

Systematic Botany. Lecture 3

Alexey Shipunov

Minot State University

August 29th, 2011

Outline

Questions and answers

Compositae, Aster family

Description

Classification and representatives

Labiatae—mint family

Outline

Questions and answers

Compositae, Aster family

Description

Classification and representatives

Labiatae—mint family

Outline

Questions and answers

Compositae, Aster family

Description

Classification and representatives

Labiatae—mint family

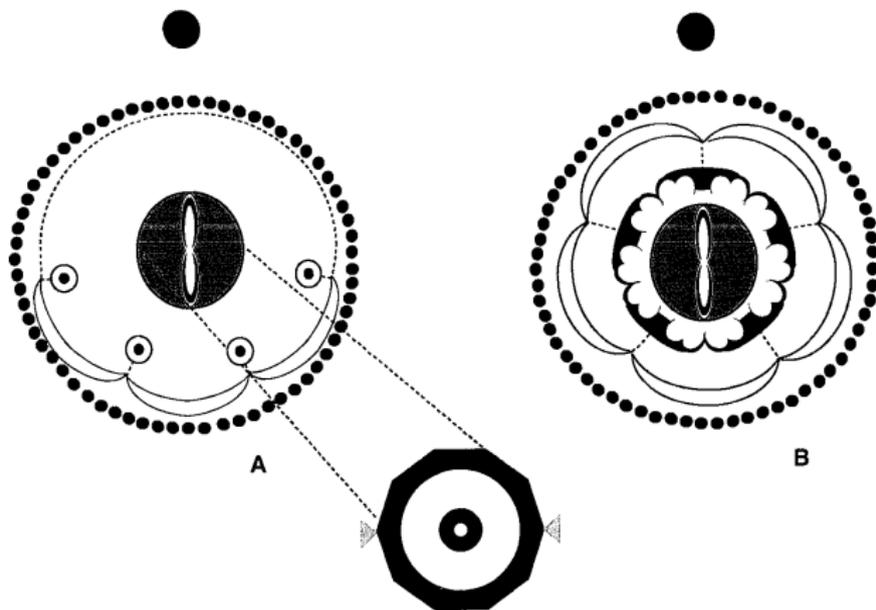
Previous final question: the answer

What is a main character of Compositae? (List only one)

- ▶ Head which is pseudanthium
- ▶ Pappus

Formula and diagram

Compositae flower



* $K_{\infty}C_{(5)}A_{(5)}\overline{G_{(2)}}$ (tubular flower) or $\uparrow K_{\infty}C_{(3\vee 5)}A_{(5)}\overline{G_{(2)}}$ (ligulate flower)

Tubular and ligulate flowers in *Matricaria* sp. (chamomile)

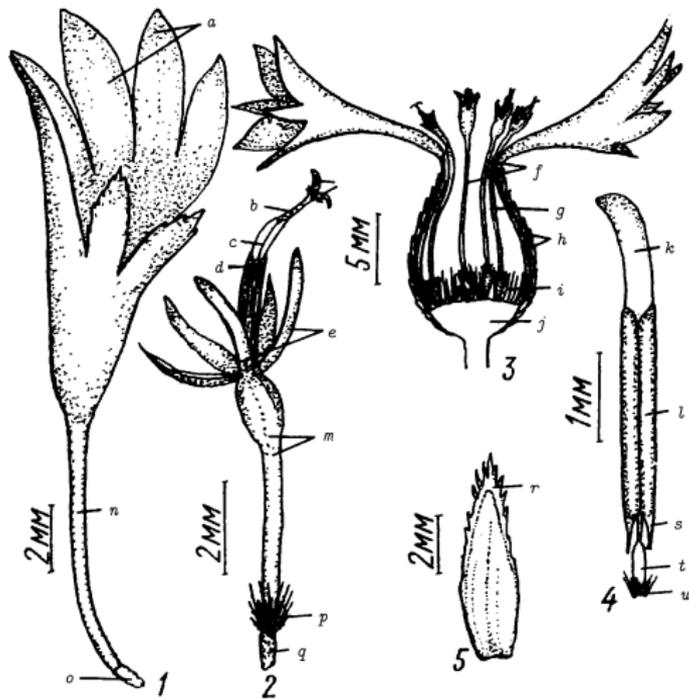


Classification and representatives of Compositae

Oil plants, vegetables, ornamentals and medicinal plants distributed in 12 (!) subfamilies, most important are three subfamilies:

- ▶ Mutisioideae: bilabiate + ray flowers
 - ▶ *Gerbera*—gerbera, South Africa

Knapweed



Cynara cardunculus (artichoke)



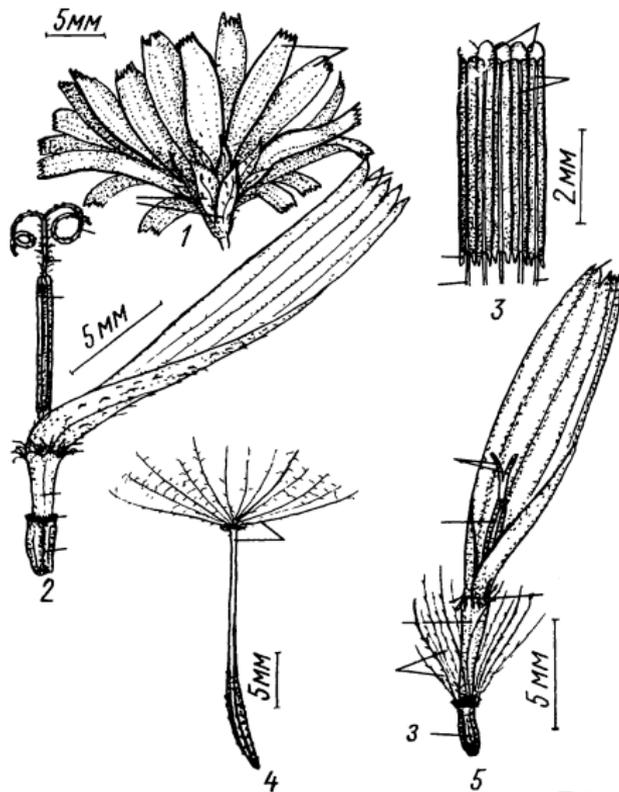
Carthamus tinctorius (safflower)



Cichorioideae

- ▶ Cichorioideae: mostly disk and/or 5-toothed ligulate flowers + laticifers with latex (milky sap)
 - ▶ *Taraxacum*—dandelion
 - ▶ *Lactuca*—lettuce
 - ▶ *Crepis*—hawkbeard
 - ▶ *Lygodesmia*—skeleton weed
 - ▶ *Sonchus*—sow thistle
 - ▶ *Hieracium*—hawkweed
 - ▶ *Cichorium*—chicory

Chicory



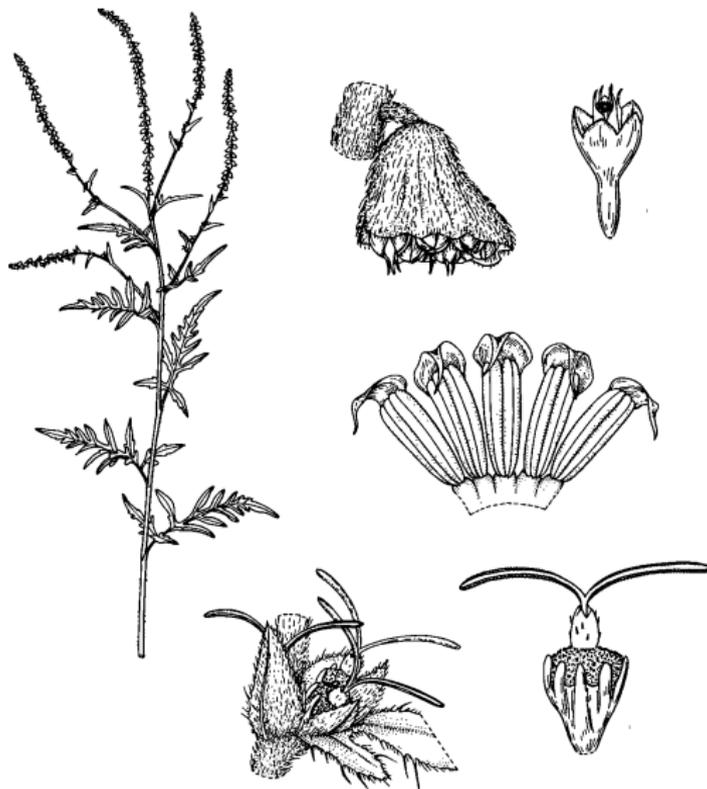
Asteroideae

- ▶ Asteroideae: tubular + 3-toothed ligulate flowers
 - ▶ Astereae: pappus consists of bristles; leaves entire
 - ▶ *Aster*—aster, divided now into *Eurybia*, *Oreostemma*, *Symphyotrichum*, etc.
 - ▶ *Erigeron*—fleabane
 - ▶ *Solidago*—goldenrod

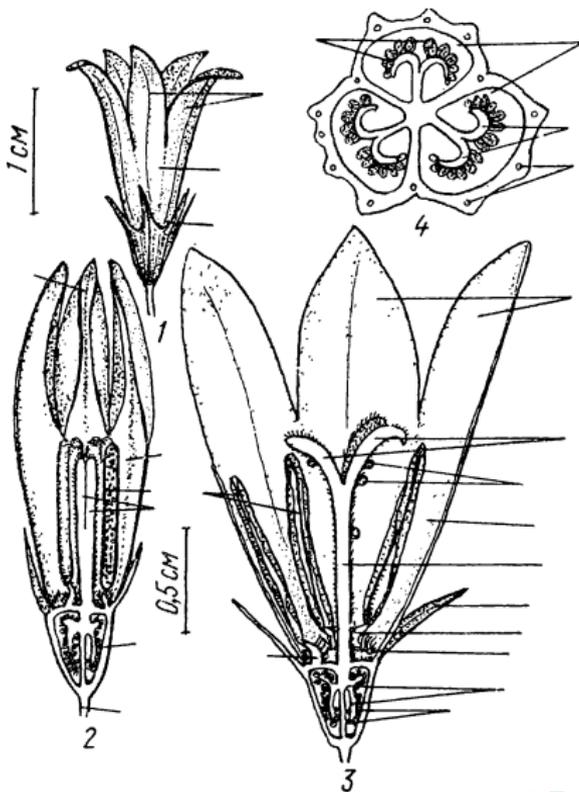
Asteroideae

- ▶ Asteroideae
 - ▶ Heliantheae (2.5k species!): mostly opposite leaves; disk + ray flowers; pappus from scales, sometimes absent
 - ▶ *Helianthus*—sunflower
 - ▶ *Tagetes*—marigold and lots of other ornamentals
 - ▶ *Ambrosia*—ragweed
 - ▶ *Bidens*—bur-marigold and many, many others

Ragweed



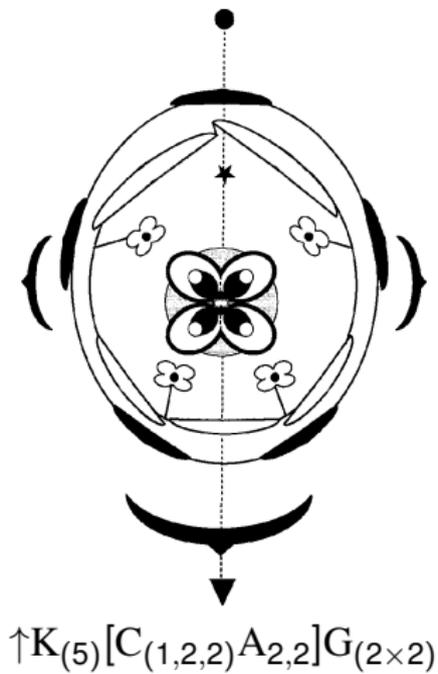
Bellflower



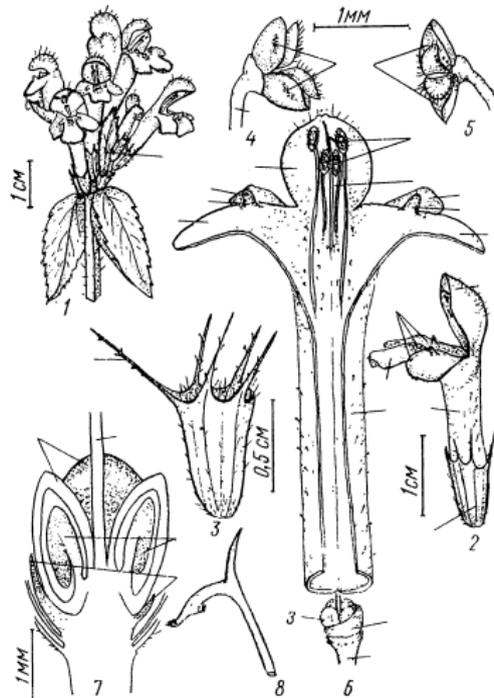
Morphology of Labiatae

- ▶ Aromatic, often hairy, herbs or shrubs; epidermal glands contain ethereal oils; plants also contain iridoid compounds
- ▶ Young stems are typically quadrangular; leaves opposite, without stipules, simple, with pterodromous venation
- ▶ Flowers in axillary inflorescences, zygomorphic (monosymmetric)
- ▶ Calyx tubular, petals also fused, with two upper and one lower petals bigger than others, stamens in two pairs, attached to corolla
- ▶ Pistil with two carpels, but each carpel is secondary divided
- ▶ Fruit is schizocarp of four half-carpellary nutlets, seeds with little endosperm

Labiatae flower



Galeopsis (hemp nettle) flower



Final question (2 points)

For Further Reading



O. A. Stevens.

Handbook of North Dakota plants. 3rd edition.

NDSU, 1963.

Bellflower, Lobelia and Aster families. P. 264–299.