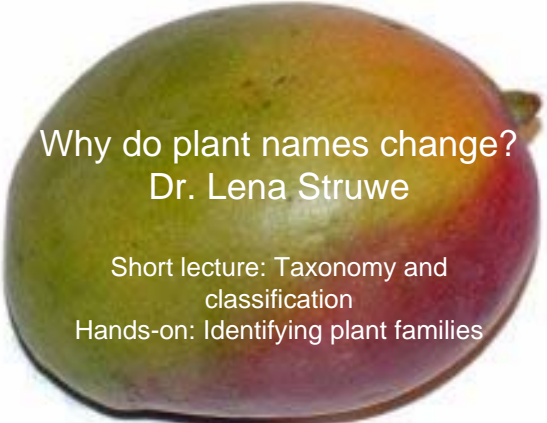


Why do plant names change?

Dr. Lena Struwe


Short lecture: Taxonomy and classification
Hands-on: Identifying plant families



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 cauleque tenui, foliis caulinis unifornibus cordatis serratis. *Hort. cliff.* 339. *Fl. suec.* 546. *Roy. Ingab.* 344.
Brassica campestris perfoliata, flore luteo. Luf. pruff. 29. *Fl. lapp.* 265.
Habitat in agris non argillofis Europæ. ☉

3. BRASSICA radice caulescente fusiformi. *Hort. cliff.* 339. *Fl. suec.* 547. *Mat. med.* 328. *Roy. Ingab.* 344. *Dalib. parisi.* 199.
Napus sylvestris. Baub. pin. 95.
Napus. Dod. pompt. 674.
Napus fativa. Bauh. pin. 95.
Habitat in arenosis maritimis Gotlandiæ, Belgii, Angliæ. ☉

Ending (suffix) for different ranks



Class	-opsida	Magnoliopsida
Subclass	-idae	Magnoliidae
Superorder	-anae	Magnolianae
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:

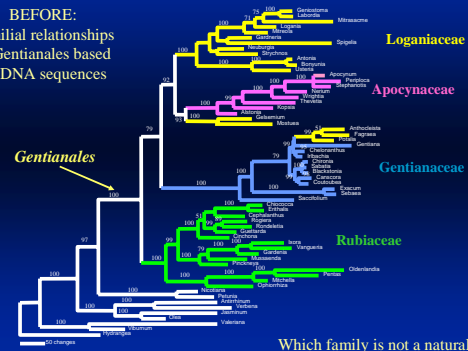
Angiosperm Phylogeny Website:

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

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

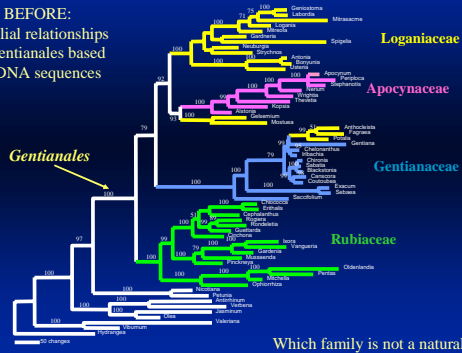
Principles of Phylogenetic Classification

BEFORE:
Familial relationships
in Gentianales based
on DNA sequences



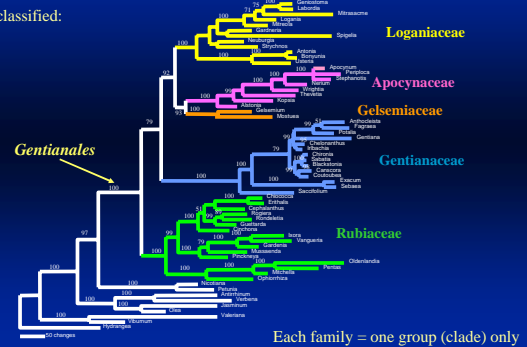
Principles of Phylogenetic Classification

BEFORE:
Familial relationships
in Gentianales based
on DNA sequences



Results of phylogenetic classification

Reclassified:



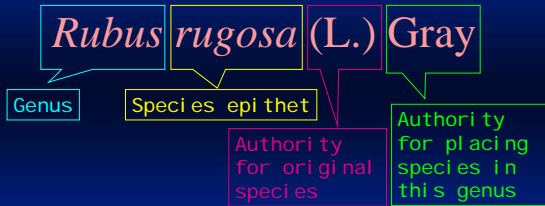
Why do we need
Latin names?

Binomial names



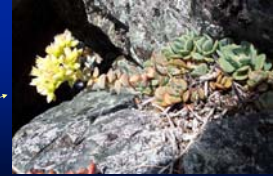
But what happens if the plant gets moved to another genus?

Parenthetical authority



Intraspecific 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)

OLD APOCYNACEAE

Apocynaceae

Secamonoideae

Asclepiadoideae

Asclepiadaceae

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*.

SOLANUM

- Leptostemonum
- Brevantherum
- Geniata
- Wendlandi/Allophylum
- Cyphomandra
- Dulcanarioid
- Noreloid
- Potato
- African non-spry
- Nornania
- Archaeosolanum
- Ragnandia
- Tropeopodium
- Cappocum
- Lycianthes
- Jaliscoia
- Vilberrugia
- Priscillo

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?