WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 6, June, 2022

COMPLEX PROCESSING OF PUMPKIN FRUIT

Nazirova Rakhnamohon Mukhtarovna
Doctor of Technical Sciences (PhD), Associate Professor of the Department of Technology of Storage and Primary Processing of Agricultural Products, Fergana Polytechnic Institute;

Khodjimatov Javlon
Master Student of Group M 20-21 Fergana Polytechnic Institute;

Usmonov Nodirjon Botiraliyevich
Senior Lecturer of the Department "Technology of Storage and Primary Processing of Agricultural Products", Fergana Polytechnic Institute;

Marufjonov Abdurakhmon Musinjon ugli
Lecturer of the Department "Technology of Storage and Primary Processing of Agricultural Products", Fergana Polytechnic Institute;
Fergana, Republic of Uzbekistan.

Annotation
The fruits of the pumpkin Cucurbita spp. have a high technological potential due to widespread cultivation in a wide range of agro-climatic conditions, the ability to long-term storage, the content of dietary fiber, pectin, polysaccharides, carotenoids, polyphenolic substances, vitamins, which determine a wide range of physiological orientation. In the process of studying the composition of local cultivars of pumpkin and world experience in the use of Cucurbita spp. in the composition of food products, the necessity of using this ingredient in the formulations of various functional food products is substantiated.

Keywords: pumpkin, oil, seeds, pumpkin seed flour, fruit pulp, chemical composition, medicinal properties

Introduction

Pumpkin has been and remains an indispensable dietary product, useful for problems with the liver, gallbladder, gout, gastritis, colitis. Delicate pulp with an almost neutral environment promotes the healing of stomach and duodenal ulcers, is useful for toxicosis of pregnant women, eczema and burns. Pumpkin diet gives a wonderful effect on cardiovascular diseases, obesity, and metabolic disorders. Pumpkin juice

calms the nervous system, promotes good sleep, and quenches thirst. The juice is also used as a diuretic for cardiac edema and kidney disease.

Pumpkin is the strongest milk-producing feed, the champion in carotene content, it is well ensiled with chopped straw. In a drought, such feed is a salvation for livestock. It is especially useful to feed pumpkin mixed with corn silage or green mass. One kilogram of pumpkin pulp contains up to 0.2 feed units and up to 15 grams of digestible protein.

For agricultural enterprises and farms, especially those with livestock specialization, this unique crop can become a sought-after and profitable business, one of the most profitable areas that can bring considerable income.

The yellow-orange color of pumpkin pulp is explained by the high content of carotenoids, of which vitamin A and flavonoids are synthesized in our body - plant antioxidants that reduce the risk of pathological degeneration of body tissue cells. In addition, pumpkin contains vitamins B, C, P, PP, E. It is believed that the whole complex of vitamins and flavonoids slows down aging and helps maintain normal sexual activity. There are many macro- and microelements in the pumpkin, which are necessary both for the action of the vitamins themselves and for the functioning of the body as a whole. Pumpkin is considered the champion among vegetables in terms of iron content, it also contains a lot of copper and phosphorus salts, and pectin substances ensure the removal of toxic metabolic products and excess cholesterol from the body.

Pumpkin is well absorbed by the body, it has little vegetable fiber and a lot of water.

Pumpkin pulp has great medicinal properties, there is even a rare vitamin T, which speeds up the metabolic processes in the body and promotes the absorption of heavy food.

Tasty, nutritious and healthy pumpkin seeds containing up to 52% fatty oil and up to 28% protein. And the zinc found in them is an excellent means of preventing prostatitis: it is enough for men to eat 50-60 grains a day. In addition, seeds have long been considered a good antihelminthic and diuretic. Of particular note is the seeds of this fruit, the kernel of which contains up to 50% oil. The mass of 1000 pieces reaches 170-200 g. Pumpkin seeds, especially peeled ones, are very expensive today. The demand for them, oil and medicines from this crop, is constantly growing all over the world. In retail, due to the high content of magnesium and potassium, people snap up these products almost instantly.

Pumpkin seed oil is more often used to obtain medicines, since it contains biologically active substances that have a nootropic effect, increase potency, and activate the body's immune system.

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 6, June, 2022

Research in the field of functional nutrition focuses on the need to enrich foods with polyunsaturated fatty acids, micro- and macro-ingredients, and dietary fiber. The development of products of increased nutritional and biological value, as well as products for preventive and dietary purposes, requires the expansion and improvement of the raw material base. One of these areas may be the production of a new generation of food semi-products of increased biological value. Pumpkin fruits, such as pulp, oil, seeds, pumpkin seed flour, fruit shell can be used as enrichers, substitutes or improvers in the production of new, as well as traditional food products. Interest in pumpkin seeds is associated, first of all, with a good balance of protein and a high content of essential polyunsaturated fatty acids in the oil. In addition, pumpkin seed oil contains tocopherol (vitamin E), which is involved in the processes of tissue respiration of cells and is characterizedunique level of oxidation stability.

Pumpkin seed processing products are used in the food industry in the form of oil, powder, meal, cake, protein-lipid pumpkin paste.

The use of pumpkin seed powder as a source of essential amino acids, fatty acids, minerals and other important components has significant prospects in the design of functional foods.

Pumpkin seeds are characterized as a valuable source of a complex of functional food ingredients: dietary fiber, vitamin C, PP, group B, tocopherol, phospholipids, carotenoids, flavonoids, saturated, mono- and polyunsaturated fatty acids, minerals. Functional food ingredients of pumpkin seeds have immunoprotective, bactericidal, antiatherosclerotic, lipotropic, antiallergic, antimicrobial, fungicidal and other properties. The chemical composition of the seeds of various varieties of pumpkin is given in table.

Table 1. The chemical composition of pumpkin seeds of various varieties

Name indicators	Pumpkin variety			
	Helios	Muscat	Atlas	Best
Dry matter, %	91,1 ± 0,11	90,8 + 0,13	90,9 ±0,11	91,3 ± 0,10
Proteins, %	27,6 ± 0,37	29,4 ± 0,39	32,1 ± 0,40	28,0 ± 0,37

The presence of linoleic acid in the pumpkin seed flour, which is part of the omega-6 acids group, was found, the amount of which is 41.2-54% of the total content of fatty acids in the seeds, depending on the variety. The composition of pumpkin seeds contains a significant amount of fat-soluble (A, E, K) and water-soluble (B, B2, B.2, C and PP) vitamins, as well as minerals (K, Ca, P, Mg, Fe, Zn).

For a number of reasons, most of the known technologies for processing pumpkin seeds do not consider their shell as a raw material for obtaining a useful product. Meanwhile, there is evidence that under the influence of even cold extrusion, it is possible to achieve a decrease in the activity of antinutritional substances in the shell of pumpkin seeds to an acceptable level. Also known is a method of obtaining a biologically active food additive, which as an enterosorbent contains a powder of crushed shells of pumpkin seeds. At the same time, the use of the proposed additive, along with its high adsorption capacity, makes it possible to additionally introduce a significant amount of iron, potassium, magnesium, and copper for the human body.

References

1. R.M.Nazirova, M.X.Xamrakulova, N.B.Usmonov. Moyli ekin urug‘larini saqlash va qayta ishlash texnologiyasi. O’quv qo’llanma. Фергана-Винница: ОО «Европейская научная платформа», 2021. – 236 с. https://doi.org/10.36074/naz-xam-usm.monograph
2. Nazirova R. M., Sulaymonov O. N., Usmonov N. B.//Qishloq xo‘jalik mahsulotlarini saqlash omborlari va texnologiyalari//O‘quv qo‘llanma. Premier Publishing s.r.o. Vienna - 2020. 128 bet.
3. Nazirova R. M., Qahorov F.A., Usmonov N. B.// Complex processing of pomegranate fruits. Asian Journal Of Multidimensional Research. 2021, Volume: 10, Issue: 5. pp. 144-149. https://www.indianjournals.com/ijor.aspx?target=ijor:ajmr&volume=10&issue=5&article=020
4. Мухтаровна, Н. Р., Ботиралиевич, У. Н., & ўғли, М. А. М. (2021). Особенности обработки озоном некоторых видов плодов и овощей для их долгосрочного хранения. Central Asian Journal Of Theoretical & Applied Sciences, 2(12), 384-388. Retrieved from https://cajotas.centralasianstudies.org/index.php/CAJOTAS/article/view/367
5. Mukhtarovna, Nazirova R., et al. "Study of the Influence of Processing on the Safety of Fruit and Vegetable Raw Materials." European Journal of Agricultural and Rural Education, vol. 2, no. 6, 2021, pp. 43-45. https://www.neliti.com/publications/378976/study-of-the-influence-of-processing-on-the-safety-of-fruit-and-vegetable-raw-ma#cite
6. Nazirova Rakhnamokhon Mukhtarovna, Qahorova Shohsanam Akram kizi, Usmonov Nodirjon Botiraliyevich//Biological Protection Of Plants. International Journal of Progressive Sciences and Technologies. Vol 27, No 1 (2021). http://ijpsat.es/index.php/ijpsat/article/view/3168

7. Nazirova Rakhnamokhon Mukhtarovna, Tursunov Saidumar Islomjon ugli, & Usmonov Nodirjon Botiraliyevich. (2021). Solar drying of agricultural raw materials and types of solar dryers. European Journal of Research Development and Sustainability, 2(5), 128-131. Retrieved from https://scholarzest.com/index.php/ejrds/article/view/824
8. Nazirova Rakhnamohon Mukhtarovna, Sulaymonov Rustam Ismoilovich, Usmonov Nodirjon Botiraliyevich, Qosimova Komila Muhammadsoli kizi, & Abdullayev Dilmurod Dilshodjon ugli. (2021). Influence of storage conditions on preservation of potato. European Scholar Journal, 2(2), 68-70. Retrieved from https://scholarzest.com/index.php/esj/article/view/265
9. Nazirova Rahnamokhon Mukhtarovna, Akramov Shokhrukh Shukhratjon ugli, & Usmonov Nodirjon Botiraliyevich. (2021). Role of sugar production waste in increasing the productivity of cattle. Euro-Asia Conferences, 1(1), 346–349. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/110
10. Nazirova Rahnamokhon Mukhtarovna, Akhmadjonova Marhabo Makhmudjonovna, & Usmonov Nodirjon Botiraliyevich. (2021). Analysis of factors determining the export potential of vine and wine growing in the republic of uzbekistan. Euro-Asia Conferences, 1(1), 313–315. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/99
11. Nazirova Rakhnamokhon Mukhtarovna, Holikov Muhridin Bahromjon ogli, & Usmonov Nodirjon Botiralievich. (2021). Innovative grain reception technologies change in grain quality during storage. Euro-Asia Conferences, 1(1), 255–257. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/79
12. Nazirova Rakhnamokhon Mukhtarovna, Tojimamatov Dilyor Dilmurod ogli, Kamolov Ziyodullo Valijon ogli, & Usmonov Nodirjon Botiralievich. (2021). Change in grain quality during storage. Euro-Asia Conferences, 1(1), 242–244. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/75
13. Nazirova Rakhnamokhon Mukhtarovna, Rahmonaliyeva Nilufar Nodirovna, & Usmonov Nodirjon Botiralievich. (2021). Influence of seedling storage methods on cotton yield. Euro-Asia Conferences, 1(1), 252–254. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/78
14. Nazirova Rakhnamokhon Mukhtarovna, Otajonova Baxtigul Bakhtiyor qizi, & Usmonov Nodirjon Botiralievich. (2021). Change of grape quality parameters

during long-term storage. Euro-Asia Conferences, 1(1), 245–247. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/76

15. Nazirova Rakhnamokhon Mukhtarovna, Mahmudova Muhtasar Akhmadjon qizi, & Usmonov Nodirjon Botiralievich. (2021). Energy saving stone fruit drying technology. Euro-Asia Conferences, 1(1), 248–251. Retrieved from http://papers.euroasiaconference.com/index.php/eac/article/view/77