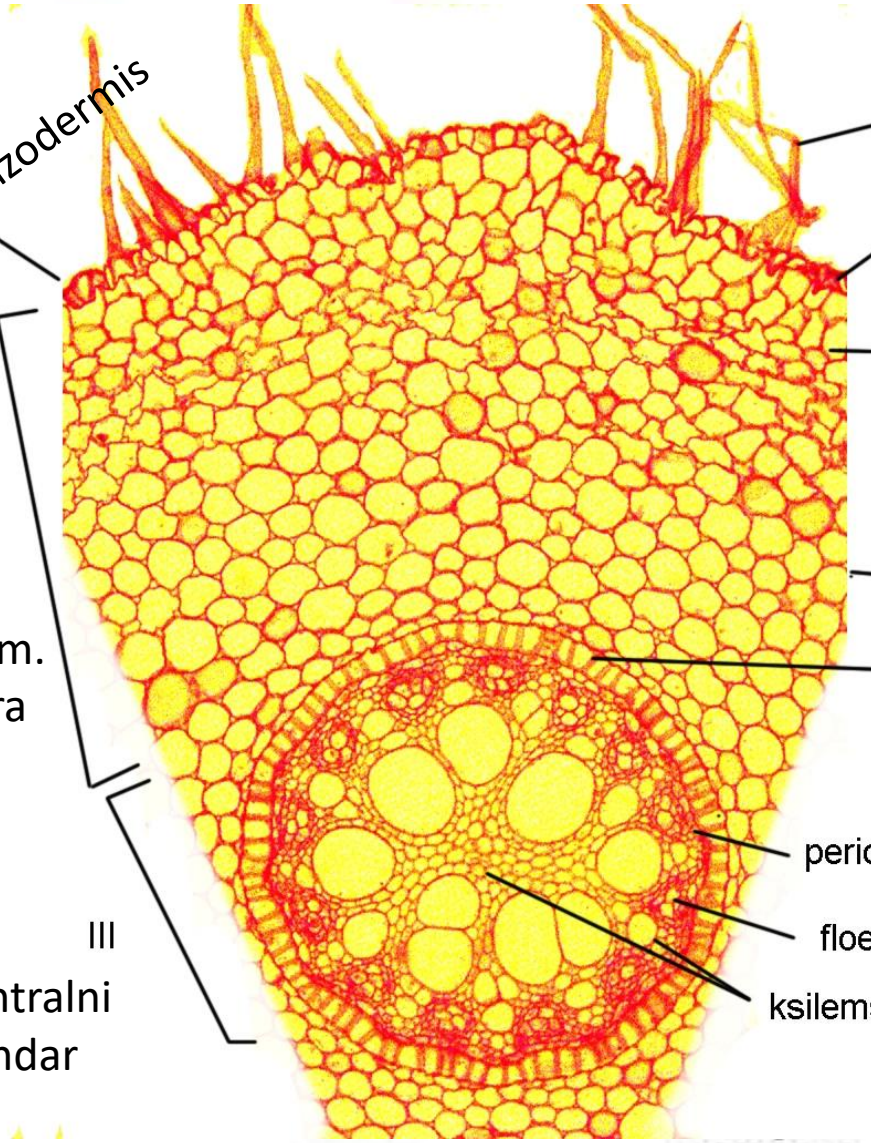


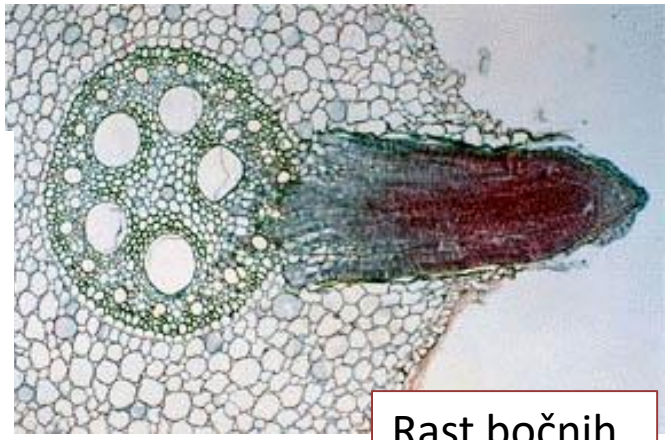
Primarna građa korijena



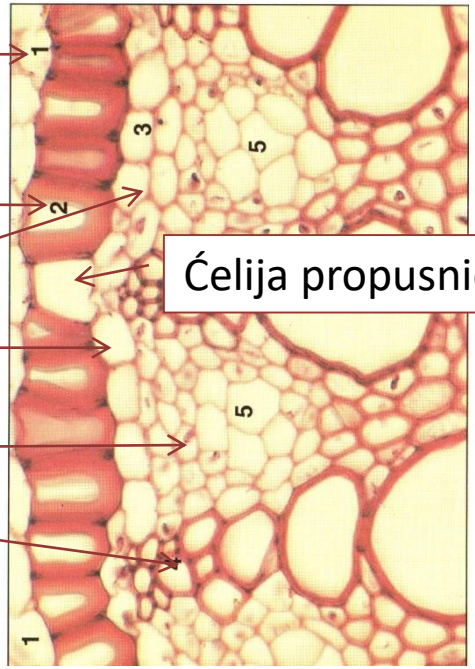

Korijenova dlaka
Rizodermis
Floem
Endodermis
Ksilem
Primarna kora
Radijalni provodni snopić

Presjek kroz zonu korjenovih dlaka





Rast bočnih korjenova

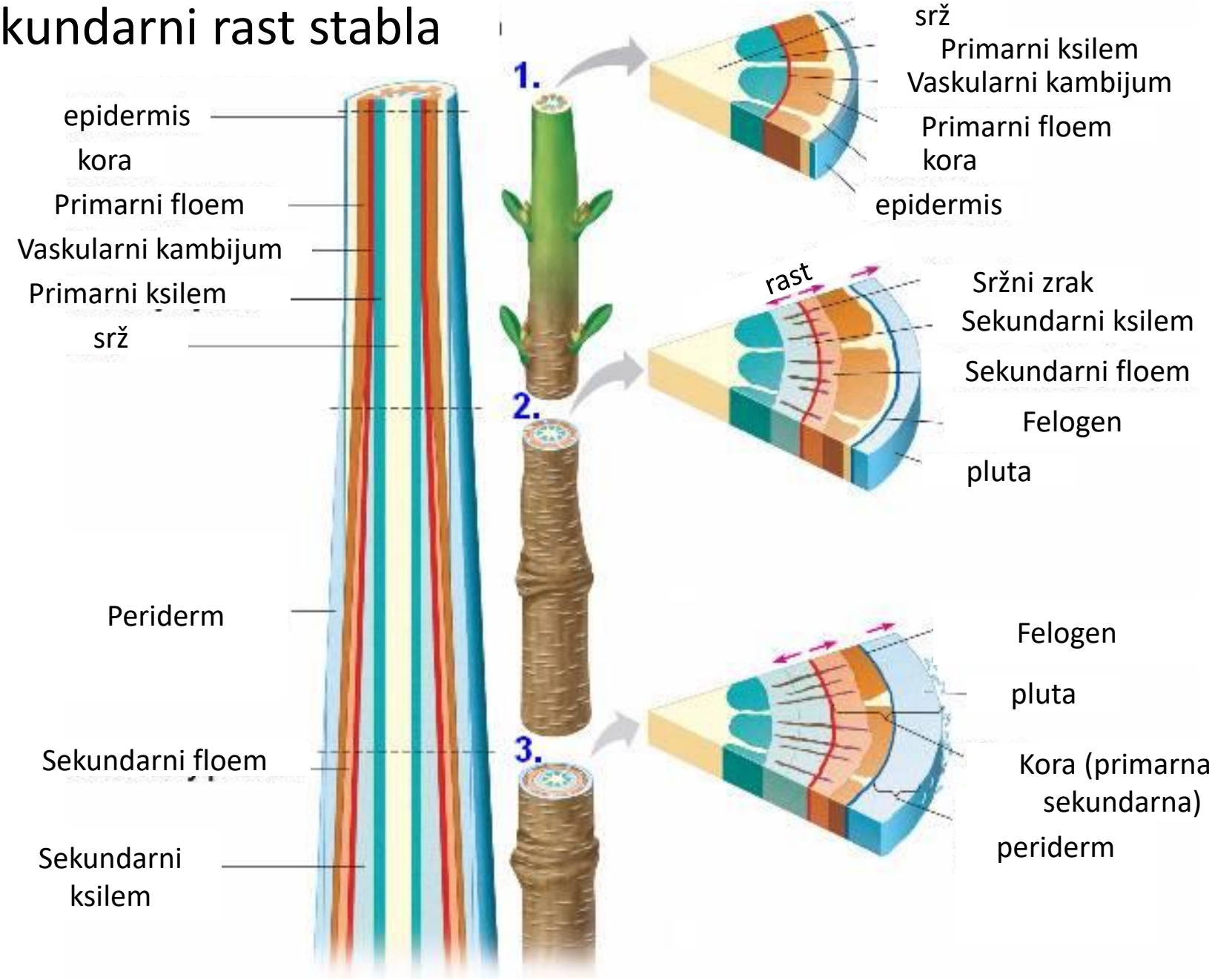


Ćelija propusnica

Kasparijeva zadebljanja …

Sekundarni rast stabla

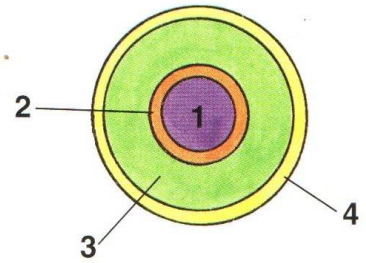
Sekundarni rast stabla

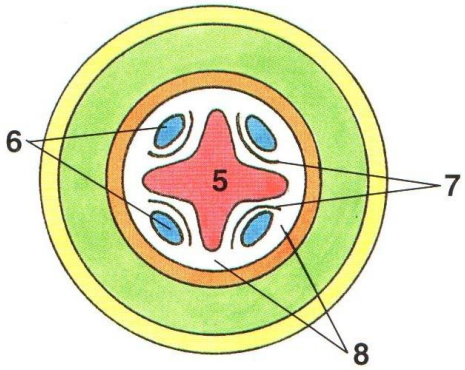


Sekundarni rast korijena

Presjek kroz zonu iznad korijenovih dlaka

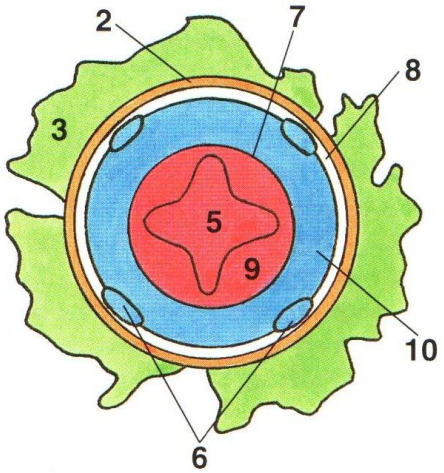
Presjek vrha korijena





1- prokambijum
2- endodermis
3- primarna kora
4- rizodermis
5- ksilem
6- floem
7- vaskularni kambijum
8- pericikl
9- sekundarni ksilem
10- sekundarni floem
11- felogen
12- peridermis

Formiranje prstena od vaskularnog kambijuma



Sekundarno debljanje