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DEVELOPMENT OF THE COMPOSITION, SELECTION OF ACTIVE PHARMACEUTICAL AND AUXILIARY SUBSTANCES AND DETERMINATION OF THE QUALITY INDICATORS OF THE LOTION FOR THE TREATMENT OF ALOPECIA

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Introduction. The non-scarring form of alopecia is a significant dermatological problem. This is not only the presence of a pathology and the need for its treatment, but also a social problem related to the development of personal complexes, the problem of employment and the possibility of establishing a personal life; alopecia therapy is associated with significant financial costs, requires time and attention from the patient.

Currently, the treatment of non-scarring alopecia in men and women remains an urgent problem due to the increasing number of cases, patients turning to a trichologist, as well as to pharmacy chains in search of effective drugs of systemic and topical action.

Therapy of alopecia is still considered a difficult task of dermatology and trichology, which is explained by numerous links of pathogenetic mechanisms that must be influenced simultaneously. Among medicines for the correction of alopecia, there is a limited range of safe, highly effective means that can act pharmacologically for a long time in the absence of side effects. Important factors are the need for constant use of topical agents, which significantly increases the cost of therapy.

The range of medicinal products for the treatment of alopecia is presented mainly by foreign manufacturers, among which the largest percentage are shampoos, solutions, sprays and means for topical application, scalp and hair care lines in the form of ampoule solutions, capsules, masks, gels, creams, systems for administration by using mesotherapy containing hair growth stimulators of both natural and synthetic origin.

Most of the products presented on the pharmaceutical market of Ukraine have an effect without taking into account the physiological changes in the scalp and hair follicles, which makes us talk about the need for complex therapy with the effect of several types of products on most links of the pathological process.

The aim of the study. The purpose of our research is to select the optimal composition of active and auxiliary substances, taking into account the compatibility of components and the therapeutic effect for the creation of a new domestic medicinal product in the form of a lotion for dermal application on the scalp for the treatment of alopecia.

Materials and research methods: The following substances were selected as active pharmaceutical ingredients: aminopyrrole, dexpanthenol, extracts of medicinal plant raw materials (nettle, burdock, marsh yarrow), essential oils (thyme, peppermint, narrow-leaved lavender), melatonin. Ethanol 90%, glycerin, lactic acid, benzoic acid and purified water were used as excipients in the process of manufacturing the lotion for the treatment of alopecia.

Research methods. On the basis of the experimentally obtained and statistically processed results, research methods and techniques were used in the work: physico-chemical (mass fraction of ethanol, pH, thermal stability, colloidal stability), organoleptic (appearance, color, smell) and sensory methods of researching the developed lotion samples.

Main results. The substantiation of the composition of the lotion for the complex therapy of non-scarring forms of alopecia included an experimental selection of the optimal ratio of medicinal extracts of bulrush, nettle and burdock, as well as auxiliary substances capable of providing the necessary properties of the medicinal form: stability, distribution, bioavailability, ease of use when spraying.

A hydrophilic base is chosen as the base of the lotion - a solution based on purified water, ethanol 90% and glycerin, which allows you to dissolve all the necessary ingredients, taking into account their polarity and chemical nature. In addition, hair lotion has a number of advantages over other medicinal forms, for example, creams, ointments or gels, because it is more comfortably applied to the hair.

Quality indicators were determined in the obtained samples, and their sensory characteristics were also studied on the subjects (ease of application, uniformity of distribution, absence of stickiness, burning, itching, films after drying).

The prepared lotion for the correction of alopecia is a homogeneous, transparent, slightly opalescent liquid of emerald green color with a pleasant aroma of essential oils of mint, thyme and lavender.

Sample No. 2 did not allow uniform distribution of the lotion, probably due to the low content of glycerin. Thus, the study of the sensory properties of the lotion for the treatment of alopecia made it possible to choose sample No. 3, which met all the requirements of the regulatory documentation in terms of quality indicators, did not change its properties during storage for 1 month, and satisfied the requirements of users regarding sensory properties.

When analyzing the obtained results, we came to the conclusion that according to the main criteria, the obtained lotion sample meets the requirements of regulatory documentation. Additional research, which may be the goal of our further research, is needed to confirm the stability of the manufactured lotion after 12 months.

Due to the content of bioactive components, the developed lotion predictably helps prevent excessive hair loss and increase their number in the phase of active growth. As a result of its use, hair follicles are strengthened and excessive hair loss is stopped.

The natural components included in its composition effectively restore the structure of damaged hair, intensively nourish weakened roots and moisturize the scalp. With regular use of the product by sprinkling the lotion and rubbing it into partings over the entire area of the scalp, excessive hair loss is stopped, natural shine and silkiness are restored, and combing becomes easier.

Conclusions: The optimal composition of active and auxiliary substances was selected, taking into account the compatibility of the components and the therapeutic effect. The selected lotion sample developed will be used in further research. On the basis of conducted physico-chemical, pharmaco-technological, organoleptic and sensory studies, the optimal composition of the lotion (sample No. 2) was determined, the ingredients are compatible with each other.