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The Influence of the Variety on Some Quality Characteristics of Eggplant Fruits Grown in High Tunnels

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Abstract

Eggplant (*Solanum melongena* L.) is a nutritionally and economically important vegetable crop whose performance under protected cultivation is strongly influenced by genotype and environmental conditions. This study evaluated the productivity and fruit quality of eight eggplant cultivars and hybrids (Luiza, Drăgaica, Belona, Sharapova F_1, Aragon F_1, Barcelona F_1, Habana F_1, and Black Pearl F_1) grown in high tunnels over two consecutive seasons (2023–2024). The research aimed to assess average fruit weight, total fruit yield per plant, soluble dry matter content, carbohydrate concentration, and nitrate accumulation, while examining genotype × environment (G×E) interactions. Significant differences were observed among genotypes for all measured parameters. Over the two-year average, Sharapova F_1 produced the heaviest fruits (398 g/fruit), while Drăgaica recorded the highest yield per plant (3072.5 g/plant). Black Pearl F_1 demonstrated excellent stability and balance, achieving high fruit weight (347 g), strong yield (2944 g/plant), elevated dry matter (7.3%), and the highest carbohydrate content (3.85 g/100 g fresh weight). Traditional varieties such as Luiza and Drăgaica accumulated significantly lower nitrate levels (155 and 170 mg/kg, respectively) compared to modern hybrids, offering a safer profile for consumption. Dry matter and carbohydrate contents were generally higher in 2024, indicating favorable climatic effects on quality traits, whereas notable crossover G×E interactions affected yield stability. These findings highlight the superior performance of specific hybrids under high-tunnel conditions and underscore the importance of variety selection for optimizing both productivity and nutritional quality in protected cultivation systems. Black Pearl F_1 emerged as a promising balanced genotype for commercial production and future breeding programs.

Keywords: Eggplant, High Tunnels, Genotype × Environment Interaction, Fruit Quality, Yield Stability

1. Introduction

Eggplant (*Solanum melongena* L.) is an economically and nutritionally significant vegetable crop, appreciated for its high dietary fiber content, valuable minerals (Anirban, 2012) [2], and bioactive phenolic compounds (Raigón *et al*., 2008) [12]. As a warm-season crop requiring specific temperature and humidity conditions for optimal growth, eggplant is particularly well-suited to protected cultivation systems such as high tunnels, which create a modified microclimate that promotes earlier flowering, enhances fruit set, and extends the growing season (Sideman *et al*., 2024) [15]. High tunnel production has emerged as a strategic alternative to conventional open-field farming, offering protection against adverse weather events, reducing pest pressure, and enabling more efficient management of irrigation and fertilization (Singh & Kaur, 2023). Several studies have demonstrated that high tunnel systems significantly improve eggplant performance, with researchers reporting yield increases attributed to greater fruit count and average fruit weight compared to open-field conditions (Shaik *et al*., 2023) [13]. The selection of appropriate varieties represents a critical determinant of successful eggplant production under protected cultivation. Significant genetic variation exists among eggplant accessions for both quantitative and qualitative traits, including fruit weight, number of fruits per plant, dry matter content, and sugar composition (Arivalagan *et al*., 2012). Kumar *et al*. (2024) [8] documented strong positive correlations between average fruit weight and total fruit yield per plant, as well as between fruit weight and sugar content, suggesting that yield components are closely linked to fruit quality parameters.

Fruit quality characteristics, including dry matter content, carbohydrate concentration, and nitrate accumulation, are of paramount importance for both fresh consumption and processing applications. Dry matter content influences fruit texture, processing yield, and sensory attributes, while sugar content directly affects palatability and consumer acceptance (Nardozza *et al*., 2011) [10]. Research by Adamczewska-Sowińska and Krygier (2013) [1] reported that eggplant fruits contain on average 6.80% to 8.06% dry matter, with reducing sugar levels ranging from 1.85 to 2.48 g/100g fresh weight. Their research also demonstrated significant inter-annual variation in fruit quality parameters, highlighting the combined influence of genetic factors and environmental conditions. Nitrate content represents an important food safety consideration, as excessive nitrate accumulation can pose health risks to consumers. The concentration of nitrates in eggplant fruits is influenced by multiple factors, including genotype, nitrogen fertili zation regime, and environmental conditions during fruit development (Blanc & Triboi-Blondel, 1980) [4]. Traditional varieties have been shown to accumulate lower levels of nitrates compared to some modern hybrids, suggesting a more favorable profile from the perspective of food safety (Mauceri *et al*., 2020) [9].

Despite the growing body of research on eggplant production systems, comprehensive evaluations comparing the performance of diverse varieties under high tunnel conditions remain limited. Most existing studies have focused either on open-field production or have examined only a small number of varieties, leaving significant gaps in our understanding of genotype-environment interactions within protected cultivation systems. Therefore, the present study was conducted with the objective of evaluating eight eggplant cultivars and hybrids, including both traditional varieties and modern F_1 hybrids, grown under high tunnel conditions over two consecutive growing seasons (2023–2024). The research specifically aimed to: (1) assess average fruit weight and total fruit yield per plant as primary productivity indicators; (2) determine fruit quality parameters including soluble dry matter content, carbohydrate concentration, and nitrate accumulation; and (3) analyze the relationships between genetic factors and environmental conditions in determining overall crop performance.

2. Materials and Methods

2.1 Experimental Site and Growing Conditions

The experiment was conducted in a high tunnel during the April–September growing season. Air temperature inside the tunnel was maintained at 25–27°C during the day and 18–20°C at night. The soil pH was measured prior to transplanting and recorded at 6.0.

2.2 Plant Material and Seedling Production

Eight eggplant (*Solanum melongena* L.) cultivars were used in the study: Luiza (V1), Drăgaica (V2), Belona (V3), Sharapova F1 (V4), Aragon F1 (V5), Barcelona F1 (V6), Habana F1 (V7), and Black Pearl F1 (V8) (Fig 1 and Table 1). These included early and extra-early cultivars and hybrids that are suitable for both open-field and protected cultivation (Table 1). They were specifically chosen for their high yield potential, excellent fruit uniformity, and strong adaptability to various environmental conditions. Seeds were sown in seedbeds using a peat-based substrate and maintained at a constant temperature of 28°C with 75–80% relative humidity. After seedling emergence, the temperature was reduced to 25–26°C during the day and 20–21°C at night. At the stage of the first true leaf, seedlings were pricked out into 45-cell trays filled with a substrate mixture of peat and perlite in a 1:1 (v/v) ratio. Seedlings were grown until they reached the stage of 6–7 true leaves before being transplanted into the high tunnel.

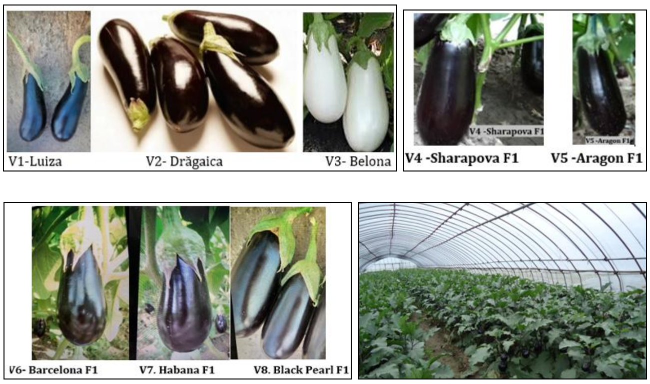

Fig 1: Appearance of eggplant fruits by variants and in high tunnel

Table 1: This table presents a selection of popular eggplant varieties, including both open-pollinated and hybrid types

Label	Variety Name	Description
V1	**Luiza**	Slender, elongated dark purple fruits.
V2	**Drăgaica**	Classic teardrop-shaped, glossy black-purple fruits.
V3	**Belona**	A distinct white variety, oval and smooth.
V4	**Sharapova F1**	Large, deep purple, oval-shaped hybrid.
V5	**Aragon F1**	Long, semi-cylindrical dark fruit.
V6	**Barcelona F1**	Classic oval hybrid with a prominent green calyx (stem cap).
V7	**Habana F1**	Broad, teardrop-shaped dark purple fruit.
V8	**Black Pearl F1**	Rounder, highly glossy dark purple fruits.

2.3 Transplanting, Crop Management and Fertilization

Seedlings with 6–7 true leaves were transplanted into the high tunnel at a spacing of 80 cm between rows and 40 cm between plants within the row, resulting in a planting density of approximately 3.2 plants per m². All plants were trained on two stems and supported vertically throughout the growing season to ensure proper development and ease of management. Fertilization was applied differentially according to the growth stage of the plants. At transplanting, a 15-15-15 NPK fertilizer was used at a concentration of 1.5 g/L. During the establishment phase, fertilization was applied weekly. In the vegetative stage, a 20-10-10 NPK formulation was used, while during the flowering stage, a 10-20-20 NPK fertilizer enriched with micronutrients, particularly boron and calcium, was applied. During the fruiting stage, an 8-12-30 NPK formulation was used on a weekly basis.

2.4 Evaluated Parameters and Analytical Methods

The study evaluated average fruit weight, total fruit yield per plant, and several fruit quality characteristics. Fruit quality was assessed by determining soluble dry matter content using the oven drying method of fruit pulp at 105°C under laboratory conditions. Carbohydrate content was measured directly from fresh fruits using a professional digital glucotester, while nitrate content was quantified in the field using a portable professional nitrate analyzer. All data obtained were statistically processed, analyzed, and interpreted to highlight the differences among the experimental variants and to determine the correlations between the studied parameters.

3. Results

3.1 Analysis of Average Fruit Weight and Fruit Yield per Plant (2023–2024)

The analysis of average fruit weight and fruit yield per plant over the two experimental years (2023–2024) revealed significant differences among the studied eggplant varieties and hybrids. These variations clearly demonstrate the combined influence of genetic factors and environmental conditions on fruit size and productivity.

3.1.1 Average Fruit Weight

In terms of average fruit weight, the Sharapova F1 hybrid recorded the highest value in 2023 with 453 g per fruit, followed by Aragon F1 (366 g) and Black Pearl F1 (336 g). These hybrids exhibited superior genetic potential for producing large-sized fruits (Table 2). In contrast, the Luiza variety showed the lowest average fruit weight (234 g). In 2024, a general decreasing trend in fruit weight was observed across most genotypes. However, the Black Pearl F1 hybrid demonstrated remarkable stability by increasing to 358 g, suggesting strong adaptability to varying environmental conditions. The lowest values in 2024 were again recorded in the Luiza and Habana F1 varieties. When considering the two-year average, Sharapova F1 maintained its superiority with 398 g per fruit, followed by Black Pearl F1 (347 g) and Aragon F1 (337 g). These results highlight the consistent ability of these hybrids to produce large fruits regardless of annual climatic variations.

Table 2: Comparative Analysis of Mean Fruit Weight (g/fruit)

Variety	Mean fruit weight in (g/fruit)	Deviation from the mean (g/ fruit)	Mean fruit weight in 2024 (g/ fruit)	Deviation from the mean (g/ fruit)	Average fruit weight in 2023-2024 (g/ fruit)
Luiza	234	-87,4	228	-58,9	231
Drăgaica	278	-43,4	293	+6,1	285,5
Belona	279	-42,4	266	-20,9	272,5
Sharapova F1	453	+131,6	343	+56,1	398
Aragon F1	366	+44,6	308	+21,1	337
Barcelona F1	301	-20,4	282	-4,9	291,5
Habana F1	287	-34,4	237	-49,9	262
Black Pearl F1	336	+14,6	358	+71,1	347
Media Exp.	321,4	-	286,9	-	304,1

3.1.2 Average Fruit Yield per Plant

Regarding fruit yield per plant, the 2023 season was dominated by **Sharapova F1** (3171 g/plant), **Black Pearl F1** (3024 g/plant), and **Aragon F1** (2928 g/plant), indicating a strong positive correlation between fruit size and total productivity. The Belona variety recorded the lowest yield, at 1953 g per plant (Table 2). In 2024, a notable shift occurred as the **Drăgaica** variety achieved the highest productivity with an outstanding 3643 g/plant, while **Sharapova F1** experienced a significant decline to 2401 g/plant, revealing its higher sensitivity to the environmental conditions of that year.

Over the two-year period, **Drăgaica** emerged as the most productive genotype with an average of 3072.5 g/plant, followed by **Black Pearl F1** (2944 g/plant) and **Aragon F1** (2850 g/plant). These genotypes demonstrated both high yield potential and relatively good stability across seasons.

Table 3: Fruit yield per plant (g plant^{-1}) of the evaluated cultivars in 2023 and 2024, including deviations from the experimental mean for each year, and the overall mean yield calculated across both experimental years (2023–2024)

Variety	Fruit yield 2023 (g/plant)	Difference from the experimental mean (g/plant)	Fruit yield 2024 (g/plant)	Difference from the experimental mean (g/plant)	Mean fruit yield 2023-2024 (g/plant)
Luiza	2106	-434,1	1824	-594,4	1965
Drăgaica	2502	-38,1	3643	+1224,6	3072,5
Belona	1953	-587,1	1862	-556,4	1907,5
Sharapova F1	3171	+630,9	2401	-17,4	2786
Aragon F1	2928	+387,9	2772	+353,6	2850
Barcelona F1	2107	-433,1	1974	-444,4	2040,5
Habana F1	2296	-244,1	2133	-285,4	2214,5
Black Pearl F1	3024	+483,9	2864	+445,6	2944
Media Exp.	2540,1	-	2418,4	-	2479,2

3.2 Statistical Significance of Fruit Yield per Plant

Statistical analysis of the two-year average fruit yield per plant further confirmed these findings. The **Drăgaica** variety recorded a distinctly highly significant positive difference (+593.3 g) compared to the experimental mean, clearly outperforming all other genotypes. **Black Pearl F1** also showed a highly significant positive deviation (+464.8 g), while **Aragon F1** and **Sharapova F1** exhibited significant positive differences. In contrast, the **Habana F1, Barcelona F1, Luiza**, and **Belona** varieties produced yields below the experimental mean, with **Barcelona F1, Luiza,** and **Belona** showing statistically significant negative differences. The **Belona** variety recorded the lowest average yield (1907.5 g/plant) with the largest negative deviation (-571.7 g).

3.3 Dry Matter Content in Eggplant Fruits

The analysis of dry matter content in eggplant fruits also revealed important genotypic differences and yearly variations, reflecting the influence of both genetics and environmental factors on fruit quality (Fig 2). In 2023, dry matter values ranged from 5.4% to 7.0%, with the highest content observed in **Drăgaica** (7.0%), followed by **Black Pearl F1** (6.8%) and **Luiza** (6.5%). The lowest values were recorded in **Barcelona F1** (5.4%) and **Sharapova F1** (5.5%). In 2024, dry matter content increased across all genotypes, ranging between 6.4% and 8.0%. Once again, **Drăgaica** achieved the highest value (8.0%), followed closely by **Black Pearl F1** (7.8%) and **Luiza** (7.4%), while **Barcelona F1** and **Sharapova F1** maintained the lowest levels. The two-year average confirmed the superiority of **Drăgaica** (7.5%) and **Black Pearl F1** (7.3%), demonstrating their excellent capacity and stability in accumulating dry matter. In contrast, **Barcelona F1** (5.9%) and **Sharapova F1** (6.0%) consistently showed lower dry matter content. Overall, the noticeable increase in dry matter content observed in 2024 compared to 2023 suggests that the climatic conditions during the second year were more favorable for the accumulation of solid compounds in the fruits.

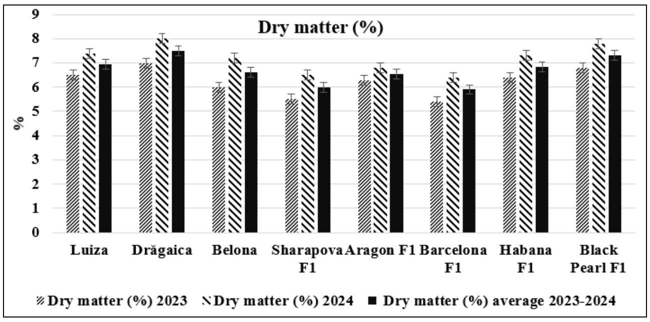

Fig 2: Dry matter content of eggplant fruits – mean values (2023-2024)

3.4 Nutritional Composition

The carbohydrate content values varied slightly between the two analyzed seasons (2023 and 2024), generally showing an increase in 2024 for all studied varieties (Fig 3). For the Luiza variety, carbohydrate content increased from 3.2 g/100 g in 2023 to 3.8 g/100 g in 2024, resulting in an average of 3.5 g/100 g. A similar trend was observed in Drăgaica, where values increased from 3.5 to 4 g/100 g, leading to an average of 3.75 g/100 g. The Belona, Sharapova F1, Aragon F1, Barcelona F1, and Habana F1 varieties also showed moderate increases in carbohydrate content in 2024 compared to 2023, maintaining a consistent upward trend. In the case of the Sharapova F1 hybrid, values remained among the lowest, with an average of 3 g/100 g, while Aragon F1 and Barcelona F1 recorded intermediate values.

The Black Pearl F1 variety exhibited the highest carbohydrate content values, increasing from 3.5 g/100 g in 2023 to 4.2 g/100 g in 2024, with an average of 3.85 g/100 g, the highest compared to the other varieties.

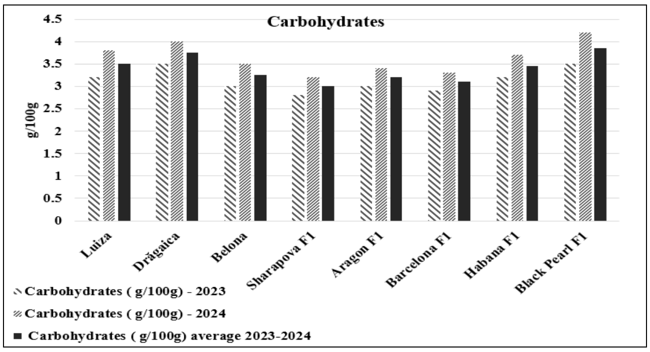

Fig 3: Carbohydrate content in eggplant fruits

The analysis of nitrate content in eggplant fruits revealed variations both between varieties and between years, suggesting a combined influence of genetic factors and environmental conditions. In 2023, nitrate levels were within a relatively moderate range, between 140 and 200 mg/kg. The Luiza variety recorded the lowest concentration (140 mg/kg), indicating a lower capacity for nitrate accumulation (Fig 4). The Sharapova F1 and Aragon F1 hybrids showed the highest values (200 mg/kg). In 2024, a general increase in nitrate content was observed across all analyzed varieties. Values increased significantly, reaching up to 280 mg/kg in the case of the Aragon F1 variety. Additionally, the Barcelona F1 and Sharapova F1 varieties showed high levels, at 270 mg/kg and 260 mg/kg, respectively. Even the varieties with lower values in 2023, such as Luiza and Drăgaica, recorded noticeable increases in 2024, reaching 170 mg/kg and 190 mg/kg. This trend suggested a possible influence of the climatic conditions specific to that year.

The analysis of average values for the 2023–2024 period confirmed differences between varieties. The Aragon F1 variety recorded the highest average value (240 mg/kg), followed by Sharapova F1 and Barcelona F1 (230 mg/kg), highlighting a consistent tendency toward high nitrate accumulation. In contrast, traditional varieties such as Luiza (155 mg/kg) and Drăgaica (170 mg/kg) maintained lower values, suggesting a more favorable profile from the perspective of food safety.

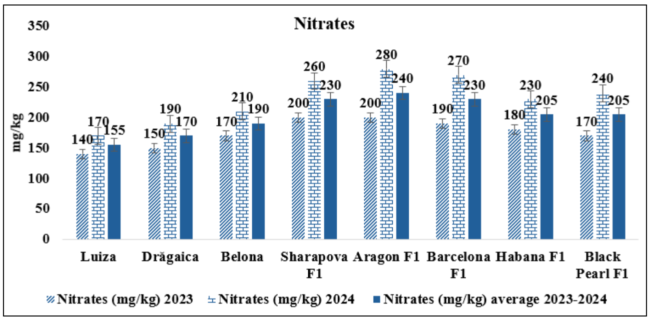

Fig 4: Nitrate content of eggplant fruits - average data 2023-2024

4. Discussion

The substantial variation in fruit weight and yield across seasons demonstrates significant genotype × environment (G×E) interactions in eggplant. Sharapova F1 dominated in 2023 (453 g/fruit, 3171 g/plant) but declined sharply in 2024, while Drăgaica increased from 2502 to 3643 g/plant. This crossover interaction reflects differential phenotypic plasticity among genotypes. Recent research by Flores-Saavedra *et al.* (2025) [7] evaluated nine eggplant introgression lines carrying wild *Solanum incanum* genomic regions, identifying that wild alleles on chromosomes 1, 2, 6, 8, and 12 improve water use efficiency and biomass production under stress conditions. The high sensitivity of Sharapova F1 suggests it may lack such adaptive introgressions, whereas Drăgaica maintains productivity through more robust physiological mechanisms.

The superior dry matter content of Drăgaica (7.5%) and Black Pearl F1 (7.3%) reflects enhanced capacity for assimilate partitioning into fruit tissues. Filyushin *et al.*, (2024) [6] demonstrated that purple-fruited eggplant cultivars accumulate significantly higher sucrose levels but lower glucose and fructose compared to white-fruited types, revealing a metabolic link between anthocyanin biosynthesis and sugar composition. Their transcriptomic analysis revealed that key genes involved in sucrose hydrolysis (*VINV1*, *CWINV1-3*) and sugar transport (*SWEET* family) are differentially expressed between fruit tissues, providing a molecular basis for genotypic differences in sugar accumulation. The dark purple coloration of Black Pearl F1 and Drăgaica correlates with their favorable carbohydrate profiles (3.85 and 3.75 g/100g, respectively).

The striking difference in nitrate accumulation between traditional varieties (Luiza: 155 mg/kg; Drăgaica: 170 mg/kg) and modern hybrids (Aragon F1: 240 mg/kg) reflects genetic variation in nitrogen assimilation capacity. Omondi *et al.* (2025) [11] conducted genome-wide association analysis on 3449 eggplant accessions, identifying 334 significant associations for key agronomic traits and 305 candidate regions under environmental selection containing genes for abiotic stress responses and plant development. Their findings revealed that environmental factors explain 31% of population structure in Indian eggplant germplasm, highlighting the strong influence of environmental conditions on trait expression, which aligns with our observation that nitrate accumulation increased markedly across all varieties from 2023 to 2024.

From a cultivation perspective, Shiraishi *et al*. (2025) [14] demonstrated that drip fertigation in greenhouse eggplant production reduces N_2O emissions by over 60% and nitrogen leaching by more than 70% compared to conventional fertilization, while maintaining comparable yields. Such precision nutrient management strategies could further enhance the food safety profile of high-nitrate-accumulating genotypes. The identification of Black Pearl F1 as the most balanced genotype—combining high yield (2944 g/plant), superior dry matter (7.3%), highest carbohydrate content (3.85 g/100g), and moderate nitrate levels—provides a valuable resource for both direct cultivation and breeding programs. Gong *et al*. (2025) recently reviewed advances in solanaceous vegetable plant architecture, emphasizing the integration of marker-assisted selection, CRISPR/Cas9-mediated gene editing, and intelligent environmental control systems for creating ideal plant architecture with balanced yield, quality, and stress resistance traits. Future breeding efforts should focus on introgressing wild relative alleles associated with stress tolerance, as Flores-Saavedra *et al*. (2025) [7] identified that wild *S. incanum* alleles confer improved drought tolerance through enhanced leaf water content, water use efficiency, and chlorophyll content under stress conditions. Bahadur *et al*. (2025) [3] recommend selecting genotypes showing complete stability across seasons for developing climate-resilient cultivars, a criterion met by Black Pearl F1.

5. References

1. Adamczewska-Sowińska K, Krygier M. Yield quantity and quality of field cultivated eggplant in relation to its cultivar and the degree of fruit maturity. Acta Scientiarum Polonorum Hortorum Cultus. 2013; 12(2):13-23. https://czasopisma.up.lublin.pl/asphc/article/view/2854
2. Anirban R. Variability in mineral composition of Indian eggplant (*Solanum melongena* L.) genotypes. Journal of Food Composition and Analysis. 2012; 26:173-176.
3. Bahadur V, Mishra SK, Tiwari SK. Genotype × Environment Interactions for Qualitative Traits in Brinjal (Solanum melongena L.): Differential Phenotypic Plasticity and Stability in Inbreds and Hybrids across Summer and Kharif Seasons. Journal of Advances in Biology & Biotechnology. 2025; 28(12):29-42. Doi: https://doi.org/10.9734/jabb/2025/v28i121512
4. Blanc D, Triboi-Blondel AM. Influence of nitrate content in the nutrient solution on yield and nitrate content in eggplant (*Solanum melongena* L.). In Fifth International Congress on Soilless Culture. International Society for Soilless Culture, 1980, 143-147.
5. Chengsheng GONG, Yanxin GE, Mingzhu ZENG, Qian LUO, Guangjun GUO, Baogui PAN, *et al*. Advances in Plant Architecture Traits of Solanaceous Vegetables. Guangdong Nongye Kexue. 2025; 52(11):1-10. Doi: https://doi.org/10.16768/j.issn.1004-874X.2025.11.001
6. Filyushin MA, Dzhos EA, Shchennikova AV, Kochieva EZ. Metabolite concentrations and the expression profiles of the corresponding metabolic pathway genes in eggplant (Solanum melongena L.) fruits of contrasting colors. Vavilov Journal of Genetics and Breeding. 2024; 28(6):619. Doi: https://doi.org/10.18699/vjgb-24-72
7. Flores-Saavedra M, Gramazio P, Vilanova S, Mircea DM, Ruiz-González MX, Vicente Ó, Prohens J, Plazas M. Introgressed eggplant lines with the wild Solanum incanum evaluated under drought stress conditions. Journal of Integrative Agriculture. 2025; 24(6):2203-2216. Doi: https://doi.org/10.1016/j.jia.2024.03.014
8. Kumar D, Gujjar NS, Singh P, Kumar A, Kumar P, Tiwari B. To study correlation between yield and its components in eggplant (*Solanum melongena* L.). Journal of Experimental Agriculture International. 2024; 46(7):739-753.
9. Mauceri A, Bassolino L, Lupini A, Badeck F, Rizza F, Schiavi M, *et al*. Genetic variation in eggplant for Nitrogen Use Efficiency under contrasting NO_3^- supply. Journal of Integrative Plant Biology. 2020; 62(4):487-508.
10. Nardozza S, Gamble J, Axten LG, Wohlers MW, Clearwater MJ, Feng J, *et al*. Dry matter content and fruit size affect flavour and texture of novel Actinidia deliciosa genotypes. Journal of the Science of Food and Agriculture. 2011; 91(4):742-748.
11. Omondi E, Barchi L, Gaccione L, Portis E, Toppino L, Tassone MR, *et al*. Association analyses reveal both anthropic and environmental selective events during eggplant domestication. The Plant Journal. 2025; 121(3):e17229. Doi: https://doi.org/10.1111/tpj.17229
12. Raigón MD, Prohens J, Muñoz-Falcón JE, Nuez F. Comparison of eggplant landraces and commercial varieties for fruit content of phenolics, minerals, dry matter and protein. Journal of Food Composition and Analysis. 2008; 21(5):370-376.
13. Shaik A, Singh S, Montague T, Siebecker MG, Ritchie G, Wallace RW, *et al*. Comparison of organic eggplant yields under open-field and high tunnel production systems in Texas. Farming System. 2023; 1(3):100049.
14. Shiraishi W, Nishimura S, Maeda M, Ueno H. Drip Fertigation in Greenhouse Eggplant Cultivation: Reducing N2O Emissions and Nitrate Leaching. Nitrogen. 2025; 6(4):116. Doi: https://doi.org/10.3390/soilsystems6040116
15. Sideman RG, Bryant H, Saunders O. Yields, postharvest storage, and response to pruning of eggplant cultivars grown in high tunnels in New Hampshire, USA. HortTechnology, 2024.
16. Villanueva Párraga G, Vilanova Navarro S, Plazas Ávila MDLO, Gramazio P, Prohens Tomás J. Validation and identification of new QTLs for plant and fruit developmental and composition traits in eggplant under low N conditions, 2024. Doi: https://doi.org/10.1016/j.stress.2024.100594