

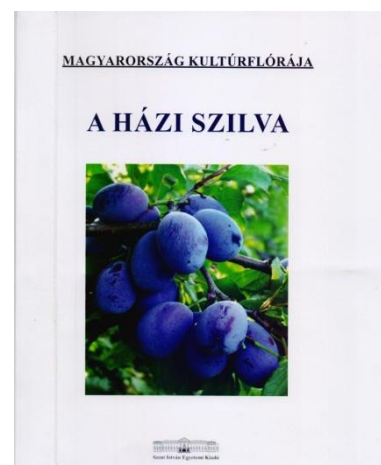
Book review

Prunus domestica L. and related species

A házi szilva, *Prunus domestica* L. és rokon fajai

edited by Dezső Surányi

Publisher: Szent István Egyetem Kiadó, Gödöllő, 2019. 415. p.



Plum is a significant temperate fruit and a very important fruit species in Hungary as well. Cultivation has moved beyond the area boundaries of the Northern Hemisphere many centuries ago. Domestic (European) plum production has been particularly affected by the pandemic-scale destruction of the Sharka virus and worldwide breed changes. According to FAOSTAT (2016) data, world plum production is 12 million tones, with 36% from Eurasian, 63% from Japan and other Asian varieties. The share of American plums is only 1% (Chapter 15).

Domestication and dissemination of plums is „multi-stepped” because homemade (taste) plums are hybrids of two nature species in the first place, but Japanese plums (hybrids with Chinese plums or *Prunus cerasifera*) are not uniform; the role of the American plum species is much smaller, though their prospects cannot to predict with certainty.

The book consists of 19 chapters, finding a complex way of summing up linguistic, historical, floristic, historical-botanical (Chapters 2-3), cultivation, and morphological and anatomical knowledge.

Phenological, physiological, chemical, ecological and genetic data presented a number of novelties, following the plum diseases and pest chapters, the chemical components of the plum fruit, followed by the introduction of the subjects. The introduction of a large number of plum varieties and the economic importance of the plums underline the importance of the commercial plant species. The volume provides cited literature (Chapter 18) and the Index of Names and Subjects (Chapter 19) also facilitates the use of the book.

The name of the plum (including blackthorn, cherry plum and other species) is about 80 language terms (Chapter 1), suggesting a link between domestication and history, not to mention molecular genetic evidence. Plums as an economic species in this volume are in fact a compilation of numerous plum wild, hybrid and spontaneous varieties. It clarifies the origin of homemade plums on the basis of molecular genetics, which is of great value (Chapter 14). Another novelty is presentation and comparison of morphological (Chapter 5) and anatomical development data (Chapter 6) of the 'Besztercei szilva' domestic plum and the 'Zöld ringlő' gage as type cultivars is also new.

Chapter 4 also discusses secular changes from the very beginning of Hungarian plum production, emphasizing the root

cause of the decline, the destruction of Sharka and the high sensitivity of our historical variety, 'Besztercei szilva' plum. A separate part of (Chapter 7) deals with germination of plum kernels and suitable rootstocks of cultivated plum varieties, which are supplemented by cultivation recommendations (Chapter 13).

The characteristics of root and shoot growth are described in Chapter 8, also showing phenological and physiological characteristics. Chapter 9 discusses plum flower bud formation (flower induction, flower bud differentiation, flower organization), flowering, fertilization process, fruiting, and fruit development and maturation.

Chapter 10 presents specific substances in plum fruits such as carbohydrates, organic acids, minerals, polyphenols and aromatic compounds. Chapter 11 takes into account the specific ecological needs of the plum species and the exemplary varieties with relative ecological and biological values. It summarizes bacterial, viral diseases of the plum, as well as animal pests and control information (Chapter 12).

The description of the leading varieties in commercial orchard, the introduction of promising new varieties as well as the historic and local varieties of the landscape, and the emphasis on diversity, also contribute to the production, while a rapid change in the variety structure is observed (Chapter 17). The excise and economic value of plums can be found in Chapter 15, as the nutritional and health role of plums has increased, which the authors have highlighted.

In summary stated, that some of the produced plum and introduced relatives are considered native to the Carpathian Basin (historical and local cultivars), and it is appropriate to supplement the changes with only native varieties by Hungarian breeding work. Related to Chapter 16 is the eco-geographical systematization of plum species and partly cultivars, which has so far been lacking in plum taxa (Chapter 16).

Today's standard of cultivation has increased a lot, further changes in the structure of the variety may be successful, and the change in market value will serve the interests of both growers and consumers.

The volume was published as a volume of the Hungarian Cultural Flora series.

Content of Monography

I. Name of plums (D. Surányi)

1. Name of parents
2. Name of *Prunus domestica*
3. Additional plum names

II. Taxonomic space and relatives (D. Surányi)

1. European plum species
2. West and Central Asian plums
3. East Asian species
4. North American plums

III. Origin and geographical spread (D. Surányi)

1. Eurasian plums
2. East Asian species
3. More important North American plums
4. Other North American species

IV. Production history of plum (D. Surányi)

1. Seed finding in Europe
2. Beginning of Hungarian plum production
3. History of cv. Besztercei szilva
4. Beginning of modern plum cultivation and scientific results

V. Morphology of plums (M. Höhn)

1. Root system
2. Shoot system
 - a. Shoot, dormant shoot
 - b. Leaf
3. Flower
4. Fruit

VI. Internal morphology of plums (M. Höhn)

A. Anatomy of the vegetative organs (M. Höhn)

1. Roots
2. Shoots
 - a. Young shoot
 - b. Mature timber
 - c. Leaf

B. Reproductive parts (M. Höhn)

1. Ovary and fruit
 - a. Internal ovary of pistil
 - b. Fruit organization
 - c. Mature fruit
2. Peduncle

VII. Germination of plum seeds (D. Surányi)

1. Dormant stage
2. Germinated stage
3. Seeding and treatments

VIII. Growth and development (D. Surányi – J. Nyéki – Z. Szabó)

1. Life cycle of plum trees (D. Surányi)
2. Root development and growth (D. Surányi)
3. Budding and greenery training (J. Nyéki – D. Surányi)
4. Shoot growth in one period (J. Nyéki – Z. Szabó – D. Surányi)

IX. Blossom and fruiting (J. Nyéki – D. Surányi – Z. Szabó)

5. Leaf colouring and falling (J. Nyéki – Z. Szabó)
6. Dormance and its vegetative characteristics (D. Surányi – Z. Szabó – J. Nyéki)

IX. Blossom and fruiting (J. Nyéki – D. Surányi – Z. Szabó)

A. Flower formation and stages (D. Surányi)

1. Flower bud induction
2. Differentiation of flowers
3. Organization of flower parts

B. Flowering and fertility relations (Z. Szabó – J. Nyéki – M. Soltész – D. Surányi – Zs. Oroszné-Kovács – A. Horváth – Z. Erdős – K. Takácsné Róka)

1. Plum flowering process (Z. Szabó – J. Nyéki)
2. Fertile relations in plum flowers (J. Nyéki – Z. Szabó – M. Soltész)
3. Association of cultivars in orchard (M. Soltész – J. Nyéki – Z. Szabó)
4. Insect attraction of plum flowers (Zs. Oroszné-Kovács – A. Horváth – D. Surányi – Z. Erdős – K. Takácsné Róka)
5. Fertility, fruit setting and fruit development (J. Nyéki – Z. Szabó)

X. Metabolism and chemical composition (Sz. Kovács – N. Makovics-Zsohár)

1. Carbohydrate metabolism during developed and mature fruits
 - a./ Carbohydrate content of mature fruit
 - b./ Cell wall changes during ripening
2. Organic acids in developing and mature plums
3. Antioxidants in fruits
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XI. Ecological needs and connection to some biological features (D. Surányi – J. Papp – Szabó Z. – Nyéki J.)

1. Geographical and climate factors (D. Surányi – J. Papp)
2. Edaphic conditions (J. Papp – D. Surányi)
3. Relationships between phenophase and extreme climate (Z. Szabó – J. Nyéki – D. Surányi)
4. Ripening time and meteorological factors (D. Surányi)
5. Sharka infection and ecological aspects (D. Surányi)

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XIII. Rootstocks of plums (K. Hrotkó)

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C./ Propagation of plums

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XVI. Ecogeographical and morphological systematics of plum taxons (D. Surányi)

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- c./ Central Asian plums, genus hybrids and other species
- d./ East Asian plums and some *Microcerasus* sp.
- e./ North American plums and certain *Microcerasus* sp.
- f./ Various genus and species hybrids

XVII. Major plum cultivars (D. Surányi)

- A./ Cultivars of the National Variety List
- B./ Perspective (old and new) cultivars
- C./ Old cultivated and gene bank varieties
- D./ Cultivars included in the National Variety List and other local cultivars
- E./ Japan and other cultivars, hybrids

XVIII. Literature (D. Surányi)

XIX. Index (D. Surányi)



Figure 1. On front page: Fruiting branch of cv. Besztercei szilva (Photo: D. Surányi)

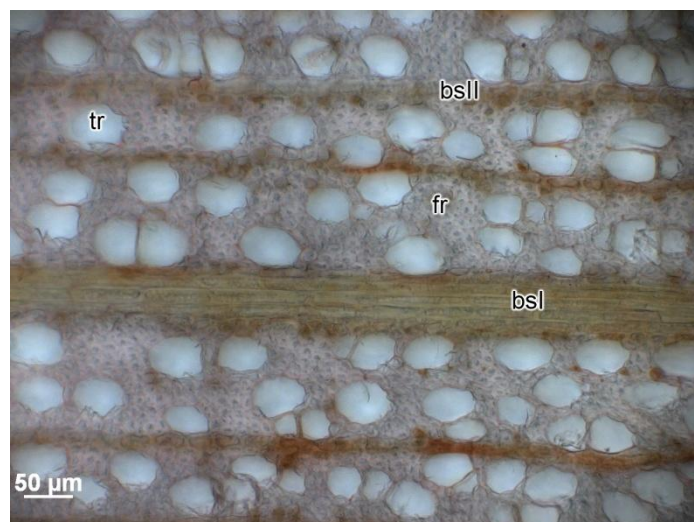


Figure 2. On back cover: Cross-section of sprinkled slender xylem on cv. Besztercei szilva (Photo: H. Höhn)