

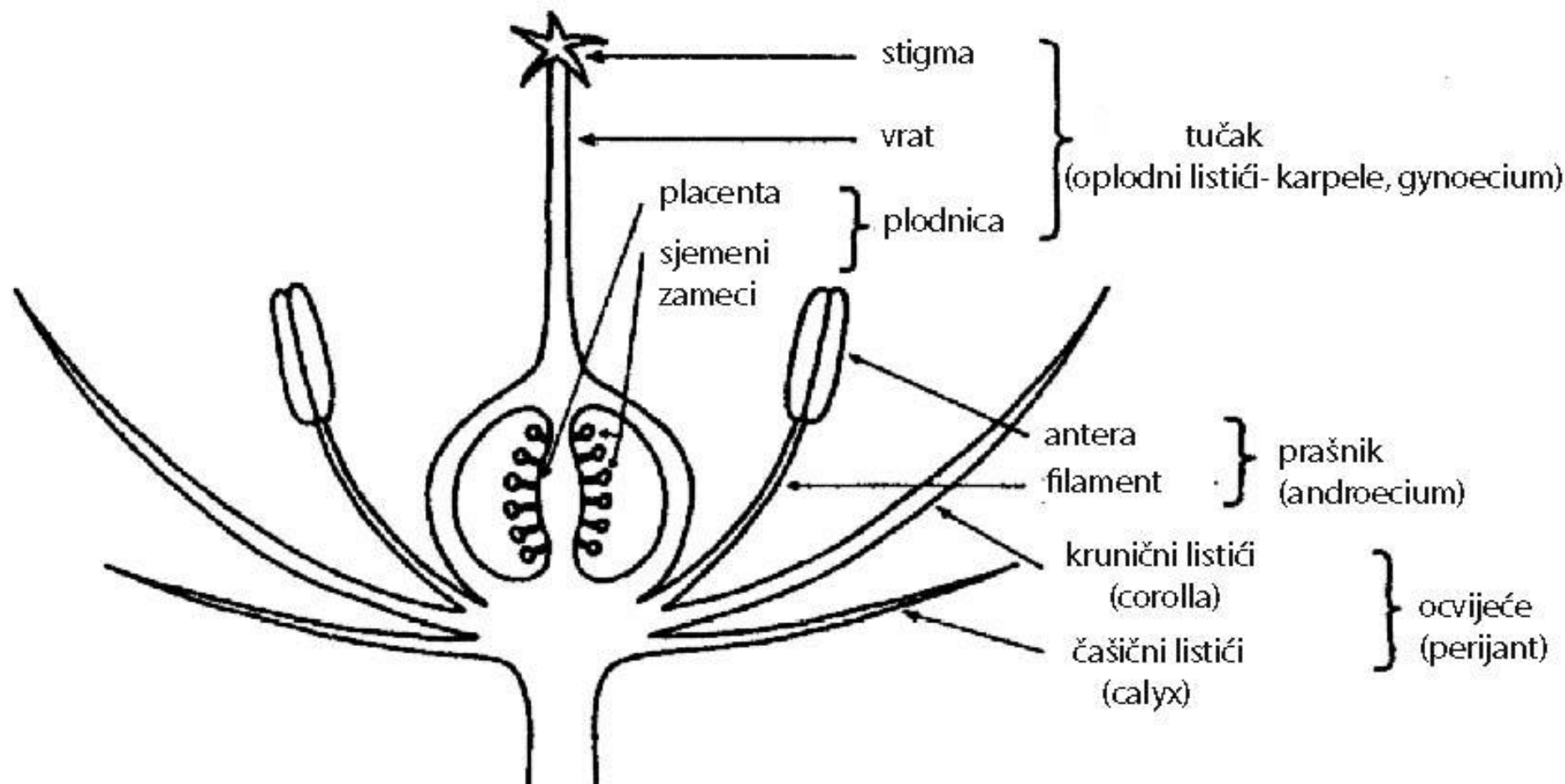
Uvod u sistematiku skrivenosjemenjača (Angiospermae, Magnoliidae)

Predmetni nastavnik:
Prof. dr Danijela Stešević

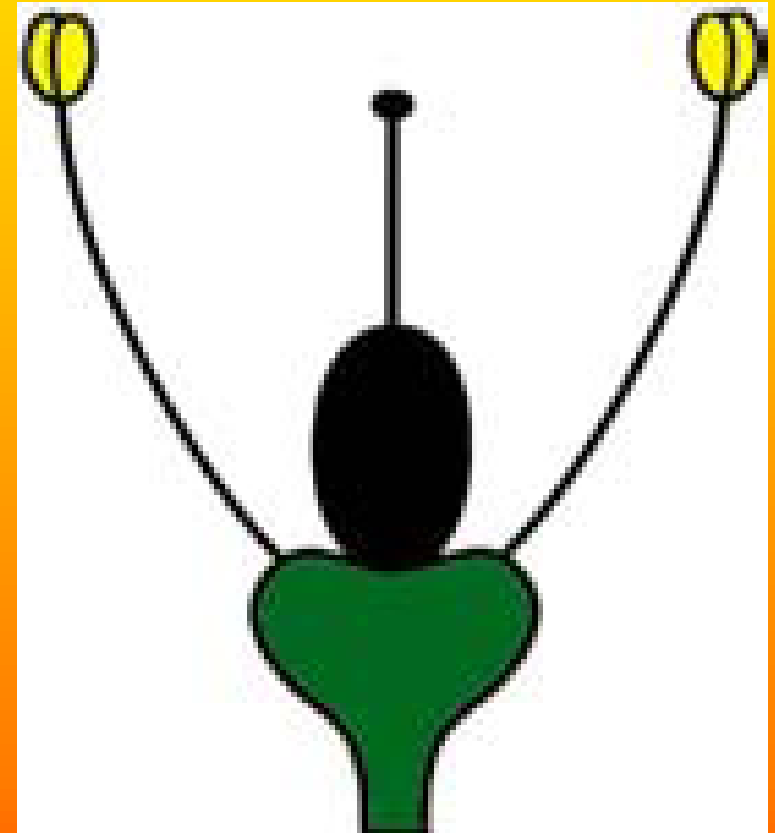
Saradnik:
Mr Milica Stanišić

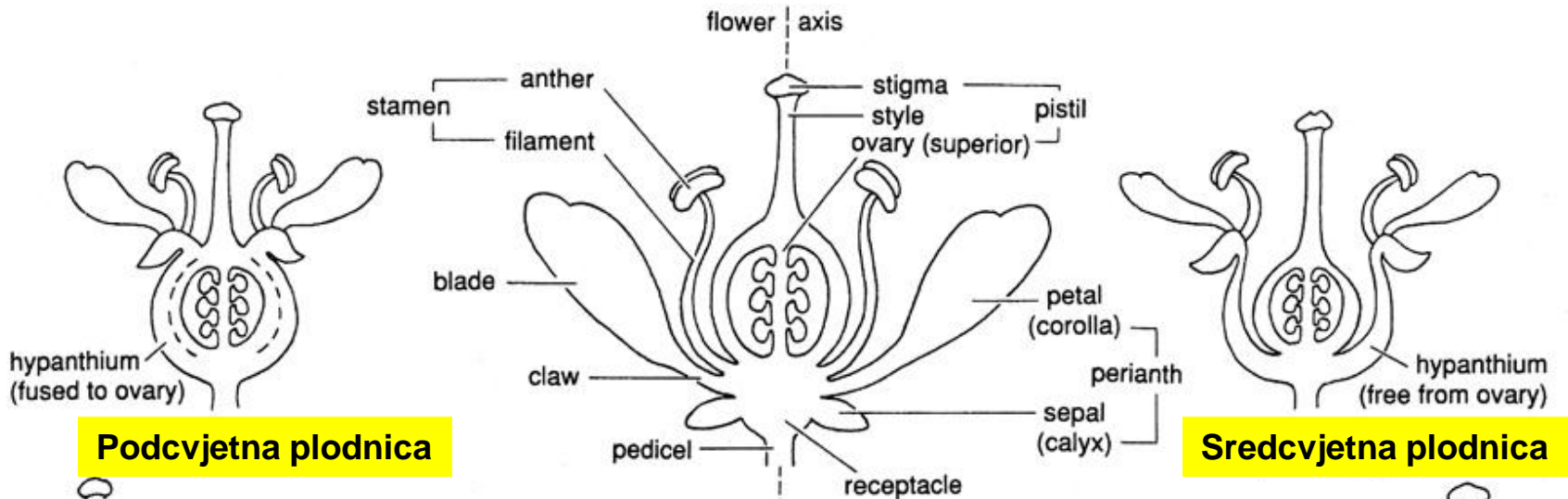
Predavanje I, 16.02.2018

Građa heterohlamidnog cvijeta



Homohlamidani i ahlamidani cvijet

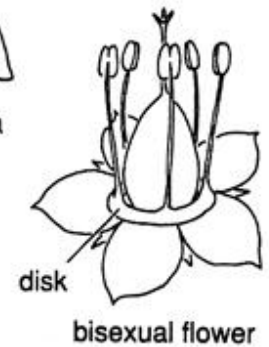
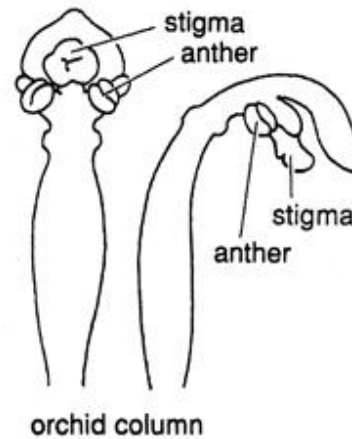
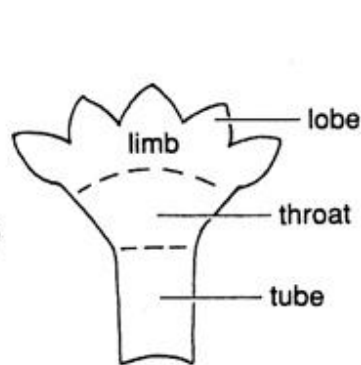
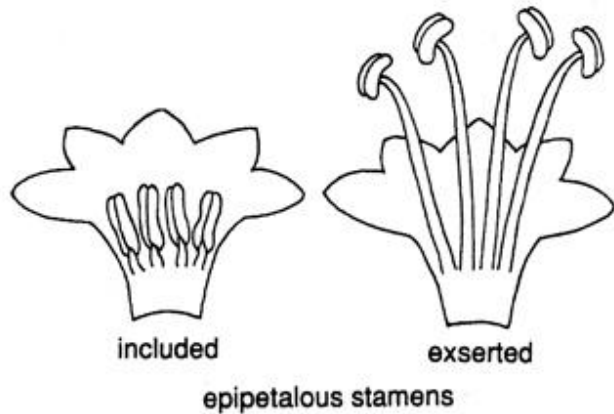
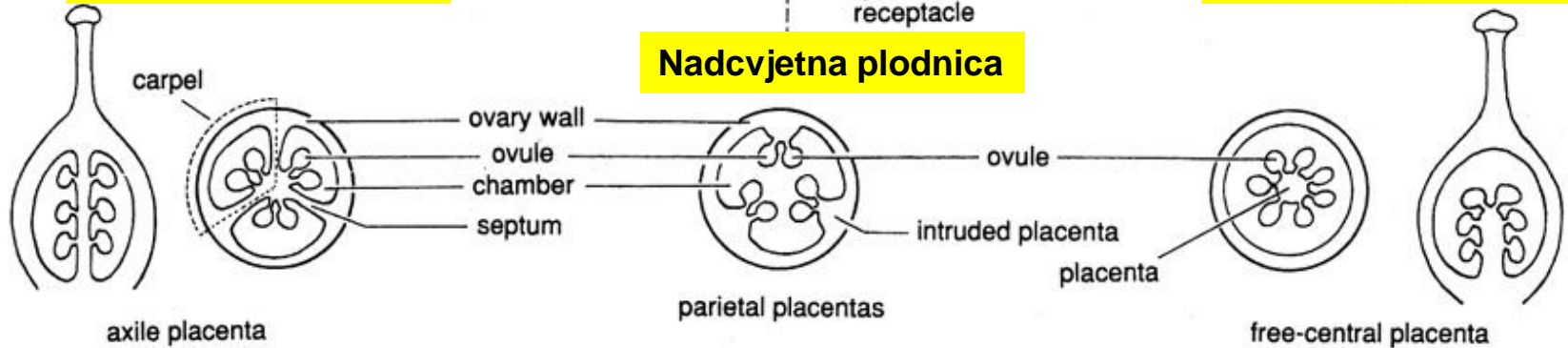




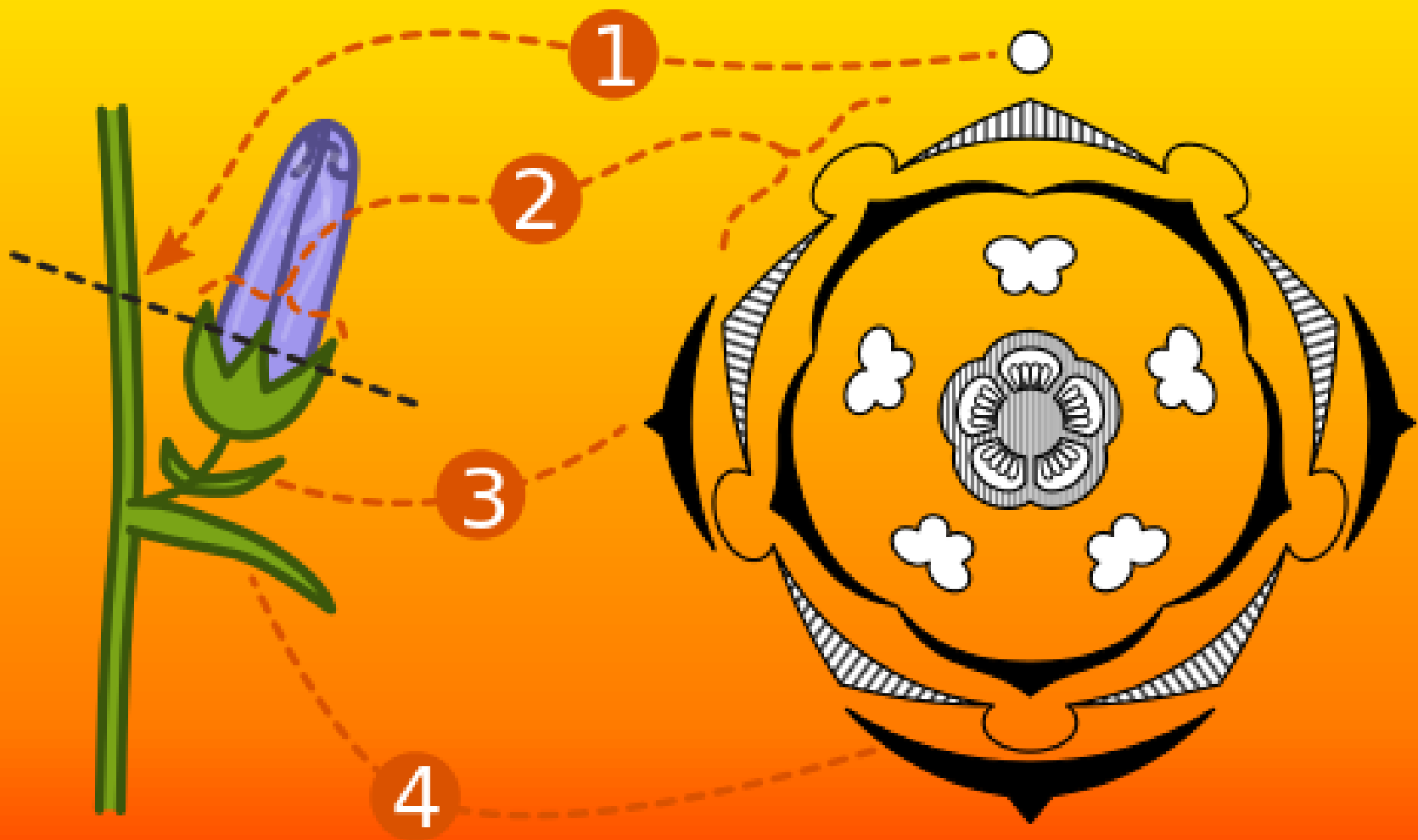
Podcvjetna plodnica

Sredcvjetna plodnica

Nadcvjetna plodnica



Cvjetni dijagram



Cvjetna formula

- *- višesimetričan cvijet
- ↑- jednosimetričan cvijet
- K – calyx
- C- corolla
- P- perigon
- A- andreceum
- G- gyneceum
- n- broj elemenata
- ∞- veliki broj elemenata
- G n/- nadrasla plodnica, G/n- podrasla plodnica
- Gn- apokarpna plodnica, G(n)- sinkarpna plodnica
- ()- srastanje elemenata istog tipa, []- srastanje elemenata različitih krugova

Postanak cvjetnih djelova

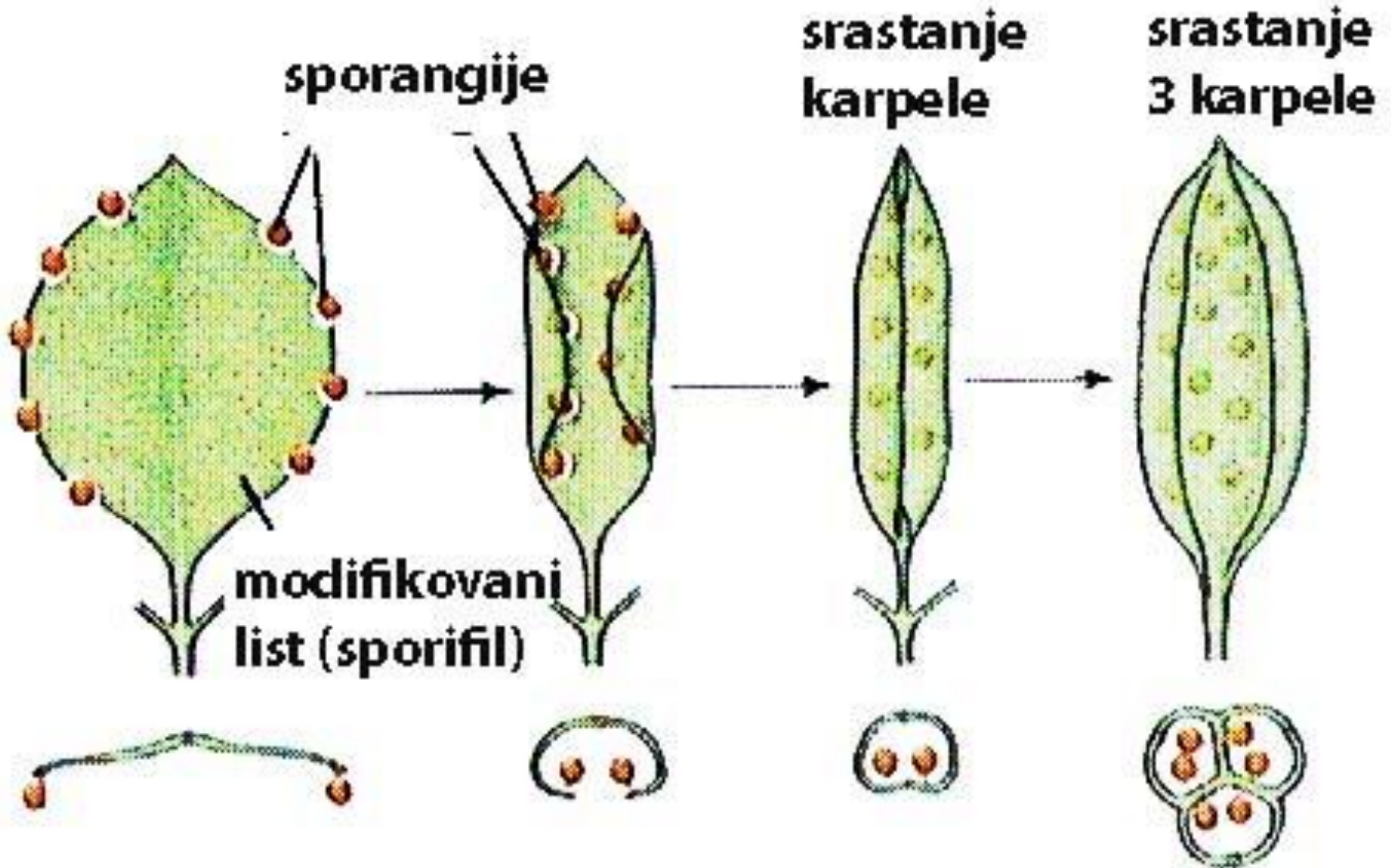
- cvijet= izmijenjeni izdanak sa listovima
- čašica nesumnjivo vodi porijeklo od listova, dok se porijeklo kruničnih listića izvodi od sterilnih listolikih prašnika.

Sterilni prašnici, koji prelaze u listiće krunice tzv. andropetalna krunica

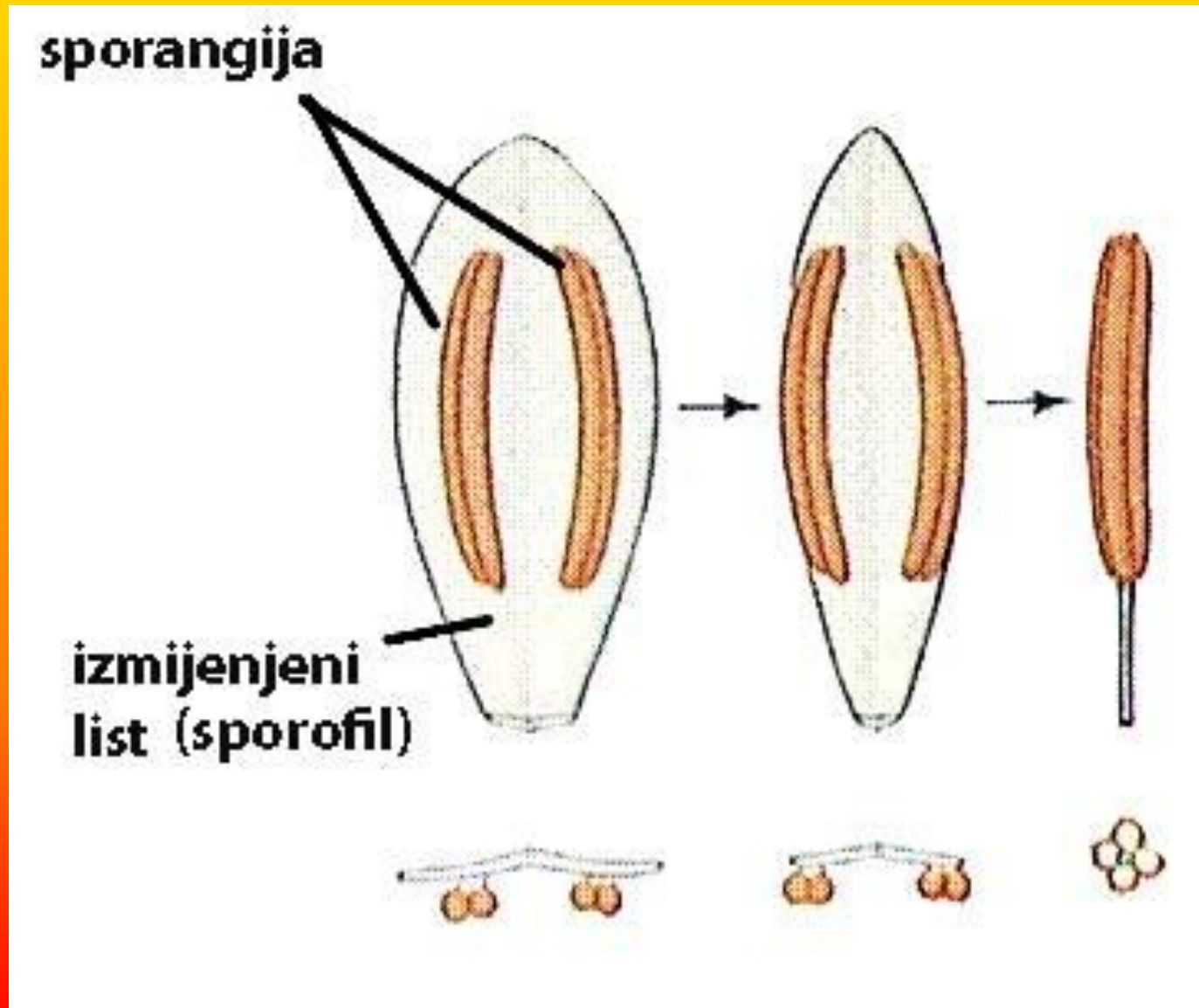
Fertilni prašnici



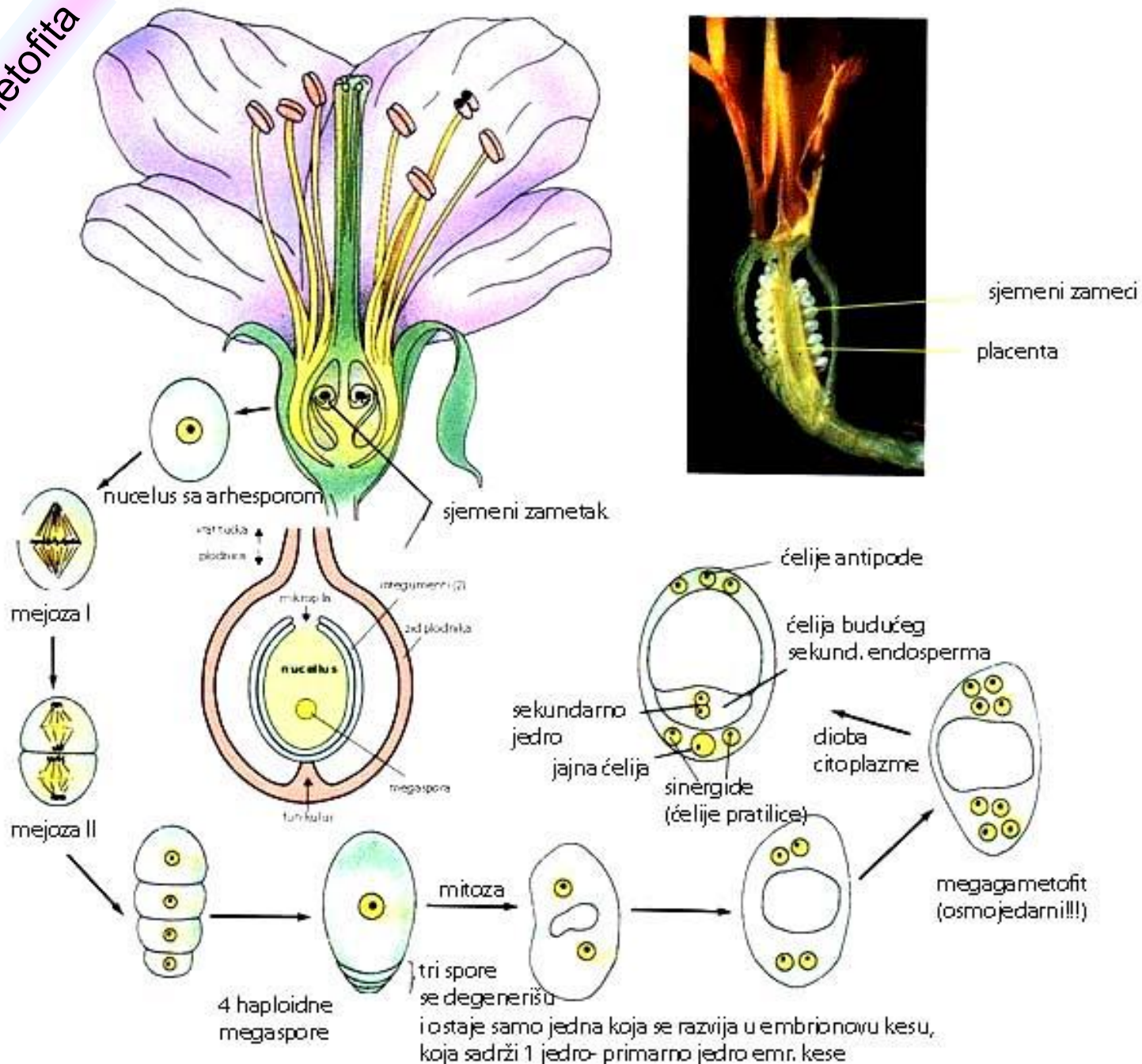
Postanak oplodnih listića- plodnika



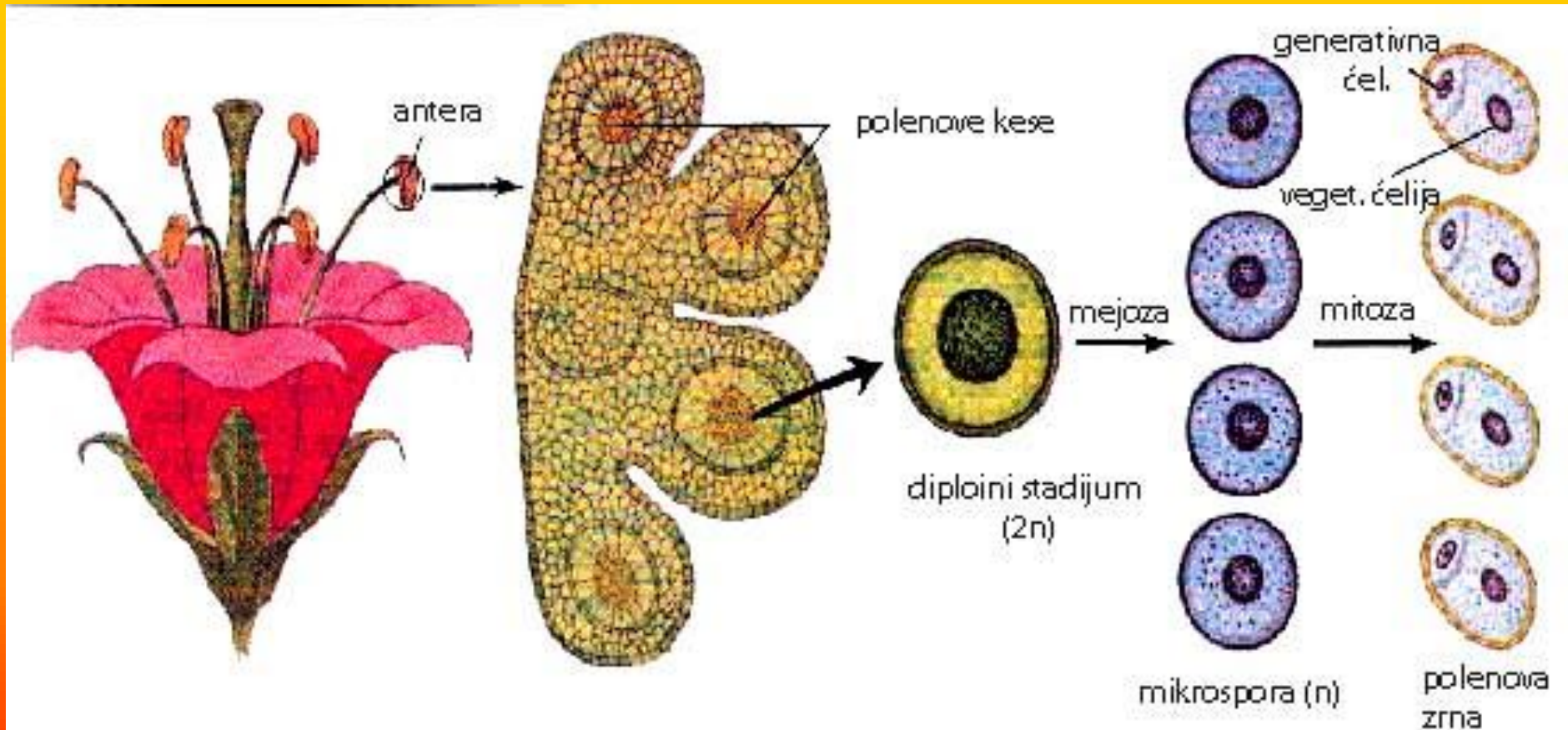
Postanak prašnika



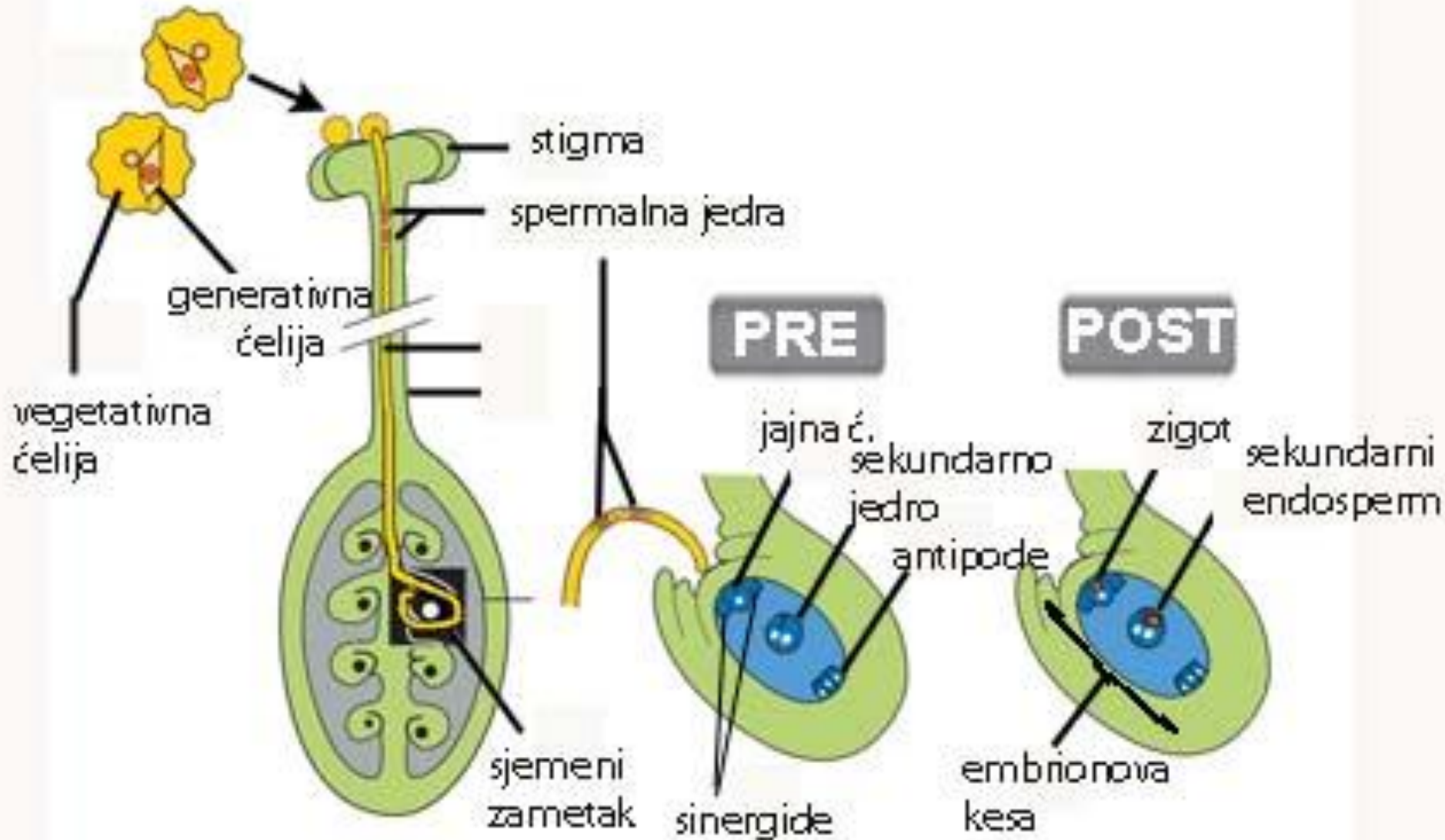
Razviće ženskog gametofita



Razviće muškog gametofita



Akt oplodnje



Lilianae

(monokotiledone)

Nekomelinide

Acorales

Alismatales

Petrosaviales

Dioscoreales

Pandanales

Liliales

Asparagales

Komelinide

Arecales

Poales

Commeliniales

Zingiberales

- Nekomelinide

- Acorales (Acoraceae)

- Alismatales (Alismataceae, Butomaceae, Araceae, Hydrocharitaceae, Lemnaceae, Najadaceae, Posidoniaceae, Potamogetonaceae, Zosteraceae)

- Petrosaviales (Petrosaviaceae)

- Dioscoreales (Dioscoreaceae)

- Pandanales (Pandanaceae)

- Liliales (Asphodelaceae, Melanthiaceae, Colchicaceae, Liliaceae, Smilacaceae)

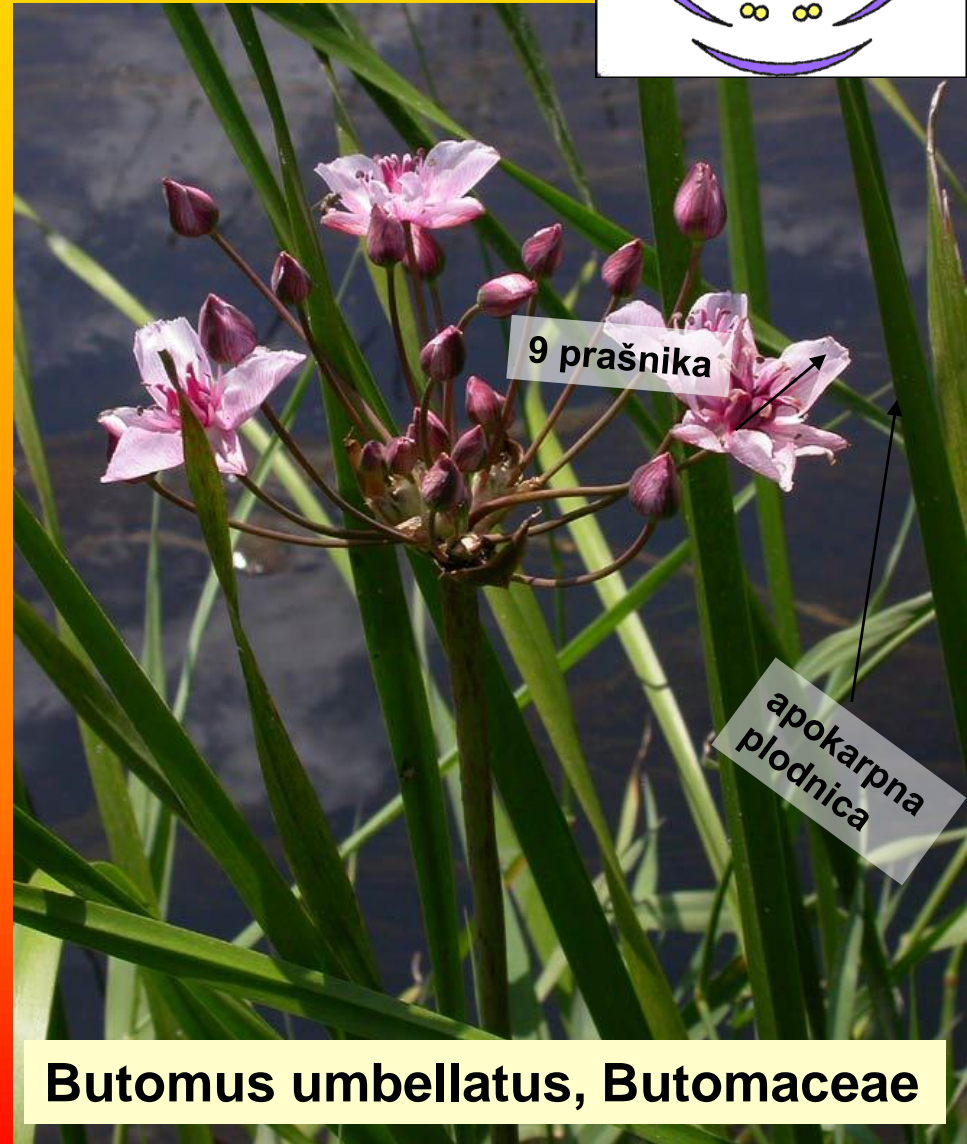
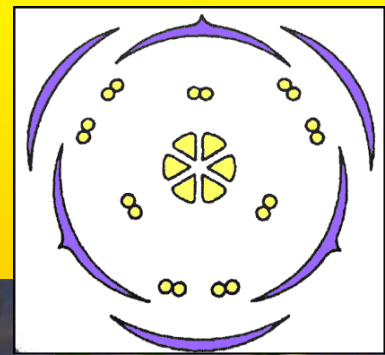
- Asparagales (Asparagaceae, Alliaceae, Amaryllidaceae, Iridaceae, Orchidaceae)

* P3+3 A3+3 G(3)



Acorus calamus, Acoraceae

* K3 C3 A6+3 G6-9



Butomus umbellatus, Butomaceae

* K3 C3 A3+3 G_ص

Alismataceae



*K3 C3 A_ص G 3⁰+3⁰
*K3 C3 A⁰ G_ص



Alisma plantago-aquatica



Sagittaria sagittifolia

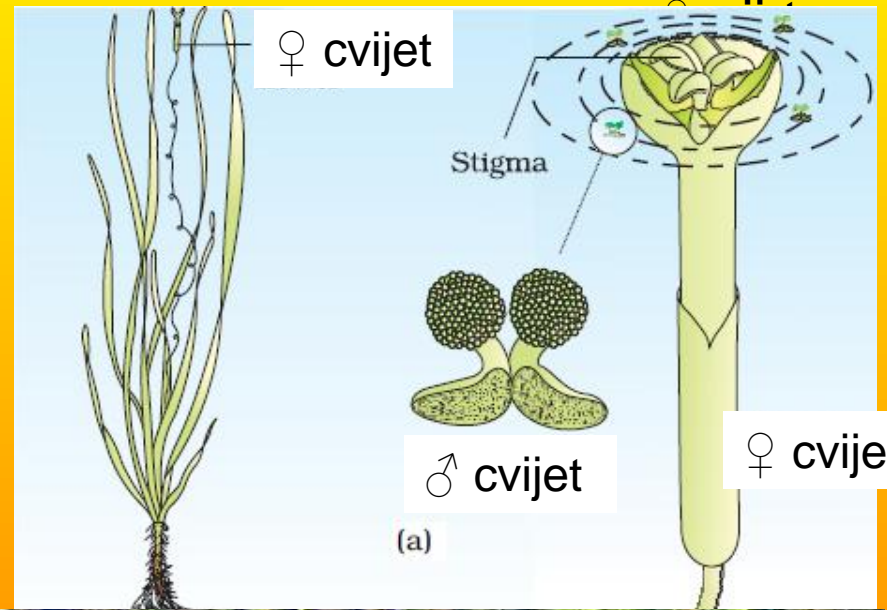
Hydrocharitaceae



Hydrocharis morsus-ranae

♂ *K3 C3 A3+3+3+3⁰(+3st +3st) G0

♀ *K3 C3 A3st G/3+3



Elodea canadensis

♂ *K3 C3 A3+3+3

♀ *K3 C3 G/(3)



Vallisneria spiralis

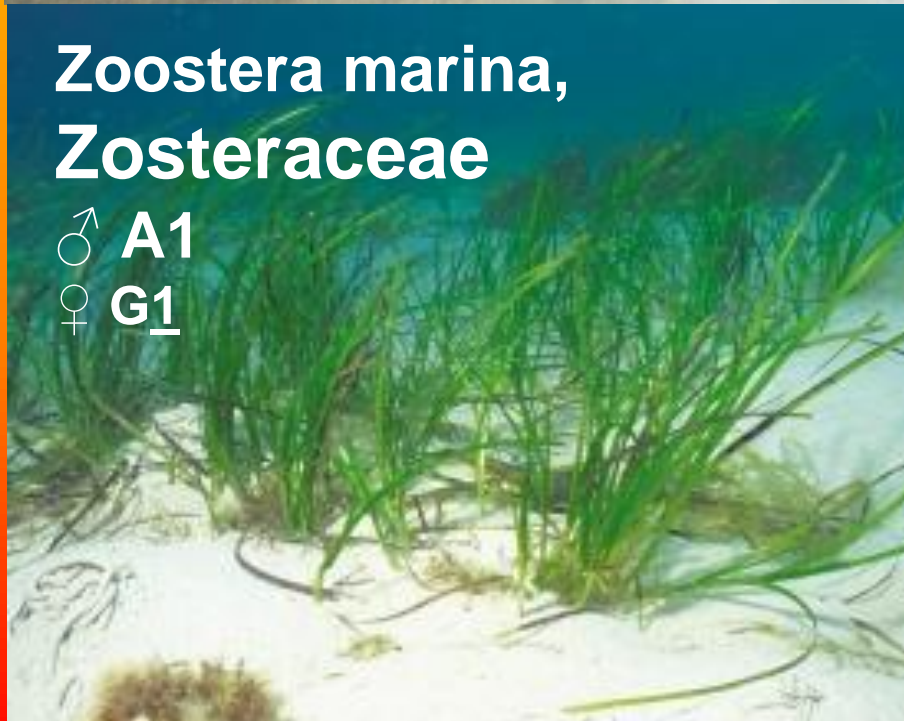
Najas marina, Najadaceae

♂ A1
♀ G1



Zoostera marina, Zosteraceae

♂ A1
♀ G1



Posidonia oceanica, Posidoniaceae

A3 G1

© Ramón Esteban (CSUB San José) para <http://marenostrum.org>

Lemnaceae



Lemna sp.



Wolfia sp.

Potamogetonaceae



Potamogeton natans

* (P4 A4) G4



Potamogeton perfoliatus

Dioscoreaceae



Dioscorea balcanica

* P3+3 A3+3 G0

*P3+3 A0 G(3)



Tamus comunis

* P3+3 A3+3 G(3)

Pandanaceae



ص ۰ P0 A

ص ۰ P0 G

PANDANUS GRACILIS—Blanco
Pandanus gracilis

Asparagales

Alliaceae (Allium)

Amaryllidaceae (Narcissus, Galanthus, Leucojum)

Asparagaceae (Convallaria, Polygonatum,
Asparagus, Ruscus)

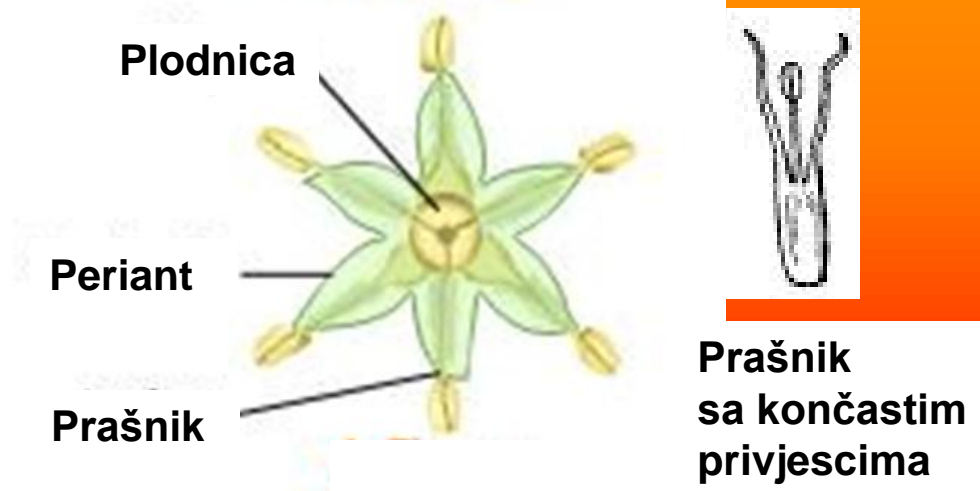
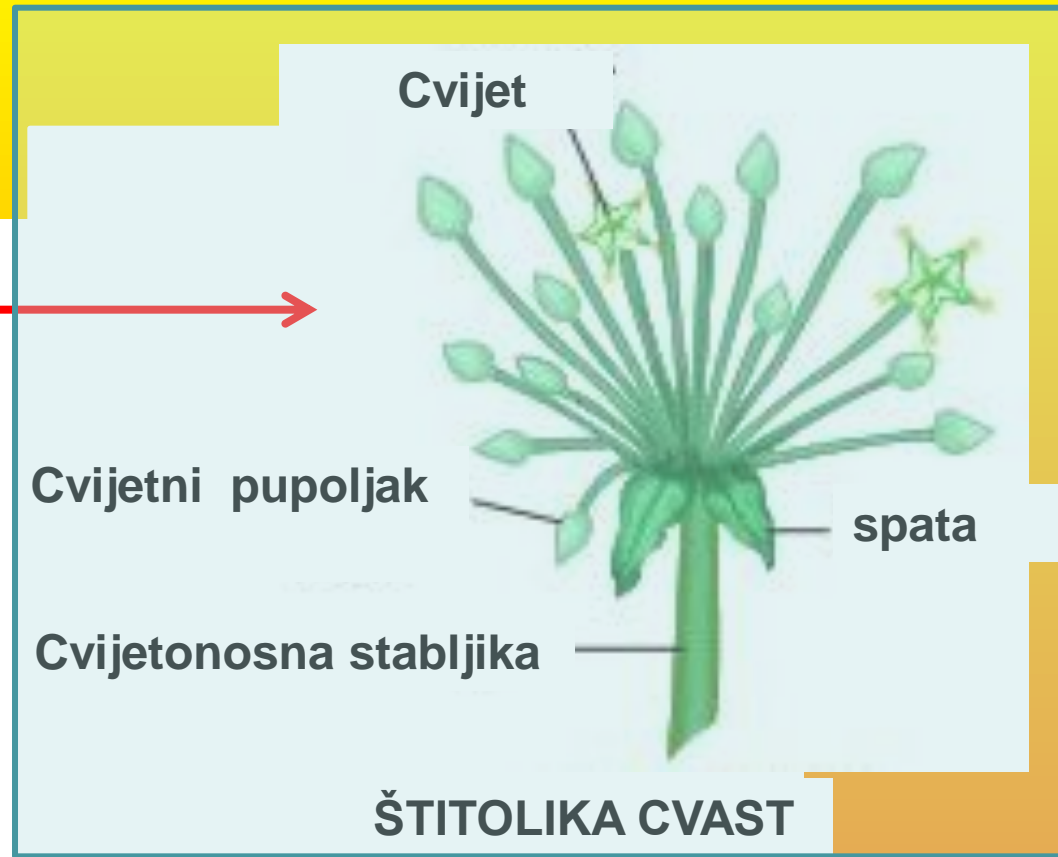
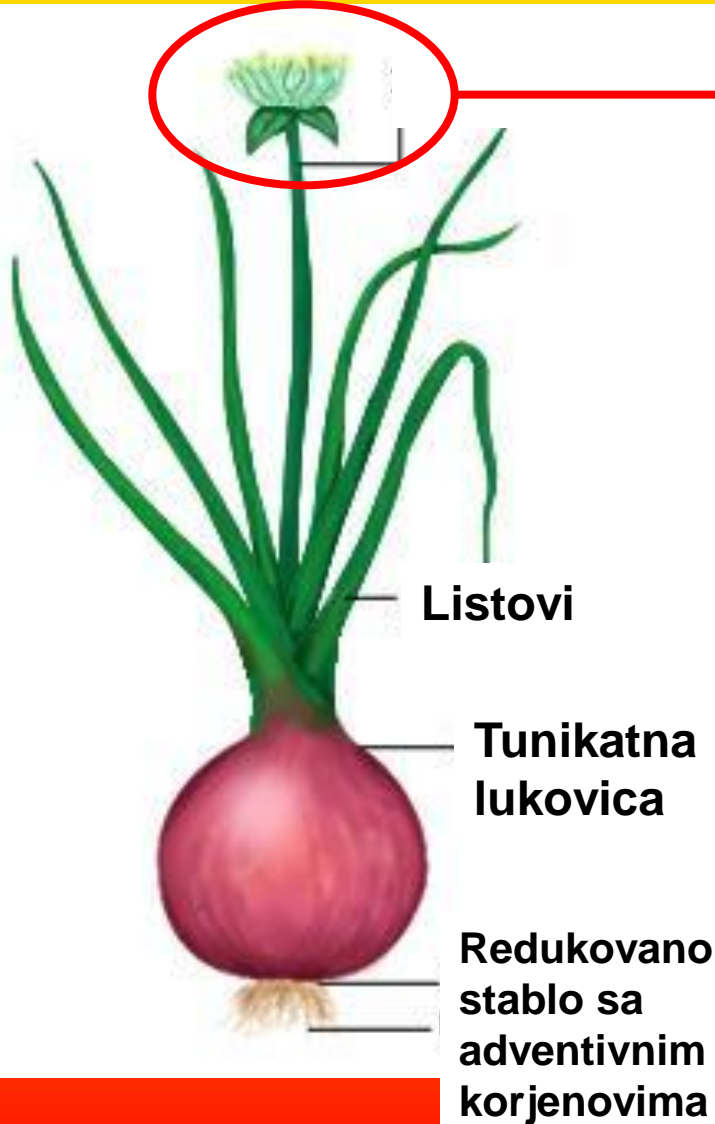
Araceae (Arum),

Iridaceae (Iris, Crocus, Gladiolus)

Orchidaceae (Ophrys, Orchis, Spiranthes,
Gymnadenia...)

Alliaceae

* $(P_{3+3} A_{3+3}) G_{(3)}$





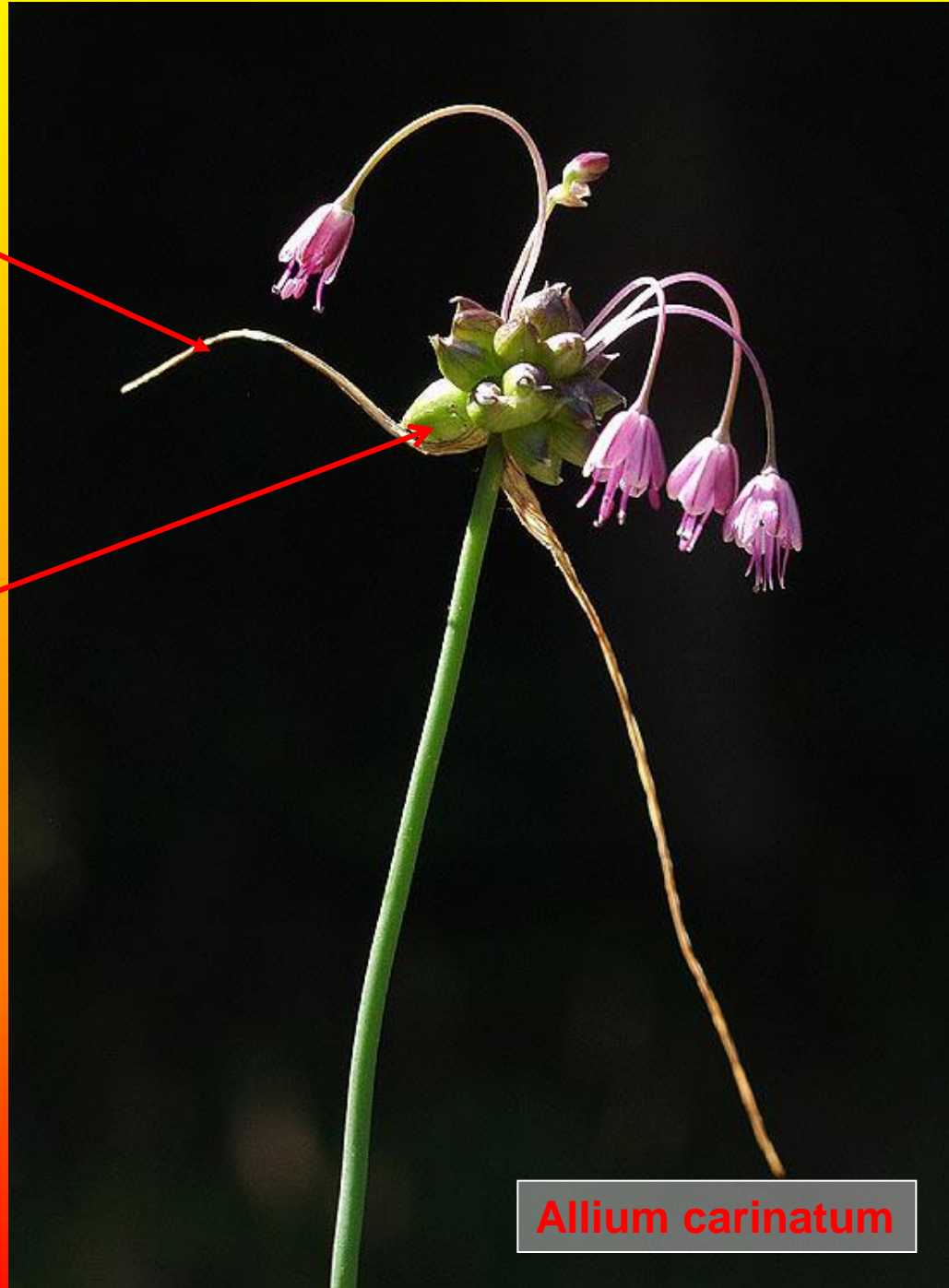
Allium cepa



Allium ursinum

Ovojni list (spata)
nadvisuje cvast

Rasplodni bulbili u zoni cvasti



Allium carinatum

Amaryllidaceae



Leucojum aestivum, *P₃₊₃ A₃₊₃ G/(3)



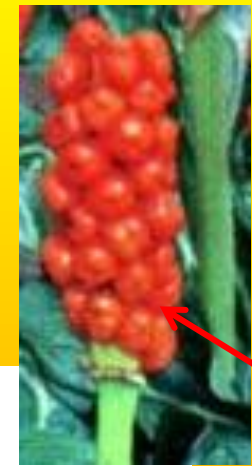
Galanthus nivalis, *P₃₊₃ A₃₊₃ G/(3)



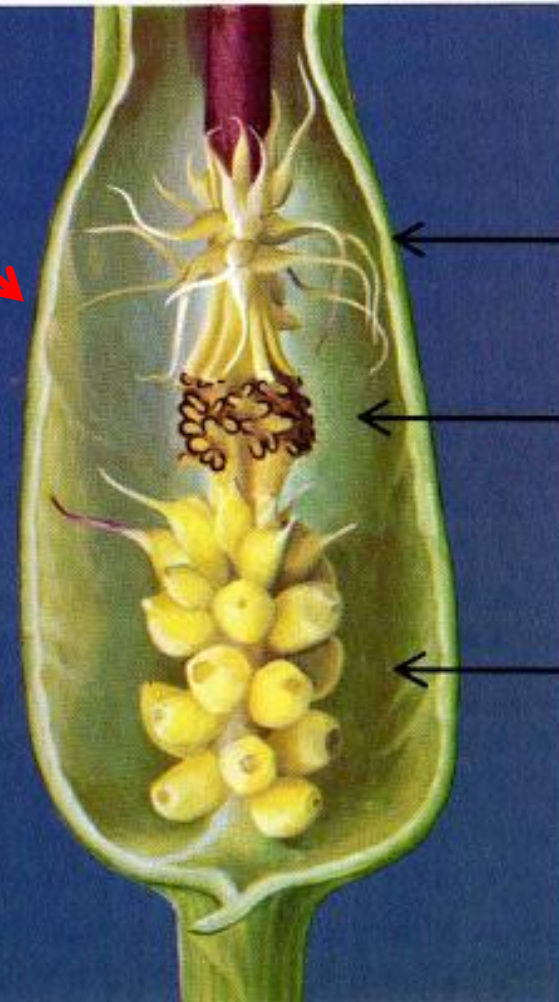
Narcissus radiiflorus, $*(P_{(3+3)} A_{3+3}) G_{/(3)}$

Parakorola izvodi porijeklo od cijevi vijenca (1) ili prašničkih niti (2)...

Araceae



Plod



Sterilni muški cvijet

Muški cvijet

♂ P₀ A(2-4)

Ženski cvijet

♀ P₀ G₁

Asparagaceae

Subfam. Asparagoideae



Subfam. Nolinoideae



filokladija



Ruscus aculeatus, *P₍₃₊₃₎ A₍₃₊₃₎ G₍₃₎^r
*P₍₃₊₃₎ (A₃₊₃)^r G₍₃₎

Asparagus acutifolius, *(P₍₃₊₃₎ A₃₊₃) G₍₃₎

Subfam. Nolinoideae



Convallaria majalis



Polygonatum multiflorum

* $(P_{(3+3)} A_{3+3}) G_{(3)}$

Subfam. Scilloideae



Muscari comosum



Hyacinthella dalmatica



Scilla bifolia

Agavaceae



Agave americana



Yucca sp.

Iridaceae

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

Gladiolus palustris



Zigomorfan cvijet

Iris pseudoacorus



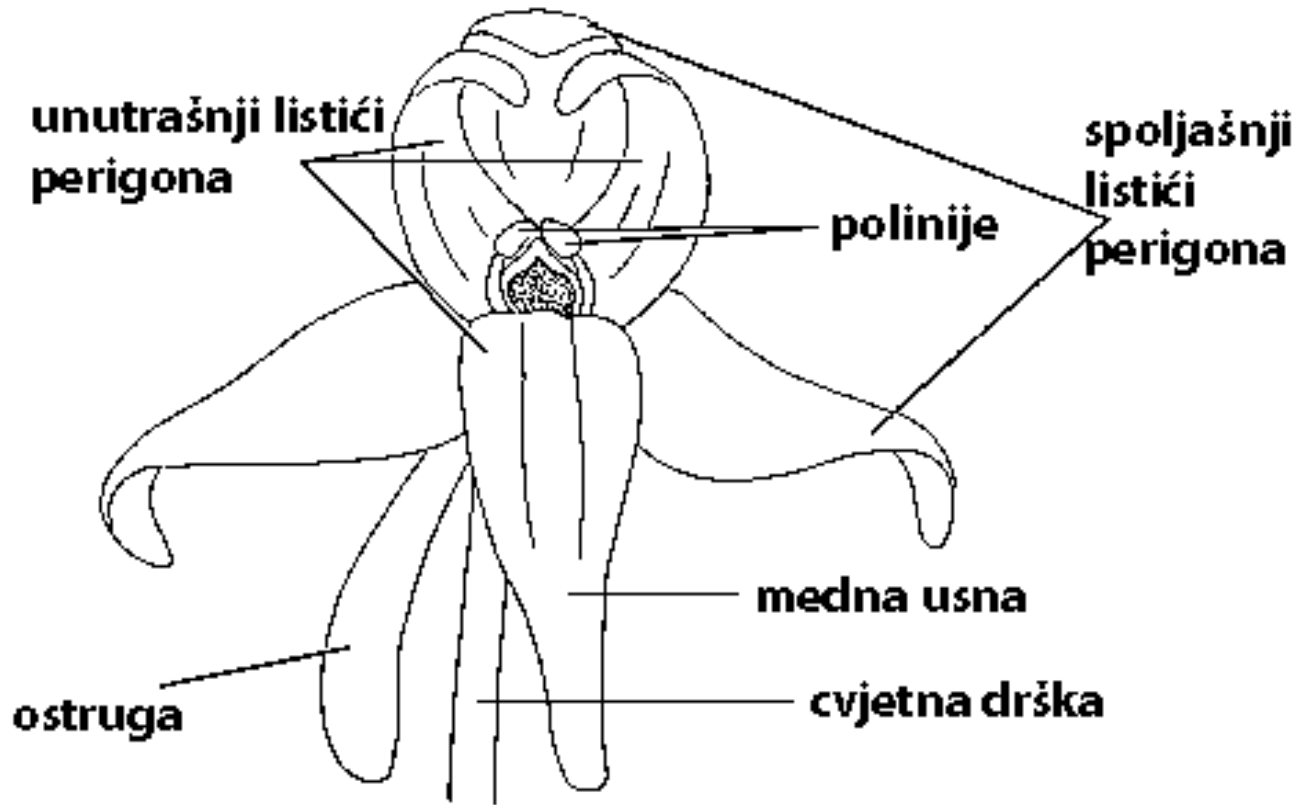
**3 spoljašnja lista perigona
prema nazad savijena**

Crocus dalmaticus



Romulea bulbocodium

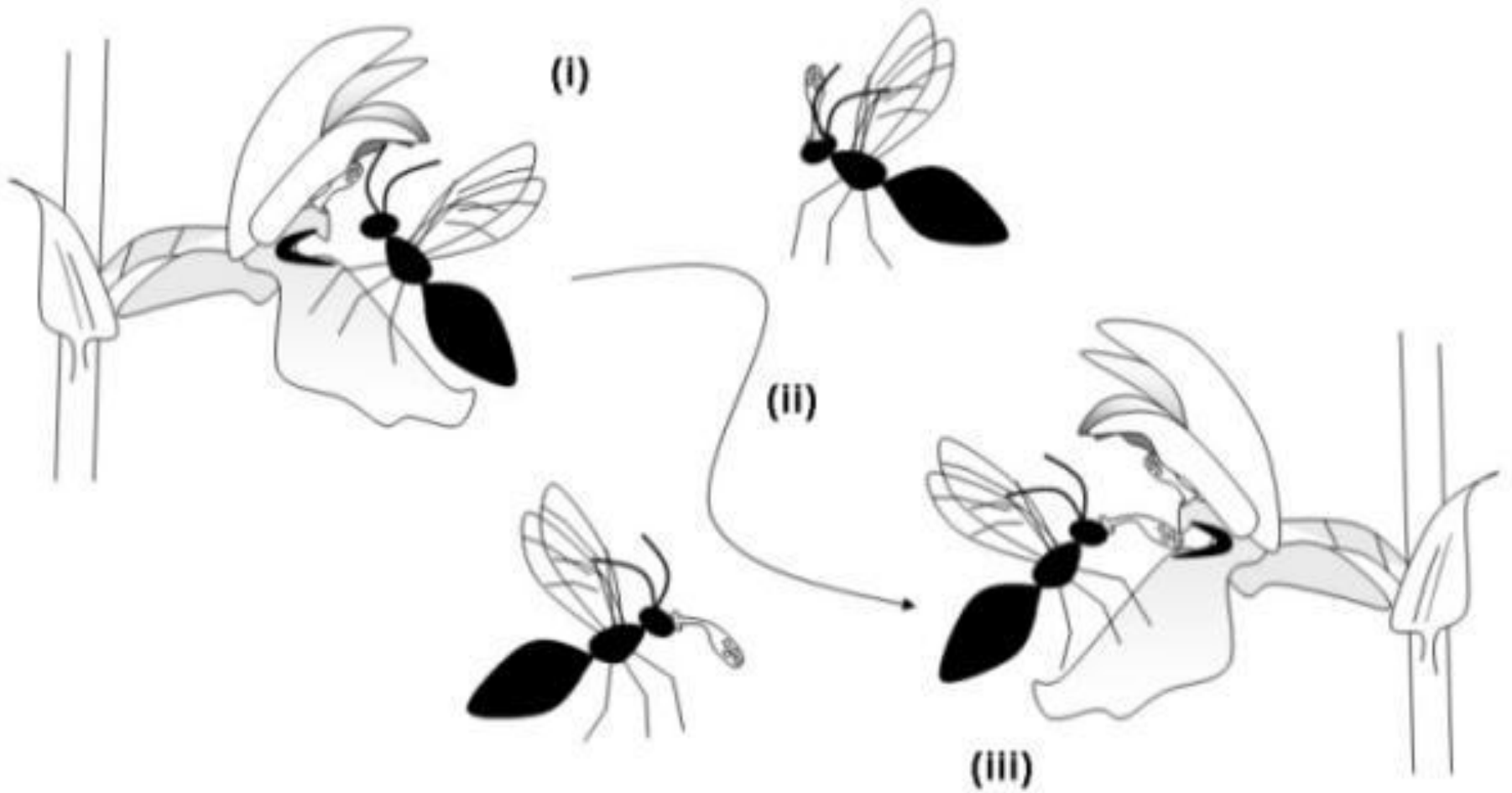
Orchidaceae



Subfam. Apostasioideae, $\uparrow/*P_{3+3} (A_{2-3} G_{/(3)})$

Subfam. Cyripedioideae, $\uparrow P_{3+3} (A_{1^{st}+2} G_{/(3)})$

Subfam. Orchideoideae, $\uparrow P_{3+3} (A_{1+2^{st}} G_{/(3)})$



Mehanizam opašivanja

Orchideoideae (Monoandre)

**Medna usna sa
ostrugom!**



Himanthoglossum sp.



Orchis morio



Orchis papilionaceae



Anacamptis pyramidalis

Ophrys sp.



**Medna usna
bez ostruge**



Ophrys sp.





Neottia nidus-avis



Spiranthes spiralis



Serapias sp.

Cypripedioideae

(Diandre)



Cypripedium calceolum

Liliales

Asphodelaceae (Asphodelus)

Colchicaceae (Colchicum)

Liliaceae (Lilium, Tulipa, Fritillaria)

Melanthiaceae (Veratrum, Paris)

Smilacaceae (Smilax)

Asphodelaceae, *Asphodelus albus*



Colchicaceae, *Colchicum hungaricum*



Liliaceae

P_{3+3} A_{3+3} $G_{(3)}$

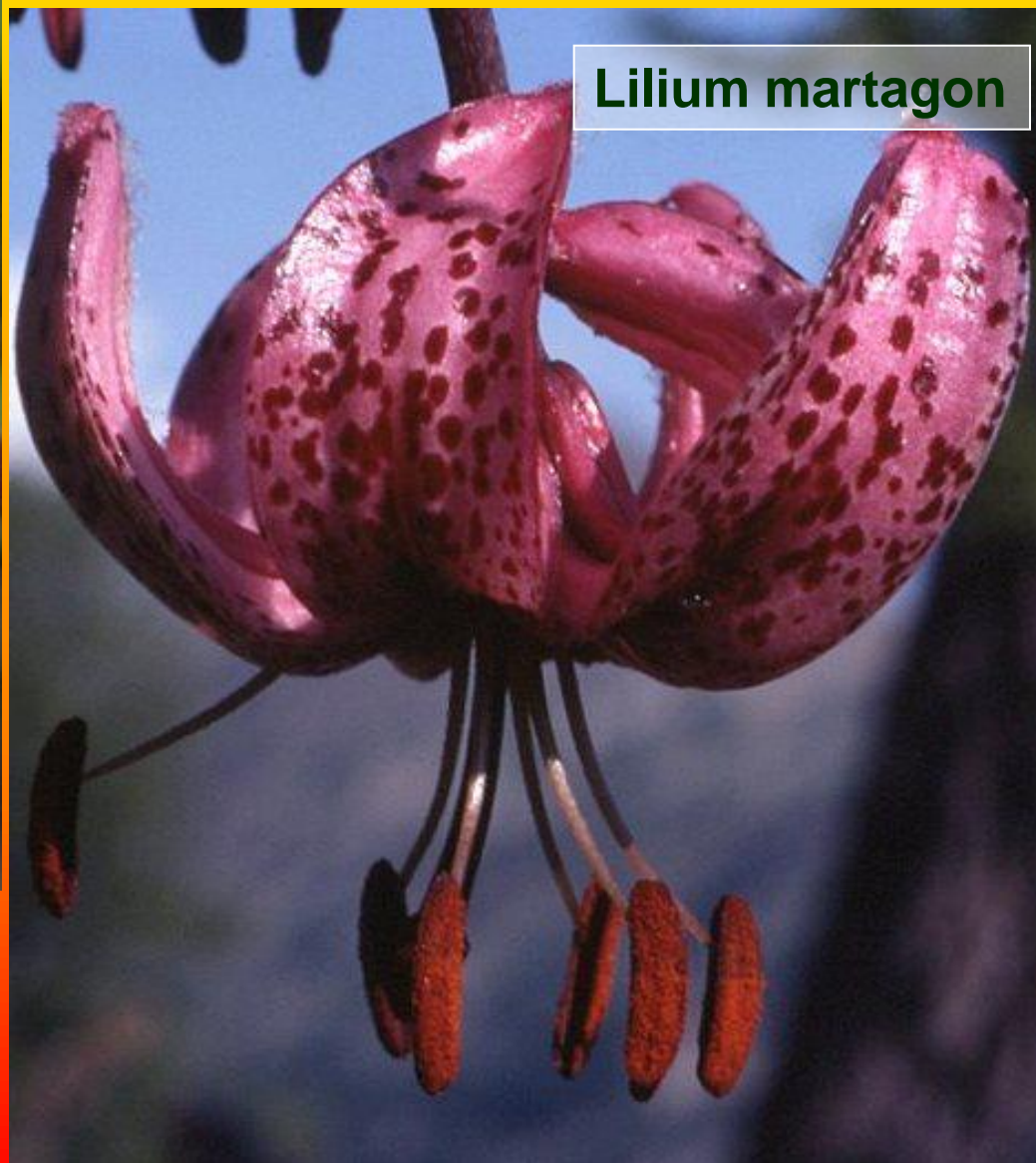
Tulipa sylvestris



Fritillaria gracilis



Erythronium dens-canis



Lilium martagon

Melanthiaceae

Tetrameran perigon!!!



Paris quadrifolia, *K₄ C₄ A₄₊₄ G₍₄₎



Veratrum album, P₃₊₃ A₃₊₃ G₍₃₎

Smilacaceae



Smilax aspera



*P3+3 G(3)



* P3+3 A3+3