

NEW MELON COLLECTION (*CUCUMIS MELO* L.) OBTAINED AT V.R.D.S. BUZĂU

UN NOU SORTIMENT DE PEPENE GALBEN (*CUCUMIS MELO* L.) OBȚINUT LA S.C.D.L. BUZĂU

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Abstract. *The Plant Breeding Laboratory from Vegetable Research and Development Station Buzău, started since 1998 an intensive breeding program for these species, whichever put across until now 10 valuable genotypes with distinctive phenotypical characteristics. The main objective followed in the breeding process was the yield quality especially obtaining genotypes with a particular taste and flavor.*

Key words: melon, genotype, germplasm collection, plant breeding

Rezumat. *Laboratorul de Ameliorare din cadrul Stațiunii de Cercetare și Dezvoltare pentru Legumicultură (S.C.D.L.) Buzău a demarat, începând cu anul 1998, un intens program de ameliorare la această specie, concretizat până în prezent cu obținerea a 10 genotipuri valoroase caracterizate prin însușiri fenotipice distincte. Obiectivul principal urmărit în procesul de ameliorare a fost calitatea producției, în special, obținerea de genotipuri cu gust și aromă deosebite.*

Cuvinte cheie: pepene galben, genotipuri, colecție de germoplasmă, ameliorarea plantelor

INTRODUCTION

In Romania, the melon breeding (*Cucumis melo* L.) faced out with some indigence, especially after 1990. The lack of a national coherent research program in order to improve this species, made to disappear the Romanian creations for this species almost totally.

The interruption of the breeding work and of the specific conservative selection works for the inland creations led in the one hand to the lost of a great biological material, and on the other hand to the genetic depreciation of some valuable genotypes.

The Plant Breeding Laboratory from our institution started an intensive breeding program for this species since 1998, having as a main objective obtaining new competitive creations.

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MATERIAL AND METHOD

The breeding works started since the procurement of valuable biological material. First, there were procured from the University of Agronomical Sciences and Veterinary Medicine from Bucharest, the Vegetable Department, 24 valuable families observed and selected by Professor PhD. eng. Corneliu Petrescu.

To these added another 8 lines detained by V.R.D.S. Buzău, which were used in the breeding works in order to obtain the variety called Fondant. The genetic material collected was a subject for the intensive breeding and evaluation works (Leonte, 1996).

The main breeding objectives proposed were: productivity, quality, earliness, genetic resistance to the pathogen agents attack, ecological plasticity etc. (Drăcea I., 1972).

The breeding works were difficult because of the fact that this species is entomophila, preferred by insects, especially by bees (Crăciun, 1981).

In order to solve this problem and to avoid the biological impurity of the lines, there was used 2 isolation methods (Vinătoru C., 2008):

- genotypes isolation by respecting the distances between the cultivars;
- genotypes isolation by separate cultivation in special arranged compartments.

The culture technology applied was the classical one used for this species in protected spaces without technological warming (Dumitrescu et al., 1998).

During the vegetation period, there were supervised and noted the, main phenophases of the vegetation and there were made measurements and biometrical observations.

The 10 genotypes presented in this paper manifested genetic stability and valuable phenotypical characteristics.

The variety called Fondant created al V.R.D.S. Buzău was used as an appreciation etalon for the comparative cultures (control variant).

RESULTS AND DISCUSSIONS

The breeding works specific to this species finalized now obtaining 10 new genotypes.

Some of these genotypes had remarkable results in what it concerns total yield obtained (table 1). Thus, L₁ realized the greatest yield, over 25840 kg/ha, superior to the control variant Fondant with 1020kg/ha.

Great yields were obtained as well at the family L₄, which registered a 24510 kg/ha yield, 310 kg/ha less than the control variant, but with 4080 kg/ha over the mean yield. L₈ registered a total yield of 22230 kg/ha, with 2590 kg less than the control variant, but with 1800 kg over the mean yield.

The lowest yield was obtained by L₅ which realized 15510 kg/ha, registering 75% yield percentage than the mean yield. Even if this genotype obtained low yields during the researches, it presents a great interest because of its performances in what it concerns the quality of yield.

Table 1

The yields of the melon families obtained at V.R.D.S. Buzău in 2010

Experimental variant	Yield		Difference from mean (kg/ha)	Signification
	kg/ha	%		
L ₁	25840	126,4	+5410	xxx
L ₁₀ Mt	24820	121,4	+4390	xxx
L ₄	24510	119,9	+4080	xxx
L ₈	22230	108,8	+1800	xx
Mean	20430	100	–	–
L ₃	19510	95,4	-920	–
L ₆	19510	95,4	-920	–
L ₇	19330	94,6	-1100	o
L ₉	16920	82,8	-3510	ooo
L ₂	16140	79,0	-4290	ooo
L ₅	15510	75,9	-4920	ooo

DL 5% = 1080 kg/ha

DL 1% = 1450 kg/ha

DL 0,1% = 1930 kg/ha

In what it concerns the mean weight of the fruit, there was remarked the family L₁, which realized a fruit mean weight over 2,6 kg, followed by L₄ with 2,1 kg, and the control variant registered 2kg fruit mean weight (table 2).

The breeding works had not as a main purpose to obtain new genotypes with very big fruits. A special attention was paid to the fruits quality. There was followed the increment of the commercial quality and of the economic efficiency.

The supervised characteristics were: exterior and interior aspect of the fruit, color, pulp thickness and consistence, dry substance, taste and flavor.

L₅ is situated on the first place in what it concerns the pulp consistency. It has a dense pulp, almost crunchy, surpassing all the families studied. The dry substance is over 13% and the vanilla flavor and the sweet taste are remarkable.

L₈ is remarkable by the yield quality which presents fruits with a light green pulp, with pineapple flavor and sweet taste.

L₆ has as well a special taste and flavor. It has the thickest pulp, over 5,2 cm, white color, taste and flavor like pear.

All the genotypes obtained presents phenotypical expressive diversity (fig. 1), stability and genetic homogeneity, being remarkable by its subtlety taste and flavor.

Table 2

**The main characteristics of the fruit for the melon families
obtained at V.R.D.S. Buzău in 2010**

No.	Followed character		Experimental variant									
			L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	L ₈	L ₉	L _{10Mt}
1	Fruits mean weight (kg)		2,6	0,75	1,5	2,1	0,65	1,2	0,85	1,4	0,82	2,0
2	Fruits dimensions (cm)	h	16	12,5	18	20	16	16,2	11,5	17	11,5	14,8
		ø	19	12	14	15	10	12,5	11,5	13,5	10,2	12,6
3	Pulp thickness (cm)		5	2,5	3,5	4,5	3,5	5,2	3,5	3,3	3,2	3,5
4	Rind thickness (cm)		0,5	0,5	0,5	1,0	0,5	0,5	0,5	0,5	1,0	1,0
5	Pulp color		yellow	orange	Light orange	yellow	yellow	white	orange	Light green	orange	Light orange
6	Fruits exterior color		hoary	hoary	Green with rids	Light green	Light yellow	yellow	green	Light green	green	hoary
7	Fruits exterior surface		ribbed	ribbed	Slightly ribbed	Slightly ribbed	Slightly ribbed	sleek	Slightly ribbed	sleek	sleek	Slightly ribbed
8	Dry substance (%)		12,0	11,2	10,5	10,8	13,0	12,2	10,0	11,0	11,6	10,8



L₅



L₁



L₆



L₂



L₃



L₄



L₇



L₈



L₉



L₁₀ Mt

Fig. 1 - The selection of the melon fruits obtained at V.R.D.S. Buzău

CONCLUSIONS

1. Thereafter the researches made on the melon germplasm base during 12 years, there were obtained 10 new melon selections.

2. The selections dignified by productivity (L₁), comparing to the control variant Fondant (1020 kg/ha).

3. The quality characteristics which give value to the new collection are the following: consistency (L₅), vanilla flavor and taste (L₅), pineapple (L₈) or pear (L₆).

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