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COMPARATIVE ANALYSIS OF PASTA PRODUCTS

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Abstract

After all, under one name "macaroni" a huge assortment of dough products is collected – these are ordinary vermicelli and horns, and long spaghetti, and sheets of pasta for lasagna, and so on. With this product, there are already a huge number of recipes that can be quickly and easily prepared. But few people know how and when pasta appeared, as well as where they come from.

Most people, of course, will say that pasta is a traditional dish of Italian cuisine, and they will be right about something.... After all, pasta was widely distributed throughout Europe by Italian merchants, who filled the holds of their ships with pasta during long voyages many thousands of kilometers from their homeland. But the industrial production of pasta in our country began with a factory in the city of Odessa.

Key words

products, pasta, analysis, product, brand, assortment, grade, quality.

The role of pasta in the diet is difficult to overestimate. Many even consider them a staple food XX of the 20th century [1,2].

Although macaroni products are extremely simple in composition, their ubiquity began only a little over a hundred years ago. The reason should be sought in the fact that the cultivation of wheat for a long time was not easy, possible only in certain regions of the world[3,4]. This prevented the pasta from achieving the popularity that it rightfully deserves. In addition, the path of wheat grain from sowing to the millstone was long and difficult - it was possible to simplify and speed up the process only with the help of modern agricultural machinery[5,6,7].

The relevance of the topic is that pasta is a staple food product, and the demand for it is quite stable. Pasta is a canned dough made from wheat flour

special grinding. They have a high nutritional value, good digestibility, are quickly boiled, well transported and preserved.

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The purpose of our research is to study the range, comparative analysis, and quality of pasta products.

Macaroni products are a food product made from wheat flour and water by mixing, forming and drying in various ways [8,9,10].

All pasta products are divided into groups A, B, C; grades (highest, first, second). Designations of pasta made using additional raw materials are supplemented with the appropriate name, for example, egg noodles of the highest grade [11,12,13,14].

The grade of products is determined by the grade of flour. The standard provides for the production of pasta of the highest grade (from flour of the highest grade-groats), first grade (from flour of the first grade-semi-grains), second grade (from flour of the second grade — semi-grains).

The range of pasta products is very diverse. Along with the usual products, the following pasta varieties are produced: - higher egg; higher egg with an increased egg content;

- tomatoes of the first and highest grades;
- dairy products of the first and highest grades with the addition of cow's milk, whole skimmed cow's milk powder;
- cottage cheese of the first and highest grades;
- fortified products of the first and highest grades;
- fast-developing students;
- pasta with vegetables;
- products with dry yeast or yeast extract;
- products with soy flour;
- products with fish protein concentrate.

Special-purpose pasta products are made for children's and dietary nutrition:

- small (in the form of grains) products of increased biological value for baby food made from premium flour with the introduction of casein, iron glycerophosphate, vitamins B1, B2 and PP;
- protein-free products (in the form of vermicelli) for therapeutic nutrition and for children in need of a hypoprotein and gluten-free diet; produced from a mixture of corn starch with the addition of vitamins;
- products for second courses. The formed noodles are passed through an oil bath or sprayed with oil, then dried at 70-130 °C. In such noodles

fat is not oxidized for 6 months. It has a high nutritional value and does not stick together in the finished form;

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- products for long-term storage. Fresh products are packed in heat-resistant bags and irradiated on both sides with infrared rays at 100-160 °C for 3-4 minutes. Thus, the products are sterilized, and their preservation increases.

In addition to varietal differences, the commodity classification divides pasta products into types, and types-into subtypes[15,16].

The entire range of pasta products is divided by regulatory documentation into four types: tubular products, thread-like products, ribbon products, and shaped products.

Each type of pasta is divided into subtypes.

Tubular products include three subtypes-pasta, horns, and feathers.

Macaroni is divided into inheriting types: ordinary (with a diameter of 5.6-7 mm), ordinary corrugated (with a diameter of 5.6-7 mm), special (with a diameter of 4.0-5.5 mm), special corrugated (with a diameter of 4.0-5.5 mm), amateur (with a diameter of more than 7 mm), amateur corrugated (with a diameter of more than 7 mm), straw (up to 4 mm in diameter).

The length of pasta is short 15-30 cm, long-more than 30 cm.

Horns — short-cut tubular products, slightly curved, length along the outer curve from 1.5 to 5 cm.Horns are of the following types: ordinary (with a diameter of 5.6-7 mm), special (with a diameter of 4.1-5.56 mm), straw (with a diameter of up to 4.1 mm), for minced meat (with a diameter of 20 ± 3 mm) [17,18,19].

Feathers are short-cut tubular products with an oblique cut and a length from an acute angle to an obtuse cut of 3 to 10 cm[20]. They produce the following types: amateur (with a diameter of more than 7 mm), ordinary (with a diameter of 5.6-7 mm) and special (with a diameter of 4.1-5.56 mm).

Thread-like products include spider vermicelli (with a cross-section of no more than 0.8 mm), ordinary vermicelli (with a cross-section of no more than 0.9-1.5 mm) and amateur vermicelli (with a cross-section of 1.6 to 3.5 mm) [21,22].

Ribbon-like products primarily include noodles, which are produced smooth, corrugated, sawtooth, wavy, and the like. The size of the noodles is arbitrary, but the width of the tape should be at least 3 mm, the thickness should not exceed 2 mm. Noodles are produced narrow (up to 7.0 mm inclusive) and wide (from 7.1 to 25.0 mm).

Shaped products are divided into the following types: alphabet and figures of 8x2x10 mm in size; ears and bows; shells of various sizes (up to 30 mm in diameter and no more than 1.2 mm in wall thickness); sprockets, gears, rings (10 mm in diameter and 1.55 mm thick); cereals and grain [23,24,25].

rice type (diameter not more than 3 mm and length not more than 10 mm); squares, triangles and other shaped plates (thickness not more than 1.2 mm, side of

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a square, triangle not more than 12 mm); Bologna stamp products (plate sizes from 10x10 to 50x50 mm, thickness from 0.7 to 1.5 mm).

In the above classification list, the shape of pasta products is used as a feature for the division. Other attributes are often used, such as technological characteristics, size, cross-sectional nature, etc.

Depending on the method of forming, pressed and stamped products are distinguished. Shaped products are stamped, the rest are obtained by pressing.

Depending on the length, pasta is divided into long (from 20 to 40-50 cm), short and short cut (from 1.5 to 20 cm), soup backfills (in the form of thin flat and shaped slices 1-3 mm thick) [26,27,28].

Depending on the method of arrangement before drying, pasta is divided into straight (all suspended drying products), loose (all short-cut products and soup backfills that are dried in bulk), skeins and bows (vermicelli and noodles of special layout).

The range of pasta products is constantly updated.

Pasta products are characterized by high nutritional value and good digestibility. They contain at least 11-12 % protein substances, 70-72 % carbohydrates (mainly starch), 13 % moisture and 0.5-0.7 % fat, the content of minerals and fiber that are not absorbed by the body is insignificant [29,30].

The main consumer advantages of pasta products are:

high nutritional value, since wheat flour of the best quality with a high content of protein substances and a minimum amount of minerals is used for their production;

- high digestibility of protein (86%), fat (90 %) and carbohydrates (98 %);

- culinary advantages are the speed and simplicity of cooking (the duration of cooking small products is about 5 minutes, thick-walled products-15-20 minutes) [31,32]. The chemical composition of the pasta studied is shown in Table 1.

Table1-Chemical composition of pasta products

n /	a Brand of pasta	Fats, g	Protein, g	Carbohydrate	Energy value per g
1	"Barilla"	2	14	69.7	359 kcal
					1521 kJ
2	"Shebekinskie"	1.5	13	72	350 kcal 1470 kJ
3	"Makfa"	1.5	12	71	350 kcal 1470 kJ
4	SOYUZ cheprom	1.5	11	71	340 kcal 1420 kJ

5	Auchan	1.0	10	72	340 kcal 1430 kJ

Conclusion: the highest fat content was 2 g, for pasta of the "Barilla" brand, 1.5 g, for pasta of the "Shebekinsky" brand "Makfa" and "SOYUZ pishcheprom", the lowest 1.0 g for the "Auchan"brand. The highest protein content was 14gfor Barilla pasta, 13g for Shchebekinskie pasta, and the lowest 10g for Auchan. The highest carbohydrate content was 72% for Shebekinsky and Auchan pasta, while the lowest content was 69.7 gfor Barillapasta. The highest energy value was 359 kcal (1,521 kJ) for Barilla pasta, while the lowest value was 340 kcal (1,420 kJ) for SOYUZ Pishcheprom pasta.

The quality of pasta products primarily depends on the quality of raw materials used and the type of production equipment.

The defining indicators of the quality of finished products are:

1. Appearance of dry pasta: surface condition, degree of yellowness;
2. Cooking properties of pasta: loss of food substances during cooking, transparency of cooking water, consistency and preservation of the shape of pasta cooked to readiness and during overcooking;
3. Mechanical strength of dry products, which determines the amount of scrap and crumbs in weight and packaged products during transportation and storage.
4. Hygienic characteristics of pasta products [33,34].

Pasta products in accordance with GOST R 51865-2002 must have a color corresponding to the flour grade, without traces of non-kneading, a smooth surface (slight roughness is allowed), a glassy break, and after cooking until the product is ready, they must retain their shape and not stick together.

The strength of pasta products should ensure that their shape is preserved during transportation and storage.

In case of violation of technological parameters, as well as depending on the properties of the flour used, the quality characteristics of pasta products may not meet the established standards.

Failure to observe the technological parameters of the process can cause the following defects in pasta: the appearance of cracks in dry pasta, due to violations of drying modes: points on the surface of products; deformation [35,36].

Mechanical strength of pasta products characterizes the probability of scrap and crumb formation. In addition to strength, the deflection boom is also determined, which characterizes the flexibility of products. These characteristics are influenced by: the quality of raw materials, the technological process, and the

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stabilization of the product after drying, which localizes internal stress in the products [37,38].

The color of pasta is one of the main criteria that consumers who prefer a solid yellow-amber product first pay attention to. The main requirement for color is uniformity of color, purity of its tone and intensity.

The color of pasta depends both on the technological parameters of production (the duration of kneading, the time of passing the dough through the forming channels of the press, the drying temperature), and on the quality of the raw materials used [39].

Cooking pasta is a complex process that consists of several stages:

- penetration of water molecules into products with subsequent absorption by the main components of pasta dough;
- starch gelatinization and protein denaturation under heat treatment [40].

There are several time intervals for cooking pasta:

- cooking until ready;
- optimal cooking time;
- and overcooking the pasta (after the optimal cooking time, the pasta is cooked for a few more minutes.

Pasta with good cooking properties after cooking should retain its shape, elastic consistency when chewed, do not stick together, do not get stuck on the teeth, have clear cooking water without floccular sediment [41].

The organoleptic properties of cooked pasta depend on the content and quality of gluten proteins of the flour from which they are made.

manufactured.

In this paper, we consider 5 well-known brands of pasta of the "feathers" type used for cooking as a side dish:

- «Barilla»;
- "Shebekinskie";
- "Makfa";
- SOYUZ pishcheprom ;
- "Auchan", as well as the yield of pasta after cooking is being studied. The packaging indicates that all products are made from solid flour grades of group A. Cooking time for each type is approximately 10-15 minutes. The data is shown in table 2.

Table 2 - Determination of the weight of boiled pasta

n /	a Brand of pasta	Weight before ng, g	Weight after cooking, g

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1	"Barilla"	50	140
2	"Shebekinskie"	50	135
3	"Makfa"	50	190
4	"SOYUZ pishcheprom"	50	145
5	"Auchan"	50	115

According to the results of Table 2, we can conclude: macaroni products under the Makfa brand increased the most in volume, the weight after cooking was 190 grams. Pasta "Barilla", "Shebekinsky" and "SOYUZ pishcheprom" increased in volume with a difference of 2.5 times, their weight after cooking was 135-145 grams. Pasta of the Auchan brand increased the least in volume, the weight after cooking was 115 grams, which corresponds to the norm[42].

The quality of boiled pasta is assessed by organoleptic parameters(appearance, taste, color, smell, consistency) in accordance with the requirements of the standard. The data is presented in table 3.

Table 3

Determination of pasta quality by organoleptic parameters.

n /	a Brand of a	Appearance	Taste, smell	Color	Consistency
1	"Barilla"	The surface is smooth polished. The shape is ct and corresponds to roduct name.	Without rness, musty mildewy smell.	Uniform, with low tint.	Elastic, erately dense boiled).
2	"Shebekinsk	The surface is smooth, y, slightly matte. The e is correct and sponds to the product	Without rness, musty mildewy smell.	Однород Homogeneous, a yellowish .	Soft, erately dense boiled).
3	"Makfa"	Surface is smooth, y. The shape is correct corresponds to the uct name.	Without rness, musty mildewy smell.	Uniform, with low tint.	Elastic, erately dense boiled).
4	SOYUZ heprom	The surface is smooth, y, slightly matte. The e is correct and sponds to the product	Without rness, musty mildewy smell.	Homogeneous, w	Soft, erately dense boiled).
5	"Auchan"	The surface is smooth, y, slightly matte. The e is correct and sponds to the product e.	Without rness, musty mildewy smell.	Uniform, with lowish tinge.	Soft, erately dense boiled).

Based on the results of Table 3, we can draw a conclusion. Pasta cooked for 10-15 minutes increased in volume by 3 times. Appearance-pasta products have retained their shape and are easily separated from each other. Taste and smell of pasta - their own taste and smell, without bitterness, sourness and other foreign tastes, mustiness, mold and other extraneous odors. The color of the products is monophonic, white, corresponding to the highest grade of flour. The condition of pasta after cooking is the most important indicator of pasta. All samples comply with the norm[43,44].

Pasta has always been and remains on the table of Russian consumers as a quick and delicious dish. Despite the fact that the production technologies of other food products are constantly being improved and changed, but the sequence of preparation of pasta dough and the main ingredients that make up its composition remain almost unchanged for many years[45,46].

LITERATURE:

47. Аманов, Б. Н. (2013). Функциональное питание как основной фактор гармоничного развития личности. XXI аср-интеллектуал-инновацион ғоялар асри республика илмий-амалий семинар материаллари. *Материалы республиканского научно-практического семинара «XXI векинтеллектуально-инновационных идей». Ташкент*, 64-69.

48. Аманов, Б. Н., Исабаев, И. Б., Аманова, З. М., & Хайдар-Заде, Л. Н. (2021). Способы применения пробиотических бактериальных препаратов при производстве ржаного хлеба. *NVEO-Журнал О ПРИРОДНЫХ ЛЕТУЧИХ ВЕЩЕСТВАХ И ЭФИРНЫХ МАСЛАХ| NVEO*, 8152-8165.

49. Аманов, Б. Н. (2017). Новое хлебобулочное изделие с повышенными показателями качества. *Хлебопечение России*, (3), 20-22.

50. Аманов, Б. Н., & Бакоева, С. С. (2023). Оценка биологической ценности тыквенного порошка при использовании в производстве. *Жизненно важное приложение: Международный журнал новых исследований в области передовых наук*, *2*(1), 18-22.

51. Аманов, Б. Н., & Нодиров, А. А. (2022). Ржаной хлеб на сухой пароварке по дискретной технологии. *Пионер: Журнал передовых исследований и научного прогресса*, *1*(6), 45-49.

52. Аманов, Б. Н., Исабаев, И. Б., Атамуратова, Т. И., & Садыков, И. С. (2021). Влияние продуктов из томатного пресса на эффективность технологического процесса и качество ржаного хлеба. *Европейский журнал безопасности и стабильности жизнедеятельности (2660-9630)*, *6*, 12-20.

53. Аманов, Б. Н. ИССЛЕДОВАНИЕ ПОКАЗАТЕЛЕЙ НАЦИОНАЛЬНЫХ ХЛЕБЦЕВ. *ББК 36.81 я43 Т38 Редакционная коллегия: д. т. н., профессор Акулич АВ (отв. редактор) к. т. н., доцент Машкова ИА (отв. секретарь)*, *30*.

54. Аманов, Б. Н., & Нурматов, Д. Д. (2023). Пищевая ценность хлебобулочных изделий увеличивает ее. *Жизненно важное приложение: Международный журнал новейших исследований в области передовых наук*, *2*(1), 165-169.

55. Аманов, Б. Н., & Амонова, З. М. (2023). ДИСКРЕТНАЯ ТЕХНОЛОГИЯ ПРОИЗВОДСТВА РЖАНОГО ХЛЕБА НА ОСНОВЕ СЫРЬЯ. *Procedia of Теоретические и прикладные науки*, *3*.

56. Мухамедова, М. Е., & Аманов, Б. Н. (2023). ПРИМЕНЕНИЕ НОВЫХ ВИДОВ СЫРЬЯ В ПРОДУКТАХ ИЗ МУКИ ГРУБОГО ПОМОЛА. *Procedia of Теоретические и прикладные науки*, *3*.

57. АМАНОВ, Б. Н. (2016). РАСШИРЕНИЕ АССОРТИМЕНТА НАЦИОНАЛЬНЫХ ХЛЕБОБУЛОЧНЫХ ИЗДЕЛИЙ. In *Наука молодых-будущее России* (pp. 331-334).

58. Аманов, Б. Н. (2013). Методологический подход к проектированию рецептур хлебобулочных изделий с использованием композитных смесей. Ўзбекистон Республикаси фанлар академияси. *Ёш олимлар ахборотномаси илмий журнал*, (1-2), 39-44.

59. Аманов, Б. Н., & АЛЬБУМИНОВ, И. ИЗ ПШЕНИЧНЫХ ОТРУБЕЙ. *КОМПЛЕКСНЫЕ СОЕДИНЕНИЯ НИКОТИНАТА КАЛЬЦИЯ С АМИДАМИ*, *83*.

60. Аманов, Б. Н. МОДЕЛИРОВАНИЕ ХИМИЧЕСКОГО СОСТАВА КОМПОЗИТНЫХ СМЕСЕЙ ДЛЯ ХЛЕБОБУЛОЧНЫХ ИЗДЕЛИЙ. *ББК 36 Т38 Редакционная коллегия: д. т. н., профессор Акулич АВ (отв. редактор) к. э. н., доцент Козлова ЕА (отв. секретарь)*, *194*.

61. Аманов, Б. Н. ДИЕТИЧЕСКИЕ ХЛЕБОБУЛОЧНЫЕ ИЗДЕЛИЯ ДЛЯ ПИТАНИЯ НАСЕЛЕНИЯ. *ТЕХНИКА И ТЕХНОЛОГИЯ ПИЩЕВЫХ ПРОИЗВОДСТВ*, *76*.

62. Аманов, Б. Н., Амонова, З. М., Хайдар-Заде, Л. Н., & Файзуллаев, А. Р. (2021). Перспективы использования продуктов переработки томатов в производстве ржаного хлеба. *Анналы Румынского общества клеточной биологии*, 1009-1022.

63. Бакоева, С. С., & Аманов, Б. Н. (2023). Использование тыквенной муки при производстве полуфабриката для печенья. *ЕВРОПЕЙСКИЙ ЖУРНАЛ ИННОВАЦИЙ В НЕФОРМАЛЬНОМ ОБРАЗОВАНИИ*, *3*(2), 101-105.

64. Мухамедова, М. Е., & Аманов, Б. Н. (2023). Использование пищевых добавок при производстве сухариков. *ЕВРОПЕЙСКИЙ ЖУРНАЛ ИННОВАЦИЙ В НЕФОРМАЛЬНОМ ОБРАЗОВАНИИ*, *3*(2), 96-100.

65. Аманов, Б. Н., & Адизова, Н. Б. (2023). Пищевая ценность хлеба из муки сорта Веда. *ЕВРОПЕЙСКИЙ ЖУРНАЛ ИННОВАЦИЙ В НЕФОРМАЛЬНОМ ОБРАЗОВАНИИ*, *3*(3), 45-50.

66. Amanov, B. N., Amonova, Z. M., Khaidar-Zade, L. N., & Fayzullaev, A. R. (2021). Prospects for Using Tomato Processing Products in the Production of Rye Bread. *Annals of the Romanian Society for Cell Biology*, 1009-1022.

67. Бакоева, С. С., Аманов, Б. Н., & Амонова, З. М. (2023). Биологическая ценность тыквенного порошка при использовании в производстве. *ЕВРОПЕЙСКИЙ ЖУРНАЛ ИННОВАЦИЙ В НЕФОРМАЛЬНОМ ОБРАЗОВАНИИ*, *3*(4), 133-137.

68. Аманов, Б. Н., & Амонова, З. М. Хайдар-Заде ЛН и Файзуллаев АР (2021). Перспективы использования продуктов переработки томатов в производстве ржаного хлеба. *Анналы Румынского общества клеточной биологии*, 1009-1022.

69. Amanov, B. N., Isabaev, I. B., Amanova, Z. M., & Khaidar-Zade, L. N. (2021). Methods Of Application Of Probiotic Bacterial Preparations In The Production Of Rye Bread. *Nveo-natural volatiles & essential oils Journal| NVEO*, 8152-8165.

70. A.A. Nodirov, B.N. Amanov, & Z.M.Amonova. (2023). RYE BREAD USING DISCRETE TECHNOLOGY. *Multidisciplinary Journal of Science and Technology*, *3*(3), 350–355. Retrieved from http://mjstjournal.com/index.php/mjst/article/view/247

71. Muxamedova, M. E. ., & Amanov, B. N. . (2023). Treatment of Pullorosis in Chickens of Biological Control of an Incubation Egg. *EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION*, *3*(6), 169–176. Retrieved from http://inovatus.es/index.php/ejine/article/view/1823

72. Baqoyeva, S. S., Amanov, B. N., & Amonova, Z. M. (2023). Biological Value of Pumpkin Powder when Used in Production. *EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION*, *3*(4), 133–137. Retrieved from http://inovatus.es/index.php/ejine/article/view/1629

73. Amanov, B. N. ., & Adizova, N. B. . (2023). Nutritional Value of Bread from Veda Flour. *EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION*, *3*(3), 45–50. Retrieved from http://inovatus.es/index.php/ejine/article/view/1528

74. Baqoyeva, S. S. ., & Amanov, B. N. . (2023). Use of Pumpkin Flour in the Production of Semi-Finished Biscuit. *EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION*, *3*(2), 101–105. Retrieved from http://inovatus.es/index.php/ejine/article/view/1485

75. Muxamedova, M. E. ., & Amanov, B. N. . (2023). Use of Food Additives in the Production of Rusk Products. *EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION*, *3*(2), 96–100. Retrieved from http://www.inovatus.es/index.php/ejine/article/view/1484

76. Amanov, B. N., & Nurmatov, J. J. (2023). Nutritional Value of Bakery Products Increasing It. *Vital Annex: International Journal of Novel Research in Advanced Sciences*, *2*(1), 165-169.

77. Amanov, B. N., & Baqoyeva, S. S. (2023). Evaluation of the Biological Value of Pumpkin Powder When Used in Production. *Vital Annex: International Journal of Novel Research in Advanced Sciences*, *2*(1), 18-22.

78. Amanov, B. N., & Nodirov, A. A. (2022). Rye Bread on Dry Steader by Discrete Technology. *Pioneer: Journal of Advanced Research and Scientific Progress*, *1*(6), 45-49.

79. Аманов, Б. Н., Исабаев, И. Б., Атамуратова, Т. И., Очилов, Ш. Б., Жаббарова, С. К., & Кусова, И. У. (2022). СОВЕРШЕНСТВОВАНИЕ ТЕХНОЛОГИИ ПРИГОТОВЛЕНИЯ РЖАНЫХ СОРТОВ ХЛЕБА. In *Совершенствование рациона питания населения, обеспечение качества и безопасности кулинарной продукции* (pp. 8-16).

80. Amanov, B. N., & Majidov, K. H. FUNCTIONAL PROPERTIES OF ALBUMINS FROM WHEATEN BRAN. *КОМПЛЕКСНЫЕ СОЕДИНЕНИЯ НИКОТИНАТА КАЛЬЦИЯ С АМИДАМИ*, 83.

81. Ergasheva, H., Khujakulova, N.// Enrichment of Wheat Flour with Shorts at Flour-Milling Enterprises// Journal of Pharmaceutical Negative Results, 2022, 13, pp. 2359–2363

82. Sh.Sh.Baqoyeva, B.N.Amanov, & Z.M.Amonova. (2023). USING PUMPKIN FLOUR IN COOKIE PRODUCTION. Multidisciplinary Journal of Science and Technology, 3(4), 119–125. Retrieved from https://mjstjournal.com/index.php/mjst/article/view/314

83. B.N Amanov, Z.M.Amonova, B.S.Abdullayev, & Q.G.Majidov. (2023). STUDY OF THE FUNCTIONAL PROPERTIES OF PROTEINS FROM WHEAT BRAN IN BAKERY PRODUCTS. Multidisciplinary Journal of Science and Technology, 3(4), 102–108. Retrieved from https://mjstjournal.com/index.php/mjst/article/view/311

84. Amanov, B. N. ., & Adizova, N. B. . (2023). Nutritional Value of Bread from Veda Flour. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(3), 45–50. Retrieved from http://inovatus.es/index.php/ejine/article/view/1528

85. Baqoyeva, S. S. ., & Amanov, B. N. . (2023). Use of Pumpkin Flour in the Production of Semi-Finished Biscuit. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(2), 101–105. Retrieved from http://inovatus.es/index.php/ejine/article/view/1485

86. Muxamedova, M. E. ., & Amanov, B. N. . (2023). Use of Food Additives in the Production of Rusk Products. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(2), 96–100. Retrieved from http://www.inovatus.es/index.php/ejine/article/view/1484

87. Baqoyeva, S. S., Amanov, B. N., & Amonova, Z. M. (2023). Biological Value of Pumpkin Powder when Used in Production. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(4), 133–137. Retrieved from http://inovatus.es/index.php/ejine/article/view/1629

88. Muxamedova, M. E. ., & Amanov, B. N. . (2023). Treatment of Pullorosis in Chickens of Biological Control of an Incubation Egg. EUROPEAN JOURNAL OF INNOVATION IN NONFORMAL EDUCATION, 3(6), 169–176. Retrieved from http://inovatus.es/index.php/ejine/article/view/1823

89. B.N Amanov, Z.M.Amonova, B.S.Abdullayev, & Q.G.Majidov. (2023). STUDY OF THE FUNCTIONAL PROPERTIES OF PROTEINS FROM WHEAT BRAN IN BAKERY PRODUCTS. Multidisciplinary Journal of Science *and Technology*, *3*(4), 102–108. Retrieved from http://mjstjournal.com/index.php/mjst/article/view/311

90. Sh.Sh.Baqoyeva, B.N.Amanov, & Z.M.Amonova. (2023). USING PUMPKIN FLOUR IN COOKIE PRODUCTION. Multidisciplinary Journal of Science and Technology, 3(4), 119–125. Retrieved from http://mjstjournal.com/index.php/mjst/article/view/314

91. Хакимова Н. Х., Курвантаев Р. (2020). Эволюция реликтовых почв среднего течения реки Зеравшан. Annali-d'Italia. Рим, (4), 68-71.

92. Мажидова, Н. К. (2010). Повышение качества и обеспечение пищевой безопасности саломасов, получаемых гидрогенизацией хлопкового масла. Ташкент: ТашХТИ.