Choob V.V.,
Dr. of Sci,
Director of Botanical Garden
of Biological Faculty MSU

SYRINGA in the focus of Sciences

In the focus of History


Legato Tauricae
AVGERII
GISLENII
BVSBEQVII D.
LEGATIONIS TVRCICÆ
Epistolæ quatuor.
PARISIIS,
Ex Officina Plantiniana,
M. D. XCV.

Ambassador at the court of Suleiman The Magnificent:
1554 г., 1556–1562 г.

- description a Turkish court policy Ottoman Empire
- description of nature, plants and animals of Turkey
- dictionary of the Crimean Gothic language (extinct language of the German group)
- found a copy of the work "Materia Medica“ by Pedanius Dioscorides (with descriptions of medicinal plants)
- “contrabandist" of tulips, hyacinths, Angora goats and LILACS (!)

Ожье Гислен де Бусбек
Ogier Ghiselin de Busbecq
(1522–1592)

In the focus of History

Due to the smell, opposite phyllotaxy and panicle inflorescence all three of the plants mentioned were erroneously referred to the same genus


Sambuk (elderberry)


Syringa (lilac, Turkish sambuk)


Philadelphus (sweet mock-orange)

In the focus of History

Матиас Лобель
Mathias de l'Obél
(1538–1616)

Mathias de l'Obél
gave the name of *SYRINGA*
to both lilac and sweet mock-orange

Syringa (lilac, Turkish sambuk)

Philadelphus (sweet mock-orange)

In the focus of Etymologyy

Peter Paul Rubens, Pan and Syrinx, 1617

Syrinx (Greek) – a pipe, a tube, a fluite, a channel

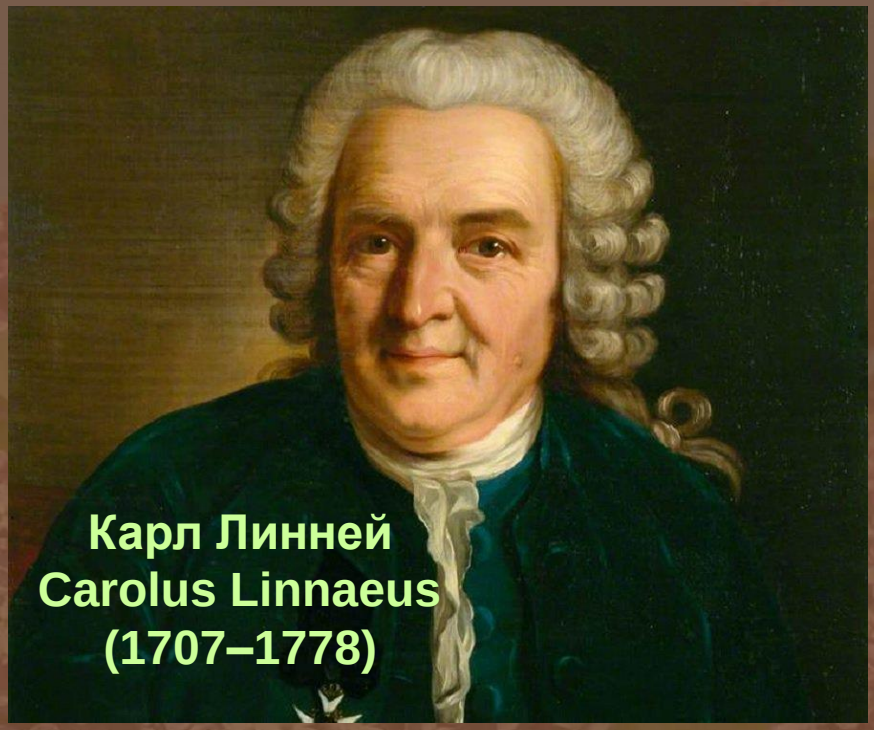
Lilac or leylak (Turkish) – the color of indigo.
Comes from Sanscrit नीला (nīlā, “dark blue”)

Syringa (lilac, Turkish sambuk)

Philadelphus (sweet mock-orange)

In the focus of Systematics

Linnaeus described two species of *Syringa*: *S. vulgaris* and *S. persica.* According to the modern systematics they belong to Oleaceae family



Карл Линней
Carolus Linnaeus
(1707–1778)

Syringa (lilac, Turkish sambuk)

DIANDRIA MONOGYNIA. 9

SYRINGA.

1. SYRINGA foliis ovato cordatis. *Hort. cliff.* 6. *Hort. upſ.* 6. *Roy. lugdb.* 397. *Dalib. pariſ.* 2. *vulgaris.*
Syringa cærulea. *Bauh. pin.* 398.
Habitat verſus Perſiam. ♄

2. SYRINGA foliis lanceolatis. *perſica.*
α. Syringa foliis lanceolatis integris. *Hort. cliff.* 6. *Hort. upſ.* 6. *Roy. lugdb.* 397.
β. Syringa foliis lanceolatis integris diſſectisque laciniata. *Hort. cliff.* 6. *Hort. upſ.* 6. *Roy. lugdb.* 397.
Liguſtrum foliis laciniatis. *Bauh. pin.* 476.
Habitat in Perſia? ♄

The page from “Species Plantarum” (1753) with the diagnosis of *Syringa*

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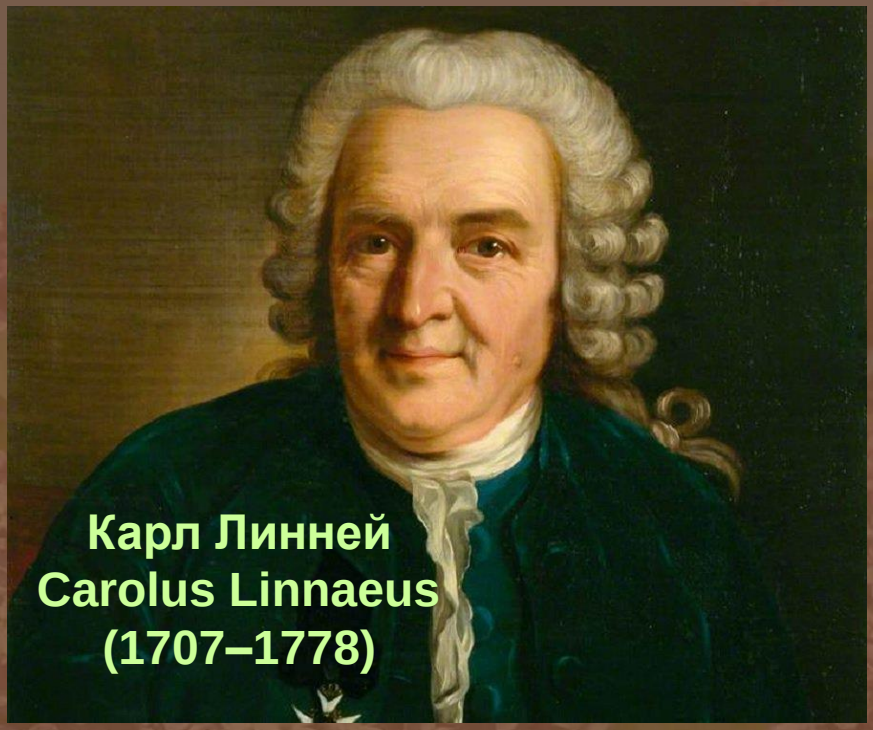

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In the focus of Systematics

How many species in genus *Syringa*? From 12 to 40 or more…

S. vulgaris or *S. pinnatifolia* Could be the evolutionary ancestors of all the *Syringa* species

Two main problems:

1. Some species of the closely related genera *Ligustrum*, *Ligustrina* and *Parasyringa* could be referred to as *Syringa*
2. In the series of *Pubescentes* too many ambiguous species were described

Syringa vulgaris L.

Syringa pinnatifolia Hemsl.

In the focus of Systematics

Ligustrina: a separate genus or a subgenus of *Syringa*?

L. amurensis = Syringa amurensis
L. pekinensis = Syringa pekinensis
L. reticulata = Syringa reticulata

***Ligustrina amurensis* Rupr.**

In the focus of Systematics

Are the fruit characters so important for systematics?

Dry dehiscent capsule – the fruit of *Syringa*

Ligustrum vulgare L. (privet)

Fleshy drupaceous fruit

In the focus of Systematics

Are the fruit characters so important for systematics?

Fruit of *Syringa vulgaris* L.

Parasyringa sempervirens (Franch.) W.W.Sm.

***Parasyringa*: the example of morphological transition from drupaceous fruit to capsule:**

fleshy in early autumn;

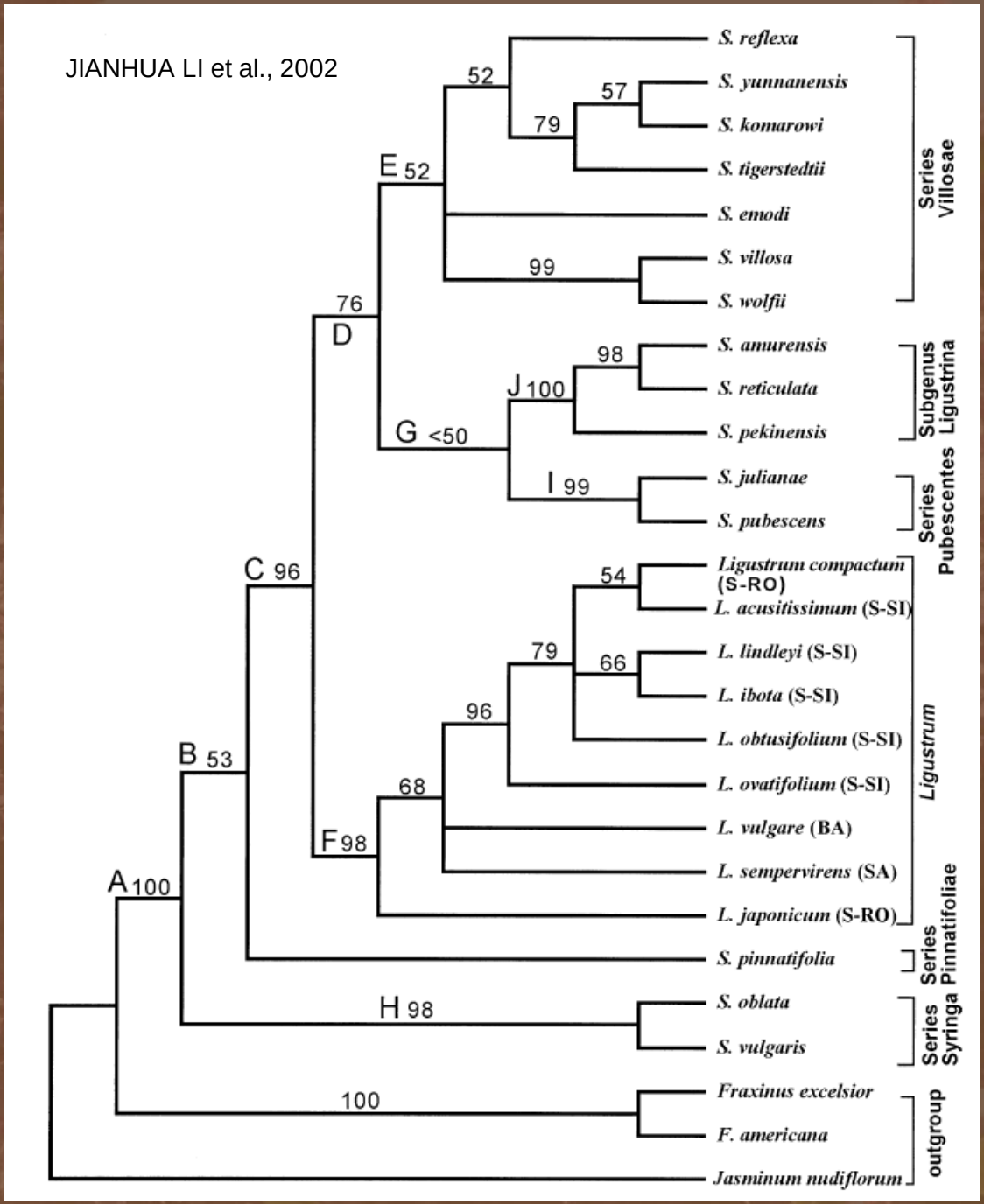
occasionally dehiscent and opening late in the season

In the focus of Systematics

Molecuar data: ITS and ETS show *Syringa* to be polyphyletic.

Possible consequenses:

1. **To fuse *Ligustrum* and *Syringa***
2. **To divide *Syringa* into several separate genera**



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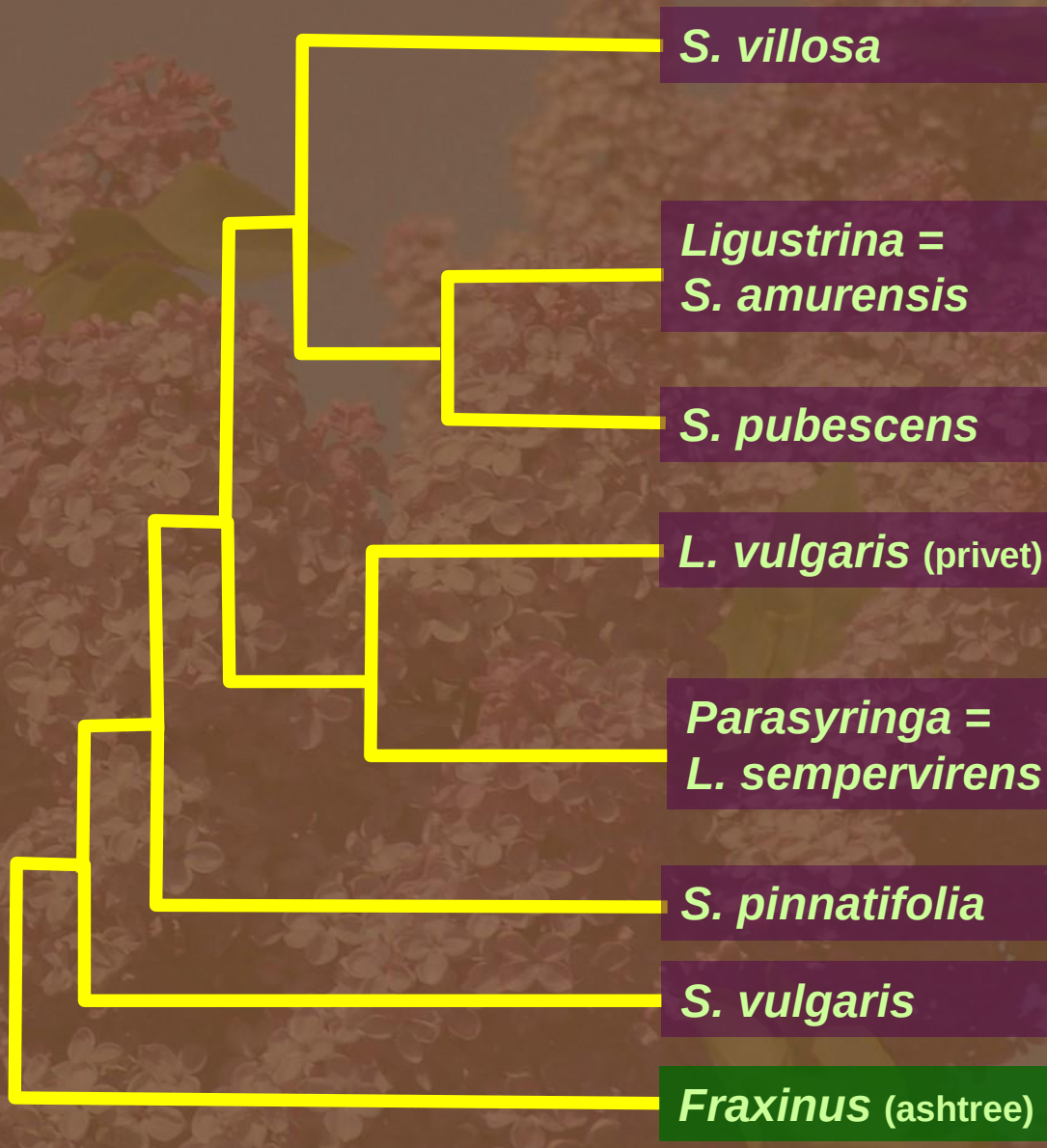


In the focus of Systematics

Syringa pubescens – a critical complex of multiple non-separabe species:

1. *Syringa meyeri* C.K.Schneid.
2. *Syringa wulingensis* Skvortsov & W. Wang
3. *Syringa dielsiana* C.K.Schneid.
4. *Syringa potaninii* C.K.Schneid.
5. *Syringa julianae* C.K.Schneid.
6. *Syringa schneideri* Lingelsh.
7. *Syringa trichophylla* Tang
8. Syringa spontanea (M.C.Chang) X.K.Qin
9. *Syringa velutina* Kom.
10. *Syringa palibiniana* Nakai
11. *Syringa venosa* Nakai
12. *Syringa debelderorum* J.L.Fiala

…

Syringa pubescens Turch.

Chen Jin-Yong et al., 2009

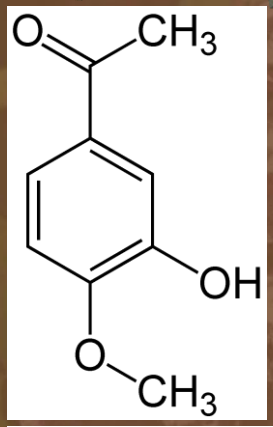
In the focus of Phytochemistry

More, than 140 compounds, found in *Syringa*

Antibacterial;
Antiviral;
Cardiovascular protection;
Hypotensive;
Cancer therapy;
Antioxidant etc.

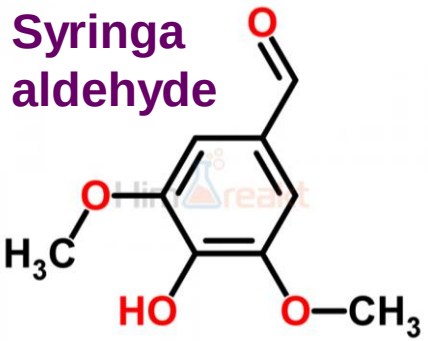
Volatile compounds – in food and perfume industry

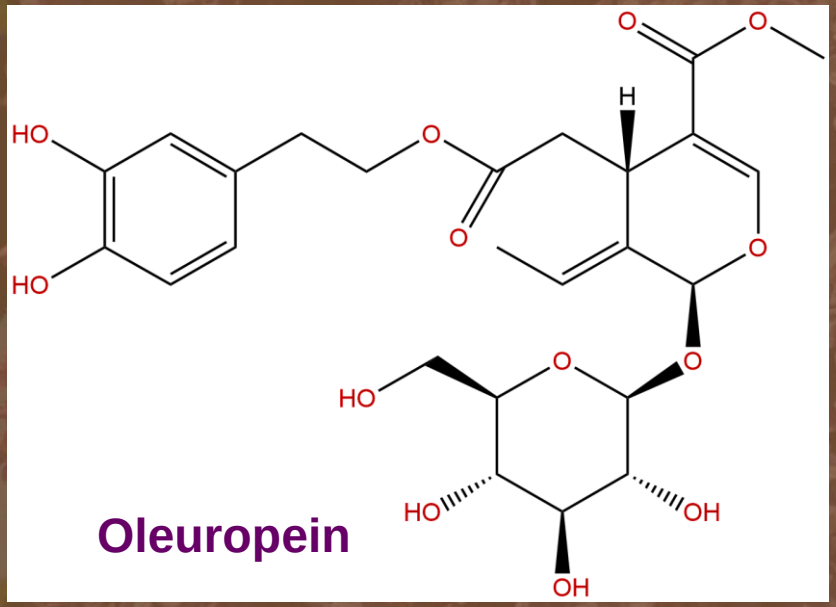
Ecological impact



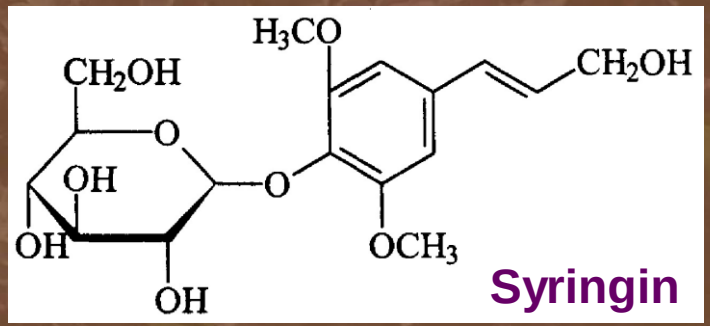
Aceto-syringon

Syringa aldehyde





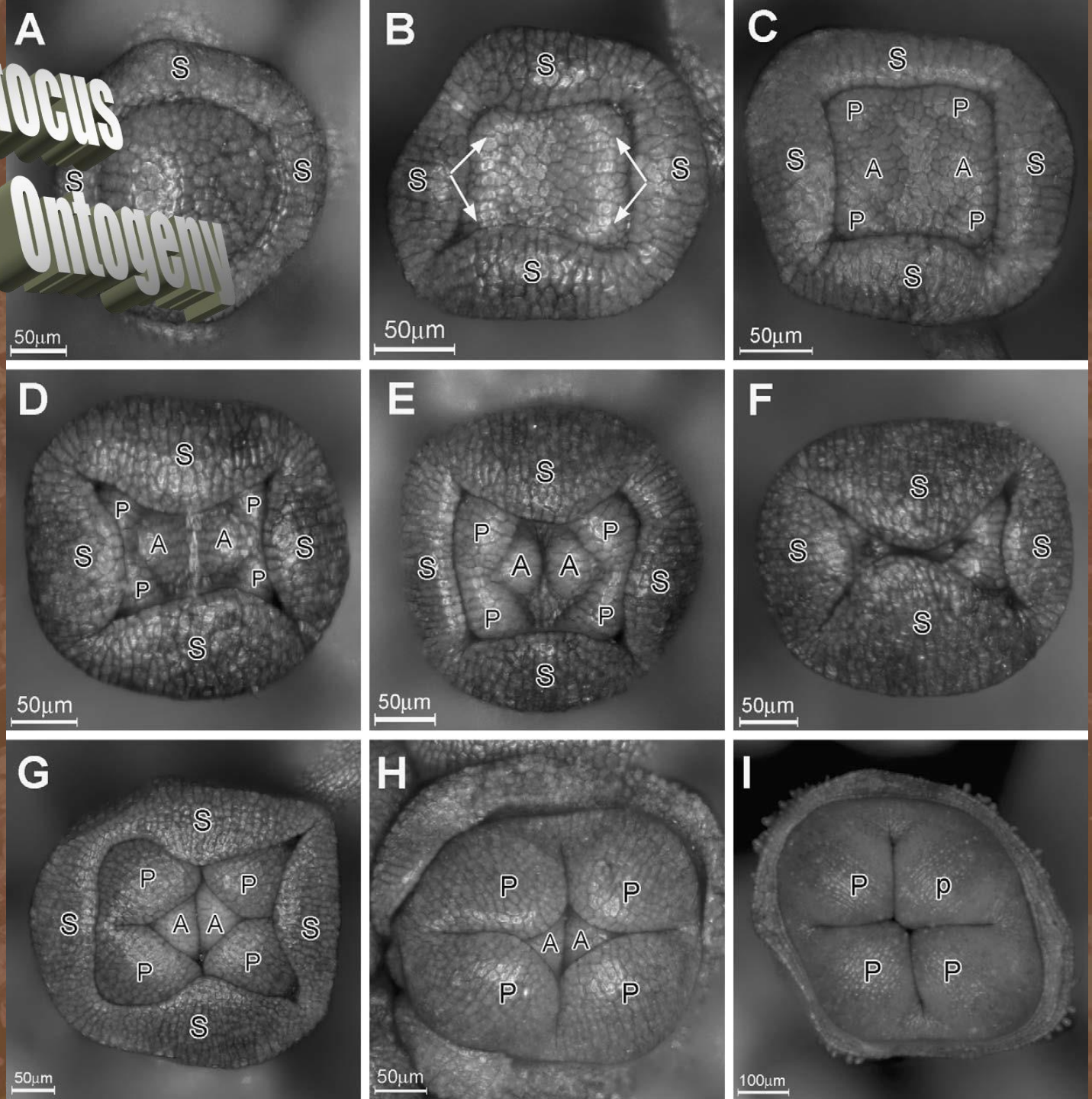
Oleuropein



Syringin

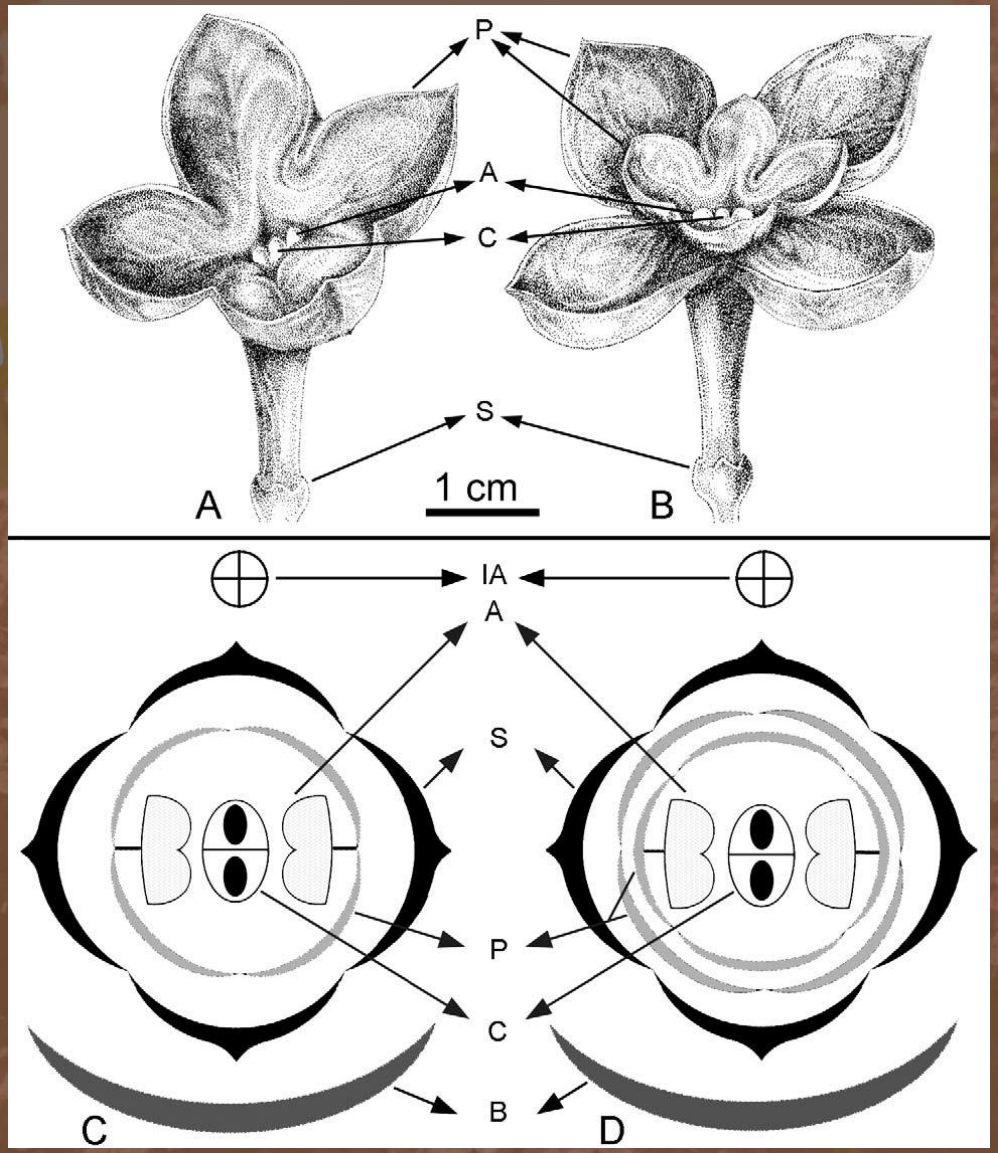
In the focus of Flower Ontogeny

How does the flower born?
S – sepal
P – petal
A – stamen
C – ovary



Dadpour et al., 2011

In the focus of Flower Ontogeny



Dadpour et al., 2011

Dadpour M.R., Naghiloo S., Peighambardoust S.H., Panahirad S., Aliakbari M., Movafeghi A. Comparison of floral ontogeny in wild-type and double-flowered phenotypes of *Syringa vulgaris* L. (Oleaceae) // Sci. Hort. 2011. Vol. 127. No 4. P. 535–541.

In the focus of Flower Ontogeny

Russian tradition: «Lucky lilac»

In the focus of Flower Ontogeny

Syringa vulgaris cv. ‘Rochester’


Thank you
for your attention!

In the focus of Systematics

Syringa persica L.

Syringa villosa Vahl.