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Control some quality parameters of the natural juice of blueberry with different fruit content

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Abstract. During the study, were analyzed two natural juice with blueberry juice concentrate, packed in Tetra Pak. At the juice were studied these parameters: the technological process of juice production, the sensory characteristics (color, aroma, flavor and homogeneity), physical and chemical (pH degree, refraction index, soluble solids degree °Brix and turbidity expressed with NTU). The parameters were analyzed in the juice with fruit content of 50% and 25%. From the sensoric aspect the most qualitative fluid resulted with a 50% fruit concentration, from the refractive index content and the degree of °Brix higher results had 25% fruit juice concentrate, the pH rate was of approximate values while turbidity as a quality juice resulted liquid with fruit percentage 25%. In conclusion we can conclude that the two fluids studied result within the norms for quality regulation, but the above-mentioned changes come from the fruit juice content.

Keywords: juice, blueberry, quality, sensory, pH, °Brix, NTU.

INTRODUCTION

Producing in particular the preservation of quality food products, in particular natural fruit juices, for human consumption is one of the most important humanitarian tasks for present and future generations. In this regard, fruits are an irreplaceable source of a large number of components of diverse composition for the proper nutrition of the human body. However, modernized to be the technology of preserving the fresh product, production losses are high. Therefore, processing these products and transforming them into final fruit-based natural fruit juices will impact on reducing losses and preserving products for a longer time. During the study, two products of the same Tetra Pak packaging product were analyzed, produced from the same raw material with blueberries, but with different fruit concentrations. Following the technological process and quality control were carried out, the liquid was produced in the market of the Polog region. The purpose of the study is: the application of the technological process for the production of natural cranberry juices with raw fruit raw materials, the control of quality parameters such as: sensory (color, aroma, flavor and homogeneity), quality control of physical and chemical pH, index refractive, dry solids, the degree of °Brix as well as the turbidity expressed by the NTU degree. The same quality parameters were analyzed and compared to blueberry juice with identical packaging but with different fruit percentages. The final goal of this paper is to familiarize the consumer with the quality characteristics of the natural blueberry juice, the comparison of the nutritional values in both fluids, and the release of the highest quality production.

MATERIALS AND METHODS

The study was conducted at one of the fruit factories in the Polog region. From the beginning of the production process, the most modern techniques and technology for the production of Tetra Pak packing fruit juices have been applied. The samples were taken and analyzed at the plant during production, blueberry juice with different fruit concentrations. Different fruit concentrations of blueberry juices were studied and compared to qualitative sensory, physical and chemical parameters. Control during production is a very important factor, because through this action we monitor the fluid we produce, having in control that there is no deviation from normal fluid characteristics. As important elements during the control we have the pH measurement and the measurement of soluble solids, turbidity and sensory parameters. The sensory parameters were analyzed by the tasting method and the liquid evaluation was evaluated by 5 points for each point maximum of 20. The refractive index and the degree °Brix or dry soluble matter were measured with a digital instrument called refractometer. PH scale - measured with pH-meter. Determination of turbidity with expressed turbidimeter with degree (NTU).

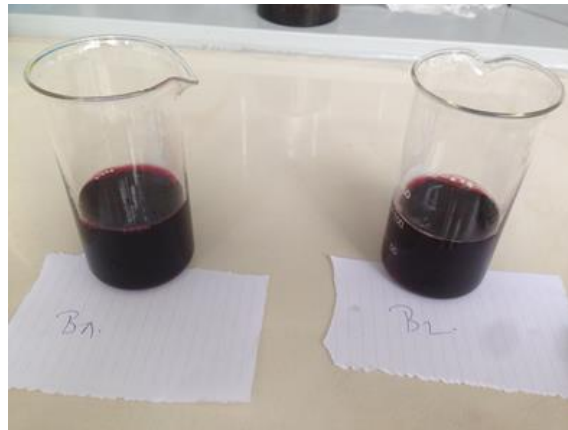


Fig.1. Qualitative evaluation of sensory parameters



Fig. 2. Determination of refractive index and dry matter

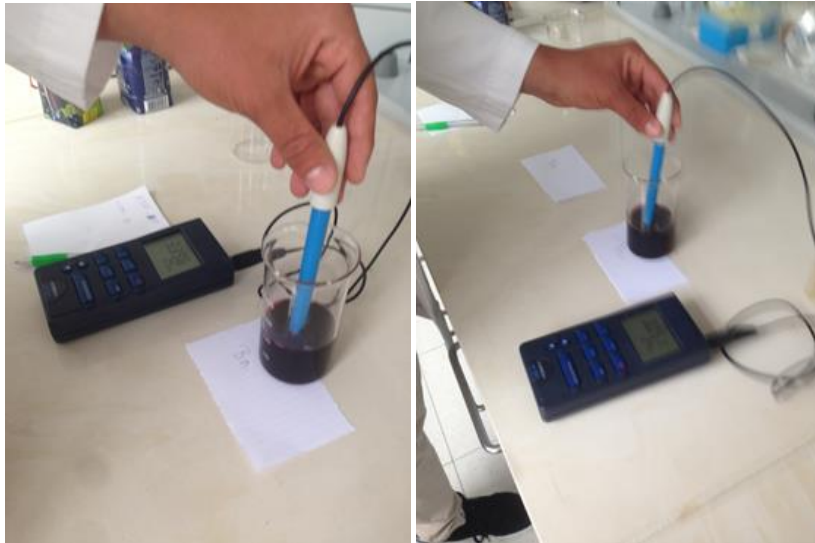


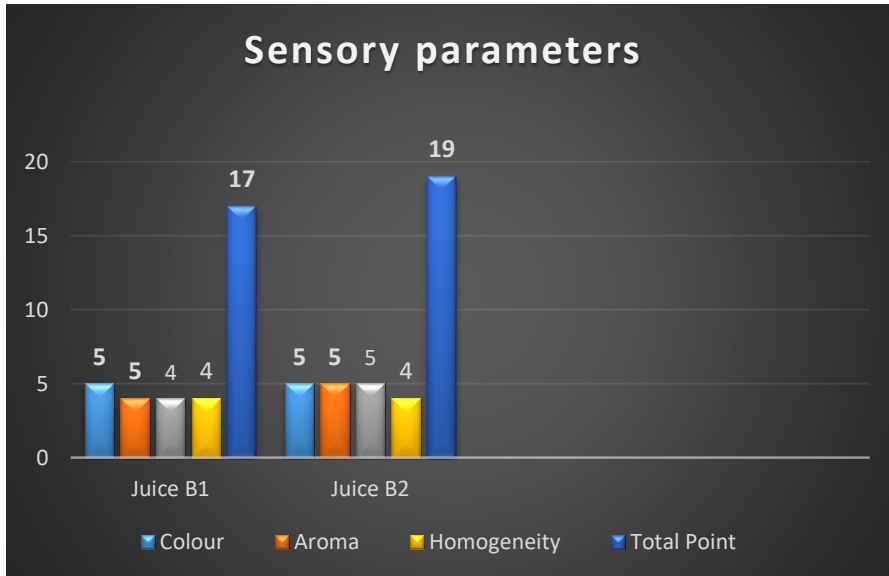
Fig.3. Determination of the pH scale



Fig. 5. Determination of turbidity (NTU)

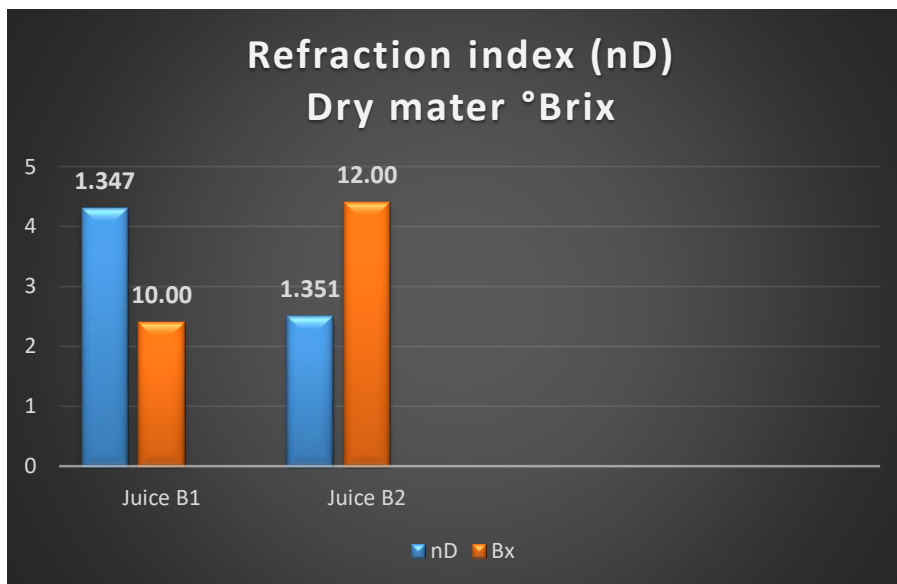
RESULTS AND DISCUSSION

In graph 1, the obtained results show that the juice that has been studied with 50% B₂ fruit concentration has obtained from a total of 20 points, 5 per color, 5 aroma, 5 flavors and 4 homogeneities. The total score obtained by B₁ juice is 17, while the fluid with fruit concentration of 25% B₂ is evaluated, color 5 points, 4 point aroma, 4 point flavor and 4 point juice B₂ homogeneity is estimated at 19 points total. Based on the points obtained from the sensory aspect, juice B₂ results in higher quality.



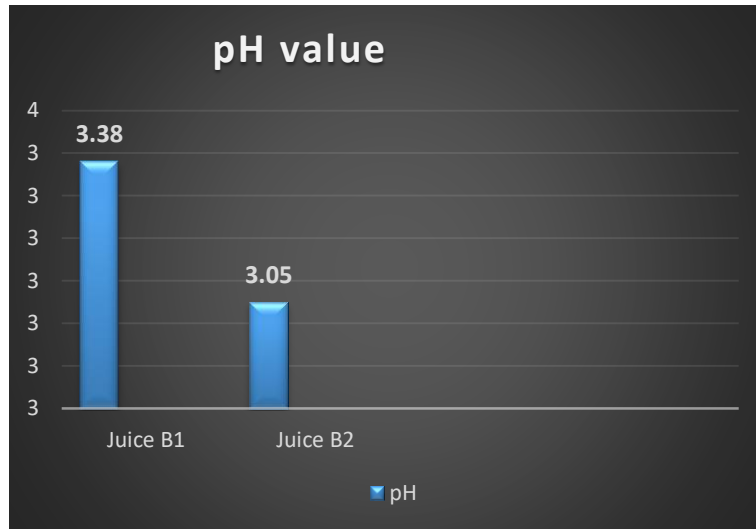
Graph. 1. Sensory parameters

The results obtained in the graph 2 show that the B₁ fluid has a refractive index of 1.351nD and the degree °Brix = 12.00 and based on the results for the analyzed parameters this fluid is of higher quality compared to the B₂ fluid which results in the lowest parameter is 1.347nD and °Brix =10.00.



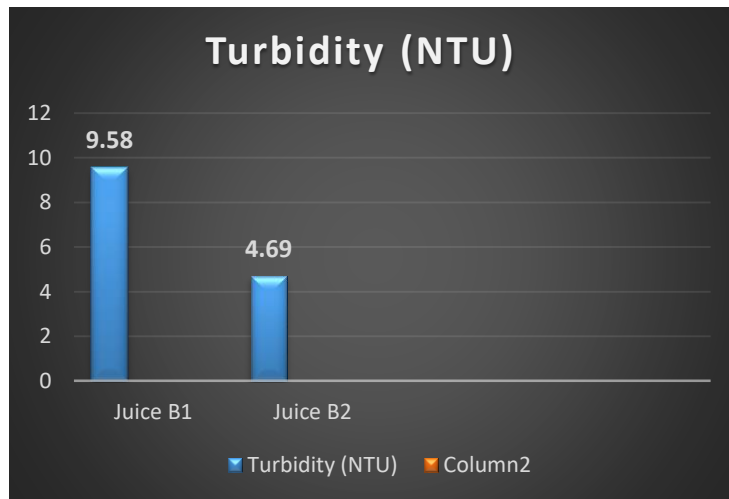
Graph. 2. Refraction index (nD) and dry mater °Brix

The results obtained in graph 3 for the pH scale are within legal norms for quality, in both fluids studied B₁ and B₂ the results are approximate, the same resulted in sample B₁ 3.38 while in sample B₂ 3.05.



Graph. 3. pH value

The parameter studied in B₁ fluid in the chart results 9.58 while in the B₂ fluid the same results 4.69, from the results obtained for the turbidity parameter and NTU scales as the highest quality fluid result B₁ fluid, high turbidity comes as a result of the highest percentage of juice fruits.



Graph. 4. Turbidity (NTU)

CONCLUSION

Based on the parameters analyzed and the results obtained we can conclude that:

1. Juice B₁ and B₂ are natural juice based on the content of ingredients in the dry matter ", the same are high quality and acceptable juice, produced by contemporary standard techniques and technology;
2. The sensory parameters analyzed and the obtained results show that the highest quality fluid is the B₂ sample from the points obtained 19 while the B₁ fluid based on the sensory parameters is evaluated with a total of 17 points and the poorest quality;
3. The pH rate is within legal limits, the two types of juice resulted from 3.38 of B₁ juice and 3.05 of juice B₂;
4. The refractive index and the degree of °Brix or the amount of dry soluble substance in the juice changes and as the higher quality juice is evaluated B₂ because it has a degree of °Brix 12.00 whereas the B₁ juice has the lowest degree of degree °Brix 10.00.
5. The turbidity rate expressed in the NTU scale results in the boundary in sample B₁ 9.58 whereas in the B₂ sample results with lower margins of 4.69 because the same is in the statement of higher fruit content.

In conclusion we can conclude that the two fluids studied B₁ and B₂ result within the norms provided by law for quality, but the results show that there are differences in quality between them, this is based on the amount of juice fruit content.

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