

## RESEARCH REGARDING THE BREEDING OF PEACH IN DOBROGEA AREA

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### Abstract

*Peach is one of the most valuable species cultivated in Romania. At Research Station for Fruit Growing Constanta is the National Peach Collection with 855 genotypes from worldwide. Between 1981-2012, our peach breeders sorted the best genitors and made a lot of hybridizations, than they obtained thousand and thousand of hybrids. During the time, 31 new peach, pavié, nectarine and brugnone cultivars are registered to Bucharest ISTIS and this new biological material enriches and diversifies the Romanian assortment. This paper presents seven new cultivars*

**Key words:** *Prunus persica (L) Batch, dwarf, fruit quality, processing*

### INTRODUCTION

Peaches and paviés are appreciated for their nourishing and therapeutically qualities and are recommended for fresh consumption and for processing (Delgado, 1992; Bargioni, Pisani, 1993; Cepoiu, Manolache, 2006).

Thousand and thousand peach cultivars are in the world and annually, the breeders obtain new varieties (Monet, 1990; Fraccaroli, Bargioni, Febi, 2000; Sansavini, 1991; Dumitru, Cepoiu, Stanica, 2001).

### MATERIAL AND METHOD

The biological material is representing by seven new cultivars: 'Cecilia' – registered in 2000; 'Raluca' and 'Catherine Sel.1' – omo-logated in 2001; 'Florin' and 'Filip' – in 2002; 'Craita' – in 2003; 'Monica' – in 2007. The American cultivar 'Redhaven' – registered in 1964 in the Official Romanian Breeding Cultivar List of Plant was control of this experiment.

The rootstock utilised was 'Tomis 1', which was registered in 1997 and it was obtained in our station by Dr. Alexandra Indreias.

The orchard density was 833 trees / ha, for standard trees (4/3 m) and 2222 trees / ha for dwarf trees (3/1.5 m).

The trees were observed from the phenological point of view. There were made biometrical measurements on fruits and trees; physico-chemical analyses on fruit; appreciations on productivity, behavior to the attack of main diseases and parasites, etc.

The crown form was the improved vase.

### RESULTS AND DISCUSSIONS

'Redhaven' is the American cultivar which was introduced in Romania in 1964. After 49 years, this variety persists to be cultivated in our peach-orchard. It is the control of this experiment (Photo 1).



Photo 1- Redhaven (Control)

The Romanian breeders try to obtain new valuable cultivars, same (type) 'Redhaven', with yellow flesh, but not only, because the tastes of consumers is changing day by day. Then, were created, for a change, aboriginal cultivars with white or orange flesh, with different taste, color, size, firmness, form, etc. In this paper we present seven new cultivars obtained at Research Station for Fruit Growing Constanta, Romania.

'**Raluca**', the author is Liana-Melania Dumitru. Is an early peach cultivar, similar to Redhaven; tree is standard, semivigorous, resistant to frost; autofertile; with big and constant yield; the fruit is red and attractive; the flesh is yellow and juicy (Photo 2).



Photo 2- Raluca

'**Cecilia**', the authors are Liana –Melania Dumitru and Vasile Cociu. It is a dwarf peach with fruit similar to Redhaven; the highness of tree is about 1.40-1.70 m; fruits are big, red, with yellow flesh and good quality (Photo 3).



Photo 3- Cecilia

'**Catherine Sel.1**', was obtained by Liana-Melania Dumitru.

It is a clingstone cultivar, tree is standard, medium vigorous, resistant to *Taphrina deformans*; high and constant productivity; fruit is big, orange with red, attractive, the flesh is orange, firm, flavoured, very sweet (Photo 4).



Photo 4- Catherine Sel.1

'**Craită**' - the author is Liana-Melania Dumitru. It is a dwarf clingstone cultivar; the highness of tree is 1.20-1.50 m; big and constant productivity; fruit is yellow-orange, with yellow and firm flesh, very good taste (Photo 5).



Photo 5- Craita

'**Florin**'- the author is Liana-Melania Dumitru. It is an early cultivar with flat fruit and standard trees; big vigour, resistant to frost;

fruit is big for “sandwich” group; attractive, yellow with red; orange flesh, juicy (Photo 6).



Photo 6- Florin

‘**Filip**’ - the author is Liana-Melania Dumitru. It is the best Romanian peach cultivar with flat fruit; the tree is standard, autofertile; has medium-big vigour; very good and constant productivity; fruit is very attractive, excellent taste, sweet, flavoured, rose-red, with white flesh; small stone, no adderence, juicy (Foto 7).



Photo 7- Filip

‘**Monica**’- the authors are: Vasile Cociu, Liana-Melania Dumitru and Preda Ionescu. It is also a ”sandwich“ peach, which has the ripening time after Filip; very attractive fruit, red-carmin colour; white flesh, sweet and juicy (Foto 8).



Photo 8- Monica

The most early cultivars are: ‘Raluca’ and ‘Florin’ and the latest are: ‘Cecilia’ and ‘Monica’ (Table 1).

The yield is between 22.5 t/ha (‘Redhaven’ – Control) and 40.0 t/ha (‘Craita’, dwarf pavie). ‘Catherine Sel.1’ (pavie or clingstone cultivar) has also a big production: 30 t/ha (Table 1).

The mean weight of fruit varies between 73 g (‘Monica’) and 225 g (‘Catherine Sel.1’).

The peach cultivars with flat-fruit have the size of fruit smaller than the classic one, but this fact is compensated by the excellent taste and the attractiveness of their fruits (Table 2).

The raport stone/fruit is between 3% (‘Filip’) and 8% (‘Redhaven’- Control) and it denotes the efficiency to processing.

**Table 1. Ripening time and average yield (2010-2012) Valu lui Traian, Constanta, Romania**

Genotype	Category	Ripening time	Average yield		Destination of fruits
			kg/tree	t/ha	
Redhaven (Control)	peach	09.07-16.07	27.0	22.5	flesh consumption and processing
Raluca	peach	30.06-07.07	29.0	24.2	flesh consumption
Cecilia	dwarf peach	01.08-13.08	14.5	32.2	flesh consumption and processing
Catherine Sel.1	clingstone (pavie)	27.07-10.08	36.0	30.0	processing and flesh consumption
Craita	dwarf clingstone	15.07-29.07	18.0	40.0	processing and flesh consumption
Florin	peach with flat fruit	02.07-11.07	27.5	22.9	flesh consumption
Filip	peach with flat fruit	14.07-29.07	35.0	29.2	flesh consumption and processing
Monica	peach with flat fruit	03.08-13.08	32.0	26.7	flesh consumption and processing

Dry matter (determinate refractometric) is between 10.5% (to 'Raluca') and 16% (to 'Monica').

The acidity, which is expressed in mg. malic acid / 100 g flesh fruit, varies between 0.32 mg% ('Filip') and 0.67 mg% ('Redhaven'-Control) (Table 2).

Table 2. Quality test of fruit Valu lui Traian, Constanta, Romania

Genotype	Fruit mean weigh (g)	Stone mean weigh (g)	% stone fruit	Dry matter (%)	Acidity* (mg%)
Redhaven (Control)	150.0	12.0	8.0	11.0	0.67
Raluca	172.0	13.0	7.6	10.5	0.56
Cecilia	220.0	10.0	4.5	12.5	0.66
Catherine Sel.1	225.0	12.0	5.3	14.7	0.44
Craita	125.0	8.5	6.8	13.2	0.55
Florin	105.0	6.0	5.7	11.5	0.40
Filip	77.5	2.3	3.0	14.8	0.32
Monica	73.0	2.7	3.7	16.0	0.36

\* Acidity: mg malic acid/100 g flesh fruit

Generally, the cultivar with flat fruit have more sugar and less acidity ('Filip' and 'Monica') than normal peach cultivars.

A big percent of dry matter have also the clingstone (pavie): 13.2% ('Craita') and 14.7% ('Catherine Sel.1') (Table 2).

## CONCLUSIONS

1. The new cultivars obtained at Constanta are suitable not only for ecoclimatic conditions of south-east of Romania, but also for other

areas from the south, west and central part of Romania and also for other European countrys, like Ungary, Bulgary, France, etc.

2. All these new cultivars are more good than control cultivar ('Redhaven') and enriched the existing assortment.

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