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EVALUATION CONCERNING THE VARIABILITY OF SOME CHARACTERISTICS AT A BULGARIAN TOMATOES COLLECTION CULTIVATED IN GREENHOUSE

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Abstract

The experience was conducted in a tomatoes collection consisting from 3 F_1 hybrids, Bulgarian origin - Prekos, Kom and Geo - with large percentage in the vegetable area near Bucharest. The observations and the biometric measurements from fruits were made during the growing season, in 2012 year. The researches was conducted in the Laboratory for Protected Cultures of the ICDIMPH-Horting Bucharest and were aimed the evaluation of some determinants characteristics to the production and marketing of this vegetable on internal market of Romania. The results show that the studied hybrids have genetic variability of the characteristics, favorable traits and are an important source of germplasm for improvement works of the species.

Key words: *Bulgarian seeds, Romanian tomatoes.*

INTRODUCTION

Currently, are appreciated the tomatoes with taste by „Romanian tomato".
This aspect is determinant in the marketing of this vegetable on the internal market of Romania; the consumers of our country have classical, traditional and less diversified options.
In our country, increasing interest for to preferentially use early tomatoes F_1 hybrids in protected spaces and field led to the predominant use of the foreign origin seeds, specifically adapted and intended for cultivation in warm greenhouses, with pretensions for advanced technologies (Vânătoru, 2006).
Although the price of hybrid seeds is very high, their use is recommended because have the favorable qualities - precocity, resistance to diseases and pests, quality, high production, etc. (Voican and Lăcătuş, 1998).
So, vegetable growers obtain Romanian tomatoes from import seeds.
The variety and production technology influences the quality characteristics of the tomatoes.
The Bulgarian tomatoes hybrids (Prekos, Kom and Geo) have large share in the cultivation area of the vegetables near Bucharest because the fruits have size, color, shape, taste by „Romanian tomato".
In the researches of the specialists, Prekos F_1 was marked by superior organoleptic qualities of the fruits (Maria et al., 2009).

MATERIALS AND METHODS

The biological material used in the research was formed from Bulgarian tomatoes - 3 hybrids F_1 - Prekos, Kom and Geo.
The description of the hybrids is shown in table (Table 1).

Table 1. The description of the Bulgarian tomatoes

Hybrid	Type of growth	Precocity	Resistances
Prekos	semideterminate	very early	VMT, Fusarium spp., Verticillum spp.
Kom	indeterminate	early	VMT, Fusarium spp., Verticillum spp., nematozi
Geo	indeterminate	early	VMT, Fusarium spp., Verticillum spp.

The tomatoes seedlings were produced in greenhouse specializes in producing seedlings.
The plants were obtained in alveolar trays, in nutritive substrate – peat, medium fertilized (Figures 1, 2, 3).

Figure 1. Prekos F1

Figure 2. Geo F

Figure 3. Kom F1

The culture was established on 21.03.2012, with seedlings aged 45 days old (Figures 4, 5, 6).

Figure 4. Prekos – 45 days

Figure 5. Kom – 45 days

Figure 6. Geo – 45 days

The conventional technology was used in the tomatoes crop (maintenance works, directing of the growth factors etc.) and the fertilization program presented (Table 2).

Table 2. Fertilization program of the tomatoes culture in the greenhouses - kg/ha (Voican and Lăcătuş 1998)

Moment	Ammonium nitrate (34% N)	Concentrated superphosphate (40% P_2O_5)	Complex 16:48:0	Potassium sulphate (45% K_2O)	Magnesium sulphate (16%MgO)
A	100-200	0-300	-	200-400	100-200
B	100	-	-	-	-
10–20 *	300	-	100	-	-
21–50*	200	-	-	200	50
51–80*	100	-	-	200	50
81–110*					

The experience included 3 plots (100 m^2/plot) cultivated with tomatoes, 270 plants/plot (ρ = 27000 plants/ha).
The first harvesting was realised at 2012/05/07 (Prekos) and 2012/05/14 (Geo and Kom).
The observations and the biometric measurements at tomatoes were made in the Laboratory for Protected Cultures of the ICDIMPH-Horting Bucharest.

RESULTS AND DISCUSSIONS

The results concerning the morphological characters of the fruits are presented in the table3.

Table 3. The main characteristics of the tomatoes collection

Characters of fruit	Prekos	Kom	Geo
Weight of fruit (g)	185	180	130
Predominant form of fruit	spherical sharp peak	spherical	spherical
Number of the seminal lodges	3; 4	5	3
Exterior color of immature fruit	green	green, with lid	light green
Exterior color of mature fruit	red	red	red

The fruit weight ranged from 130 g (Geo) to 185 g (Prekos).
The shape and the color to physiological maturity of the tomatoes presented a high variability; were obtained green fruits, with tip (Prekos), green fruits, spherical, with green lid (Kom) and green fruits, spherical and green fruits, lid without (Geo) - figure 7. The color was red at physiological maturity at all hybrids.
The exterior aspect of the fruits was smooth (Prekos) and easy costed (Geo, Kom).

The number of the seminal lodges ranged from a hybrid to another: 3-4 seminal lodges (Prekos), 5 seminal lodges (Kom), 3 seminal lodges (Geo) - Figures 8, 9, 10.

Figure 7. Exterior color of immature fruit

Figure 8. Prekos - 3; 4 seminal lodges

Figure 9. Kom - 5 seminal lodges

Figure 10. Geo - 3 seminal lodges

Interpretation of the results concerning the production / ha, by Duncan test, is shown in the figure 11.

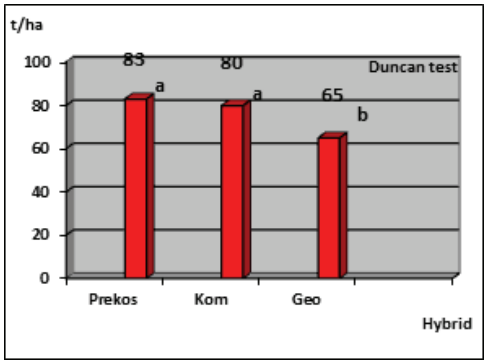

Figure 11. The production of the tomatoes hybrids

It is observed insignificant difference between the production/ha obtained from Prekos (83 t/ha) and Kom (80 t/ha) and significant difference from Geo (65 t/ha).

CONCLUSIONS

The tomatoes collection researched has an important genetic variability of the characteristics studied.

The tomatoes fruits presented characteristics - color, weight, shape, aspect, taste and number of seminal lodges - optimal, meeting the requirements of the producers and the consumers.

The hybrids investigated have optimal precocity and high production.

The Prekos hybrid is superior the Kom and Geo hybrids.

The tomatoes collection researched is a valuable source of germplasm for amelioration works.

These 3 hybrids F_1 of Bulgarian origin - Prekos, Kom and Geo - behaved optimal in greenhouse, in the climate conditions of Bucharest in 2012 year.

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