DEVELOPMENT OF THE COMPOSITION AND TECHNOLOGY OF CREAM BASED ON PHYSICAL FILTERS

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At present, solar radiation, especially its short-wave ultraviolet part, is one of the most powerful environmental factors that determine the conditions for the development and existence of all life on the globe, including humans, and largely characterizes the climate [1].

In modern cosmetics, zinc oxide is used as physical filters. They can also be found under the name mineral filters. They are mainly used in micronized, ultra-micronized, micronized and nanoparticulate form. This allows them to be added to creams in greater quantities to ensure a high SPF index, while leaving no white marks on the skin.

A small amount of solar ultraviolet radiation is good for human health. An excessive amount of sunlight can cause incomparable harm. The sun's ultraviolet light causes premature aging of the skin (from age 35), it breaks down collagen and causes skin hyperpigmentation, and by the age of 45, 90 percent of wrinkles are caused by UV exposure. Especially in summer, in our climate, the effect of ultraviolet radiation is enhanced [2]. Taking into account the above, the current issue is to expand the range of sunscreens.

Purpose of the study. To develop the composition and technology of sunscreen.

Materials and methods. The materials for the study were hydrophobic bases and a hydrophilic base. Based on the requirements, the following three types of compositions are proposed in Table 1.

All of these compositions were studied for their physicochemical properties: appearance, color, odor, pH, colloidal stability, thermal stability, spread ability according to generally known methods [3].

Results: As can be seen from Table 2, only formulation I meets all the studied quality indicators: appearance, color, odor, pH, colloidal stability, thermal stability and spreadability. Formulation II did not correspond to colloidal stability, and formulation III did not correspond to thermal stability.

1-Table. Various formulations of sunscreen

Cream components	Ingredients of formulations, g.		
	№1	№2	№3
Bismuth subnitrate	3	3	3
Zinc oxide	1	1	1
Petrolatum	25	-	-
Anhydrous lanolin	4	-	-
Purified water	2ml	-	-
Almond oil	20	-	-
Wax	-	6	-
Olive oil	-	27	-
Na-CMC	-	-	6
Glycerol	-	-	10

2-Table. Determination of quality indicators of sunscreens according to the above recipes

№	Indicator name	Formulation I	Formulation II	Formulation III
`1	Appearance	homogeneous mass, free of impurities	homogeneous mass, free of impurities	homogeneous mass, free of impurities
2	Colour	milky mass	milky mass	colorless light
3	Odour	odourless	odourless	odourless
4	Hydrogen exponent, pH	6.0	6.0	6.0
5	Colloidal stability	stable	unstable	unstable
6	Thermal stability	stable	stable	When stored in a thermostat, the cream exfoliated
7	Spreadability	Well applied to the skin and forms a protective film	Easy to apply	Absorbs onto the surface of the skin

Conclusions. Thus, the studies carried out have shown that the most optimal and effective sunscreen that meets the basic requirements for the quality of creams turned out to be a cream prepared according to formulation I.

References

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