

In the beginning...

"Can I eat this?"

Trees vs. herbs ("flowers")
 Edible or poisonous
 Focused on useful plants (FOOD, MEDICINE)

Mandrake

Milkweed, *Asclepias*

Ancient times

1500-1300 BC: Ebers Papyrus scroll, lists 800 plants; Tutankhamen tomb, storage of many plants
 500 BC: Indian herbal described 700 plants
 500 BC: Oldest known Chinese herbal

400 BC: Hippocrates (Greece), medicinal plants
 Theophrastus (ca. 372-287 B.C.),
 Father of Greek Botany (work reprinted in 1483)
 c 50 AD: Dioscorides, Father of Medical Botany

Middle Ages = Dark Ages of Botany (and Science) in Europe

Carl Linnaeus

Carl Linnaeus (1707-1778)
 Invented the Sexual System of Plants and first to consistently use binomial Latin names

Described many new species of plants and animals.

Sent students all over the world to explore (Kalm, Thunberg...).

"Father of taxonomy"

Carl Linnaeus dressed in traditional Laplander outfit after his ethnobotanical trip to northern Sweden.

Species Plantarum
 Linnaeus (1753)

Brassica campestris

BRASSICA.

1. BRASSICA foliis cordatis amplexicaulis glabris: radicalibus scabris integerrimis, filiquis tetragonis. *Hort. upl.* 190.
Brassica orientalis perfoliata, flore albo, filiqua quadrangula, Tournef. cor. 16.
Habitat in Oriente. ☉

2. BRASSICA radice caeque tenui, foliis caulinis unifornibus cordatis serratis. *Hort. cliff.* 339. *Fl. jucc.* 546. *Roy. Ingab.* 344.
Brassica campestris perfoliata, flore luteo. Luf. pruff. 29. *Fl. lapp.* 265.
Habitat in agris non argillofis Europae. ☉

3. BRASSICA radice caulescente fusiformi. *Hort. cliff.* 339. *Fl. jucc.* 547. *Mat. med.* 328. *Roy. Ingab.* 344. *Dalib. parif.* 199.
Napus fylvestris. Baub. pin. 95.
Napus. Dod. pompt. 674.
Napus fativa. Baub. pin. 95.
Habitat in arenosis maritimis Gotlandiae, Belgii, Angliae. ☉

Ending (suffix)
 for different ranks

Class	-opsida	Magnoliopsida
Subclass	-idae	Magnoliidae
Superorder	-anae	Magnoliana
Order	-ales	Magnoliales
Family	-aceae	Magnoliaceae
Subfamily	-oideae	Magnolioideae
Tribe	-eae	Magnolieae
Subtribe	-inae	Magnoliinae
Genus	N/A	<i>Magnolia</i>
Species	N/A	<i>Magnolia grandiflora</i>

Phylogenetic classifications (1998-present)

APG (Angiosperm Phylogeny Group, 1998, updated 2003; based on evolutionary relationships)

NOTE – floras and older books will have older classifications – some family and genus classifications have changed.

Most recent classification:

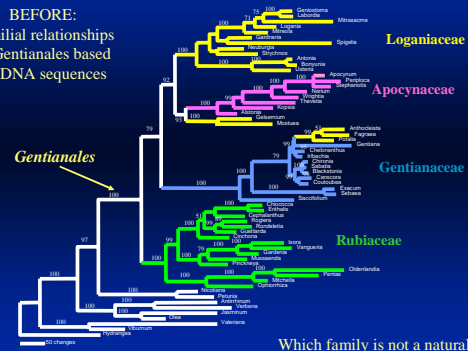
Angiosperm Phylogeny Website:

<http://www.mobot.org/MOBOT/research/APweb/>

Or get David Mabberley's *The Plant Book*.

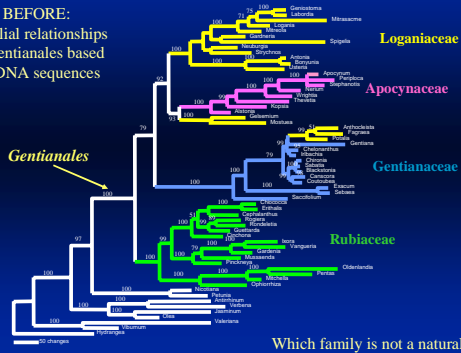
Principles of Phylogenetic Classification

BEFORE:
Familial relationships in Gentianales based on DNA sequences



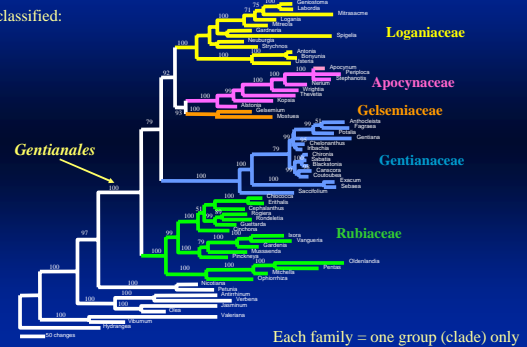
Principles of Phylogenetic Classification

BEFORE:
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Results of phylogenetic classification

Reclassified:



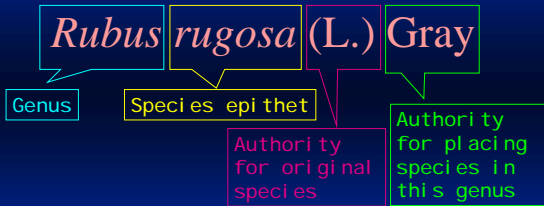
Why do we need Latin names?

Binomial names



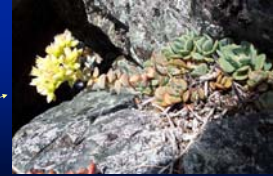
But what happens if the plant gets moved to another genus?

Parenthetical authority



Infraspecific names (within species)

Sedum laxum ssp. *flavidum*
Denton
– roseflower stonecrop



Sedum laxum ssp. *heckneri*
(M. Peck) R.T. Clausen
– Heckner's stonecrop



ssp. = subspecies
var. = variety
f. = form

both are *Sedum laxum*
Crassulaceae

Hybrids



Sarracenia flava × *S. purpurea*
OR
Sarracenia × *catesbaei*



Cultivar names

Not as strictly regulated as Latin names, follows
International Code of Nomenclature for Cultivated Plants

Single quotation marks

No intellectual property rights

Must be in a language other than Latin

Must be unique within the genus

Example: *Cryptomeria japonica* 'Elegans'



Why do Latin names change?

1. The species name was misapplied to the wrong species.
2. New classifications (moves to a new genus)
3. A genus is divided up into two or more genera.

Species only change names when they move to a different genus – not to a different order, family, etc.

Example: Aceraceae RIP

Acer (maples) are no longer Aceraceae, they are in Sapindaceae.

lychee (*Litchi*)



Maple (*Acer*)

Example: Malvaceae, bigger than ever

Cacao (*Theobroma*)
Basswood (*Tilia*)
Cotton (*Gossypium*)
Baobab (*Adansonia*)

Example: So long *Asclepiadaceae*

Milkweeds (*Asclepiadaceae*), now in *Apocynaceae* (rosy periwinkle and dogbanes)

Example: Where is my *Chrysanthemum*?

The 'mums' split from *Chrysanthemum* and were treated as *Dendranthema* until 1999, but are now back into *Chrysanthemum* to preserve the Latin name with this important cultivar (ruling by ICBN, type species for the genus was changed).

Example: Tomato no longer *Lycopersicon*

It is a *Solanum*.

Potato and tomato in the same group inside *Solanum*.

A phylogenetic tree on the left shows the genus *Solanum* in a blue box. The tree lists: Lepostemonum, Brevarthrum, Genista, Wendlandi/Allophylum, Cytharandra, Dulcanaroid, Noreloid, Potato, African non-spry, Nornania, Archaesolanum, Ragnandia, Trelpodium, Capsicum, Lycianthes, Jaltomata, Wilberingia, and Pruvalli. A red box highlights the Potato and African non-spry species, with a red arrow pointing to the text 'Potato and tomato in the same group inside Solanum.'

The problems with taxonomy in horticulture

- Many Latin names in common use that are no longer correct.
- Hard to find updated information.
- Not used to changes in Latin names.
- General public doesn't like change?
- Scientists are not good at communicating new findings to the horticultural community.
- Anything else?



Hot enough?