

**STUDY ON THE INFLUENCE OF ENVIRONMENTAL CONDITIONS
ON SEED PRODUCTION OF SOME VARIETIES OF OKRA**

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ABSTRACT

Okra is a particularly appreciated vegetable for its specific taste. The pods are green up to 30 cm long and up to 4 cm in diameter, used in the immature phase in various dishes in the food field, but also medically, as an antidiabetic remedy. Research by specialists on a variety of plant material shows that some environmental conditions influence seed production. The experience was carried out in 2021 on the Acme and Smaranda okra varieties. The total production of okra seeds obtained in the seed culture was determined, as well as the number of capsules per plant, the size of the capsules, the number of seeds/capsule and the mass of 1000 seeds. The obtained results show that the variety Smaranda had a higher number of seeds and a negative linear correlation in the variety Smaranda and a positive linear correlation in the variety Acme between the length of the capsule and the number of seeds. The environmental conditions experienced influenced the production of okra seeds.

INTRODUCTION

Okra is part of the Malvaceae family and is known under the scientific name of *Abelmoschus esculentus* (L) Moench but also under the synonym of *Hibiscus esculentus*. They are annual plants, with a different vegetation period depending on the cultivar. The fruits are particularly appreciated for their specific taste. They can be consumed in the stage of immature fruits, from the size of 3 cm to 10 cm depending on the variety. The pods are green up to 20 cm long (Tripathi et al. 2011), used in the immature phase in various dishes (Archana et al. 2015; Hu and Lai 2016; Yuennan et al. 2014) in the field alimentary, but also medical, as an antidiabetic remedy (Durazzo et al. 2019) and industrial.

Research by specialists on a variety of plant material shows that some environmental conditions influence seed production. Besirli et al. 2016 confirms this aspect following the studies carried out on several varieties, finding that in the "Yalova Akkoy 41" variety, the germination percentage was 65.25%, but in the "Yalova Kabakli 11" variety, the germination percentage was 86.75%. Nada et al., 1994 mention that okra shows a certain type of seed dormancy, caused by the structure of the seed coat and which determines the long duration of seed germination but also the low percentage of emergence. Vrunda et al., 2019, carried out correlations between different growth and production parameters and identified highly significant positive correlations regarding the number of fruits/plants, plant height, fruit mass, number of branches/plants, fruit size, number of seeds such as

and weight of 1000 seeds, these being important characters that contribute to total fruit production, an aspect also mentioned by Singh and Goswami (2014). Vani et al., 2012, Simon et al., 2013, as well as Khajuria et al., 2016, mention that the variety, but also the place of cultivation has influence on some growth and production parameters. Sanjay et al. (2019) mention that the production of some cultivars can be influenced by the place of cultivation and climatic conditions.

Rynjah et al., 2020, conducted studies on some okra cultivars on correlations between growth and fruiting parameters on thirty-six okra genotypes and showed that yield per plant was positively correlated with plant height, number of fruits per plant, and fruit weight, fruit diameter as well as its length.

The germination percentage of okra seeds, in the first year of harvesting the capsules, is generally low compared to other species and it can reach minimum accepted values of around 65%.

MATERIAL AND METHODS

The okra culture was carried out in field conditions, being established on May 20, 2021. Sowing was carried out directly in equidistant rows at a distance of 80 cm and a distance between plants per row of 25 cm, obtaining a decime of 50,000 plants/ha Biological material used in the test was represented by the varieties of okra Acme and Smaranda, a variety created in 2020. The total production of okra seeds obtained in the seed culture, the number of capsules per plant, the size of the capsules, the number of seeds/capsule and the mass of 1000 seeds.

Statistical interpretation was performed by processing the results using analysis of variance (ANOVA) and Duncan's test, significance level of 0.05. Regression equations and correlation coefficients were calculated to show the correlation between capsule length and seed number.

RESULTS AND DISCUSSIONS

The number and mass of capsules obtained per plant, the number and mass of seeds were determined by biometric measurements and weighing (Fig. 1).



Figure 1. Okra pods and seeds, variety Smaranda (a), variety Acme (b) okra capsules

The okra cultivar Smaranda had a higher number of seeds formed (85.33 seeds), shorter fruit length (22.9 cm) and greater fruit weight (10.21 g) compared to the okra cultivar Acme (69 seeds), fruit length (23.2 cm) and fruit mass (9.58). Regarding the average mass/seed, it was higher in the Smaranda variety (4.43 g) compared to the Acme variety (3.78 g), figure 2.

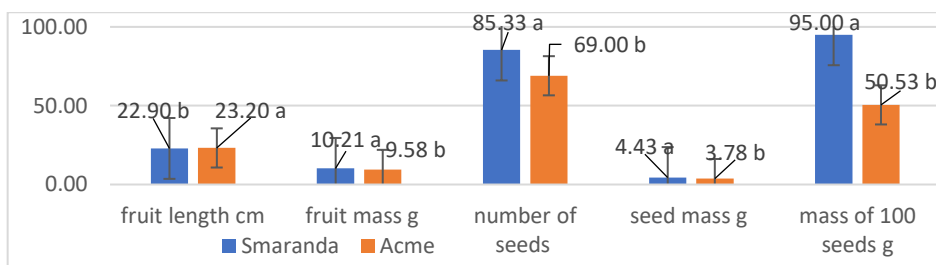


Figure 2. Results on capsule size, number of seeds in capsule and seed weight; Duncan's test ($p = 0.05$)

The correlation between capsule length and number of seeds was calculated in Smaranda and Acme cultivars. A negative linear correlation is observed in the Smaranda variety and a positive linear correlation in the Acme variety, respectively the significance correlation was distinctly significant and significant. (figure 3).

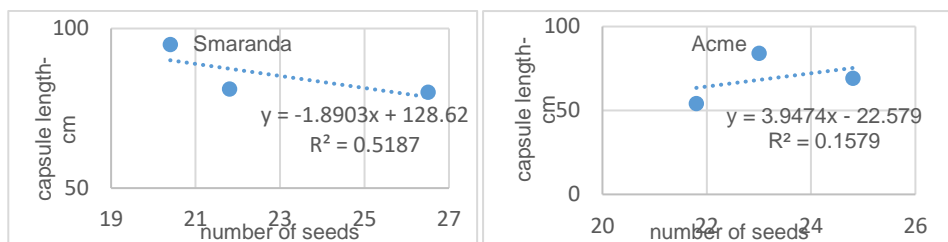


Figure 3. Correlation between capsule length and number of seeds in Smaranda variety

CONCLUSIONS

The Smaranda okra variety presented smaller fruits at physiological maturity compared to the Acme variety. The number of seeds was higher in the Smaranda variety, as well as the mass of 100 seeds.

There is a negative linear correlation in Smaranda variety and a positive linear correlation in Acme variety between capsule length and number of seeds. Environmental conditions influence seed production in okra

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