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Новая концепция комплексного парентерального питания предполагает сочетание растворов моносахаридов и аминокислотных смесей с жировыми эмульсиями в таких препаратах как «Нутрифлекс» и «Нутрифлекс липид» (Швейцария). Кроме того, жировые эмульсии можно использовать как основу для создания комбинированных препаратов с целью введения гидрофильных и липофильных веществ, солюбилизации лекарственных веществ с низкой растворимостью в воде и получения стабильных препаратов с соединениями, подверженными гидролизу в водной среде.

Несомненно, что применение фармацевтических эмульсий в медицинской практике очень перспективно, а исследования в этой области, направленные на разработку новых эмульсионных лекарственных препаратов, носят актуальный характер.

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IMPROVEMENT OF TECHNOLOGY EXTEMPORAL SUSPENSION

Summary: To meet the needs of the population in medical supplies is the actual expansion of the range of extemporal drugs and their production in the form of pre-prepared drugs for storage in pharmacy and for sale by prescriptions.

This article shows the results of a study of pharmacy technology of suspension with dermatol and the results of a study its stability during a month of storage.

Key words: technology, suspension, pharmacy.

Relevance. In the modern world, skin diseases increase every year. This can be explained by a poor environmental situation, emotional stress, deterioration of food quality and the increasing number of diseases of internal organs. All this is not the best way affects our skin and with each year become more prevalent diseases such as dermatitis (atopic, contact, traumatic, allergic, etc.), as well as eczema and acne [4].

For the treatment of these pathologies prescribe drugs both industrial and extemporal production. Ready-made factory drugs for the treatment of dermatological diseases contain antiseptics, antibiotics, corticosteroids and others [2]. Among the extemporal drugs often doctors prescribe ointments, powders and suspensions of medicinal substances of these groups.

Production of pharmacy service STD clinics and other medical institutions of this profile, extemporal is prepared medicines in large quantities, so the actual translation is frequently used in formulations of in-store preparing the workpiece. It is necessary to develop optimal technology and to examine the stability.

Purpose. The aim of our work was to improve the technology of one of the extemporal of suspension formulations, intended for treatment of dermatological diseases.

To perform this work it was necessary to collect and analyze contemporary recipes of extemporal suspensions, conduct research to improve the technology of one of the formulations of suspensions, to conduct a study of the stability of the improved drug.

Materials and methods. In one of the production of pharmacies there is a need in the production as the procurement of pre-prepared drugs (the suspension) of the following composition:

Benzocaine 2.0
Mentholi 1.0
Dermatholi 5.0
Zinci oxydi 5.0
Amyli 10.0
Glycerini 15.0
Aquae purificatae ad 200.0

Technology this suspension causes some difficulties, because it spelled out the two substances of hydrophobic character (menthol and benzocaine), which are not dissolved in the prescribed solvent. From literature data it is known that to stabilize such suspensions required the addition of surface-active substances, which hydrophilizing the surface of the hydrophobic particles [3].

Also be aware that when the joint grinding of menthol benzocaine, the formation of the eutectic alloy. But the study of literature data on this issue showed that the formation of the eutectic alloy allows to achieve uniform distribution of hydrophobic substances in the large mass of the powdery hydrophilic substances.

In the first stage of the research we were prepared with suspension technology № 1: in a preheated mortar and rubbed with menthol and benzocaine, and then to the resulting eutectic was added sequentially zinc oxide, dermatol and starch, dispersion with glycerol and added water (sample № 1).

We also tested a technology with the addition of surface-active excipients [5] used in the production pharmacies for stabilization of suspensions, namely Tween – 80.

Technology 2: menthol blended with alcohol, mixed with benzocaine, added drops of tween-80, then the technology is similar to the first embodiment (sample № 2).

Analysis of the composition of extemporal formulations of suspensions showed that doctors prescribe suspension as aqueous and non-aqueous solvents, but more often at combined. Therefore, in the third embodiment, the technology we proposed in the test composition to replace some of the water purified in ethyl alcohol 70%.

Technology № 3: in a bottle holiday was dissolved in alcohol benzocaine and menthol, in a mortar was prepared a suspension of hydrophilic substances, mixing them with glycerin and water, then added the alcoholic solution (sample № 3).

To improve the efficiency of grinding of insoluble substances have been proposed as a pre-mixing viscous glycerol with purified water for more fluid moving. This will allow to more efficiently disperse the substance by the Deryagin's rule.

Technology 4: in a mortar was dispersion a hydrophilic substance with a mixture of water and glycerin, then added the alcoholic solution of the hydrophobic substance (sample № 3).

For all the prepared samples of the slurry were carried out studies of sediment stability and resuspending according to the method of SPhU [1].

Results and discussion. Analysis of extemporal formulations of suspensions showed that they contain from 6 to 10-12 components and are issued in aqueous or non-aqueous solvents, and combinations thereof. Ethyl alcohol is most often prescribed in a concentration of 70%, but there are recipes and 96% alcohol, or mixture of alcohol and water in the ratio 1:1 or 1:2.

In addition, the compositions of the formulations often contain other solvents: glycerin, camphor alcohol and ether medical. The presence of non-polar solvents allows you to enter in the composition of suspensions of hydrophobic substances in dissolved form, which greatly simplifies the technology and increases the bioavailability of drugs.

During storage in the sample № 1 surface sediment appeared needle-like crystals. This can be explained by the fact that menthol and benzocaine crystallization of the eutectic in the aquatic environment. Upon agitation the crystals were destroyed, but it is not possible to speak of a uniform distribution of hydrophobic substances in suspension.

In the preparation of sample № 2 mixtures of hydrophilic substances formed a lumpy mass, which was hard to dispersion with glycerin, which can be attributed to poor wettability of the eutectic mixture.

In sensory evaluation of appearance of slurries sample № 2 had an opaque supernatant layer, which was not possible to estimate the deposition rate of the dispersed phase.

In model 3 during the dispersion of hydrophilic substances with glycerin according by the Deryagin's rule observed the formation of thick lumpy heterogeneous mass.

In the sample № 4 for the dispersion of hydrophilic substances with a mixture of water and glycerin were able to spend quality grinding and to achieve homogeneity of the suspension.

Immediately after preparation of the study samples prepared suspensions showed a higher resistance of the sample № 4.

All the prepared samples were laid on storage at room temperature, protected from light. After 1 day, 10 days and 1 month we have been researching the sedimentation stability and resuspendition of suspension's samples who prepared by different techniques.

Research in the process of storage showed a slight decrease in the sedimentation stability of all samples, which indicates the possibility of preparing a suspension of this recipe as of in-store preparing of the workpiece. The study of resuspendition showed the best results from samples prepared using stabilizer and cooked in a combination of solvents.

Conclusions. Studies have shown the feasibility of partial replacement of the solvent with purified water to ethanol and the use of a mixture of glycerin with water for dispersion of hydrophilic substances in the process of preparation of the suspension. Preparation of a suspension for improved technology will ensure the stability of the drug within 1 month of storage, which will allow the pharmacy to prepare this suspension in the form of pre-prepared drugs for storage in pharmacy and for sale by prescriptions.

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BACKGROUND OF THE CREATION OF SOLID DRUG FORM OF «URONEFRON»

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ОБГРУНТУВАННЯ СТВОРЕННЯ ТВЕРДОЇ ЛІКАРСЬКОЇ ФОРМИ ПРЕПАРАТУ «УРОНЕФРОН»

Одним з основних напрямків розвитку сучасної фармацевтичної промисловості є розширення асортименту і пошук ефективних і безпечних лікарських засобів, у тому числі рослинного походження.

На сьогоднішній день лікарським засобам рослинного походження належить вагома частка в арсеналі лікарських препаратів кожної фармакологічної групи. І надалі спостерігається стійка тенденція до збільшення споживчого потенціалу на лікарські засоби рослинного походження. Згідно даних ВООЗ, близько 80% населення світу користуються, в основному, лікарськими засобами природного походження. Широке використання фітопрепаратів для профілактики та лікування багатьох захворювань зумовлене наявністю їх чітко виражених переваг перед препаратами синтетичного походження, а саме багатостороння та водночас м`яка фармакологічна дія на організм, мала токсичність, можливість тривалого застосування для лікування хронічних захворювань. Тому, однією з важливих проблем сучасної фармацевтичної технології є збільшення кількості на ринку України вітчизняних лікарських препаратів рослинного походження за рахунок розширення асортименту лікарських