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*Original scientific paper*

# SELECTION OF AUTOCHTHONOUS SOUR CHERRY (*PRUNUS CERASUS* L.) GENOTYPES IN FEKETIĆ REGION

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Autochthonous genotypes of fruit species are very important source of genetic variability and valuable material for breeding work. Fruit Research Institute–Čačak has a long tradition of studying autochthonous genotypes of temperate fruits sporadically spread and preserved in some localities in Serbia. Over 2005–2006, the following properties of nine autochthonous sour cherry genotypes grown in Feketić region were

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investigated: flowering and ripening time, pomological properties, biochemical composition of fruits and field resistance to causal agents of cherry diseases – cherry leaf spot (*Blumeriella jaapii* (Rehm.) v. Arx.), shot-hole (*Clasterosporium carpophilum* (Lév.) Aderh.) and brown rot (*Monilinia laxa* /Ader et Ruhl./ Honey ex Whetz.). The genotypes were tested for the presence of *Prune dwarf virus* and *Prunus necrotic ring spot virus*. In majority of genotypes fruits were large, with exceptional organoleptical properties, whereas ripening time was in the first ten or twenty days of June. The highest fruit weight was observed in F-1 genotype (8.1 g). The highest soluble solids and total sugars content were found in F-4 genotype (17.60% and 14.25%, respectively). As for field resistance to causal agents of diseases and good pomo-technological properties, F-1, F-2, F-3, F-7 and F-8 genotypes were singled out.

*Key words:* autochthonous genotypes, sour cherry, selection

## INTRODUCTION

Sour cherry is an attractive fruit species, widely used not only as raw material for various forms of industrial processing (syrups, juices, preserves, compotes, marmelades, jams, liqueurs, brandies), but also for fresh consumption. In the structure of fruit growing in Serbia, sour cherry ranks third, with 8.7 million trees and production of 89,746 t in 2008 (SREDOJEVIĆ, 2011). Along with raspberry, sour cherry is the most important export product of Serbia, the greatest part being produced as frozen and subsequently exported.

Sour cherry (*Prunus cerasus* L.) is an allotetraploid species supposed to result from natural hybridization between ground cherry (*Prunus fruticosa* L.) and sweet cherry (*Prunus avium* L.), producing unreduced gametes (DIRLEWANGER *et al.*, 2007). In Europe and Asia, natural hybridization between sour cherry and its two progenitors is common (IEZZONI, 1996). As a result of its polyploid nature and continued interspecies gene flow, sour cherry is a polimorphic species with variation in its morphological properties (tree characteristics, fruit type), particularly in the center of diversity in Eastern Europe. For centuries, gardeners have selected the most productive sour cherry genotypes with highest quality fruits and propagated them either by root suckers or grafting. In Eastern Europe and Russia, where sour cherries flourished in great abundance, the following landraces arose: 'Cigany', 'Crisana', 'Mocanesti', 'Oblačinska' and 'Vladimskaia' (IEZZONI, 1996). Different clones of 'Oblačinska' and 'Cigany' dominate the assortment in Serbia, which account for about 85% of the total sour cherry production (CEROVIĆ and RADIČEVIĆ, 2008).

The variability in sour cherry germplasm presents a wealthy source of diversity for breeders. When breeding programs began, breeders first collected the best genotypes from village areas. The best results were achieved in Hungary, where a number of released sour cherry cultivars with good pomological properties and resistance to diseases (*Blumeriella jaapii*, *Monilinia laxa*) were obtained by landrace selection (APOSTOL, 2000; 2011) and cross-breeding, based on the autochthonous genotypes serving as male or female parents (APOSTOL, 2008; 2011).

Sour cherry germplasm in Serbia is rich and polymorphic. Long-term cultivation in diverse agro-environmental conditions and the use of various types of propagation (both by suckers and by seeds) has caused the 'Oblačinska' sour cherry, mostly grown in south-eastern part of Serbia, to become a mixture of numerous genotypes. A number of Serbian authors (NIKOLIĆ *et al*., 2005; MILETIĆ *et al*., 2009; RAKONJAC *et al*., 2010) have studied this cultivar in order to identify genotypes with good potential for cultivation or utilization in breeding programs, and noticed variability in the majority of pomological and technological traits.

The planned hybridization within *Prunus cerasus* L. at Fruit Research Institute Čačak resulted in two released sour cherry cultivars – 'Čačanski Rubin' and 'Šumadinka' (MILENKOVIĆ *et al*., 2006). Each of them has 'Kereška', an old cultivar of unknown origin (called 'Köröser Weichsel' in Germany, 'Pándy' in Hungary, or 'Crisana' in Romania; IEZZONI, 1996) in parentage, used as male parent in 'Čačanski rubin' and female parent in 'Šumadinka'. This cultivar is also in the pedigree of new promising sour cherry genotypes which are currently under release procedure (RADIČEVIĆ *et al*., 2010).

Despite the fact that a lot has been done on selection and use of indigenous genotypes in sour cherry breeding work, it appears that their potential has not yet been fully realized in Serbia. This particularly goes for genotypes grown in Vojvodina, southern part of Pannonian Basin, and southern part of sour cherry diversity center. In some regions of Vojvodina, especially in Bačka Province, a local breed 'Majurka' (also of unknown origin) is grown sporadically along with various clones of sour cherry 'Pándy' (CEROVIĆ and RADIČEVIĆ, 2008).

In the limited area of Feketić, Municipality of Mali Iđoš, sour cherry orchards, as well as individual trees by high quality fruits, early ripening time and resistance to causal agents of diseases are also grown. It is assumed that these sour cherry trees were brought from Hungary, and were sporadically cultivated in vineyards whence they spread quickly due to their easy multiplication capacity by root suckers. In the seventies of the past century, the maximum fruit and cherry brandy production in this region was recorded. The local residents are making efforts to protect geografic origin of the sour cherry, locally named 'Feketićka' ('Majusi Fekete Meggy'), and its products.

The aim of this paper is to examine main biological and pomo-technological properties of nine genotypes of 'Feketićka', as well as to recomend the most promising genotypes for wider growing and utilization in sour cherry breeding work.

## MATERIALS AND METHODS

*Plant material*

The study was conducted in the two-year period (2005–2006) in northern Serbia (Feketić, Municipality of Mali Iđoš). Nine sour cherry (*Prunus cerasus* L.) genotypes, locally named 'Feketićka', were investigated. Individual trees were selected according to economically valuable characters, and labeled F-1–F-9. Trees

were sampled from their growing locations and were not placed in a common orchard.

*Flowering and ripening time investigation*

To investigate flowering phenophase, flowering time, progress and abundance of flowering were studied. Monitoring and recording data on flowering onset (a date when 10 to 20% of flowers were open), full flowering (90–100% flowers were open), end of flowering (90% of petals fallen off) and abundance of flowering (graded as excellent (5), very good (4), good (3), poor (2), bad (1) and without flowers (0)) were done. Fruit ripening time was determined in the period of full, technological ripeness.

*Pomological properties and biochemical composition of fruits*

Standard morphometrical methods were used for the evaluation of fruit, stone and stalk weight, fruit dimensions (height, width and thickness) and stalk length. Fruit weight and stalk length were included when classifying genotypes, by the method of ALBERTINI and DELLA STRADA (2001). Mesocarp ratio in the total fruit weight was calculated manually.

*The following parameters were determined by c*hemical analysis: soluble solids content (manual refractometer), total and inverted sugars content (volumetrically, according to Luff-Schoorl), total acids content expressed in malic acid (by titration of 0.1 N NaOH with phenolphthalein indicator), existing acidity (*CyberScan 510 pH/Conductivity Meter), sucrose content and sweetness index (calculated manually).*

*Field resistance to cherry fungal diseases*

*The investigation of* field resistance to cherry leaf spot (*Blumeriella jaapii* (Rehm.) v. Arx.), shot-hole (*Clasterosporium carpophilum* (Lév.) Aderh), and brown rot (*Monilinia laxa* /Ader et Ruhl./ Honey ex Whetz.) were conducted according to the V*alue* for Cultivation and *Use* procedure (VCU test, in compliance to the UPOV procedure; UPOV, 2006). Symptom intensity was determined on a scale from 1 to 9 (1 – no attack, 3 – minor attack, 5 – moderate attack, 7 – strong attack and 9 – very strong attack).

*Testing for the presence of viruses*

The genotypes were tested for the presence of *Prune dwarf virus* (PDV) and *Prunus necrotic ringspot virus* (PNRSV) by double-antibody sandwich enzyme-linked immunosorbent assay (DAS-ELISA) (CLARK and ADAMS, 1977) with reagents of BIOREBA AG, Switzerland, according to the manufacturer's recommendation. Leaf tissues were extracted in extraction buffer (PBS-Tween + 2% PVP) at 1/20 (v/w) ratio. Color development was measured at 405 nm with an ELISA reader (MULTISKAN MCC/340) after 60–120 min. Samples were considered positive if the OD values were doubled in comparison with OD values of the negative control.

## RESULTS

*Phenological properties.* The genotypes investigated had uniform flowering time, with the average duration of eight days (Tab. 1). Abundance of flowering was evaluated as very good to excellent. In terms of ripening time, genotypes were significantly different, ranging from June 7 (F-2 genotype) to June 21 (F-4 and F-9).

*Table 1. Phenological properties of 'Feketićka' sour cherry genotypes (2005–2006)*

| *Genotype* | *Flowering time* | | | *Abundance of flowering* | *Ripening time* |
|---|---|---|---|---|---|
| | *Onset* | *Full bloom* | *End of flowering* | | |
| F-1 | 12.04. | 17-18.04. | 20.04. | 4 | 09.06. |
| F-2 | 12.04. | 17-18.04. | 20.04. | 5 | 07.06. |
| F-3 | 12.04. | 17-18.04. | 20.04. | 5 | 16.06. |
| F-4 | 12.04. | 17-18.04. | 20.04. | 4 | 21.06. |
| F-5 | 12.04. | 17-18.04. | 20.04. | 5 | 12.06. |
| F-6 | 12.04. | 17-18.04. | 20.04. | 4 | 08.06. |
| F-7 | 12.04. | 17-18.04. | 20.04. | 4 | 09.06. |
| F-8 | 12.04. | 17-18.04. | 20.04. | 5 | 09.06. |
| F-9 | 12.04. | 17-18.04. | 20.04. | 4 | 21.06. |

*Pomological properties.* The highest fruit weight was observed in F-1 genotype (Fig. 1) and the lowest in F-4 (8.1 g and 3.9 g, respectively) (Tab. 2). According to the classification of ALBERTINI and DELLA STRADA (2001), fruits of seven genotypes studied (F-1, F-2, F-3, F-5, F-6, F-7 and F-8) were classified as large, whereas those of F-9 and F-4 genotypes were classified as medium-large and small, respectively. In all the genotypes, fruits were oblate in shape and had relatively uniform shape factor. Stalk length was mid-long, except in F-1 and F-8 genotypes where stalk was long. F-8 genotype had the largest stone (0.55 g) which was the smallest in F-4 (0.36 g).

Figure 1. Fruits of 'Feketićka' (F-1 genotype)

*Table 2. Pomological properties of 'Feketićka' sour cherry genotypes (2005–2006)*

| Genotype | Fruit weight (g) | Dimensions of fruit (mm) | | | Shape factor | Stalk length (mm) | Stalk weight (g) | Stone weight (g) | Mesocarp ratio (%) |
|---|---|---|---|---|---|---|---|---|---|
| | | Height | Width | Thickness | | | | | |
| F-1 | 8.10 | 20.9 | 23.8 | 20.7 | 0,89 | 50.1 | 0.23 | 0.54 | 90.49 |
| F-2 | 6.96 | 19.1 | 22.5 | 19.6 | 0,83 | 46.1 | 0.19 | 0.42 | 91.24 |
| F-3 | 6.37 | 18.8 | 22.4 | 19.0 | 0,83 | 48.0 | 0.19 | 0.49 | 89.32 |
| F-4 | 3.90 | 16.4 | 18.0 | 16.8 | 0,89 | 43.2 | 0.18 | 0.36 | 86.15 |
| F-5 | 6.98 | 20.5 | 22.2 | 19.5 | 0,97 | 42.6 | 0.17 | 0.52 | 90.11 |
| F-6 | 7.08 | 20.2 | 22.3 | 19.2 | 0,95 | 45.9 | 0.21 | 0.49 | 90.11 |
| F-7 | 6.83 | 19.2 | 22.7 | 20.0 | 0,81 | 46.2 | 0.20 | 0.48 | 90.04 |
| F-8 | 7.09 | 19.3 | 23.0 | 19.0 | 0,85 | 49.1 | 0.18 | 0.55 | 89.70 |
| F-9 | 4.92 | 18.7 | 20.2 | 19.2 | 0,90 | 46.8 | 0.18 | 0.44 | 87.40 |

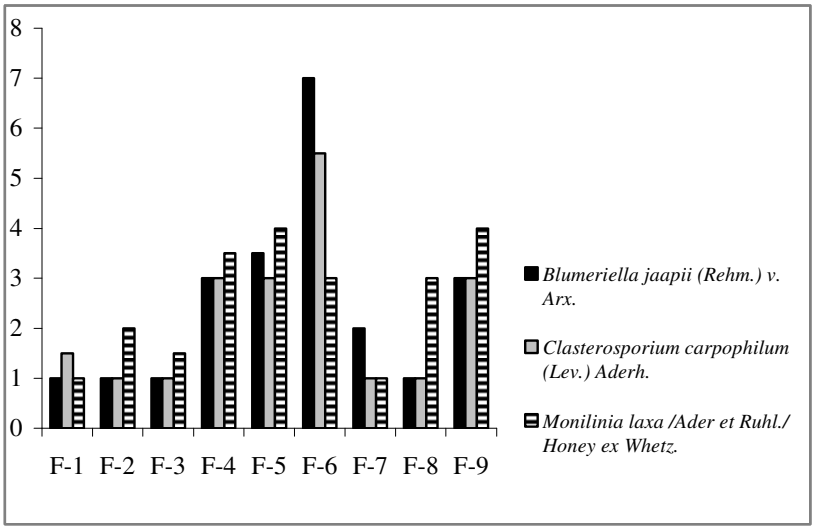
Fruit ratio, the edible part of the fruit (mesocarp and skin) in the total fruit weight is an important parameter for processing industry. The most favorable fruit ratio was found in F-2 (91.24%), while it was lowest in F-4 (86.15%).

*Biochemical composition of fruits.* The highest and the lowest soluble solids content was found in genotypes F-4 (17.60) and F-7 (12.50) respectively (Tab. 3). The highest total and inverted sugars content was found in F-4 (14.25% and 12.50 respectively), and the lowest in F-1 and F-5 (9.95% and 9.00%; 9.95% and 9.01% respectively). Sucrose content ranged from 0.49 (F-2) to 1.66% (F-4). As for the total acids, the highest (1.17%) were in F-9, and the lowest in F-2 (0.94%). The pH value in fruit juice ranged from 3.11 (F-9) to 3.61 (F-7). The highest and the lowest value of sweetness index were observed in F-4 (14.11) and F-1 (10.26) respectively.

*Table 3. Biochemical composition of fruits of 'Feketićka' sour cherrygenotypes (2005–2006)*

| Genotype | SSC (%) | Sugar content (%) | | | Juice pH value | Total acids (%) | Sweetness index |
|---|---|---|---|---|---|---|---|
| | | Total | Inverted | Sucrose | | | |
| F-1 | 13.10 | 9.95 | 9.00 | 0.90 | 3.42 | 0.97 | 10.26 |
| F-2 | 15.00 | 11.20 | 10.68 | 0.49 | 3.44 | 0.94 | 11.91 |
| F-3 | 13.85 | 10.70 | 9.64 | 1.01 | 3.51 | 0.96 | 11.15 |
| F-4 | 17.60 | 14.25 | 12.50 | 1.66 | 3.34 | 1.01 | 14.11 |
| F-5 | 13.55 | 9.95 | 9.01 | 0.89 | 3.47 | 0.95 | 10.47 |
| F-6 | 16.90 | 13.20 | 11.99 | 1.15 | 3.34 | 0.95 | 13.89 |
| F-7 | 12.50 | 10.20 | 9.38 | 0.78 | 3.61 | 0.99 | 10.30 |
| F-8 | 14.10 | 10.45 | 9.51 | 0.89 | 3.49 | 0.97 | 10.77 |
| F-9 | 17.00 | 12.50 | 11.00 | 1.43 | 3.11 | 1.17 | 10.68 |

*Field resistance to fungal diseases.* As for the manifestation of the pressure of *Blumeriella jaapii* (Rehm.) v. Arx. and *Clasterosporium carpophilum* (Lév.) Aderh., some of the genotypes studied (F-2, F-3, F-8) displayed better performance in comparison to the others (Graph. 1; Fig. 2). Symptom intensity was graded 1.0 in these genotypes; the highest symptom intensity was found in F-6 (7.0 and 5.5 for *Blumeriella* and *Clasterosporium*, respectively). The best performance in terms of resistance to *Monilinia laxa* /Ader et Ruhl./ Honey ex Whetz. gave F-1 and F-7 (graded with 1); the highest pathogen pressure was observed in F-6 (graded with 7).




Graph. 1. Field resistance of 'Feketićka' sour cherry genotypes to causal agents of diseases (2005-2006)

a  b. 

Figure 2. Health condition of leaves of 'Feketićka' at the end of June: a. F-3 genotype; b. F-6 genotype

*Presence of viruses.* DAS-ELISA test confirmed infection in three genotypes. PNRSV was found in F-2, F-5 and F-6, while PDV was only found in F-6. All other analyzed genotypes (F-1, F-3, F-4, F-7, F-8 and F-9) were found to be free of these two viruses. None of the genotypes showed virus-like symptoms, either on leaves or on fruits.

*General description.* Sour cherry trees locally named 'Feketićka'('Majusi Fekete Meggy') were uniform in terms of vigor and tree characteristics. Trees selected are moderately vigorous to vigorous, with spreading, pyramidal-roundish crown. Flowering time is uniform, mid–late; flowering is abundant, giving the tree very attractive appearance. No data on its pollen germination ability and self-fertility are currently available. 'Feketićka' is heavy and regular cropper.

Trees with different ripening time are characterized by relatively uniform fruit-type. Fruits are mostly large, roundish, with smooth, glossy, red to dark red skin (Fig. 1). Suture is inconspicuous in fully ripe fruits. Stalk is mid-long, with medium shallow cavity and fruit separates easily from it at full maturity, without juice leaking. Stone is mid-large to large, roundish, widened on both sides. Mesocarp and juice are red to dark red. Mesocarp is semi-firm, juicy, of pleasant aroma and taste.

## DISCUSSION

The genotypes studied had uniform flowering, but different ripening time (Tab. 1) – first ten days of June (F-1, F-2, F-6, F-7, F-8), from 10 to 20 June (F-3, F-5), and first few days after 20$^{th}$ June (F-4, F-9). Since the major part of sour cherry produced is processed, ripening date is not as critical as in sweet cherry. On the other hand, extended ripening season provides a more efficient use of harvesting and processing labour and equipment. Breeding programs in several countries have successfully identified or bred an assortment of sour cherry cultivars which ripen over 40-day period (IEZZONI, 1996). Ripening time of 'Feketićka' is favorable, particularly as regards genotypes ripening in the first ten days of June, because its ripening time does not coincide with that of a number of sour cherries, such as 'Heimanns Konserven Weichsel', 'Rexelle', 'Kelleris 16', etc. (NIKOLIĆ *et al.*, 2000).

Sour cherry cultivars are generally classified as 'morellos' or 'amarelles', which refers to red or clear fruit flesh and juice color respectively (IEZZONI,1996). In North America, clear-fleshed cultivar 'Montmorency' is used almost exclusively for the production of cherry pies. In Europe, it is the red-fleshed 'morello' cultivars that are preferred for use in a wide range of processed products. Although most sour cherries are processed, a small portion of the 'morello' fruit in Europe is sold at a premium on fresh market. Fresh fruits are picked with the stalk, and fruits weighing 6–8 g are desired. Red to dark red flesh and juice genotypes of 'Feketićka' with large fruits (F-1, F-6 and F-8) could be important not only for different forms of processing, but also for fresh consumption.

On the other hand, fruit quality is complex, depending not only on fruit attractiveness (size, color), but also on sweetness/acidity correlation, juiciness, flavor, and texture. It is especially true for sour cherries intended primarily for processing. Some of the genotypes studied (F-4, F-6, F-9) had high level of soluble

solids content (17.60%, 16.90%, 17.00%, respectively). Refractometre measure of soluble solids highly correlated with the amount of sugar contained in the juice. A ten-year study of 30 sour cherry cultivars showed a wide range of soluble solids content, from 12.5 to 16.2 (NIKOLIĆ *et al.*, 2000). However, acidity level may affect the perception of sweetness insofar as fruits with high sugar content and moderate level of acid will be perceived as sweet as fruits with moderate sugar content and low acids (CALLAHAN, 2003). The correlation between total sugars and total acids establishes sweetness index, which serves as a significant indicator of fruit quality. Some of the genotypes with high soluble solids content did not have high sweetness index value (F-9), whereas in some of the genotypes with lower soluble solids content (F-2, F-3) sweetness index was in excess of 11.0 (Tab. 3). When breeding for a highly pigmented cherry cultivar intended for juice or liquers, anthocyanin content and sugar/acid ratio of fruits are crucial (IEZZONI, 1996). Ripening time, fruit weight and soluble solids content in sour cherry are traits of typical quantitative or polygenic inheritance, accompanied by transgression to a higher or a lesser degree (WANG *et al*., 2000). Due to the polygenic inheritance of the majority of traits, it is hard to obtain all of the desired traits by conventional methods used in breeding work.

Breeding for disease resistance in sour cherry has been focused on resistance to cherry leaf spot, caused by *Blumeriella jaapii* (Rehm.) v. Arx. Cherry leaf spot is one of the most serious fungal diseases of sour and sweet cherries in the world. The disease mainly affects leaves, which are shed prematurely, and severely attacked trees may be defoliated by mid-summer. Infection by leaf-spot fungus reduce tree vigor and affect winter hardiness of buds and wood (SCHUSTER, 2004). Brown rot, caused by *Monilinia laxa* /Ader et Ruhl./ Honey ex Whetz., occurs primarily on sour cherry, generally causing blossom and spur blight. Although cultivars are known to exhibit different tolerance to *Monilinia*, data pertaining to this issue are currently limited. As a large number of sprays are required to control brown rot, especially near harvest, high cost of such sprays as well as the environmental pressure to reduce them may render breeding for tolerance to brown rot a more important objective (IEZZONI, 1996). The attention has also paid to resistance to shot-hole, caused by *Clasterosporium carpophilum* (Lév.) Aderh, leaving small reddish spots on young foliage; leaves look like shot, and are shed prematurely.

Sour cherry genotypes exhibit a range of tolerance/susceptibility to fungal diseases in field conditions, which often depends on agro-environmental conditions. BUDAN *et al.* (2005) estimated the level of field susceptibility to leaf spot in 100 accessions in the Romanian Sour Cherry Germplasm Collection in order to choose parents for breeding programs. The results showed that none of the genotypes was immune to leaf spot, but some of them had a low level of infection and could be used as potential donors for transferring polygenic resistance. What appears to be a problem is that many of genotypes showing tolerance to one of the fungal diseases do not show tolerance to some other. For instance, in breeding programs, 'Czengody' is recommended for resistance to *Monilia laxa* (SZŐDI *et al*., 2008). According to SCHUSTER (2004), 'Czengody' is susceptible to *Blumeriella jaapii*.

Also, clones of 'Pándy' ('Köröser') are very susceptible to leaf spot (GELVONAUSKIENE *et al*. 2004; HOLB, 2009), but show resistance to shot-hole (GELVONAUSKIENE *et al*. 2004). However, clones of 'Köröser' are in the pedigree of some of genotypes that show field resistance to fungal diseases in Germany (WOLFRAM, 2000; SCHUSTER and WOLFRAM, 2008) and in Serbia (RADIČEVIĆ *et al*., 2010).

Genotypes of 'Feketićka' show different levels of field resistance/susceptibility to most serious fungal diseases (Graph. 1; Fig. 2). Additionally, one should consider the fact that chemicals were either not applied or were applied at a minimum ('winter spray') on trees tested. Given these facts, particular attention should be paid to genotypes that show a low level of symptoms of all of the pathogens (F-1 and F-3 showed the lowest infection level, but F-2, F-7 and F-8 also responded favorably to the infection). If good pomological properties (F-1, F-2, F-7 and F-8), high quality fruits (F-2, F-3, F-8) and early ripening time (F-1, F-2, F-7 and F-8) of the genotypes studied are additionally considered, it is clear that they should be included in further investigation (field resistance and resistance under conditions of artificial infection), and in breeding programs accordingly. Unfortunately, some of the genotypes with quality fruits showed susceptibility to fungal diseases.

*Prune dwarf virus* and *Prunus necrotic ringspot virus* are common viruses among sweet and sour cherries (CAGLAYAN *et al.*, 2011; HAMMOND, 2011). They are present worldwide and considered economically serious pathogens of stone fruits. Fruit yields may be decreased by 50% depending on susceptibility of fruit species and varieties. The spread of these viruses in an orchard occurs through transmission by pollen to seed and to pollinated plants. PDV frequently occurs in mixed infection with PNRSV and Apple mosaic virus (ApMV). The incidence of disease caused by PDV through infected seeds amounts up to 80%. PNRSV spreads especially rapidly in sour cherry.

Given that the above viruses are pollen and seed-borne viruses, it is of great importance that plants selected for breeding and hybridization are free from PDV and PNRSV. Otherwise, obtained hybrids may also be infected. To obtain virus-free plants of genotype F-2 (early ripening time, favorable pomo-technological properties, tolerance to fungal diseases), combinination of hermotherapy and chemotherapy may be effective in eliminating PNRSV.

## CONCLUSION

Each sour cherry landrace can be characterized by a specific description under which many closely related genotypes can be grouped. 'Feketićka' certainly has its specific characters, which make it different from other sour cherries. It gives high quality fruits of 'morello' type, suitable for various forms of processing, and for fresh consumption. Its productive and other properties should be examined under other agro-environmental conditions.

Some of the genotypes studied in this work have traits of interest from the aspect of breeding – early ripening time (F-6), good fruit size (F-5), high quality

fruits (F-4, F-6, F-9). Unfortunately, these genotypes show susceptibility to fungal diseases. Further work on breeding sour cherries should be based on utilization of already known sources of resistance showing good pomo-technological properties. In this respect, the folowing genotypes were singled out: F-1, F-2, F-7, F-8 (with ripening time in the first ten day of June), and F-3 (10–20 June).

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# SELEKCIJA AUTOHTONIH GENOTIPOVA VIŠNJE (*PRUNUS CERASUS* L.) NA PODRUČJU FEKETIĆA

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I z v o d

Autohtoni genotipovi voćaka su veoma značajan izvor genetičke varijabilnosti i vredan početni materijal za oplemenjivački rad. Institut za voćarstvo u Čačku ima dugu tradiciju proučavanja autohtonih genotipova kontinentalnih vrsta voćaka, sporadično očuvanih i širenih u nekim lokalitetima na prostoru Srbije. U periodu 2005–2006. godine ispitivane su osobine devet autohtonih genotipova višnje na području Feketića: vreme cvetanja i zrenja, pomološke osobine, biohemijski sastav ploda i poljska otpornost prema prouzrokovačima najznačajnijih bolesti višnje – ljubičaste pegavosti lišća trešnje i višnje (*Blumeriella jaapii* (Rehm.) v. Arx.), šupljikavosti lišća trešnje i višnje (*Clasterosporium carpophilum* (Lév.) Aderh.) i monilioze koštičavih vrsta voćaka (*Monilinia laxa* /Ader et Ruhl./ Honey ex Whetz.). Genotipovi su testirani na prisustvo *Prune dwarf virus* i *Prunus necrotic ring spot virus*. Plodovi većine genotipova su sazrevali tokom prve i druge dekade juna, i pripadaju kategoriji krupnih plodova, izuzetnih organoleptičkih svojstava. Najveću prosečnu masu ploda imao je genotip F-1 (8,1 g). Sadržaj rastvorljivih suvih materija i ukupnih šećera je bio najviši kod plodova genotipa F-4 (17,60%; 14,25%). Na osnovu kriterijuma poljske otpornosti prema prouzrokovačima bolesti višnje i kvaliteta ploda, mogu se izdvojiti genotipovi F-1, F-2, F-3, F-7 i F-8.

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