

## STUDY OF THE STABILITY OF ORAL SUSPENSION BASED ON SILICON DIOXIDE

Yasser Ibn Tattoo

Scientific supervisor: ass. prof. Yuryeva G. B.  
National University of Pharmacy, Kharkiv, Ukraine  
tl@nuph.edu.ua

**Introduction.** The possibility of the use of medicines by doctors and patients should be based on the conviction of the complete preservation of their specific pharmacological activity. This principle is guaranteed by the appropriate tests, which allow to fix the immutability of the properties of medicines during storage. All changes in medicines, like a different kind of transformation of the active or auxiliary substances, will certainly affect their pharmacotherapeutic action. It has long been known that during the storage of medicines, slower or more rapid changes in their properties occur, having a different character and severity. These changes may include reducing the content of active ingredients, pharmacological activity or changing the technological properties of the dosage forms. All these characteristics determine the shelf-life, which for some medicines may be only a few days, for others – a few years. As is known, in the process of obtaining and storage of medicines some decreasing or changes in their therapeutic activity are occur, due mainly to various chemical transformations of medicinal substances. These changes in medicinal substances, which are based on the principles of chemical kinetics, flow rate, order of reactions, fully determine the shelf-life of medicine, their stability. Thus, the development of medicines requires a thorough study of their stability, which gives conviction that the specific pharmacological activity and the physicochemical properties of medicine are completely preserved.

**Aim.** The aim of our work was to study the stability of the developed oral suspension with silicon dioxide at the two temperatures in dark glass bottles.

**Materials and methods.** The quality of the suspension samples was assessed by the following parameters: appearance, resuspendability, aggregate stability, qualitative reactions of identification of silicon dioxide and stabilizer, pH value, mass of the bottle content, quantitative contents of silicone dioxide (gravimetric analysis) and preserving agent (high-performance liquid chromatography), microbiological purity.

**Results and discussion.** Based on the results of the research conducted, the stability of the developed suspension during 1 year was established under two temperature regimes + (8÷15) °C and + (15÷25) °C.

**Conclusions.** The types of instability of liquid dosage forms and possible ways to avoid them are reviewed and summarized. The physical, chemical, microbiological and technological properties of the suspension have been experimentally investigated and shelf life of medicine is established.

## DEVELOPMENT OF CREAM FOR THE TREATMENT OF CRACKS ON THE HEELS

Yehorova D.S.

Scientific supervisor: professor Polovko N.P.  
National University of Pharmacy, Kharkiv, Ukraine  
dasha.s.yehorova@gmail.com

**Introduction.** Treatment of cracks on the heels is a long and difficult process that requires competent approach and patience. Cracks on the heels deliver physical and aesthetic discomfort, pain during the walk. The problem begins with thin notches on the heels, which eventually go into deep and painful cracks.

Heels should have a healthy and well-groomed appearance. If the treatment of cracks is not timely and effective the problem may escalate and substantially affects the quality of life.

**Aim.** The purpose of this work it is an experimental development of the cream for the treatment cracks on the heels and proving its effectiveness in the treatment and prevention of this problem.

**Materials and methods.** Analysis of existing and effective drugs for the treatment of cracks on the heels in Ukraine. Search for an optimal emulsifier for water-in-oil emulsion. Search for the concentrations of the emulsifier, oils, active substances and preservative using the experimental method.

Research and comparison of physico-chemical, organoleptic and sensory properties of experimental specimens.

**Result and discussion.** Experimentally studied samples of bases that containing 6-8% water-in-oil emulsion Sorbitan Olivem(Olivem-900) and 50-60% vegetable oil. Experimental studies have shown that necessary organoleptic, consumer and rheological properties has a sample of 60% of the oil phase and 8% of the emulsifier. To ensure antioxidant, anti-inflammatory and reparative action, we included sunflower oil, %, wheat germ oil, grape seed oil, Calendula CO<sub>2</sub> extract, Rosehip CO<sub>2</sub> extract, retinol acetate, oil solution of tocopherol acetate 10%.

As a result of the study, the composition of the cream from cracks on the heels has been developed. It contains in its composition 8% emulsifier of the second kind Olivem-900, sunflower oil 46,5%, wheat germ oil 3%, grape seed oil, Calendula CO<sub>2</sub> extract 1%, Rosehip CO<sub>2</sub> extract 4%, retinol acetate (vitamin A) 1%, oil solution of tocopherol acetate 10% (vitamin E) 1,5% As a preservative we use water soluble preservative potassium sorbate 0,2% and oil soluble preservative Euxyl PE 9010 0,5%.

**Conclusions.** Composition of the cream for treatment cracks on the heels is presented. It is rational to development of available, high quality and effective medicines for the pharmaceutical industry in Ukraine.

## **DEVELOPMENT TECHNOLOGY AND AGGEMBLY FOR BRONCHOPULMOERY DISEASES**

Yevtushenko T.V.

Scientific supervisors: ass. prof. Zhyvora N.V., ass. prof. Chushenko V.M., ass. Vislous O.A.

National University of Pharmacy, Kharkiv, Ukraine

Chushenkovn@gmail.com

**Introduction.** Today, the study of medicinal herbs and collections is actual and promising. First, this is due to the growing interest of the population in preparations of plant origin. The second factor is the distribution among the population of national traditions of herbal treatment. The basis for this choice is an increasingly active public attitude towards their own health, as well as the risk of using synthetic drugs. In addition, of course, one cannot but mention that the modern consumer is more inclined to buy herbs and fees not only for treatment, but also for the prevention of various diseases. Modern scholars are focusing on drugs of natural origin. The growth of the role of herbs and doses and other phytotherapeutic drugs is evident – in 2015, it was estimated at 15-20%, while the increase in the entire pharmaceutical market is estimated at a maximum of 10%. Herbal medicinal products occupy a significant place in modern pharmacotherapy. These are chemically pure substances isolated from plants, based on which many analogues are synthesized and purified complexes of natural substances, and a large group of complex preparations from plants (infusions, decoctions, doses, tinctures, extracts, etc.).

Important place in the treatment is given to the pharmacotherapy of respiratory diseases, whose spread is increasing rhinitis, sinusitis, pharyngitis, angina, bronchitis, tracheitis, obstructive pulmonary disease, pneumonia, and the like. Recently, respiratory diseases occupy a significant place in the overall structure of diseases and most often develop under the direct influence of environmental factors, which include strong gas pollution and dust, increased content of harmful toxins in the air, and so on.

Medicinal herbs are used for medical purposes for many centuries. Despite the considerable progress of modern organic chemistry, which provides the production of high-quality synthetic biologically active substances used in pharmacy, the popularity of herbal preparations around the world not only does not fall, but also steadily grows.

To date, there is a wide range of medicines for the treatment of upper and lower respiratory tract diseases that are related to various pharmacological groups. However, among all the variety of medicines you need to choose a drug that will have maximum efficiency and safety.

**Aim.** The purpose of our work is to develop the composition and technology of expectorant, bronchodilator and extensor extemporal collection for the treatment of bronchopulmonary diseases and cough in particular.