

RESULTS PRELIMINARY CONCERNING THE BEHAVIOR OF VARIETIES OF OKRA (*HIBISCUS ESCULENTUS*) ON THE SANDY SOILS OF SOUTH OLTENIA

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ABSTRACT

The variable character of the climate in southern Oltenia, where summers are dry and warm, offers favorable conditions for the cultivation of different varieties of okra. In the climatic conditions of 2019, the results obtained regarding the behavior of the five varieties of okra studied: Ela 2, Clemson spineless, Ilinca, Lady's finger, Smaranda highlighted differences between varieties both in terms of plant growth and development, and fruit production.

From the productive point of view the highest production was recorded in the Clemson spineless variety (7.8 t / ha), statistically insured production as significant.

INTRODUCTION

Okra have their origin in Ethiopia and were cultivated by the ancient Egyptians until the 12th century BC. Their cultivation has spread to the Middle East and North Africa (Lamont W., 1999; Tindall H.D., 1983). In our country the cultivated areas are small, concentrated around the cities and canning factories especially in the south and west of the country (Ciofu Ruxandra et al., 2003). It is a species that tolerates high temperatures and drought during the summer period and is also less pretentious on soils with heavy clay and intermittent moisture, but frost can damage the pods. Fruits are harvested when they are immature and consumed as vegetables. Okra fruits are mainly consumed fresh or cooked and are a major source of vitamins A, B, C, minerals, iron, iodine and an important vegetable source of viscous fibers, but are reported to be low in saturated sodium and cholesterol. In our country, although it does not occupy important areas, the culture being more widespread in the southern, south-eastern or south-

western vegetable areas, this culture contributes fully to the diversification of the assortment of vegetables, through its fleshy fruits, pleasant to taste and with a nutritional value quite high (Ionescu C. et al., 1989). On the sandy soils of southern Oltenia, research on okra culture was carried out from 1985 to 1986 by Toma V., who showed that this species finds optimal conditions for growth and development (Toma V., 1989).

MATERIAL AND METHOD

The experience was located in the experimental field of RDSPCS Dabuleni and targeted the behavior on sandy soils of some varieties of okra: *Ela 2, Clemson spineless, Ilinca, Lady's finger, Smaranda*. At the technological maturity of the fruits biometric measurements and determinations were made on the fruits: length of the fruit (cm), diameter of the fruit (mm), weight of the fruit (g), as well as production.

The recorded data were statistically processed and analyzed with the Data Analysis-Descriptive Statistics and Variance Analysis program.

RESULTS AND DISCUSSIONS

The variable character of the climate in southern Oltenia, where summers are dry and warm, offers favorable conditions for the cultivation of different varieties of okra. In the climatic conditions of 2019, the results obtained regarding the behavior of the five varieties of okra studied: *Ela 2*, *Clemson*

spineless, *Ilinca*, *Lady's finger*, *Smaranda* highlighted differences between varieties both in terms of plant growth and development, and fruit production. The results regarding the variability of the main biometric characteristics of the fruits are presented in *table 1*.

Table 1

Variability of main characters at the okra fruits

Variety	The character analyzed	Arithmetic mean (\bar{x})	Standard deviation (s)	The coefficient of variation (s%)	Variability range (k)
Ela ₂	Fruit height (cm)	10.04	4.12	18.05	5.92-14.16
	Fruit diameter (mm)	17.80	4.08	10.08	13.72-21.88
	Fruit weight (g)	14.52	9.50	28.78	5.02-24.02
Clemson spineless	Fruit height (cm)	10.56	3.96	16.5	6.6-14.52
	Fruit diameter (mm)	17.99	4.53	11.07	13.46-22.52
	Fruit weight (g)	16.75	12.33	32.38	4.42-29.08
Ilinca	Fruit height (cm)	12.36	4.37	15.55	7.99-16.73
	Fruit diameter (mm)	16.70	3.30	8.69	13.4-20.0
	Fruit weight (g)	19.97	11.24	24.76	8.73-31.21
Lady's finger	Fruit height (cm)	9.23	3.98	18.97	5.25-13.21
	Fruit diameter (mm)	18.01	4.04	9.87	13.97-22.05
	Fruit weight (g)	17.15	11.57	29.68	5.58-28.72
Smaranda	Fruit height (cm)	11.19	4.30	16.90	6.89-15.49
	Fruit diameter (mm)	18.98	4.09	9.48	14.89-23.07
	Fruit weight (g)	18.65	11.08	26.14	7.57-29.73

Following the statistical analysis of each analyzed character, the five varieties of okras showed very high variability for the character - the weight of the respective fruit, for *Ela 2* variety 28.78%, *Clemson spineless* variety 32.38%, *Ilinca* 24 variety, 76%, *Lady's finger* variety 29.68% and *Smaranda* variety 26.14%, and for the other characters, the variability coefficient

is medium, except for *Ilinca*, *Lady's finger* and *Smaranda* varieties, which have a small coefficient of variability for the character-diameter of the respective fruit. 8.69% for *Ilinca* variety, 9.87% for *Lady's finger* variety and 9.48% for *Smaranda* variety.

The statistical results regarding the biometric determinations are presented in *table 2*.

Table 2

Statistical results regarding the length of the fruit in the varieties okra in 2019

Variety	The average length of the fruit	The difference from the witness	The significance
Ela 2 (Witness)	6.74	WT	-
Clemson spineless	6.70	-0.04	-
Ilinca	11.2	+4.46	xx
Lady's finger	5.82	-0.92	-
Smaranda	6.96	+0.22	-

DL 5% = 2.4

DL 1% = 3.5

DL 0.1% = 5.2

The values obtained regarding the length of the fruit, showed values between 5.82 cm in the variety of okra *Lady's finger* and 11.2 cm in the variety of okra *Ilinca*. The *Ilinca* okra variety was noted, with a distinctly significant difference of 4.46 cm looking in the length of the fruit as compared to the *Ela 2* okra variety.

From the productive point of view, there were no very big differences between the five varieties of okra, except for the spineless Clemson variety which was noted with a production of 7.8 t / ha, statistically significant compared to the witness variety Ela 2. The statistical results regarding the production are presented in *table 3*.

Table 3

Statistical results on fruit production in varieties okra in 2019

Variety	Average production (t / ha)	Relative production (%)	Differences from the witness (t/ha)	The significance
Ela 2(Witness)	4.68	100	Witness	-
Clemson spineless	7.08	151.2	+2.40	x
Ilinca	3.59	76.7	-1.09	-
Lady's finger	7.01	149.7	+2.33	-
Smaranda	4.51	96.36	-0.17	-

DL 5% = 2.4

DL 1% = 3.5

DL 0.1% = 5.2

The results obtained with regard to fruit harvesting in dynamics (*Figure 1*) showed higher values for the okra variety *Ela 2* on 20.08.2019 (3141.6 kg / ha). In all the studied varieties the production

has been higher since 25.07.2019. It can be seen that in the first decade of september, fruit could still be harvested, at technological maturity.

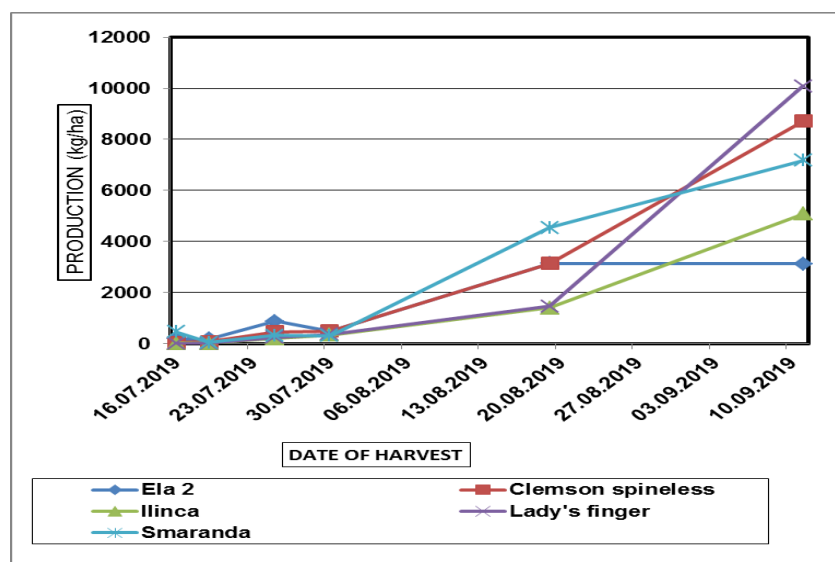


Figure 1. The dynamics of the harvest of okra fruit in the conditions of the 2019 year

CONCLUSIONS

From the results obtained at the five varieties of okras *Ela 2*, *Clemson spineless*, *Ilinca*, *Lady's finger*, *Smaranda* taken in the crop under the pedoclimatic conditions of the sandy soils of southern Oltenia the following were highlighted:

- following the statistical analysis, the coefficient of variability is medium, with the exception of the *Ilinca*, *Lady's finger* and *Smaranda* varieties, which presented a small coefficient of variability for the character - the diameter of the

fruit, respectively 8.69% in the *Ilinca* variety, 9.87% in the *Lady's finger* variety and 9.48% in the *Smaranda* variety;

- from the statistical point of view regarding the length of the fruit, the variety of okra *Ilinca* was noted, with a distinctly significant difference of 4.46 cm regarding the length of the fruit compared to the variety of okra *Ela 2*;

- from the productive point of view the highest production was recorded in the *Clemson spineless* variety (7.8 t / ha), statistically insured production as significant.

BIBLIOGRAPHY

1. Ciofu Ruxandra, Stan N., Popescu V., Chilom Pelaghia, Apahidean S., Horgoș A., Berar V., Lauer F.K., Atanasiu N., 2003, *Tratat de Legumicultură*, Editura Ceres. București, pag.887.

2. Ionescu C., Ionescu A., 1989 - *Realizări și perspective în ameliorarea bamelor*, *Anale Institutul de cercetări pentru legumicultură și floricultură - Vidra*, vol.x, București

3. Lamont W., 1999 - *Okra a versatile vegetable crop*. Hort. Technol. 9: 179-184.

4. Tindall H. D., 1983 - *Vegetable in the tropics* Macmillan press Ltd London first edition.

5. Toma V., 1989 - *Cercetări privind influența desimii și fertilizării asupra producției de semințe de bame, pe nisipurile din sudul Olteniei*, *Lucră. Șt.ale SCDCPN Dăbuleni*, vol.VII.pag. 253-260, Redacția Tehnică Agricolă, Craiova.