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DEVELOPMENT OF THE COMPOSITION OF THE NEW PHOTO-PROTECTIVE CREAM WITH CO₂-EXTRACT MILFOIL AND ALOE

In this article, as a result of the study of the extract of CO₂milfoil and aloe, revealed a number of biologically active substances in its composition. The concept of the composition and technology of a phytocomposite instrument with photocrotective properties for skin care with CO₂ extract is developed. The range of products used in the industry for the production of CO₂-extract was identified.

Keywords: CO₂phytogenesis extract, UV radiation, biological active agents, dermatology, cosmetology, skin care.

Relevance. The sun is the source of ultraviolet radiation, so necessary for all life on Earth. But excessive exposure to sunlight can adversely affect the skin condition and human health in general: leading to burns, accelerating the appearance of wrinkles, causing premature aging, dry skin, etc [1,2]. Scientifically proven that sunburn can even be the cause of skin cancer. The harmful effect of ultraviolet on the skin does not immediately manifest. The effect of UV radiation on the skin, both positive and negative, is known today. Once on the skin, ultraviolet causes the formation of free radicals and active forms of oxygen [1,3]. During the evolution of living organisms, protective mechanisms have been developed that control the flow of free radical reactions. Any organism - be it a plant, an animal or an individual cell - can be considered as a sample of the work of a balanced and well-functioning antioxidant system [4]. We emphasize, precisely the system consisting of many components - vitamins (vitamins C, E, P), and enzymes (glutathione peroxidase, superoxide dismutase), and microelements (selenium, zinc), and polyphenolic compounds (flavonoids), and sulfur-containing amino acids (cysteine, methionine), as well as tripeptid glutathione. We listed only some compounds that have an antioxidant effect. The chemical nature of these compounds is diverse, among them there are both water- and fat-soluble components [5,6]. The basic principle on which the action of the antioxidant system of a living organism is built is synergism. It consists in the fact that the components of the system work together, restoring each other and enhancing the effectiveness of the action. In recent years, domestic and foreign cosmetology and dermatology have sharply increased interest in the use of phytopreparations obtained from medicinal plants.

The use of medicinal plants for skin care, in particular to prevent the premature withering of the skin, has been known since ancient times. Biologically active substances BAS drugs of plants are softly included in the regulation of metabolism and contribute to the disappearance of pathological abnormalities [7]. At present, thanks to the success of pharmaceutical chemistry, many active substances are isolated from plants in pure form. However, as practice has shown, in a number of cases the complex of compounds in the composition of CO₂ extracts of plants has a more versatile effect than its individual components. In this regard, of great interest are the CO₂ extracts obtained from the medicinal, spicy-aromatic raw materials, as well as from oil-containing wastes of grain processing enterprises and wastes of wine production [8].

CO₂ extract of milfoil has anti-inflammatory, bactericidal, anti-allergic, wound-healing, soothing, hemostatic, analgesic properties. In addition to medicine, CO₂ extract of milfoil is used in food industry (in liqueurs), in perfumery (in shampoos), in household chemicals (in insecticides). In cosmetic products it is used as a component that exerts anti-inflammatory, healing, tonic, bactericidal, antiallergic action, restores skin cells, stops bleeding gums. Recommended in the formulations of funds for sensitive, oily skin, in shampoos for oily hair, in children's cosmetics [9].

CO₂ extract of aloe with great success is used in cosmetology. Masks and creams with aloe are recommended for use for sensitive skin prone to allergic reactions. Cosmetic products containing aloe vera, enrich the skin with necessary nutrients, protect it from the effects of the environment, brighten up in the presence of pigmented spots. Regular use of masks and creams based on aloe for the skin of the face has an amazing effect, as they help with pustular eruptions, inflammatory processes, eczema and psoriasis [9].

Purpose of the study. Development of the composition of a new photo-protection cream based on the composition of the herbal extract of milfoil, aloe and essential oil of rosemary intended for use in skin diseases of UV nature.

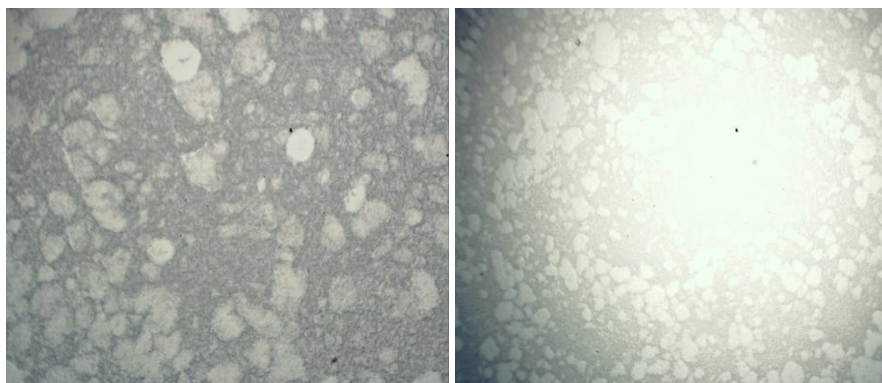
Materials and methods of research. The objects of the study were: CO₂ extract of milfoil obtained by extraction of subcritical conditions on the basis of «ZhanaPharm» LLP and aloe, as well as auxiliary substances permitted for use: as the basis of the gel - sodium carboxymethylcellulose, petrolatum, glycerin - as a plasticizer, sodium benzoate was chosen in as a preservative, tween-80 - as an emulsifier, lactic acid - to adjust the pH of the skin and water purified. Physicochemical, technological, microbiological studies were conducted to develop the optimum composition of the photo-protection cream.

Results of the study and their discussion. The following components were included in the composition of the photo-protective cream of the hydrophilic-lipophilic base: CO₂-extract of milfoil, aloe, essential oil of rosemary, vaseline base, sodium carboxymethyl cellulose, glycerol, tween-80, lactic acid, sodium benzoate.

Table 1- Models of photo-cream cream

№ №	Ingredients	Functional markup	Models					
			1	2	3	4	5	6
1	Na-CMC	Thebasis				4.0		
2	Gelatin	Thebasis					3.0	
3	Petrolatum	Thebasis						20.0
4	Glycerol	Plasticizer	20.0	20.0	20.0	20.0	20.0	20.0
5	Sodiumbenzoate	Preservative	0.5	0.5	0.5	0.5	0.5	0.5
6	Tween 80	Emulsifier	1.0	1.0	1.0	1.0	1.0	1.0
7	Lacticacid	pHregulating	0.2	0.2	0.2	0.2	0.2	0.2
8	Waterpurified	solvent	upto 100g	upto 100g	upto 100g	upto 100g	upto 100g	upto 100g

This combination of a combination of three active ingredients, a vegetable character and a cream of transdermal application - strengthens the photoprotective action due to the synergism of the components.



Figures 1, 2 - Organoleptic indications of the photo-protection cream

Conclusions. Currently, on the basis of the KazNMU named after S.D. Asfendiyarova conducted scientific research on the basis of physical and chemical, technological, microbiological research, the optimal composition of the photo-protective cream was selected: CO₂ extract-milfoil-2 g, aloe-2 g, rosemary essential oil -0.4 g, vaseline base-3.2 g, sodium carboxymethylcellulose 4.0 g, Tween 80-1.0 g, glycerin 10.0 g, sodium benzoate 0.2 g, lactic acid 1 ml and water purified to 100 g.

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МЫҢЖАПЫРАҚ ЖӘНЕ АЛОЭ ӨСІМДІКТЕРІНІҢ СО₂ ЭКСТРАКТАРЫНАН ФОТОҚОРҒАНЫС ҚАСИЕТІ БАР ЖАҢА КРЕМНІҢ ҚҰРАМЫН ҚҰРАСТЫРУ

Түйін: Бұл мақалада алоэ және мыңжапырақ өсімдіктерінің СО₂ экстрактқа зерттеу жүргізілді, сонымен қатар, оның құрамында болатын биологиялық белсенді заттар қатары анықталды. СО₂-экстрактысы қосылған тері күтіміне арналған, фотоқорғаныс қасиеті бар фитокомпозициялы құралдың құрамы мен технологиясын құрастыруға тұжырымдама жасалды. СО₂-экстракт өнеркәсібінде қолданылатын өнімдер ассортименттері анықталды.

Түйінді сөздер: өсімдік тектес СО₂ экстракт, УК сәулесі, биологиялық белсенді заттар, дерматология, косметология, тері күтімі.

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РАЗРАБОТКА СОСТАВА НОВОГО ФОТОЗАЩИТНОГО КРЕМА С СО₂-ЭКСТРАКТОМ ТЫСЯЧЕЛИСТНИКА И АЛОЭ

Резюме: В данной статье в результате исследования экстракта СО₂тысячелистника и алоэ, кроме того, выявлен ряд биологически активных веществ в его составе. Разработана концепция состава и технологии фитокомпозиционного инструмента с фотозащитными свойствами для ухода за кожей с экстрактом СО₂. Был идентифицирован ассортимент продуктов, используемых в промышленности по производству СО₂-экстракт.

Ключевые слова: СО₂ экстракт растительного происхождения, УФ-излучения, биологические активные вещества, дерматология, косметология, уход за кожей.