

# Kritosemenke - Angiospermae

## Asteridae

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## Angiospermae, Asteridae

- Cornanae** (=Cornales)
  - Cornaceae
  - Hydrangeaceae ...
- Ericanae** (=Ericales)
  - Balsaminaceae
  - Ericaceae
  - Primulaceae
  - Sarraceniaceae ...
- Lamianae** (Euasterids I)
  - Boraginaceae ...
  - Plocospermataceae
  - Gentianales
    - Apocynaceae
    - Gentianaceae
    - Loganiaceae
    - Rubiaceae ...
- Lamiales
  - Acanthaceae
  - Buddlejaceae
  - Gesneriaceae
  - Lamiaceae
  - Lentibulariaceae
  - Oleaceae
  - Orobanchaceae
  - Plantaginaceae
  - Scrophulariaceae
  - Verbenaceae ...
- Solanales
  - Convolvulaceae
  - Solanaceae ...

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## Angiospermae, Asteridae

- Asteranae** (Euasterids II)
  - Adoxaceae ...
  - Apiales
    - Apiaceae
    - Araliaceae
    - Pittosporaceae ...
  - Aquifoliales
    - Aquifoliaceae ...
  - Asterales
    - Asteraceae
    - Campanulaceae
    - [+Lobeliaceae]
    - Menyanthaceae ...
- Dipsacales
  - Caprifoliaceae
  - Dipsacaceae
  - Linnaeaceae
  - Valerianaceae ...

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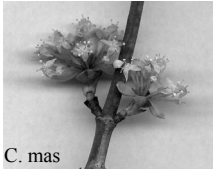
## Asteridae, Cornanae

### Cornales

- Cornaceae – drenovke



*Cornus sanguinea*  
\*K<sub>(4-5)</sub> C<sub>4-5</sub> A<sub>4-10</sub> G<sup>-</sup><sub>(2-3)</sub>



*C. mas*

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## Asteridae, Ericanae

### Ericales

- Ericaceae – vresovke



*Vaccinium myrtillus*

\*K<sub>4-5/(4-5)</sub> (C<sub>4-5</sub> A<sub>4+4/5+5</sub>) G<sub>(2-10)</sub>



*Calluna*

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## Asteridae, Ericanae

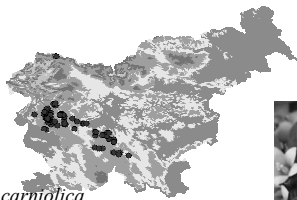
### Ericales

- Primulaceae – jegličevke

\*K<sub>(5)</sub> (C<sub>(5)</sub> A<sub>0+5</sub>) G<sub>(5)</sub>



*Primula*



*Primula carnolica*




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## Asteridae, Lamiales [Eua. I]

### Boraginales

- Boraginaceae – srhkolistovke



\*K<sub>(5)</sub>(C<sub>(5)</sub>A<sub>5</sub>)G<sub>(2)</sub>

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## Asteridae, Lamiales

### Gentianales

- listi nasprotni
- pogosto s prilisti
- na njih (ali na peclju) posebni debeli žlezni laski
- indol alkaloidi
- rbcL, matK, cpDNA

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## Asteridae, Lamiales

### Gentianales

- Gentianaceae – sviščevke

\*K<sub>(4-5)</sub>[C<sub>(4-5)</sub>A<sub>5</sub>]G<sub>(2)</sub>



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## Asteridae, Lamiales

### Gentianales

- Rubiaceae – broščevke

\*  $K_{4-5} [C_{(4-5)} A_{4-5+0}] G^{-} (2)$



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## Asteridae, Lamiales

### Lamiales

- oligosaharidi namesto škroba
- poseben tip listnih rež
- cpDNA, rbcL, atpB

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## Asteridae, Lamiales

### Lamiales

- Lamiaceae – ustnatičevke



↓  $K_{(5)} [C_{(5)} A_{2+2}] G_{(2)}$



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## Uporabne ustnatičevke

- *Lavandula*: sivka
- *Majorana*: majaron
- *Mentha*: meta
- *Ocimum*: bazilika
- *Origanum*: origano (dobra misel)
- *Rosmarinus*: rožmarin
- *Salvia officinalis*: žajbelj
- *Satureja*: šetraj
- *Sideritis*: šarplaninski čaj
- *Thymus*: timijan (materina dušica)

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## Asteridae, Lamiales

### Lamiales

- Oleaceae – oljkovke



\*K<sub>(4)</sub>[C<sub>(4)</sub>A<sub>2</sub>]G<sub>(2)</sub>

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## Asteridae, Lamiales

### Lamiales

- Orobanchaceae – pojalnikovke



\*K<sub>(5)</sub>[C<sub>(5)</sub>A<sub>2+2</sub>]G<sub>(2)</sub>



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## Asteridae, Lamiales

### Lamiales

- Scrophulariaceae s. str. – črnobinovke




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## Asteridae, Lamiales

### Lamiales

- Plantaginaceae s. lat. (=Veronicaceae) – trpotčevke




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## Asteridae, Lamiales

### Lamiales

- Plantaginaceae s. lat.

vkjučujejo nekdanje družine:

- Scrophulariaceae p. p.
- Globulariaceae – mračičevke
- Hippuridaceae – smrečičevke
- Callitrichaceae – vodolasovke




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# uporabne razhudnikovke

- *Capsicum*: paprika, feferoni
- *Datura*: kristavec
- *Hyosциamus*: zobnik (hiosciamin)
- *Mandragora*
- *Nicotiana*: tobak (nikotin)
- *Scopolia*: volčič/bunika (skopolamin)
- *Solanum tuberosum*: krompir
- *S. lycopersicum*: paradižnik
- *S. melongena*: jajčevac (melancan)

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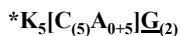
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## Asteridae, Lamianae

### Solanales

- Convolvulaceae – slakovke




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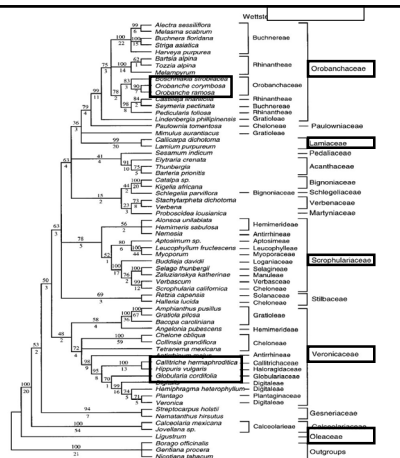
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## Asteridae, Lamianae

pregled




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## Asteridae, Asteranae [Eua. II]

- monofiletska skupina
- jasnih morfoloških znakov ni
- unitegmična (večinoma tenuinucelna) semenska zasnova
- pogosti iridoidi
- poliacetileni

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## Asteridae, Asteranae

### Adoxales

- Adoxaceae s. lat. – pižmičevke

\*K<sub>(2-5)</sub> [C<sub>(4-5)</sub> A<sub>4-5</sub>] G<sub>(2-5)</sub>



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## Asteridae, Asteranae

### Apiales

- smolni kanali (lahko z eteričnimi olji)
- poseben tip adventivnih korenin
- posebni falkarinonski poliacetileni
- izvirmo lesnate, z enostavnimi listi
- luskolisti pri dnu poganjkov
- večinoma kobulasta socvetja
- \*K5 C5 A5+0 G<sup>-</sup>, aksilarna placenta, 1 sz/predal
- dno vratu (=stilopodij) deluje kot nektarij
- droben kalček
- endosperm s petroselinso kislino

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## Asteridae, Asteranae

### Apiales

- Apiaceae (=Umbelliferae) – kobulnice



\* $K_{5/0}C_5A_{5+0}G^- (2)$

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### uporabne kobulnice:

- *Anethum*: koprc
- *Anisum (Pimpinella anisum)*: janež
- *Apium*: zelena
- *Carum*: kumina
- *Coriandrum*: koriander
- *Daucus*: korenje
- *Foeniculum*: koromač (sladki janež)
- *Panax ginseng*: ginseng
- *Pastinaca*: pastinak (rebrinec)
- *Petroselinum*: peteršilj
- † *Conium maculatum*: pikasti mišjak
- † *Cicuta virosa*: trobelika

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## Asteridae, Asteranae

### Apiales

- Araliaceae – bršljanovke



\* $K_{5/0}C_5A_{5+0}G^- (2-5)$

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## Asteridae, Asterales

### Asterales

- oligosaharid inulin
- elagična kislina
- A navadno zrasli, prašnice tvorijo cev, in se odpirajo navznoter
- cpDNA, rbcL, atpB
- najbližji sorodniki: Apiales, Dipsacales

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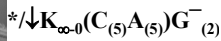
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## Asteridae, Asterales

### Asterales

- Asteraceae – košarnice



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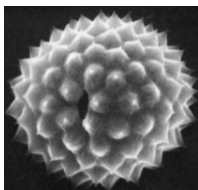
## Asteridae, Asterales

### Asterales

- Asteraceae
- subf. Asteroideae - nebinovke



*Leucanthemum*



*Ambrosia*

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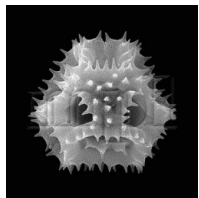
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## Asteridae, Asterales

### Asterales

- Asteraceae
- subf. Cichorioideae  
radičevke



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## uporabne košarnice

- *Arnica*: arnika
- *Artemisia*: pelin, pehtran
- *Cichorium*: endivija, radič, cikorija (potrošnik)
- *Cynara*: artičoka
- *Helianthus*: sončnica, topinambur
- *Lactuca*: solata
- *Tanacetum* idr.: vratič (vir piretrina)
- *Taraxacum*: regrat
- okrasne: *Tagetes*, *Leucanthemum*, *Zinnia*, *Aster*

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## Asteridae, Asterales

### Asterales

- Campanulaceae  
[incl. Lobeliaceae]—  
zvončičevke



\*-↓  $K_{(5)}C_{(5)}A_{5-(5)}\bar{G}^-_{(2-5)}$

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## Asteridae, Asteranae

### Dipsacales

- $*-\downarrow K_{(5)} [C_{(5)} A_{4-5}] G^{- (2-5)}$
- listi nasprotni, enostavni, lahko pernatost deljeni, brez prilistov,
- cvetovi šibko do razločno dvobočno somerni, dvospolni, scv cimozna
- nektariji iz trihomov v venčni cevi
- eksina bodičkasta,
- vrat dolg, z glavičasto brazdo,
- placentacija aksilarna

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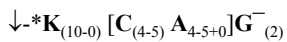
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## Asteridae, Asteranae

### Dipsacales

- Dipsacaceae – ščetičevke



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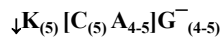
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## Asteridae, Asteranae

### Dipsacales

- Caprifoliaceae – kovačnikovke



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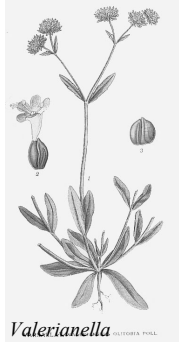
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# Asteridae, Asteranae

## Dipsacales

- Valerianaceae – špajkovke

\*K<sub>(0-∞)</sub> [C<sub>(5)</sub> A<sub>1-4</sub>] G<sup>-</sup> (3)




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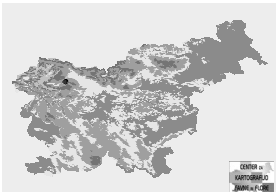
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# Asteridae, Asteranae

## Dipsacales

- Linnaeaceae – linejkovke

\*K<sub>(5)</sub> [C<sub>(5)</sub> A<sub>4</sub>] G<sub>(2-5)</sub>




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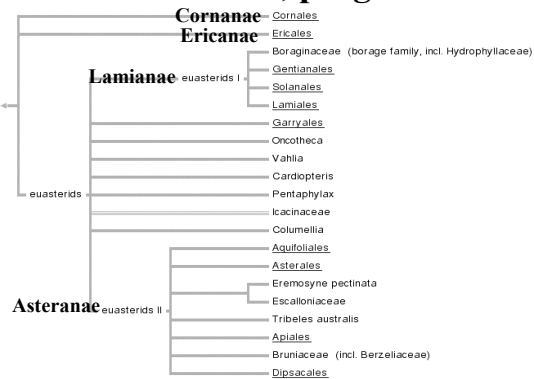
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# Asteridae, pregled




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