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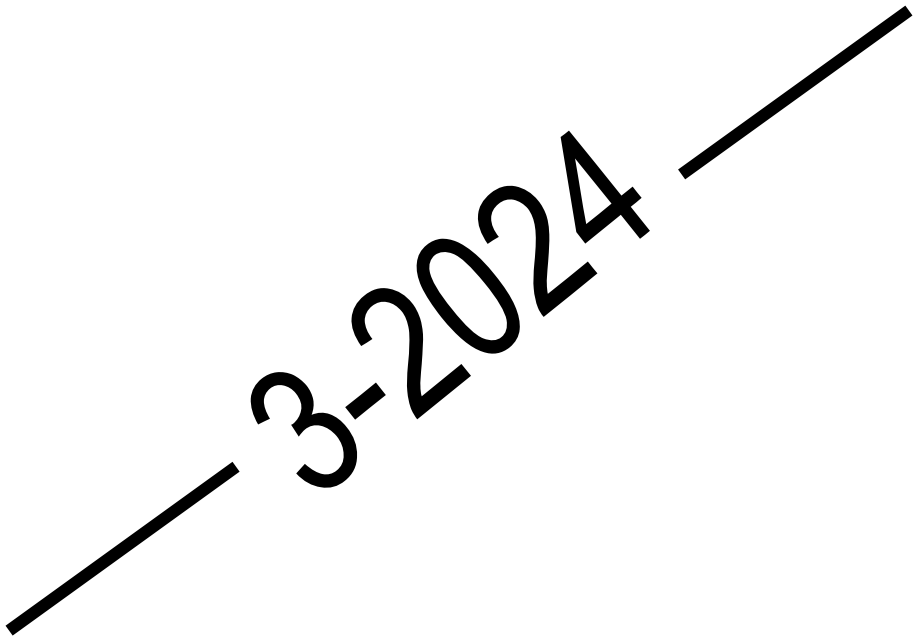

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KUPAJLANGAN MOY KOMPOZITSIYALARI YORDAMIDA KREM-ATIR SOVUNLARNING MOYLI ASOSINI ISHLAB CHIQISH

РАЗРАБОТКА МАСЛЯНОЙ ОСНОВЫ КРЕМ-ПАРОФЮМИРОВАННОГО МЫЛА С ПОМОЩЬЮ МАСЛЯНЫХ КОМПОЗИЦИЙ

DEVELOPMENT OF THE OIL BASE OF CREAM-PERFUMED SOAPS WITH THE HELP OF BLENDED OIL COMPOSITIONS

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Annotatsiya

Ushbu maqolada noan’anaviy moylar asosida krem-atir sovunlarning moyli asosini shakllantirishda palma moyi asosida anor danagi, uzum danagi va sedana moylaridan 50:20:20:10 gr/% nisbatlardan kupajlash samarali ekanligi keltirilgan. Olingan moy na’munasida rangi 80 gr J_2/100gr ga, xidi o‘ziga xos va tarkibidagi vitamin E miqdori boshqa namunalarga nisbatan 8,98-12,08 mg/100gr miqdorga yuqori ekanligi qayd qilindi.

Kupajlash - (fransuzcha coupage) aralashtirishning bir turi. Oziq-ovqat mahsulotining sifatini yaxshilash, mahsulotning tipikligini ta’minlash va organoleptik ko‘rsatgichlari bo‘yicha bir xil bo‘lgan partiyalarni ishlab chiqarish uchun uning turli navlarini ma’lum nisbatda aralashtirishdir [12].

Аннотация

В данной статье показано, что при формировании масляной основы крем-парфюмированного мыла на основе нетрадиционных масел эффективно сочетать пальмовое масло с маслами косточек граната, виноградных косточек и кедрового масла в пропорциях 50. :20:20:10 гр/%. Отмечено, что цвет полученного образца масла составляет 80 г J2/100 г, запах уникальный, а содержание витамина Е на 8,98-12,08 мг/100 г выше, чем у других образцов.

Купаж — (франц. купаж) — разновидность смешивания. Для повышения качества пищевой продукции, обеспечения ее типичности и получения однородных по органолептическим показателям партий необходимо смешивать разные ее разновидности в определенном соотношении [12].

Abstract

In this article, it is mentioned that in the formation of the oil base of cream-perfume soaps based on non-traditional oils, it is effective to combine palm oil with pomegranate seed, grape seed and black seed oils in the proportions of 50:20:20:10 gr/%. It was noted that the color of the obtained oil sample is 80 g J2/100 g, the smell is unique, and the content of vitamin E is 8.98-12.08 mg/100 g higher than other samples.

Coupage - (French coupage) is a type of mixing. To improve the quality of the food product, to ensure the typicality of the product and to produce batches that are homogeneous in terms of organoleptic indicators, it is the mixing of its different varieties in a certain proportion.

Kalit so‘zlar: *sovun, krem-atir sovun, kupajlangan moylar, noananaviy moylar, moylar kompozitsiyasi, yog‘ kislotalar, anor danagi moyi, uzum danagi moyi, sedana moyi, xalq tabobati, teriga ta’siri*

Ключевые слова: *мыло, крем-парфюмированное мыло, купажное масло, нетрадиционные масла, состав масел, жирные кислоты, масло косточек граната, масло виноградных косточек, кедровое масло, народная медицина, воздействие на кожу.*

Key words: *soap, cream-perfume soap, blended oils, non-traditional oils, the composition of oils, fatty acids, a pomegranate seed oil, grape seed oil, black seed oil, folk medicine, an effect on the skin.*

INTRODUCTION

Today, with the increase in the world's population, the need for hygiene products, especially household and perfume soaps based on high molecular fatty acids, is also increasing. Based on these needs, special attention is being paid to the rational use of new types of raw materials in the production of soap, the enrichment of the chemical composition of semi-finished products with biologically active substances, and the improvement of production technology.

A number of researches in this regard are also being conducted in our republic. In the decision of the President of the Republic of Uzbekistan dated January 19, 2019 "On additional measures for the further development of the oil industry and the introduction of market mechanisms in the management of the industry" PQ-4118 - in order to develop the oil industry in the country, to meet the needs of the population more fully, a number of tasks aimed at ensuring the implementation of comprehensive measures to increase the volume of output and expand the range of finished products determined.[1].

MATERIALS AND METHODS

Based on these tasks, development of new assortments of hygiene products, enrichment of the composition of raw materials, their effect on human skin, focusing on increasing the properties of fighting against allergic diseases, enrichment of the fatty acid composition with oils of natural, local and medicinal plants, increasing antioxidant activity, a number of scientific researches aimed at introduction of biologically active additives, effective use of energy-saving technologies and improvement of existing technologies are being carried out.[1-3].

According to the characteristics of use, soaps that stand out among hygiene products are divided into household and perfume soaps. According to the mass fraction of neutralized fatty acids in household soaps, liquid with 40 - 65%; solid - divided into types with 60%, 65%, 70% and 72%. The content of fatty acids in perfumed soaps is around 73-80%. In the production of other groups of perfume soap, the classic recipe is used as a standard, and accordingly, animal fat and coconut oil are partially or completely replaced by other oils. Perfumed soaps according to the amount of fatty acids in the soap and the nature of the use of soaps, it is divided into foamy, liquid, gel, cream and solid perfume soap types.[2].

In the formation the fatty acid composition of perfume soaps, it is important to concentrate on the used oils, to use natural fatty acids rather than synthetic ones. The fraction of synthetic fatty acids contains 4-5% of low molecular weight (S5-S9) acids, which do not show foaming properties and do not show washing ability. Furthermore, water solutions of these soaps were studied by researchers to have a negative effect on human skin. Taking into account that among natural oils, animal fats are the main raw materials of hygienic products, it is necessary to use oils that replace animal fats. Among these oils, palm oil chemical composition is close to the chemical composition of animal fats and is the most effective in terms of other properties.[2-4].

RESULTS AND DISCUSSION

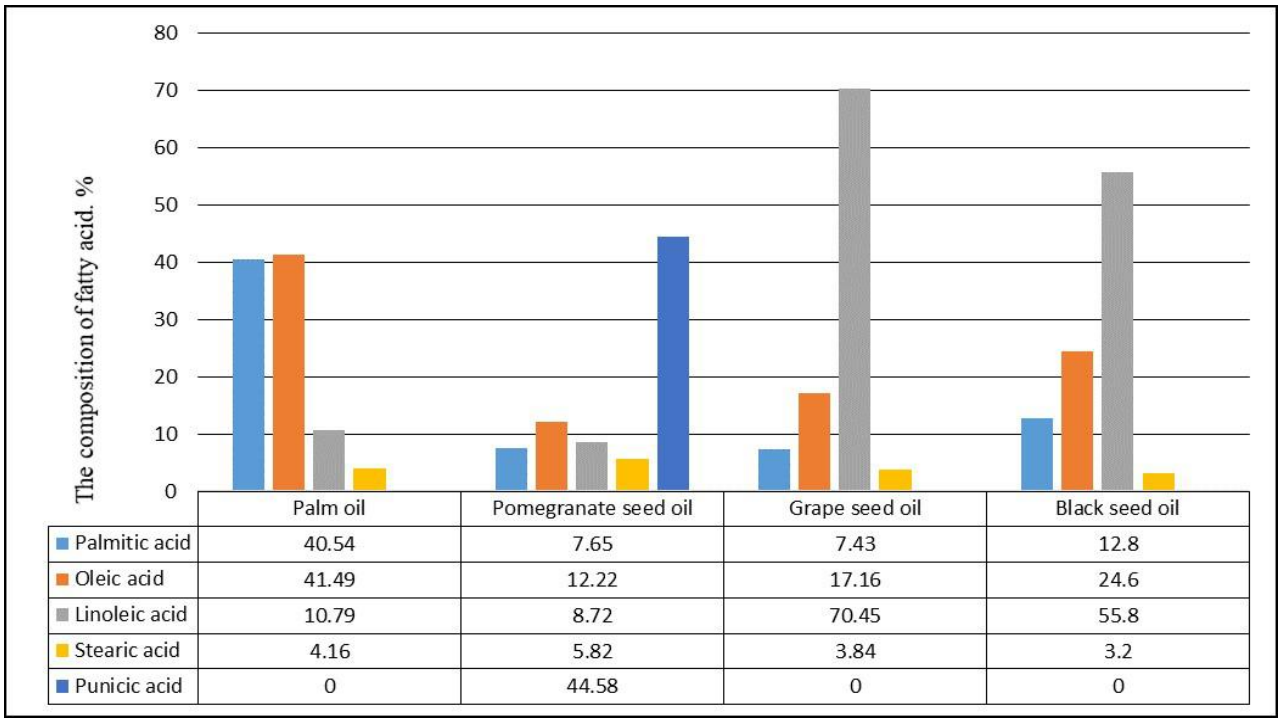
Enriching the fatty acid composition of perfume soaps with non-traditional oils has a number of properties, including; it is required to pay attention to viscosity, titer indicator, presence of useful ingredients, economic indicators in terms of cost and other characteristics. From the conducted researches, it became known that among the types of perfumed soaps, cream-perfumed soaps are distinguished by their high prospects. The fact that the aggregate state of cream-perfumed soaps is softer compared to hard perfume soaps, and it is possible to easily add various natural medicinal additives, vitamins, color and fragrance ingredients to their composition, set a number of tasks for the researchers. In order to increase the healing properties of cream-perfume soaps, first of all, it is effective to enrich the fatty acid content of the oil base with natural and non-traditional oils.[5-6]. In the development of oil-based compositions, attention is paid to the physicochemical, organoleptic parameters of oils, and the increase in properties such as ensuring the viscosity and plasticity of cream-perfumed soaps, the number of saponification and good solubility in water depends on the fatty acid composition. The table below shows the physical and chemical parameters of non-traditional oily raw materials used to form the oil base of cream-perfume soaps.

Table 1

The physicochemical figures of oils used for the oil-based cream-perfume soaps.

№	The number of figures	The name of oils			
		Palm oil	Pomegranate seed oil	Grape seed oil	Black seed oil
1.	The number of acids, mg KOH/g	0,6	0,7	1,12	1,5
2.	The number of peroxides, mmol ½ O_2/kg	7	10	9	15
3.	Color, g J2/100	55	103	125	84
4.	The quantity of tocopherol (Vitamin E), мg/100 g	78	272	291	45,1
5.	The number of saponification mg KOH/ g	242	191	175	151
6.	pH	7,9	5,05	3,0	7,5

As can be seen from the data in the table, the amount of tocopherol (vitamin E) in the oil is one of the indicators that determine the number of saponification and healing properties of oils, which is the main focus in the development of oil compositions of cream-perfume soaps. The saponification number of palm oil obtained for the development of oil base compositions was 242 mg KOH/g, while the lowest value was observed in black seed oil at 151 mg KOH/g. The highest amount of vitamin E is 291 mg/100g in grape seed oil, 272 mg/100g in pomegranate seed oil, and the lowest amount is 45.1 mg/100g in black seed oil. Taking into account these indicators, it is one of the important tasks to obtain new compositions of fatty acids by coupling them in mutual proportions, using non-traditional oils, not just one type, but a number of oils. In the development of the composition of these blended oils, attention to the fatty acid composition of oils requires attention to the specific properties of one type of oil. The figure below shows the fatty acid composition of the oils used for cooking.



	Palm oil	Pomegranate seed oil	Grape seed oil	Black seed oil
Palmitic acid	40.54	7.65	7.43	12.8
Oleic acid	41.49	12.22	17.16	24.6
Linoleic acid	10.79	8.72	70.45	55.8
Stearic acid	4.16	5.82	3.84	3.2
Punicic acid	0	44.58	0	0

Figure-1. The composition of non-traditional oils

As can be seen from the above picture, oleic acid is 41.49% in palm oil, about 10-25% in pomegranate seed, grape seed and black seed oils, and linoleic acid is about 10% in palm and pomegranate seed oil, it can be seen that it is relatively high 70.45% and 55.8% in grape seed and

black seed oils. It can be seen that palmitic acid is 40.54% in palm oil, 7-12% in pomegranate seed, grape seed and black seed oils, while punicic acid is present only in pomegranate seed oil (44.58%). These indicators ensure that the useful properties of oils are fully manifested.

One of the main reasons for choosing black seed oil in the development of oily base compositions is that this oil contains 24.6% of oleic acid (C18:1 cis) and up to 6 times more linoleic acid (C18:2 cis) than pomegranate seed oil. [7,8].

We know that punicic acid has anti-inflammatory, rejuvenating, protective and antioxidant effects on the skin, and linoleic acid has been studied by researchers to strengthen the subcutaneous blood vessels and nervous system.[4]. This, in turn, is distinguished by the fact that enriching the composition of cream-perfume soaps with these oils helps to increase the properties of fighting against skin allergic diseases, as well as the ayurvedic effect on the skin.

It is considered effective to use all the selected oils in the development of the composition of fatty acids that make up the oily bases of cream-perfumed soaps. In the creation of fatty-acid compositions, the above-mentioned non-traditional oils are mixed in different proportions (gr/%) to obtain conjugated fatty bases, which allows the unique properties of the oils to be manifested.[9-11].

Changes in the fatty acid composition of the obtained oil compositions as a result of the coupling of non-traditional oils in different proportions are known from the literature. Taking into account that it is important to form the oil bases of cream-perfumed soaps with optimal indicators, compositions of selected non-traditional oils in different proportions were developed.

Formulation of coupe oil compositions for the oil base of cream-perfumed soaps was carried out in laboratory conditions. Taking into account that the melting temperature of the palm oil taken for the experiment is around 20-30^0 C, it was partially melted. Since the remaining oily raw materials were liquid aggregates at room temperature, no heating was required and they were used directly. A 500 ml heat-resistant beaker was weighed and the beaker weighed. Based on the recipe, the selected oil samples were taken in the unit of gr/%. In this case, 50 gr/% of the remaining oils, pomegranate seed oil 30 gr/%, grape seed oil 10 gr/%, and black seed oil 10 gr/% with a total weight of 100 gr/% was taken in gr/% amounts.

10 samples of oil composition with a total weight of 100 g of oils in different proportions were formed. The developed oil compositions were placed on a magnetic stirrer and heated to 45-50 ^{0}C for 10-15 minutes. During the experiment, organoleptic indicators (aggregate state, color and smell in relation to the amount of iodine) of each coupled composition were monitored and the indicators were recorded. The results of the research on the oil proportions of the oil compositions formulated with a total weight of 100 g are presented in the table below.

Table 2

The composition of blended oils

The name of composition	The amount of non-traditional oils, gr/%.				
	Palm oil	**Pomegranate seed oil**	**Grape seed oil**	**Black seed oil**	**Total:**
Comp– 1.	50	30	10	10	100
Comp – 2.	50	15	25	10	100
Comp – 3.	50	20	20	10	100
Comp – 4.	50	25	15	10	100
Comp – 5.	50	10	30	10	100
Comp – 6.	40	20	30	10	100
Comp – 7.	40	30	20	10	100
Comp – 8.	60	10	25	5	100
Comp – 9.	60	25	10	5	100
Comp – 10.	25	25	25	25	100

As can be seen from the table above, palm oil is the oil base of cream-perfumed soaps. In this case, from Comp-1 to Comp-5, palm oil was taken in a constant ratio of 50 gr/%, while in other compositions 40 gr/% and 60 gr/%, and the minimum amount of 25 gr/% was selected.

Based on the specific quality indicators of the selected oils, the proportions of some were left almost unchanged. For example, taking into account that black seed oil has a sharp smell, it was noted that this oil should be added in small amounts, and Comp-1-7 remained unchanged at 10 gr/%, Komp-8 and Comp-9 at 5 gr/%, Comp-9 At -10, selected oils were coupled in equal proportions.

The results of the research on the organoleptic indicators of oil bases after coupling using the method of sensory evaluation of the blended oil compositions are presented in the table below.

Table 3

The organoleptic figures of the composition of blended oils

№	Compositions	The name of figures at 20 ^{0}C				
		Appearance:		Color , the ratio to J_2 numbers :	Fragrance:	The quantity of E vitamin mg/gr
		Aggregate state	Appearance			
1	C-1	Liquid	Clear	80	Close to pomegranate oil	153,74
2	C-2	Liquid	Fainter	95	Close to grape oil	156,29
3	C-3	Liquid	Clear	80	Unique	157,51
4	C-4	Liquid	Clear	80	Close to pomegranate oil	155,48
5	C-5	Liquid	Faint	90	Close to grape oil	154,35
6	C-6	Liquid	Faint	110	Close to grape oil	176,17
7	C-7	Liquid	Clear	110	Close to pomegranate oil	174,23
8	C-8	Solid	Faint	120	Close to grape oil	148,55
9	C-9	Solid	Fainter	115	Close to pomegranate oil	145,43
10	C-10	Liquid	Fainter	100	Unique	170,75

Note: Increasing the amount of palm oil resulted in thickening per unit time, affecting the aggregate performance of the obtained oil compositions.

As can be seen from the above table, the change of the organoleptic indicators of the oils after the coupage is characterized by the specific physicochemical composition of the oily raw materials. Among the oils included in the compositions, the smell of black seed oil was more pungent than the other oils. In compositions with a high content of grape oil, the solidification temperature of the oily mixture is low, the color is darker, and the plasticity is relatively minimal. In oil mixtures with a large amount of pomegranate oil, it was found that the color is clear, the smell is similar to pomegranate oil, the solidification temperature is high, and the plasticity is relatively high. It was found that the color of composition change according to the number of iodine varies with increasing the amount of non-traditional oils. The highest amount of E vitamin was observed in Comp-6 and Comp-7 compositions (176.17), (174.23), while the lowest amount was found in Comp-8 and Comp-9 compositions (148.55), (145.43) . The high content of vitamin E in the compositions had a negative effect on the color of the compositions and led to an increase of 20-30 gr J2 /100 gr compared to other samples. In the sample, Comp-8 and Comp-9 caused an increase of up to 35-40 gr J2 /100 gr. An increase in the color index also affects the quality indicators of cream-perfumed soaps.

CONCLUSION

In conclusion, it can be said that in the formation of the oil bases of cream-perfume soaps, the color of the Comp-3 composition, which is mixed in proportions of 50:20:20:10 from the composition of couped oil, in particular, based on palm oil, from grape, pomegranate seed oils and black seed oils with specific indicators, depends on the number of iodine. is equal to 80 gr/100 gr, 8.98-12.08 gr/100 gr higher than Comp-8 and Comp-9 samples, E vitamin content is 16.72-18 compared to Comp-6 and Comp-9 samples, it was found to be higher than 66 mg/100g, and it was distinguished by its unique smell.

The amount of oily raw materials obtained is important in calculating the cost of cream-perfumed soaps, which causes a sharp increase in the cost of pomegranate and grape seed oils. Based on the above, composition Comp-3 was selected as the most optimal sample for the formation of cream-perfumed soaps' oil bases.

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