European Journal of Agricultural and Rural Education (EJARE)
Available Online at: https://www.scholarzest.com
Vol. 3 No. 5, May 2022
ISSN: 2660-5643

MANUFACTURE OF CANNED PRODUCTS FROM "GOJI" FRUIT AND ITS ECONOMIC ASPECTS

Nurullo Tursunov Abdurazzaqovich
Namangan Engineering and Technology Institute. Faculty of Technology of agricultural products
e-mail: *tursunovnurullo0@gmail.com*
Alikarieva Durdona Mirmakhmudovna.
Tashkent Pharmaceutical Institute. Faculty of Pharmacy
e-mail: *alikarievadurdona@mail.ru*

Article history:

Received: 4th March 2022
Accepted: 4th April 2022
Published: 10th May 2022

Abstract:

This article describes the methods and technology of processing Goji fruit, as well as its economic efficiency, which describes the products used in industry to make compotes, jams and jams from Goji fruit, their quantity and technology. The useful properties and chemical composition of the finished product are also described.

Keywords: Goji, processing methods, technology, jam, jam, compote, colorants, citric acid, sugar, cherries, raspberries.

INTRODUCTION.

The Decree of the President of the Republic of Uzbekistan "On measures for the protection, cultivation, processing and rational use of available resources of wild medicinal plants" and the Decree of the President of the Republic of Uzbekistan "On additional measures for the development of folk medicine of the Republic of Uzbekistan" dated April 10, 2020, in these resolutions PP-4670 and PP-4901 set a number of priority tasks.

To fulfill these priority tasks, studies were conducted on the influence of Goji (dereza) on the cultivation of medicinal plants and the development of technology for processing products of Namangan region for the cultivation of goji plants in various soil conditions and on the quality of products [4, 5, 14, 15].

When preparing various canned products from Goji fruits, including jam, jam, compote and other types of products by industrial enterprises and private entrepreneurs, it is important to study the quality indicators of the fruit, as well as the amount of acids, amino acids and vitamins contained in it and the degree of their preservation in processed products [6, 7, 12, 13].

OBJECTS AND METHODS.

In order to conduct the research, fruits grown in different conditions of soils have been used. The appearance of the ready product, smell, taste, the amount of dry substance and carbon have been identified by refractometer and sugar meter [9, 10].

Goji plant has been naturally grown and its fruits have been recycled by which we have been able to make several products like compotes and jams in a small research land of private company called "Billur Arkon" located in Chartak District of Namangan Region [11].

RESULTS AND DISCUSSIONS.

A special recipe of producing compotes has been made based on the physical characteristics, chemical ingredients and concentration of Goji fruit. In general, 25% raw materials, 8% sugar, 0.1% lemon acid, 50% color and the required amount of technological water have been used to produce 1000kg of product. The procedure of manufacturing the product which includes boiling temperature, time and pasteurization have been analyzed [1, 2, 3, 8].

According to the procedure and technological requirement of manufacturing 1000 kg compotes, 250 kg Goji fruit, 80 kg sugar, 1.5 kg lemon acid and 50 kg of color providing fruits such as raspberry, cherry and pomegranate have been utilized. The appearance of the ready product, smell, taste, the amount of dry substance and carbon have been identified by refractometer and sugar meter. While the amount of the dry substance from 1000 kg products is 124.0 kg, the unit of refractometer is 12.4%. 0.5% difference between them is a natural loss. In fact, boiling temperature of the product is 100 celcius which last for 120 minutes, and the duration of pasteurizing is 25 mintes in accordance with the container size. Once the ready products have been packed into glass bottles (0.5 liter), they and placed upside down in room temperature so that they can be controlled (Table 1; Fig. 1.a, b).

Table 1
Technological recipe of making compotes from Goji fruit:
(amount of the product: 1000kg)

Type of raw materials	Measuring unit	Usage of raw material	Amount of dry substance, %	Total amount of dry substance Kg
Goji Fruit	kg	250.0	15.0	37.5
Sugar	kg	80.0	99.5	79.5
Cherry juice	kg	50.0	12.0	6.0
Total				124.5

Fig. 1. Examples of Goji fruit compotes: **a-**product with pomegranate juice; **b-**product with cherry juice

Fruits grown in "Billur Arkon" have been used ti produce Goji jam. Types and quantities of products needed to manufacture 1000 kg jam and its recipe have been technologically prepared. In order to produce 1000 kg jam, it is required to mix 550 kg Goji fruit, 360 kg sugar, 0.5 kg lemon acid and 100 kg cherry or pomegranate juice. Using methodic standards, the amount of dry substance in the product has been identified. Duration and temperature of jam boiling have been carried out based on the the amount of the product and its constention. In order to produce 1000 kg jam, 550 kg Goji fruit, 360 kg sugar, 0.5 kg lemon acid and 100 kg fruit juice have been boiled at 100 celcius for 30-35 minutes. The smell, color, taste and the amount of dry substance of a ready product have been examined in cencoric method. According the result of the examination, there is 130.5 kg dry substance in the ready product (Table 2).

Table 2
Recipe of Jam Production from Goji fruit
(amount: 1000 kg)

Type of raw materials	Measuring Unit	Usage of raw materials	Amount of dry substance: %	Total amount of dry substance: kg
Goji fruit	kg	550	15.0	82.5
Sugar	kg	360	99.5	35.5
Lemon acid	kg	0.5	90.5	0.5
Fruit juice	kg	100	12.0	12.0
Total				130.5

Based on the technology and recipe, Jam has been produced from Goji fruit. In order to produce jam, 55% Goji fruit, 25% sugar, 15% apple juice and 5% lemon acid have been used. The technology of jam production has been conducted in accordance with the traditional (varenia) jam processing. Having used the censored method of jam production, the amount of dry substance in it has been analyzed in refractometer way. 550 kg fruit, 250 kg sugar, 150 kg apple juice and 0.5 kg lemon acid were the fundamental ingredients of making 1000 kg jam. It has been identified that there is 334.7 kg dry substance in the ready product. (Table 3; Fig. 2).

Table 3
Technological recipe of Jam Production from Goji Fruit
(amount: 1000 kg)

Type of raw materials	Measuring unit	Usage of raw materials	Amount of dry substance: %	Total amount of dry substance in the Jam: kg
Goji fruit	Kg	550	15.0	82.5
Sugar	Kg	250	99.5	248.8
Apple juice	Kg	150	12.0	13.0
Lemon acid	kg	0.5	0.05	0.4
Total				334.7

Fig. 2. Examples of Jam and traditional (varenie) Jam from Goji fruit

Economic Benefits of Goji fruit Reproduction. In order to analyze economic benefits of Goji Fruit Reproduction and its usage in making various products, "Billur Arkon" company in Chartak has been our research land for the project.

Total cost of producing Jam in the reproduction company is 38 million sums and the expense for per item is 38 thousand sums while the average selling price is 50 thousand sums. In contrast, the revenue is 50 million sums which brings a net profit of 12million sums and 31,6% rent bell.

When it comes the cost of varenye, 40 million sums of cost is needed which make 40thousand expense per item. As a result, having sold a varenye for 60thousand sums a fixed price, 60 million sums of revenue is earned. As the net profit is 20million sums, the rate of rent bell is 50%.

When it is required to produce fruit juice 1000 kg Goji, the total cost of the company is 56 million sums. This makes 56thousand expense per product which is sold for 65 thousand sums. As a result, this brings 65 million sums in revenue and 9million sums of net profit (Table 4).

Table 4
Economic Benefits of Goji fruit Reproduction
(Example: Chartak district "Billur Arkon" company)

Type of product	Ready product: kg	Total cost: mln sum	Price of 1kg product		Revenue: mln sum	Net profit: mln sum	Loss	Rate of rent bell: %
			Production cost	Sale price: thousand sum				
Jam	1000.0	38.0	38.0	50.0	50.0	12.0	-	31.6
Varenie	1000.0	40.0	40.0	60.0	60.0	20.0	-	50.0
Juice	1000.0	56.0	56.0	65.0	65.0	9.0	-	16.0

According to the afore-mentioned statistics and analysis, the Production company has shown a good chance of economic benefits and satisfaction of consumer demand and expectations from all types if the products.

CONCLUSION

1. Of 1000 kg ready product, there is 124 kg dry substance and 12% rate of refractometer. 0,5% difference between them is a natural loss. The degree of boiling the product is 100 celcius which should last for 20minutes and the duration of paste ration lasts for 25 minutes depending the size of the container. Ready products are packed into glass container of 0.5 liter and are kept upside down so as to cool down and control.

2. Production of 1000 kg varenye involves 550 kg Goji, 360 kg sugar, 0.5 kg lemon acid and 100 kg cherry or pomegranate juice. The amount of dry substance in the product is identified using a special method. The degree and time of boiling are chosen depending on the amount of the product and its condensation.

3. 550kg Goji fruit, 250 kg sugar, 150 kg apple juice and 0.5 kg lemon acid jave been used to make 1000 kg of Jam. It has been identified that there is 334,7 kg of dry substance in the ready Jam product.

4. Economically, reproduction of Goji Fruit has proven a high rate of efficiency.

REFERENCES

1. Burich O.; Berki F. Drying of fruits and vegetables, M. 1978.
2. Gorenkov E.S.; Bibergal V.L. Canning production equipment M; 1989.
3. Jafarov A.F. Commodity science of fruits and vegetables, M.1979.
4. Iskandarov S.I., Abdusamatov A.A. Organic chemistry T., 1979.
5. Libbert E. Plant Physiology, M. 1978.
6. Rogacheva V.I., Handbook of the technologist of prolific canning production. Leningrad 1980.
7. Rybakov A.A., Ostraukhova S.A. Yzbekiston mevachiligi T. 1981.
8. Shirokov E.P. Workshop on the technology of storage and processing of fruits and vegetables M. 1974.
9. Shirokov E.P. Technologies of storage and processing of fruits and vegetables M. 1978.
10. Potterat O, Hamburger M.Goji juice: a novel miraculous cure for longevity and well being? A review of composition, pharmacology, health-related claims and benefits. Schweiz Zschr Ganzheitsmedizin 2008; 20: 399–405.
11. Alikarieva D.M., Merganov A.T., Kamalova M.D., Tursunov N.A. Scientific and practical bases of technology for growing and processing *Lycium chinense Mill.* and *Lycium barbarum L.* fruits. International Scientific and Practical Conference "Actual problems of ecology and nature management" at the Institute of Ecology of the RUDN. Moscow, 2022.
12. B.T.Jobborov, D.M. Alikarieva, M.D. Kamalova, N.A. Adilova. The Ecological State and the Problems of Recultivation of Man-Made Disturbed Irrigated Soils//Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 1, 2021, Pages. 4477 – 4492.
13. Alikarieva D.M, Merganov A.T., Kamalova M. J.//European Journal of Agricultural and Rural Education (EJARE) Available Online at: Vol. 2 No. 12, December 2021, ISSN: 2660-5643 96-103 https://scholarzest.com/index.php/ejare/article/view/1589
14. Турсунов Н.А., Уматова А. Тупроқ шароитларини Goji меваси сифат кўрсаткичларига таъсири. Ўзбекистон Аграр Фани Хабарномаси 2(86/2) 2021 59-62.
15. A.T.Merganov, N.A.Tursunov, A.Eshonturaev., Study of the cytological structure of the branch of the plant goji (lucium chinense) and the method of propagation on the basis of intensive technology. Vol. 49. No. 01. January 2022 Published: January 28, 2022, 135-140. https://johuns.net/index.php/abstract/313.html