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STUDY ON THE EVALUATION OF POMOLOGICAL, BIOCHEMICAL, AND ORGANOLEPTIC PARAMETERS OF SEVERAL APRICOT CULTIVARS

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Introduction

Apricot fruit is rich in potassium, magnesium and calcium and it has been explained that some organic acids, sugar and phenolic compounds are also present in it

In addition, apricot fruit contains a sufficient amount of glucose, sucrose, fructose, vitamins A and E, antioxidant compounds, beta-carotene and lycopene

Undoubtedly, cultivars are an important factor in determining the final yield in fruit trees and orchards. The selection of the right rootstock influences the final yield of the product and the quality of the fruits produced, the vegetative growth of the plant, as well as the resistance to stress

Materials and methods

The study was carried out for 30 apricot cultivars planted in the Experimental Field of the Faculty of Horticulture in Bucharest, planted in 2017, with 2 canopy shapes – Trident and Bi-Baum®.

From the sample of 20 fruits, each fruit was measured with the digital caliper, determining the length and the two diameters. The shape index was determined according to the formula: **I = L/ [(d1+d2)/2]**

The share of the weight of the pulp, respectively of the seeds, from the total average weight of the fruit was determined.
Total acidity, dry matter, and carotenoid content were determined.





Results and discussions

Pulp weight **Series of cultivars grown in the Trident system**

it was found that the Primaya/SJA variety presented the highest comparative values with the other varieties. In the second year, the varieties Farbali/SJA and Farbali/M29C had significantly similar values

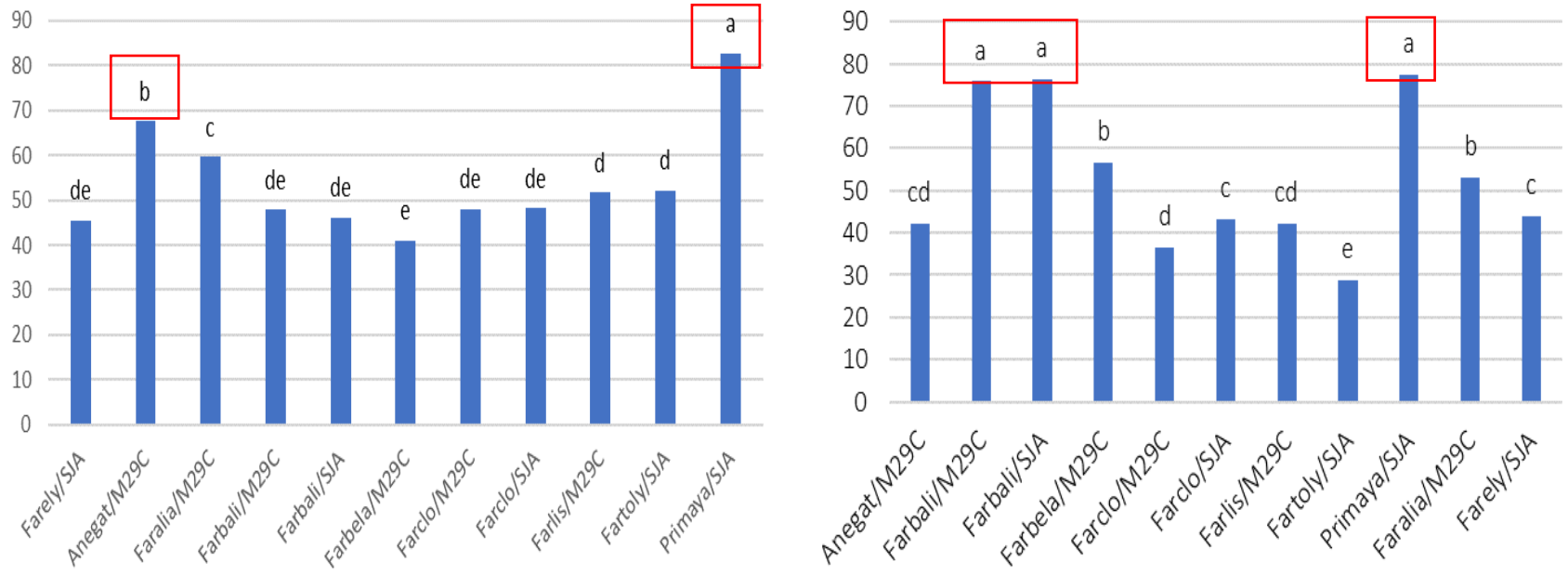


Fig. 5. Weight pulp at the cultivars in the Trident system (2021-2022)

Results and discussions

Series of cultivars grown in the Trident system

Total Soluble Solids

Values ranged between 8.19 and 14.30 °Brix in 2021, respectively between 8.1 and 17.06 °Brix in 2022

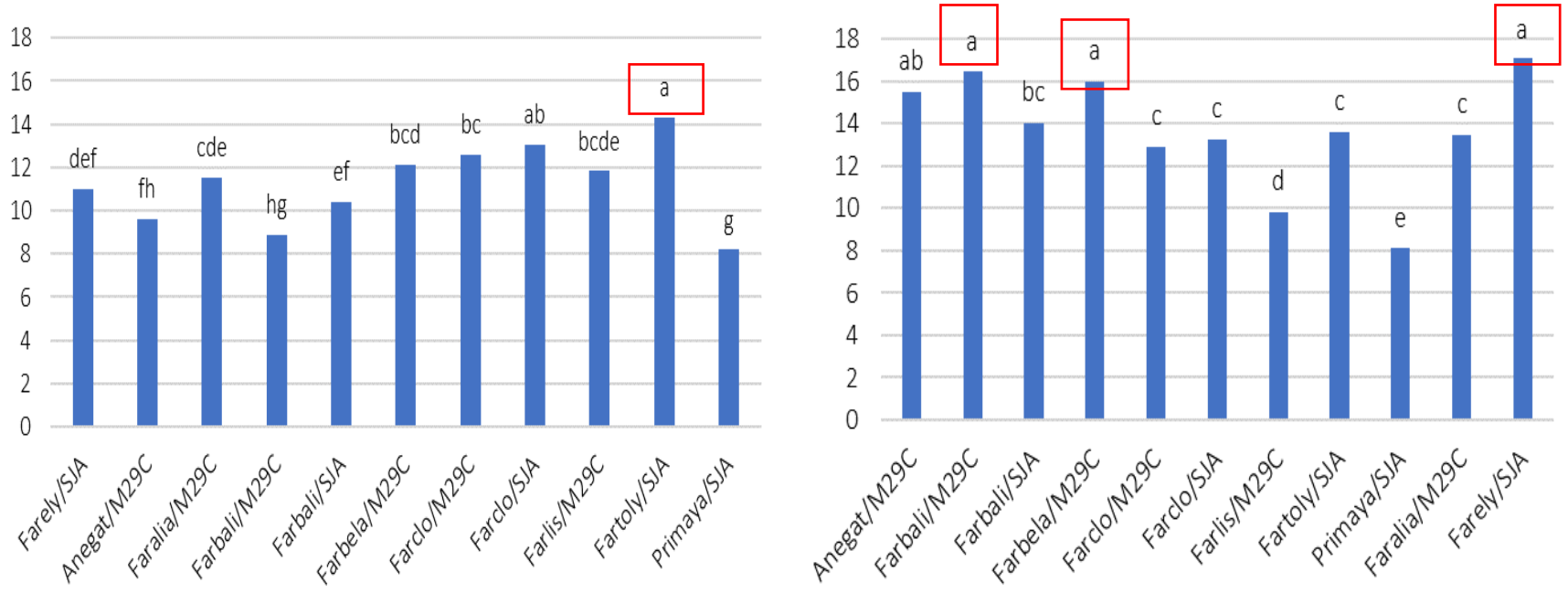


Fig. 7. Soluble dry matter in different cultivars in the Trident system

Results and discussions

Total acidity

Series of cultivars grown in the Trident system

Examining the changes in total titratable acidity values in different cultivars grown in the Trident system showed that the highest value of this parameter in the first year was observed in the cultivars Primaya/SJA, Farbela/M29C and Farbali/M29C (1.7567 g acid malic/100 g fw)) and in the second year to the cultivar Farbela/M29C (1.9800 g acid malic/100 g fw).

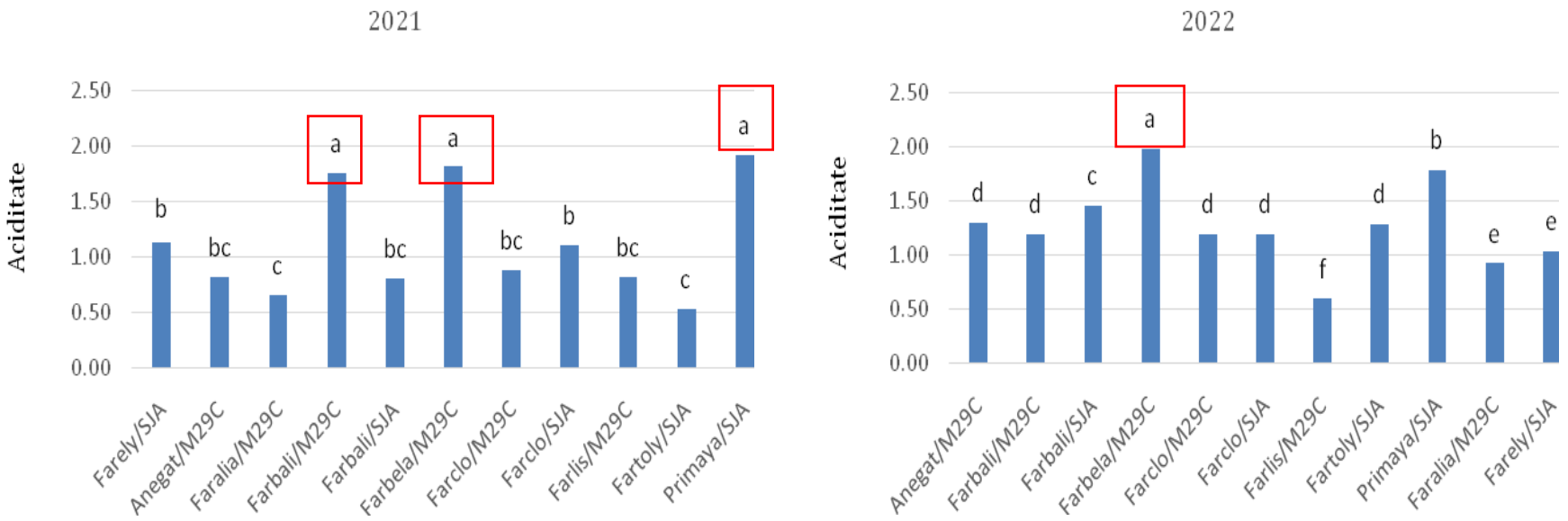


Fig.10. Treatable total acidity in different cultivars in Trident system

Results and discussions

Series of cultivars grown in the Trident system

Dry matter

it was found that the cultivar Farclo/M29C had the highest value compared to other cultivars in both years. In the first year of study, the cultivars Farclo/SJA and Fartoly/SJA they had similar values

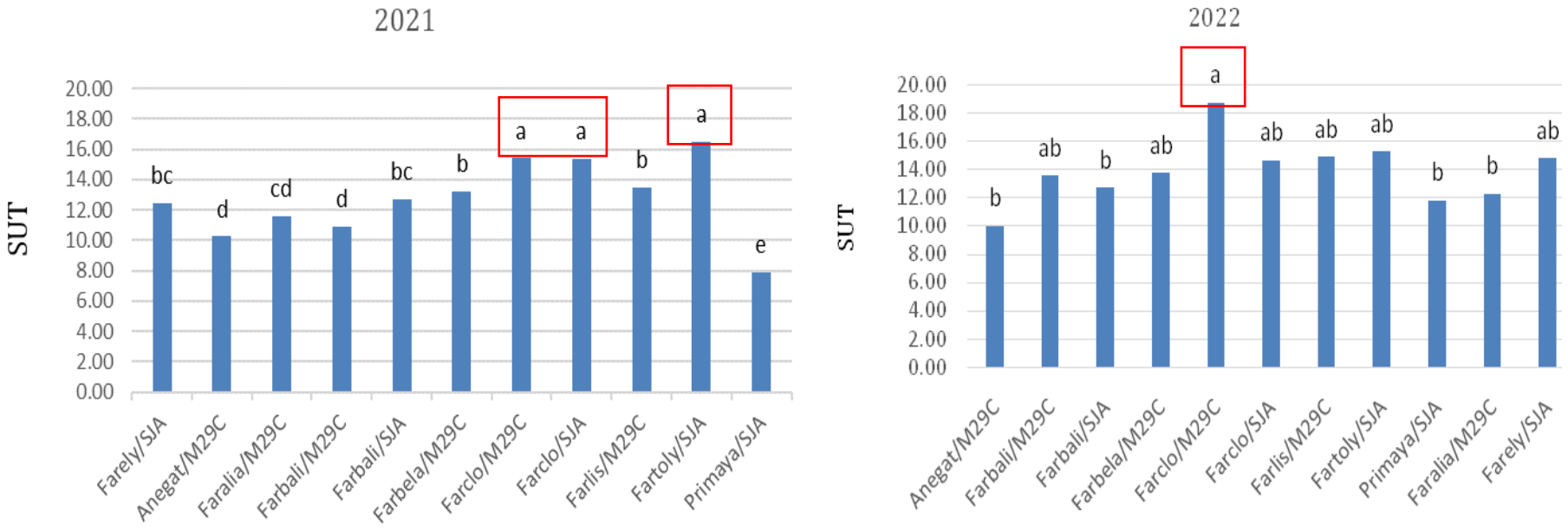


Fig.11. Dry matter at the cultivars in Trident system

Results and discussions

Series of cultivars grown in the Trident system

Total acidity/Total Soluble solids

it was found that the highest value of this ratio was observed in Primaya/SJA cultivar in the first year followed by Farbali/M29C.

In the second year, the data showed that the highest value of this ratio was observed and recorded in Primaya/SJA cultivar.

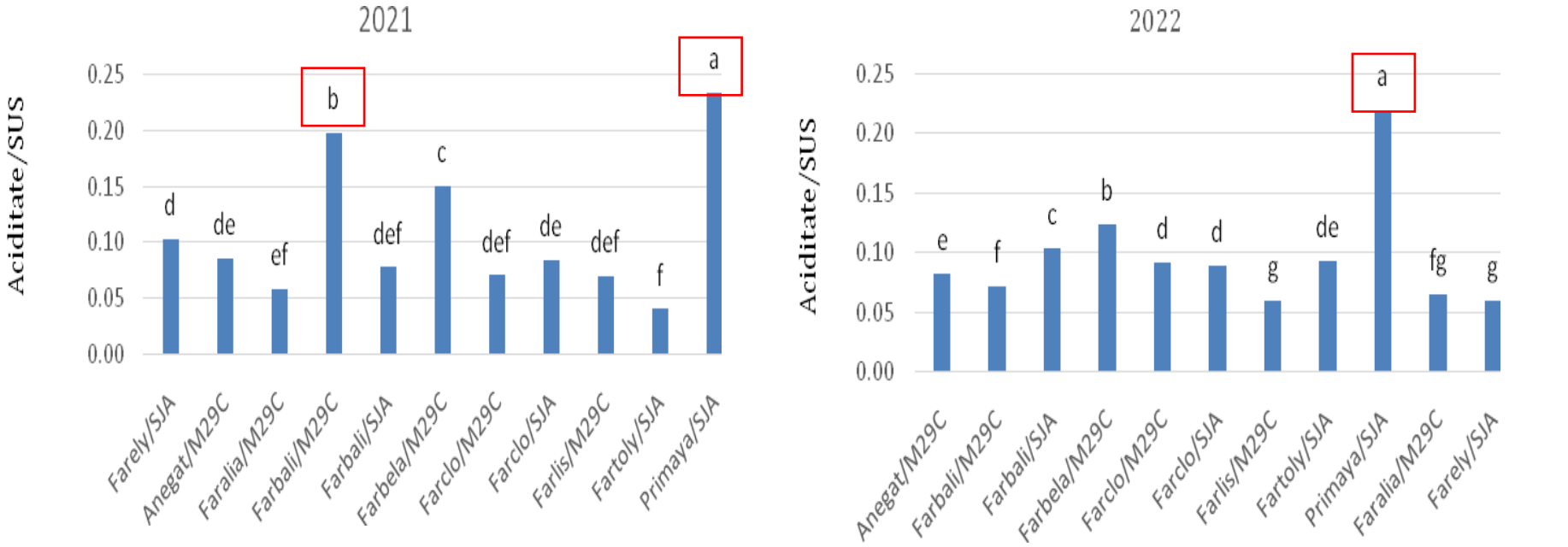


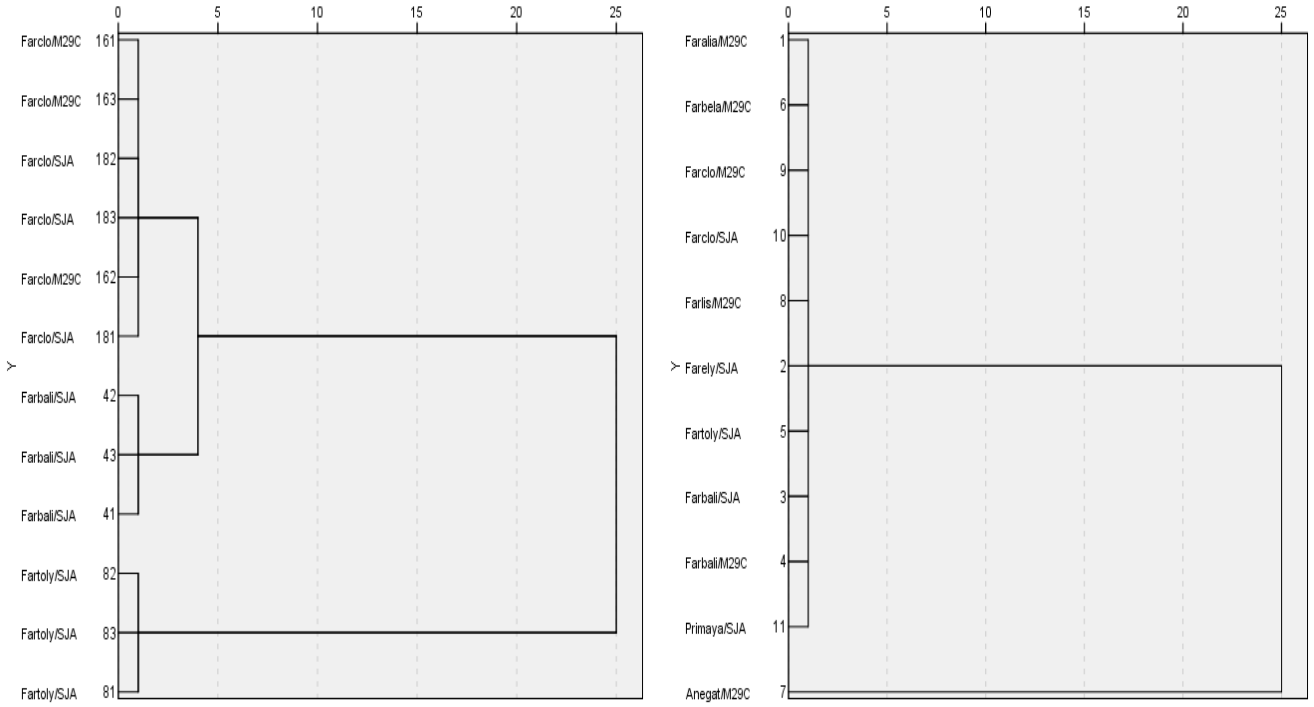
Fig. 12. Treatable total acidity/Soluble dry matter in different cultivars in the Trident system

Results and discussions

Cluster analysis

Series of cultivars grown in the Trident system

the results showed that the studied cultivars in the first year were divided into three different groups. In the second year of the study, it was found that the studied cultivars were divided into two groups. In 2022, the cultivar Anegat/M29C cultivar was placed in one group and other cultivars in another group.



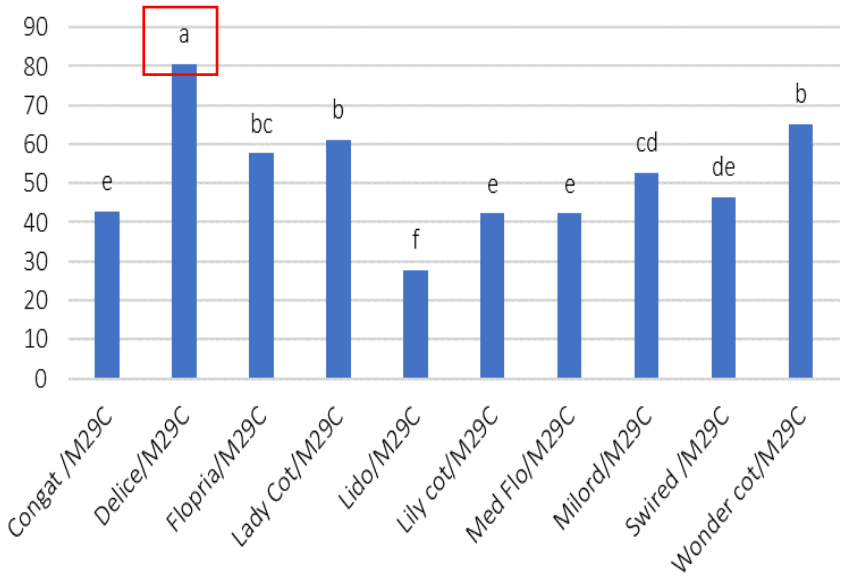
2021 2022

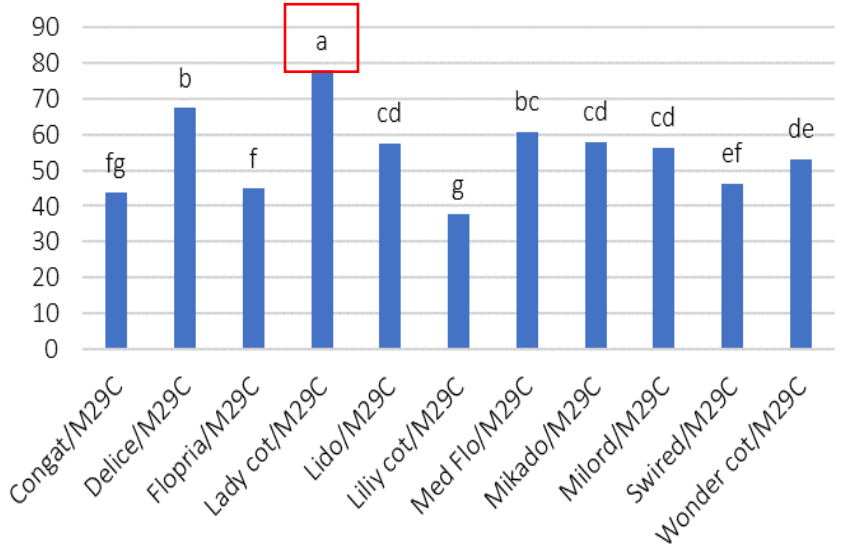
Fig. 16. Cluster analyze of different cultivars in the Trident system

Results and discussions

Pulp weight **Series of cultivars grown in the Bi-Baum system, 2.0 m per row**

it was found that the highest value was observed and recorded in the first year in the cultivar Delice/M29C (80.57 g) and in the second year at the cultivar Lady Cot/M29C (77.84 g).





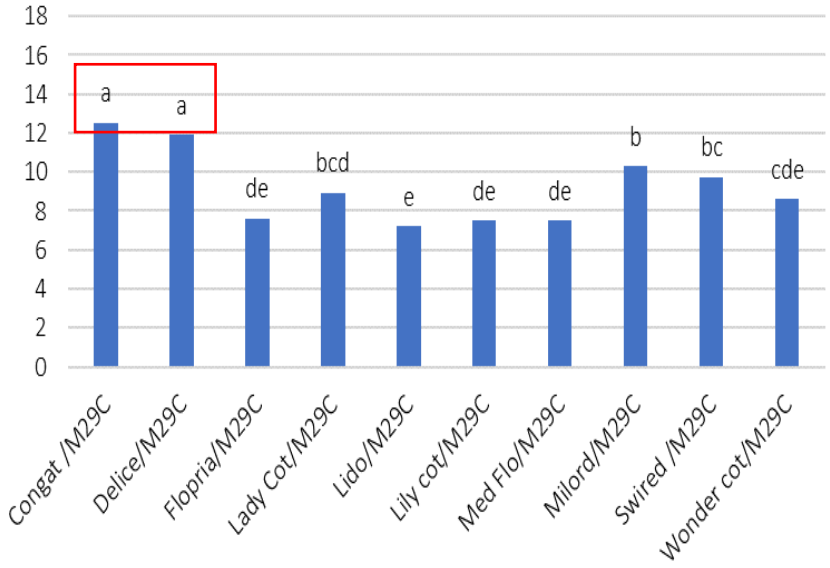
Weight pulp in different cultivars in the Parallel-U, 2.0 m (g) (2021-2022)

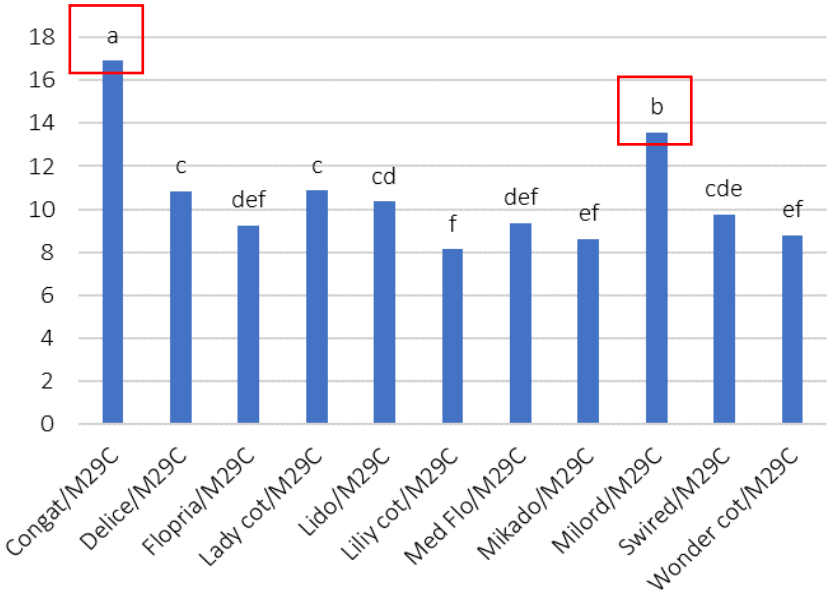
Results and discussions

Series of cultivars grown in the Bi-Baum system, 2.0 m per row

Total Soluble Solids

it was found that in the first year, the amount of soluble dry matter was significantly higher in the cultivars Congat/M29C and Delice/M29C compared to other cultivars. In the second year of research, the highest amount of soluble dry matter was observed and recorded in the cultivar Congat/M29C





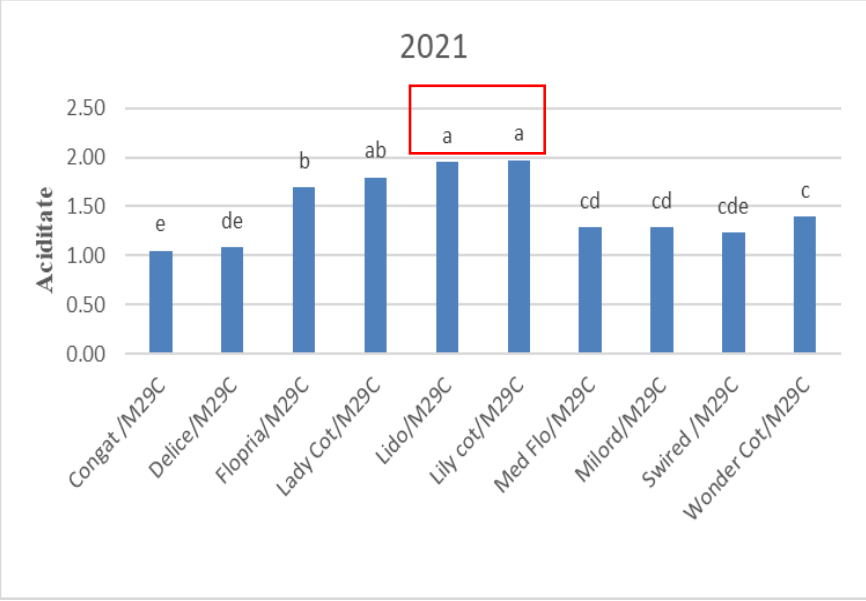
Soluble dry matter in different cultivars in Parallel-U, 2.0 m (°Brix) (2021-2022)

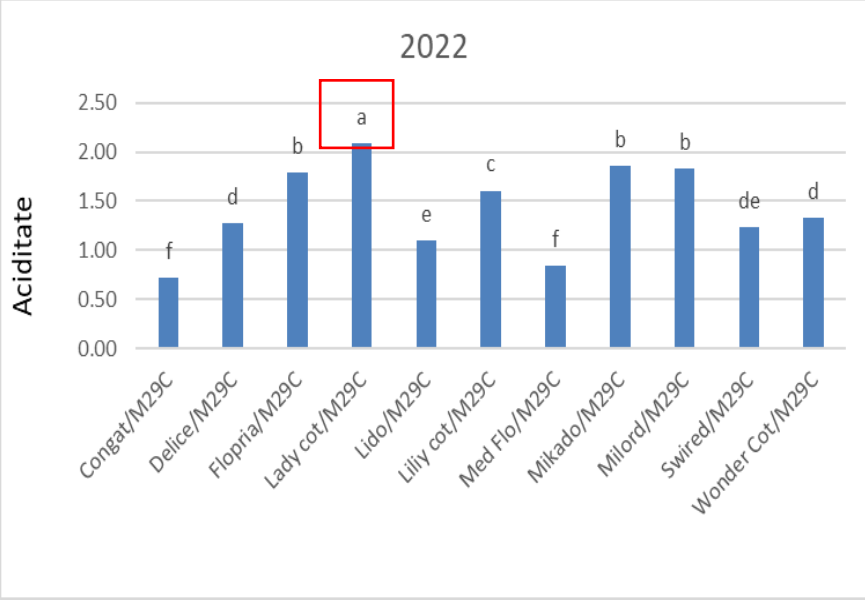
Results and discussions

Series of cultivars grown in the Bi-Baum system, 2.0 m per row

Total acidity

The highest value was observed in cultivars Lido/M29C and Lily Cot/M29C in the first year of research, respectively in the cultivar Lady Cot/M29C in the second year of research. cultivar Congat/M29C presented the lowest value in both years of the study, compared to other cultivars.





Treatable total acidity in different cultivars (g malic acid/100 g fw)

Results and discussions

Series of cultivars grown in the Bi-Baum system, 2.0 m per row

Dry matter

The content values in dry matter ranged between 7.20% (Lido/M29C) and 12.50% (Congat /M29C) in the years 2021, respectively between 8.51% (Wonder Cot/M29C) and 17.00% (Congat/M29C) in the years 2022

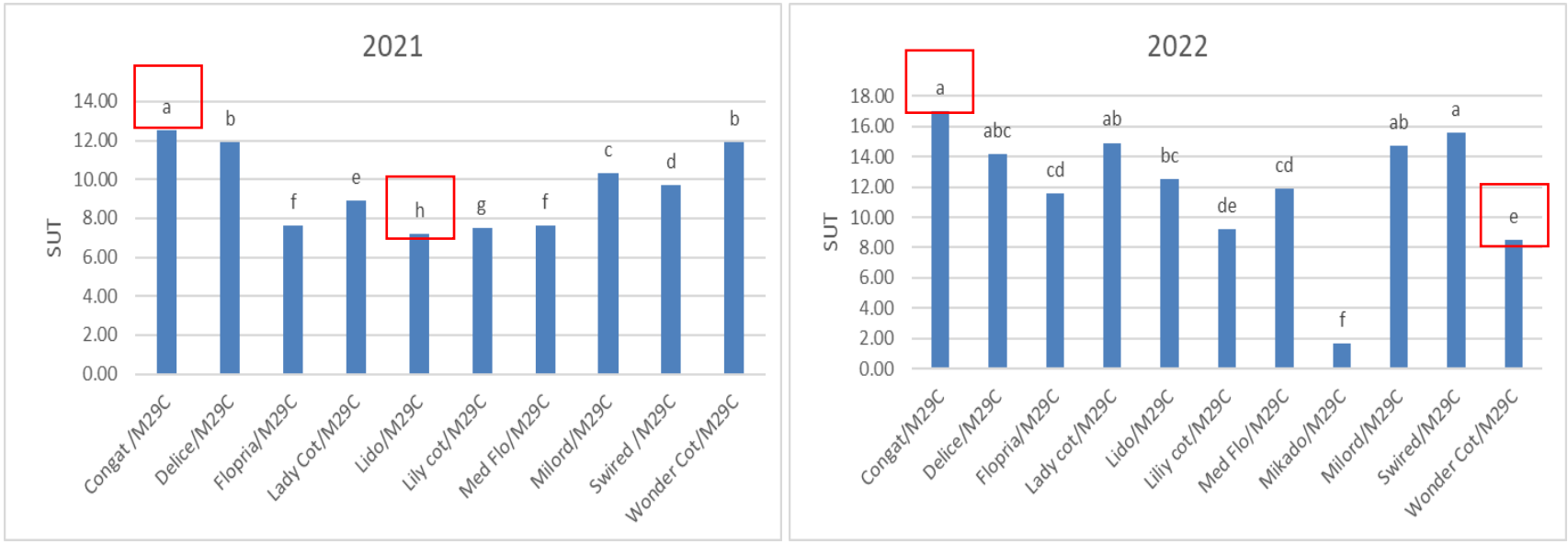


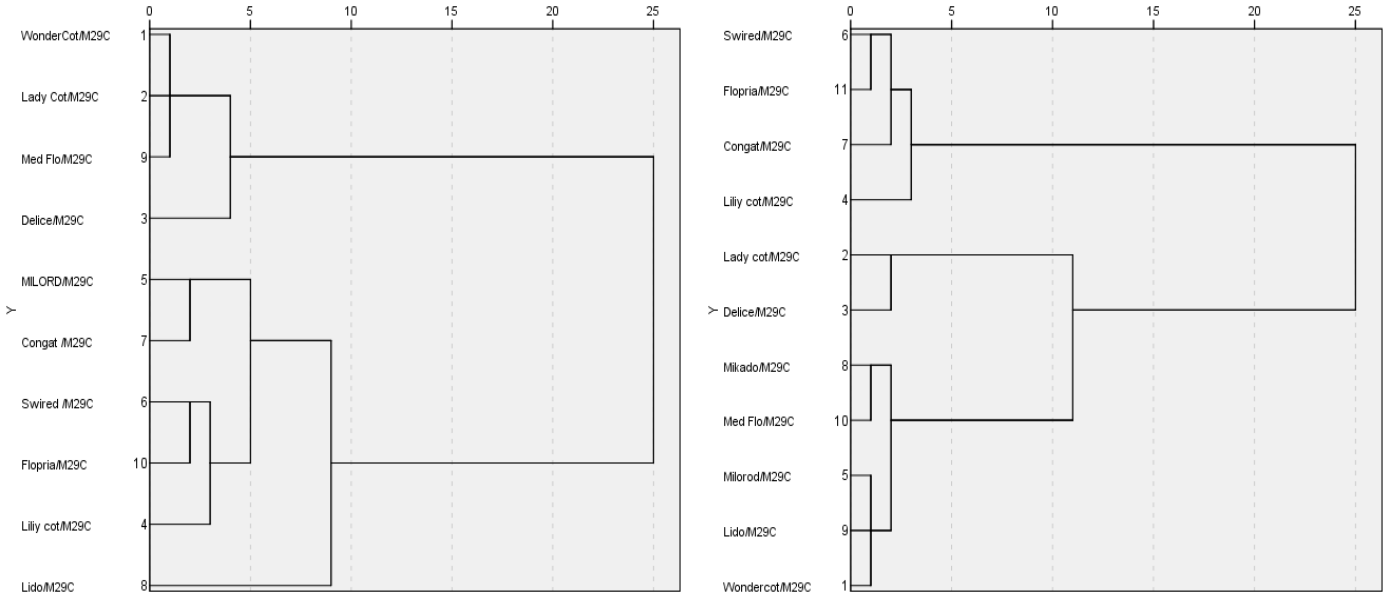
Fig. 27. Total dry matter in different cultivars in Parallel-U, 2.0 m

Results and discussions

Cluster analysis

Series of cultivars grown in the Bi-Baum system, 2.0 m per row

In the cluster analysis, it was found that in the first year the cultivars were divided into several different groups. The similarities between Wonder cot/M29C and Med Flo/M29C; Lady cot/M29C and Delice/M29C; Swired/M29C and Lili cot/M29C



2021 **2022**

Custer analyze of different cultivars in Bi-Baum, 2.0 m

Results and discussions

The influence of the rootstock or canopy shape on the fruit quality parameters

Comparing the quality parameters to the cultivar Primaya/SJA in the two planting systems, Trident and Bi-Baum, significant differences were observed between the parameters.

The same with the Congat cultivar on two different rootstocks (M29C, GF677) in the planting system, Bi-Baum.

Results and discussions

Primaya/SJA (Trident canopy), had bigger fruit length, average fruit diameter, kernel length, average kernel diameter, pulp weight, total titratable acidity, lycopene content compared to other cultivars

The results of this study showed that the Farbali cultivar grafted on M29C and SJA also showed acceptable performance in relation to fruit-related indicators. The study of different cultivars grafted on M29C in the Bi-Baum system, 2.0 m, showed that the cultivar significantly affects the biochemical traits of the fruit. Among the studied cultivars, Delice, Wonder Cot, and Congat varieties showed acceptable results

In the examination of cultivars (Bi-Baum canopy), it was also found that Primaya/SJA cultivar, even in the form of Bi-Baum canopy, showed good performance in traits related to the fruit of the plant. This issue shows the importance of choosing the proper cultivar more than before

Conclusions and recommendations

In general, it can be explained that the different cultivars studied in the research have shown different behaviors in relation to the indicators related to the fruit. In some cases, regardless of the shape of the canopy, the cultivated cultivar has provided appropriate responses. This issue indicates the great importance of the suitable cultivar at the time of cultivation. In addition, choosing the suitable rootstock in the plant is also an important and effective factor in the growth of the plant. Therefore, it can be explained that choosing the suitable rootstock and scion according to the ecological conditions of the region in some cases has resulted in the production of a good quality product that has the ability to compete with native cultivars that are sometimes susceptible to certain disease or biological stress.

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