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PRELIMIARY RESULTS FOR A NEW HORTICULTURAL PRODUCT OBTAINED FROM TWO TABLE GRAPE VARIETIES

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Abstract: *The main objective of the study is to contribute to the development of finished products obtained using raw material two table grape varieties, harvest at full maturity in October, 2021, with sugar content of 133 g/l – Afuz ali and 121 g/l - Italia. A mixture was obtained from each grape varieties by boiling berries, using two variants of preservatives - ascorbic acid and citric acid. For all four resulting variants, the dry matter, sugar content, vitamin C and pH level were determined. The vitamin C was significantly higher in Afuz Ali/acid ascorbic – 89,79 mg/100 f.w. and in Italia/acid ascorbic – 86,56 mg/100 g f.w. The obtained mixture was appreciated organoleptically with favorable results for Italy grape-product and acid ascorbic variants. The mix was created to recover the grape varieties that, under the conditions in Cluj, do not reach full maturity and have a high acidity content.*

• Introduction

Over time, grapes became food in its raw form, and then various finished products were processed using different grape varieties. The assortment of table grape varieties in Romania is in a continuous dynamics, depending on the preferences and requirements of consumers, as well as on the progress achieved in the field of breeding and genetic researches (Cichi et al., 2019). There are still grapes that could not be recovered as fresh-fruits and they are processed into diferrent horticultural products such as jams, jellies or juices. The research aims the evaluation of quality of processing of Afuz ali and Italy table grapes varieties on the dry matter, sugar content, vitamin C, pH level and sensorial analysis of the new-horticultural products.

• Material and method

The grapes were harvest from Ampelographic Collection of Faculty of Horticulture and Business in Rural Development of Cluj Napoca, Romania. The 2021 table grapes samples weighed, washed under running water, destemmend, seeds and skin removed.

Analysis before proccesing:
- Grape sugar content (g/l)
- Total acidity (g/l tartric acid)
- pH

Two recipies were used:
R1 – 20 g sugar + 1 g ascorbic acid
R2 – 20 g sugar + 1 citric acid

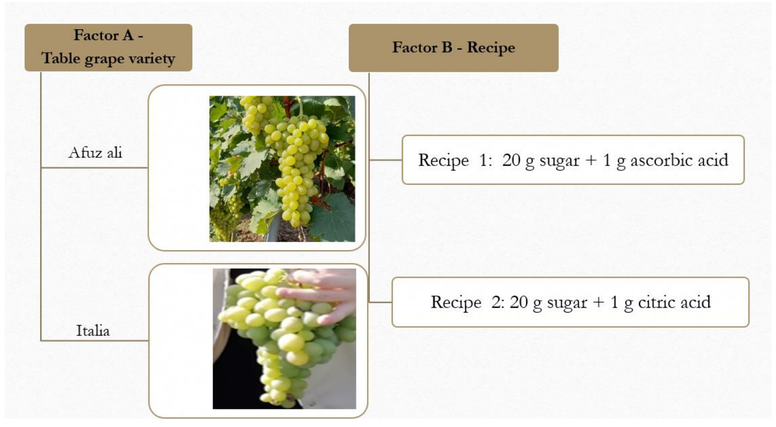

Figure 1. Experimental design

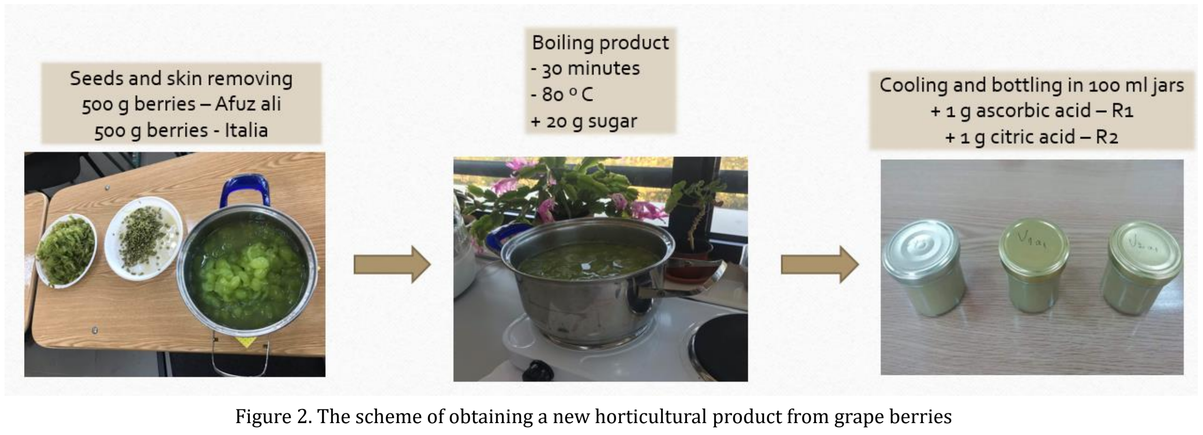

Figure 2. The scheme of obtaining a new horticultural product from grape berries

Analysis after proccesing: Dry matter content (%); Vitamin C (mg/100 g f.w), pH – Rozsa et al., 2023. Organoleptic analysis – 15 assesors – students of Faculty of Horticulture, ages betwee 21-26, 8 females and 7 males. The tastig grades were from 1 (unsatisfying) and 5 very satifying.). Statistical analysis was made by ANOVA for comparison of the means.

• Results and discussions

Proximate chemical composition of table grapes variety were registered as follow – 133 g/l sugar content for Afuz ali and 121 g/l sugar content for Italia grape variety. The total acidity was measured by tritrimetric method, with values of 4.76 g/l tartric acid for Afuz ali and 4.06 g/l tartric acid for Italia (Table 1). Grape jams – horticultural product prepared on laboratory scale by boiling of grape resulted from removal of spared from stem, skin and seeds. The boiling was continue at 30 minute, at 80°C and by ading 20 g of sugar for both variants. After cooling the product, was poured in 100 ml jars by adding 1 g of ascorbic acid (R1) and 1 g of citric acid (R2). Tables 2 and 3 shows the contents of dry matter, as well as vitamin C after grapes proccesing, For both variant, the recipy with ascorbic acid had highest content of dry matter 48.81 % - Afuz ali and 42.54 % - Italia. Vitamin C content was significantly higher in variants with ascorbic acid for both table grapes varieties, than in variants with citric acid (Table 2 and 3).

Regarding the omogenity and general aspect of horticultural product, the variant obtained from Italia had the highest values against the Afuz ali (Figure 1). The same aspect was observed for the color parameter, according to the assessor, the product obtained from Italia, had a better color than Afuz ali. According Figure 3 – the assesors prefered the product obtained from Italia grapes, maybe due to the natural aroma of this variety.

Table 1. Table grapes chemical composition

Table grape variety	Grape weight (g)	Sugar content (g/l)	Total acidity (g/l tartric acid)	pH
Afuz ali	543,0***	133*	4.76ns	3.32**
Italia	512,0°°°	121°	4.06ns	3.02°°
Mean of experience	527,5	127	4.41	3.18

Table 2. Chemical analysis of Afuz ali – horticultural product

Afuz ali	Dry matter (%)	pH	Vitamin C (mg / 100 g f.w.)
Ascorbic acid	48.81**	3.67*	89.79***
Citric acid	47.46°°	3.58°	47.69°°°
Mean of experience	48.44	3.62	68.74

Table 3. Chemical analysis of Italia – horticultural product

Italia	Dry matter (%)	pH	Vitamin C (mg / 100 g f.w.)
Ascorbic acid	42.54ns	3.62*	86.56***
Citric acid	41.89ns	3.53°	45.23°°°
Mean of experience	42.22	3.57	65.89

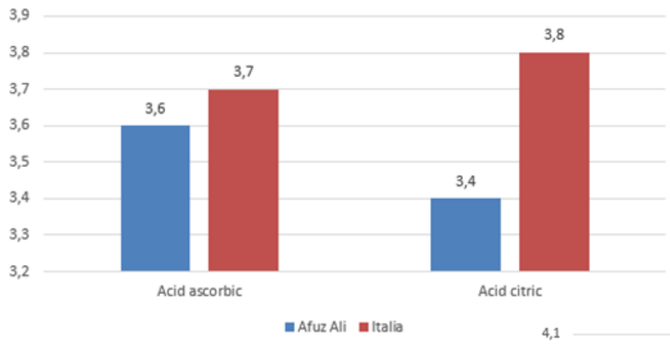

Figure 1. Homogeneity and external appearance of horticultutal product

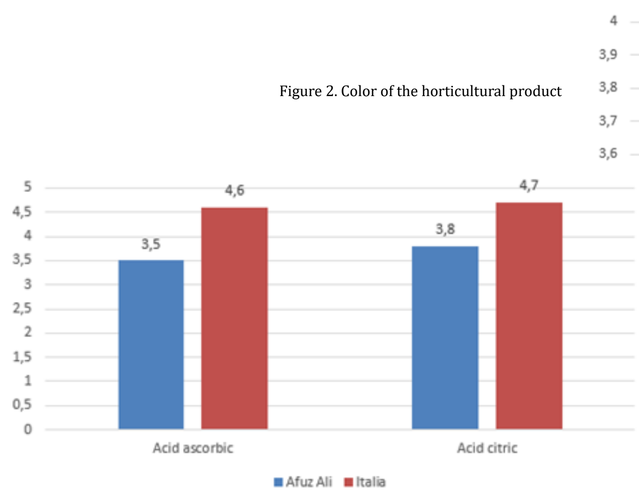

Figure 2. Color of the horticultural product

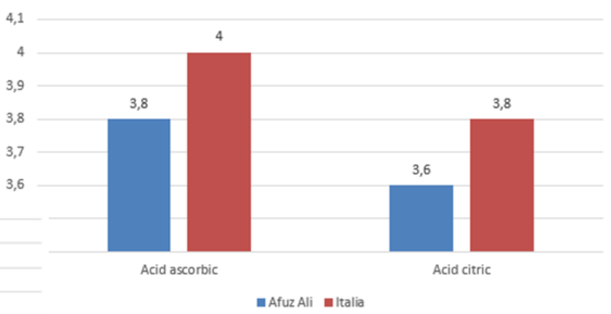

Figure3.Aroma of the horticultural products

• Conclusions

Recovering the raw material from wasting and obtaing the new horticultural products are a main objective of food waste management. This new horticultural product could be industrially produced, due to the large amounts of raw material from table grape industry. This product satisfy the need of consumers for different and divers new product in the market, that could be used in menues and salad garnish due to high acidity, which gives a taste of freshness.

References: Rozsa S., T. M. Gocan, F. D. Bora, A. Hoble, A. C. Babeș, R. Indrea, C. I. Bunea, A. Călugăr, Preliminary quality results regarding .V.-18402 interspecific hybrid berries processed by multiple techniques to obtain a novel food product, RJH Vol. IV, 2023: 203-206 10.51258/RJH.2023.23