

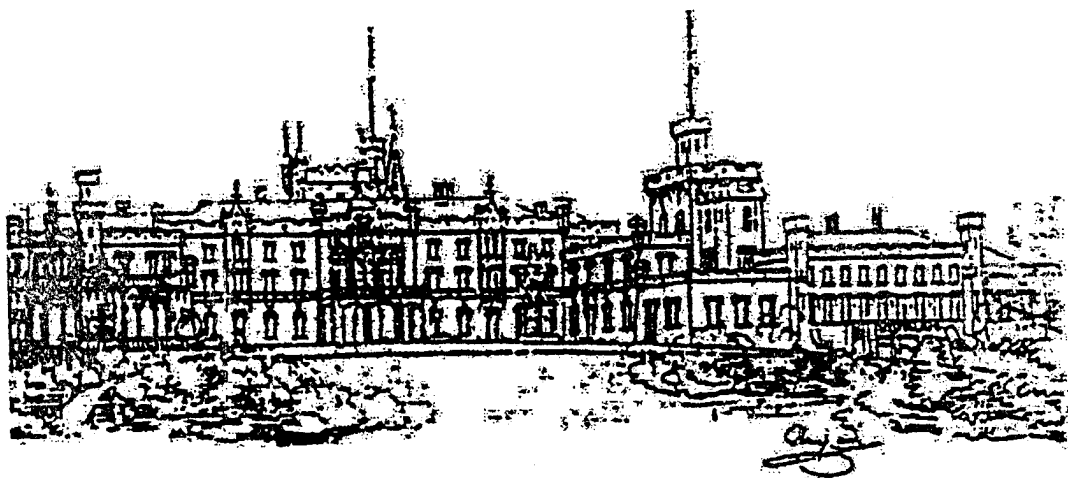
64.
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Faculty of Horticulture
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Czech Society of Horticultural Science
Lednice na Moravě

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50th Anniversary of Horticultural University Studies and
85th Anniversary of Mendeleum Foundation in Lednice na Moravě

International Horticultural Scientific Conference



*Biological and Technical Development
in Horticulture*

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Lednice na Moravě
September 9th - 12th 1997

GENE CENTRES OF WILD FRUIT TREE SPECIES AND THEIR RELATIVES IN SFR YUGOSLAVIA

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Key words:

Wild fruit tree, species, gene centres, genetic resources.

Abstract

This paper presents gene centres of wild fruit tree species and their relatives in SFR Yugoslavia. The following genus were studied : Malus, Pyrus, Chaenomeles, Sorbus, Crataegus, Mespilus, Eriobotria, Prunus, Amygdalus, Juglans, Corylus, Castanea, Cornus, Actinidia, Vaccinium, Morus, Sambucus, Fragaria, Ribes, Rubus, Rosa, Olea Europea, Ficus, Ceratonia, Punica, Diospyrus, Zizyphus and Citrus.

Genetic resources were studied with apple, pear, plum and prune, myrabolan, peach and native vineyard peach, apricot, sweet and sour cherries, walnut, hazelnut, almond, rasperry and olive tree.

1. Introduction

According to the earlier studies by Visiani (1842-1852), Šloser and Vukotinovič (1869), Pančić (1874) and later on by Beck-Mannagetta (1903-1927), Rosi (1930), Jovanović et al. (1970-1974), Em et al. (1974), Domac (1984), Paunović et al. (1985), T. Van der Zwet et al. (1987), Paunović et al. (1992), in SFR Yugoslavia exist 124 registrated wild fruit species and their relatives.

2. Material and methods

Besides our research data from 1949 until now, we have also used the data of numerous researchers from SFR Yugoslavia about "Gene centres of wild fruit tree species and their relatives in SR Yugoslavia".

Studied wild fruit species and their relatives are located in the republics, province, regions or towns which are represented by the following abbreviations :

- | | |
|------------------------------------|---|
| Ba = Bar | Ma = Macedonia |
| BH = Bosnia and Hercegovina | Me = Metohia |
| Bo = Bosnia | Sl = Slovenia |
| Cg = Monte Negro | Slā = Slavonia |
| Da = Dalmation coast | Sr = Serbia |
| He = Hercegovina | Ul = Ulcinj |
| Hr = Croatia | Vo = Vojvodina |
| Is = Istra | Yu = On the all Yugoslavia areas |
| KM = Kosovo and Metohia | |

3. Results

Gene centres of wild fruit tree species and their relatives in Yugoslavia

Species

Orientation of gene centres

1. MALUS

- | | |
|---|---|
| 1.1. <i>M. sylvestris</i> (L) Mill. | Sr Cg He Hr Sl |
| 1.2. <i>M. Pumila</i> Mill. var. <i>domestica</i> | Sr Ma BH Hr Sl |
| 1.3. <i>M. florentina</i> (zucc) C. K. Sebn. | Sr Ma KM |
| 1.4. <i>M. dasycarpa</i> Borkh. | in the warm regions of oak forest of Yugoslavia |

2. PYRUS

- | | |
|---|---------------------------|
| 2.1. <i>P. pyraeaster</i> (L) Borkh. | Sr Ma BH Hr Cg |
| 2.2. <i>P. amygdaliformis</i> Vill. | Ma KM Cg Hr Sl east of Sr |
| 2.3. <i>P. elaeagnifolia</i> Pall. | Ma KM east of Sr |
| 2.4. <i>P. nivalis</i> Jacq. | Sr Ma |
| 2.5. <i>P. amygdaliformis</i> var. <i>oblongifolia</i> Spach. | Ma KM south-east of Sr |
| 2.6. <i>P. amygdaliformis</i> var. <i>cuneifolia</i> Diap. | Ma KM south-east of Sr |

3. CYDONIA

- | | |
|------------------------------|-------|
| 3.1. <i>C. oblonga</i> Mill. | Sr Ma |
|------------------------------|-------|

4. CHAENOMELES

- | | |
|---------------------------------|----------|
| 4.1. <i>Ch. japonica</i> Lindl. | Da He Cg |
|---------------------------------|----------|

5. SORBUS

- | | |
|--|----------------------------|
| 5.1. <i>S. domestica</i> L. | Da He Sr Ma |
| 5.2. <i>S. aucuparia</i> L. | Sr Hr Sl BH Ma Cg |
| 5.3. <i>S. terminalis</i> (L) Cr. | Hr Sl BH Sr Cg |
| 5.4. <i>S. aria</i> L. | Sr Ma and other part of YU |
| 5.5. <i>S. shamaenmispilus</i> (L) Cr. | Hr Sl BH Cg Ma |
| 5.6. <i>S. mougeotii</i> Sou. Will et Godr | Hr Sl BH Ma Cg |

6. CRATEGUS

- | | |
|--|---------------------------------|
| 6.1. <i>C. monogyna</i> Jack. | east of Sr and other part of YU |
| 6.2. <i>C. oxyacantha</i> L. | Sr Ma Cg |
| 6.3. <i>C. pentagyna</i> W. K. | Hr BH Sr Ma |
| 6.4. <i>C. calycina</i> Petern. | Sr Ma |
| 6.5. <i>C. nigra</i> W. K. | Hr BH Sr |
| 6.6. <i>C. heldreichii</i> Boiss. | KM Ma |
| 6.7. <i>C. tanacetifolia</i> Gris. | Ma |
| 6.8. <i>C. orientalis</i> Pall. | Ma KM |
| 6.9. <i>C. azarolus</i> L. | Hr BH Cg and cultured |
| 6.10. <i>Crataegus</i> × <i>diphyrena</i> a pojark | new species in Sr |

7. MESPILUS

- | | |
|--|-------------------|
| 7.1. <i>M. germanica</i> L. (cultivated) | Sr KM Bo Ma Cg Hr |
|--|-------------------|

8. ERIOBOTRYA

- | | |
|--------------------------------|----------|
| 8.1. <i>E. japonica</i> Lindl. | Cg He Da |
|--------------------------------|----------|

9. PRUNUS

- | | |
|---|-------------------------------|
| 9.1. <i>P. domestica</i> subsp. <i>domestica</i> L. | Sr Bo Hr and other part of YU |
| 9.2. <i>P. domestica</i> subsp. <i>insititia</i> L. | Sr Bo and other part of YU |
| 9.3. <i>P. cerasifera</i> Ehrh. | Sr Ma Hr and other part of YU |

- (= *P. myrabolan* Lois.
P. divaricata Ldb.
P. pissardi Carr.)
- 9.4. *P. spinosae* L. Sr Ma Hr and other part of YU
- 9.5. *P. spinosae* var. *dasyphylla* Sr Sla Ma Cg BH and other part of YU
- 9.6. *P. cocomilia* Ten. Ma
- 9.7. *P. pseudoarmeniaca* Held et Sart. Ma Cg He
- 9.8. *P. armeniaca* L. var. *zerdeli* Ma Cg He
- 9.9. *P. avium* L. Ma
- 9.10. *P. cerasus* L. Sr Vo KM Ma Cg He Sla and other part of YU
- 9.11. *P. cerasus* var. *marasca* Sr Vo and other part of YU
- 9.12. *P. prostrata* Labil. Hr He Cg
 mountain Dinara, Šarplanina, Velebit, Orien, Lovćen
- 9.13. *P. prostrata* var. *discolor* Rauli. Ma (Galičica)
- 9.14. *P. mahaleb* L. Sr He Ma Vo
- 9.15. *P. padus* L. Vo Hr Sl.
- 9.16. *P. fruticosa* Pall (*P. chamaecerasus* Jack) Vo (Fruška gora) Sr Hr Cg
- 9.17. *P. laurocerasus* L. south-east of Sr
- 9.18. *P. laurocerasus* var. *serbica* Pančić south-east of Sr
- 9.19. *P. persica* ssp. *vulgaris* Sr Vo Ma Hr He in vineyard zones
- 10. AMYGDALUS**
- 10.1. *A. communis* (L) Fritsch. Da He Ma Cg : primitive cvs
- 10.2. *A. webbi* Spach. Ma He Da
- 10.3. *A. nana* L. Ma Sr (east)
- 11. JUGLANS**
- 11.1. *J. regia* L. (primitive and cultivated) Ma Vo Sr He Bo Hr Sl
- 11.2. *J. nigra* L. Sl KM Sla
- 12. CORYLUS**
- 12.1. *C. avelana* L. Hr Bo Ma Sr KM He Sl
- 12.2. *C. colurna* L. BH Sr Ma Cg
- 12.3. *C. maxima* Mill. Ma
- 13. CASTANEA**
- 13.1. *C. sativa* Mill. Da Cg Hr Sl Ma BH KM
- 14. CORNUS**
- 14.1. *C. mas* L. Sr Hr and other part of YU
- 14.2. *C. sanguinea* L. Sr Hr
- 15. ACTINIDIA**
- 15.1. *A. var. deliciosa* (C. F. Liang et A. R. Ferguson) Da Is Cg Ma
- 16. VACCINIUM**
- 16.1. *V. vitis idaea* L. Sr Hr
- 16.2. *V. myrtillus* L. Ma KM
- 16.3. *V. uliginosum* L. Sl
- 16.4. *V. oxycoccus quadripetalus* Gil. Sl

17. MORUS

- 17.1. *M. alba* L. Vo and other part of YU
17.2. *M. nigra* L. in the all YU
17.3. *M. rubra* L. here and there in YU

18. SAMBUCUS

- 18.1. *S. nigra* L. in the all YU
18.2. *S. racemosa* L. mountain forest (Abieto-Fagetum)

19. FRAGARIA

- 19.1. *F. vesca* L. in the all YU and cultivated
19.2. *F. elatior* (Thuill) Ehrh (*F. moschata*) in the all YU
19.3. *F. viridis* Duch (*F. collina*) in the all YU

20. RIBES

- 20.1. *R. grossularia* L. Ma Sr
20.2. *R. alpinum* L. Hr Sl BH Sr Cg Ma
20.3. *R. petraeum* Wulf. Hr Sl BH Sr Cg
20.4. *R. multiflorum* Kit in the all YU
20.5. *R. vulgare* Lam (*R. rubrum*) Sr Hr Sl and cultivated
20.6. *R. nigrum* L. cultivated in YU

21. RUBUS

- 21.1. *R. idaeus* L. in the all YU (forest area)
21.2. *R. sulcatus* Vest. Hr Sl BH Cg Ma
21.3. *R. plicatus* W. et N. (*R. fruticosus* L.) in the all YU
21.4. *R. saxatilis* L. Sr BH Ma Hr Sl Cg
21.5. *R. caesius* L. in the all YU
21.6. *R. candicans* Weihe. Sr Ma BH Hr Sl
21.7. *R. macrostemon* Focke. BH Hr Cg
21.8. *R. rusticanus* Merc. Hr Sl BH Sr Ma
21.9. *R. bifrons* Vest. Hr Sl BH Cg
21.10. *R. dalmaticus* Tratt. Hr Sl BH Cg
21.11. *R. tomentosus* Borkh. Sr Hr Sl BH Cg Ma
21.12. *R. hirtus* W. K. Sr Cg BH Ma Hr Sl

22. ROSA

- 22.1. *R. arvensis* Huds. Hr Sl BH Sr Cg Ma
22.2. *R. canina* L. in the all YU
22.3. *R. rugosa* Thunb. Sr Ma (cultivated)
22.4. *R. sempervirens* L. Ma Cg Hr Sl
22.5. *R. rubrifolia* Vill. Sr Cg Ma Hr Sl BH
22.6. *R. rubiginosa* L. Sr Ma BH Hr Sl
22.7. *R. gallica* L. in the all YU and cultivated
22.8. *R. spinosissima* L. in the all YU
22.9. *R. tomentosa* Sm. Sr Ma BH Cg Hr Sl
22.10. *R. mollis* Sm. Hr BH Cg
22.11. *R. andegavensis* Bast. Sr Hr Cg
22.12. *R. agrestis* Savi. Sr Ma Cg Hr Sl BH
22.13. *R. nitidula* Bess. Sr BH Hr
22.14. *R. tomentella* Lem. Sr Hr Sl BH Cg Ma
22.15. *R. corlifolia* Fr. Sr Sl BH Cg Ma
22.16. *R. micrantha* Sm. Hr Sl BH Cg
22.17. *R. pomifera* Herm. Hr Sl BH Cg Ma

23. OLEA EUROPEA

23.1. *O. eur. var. sativa* Fiori.

Da Ul Ba Is (all cultivated)

23.2. *O. eur. var. oleaster* Fiori.

Ul Ba

24. FICUS

24.1. *F. carica* L.

Da He Ma Cg Sl

25. CERATONIA

25.1. *C. siliqua* L.

Da (on the south)

26. PUNICA

26.1. *P. granatum* L.

Hr He Cg Ma

27. DIOSPYROS

27.1. *D. kaki* L.

He Da Cg

28. ZIZYPHUS

28.1. *Z. jujuba* (*Jujube*)

Da He Cg

29. CITRUS

29.1. *C. aurantium* L.

Hr He Cg

29.2. *C. media* L.

Hr He Cg

29.3. *C. limun* (L) *Burm.*

Hr He Cg

29.4. *C. nobilis* *Lour.*

Hr He Cg

29.5. *C. trifoliata* L. (*Poncirus trifoliata* *Raf*)

Hr He Cg

4. Discussion

According to the above mentioned data, SFR Yugoslavia has relatively great number of very important wild fruit species and their relatives.

However, instead of being marked as one of the leading fruit gene centres for some continental and semi-continental wild fruit species, SFR Yugoslavia has been practically unknown due to the lack of systematic investigations in the past.

Some of researchers out of Yugoslavia have been mentioned the territories of SFR Yugoslavia, only as the Balkan or Balkan Peninsula, although the Balkan consists of many different countries.

Besides the above mentioned species, the following genotypes of different fruit species have been studied : ecotypes of *Prunus cerasifera* *Ehrh.*, specially used as rootstocks (Paunović, 1958, 1968., Šoškić, 1968); genetic resources of 13 different fruit species and influence on improvement of fruit production in Yugoslavia (Paunović et al., 1988, 1992); plum and prune genotypes and genetic resources of local plum cultivars in Yugoslavia (Paunović, 1988 d, 1988 c); genetic resources of fruit tree species in Yugoslavia and their significance for production of biologically valuable food (Paunović, 1991); selection of autochthonous apricot of *Prunus armeniaca* L. (Paunović and Đurić, 1989); walnut cultivar selection from the indigenous population of *Juglans regia* L. in SR Serbia, SFR Yugoslavia (Paunović, 1989); selection of native vineyard peach germplasm (Paunović et al., 1990); autochthonous pear genotypes in Romania mountainous region (Muratović et al., 1990); description list for *Prunus cerasifera* *Ehrh.*, *Juglans regia* L., *Corylus avellana* L., *Rubus idaeus* L. (Paunović, 1988).

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