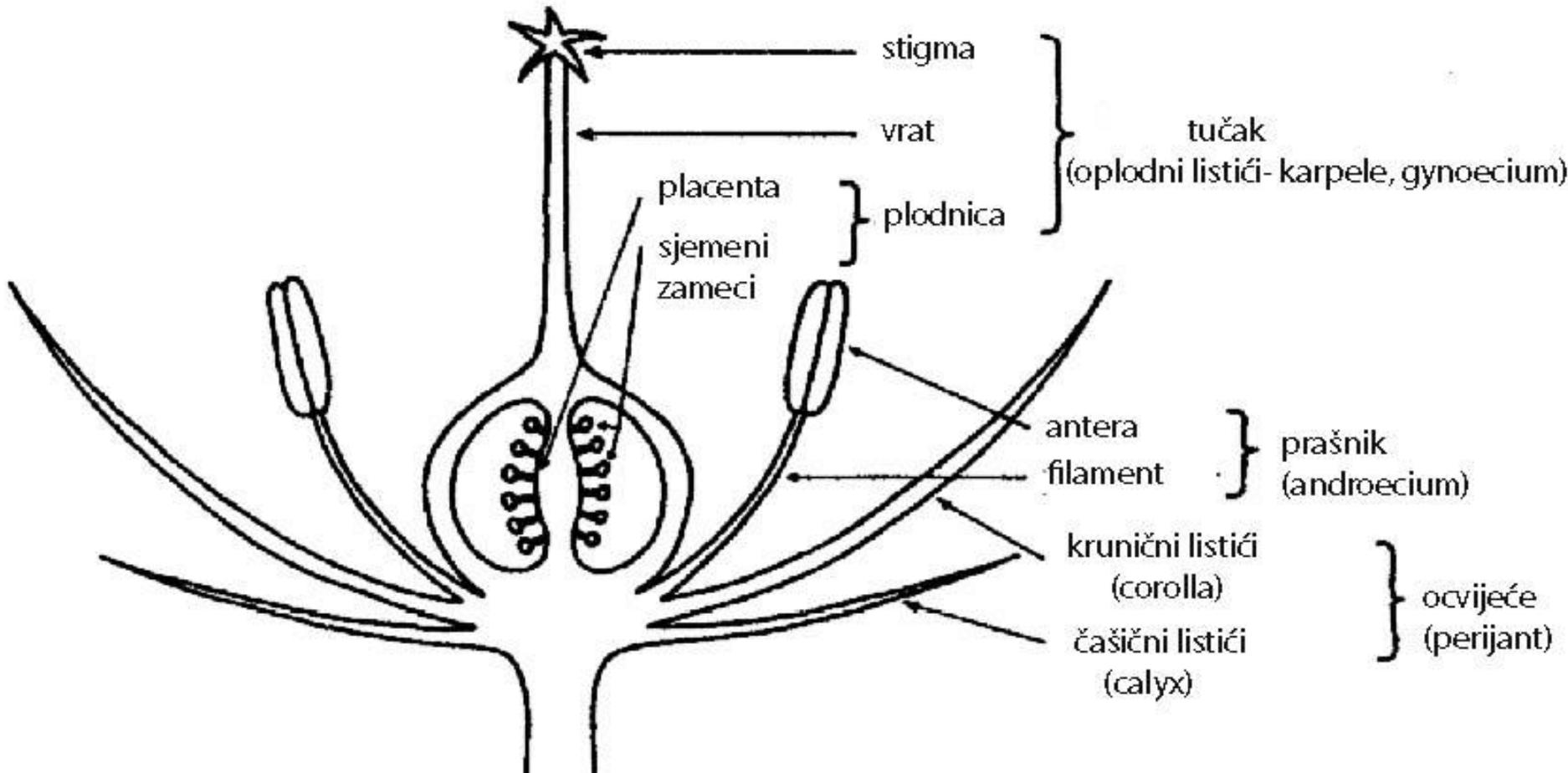


Magnoliidae

Skrivenosjemenjače, cvjetnice



Savremena klasifikacija cvjetnica

(APG III (2009), Chase & Reveal 2009)

1. Bazalne skrivenosjemenjače (ANITA)
2. Magnolidni kompleks
3. Prave dikotile

U nekadašnjem sistemu
klasa dikotila

4. Monokotile

U nekadašnjem sistemu klada monokotila

Odabrani predstavnici

(redovi, porodice, vrste)

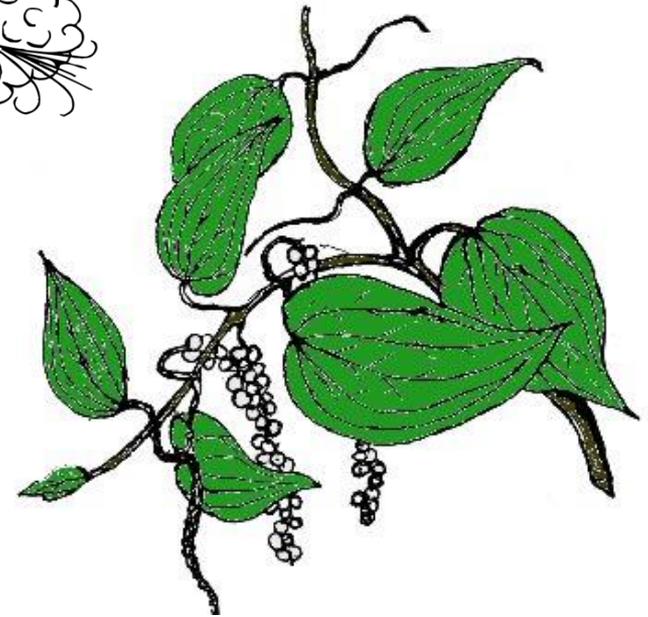
MAGNOLIDNI KOMPLEKS



Red: Piperales

Fam: Piperaceae

g. *Piper*



P0 A3+3 G(3)

P0 A2 G(3)



Jednosjemena koštunica!

Piper nigrum- biber

Red: Laureales

- Fam: Laureaceae
- g. *Laurus* & *Cinnamomum*



Cinnamomum zeylanicum- cimet
Jednodoma biljka, sa dvopolnim cvjetovima

Laurus nobilis-
lovor (dvodom!)



***P4 A2-4st G(3)**



PRAVE EUDIKOTILE

Red: Ranunculales

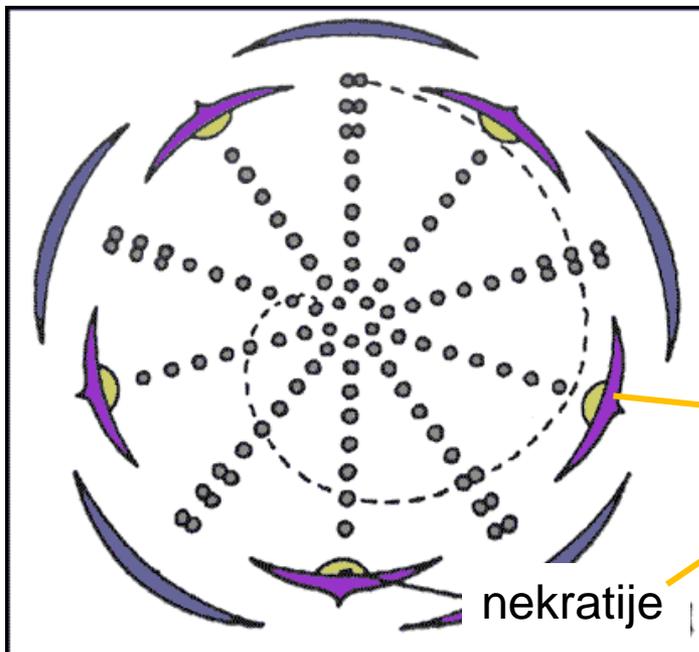
Fam. Ranunculaceae

Opšti cvjetni dijagram roda *Ranunculus*

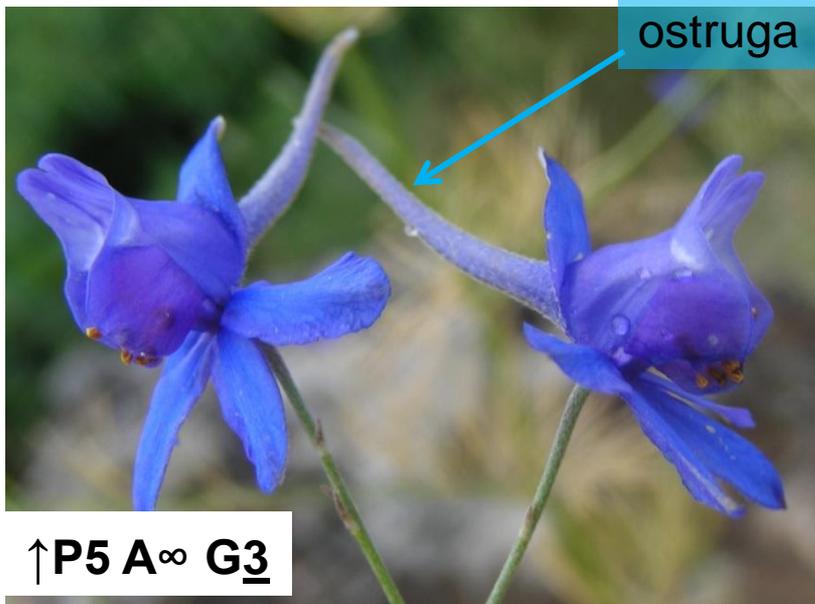
*K5 C5 A ∞ G ∞



*K3 C8-12 A ∞ G ∞



Ranunculus ficaria-
ledinjak



ostruga

↑P5 A∞ G3

Consolida regalis- kokotac



Adonis aestivalis- gorocvijet



Orašćica
sa dlakavim vratom



*P4 A∞ G∞

Clematis vitalba- pavit

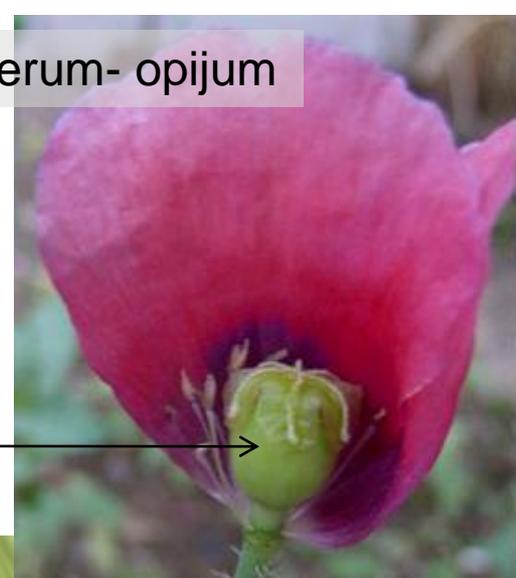


Helleborus odorus- kukurijek

miješak

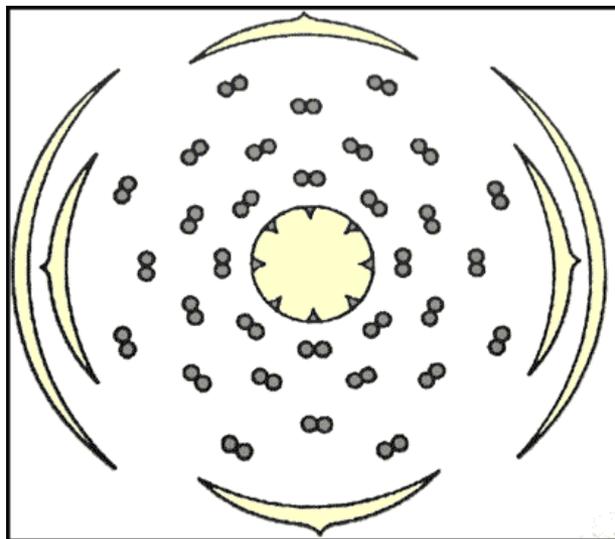
Red. Papaverales
 fam: Papaveraceae
 fam. Fumariaceae

Papaver somniferum- opijum



čaura →

Cvjetni dijagram porodice makova
 (Papaveraceae)



*K2 C4 A∞ G(2-8)/

Čašica kratkotrajna



Papaver rhoeas- poljski mak

Mliječni sok...



Chelidonium majus- rusa

fam. Fumariaceae

↑K2 C4 A(3)+(3) G(2)/

ostruga



Fumaria officinalis- dimnjača



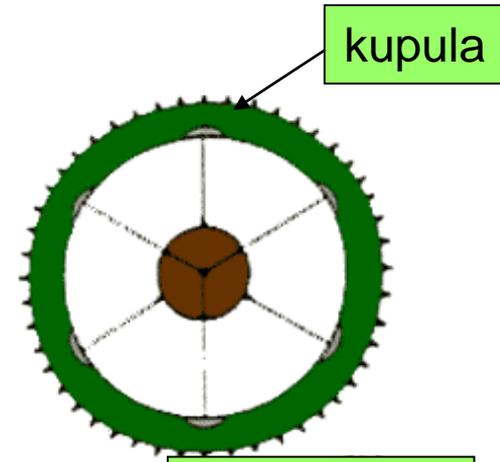
Corydalis cava

Red: Fagales

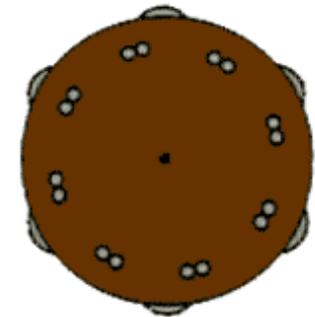
Fam. Fagaceae & Betulaceae



dvije trostrane oraščice



Ženski cvijet



Muški cvijet

Fagus sylvatica- bukva



♀ dihajijum

♂ glavičasta cvast

*P(3+3) G(3)

*P(3+3) A6-12

Castanea sativa- koštanj



Muška cvast

Bodljikava kupula



Tri oraščice u kupuli

Quercus sp.- hrast



resa sa
muškim
cvjetovima



Quercus robur- lužnjak



Quercus ilex- crnika



ženski
cvjetovi



Kupula sa
jednom
oraščicom



Quercus cerris- dub, cer



Quercus pubescens- medunac

Fam. Betulaceae

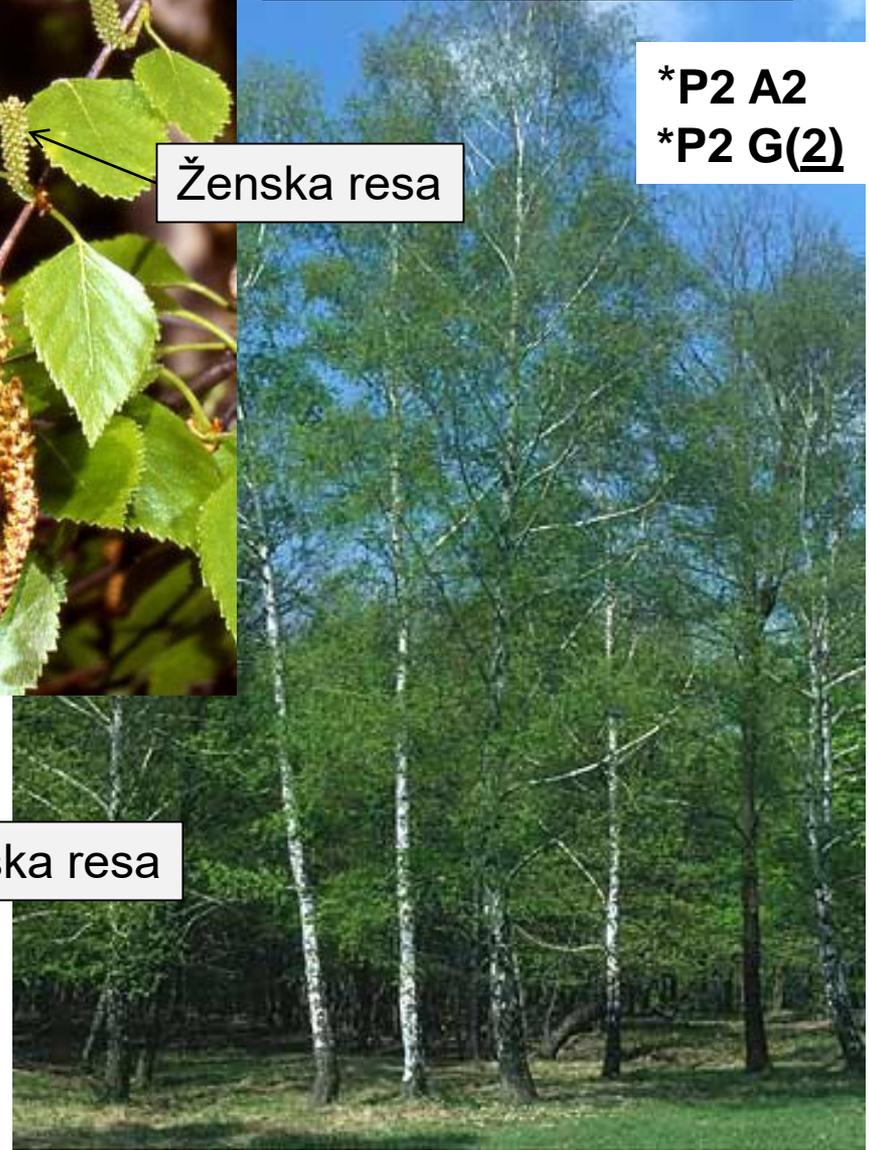
Betula pendula.- breza



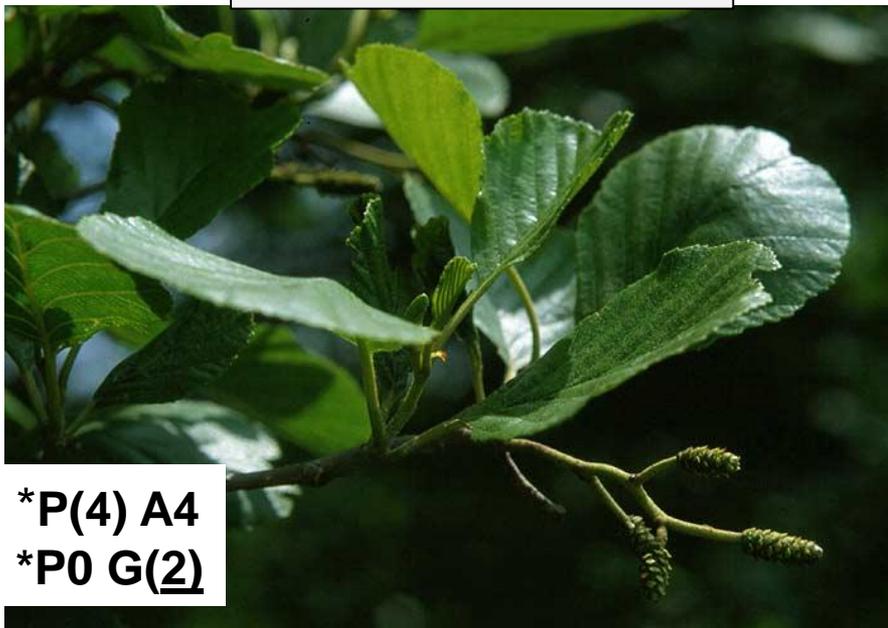
Ženska resa

Muška resa

*P2 A2
*P2 G(2)



Alnus glutinosa- jova



*P(4) A4
*P0 G(2)

Corylus avellana- ljeska

Ženski dihajijum

*P0 A4
*P4-8 G(2)



Muška resa



Muška resa

Ženska šišarica



Carpinus orientalis- bjelograbić



Muška resa



Oraščica sa krilatim
pricvjetnim listićima
koji pomažu
rasijavanje

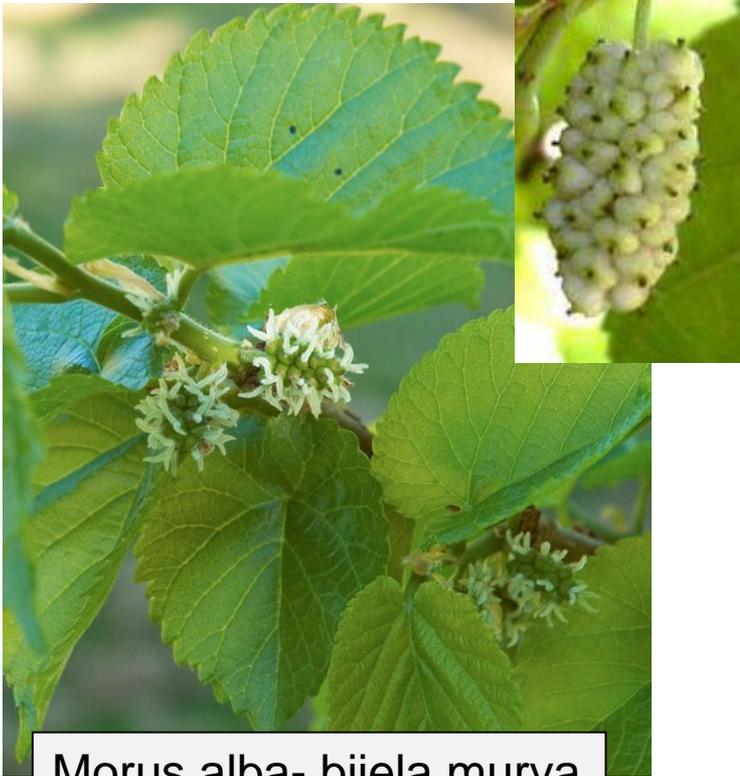


Ostrya carpinifolia- crni grab

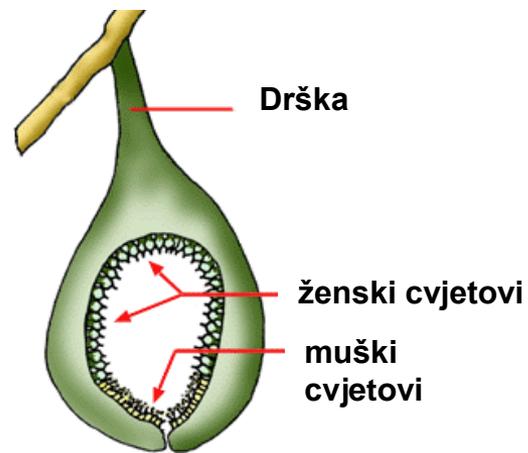
*P0 A4-10

*P6-10 G(2)

Red. Urticales
Fam. Moraceae
Fam. Cannabaceae
Fam. Urticaceae

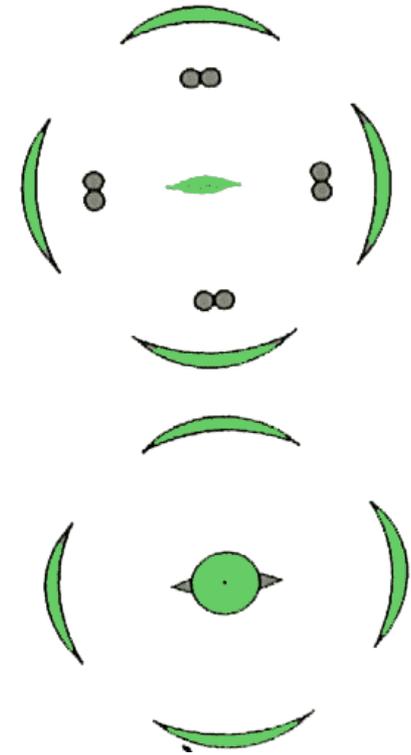


Morus alba- bijela murva



Ficus carica- smokva

Muški cvjetovi



Ženski cvjetovi

Fam. Cannabaceae

*P₅ A₅, *P₅G₁



Cannabis sativa- konoplje
Muška i ženska jedinka



Humulus lupulus- hmelj
Muška i ženska jedinka



Fam. Urticaceae

*P4-5 A4-5 G1 ili

*♂P4-5A4-5, *♀P4-5
G1

Urtica dioica- kopriva



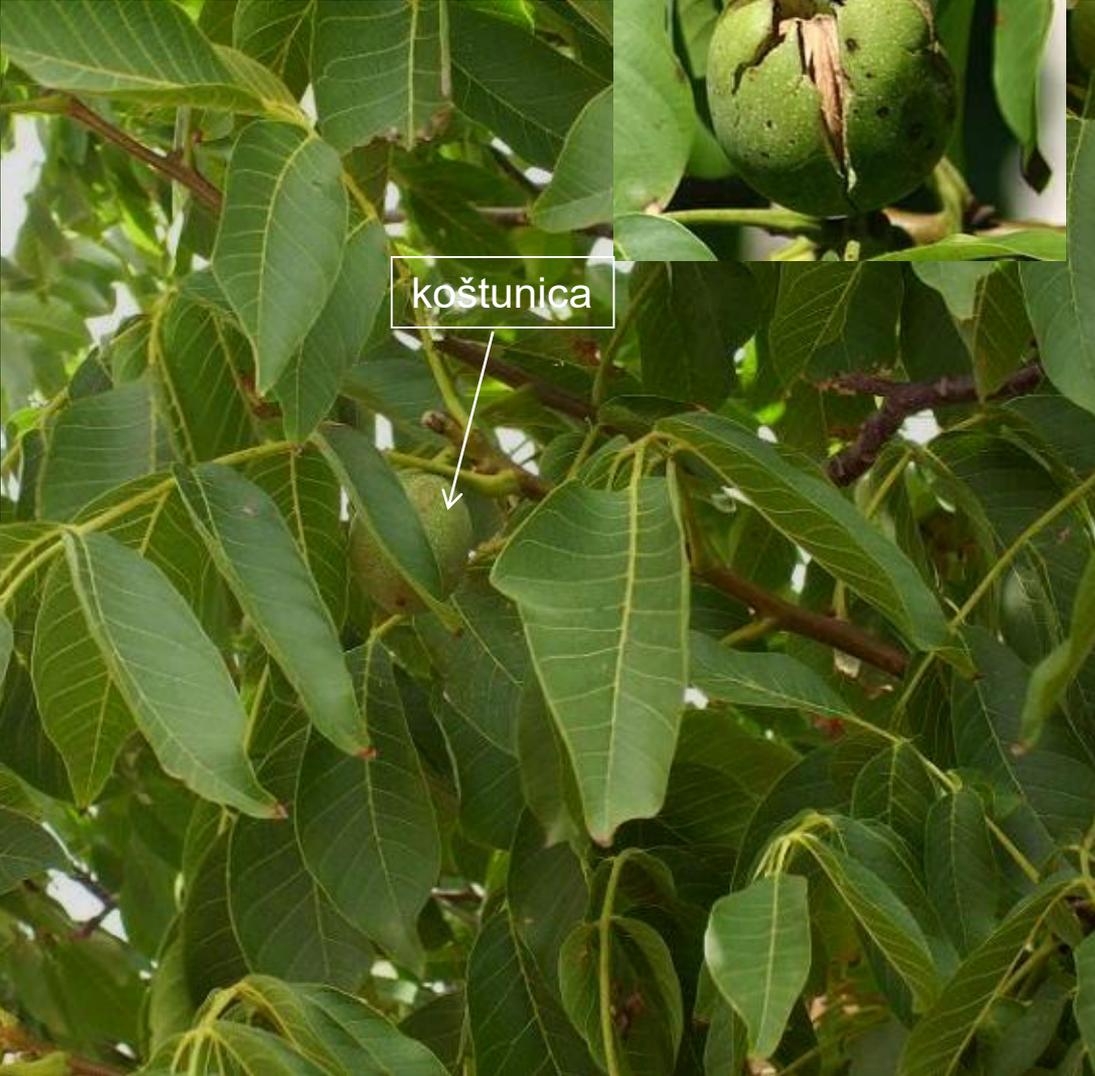
Parietaria judaica- mrtva kopriva



Red. Juglandales

fam. Juglandaceae *P₃₋₅ A₈₋₄₀ *P₃₋₅ G/(2)

Juglans regia- orah



Red: Rosales

Fam. Rosaceae

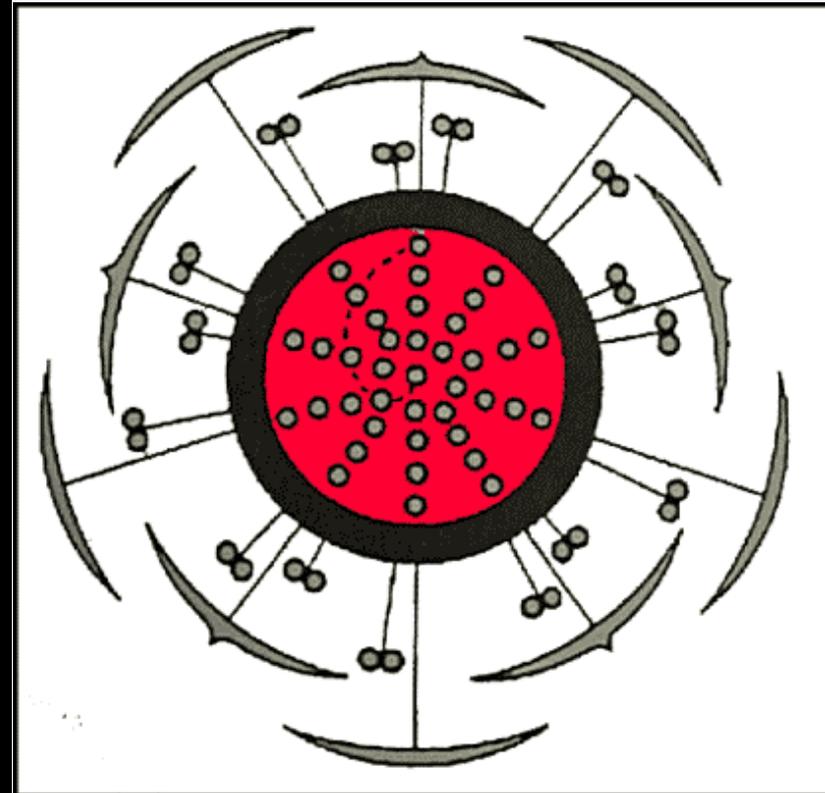


Subfam. Spiroideae K5 C5 A ∞ G 2-5
(gineceum apokarpan, plod je u vidu
jednog ili više miješaka), g. Spirea,
Aruncus

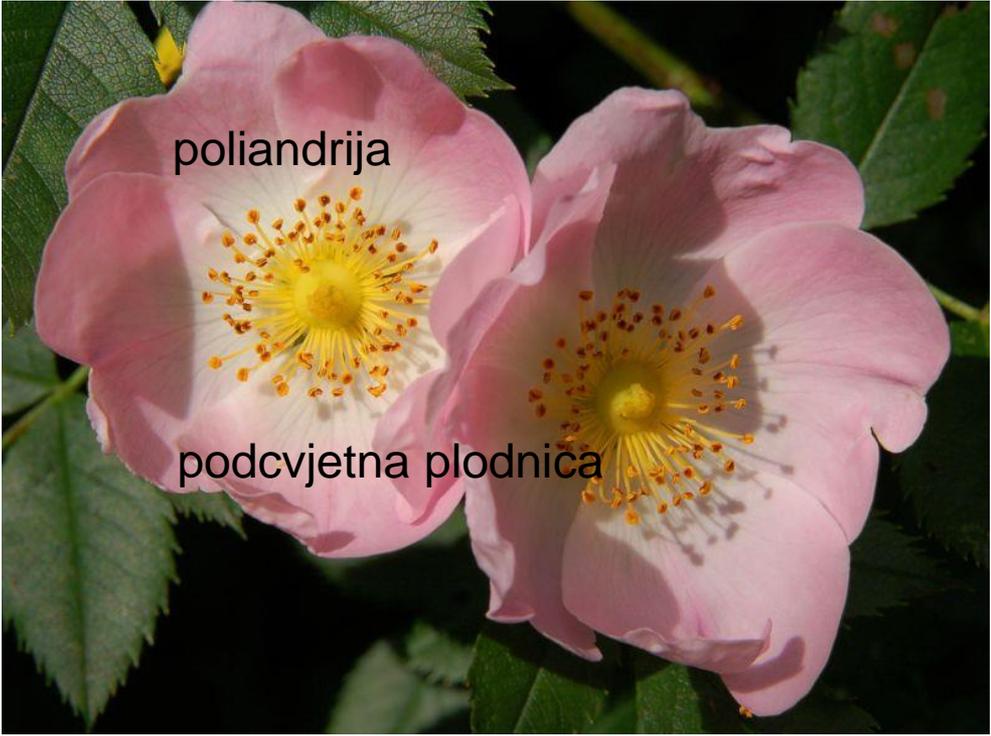
Subfam. Rosoideae K5 C5 A ∞ G ∞
(gineceum apokarpan, plod je
jednosjemena oraščica, koštunica-
zbirni plod), g. Rosa, Rubus, Fragaria,
Potentilla, Geum, Agrimonia,
Sanguisorba, Dryas, Filipendula ...

Subfam. Maloideae K5 C5 A ∞ G /(5)
(gineceum sinkarpan, plod je pomum),
g. Malus, Cydonia, Sorbus,
Crataegus, Pyrus

Subfam. Prunoideae K5 C5 A ∞ G 1
(gineceum monokarpan, plod
koštunica), Prunus, Amygdalus



Subfam: Rosoideae



poliandrija

podcvjetna plodnica

Rosa canina- šipurak

Neparno perasto dijeljeni listovi

Zalisci srasli sa lisnom drškom

Rubus ulmifolius kupina

Zbirni plod, koštunica
Nadcvjetna plodnica



Poliandrija





Zbirni plod, oraščica

Fragaria vesca- jagoda



Epikaliks
(spoljašnja čašica)



Stolone



Epikaliks
(spoljašnja čašica)

Puzeće stablo
Dlanoliki listovi

Potentilla reptans- petolisnik



Agrimonia eupatoria, petrovac



Bodlje
na čašici

Isprekidano perasti listovi!



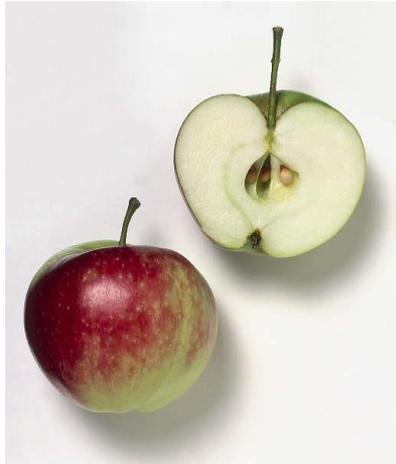
Heksamerni cvjetovi!

Filipendula hexapetala
(poljska suručica)



Perasto dijeljeni listovi

Subfam. Maloideae

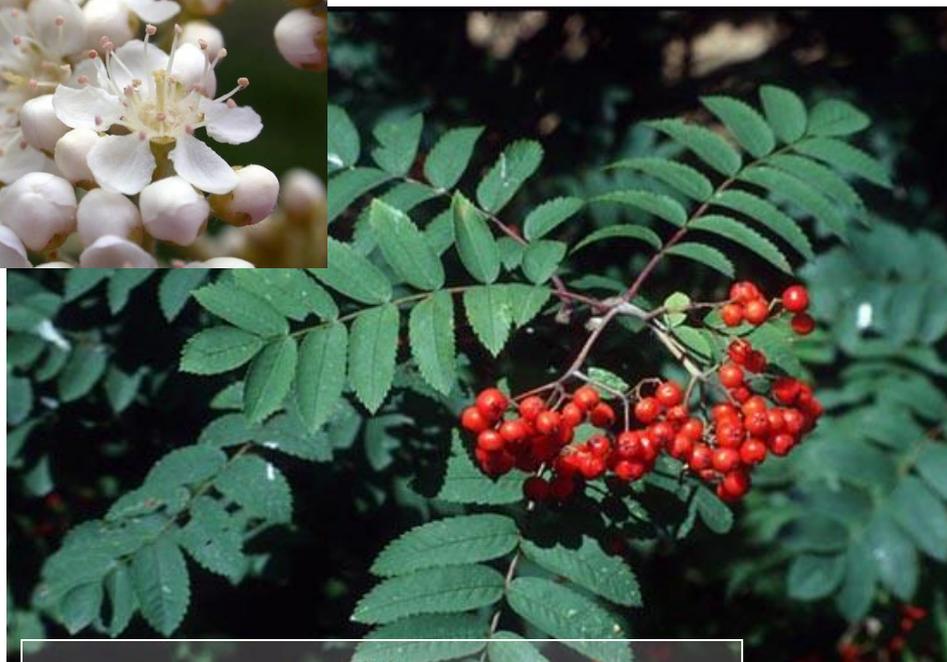


Malus domestica- jabuka

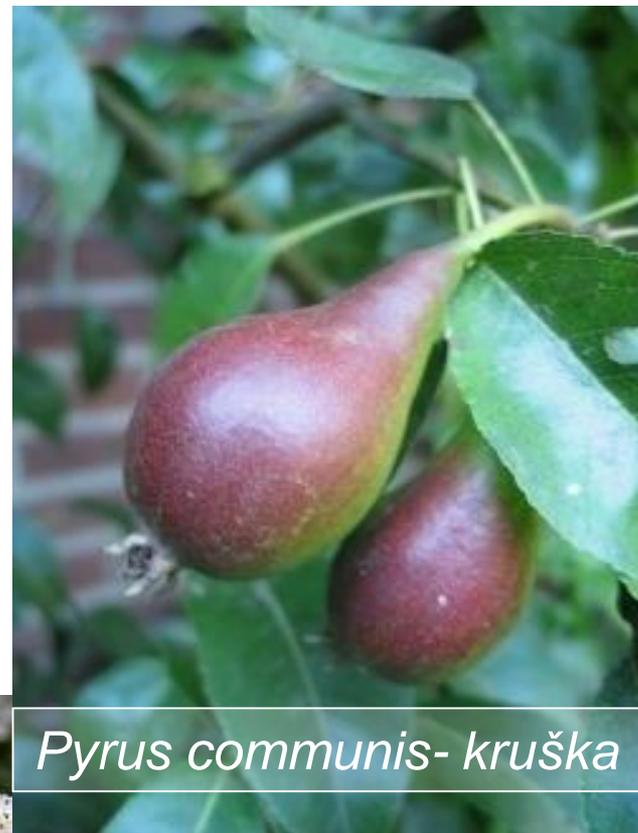


Cydonia oblonga- dunja





Sorbus aucuparia
jarebika



Pyrus communis- kruška



Crataegus monogyna- glog



Subfam. Prunoideae

Prunus webbii- divlji badem



Plodnica slobodna, obrasla



Prunus cerasus- višnja



Prunus domestica šljivja



Prunus armeniaca- kajsija



Red: Fabales

Fam: Mimosaceae

Fam: Fabaceae

Fam: Caesalpinaceae

Cvjetovi jedнопolni



Acacia dealbata



Cercis siliquastrum

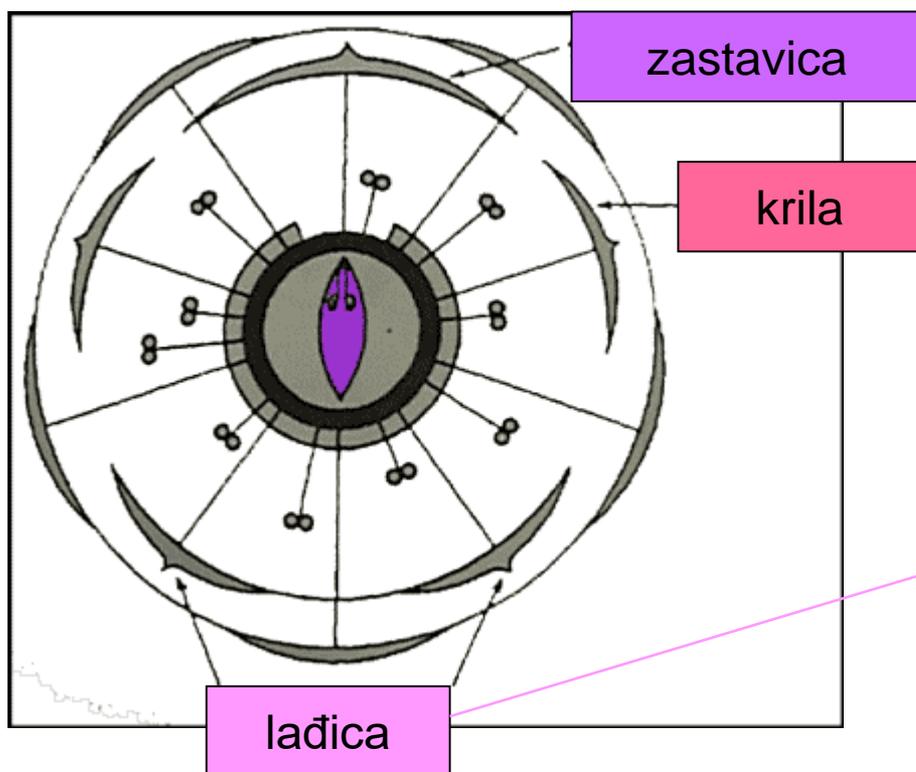
kauliflorija



Ceratonia siliqua- rogač

Fam: Fabaceae (Leguminosae, Papilionaceae)

K(5) C5 A(10) ili (9)+1 G₁



vitice ili rašljike

A (10)- filamenti svih prašnika srasli

Spartium junceum,
Žuka, afilna forma



Petteria ramentacea- zanovjet
Prva novoopisana biljka u flori Crne

Gore!!!



Listovi cijeli, kratkotrajni

Robinia pseudoacacia, bagrem



Zalisci metamorfozirani u trn

A (9)+1- filamenti 9 prašnika srasli



Wisteria sinensis

Phaseolus vulgaris, pasulj



Pisum sativum, grašak



Krupni zalisci



Glycine max- soja



Arachys hypogaea- kikiriki



Plod razvijen iz
kleistogamnih cvjetova!

Lens- sočivo



Rašljika, vitica

Parno perast list



Listovi bez rašljike



Vicia faba- bob
(syn. *Faba sativa*)



Vicia sativa- grahorica



Vicia grandiflora





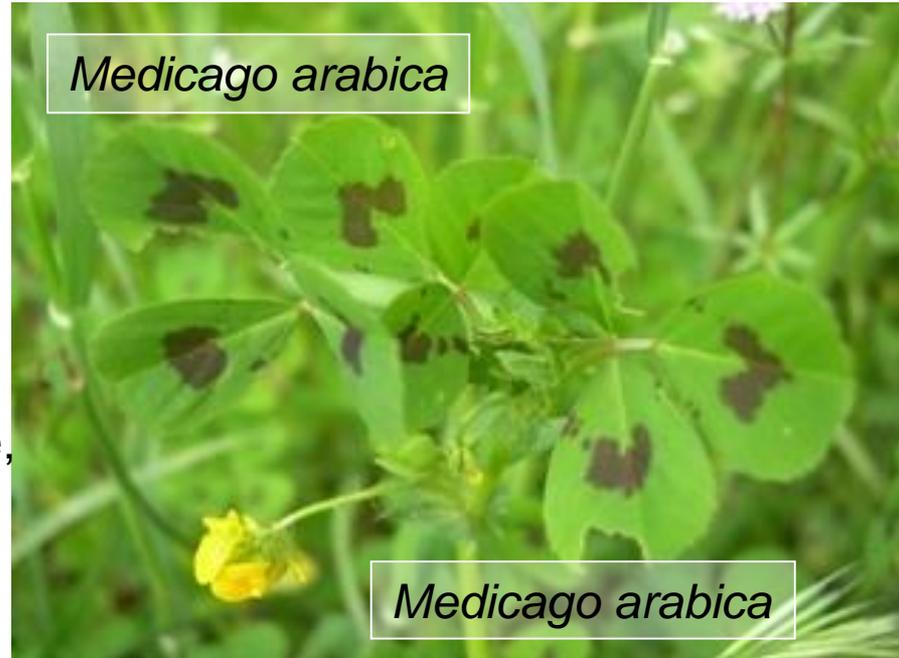
Cicer arietinum- leblebija



Lupinus angustifolius-
uskolisna lupina



Trodjelni listovi,
zalisci ne
srastaju sa
lisnom drškom.
Mahune ili
srpaste ili
pužasto uvijene,
čašica otpada.



Tipovi plodića kod *Medicago* spp.





1



2

Trodjelni listovi, zalisci
srastaju sa lisnom
drškom.
Mahune ostaju obavijene
čaišćnim listićima.

1. *Trifolium repens* (bijela djetelina)
2. *T. arvense*
3. *T. campestre*
4. *T. pratense* (crvena djetelina)



3



4

Lathyrus tuberosus

Parno perasti listovi



Krupni zalisci!



Lathyrus aphaca

Lotus corniculatus- zvjezdan



List petodjelan.





Bočni
izdanci
završavaju
trnom!



Trodjelni listovi, zalisci
srastaju sa lisnom
drškom.

Ononis spinosa- zečji trn

Red: Rutales

Fam: Rutaceae
Fam: Anacardiaceae



Fam. Rutaceae



Ruta graveolens



Dictamnus albus

Intrastaminalni disk

K4-5 C4-5 A 8-10 G(4-5)/



Citrus lemon



Poliandrija, G (-20)/



Citrus aurantium



Citrus nobilis

Red: Geraniales

Fam: Linaceae

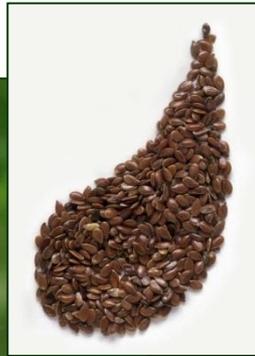
Fam: Geraniaceae (zdravci)



Fam: Linaceae



Linum usitatissimum- lan



Linum capitatum- planinski lan

5 prašnika, pri dnu srasli,
5 vratova

Fam. Geraniaceae

Geranium purpureum



Svih 10 prašnika su fertilni

merikarpijum

*K5 C5 A5+5 G(5)
*K5 C5 A0+5 G(3)

Erodium cicutarium



5 prašnika su fertilni

Red: Rhamnales

Fam. Rhamnaceae

Fam: Vitaceae

Rhamnus orbicularis



Pallurus spina-chrysti



Fam: Vitaceae

Zyziphus jujuba- iglica



Vitis vinifera



Red: Cornales

Fam. Cornaceae



Fam. Cornaceae



Cornus mas

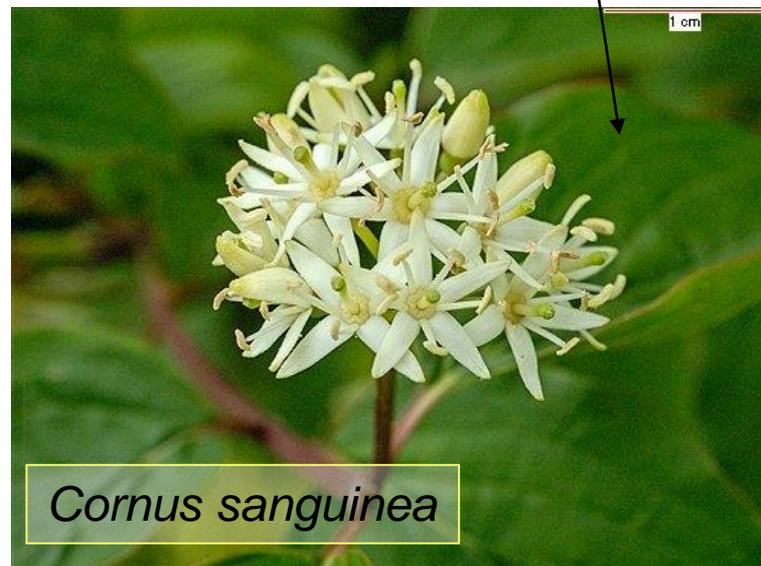


Listovi se javljaju postfloralno

Ovojni listići oko štitaste cvasti

Plodnica podcvjetna, plod koštunica

Listovi se javljaju prije cvjetanja



Cornus sanguinea

Red: Araliales

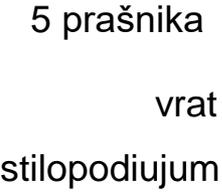
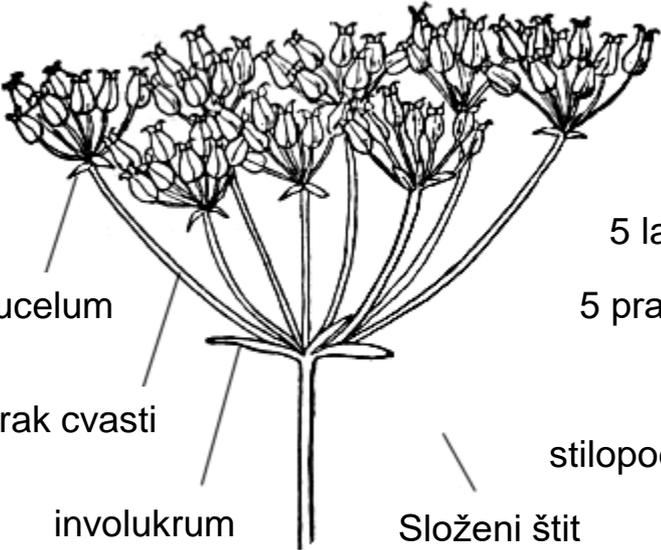
Fam: Araliaceae



Fam: Apiaceae



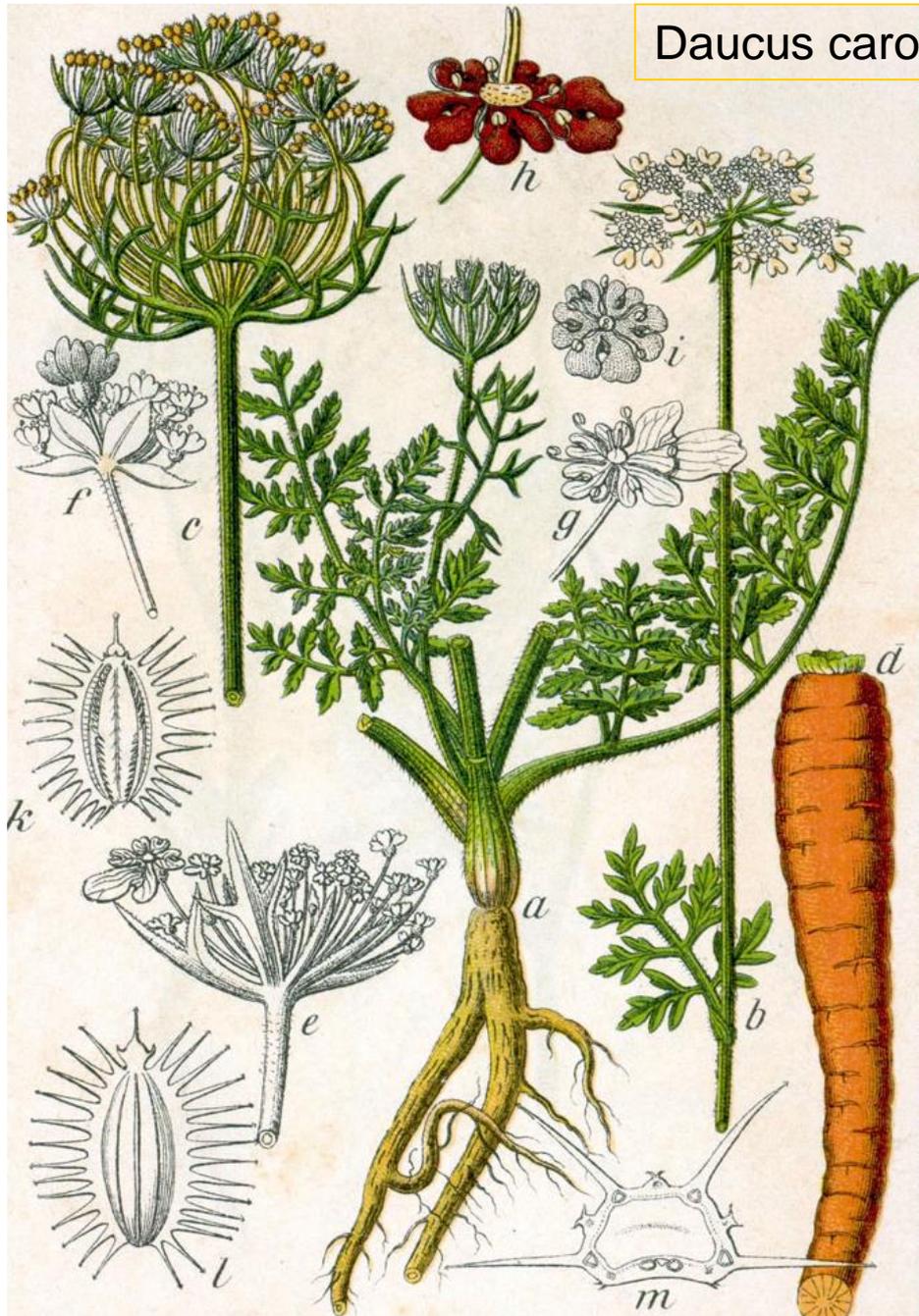
Hedera helix



↑/*K5 C5 A5 G/(2)

Plod (šizokarpium)

Daucus carota- mrkva



Korijen repast.
Listovi 2-4 perasto dijeljeni na izdužene i nazubljene ili urezane segmente.
Listići involukruma perasto isječeni i sa končastim segmentima. Za vrijeme plodonošenja i obuhvataju štit. Plodići bodljasti.

Coriandrum sativum- korijander



Izražen dimorfizam listova.
Donji listovi perasti, liske široke i režnjevite.
Listovi stabla dijeljeni u končaste odsječke.
Plod loptast.

Petroselinum crispum (Mill.) Nym.-
peršun



Apium graveolens L. - celer





Carum carvi- kim

Pimpinella anisum- anis





Carum carvi- kim



Pimpinella anisum- anis

Foeniculum vulgare- morač



Levisticum officinale- selen



Pastinaca sativa- paškanat





Levisticum officinale- selen



Pastinaca sativa- paškanat

Saxifragales

Fam: Crassulaceae
Fam: Saxifragaceae



Fam: Crassulaceae

Sedum acre- žednjak



Sukulente!

Sempervivum spp.- čuvarkuća



Fam: Saxifragaceae



*K5 C5 A5 G/(2)

Ribes sp.- ribizla

Red: Oleales

Fam: Oleaceae

*K4 (C4 A2) G (2)

Olea europaea- maslina



Fraxinus ornus- jasen





Jasminum nudiflorum

*K5 (C5 A2) G (2)



Syringia vulgaris- jorgovan

*K4 (C4 A2) G (2)



Phillyrea media, zelenika

Red: Myrtales

Fam: Punicaceae
Fam: Myrtaceae



Fam: Punicaceae

*K5-8 C5-8 A ∞ G / (7-15)

Punica granatum- šipak



Mnogosjemena bobica

*K5 C5 A ∞ G / (3)

Myrtus communis L. - mirta



Red: Theales



fam: Hypericaceae

“perforirani” listovi



Hypericum perforatum- kantarion



Niz crnih žlijezda uz rub latice

Plodnica sa više vratova



Prašnici u snopićima



Red: **Violales**



Fam: **Violaceae**



Viola spp.- ljubičica

↑K5 C5 A5 G(3-5)

privjesci anteriornih
prašnika nektarijske
uloge

koripetalni
pentamerni
vjenčić

vršni dio
gineceja

korisepalna
pentamerna čaška

pentamerni andrecej
okružuje plodnicu

bazalni privjesak lapa

ostruga

cvjetna stapka

Photo by: Grgurev M.

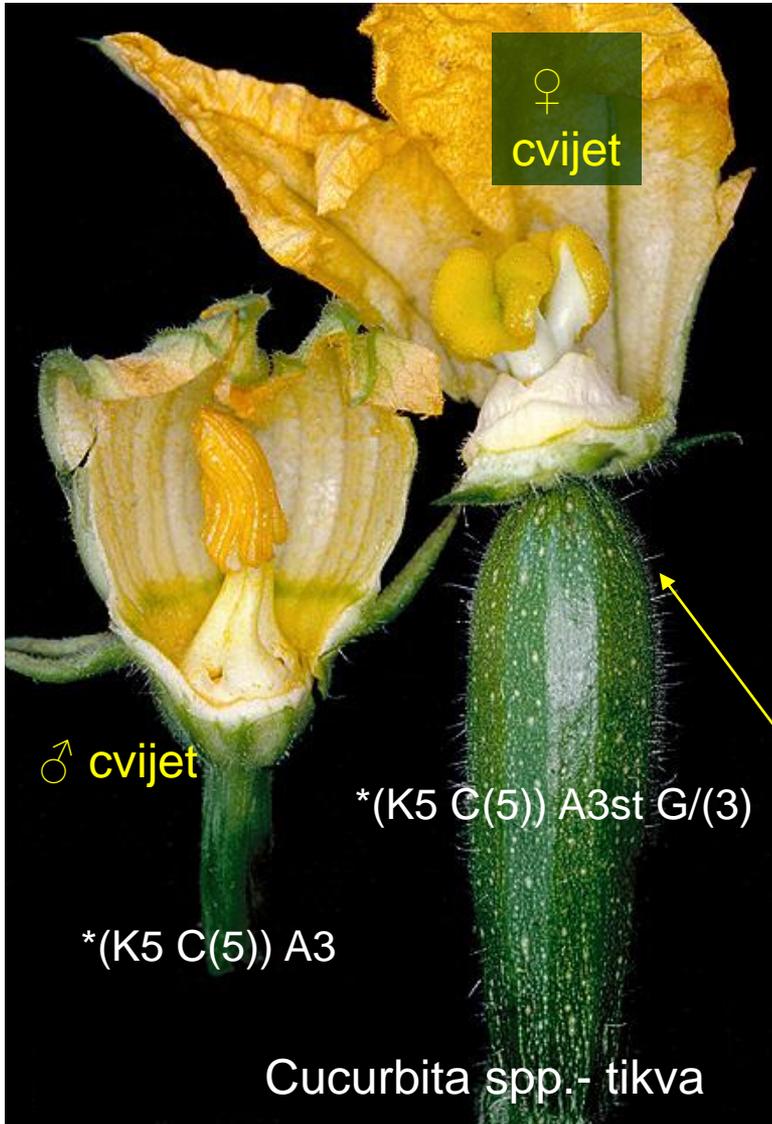


V. tricolor- dan-noć

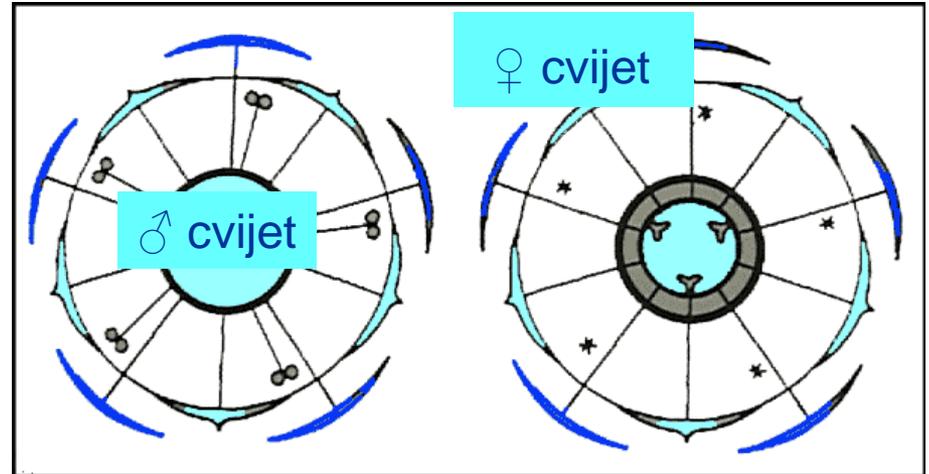
Red: Cucurbitales



Fam: Cucurbitaceae = tikve



Opšti cvjetni dijagram



Podcvjetna plodnica





Cucurbita pepo= tikva



Cucumis sativus= krastavac



Ecbalium elaterium=
ludi krastavac

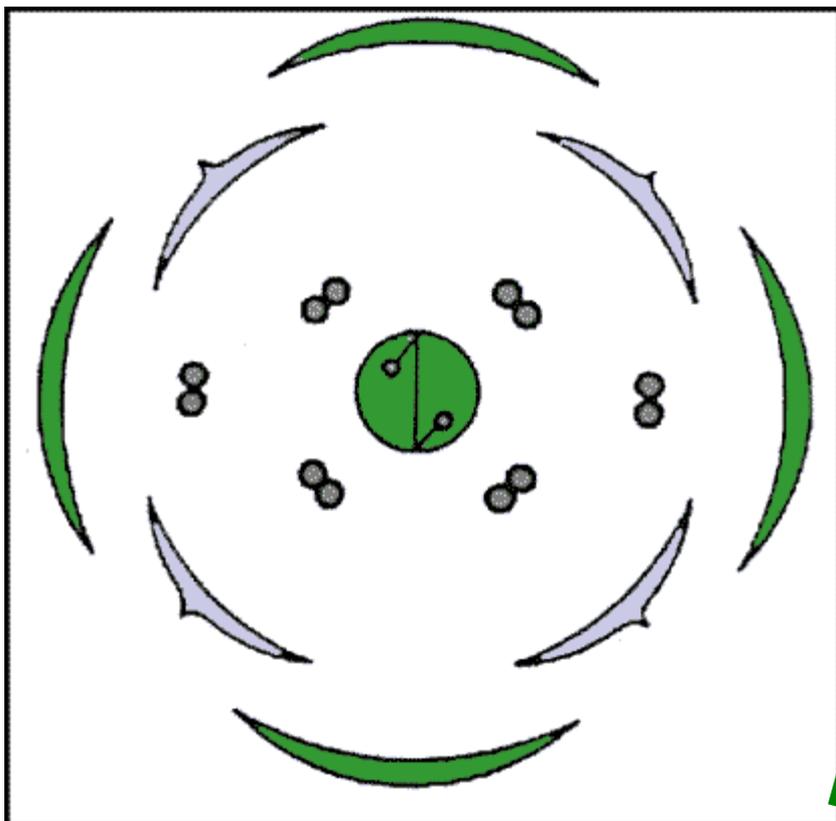


Bryonia dioica

Red: Capparales



Fam: Brassicaceae

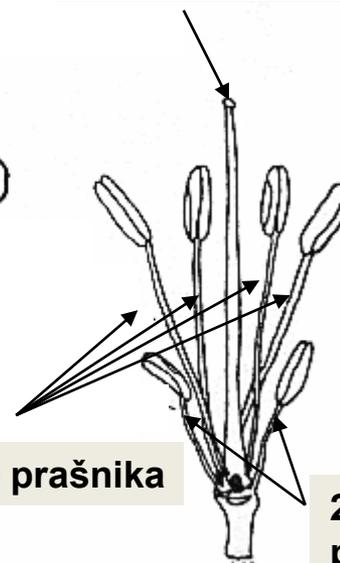


4 čašična lističa

4 krunična lističa



Plod tipa ljuška



4 duža prašnika

2 kraća prašnika

*K4 C4 A2+4 G(2)

Plod tipa komuške



Brassica oleracea- kupus.



Raphanus sativus- rotkvica





Sinapis alba- slačica (senf)



Cochlearia armoracia- ren



Capsella bursa-pastoris- hoću-neću



Sisymbrium officinale- oranž

Red: Ericales



Fam: Ericaceae



*K(5) C(5) A5+5 G(5)



Vaccinium myrtillus
borovnica



Arctostaphylos uva-ursi
međeđe grožđe
(uvin čaj)

Vaccinium vitis-idea- brusnica



Red: Primulales

→ Fam: Primulaceae



Primula vulgaris- jagorčevina



*K(5) (C(5) A5) G(5)

Primula veris- jaglika



Listovi u rozeti.
Cvjetovi sa dvojnim pentamernim perijantom, pravilno simetrični, krunični listići srasli donjim dijelom u cijev, prašnika 5, plodnica nadrasla

Anagalis arvensis



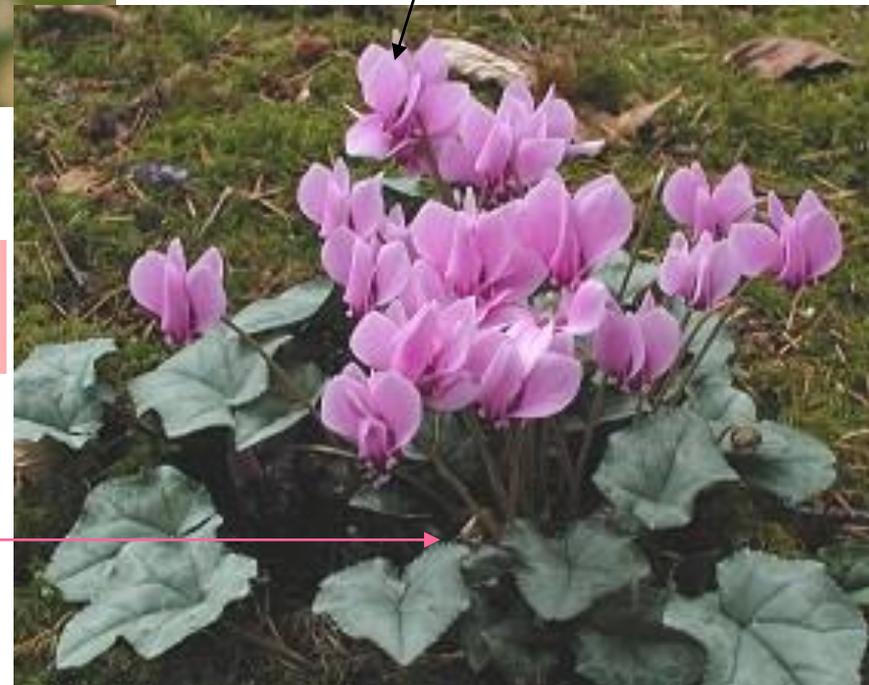
Stabljika nosi naspramne listove



Vršni djelovi kruničnih listića previnuti ka nazad

Krunični listići slobodni

Cyclamen hederifolium
ciklama



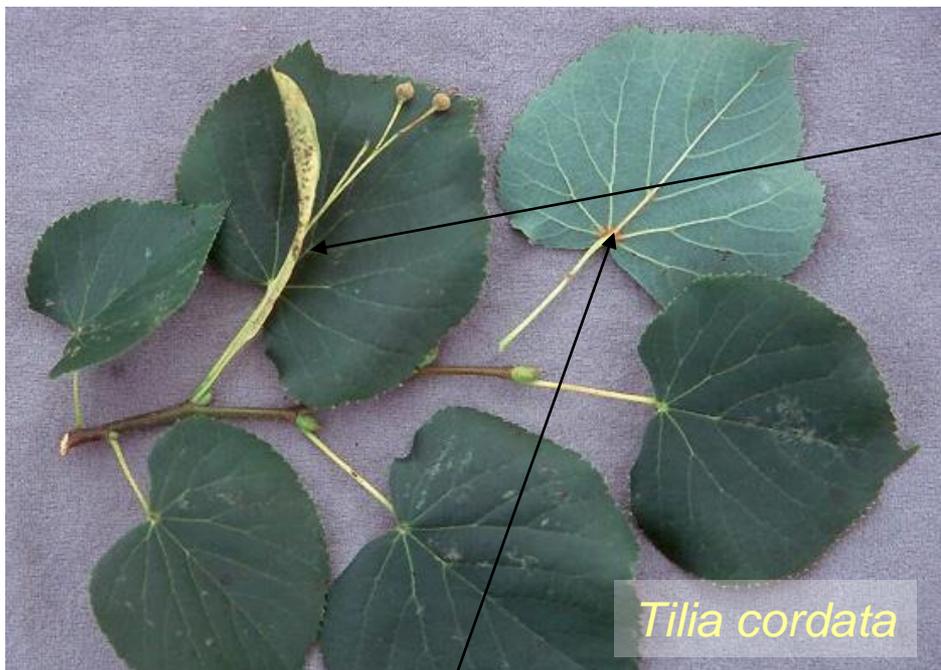
Listovi prizemni

Razvijen gomolj!!!

Red: Malvales



Fam: Tiliaceae

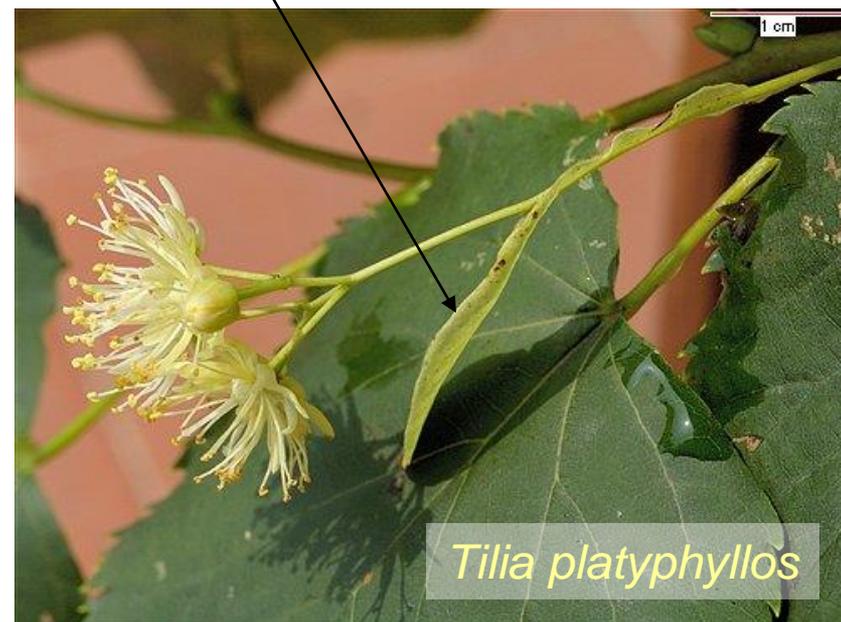


Čuperak kafenkastih
dlačica pri bazi lista

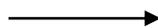
Cvjetovi dvopolni, sa dvojnim petočlanim
perijantom, prašnika mnogo, plodnica
nadcvijetna

Priperak = listić srastao za dršku cvasti

*K5 C5 A ∞ G(5)



Red: Malvales



Fam: Malvaceae



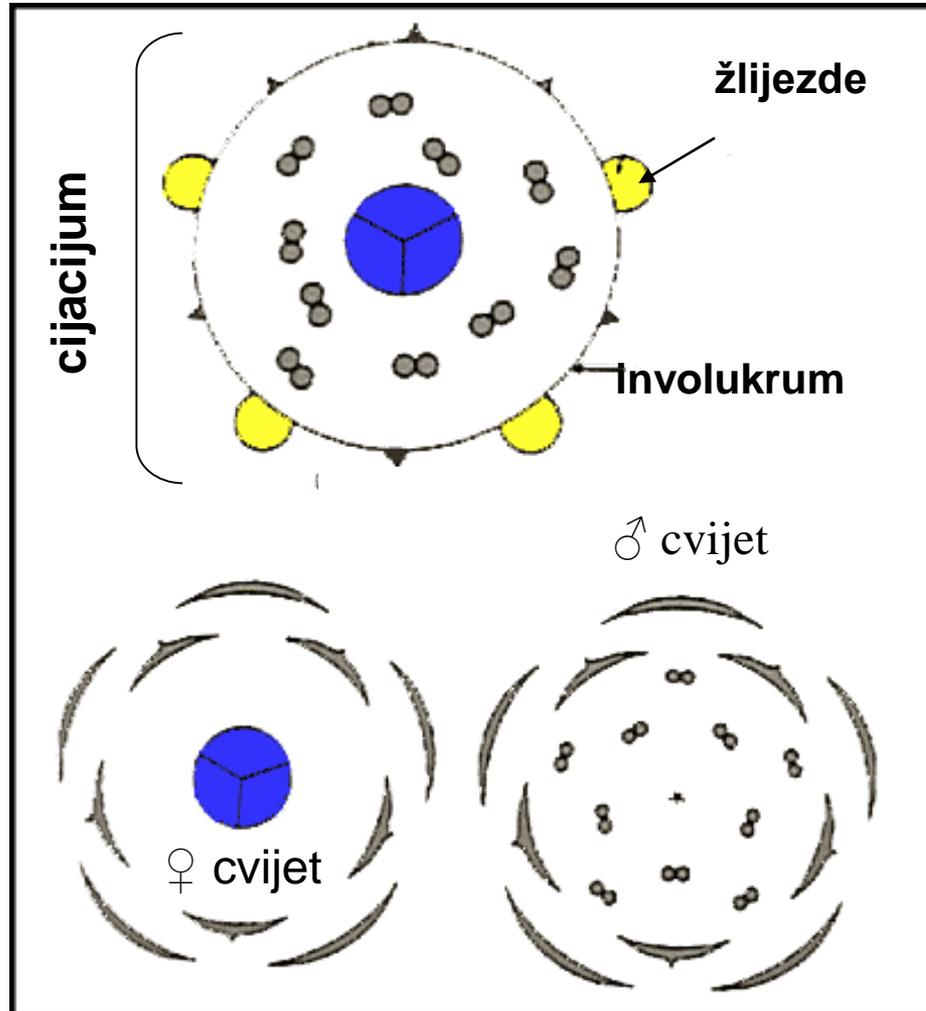
*K(5) (C(5) A(∞)) G(5- ∞)



Red: Euphorbiales



Fam: Euphorbiaceae

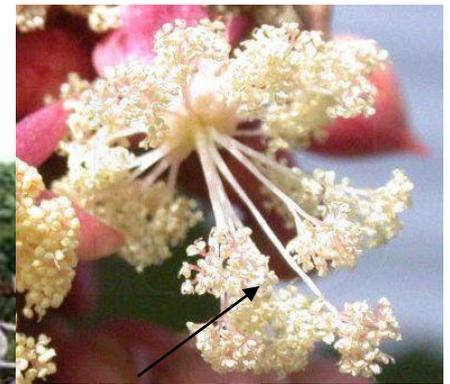


Mercurialis annua, prosinac



Ricinus communis- ricinus

*P₅ A_∞;
*P₃ G (3)



Granati prašnici



g. Euphorbia- mlječika

Ahlamidan cvijet!

♂ A1

♀ G(3)

Tipovi žlijezda:

1. Ovalne
2. Plumjesečaste

Ovalne žlijezde

Polumjesečaste žlijezde



Red. Caryophyllales

fam. Cactaceae

Opuntia spp.



*P ∞ A ∞ G/(3- ∞)



Podcvjetna plodnica

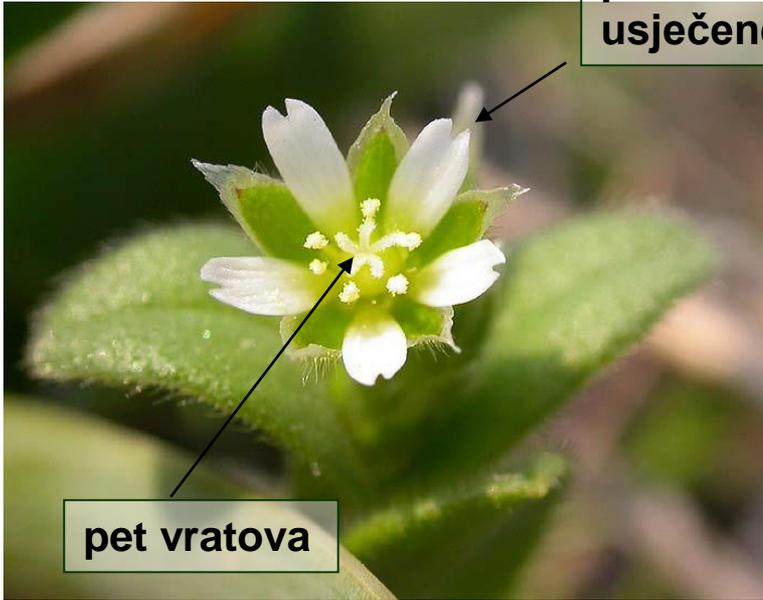
fam. Portulacaceae

*K2 C5 A8-15 G(3-5)



fam. Caryophyllaceae
*K5 C5 A5+5 G(5)

plitko srcoliko
usječene latice



pet vratova

duboko srcoliko
usječene latice

tri vrata

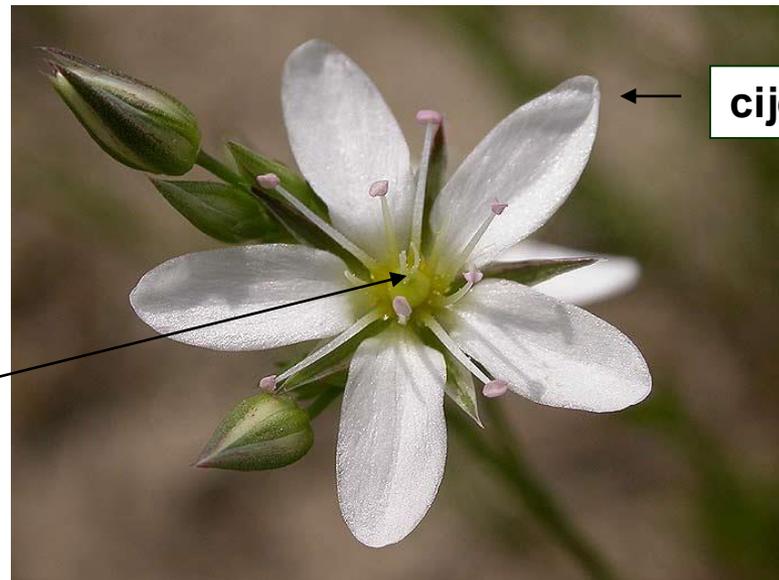


Stellaria spp.- mišjakinja

Cerastium spp.

Listovi cijeli i naspramni!

dva vrata

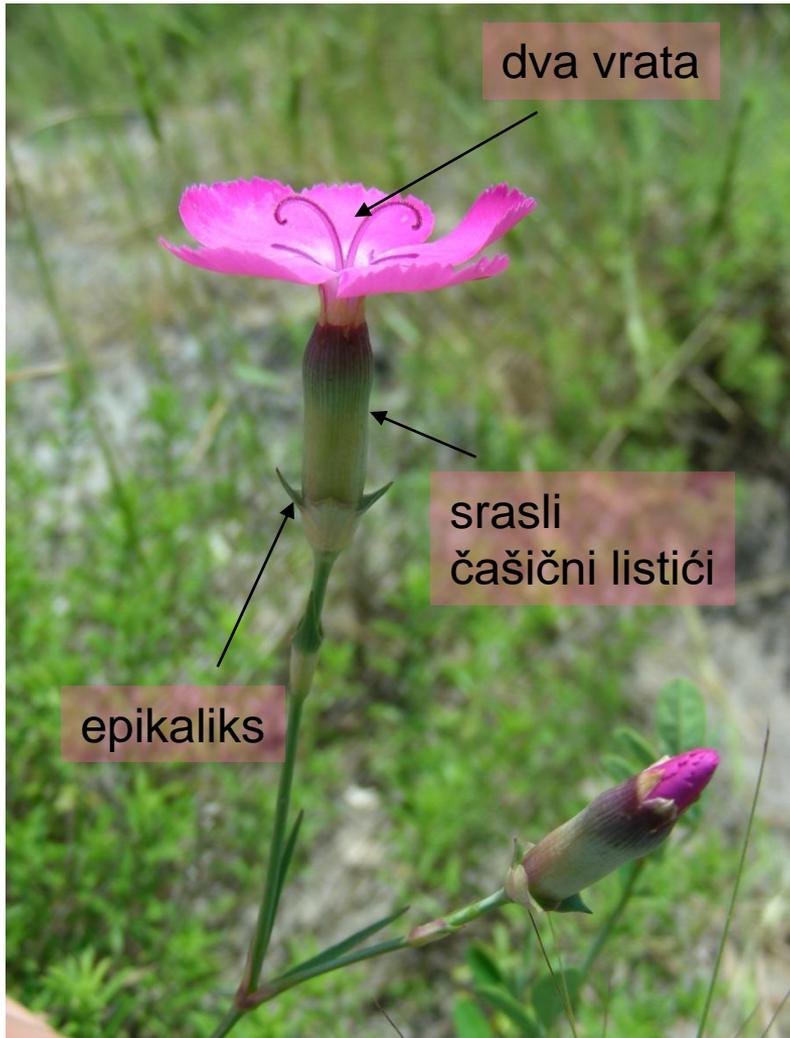


cijele latice

Minuartia spp.

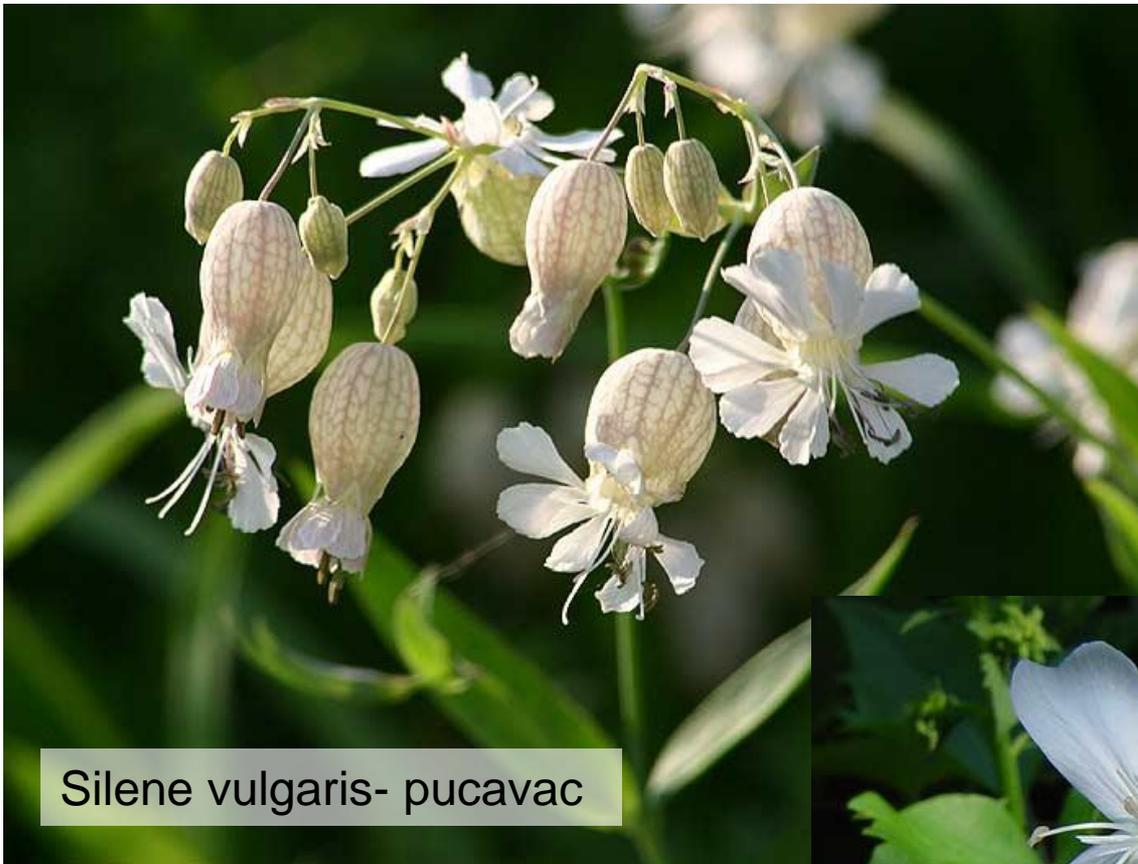
*K(5) C5 A5+5 G(5)

Dianthus spp.- karanfil



nazubljene latice





Silene vulgaris- pucavac

Epikaliksa nema!!!

privjesci na
laticama



Saponaria officinalis- sapunjača

fam. Amaranthaceae

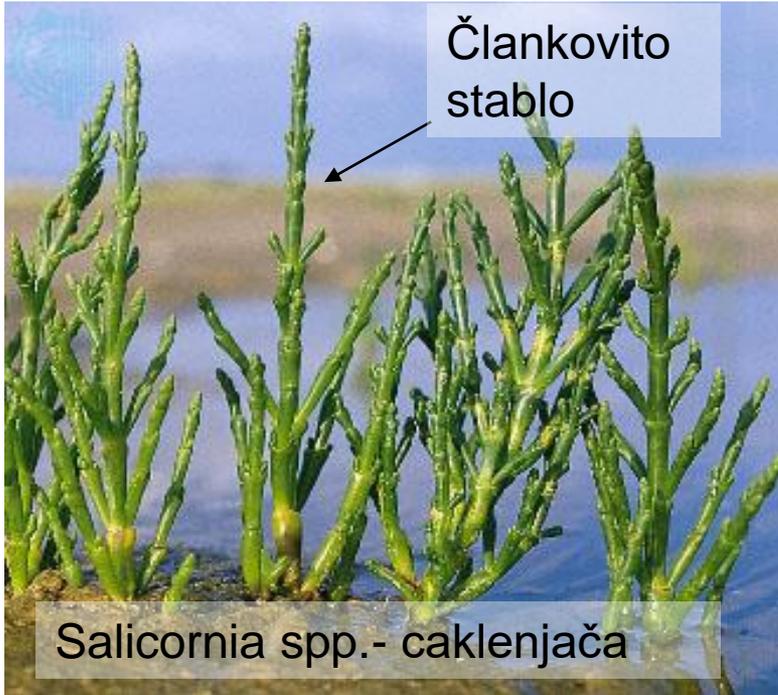
Amaranthus retroflexus- štir



perigon

*P5 A5 G(2-3)

fam. Chenopodiaceae



Listovi debeli, poluvaljkasti

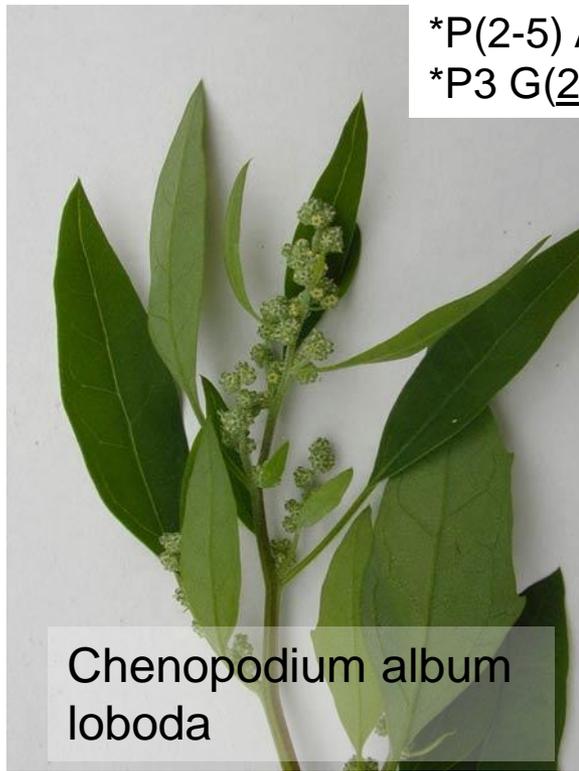




Beta vulgaris- cvekla

*P5 A (5) G(3)

Beta vulgaris ssp. cicla- blitva



Chenopodium album
loboda

*P(2-5) A (5) G(2-3)

*P3 G(2)



C. bonus henricus



Spinacia oleracea- spanać

*P(4) A4, *P(2-4) G(4)

Red. Polygonales

fam. Polygonaceae



ohreja



Polygonum sp.

*P5 A8 G(3)

5 listića perigona +
8 prašnika + nadcvj. G



*P5 A8 G(3)

Fagopyrum esculentum



Rumex spp.
štavelj



plodići

Listovi zaobljeni pri bazi i u obliku gitarice

6 listića perigona
+ 6 prašnika +
nadcvetna plodnica

*P6 A6 G(3)



Kopljasti list



Ordo. Dipsacales

Fam: Caprifoliaceae



*K₍₅₎ C₍₅₎ A₅ G₍₂₎



Sambucus nigra- zova



Sambucus ebulus- aptovina

Listovi napramni, neparno perasti.
Cvjetovi pentamerni!

Fam. Valerianaceae

$K_{(0-5)} C_{(5-3)} A_{1-3} G_{(2)}$



Valeriana officinalis-
macina trava

Trajnica sa
naspravnim i
perasto
dijeljenim
listovima



Valerianella locusta- matovilac

Jednogodišnja biljka sa polurozetom i
naizmjeničnim cijelim listovima

Fam. Dipsacaceae

$\uparrow K_{(5-3)} C_{(4-5)} A_4 G_{/(2)}$

Čašica od 8-10
bodljastih zubaca,
cvjetište dlakavo

Čašica od 5
bodlji,
cvjetište sa
luskavim
listovima

Knautia purpurea- udovičica

Scabiosa spp.



Ordo. Gentianales

Fam: Gentianaceae

*K⁽⁵⁾ (C⁽⁵⁾ A₅) G⁽²⁾



Centaurium erythraea- kičica



Gentiana lutea- lincura





Galium mollugo, obični broć



Galium aparine, broćika

Ordo. Polemoniales

Fam: Convolvulaceae

*K(5) C(5) A5 G(2)

Calystegia sepium- veliki slak



Čašica
obavijena sa
dva pricvjetna
listića



Convolvulus arvensis- obični slak



Convolvulus cantabricus



Fam: Cuscutaceae

*K(5) C(5) A5 G(2)

Cijev vijenca duža od vršaka



Cuscuta epythimum

Uglavnom parazitira na usnaticama i broćikama

Cijev vijenca jednako duga kao i vršci



Cuscuta europaea

Parazitira na različitim biljkama, u ovom slučaju na koprivi.

Fam. Boraginaceae
(oštrolisti)

↑*K(5) (C(5) A5) G (2)

Zigomorfni cvjetovi!



Aktinomorfni cvjetovi, sa zaklopcima u ždrijelu!



Myosotis sylvatica- nezaboravak



zaklopci



Symphytum tuberosum- gomoljasti gavez

Zaklopci štašičasti



Buglossoides arvensis- divlja proja



Plodić duboko usječen na 4 dijela

Aktinomorfan cvijet, bez zaklopaca



Plodić nije duboko usječen na 4 dijela



Heliotropium europaeum

Moltkia petrea- plavo lasinje, endemična vrsta



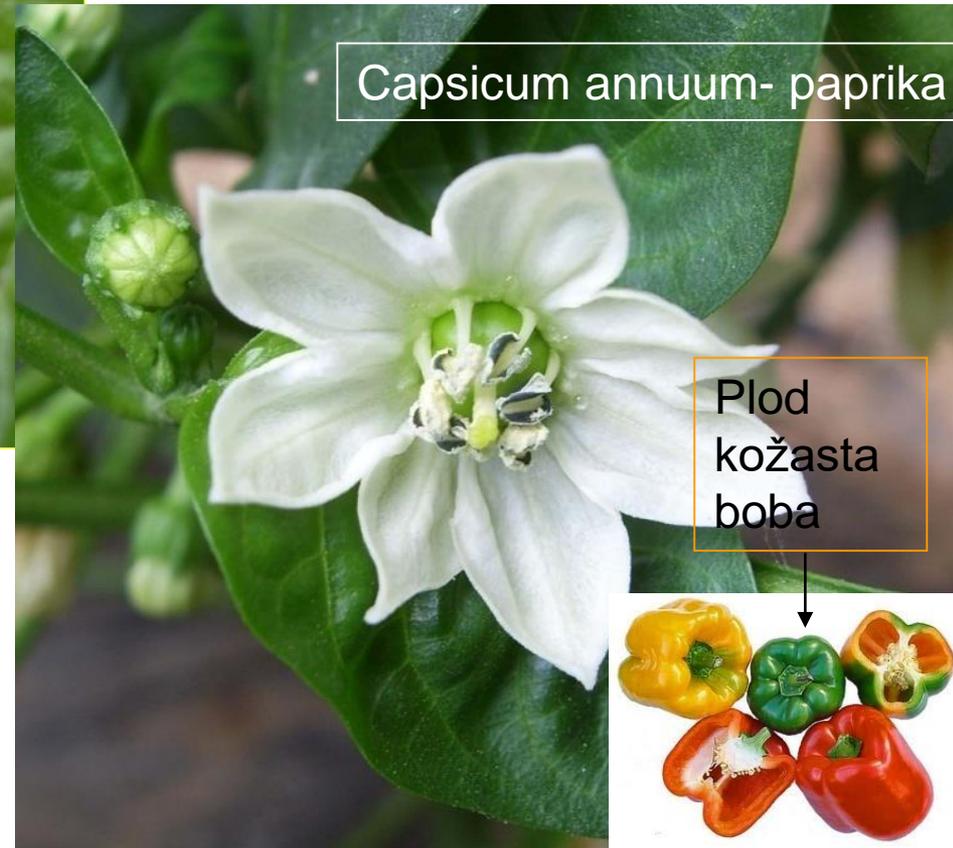
Ordo. Scrophulariales

*K(5) (C(5) A5) G(2-5)

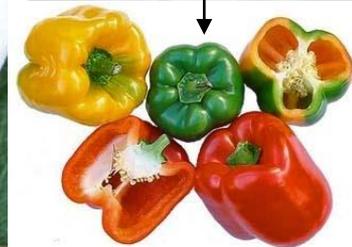
Fam: Solanaceae (pomočnice)



Plod sočna boba



Plod
kožasta
boba



Solanum tuberosum- krompir



Vjenčić zvonolik

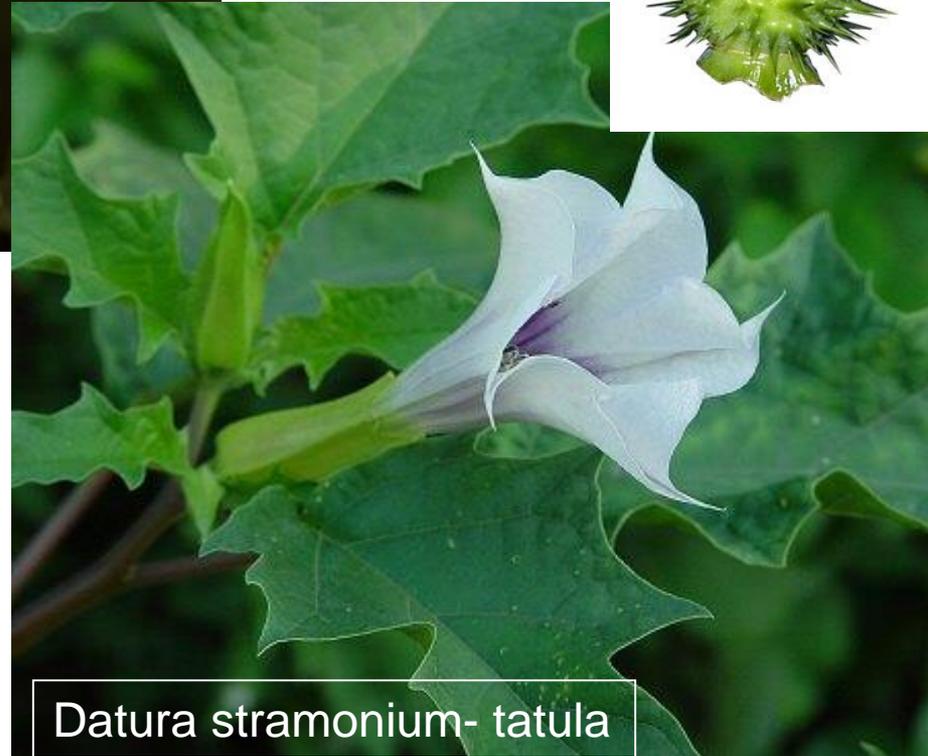


Atropa belladonna- velebilje

čaura

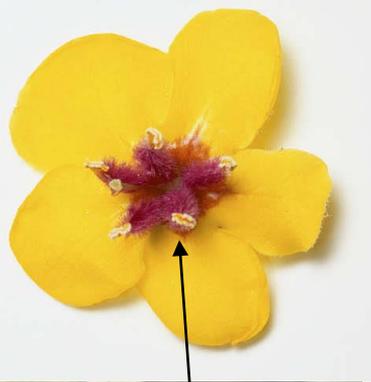


Vjenčić u donjem dijelu cjevasto sužen, a u gornjem pljosnato raširen



Datura stramonium- tatula

Verbascum blattaria
divizma



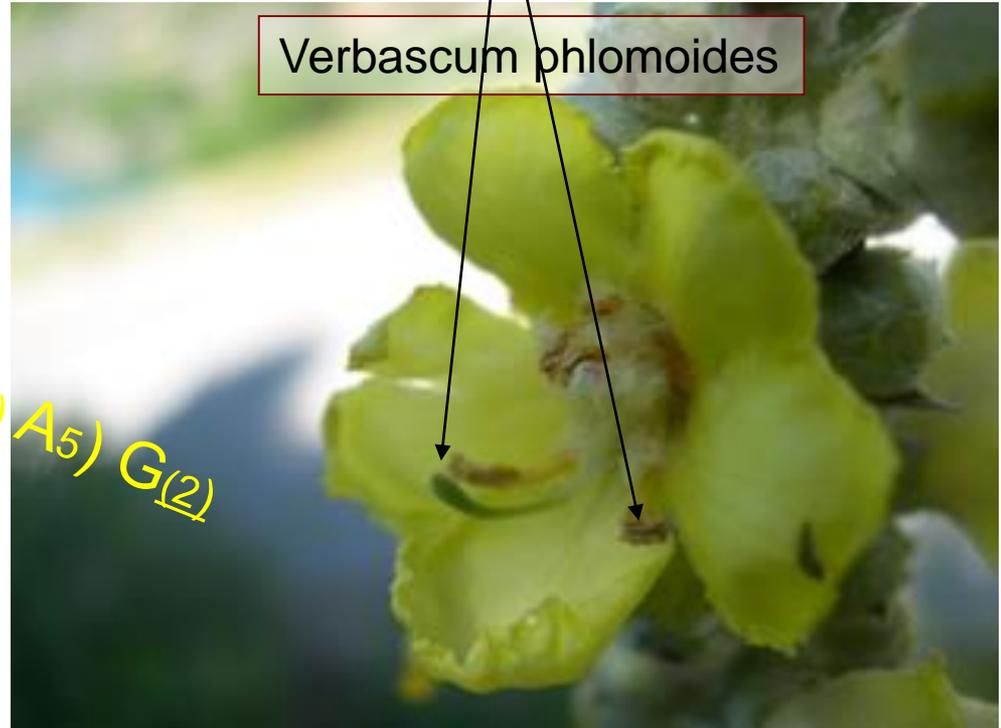
* $K_{(5)} (C_{(5)} A_5) \underline{G}_{(2)}$

Scrophulariaceae

↑* $K_{(4-5)} (C_{(4-5)} A_{2-5}) \underline{G}_{(2)}$

Prašnici sa upravnim anterama.
Filamenti bijelo dlakavi.

Verbascum phlomoides





Veronica persica, čestoslavica

Čašica 4-djelna

2 prašnika

Plod pljosnat



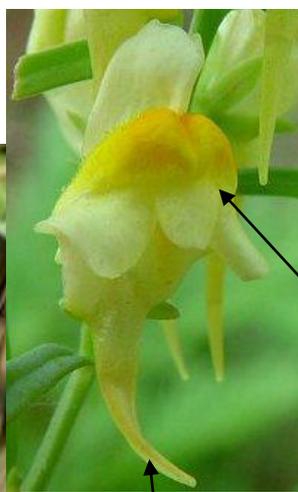
Veronica cymbalaria

Plod okrugao

$\uparrow K_{(4)} (C_{(4)} A_2) \underline{G}_{(2)}$



Linaria vulgaris- lanilist



ostruga

$\uparrow K(5) (C(5) A4) \underline{G(2)}$

Ždrijelo u potpunosti zatvoreno nepcem donje usne



Ždrijelo otvoreno

Digitalis purpurea- naprstak



Scrophularia canina

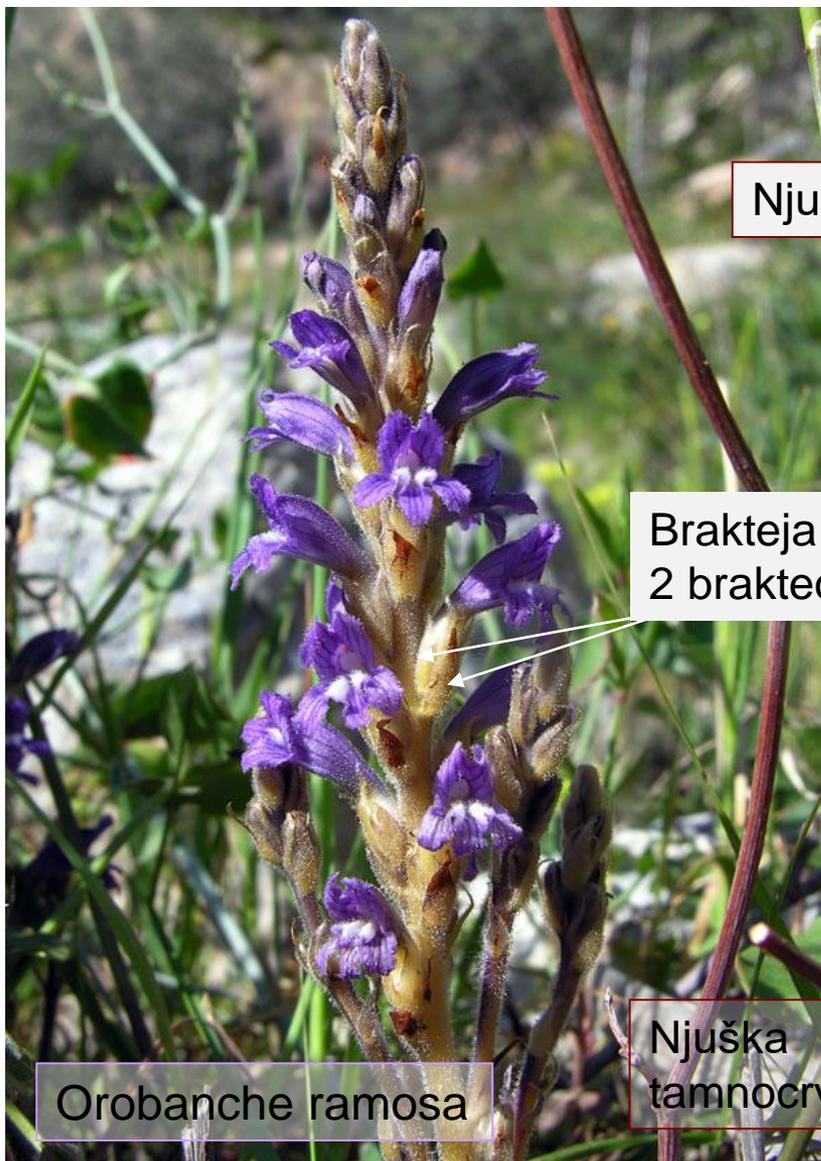
$\uparrow K_{(5)} (C_{(5)} A_4) \underline{G}_{(2)}$

Parentucelia latifolia



Fam. Orobanchaceae

↑K(5) (C(5) A4) G(2)



Njuška žuta

Brakteja +
2 brakteole

Njuška
tamnocrvena

Orobanche ramosa



Orobanche gracilis



Orobanche caryophyllacea

Fam: Plantaginaceae

*K(4) (C(4) A4) G(2)



Plantago lanceolata



Cvast tipa klasa

Vjenčić suhokožičast



Plantago major

Ordo. Lamiales

Fam. Lamiaceae
(usnatice)

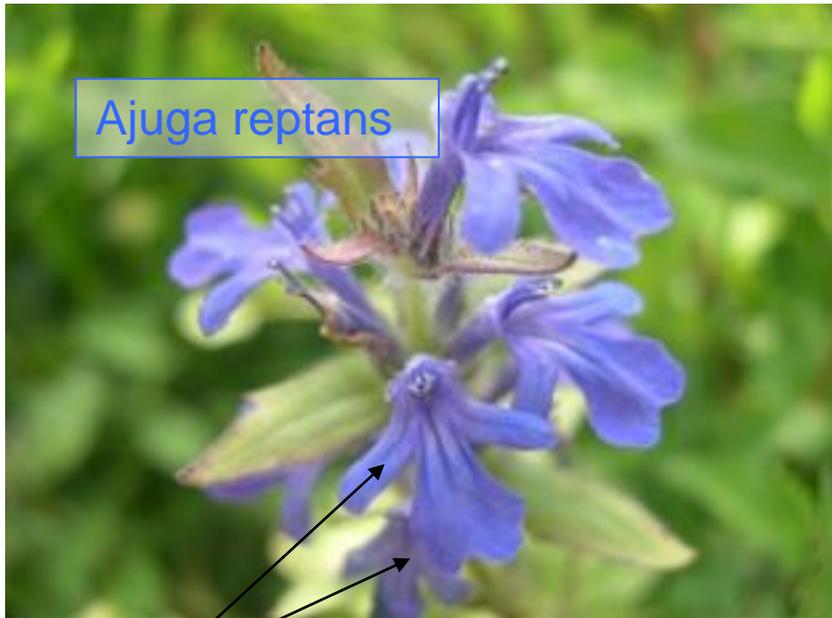
↑K(5) (C5 A4) G(2)

Mentha aquatica- menta



Vjenčić gotovo pravilan,
rascijepan na 4 dijela

Ajuga reptans



Donja usna
trorežnjevita, gornja
jako kratka!

Teucrium fruticans



Donja usna 5-režnjevita, gornja redukovana!



Salvia officinalis- pelim

Dva prašnika



Rosmarinus officinalis

Galeopsis speciosa
Smrdljiva kopriiva



Donja usna sa dva šuplja zubića

Prašnici ispod gornje
usne paralelni



Cijev vjenčića
trbušasto
proširena

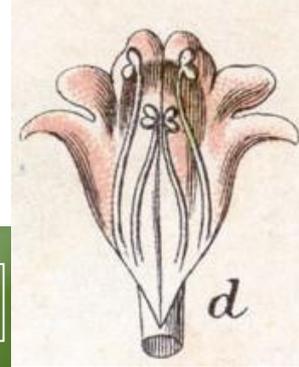
Lamium maculatum- mrtva kopriiva

Marrubium vulgare- očajnica



Prašnici i vrat unutar cijevi vijenca,
čašica od 10 zubaca

Prašnici ispod
gornje usne
jedan prema
drugom nagnuti



Melissa officinalis- matičnjak



Prašnici ispod gornje usne
raskrečeni



Thymus pulegioides- majkina dušica



Origanum vulgare-
vranilova trava, planinski čaj

Ordo. Campanulales

→ fam: Campanulaceae *K(5) C(5) A5 G/(2-5)



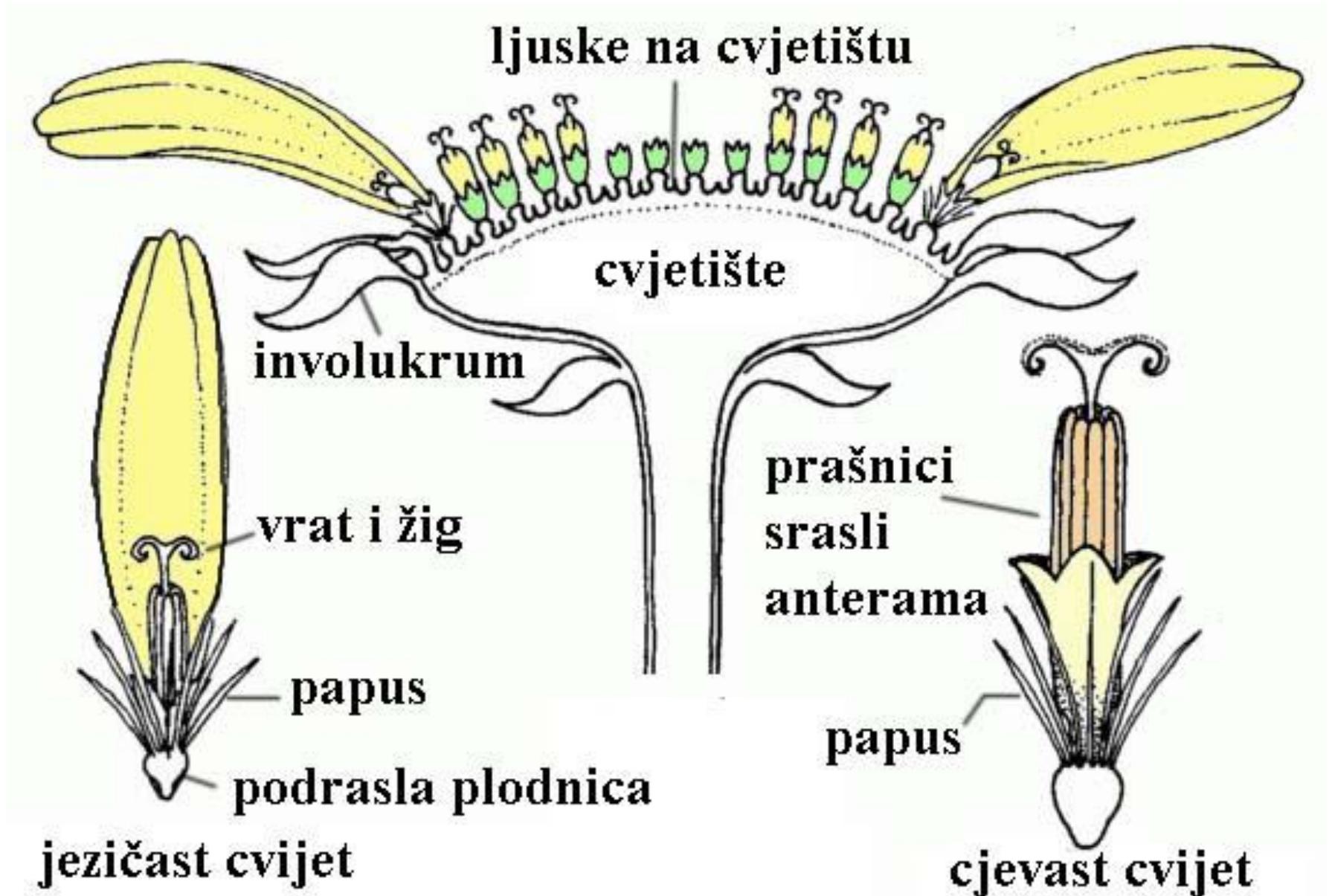
Podcvjetna plodnica

Campanula rapunculus- zvončíc

Ordo. Asterales



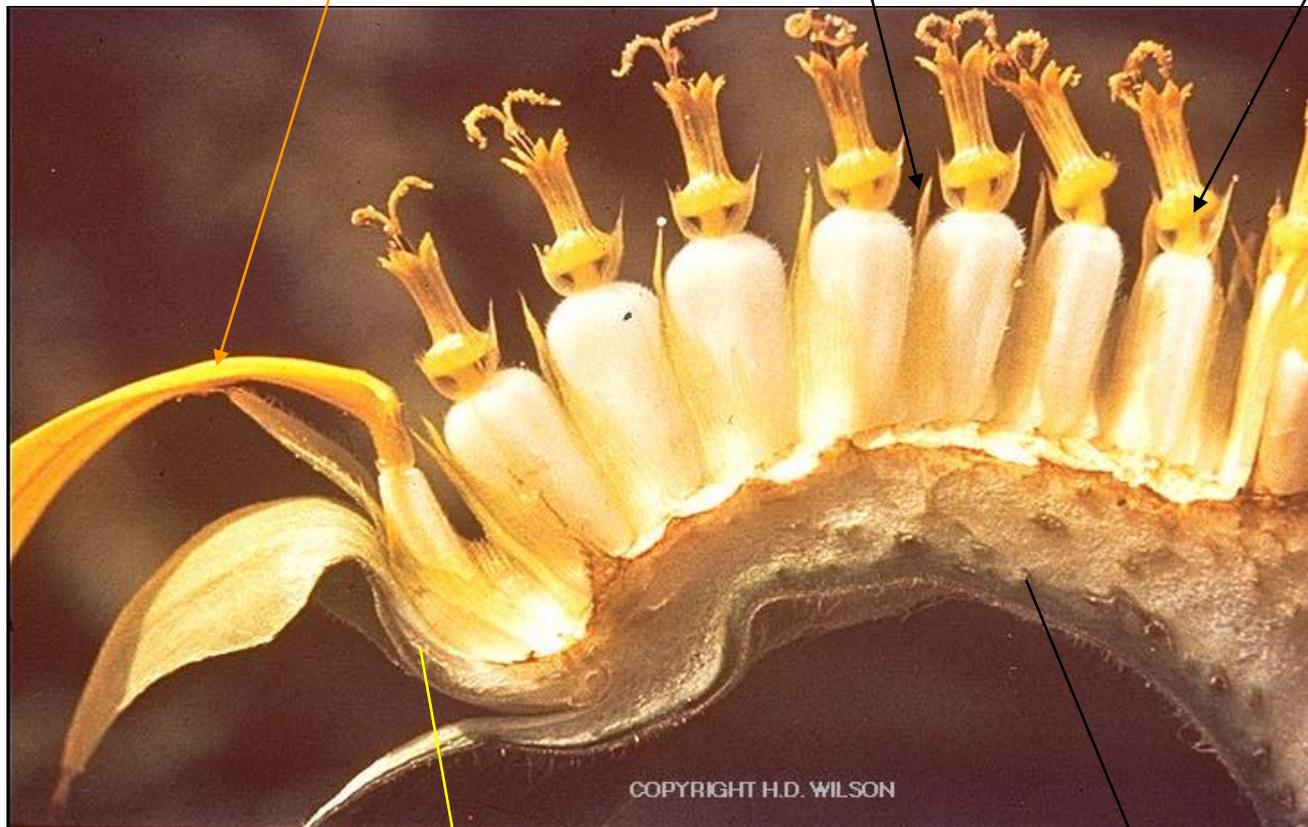
fam. Asteraceae



Jezičasti cvijet

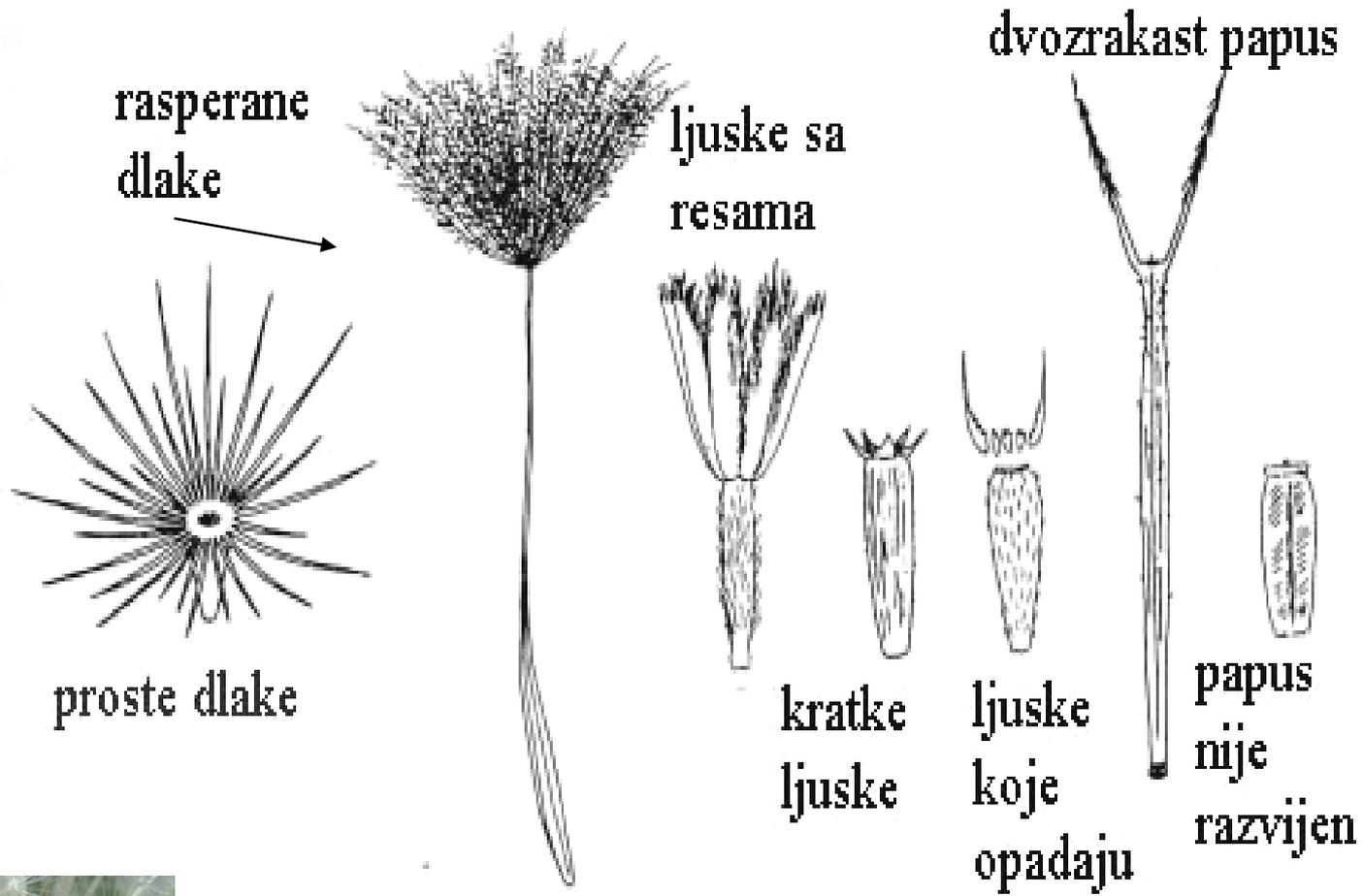
Ljuske na cvjetištu

Cjevasti cvijet



Listić
involukruma

Receptakulum



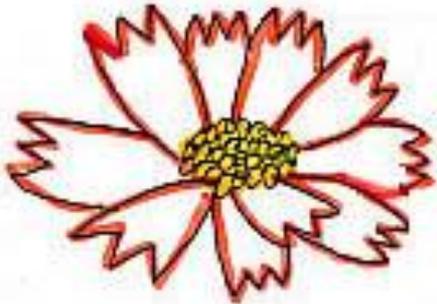
TIPOVI PAPUSA



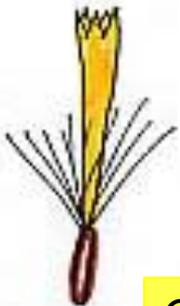
Tipovi glavica



Jezičast cvijet



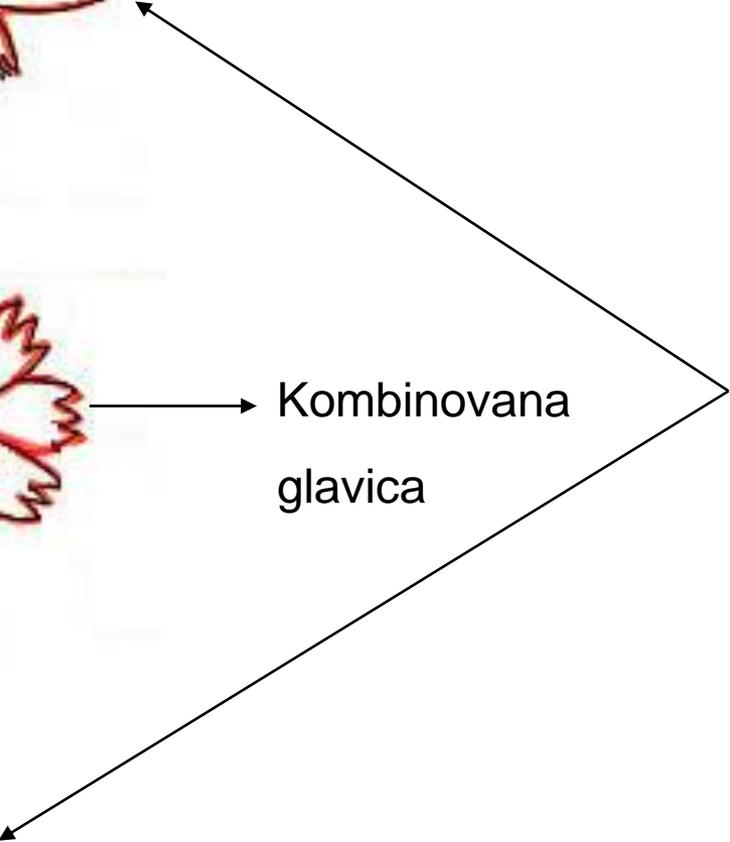
Kombinovana glavica



Cjevast cvijet



Monotipska glavica



Podjela na osnovu tipa cvasti:

- Tubuliflorae= Asteroidea (sadrže cvjevaste cvjetove i nemaju mliječni sok)
- Liguliflorae= Cichorioidea (sadrže samo jezičaste cvjetove i posjeduju mliječni sok)

Tubuliflorae

```
graph TD; A[Tubuliflorae] --> B[Svi cvj. u glavici cjevasti]; A --> C[Unutrašnji cvj. u glavici cjevasti];
```

Svi cvj. u glavici cjevasti

Unutrašnji cvj. u glavici cjevasti

Tubuliflorae

Cvjetovi jedнопolni



Cvjetovi dvopolni

Listovi trnovito
nazubljeni

Papus jednostavno dlakav



Carduus nutans- čkalj

Papus rasperano dlakav



Cirsium vulgare- osjak

Listovi nisu trnovito nazubljeni

Centaurea spp.- različak

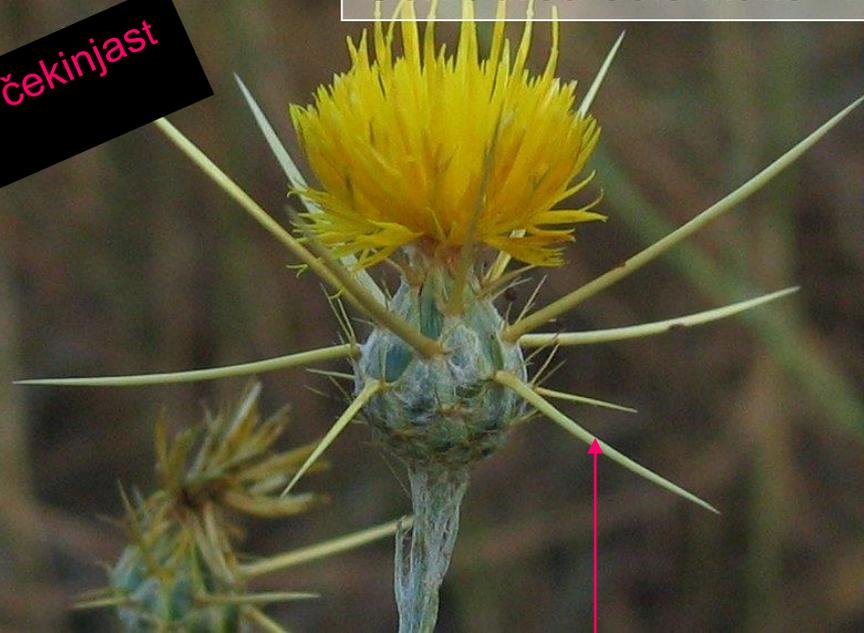
Centaurea jacea



Ovoj sa kožastim i cijelim privjeskom

Papus redukovan, čekinjast ili dlakav

Centaurea solstitialis



Ovoj se završava sa jednostavnim trnom

Ovoj sa češljasto-trepavičavim privjeskom

Centaurea scabiosa





Leontopodium alpinum- runlist

Papus jednostavno dlakav

Samo unutrašnji cjetovi cjevasti!!!

Helianthus annuus- sunkockret



Papus od uskih kratkotrajnih ljuščica

Tussilago farfara- podbijel



Papus jednostavno dlakav

Samo unutrašnji cjetovi cjevasti!!!

Papus redukovan



Ljuske na cvjetištu

Šuplje cvjetište



Anthemis arvensis- poljski raven

Matricaria chamomilla- kamilica

Papus redukovan



Achillea millefolium-
hajdučka trava



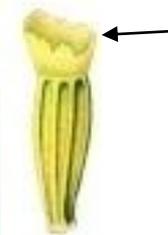
Leucanthemum vulgare
ivančica



Bellis perennis
Bijela rada



Tanacetum cinerariifolium- buháč



Papus u vidu krunice

Perasto dijeljeni listovi,
presvučeni sivim indumentumom

Cvjetovi jezičasti!!!





Lagoseris bifida



Ljuske
na cvjetištu,
papus od
jednostavnih
dlaka

Papus od ljusaka



Cichorium intibus- vodopija, cikorija



Hieracium pilosella



Dlake papusa
prljavo bijele



Dlake papusa
sniježno bijele

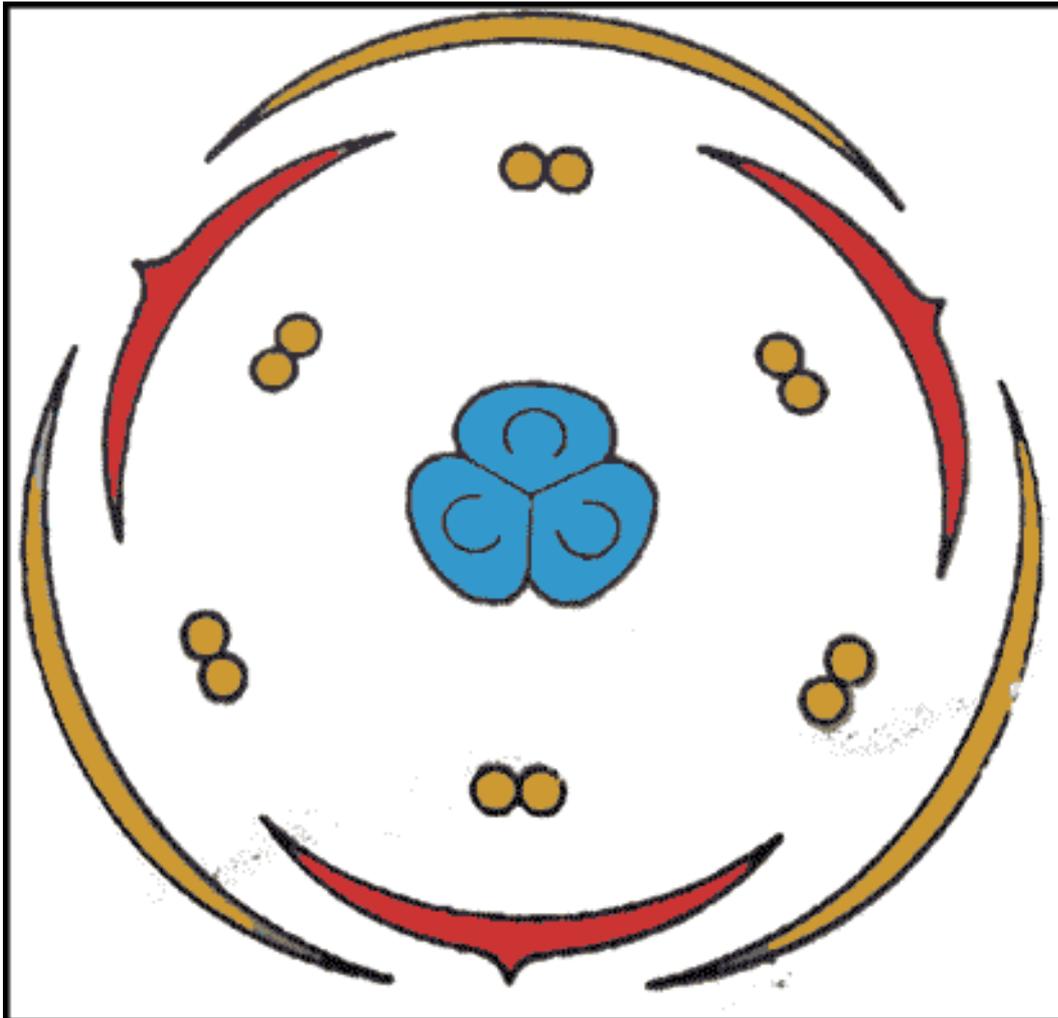


Crepis setosa

Monokotile

Red. Liliales

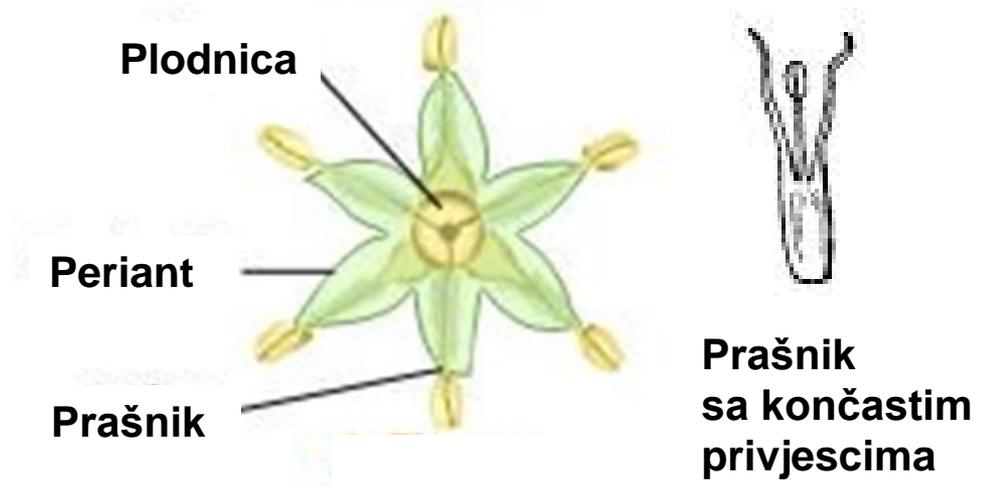
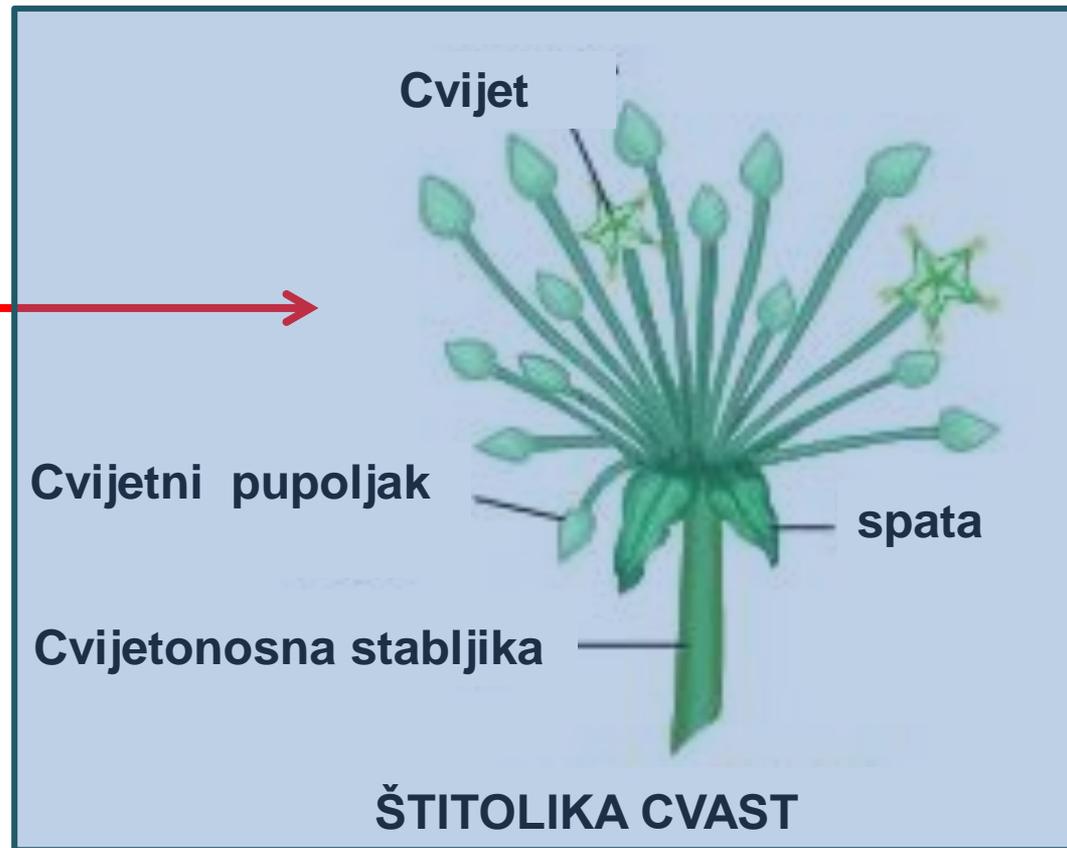
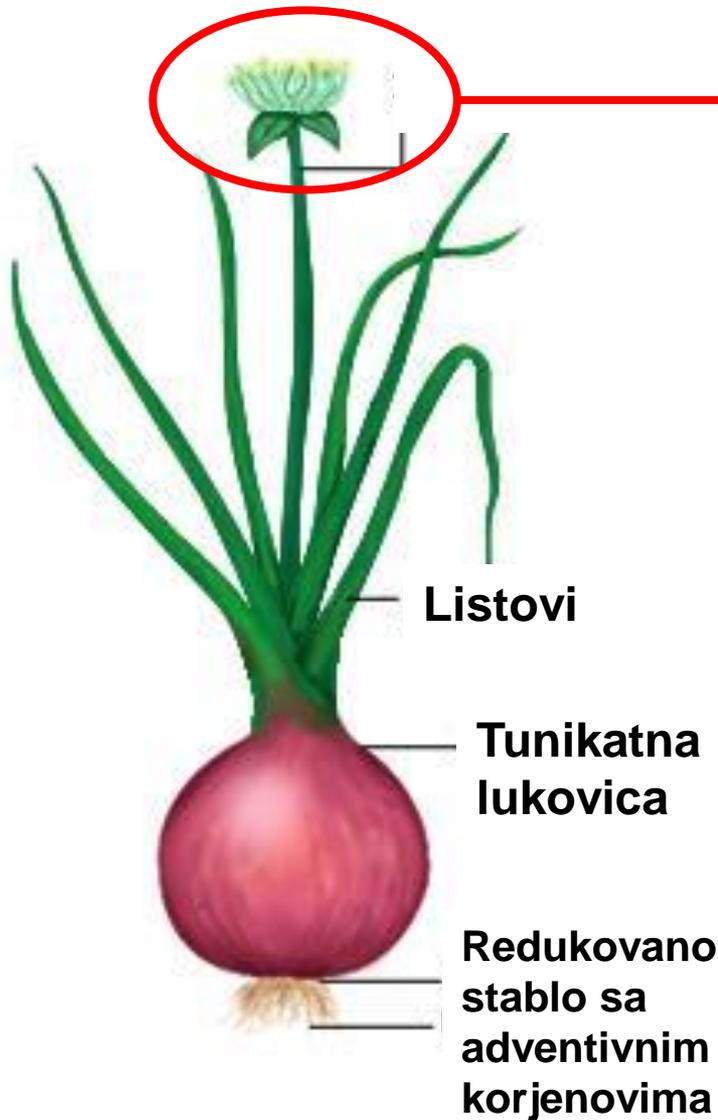
P3+3 A3+3 G(3)/



Porodice:
Alliaceae,
Liliaceae,
Amaryllidaceae

Alliaceae

* (P₃₊₃ A₃₊₃) G₍₃₎





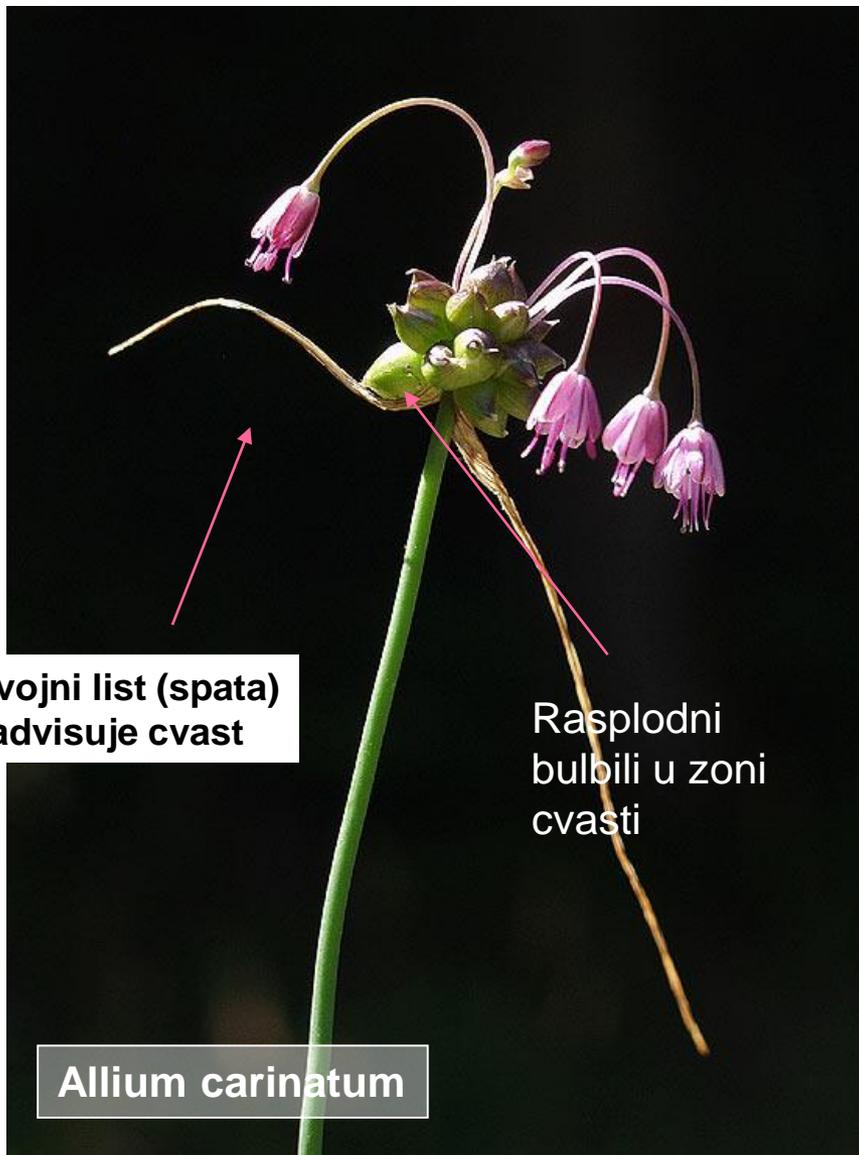
Allium cepa- crni luk



Allium sativum- bijeli luk



Fam. Alliaceae



Fam. Liliaceae

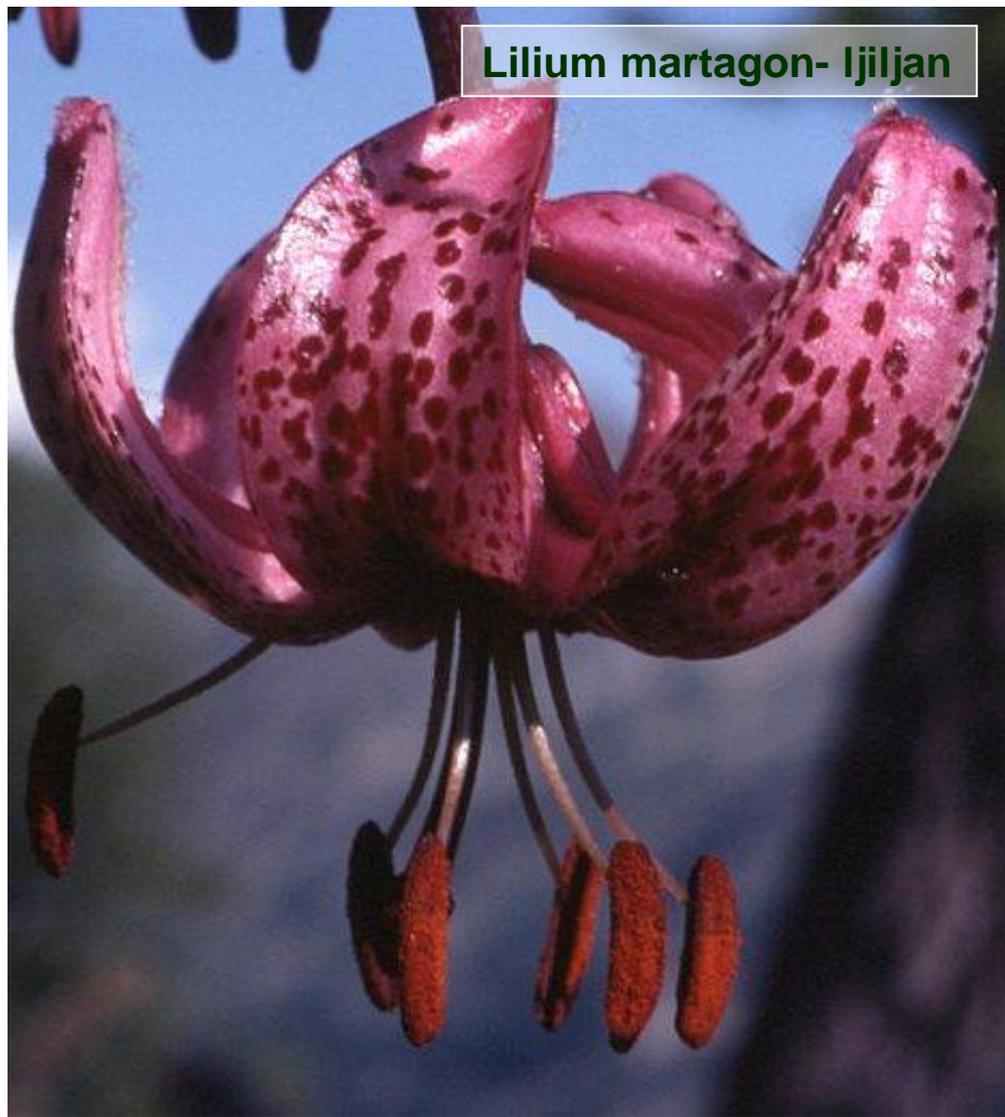
I grupa rodova: podzemni izdanak je lukovica, perigon sa slobodnim listićima, plod čaura

II grupa rodova: podzemni izdanak je lukovica, perigon sa sraslim listićima, plod čaura

III grupa rodova: podzemni izdanak je rizom, plod je čaura

IV grupa rodova: podzemni izdanak je rizom, plod je bobica

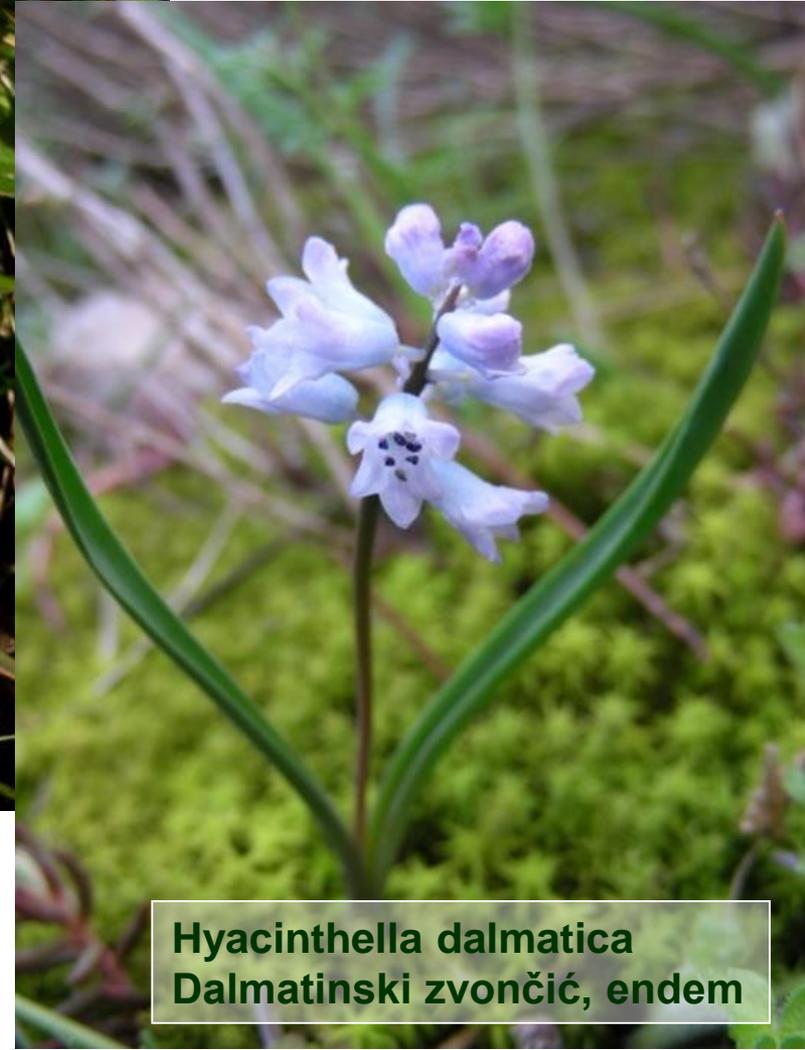
I grupa rodova: podzemni izdanak je lukovica, perigon sa slobodnim listićima, plod čaura



II grupa rodova: podzemni
izdanak je lukovica,
perigon sa sraslim
listićima, plod čaura



Colchicum autumnale- mrazovac



Hyacinthella dalmatica
Dalmatinski zvončić, endem



III grupa rodova: podzemni
izdanak je rizom, plod je
čaura

Veratrum album- čemerika

IV grupa rodova: podzemni izdanak je rizom, plod je bobica



Asparagus acutifolius- šparoga



Ruscus aculeatus- kostrika

filikladija



**Convallaria majalis
đurđevak**



parakorola

Fam. Amaryllidaceae

Narcissus radiiflorus- narcis, dokoljen



Galanthus nivalis- visibaba

Iridaceae ($P_{3+3} A_3$) $G_{/(3)}$

Gladiolus palustris

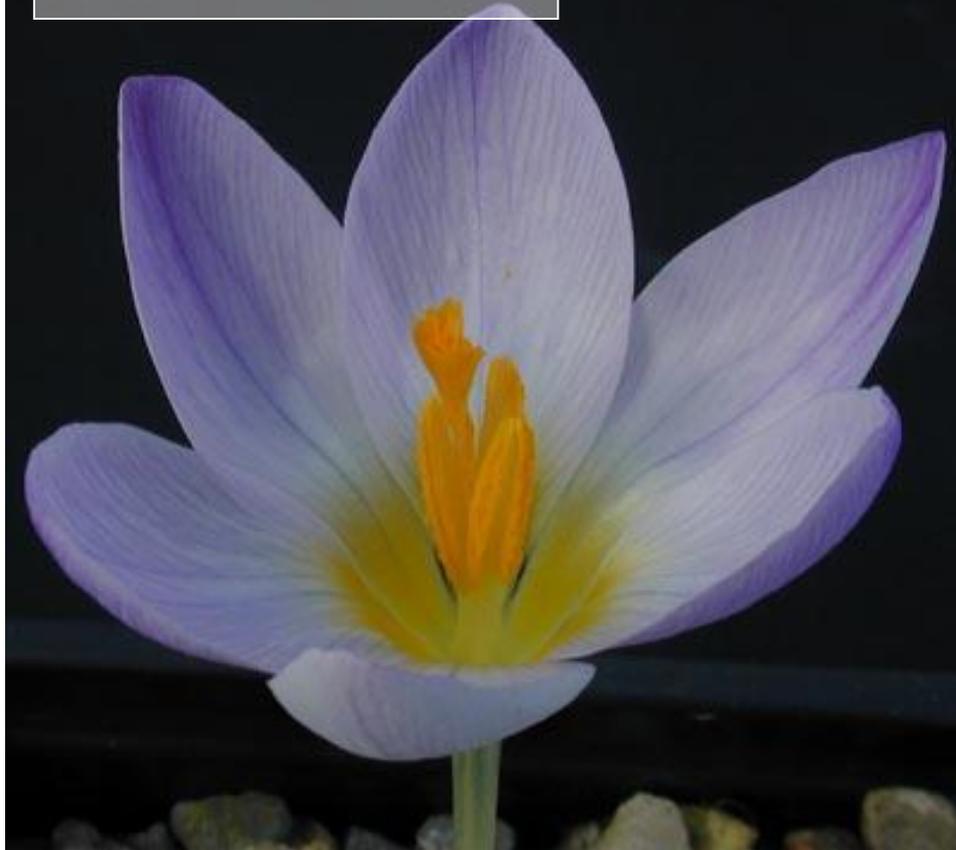
Zigomorfan cvijet

Iris pseudoacorus

**3 spoljašnja lista perigona
prema nazad savijena**



Crocus dalmaticus



Romulea bulbocodium

Red. Iridales

(P₃₊₃ A₃) G_{/(3)}

Fam. Iridaceae



Iris pseudoacorus- močvarni iris

Gladiolus palustris- gladiola



Cvjetovi zigomorfni!

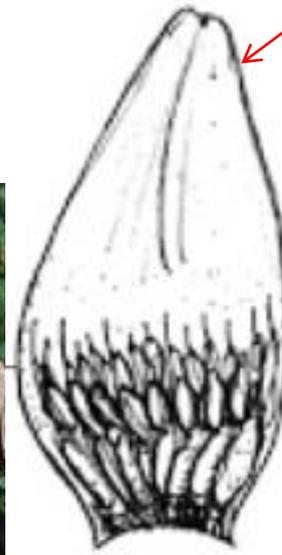


Bez nadzemnog stabla!

**Crocus dalmaticus,
Dalmatinski šafran, endem**

Red. Zingiberales

Musa x paradisiaca, Musaceae

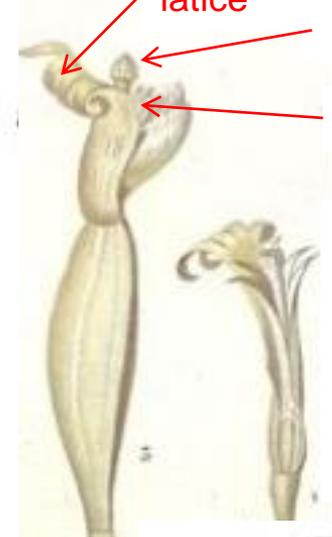


spata

Srasle
latice

Stigma

Prašnici



$P_{(3+2)+1}, A_{3+3}, G_0.$

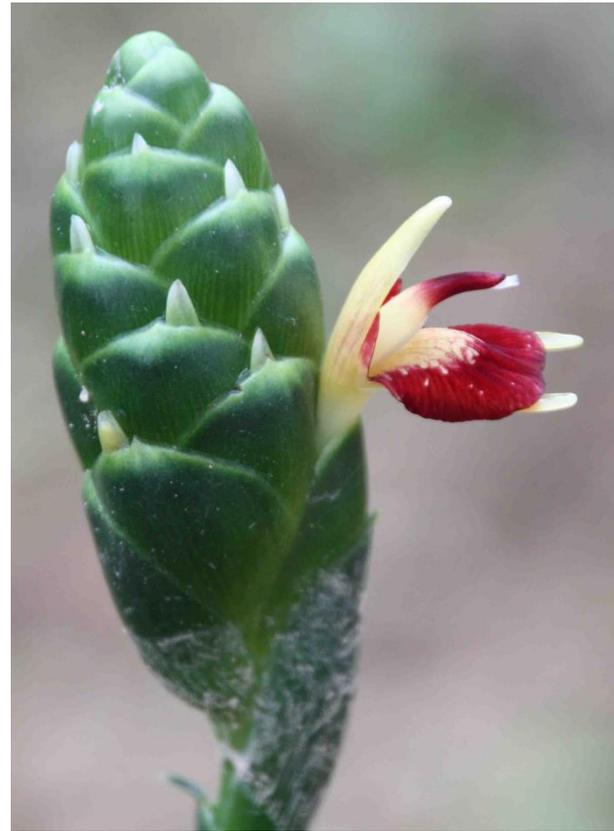
$P_{(3+2)+1}, A_0, \overline{G}_{(3)}.$

$P_{(3+2)+1}, A_{3+3}, \overline{G}_{(3)}.$

Fam. Zingiberaceae

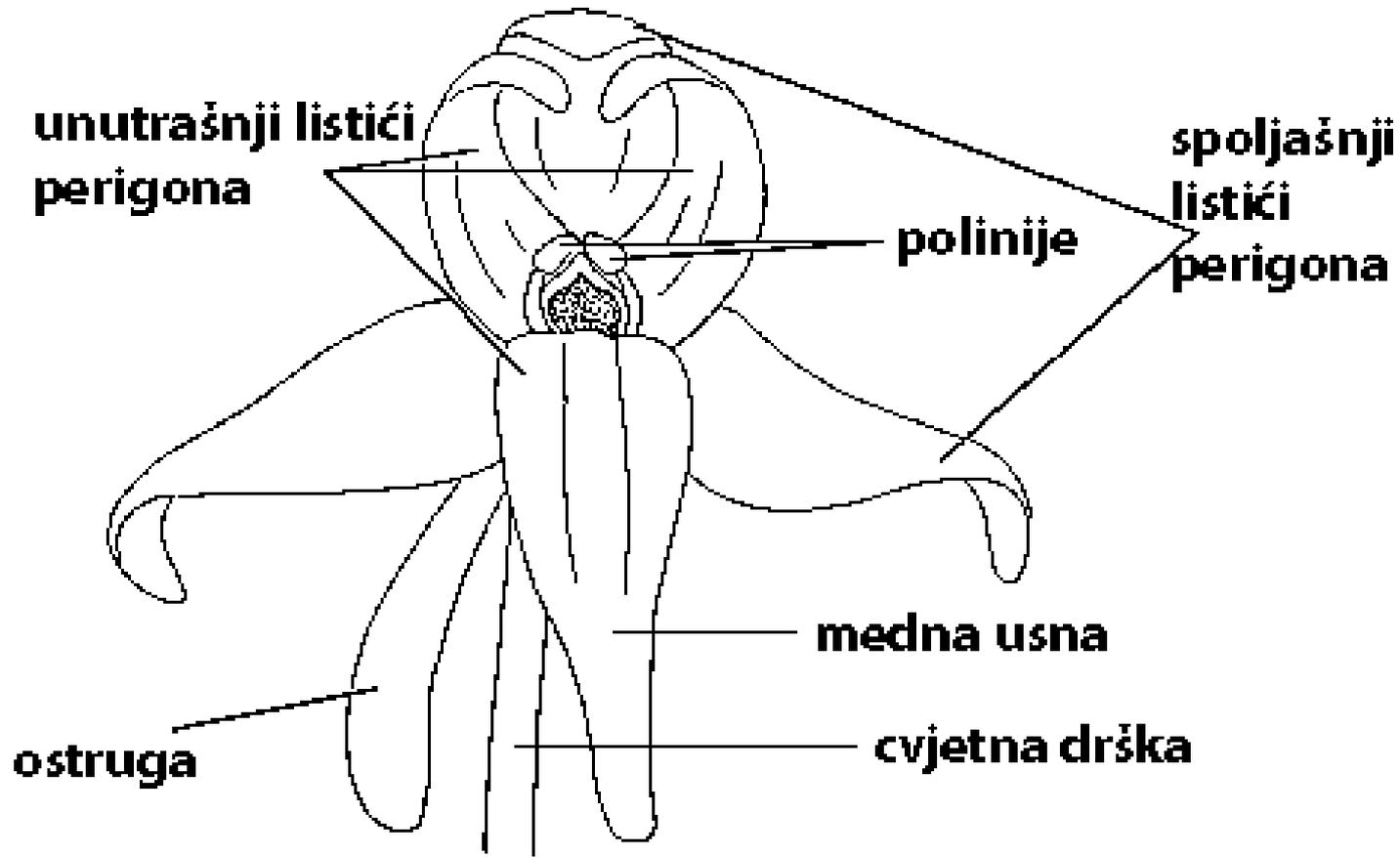


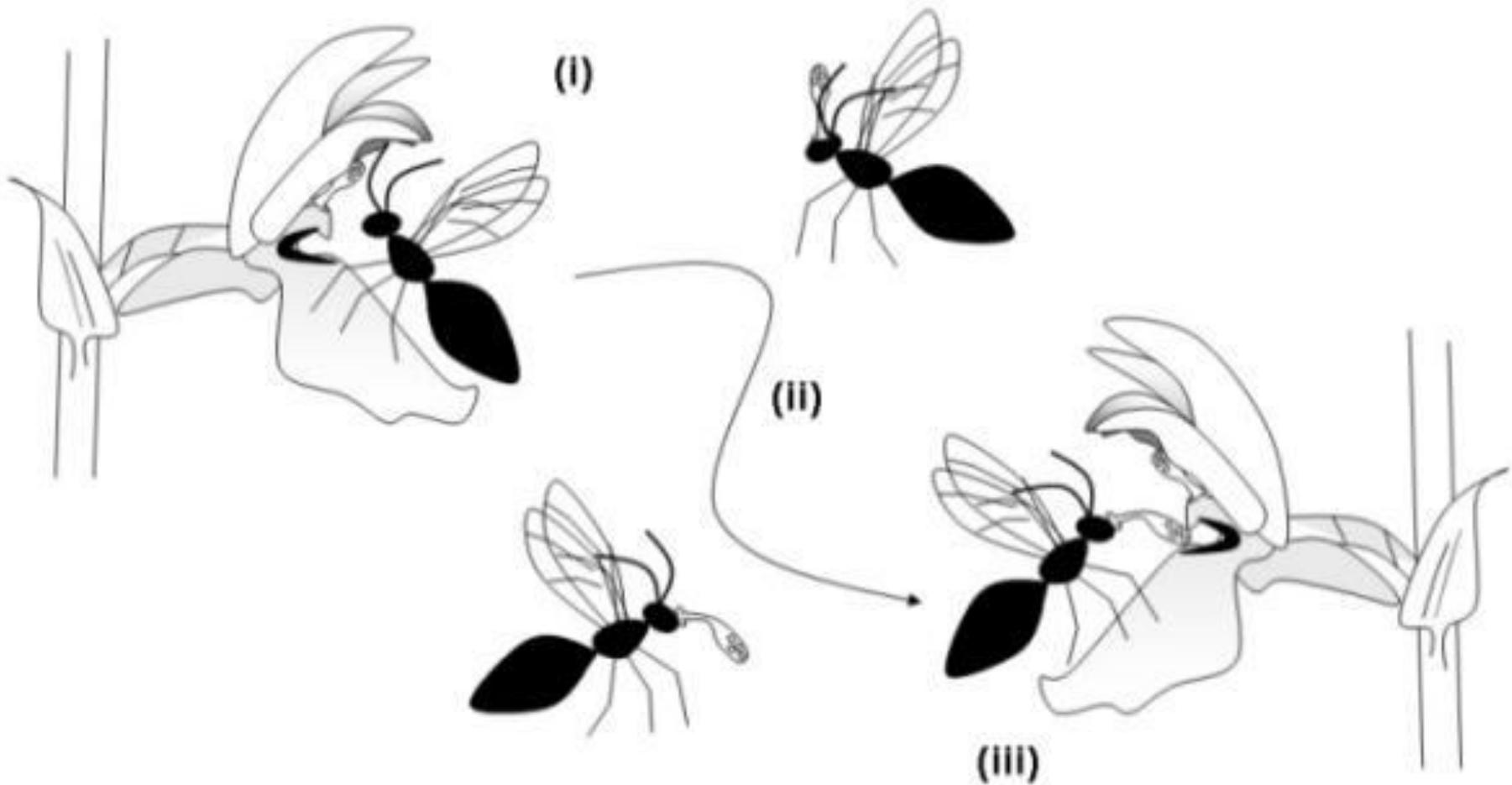
Zingiber officinale- đumbir



Red. Orchidales

Fam. Orchidaceae





Mehanizam opašivanja



Orchis morio

**Medna usna sa
ostrugom!**

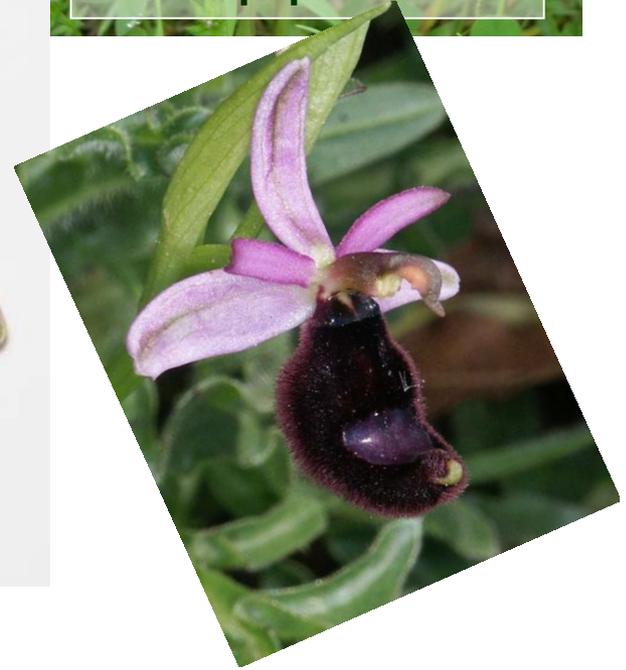


Orchis papilionaceae

**Medna usna
bez ostruge**

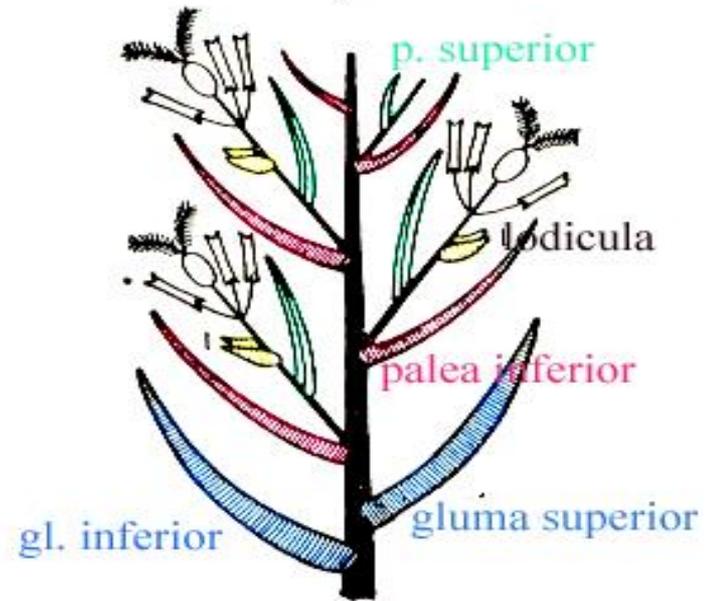
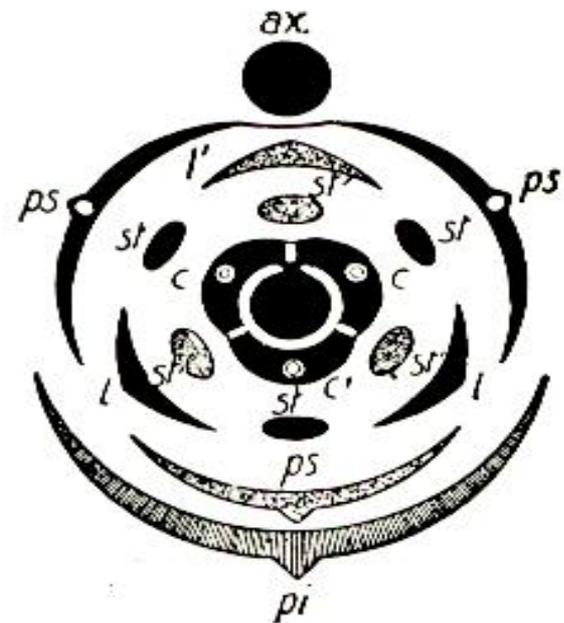
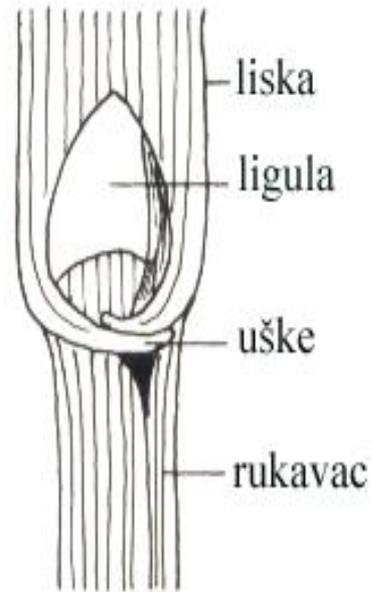
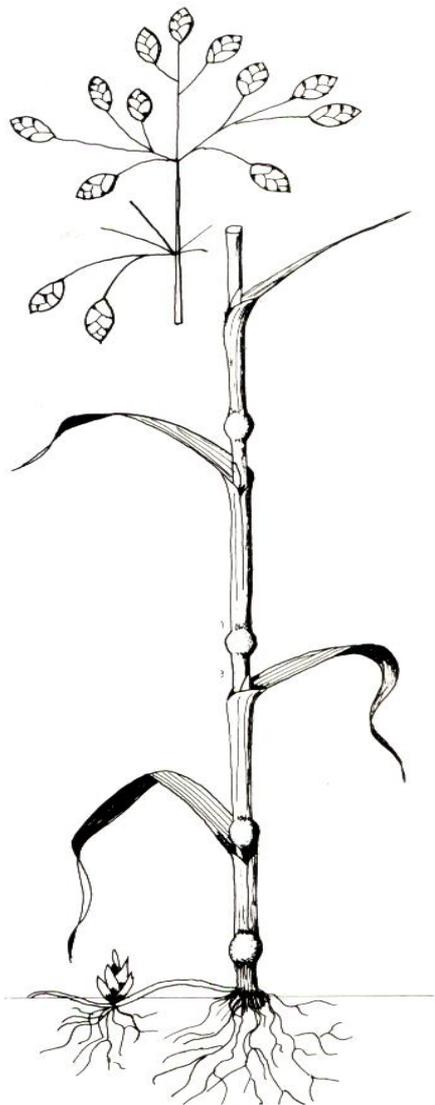


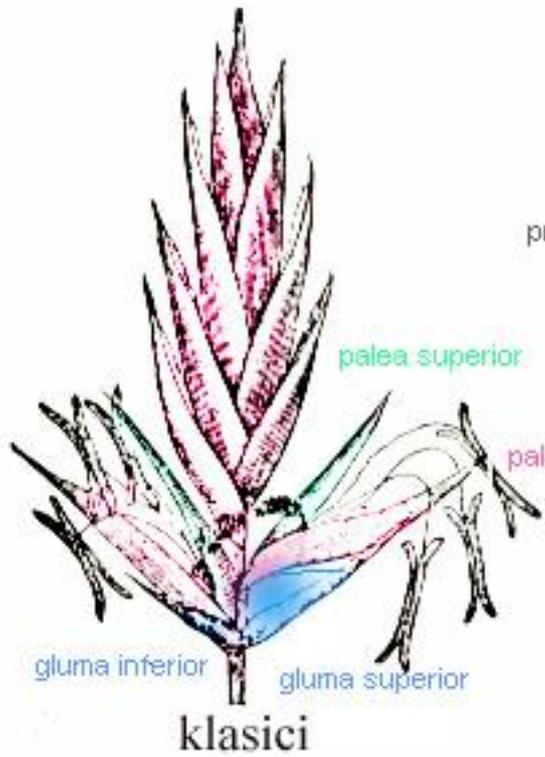
Ophrys spp.



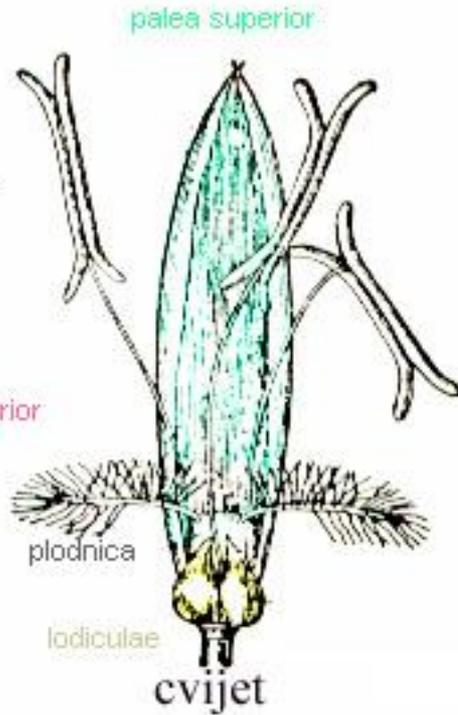
Red. Poales

Fam. Poaceae





klasici

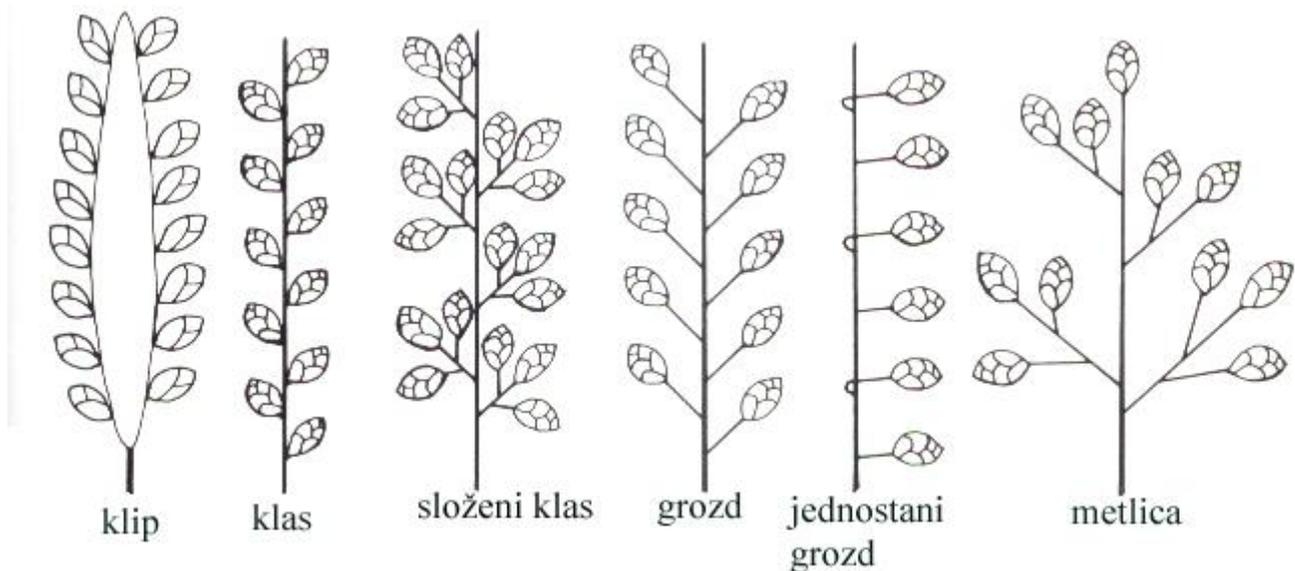


cvijet

Klasić:

gluma inferior + gluma superior + palea inferior + cvijet (palea superior, lodikule, 3 prašnika, plodnica)

Tipovi cvasti



klip

klas

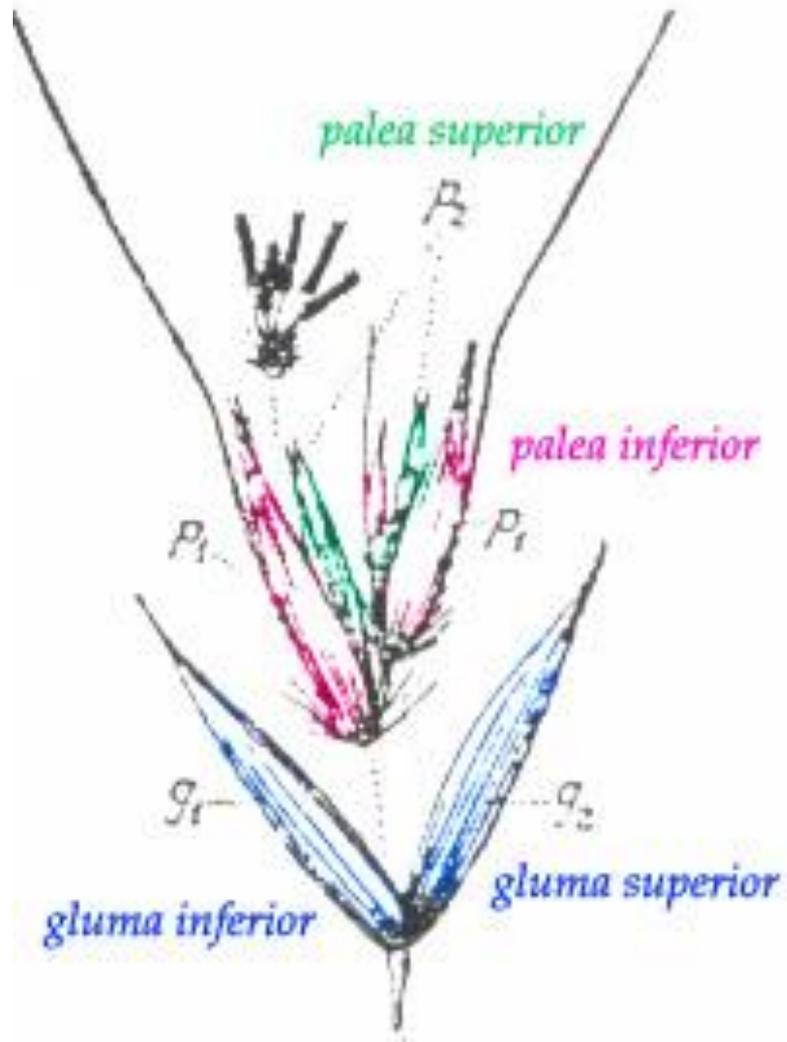
složeni klas

grozd

jednostani grozd

metlica

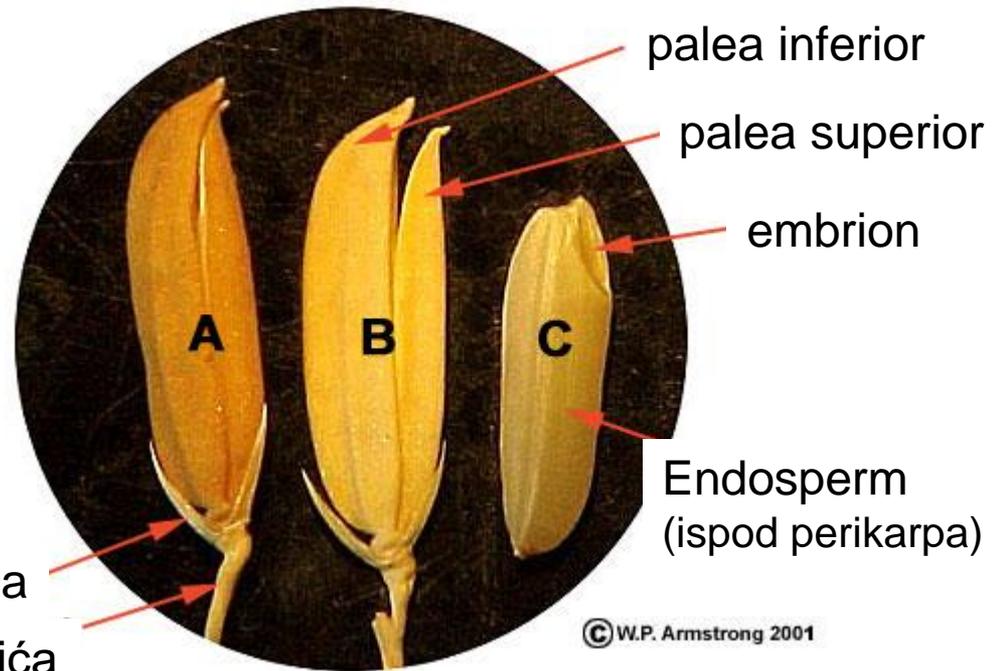
Avena sp.- ovas





gluma

drška klasića



© W.P. Armstrong 2001



Oryza sativa- oriz



Zea mays- kukuruz

Ženski cvast tipa klipa,
muška tipa metlice

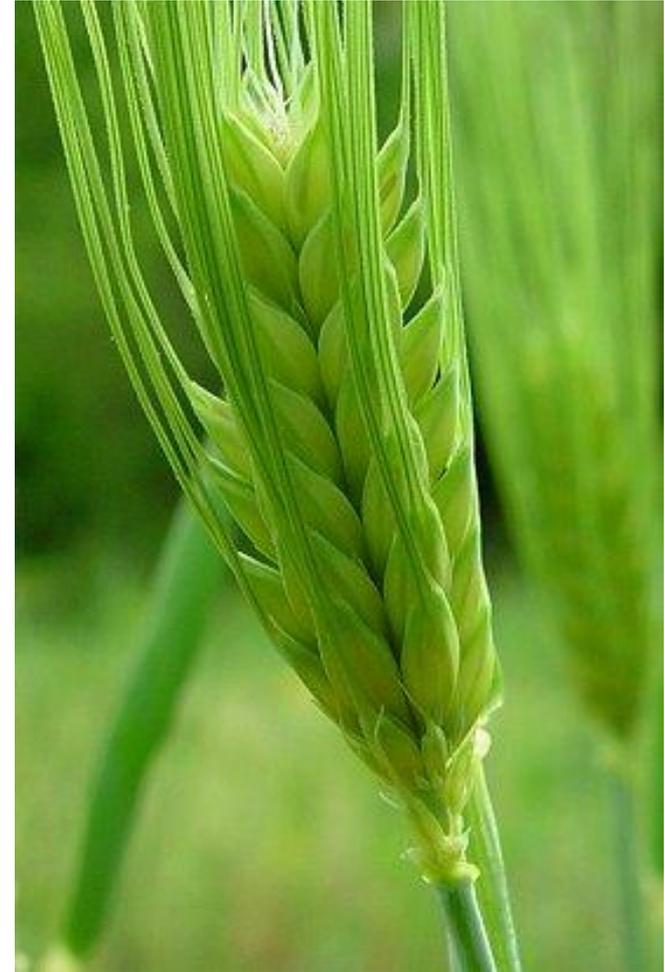




Triticum vulgare- pšenica

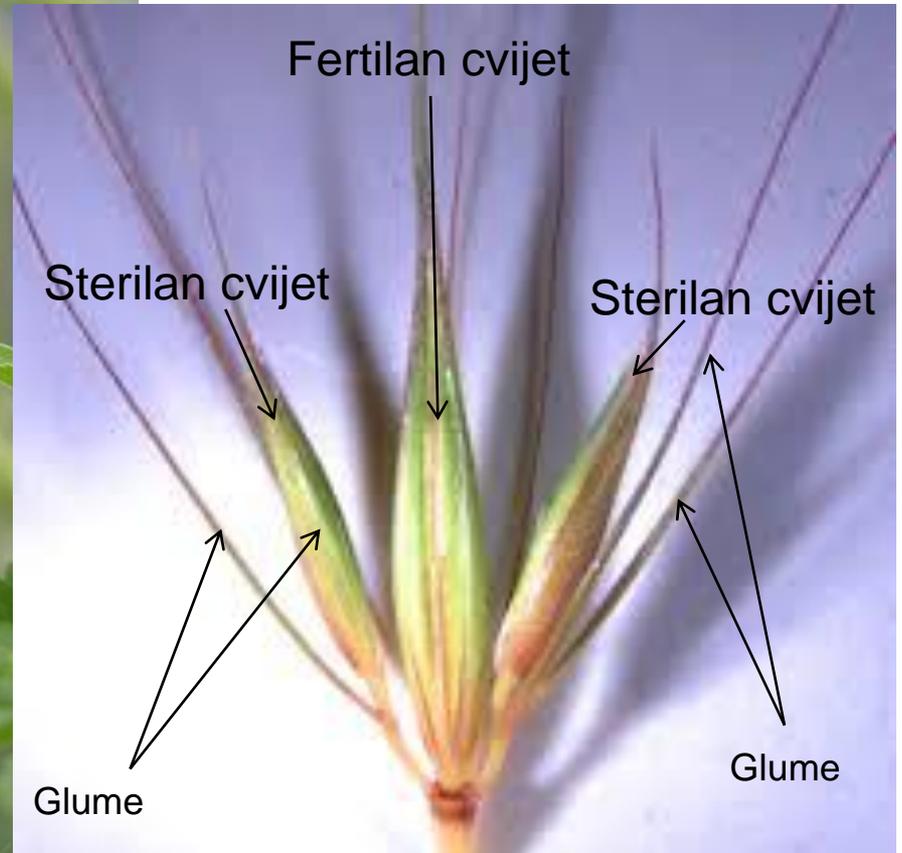


Secale cereale- raž

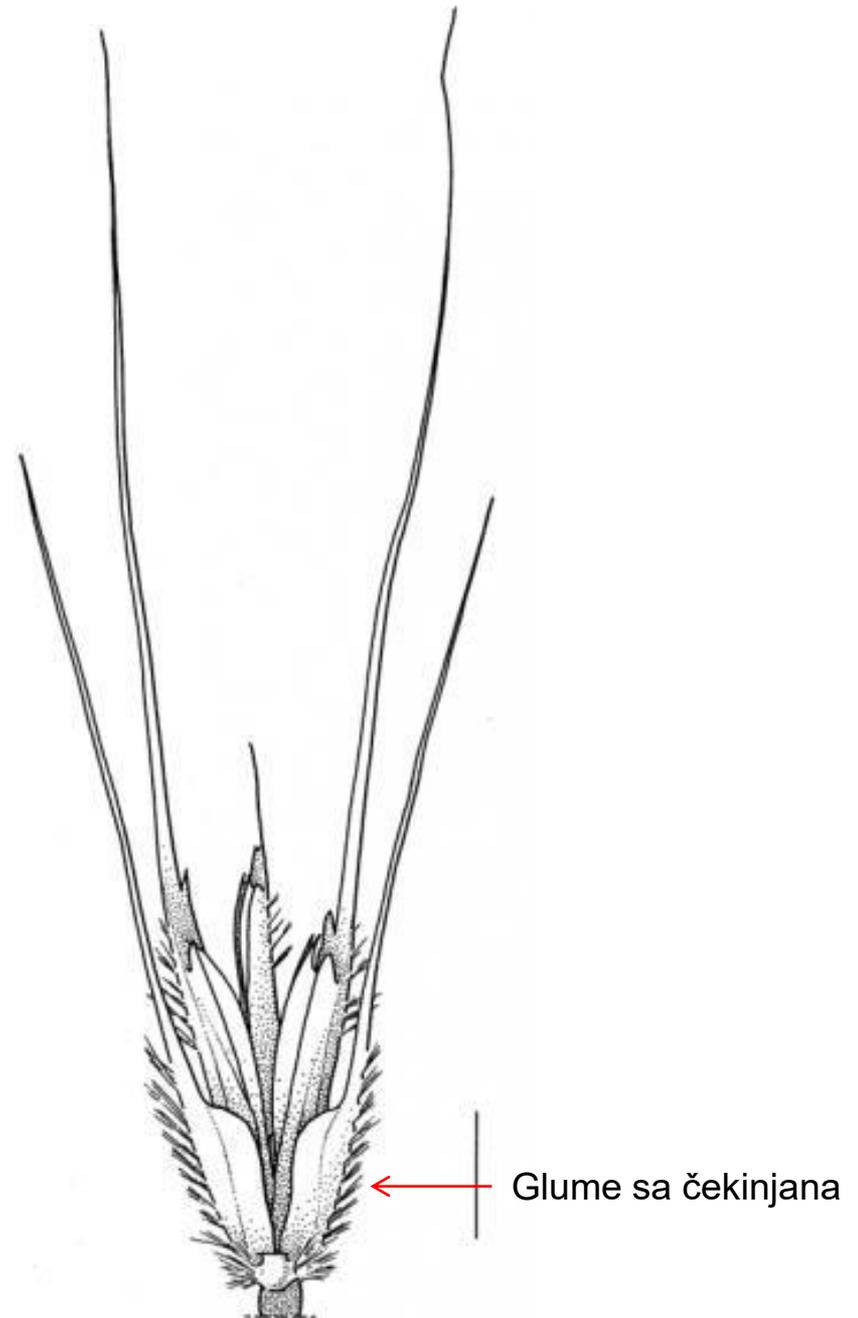


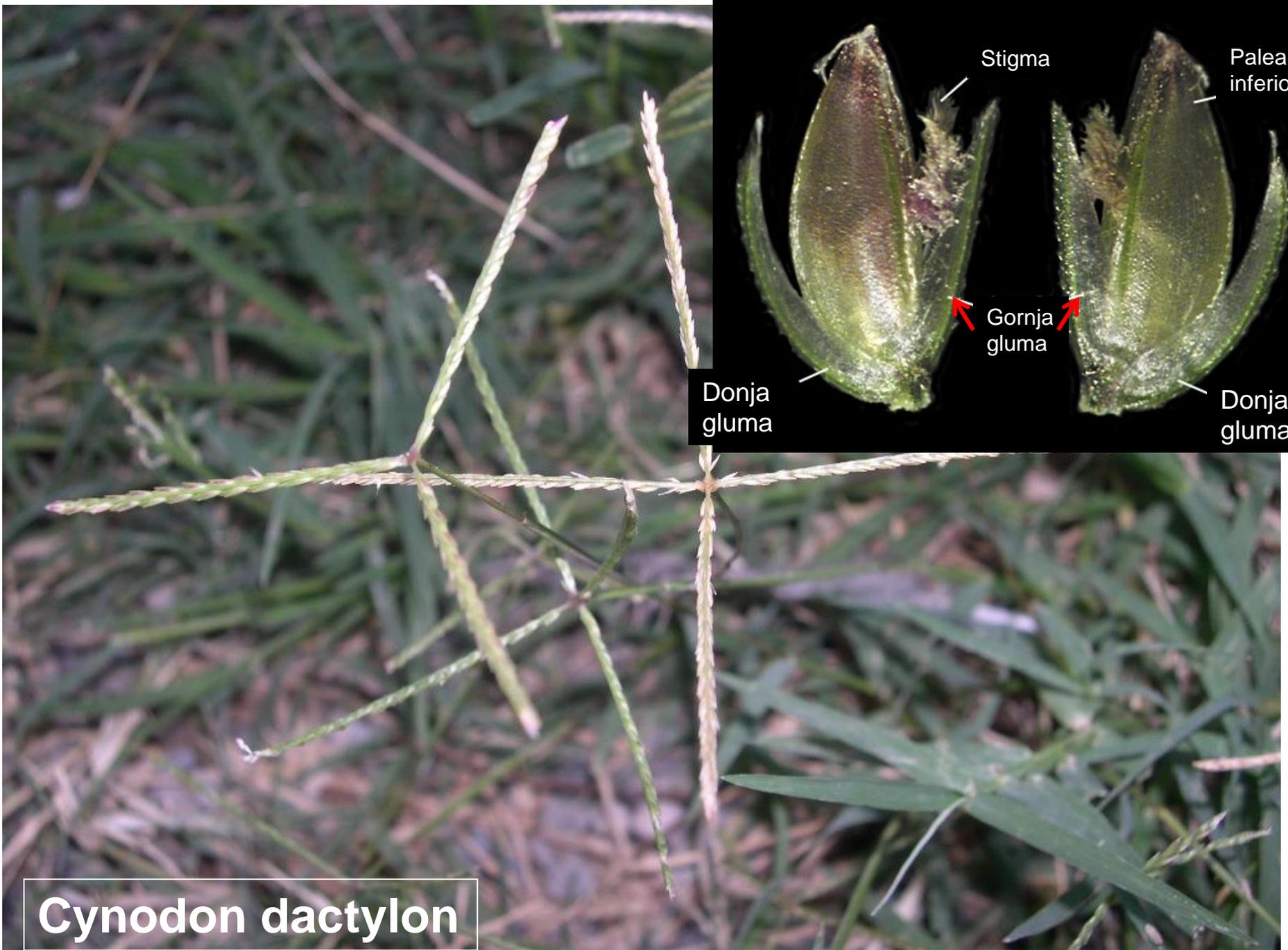
Hordeum sativum- ječam

Hordeum murinum- popino prase



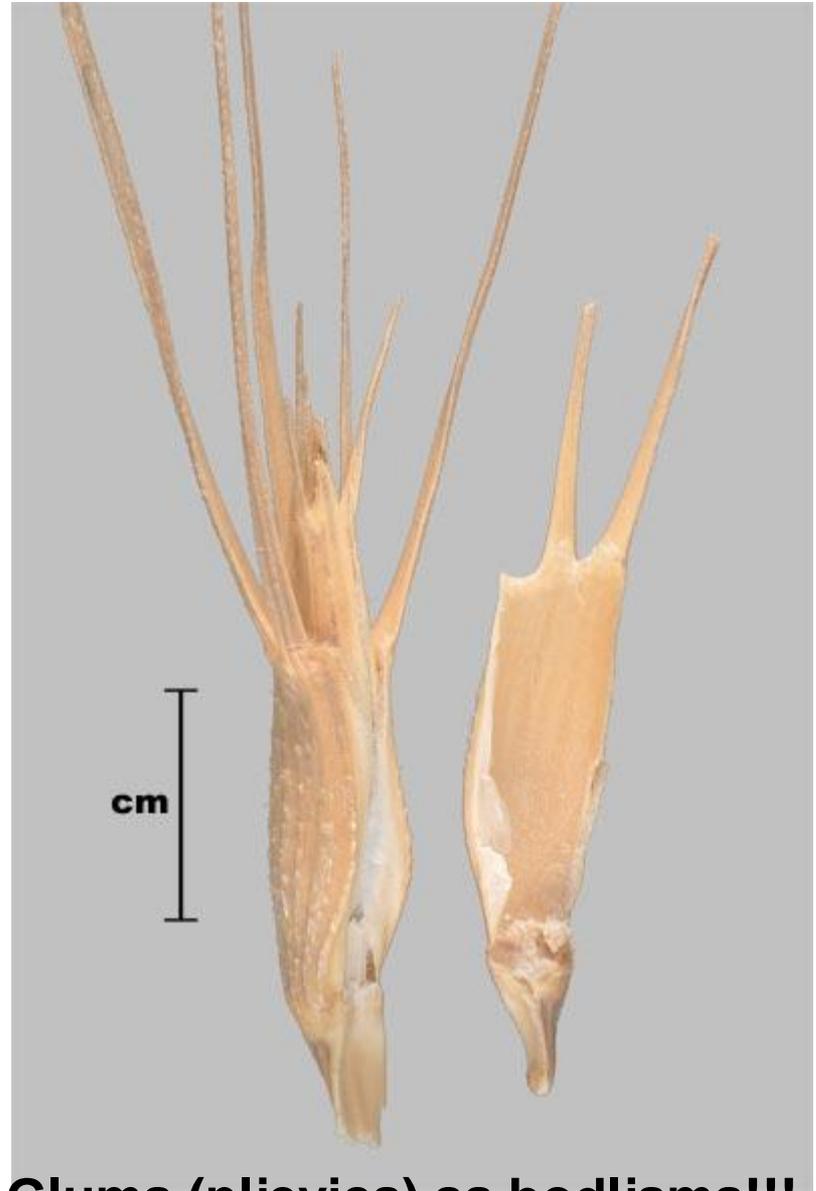
Haynaldia villosa





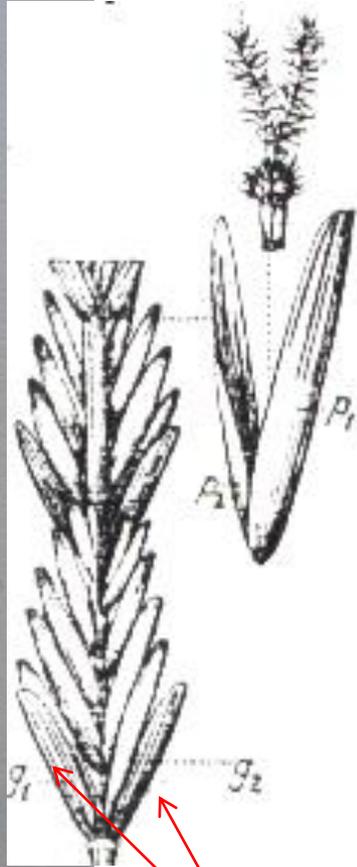
Cynodon dactylon

**Aegilops spp.-
češljasta pirevina**



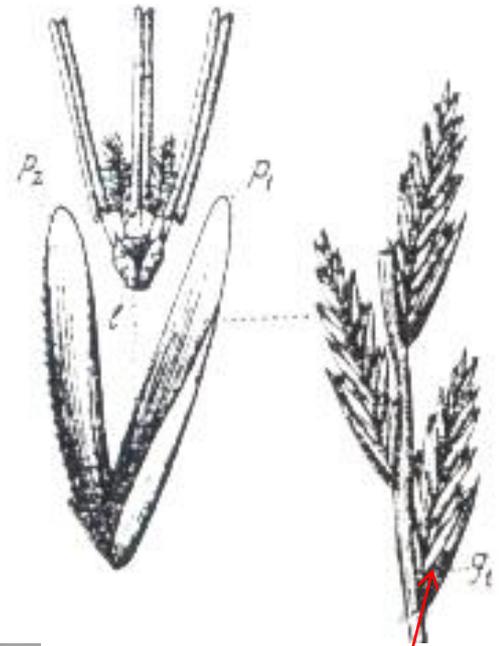
Gluma (pljevica) sa bodljama!!!

Agropyron repens- pir



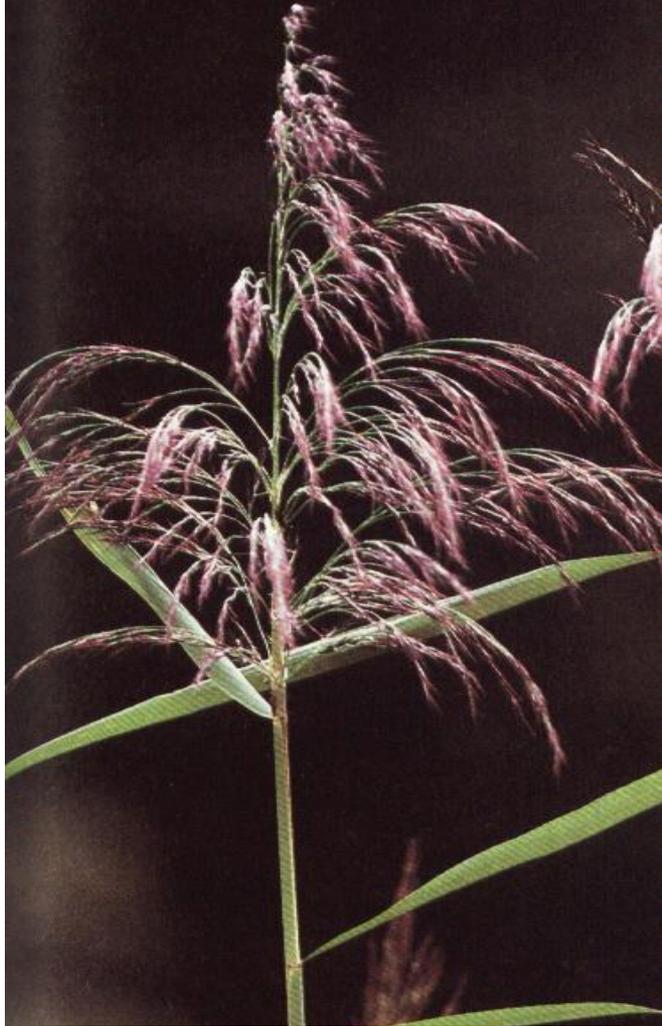
Glume 2!

Lolium perenne- ljulj

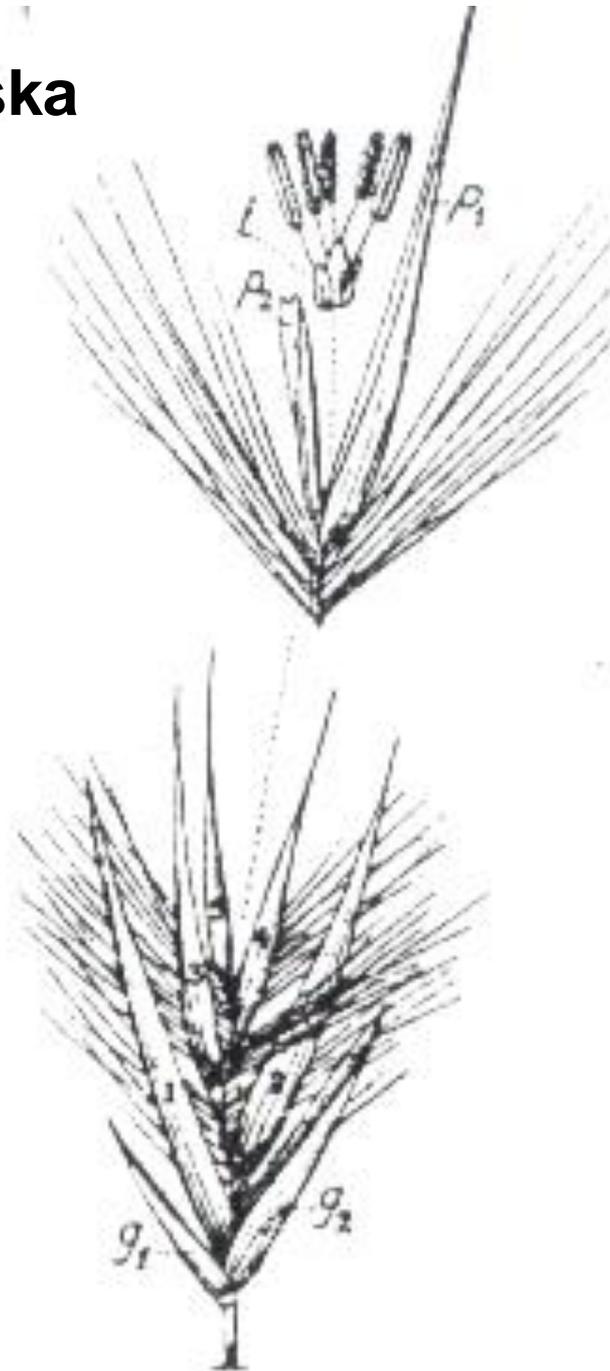


Glume 1!

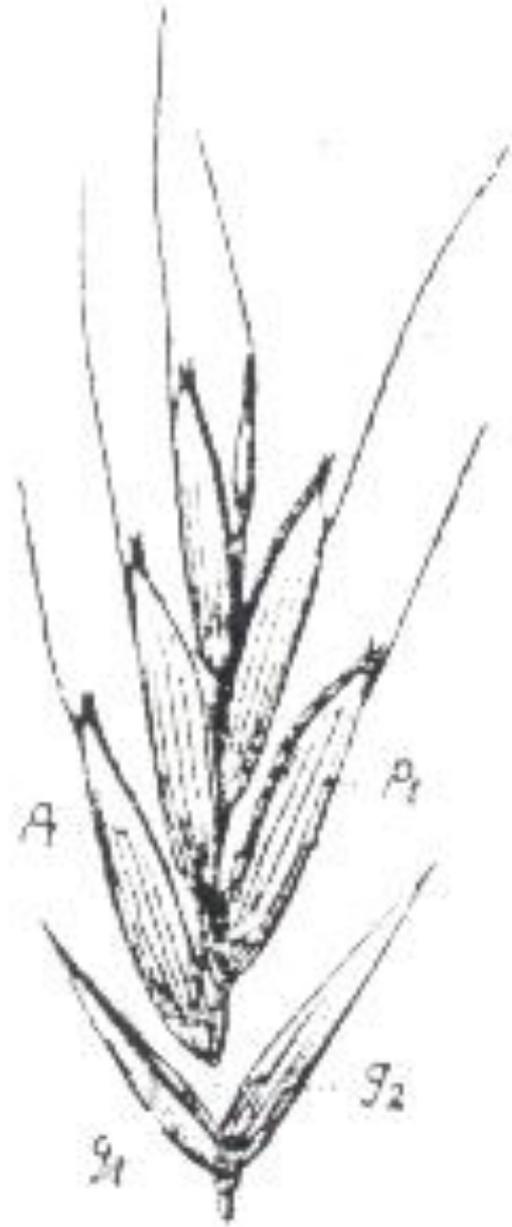
Phragmites australis - trska



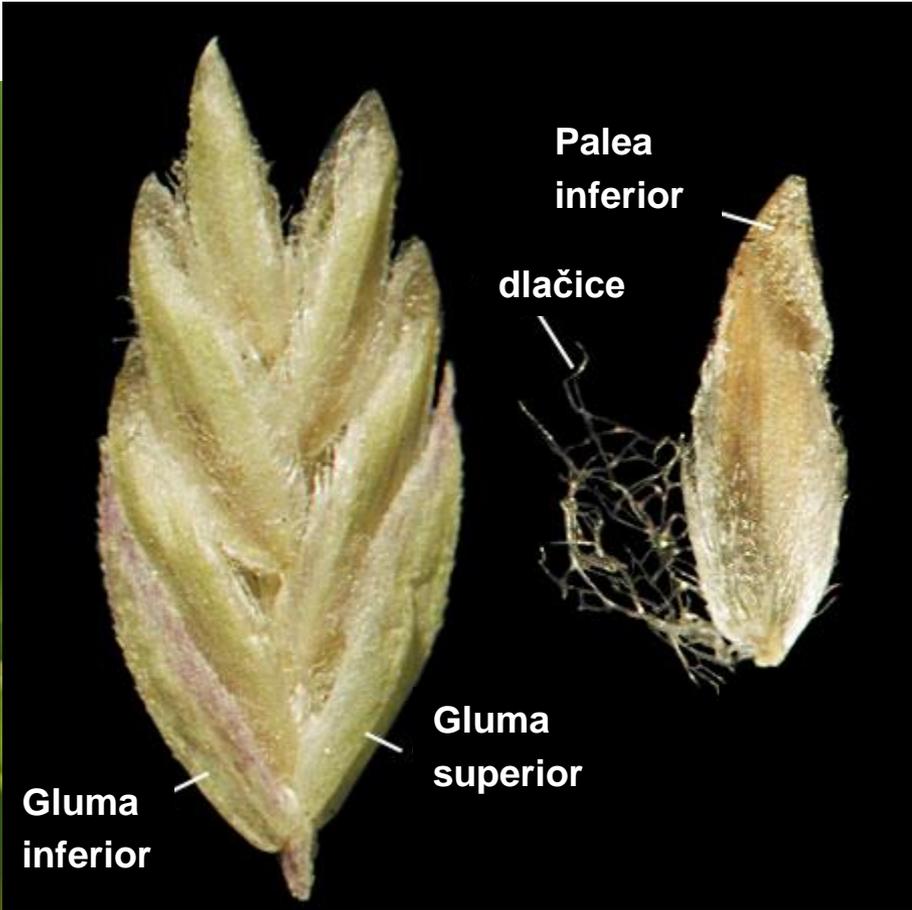
Os klasića sa dugim
dlakama!!!



Bromus spp.

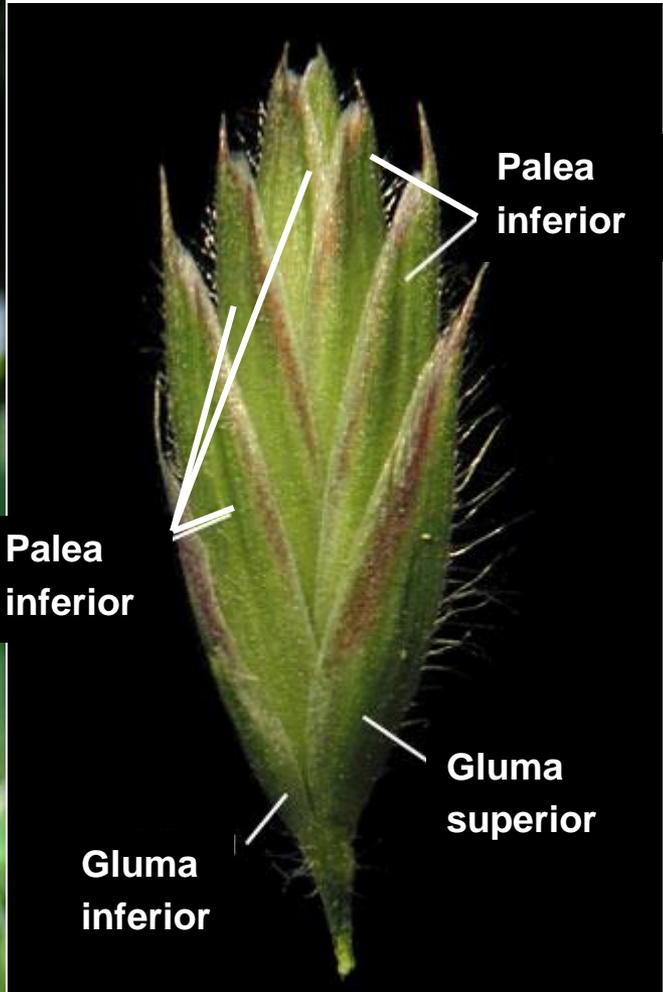


Poa spp.





Dactylis glomerata- ježika



Red. Arecales

Fam. Arecaceae



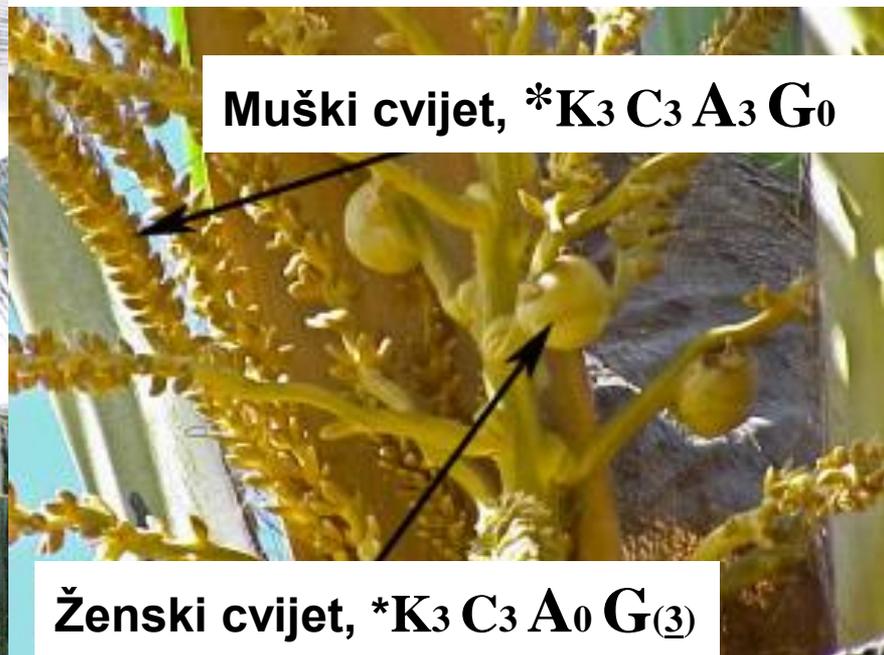
Chamaerops humilis

* $P_{3+3} A_{6^{st}} G_{(3)}$

* $P_{3+3} A_{3+3}^t G_0$



Cocos nucifera- kokos



Muški cvijet, *K₃ C₃ A₃ G₀

Ženski cvijet, *K₃ C₃ A₀ G₍₃₎



Red. Arales

Fam. Araceae

Fam. Lemnaceae



Red. Typhales

Fam. Sparganiaceae



Fam. Typhaceae

♂ cvjetovi

♀ cvjetovi

