

MINISTRY OF PUBLIC HEALTH OF UKRAINE  
NATIONAL UNIVERSITY OF PHARMACY

**TOPICAL ISSUES OF NEW  
DRUGS DEVELOPMENT**

Abstracts of XXV International Scientific  
And Practical Conference  
Of Young Scientists And Student

April 18-20, 2018

Kharkiv

Kharkiv  
NUPh  
2018

## 5. TECHNOLOGY OF PHARMACEUTICAL, PERFUMERY AND COSMETIC PRODUCTS

Al Obaidi Ahmed Salim; Sc. s.: ass. prof. Yudina Yu.V., ass. prof. Grubnik I.M.	132
Babaev Rahat, Shpychak O.S., Tykhonov A.I.	133
Begiyeva M. V.; Sc. s.: assoc. prof. Krikliiva I. O.	134
Bezкровna K. S.; Sc. s.: prof. Shulga L. I.	134
Borshchov N. S.; Sc. s.: assoc. prof. Khokhlova L. N.	135
Gomeniuk V. D.; Sc. s.: assoc. prof. Gerbina N. A.	136
Gurova K. D.; Sc. s.: assoc. prof. Spiridonov S. V.	136
Ismail Ajub Khaki,; Sc. s.: ass. prof. Yudina Yu.V.	138
Ivaniuk O. I.; Sc. s.: prof. Yarnykh T. G.	139
Jaber Ashad Ajad; Sc. s.: ass. prof. Yudina Yu.V.	140
Kebelesh A. M.; Sc. s.: assoc. prof. Krikliiva I. O.	141
Khanina N. V.; Sc. s.: prof. Levitin Ye. Ya.	142
Kondrat N. A., Brukhovetska A. V.; Sc. s.: assoc. prof. Rybachuk V. D.	143
Lavrova A. D.; Sc. s.: assoc. prof. Kryklyva I. O.	144
Lebid' I. N., Erish S. K., Zhyvora N. V.; Sc. s.: assoc. prof. Zhyvora N. V.	144
Makarenko M. L.; Sc. s.: assoc. prof. Masliy Ju. S.	146
Makhsoudov K. S.; Sc. s.: assoc. prof. Kukhtenko H. P.	146
Mikolov S. I.; Sc. s.: assoc. prof. Krasinco V. O.	148
Nesterenko T. O.; Sc. s.: assoc. prof. Azarenko Yu. M.	148
Raximberganov M. M.; Sc. s.: assoc. prof. Kukhtenko H. P.	150
Saidalim Amondinov; Sc. s.: assoc. prof. Pulyaev D.S.	150
Sarrat Durgham Khaled Abed; Sc. s.: ass. prof. Yudina Yu.V., ass. prof. Grubnik I.M.	151
Tsarkova A. V.; Sc. s.: assoc. prof. Khokhlova L. N.	153
Ursu I. P.; Sc. s.: assoc. prof. Zhukovina O. V.	154
Yevtushenko T. V., Gutyar N. Yu.; Sc. s.: prof. Kotenko A.M.	155
Yurieva K. S.; Sc. s.: assoc. prof. Kutovaya O. V.	156
Yurieva K. S.; Sc. s.: assoc. prof. Shapovalov A. V.	156

## 6. EXTEMPORAL AND MANUFACTURE DRUG TECHNOLOGY SECTION

Al Iasiri Amir Chasib; Sc. s.: assoc. prof. Yurieva A. B.	160
Al Karavi Sufian; Sc. s.: assoc. prof. Herasymova I. V.	160
Alkhamdani Alkhusein Ali; Sc. s.: assoc. prof. Herasymova I. V.	161
Baybala I. O.; Sc. s.: assoc. prof. Chushenko V. N.	162
Belyev Kakadzhan; Sc. s.: prof. Khokhlenkova N. V.	162
Benfdil Meryem; Sc. s.: assoc. prof. Sichkar A. A.	163
Bervinov Ye. A.; Sc. s.: assoc. prof. Azarenko Yu. M.	164
Demydov A. Yu.; Sc. s.: assoc. prof. Azarenko Yu. M.	165
Dzhasim Ali Rabea; Sc. s.: assoc. prof. Yurieva A. B.	167
Ellalami Ahmed; Sc. s.: assoc. prof. Zujkina S. S.	167
Faiz Fatima Zahra; Sc. s.: assoc. prof. Sichkar A. A.	168
Kasmi Gita; Sc. s.: prof. Khokhlenkova N. V.	169
Konovalenko I. S., Lytkin D. V.; Sc. s.: prof. Polovko N. P.	170
Kuttiev Nurbek; Sc. s.: assoc. prof. Semchenko K. V.	170
Kyslytsia O. H.; Sc. s.: assoc. prof. Azarenko Yu. M.	171
Litvinova O. M.; Sc. s.: assoc. prof. Levachkova Yu. V., assoc. prof. Chushenko V. M.	172
Lukina A. A., Orlova E. V., Kylosova I. A.	173
Makhdy Mokhammad; Sc. s.: prof. Khokhlenkova N. V.	174

Apparently, the greatest adsorption activity have gels with sorbents on the basis of NaCMC, Carbopol and CSMA.

Gels based on MC have the lowest adsorption capacity. Further study of functional activity of gels based on MC is impractical.

The MCC Sorbent showed low results in an experiment of the study of the sorbents adsorption capacity, and was therefore excluded from further research.

Based on the research conducted, the composition of sorption gels has been developed:

<b>Compose No. 1</b>	<b>Compose No. 2</b>
Enterogel 15.0	Polysorb 10.0
Carbopol 0.3	Carbopol 0.35
sol.NaOH10% 1.2	sol.NaOH10% 1.4
Nipagin 0.15	Nipagin 0.15
Nipazole 0.05	Nipazole 0.05
Water purified to100.0	Water purified to100.0

**Conclusion.** It was defined functional properties of sorbents, gel bases and compositions of gels with sorbents by sorption of methylene blue and albumin. According to research results, optimal sorbents (polysorb, enterogel) and gel formers (copolymer of styrene with maleic anhydride, carbopol) were identified.

Rheological research on optimization of structural and mechanical properties of adsorption vaginal gels was conducted. Established sorbents and gel concentration in the range of rheological optimum. Experimentally proved optimum composition of adsorption vaginal gels based on Carbopol containing Enterogel 15 % and Polysorb 10 %.

## **STUDY OF ANTIMICROBIC ACTIVITY OF NASAL GEL WITH ESSENTIAL OILS IN ORDER TO SELECT A GELLING AGENT**

Kebelesh A. M.

Scientific supervisor: assoc. prof. Krikliiva I. O.  
National University of Pharmacy, Kharkiv, Ukraine  
irinakrikliiva@ukr.net

**Introduction** In recent years, there has been a significant increase in the number of patients with acute and chronic nasal diseases, their share in the structure of general ENT pathology is increasing. Inflammatory processes of sinuses often lead to the development of chronic bronchitis, bronchial asthma, pneumonia. One of the symptoms of upper respiratory tract (URT) disease is rhinitis

**Aim.** The purpose of our work was to develop the composition and technology of nasal gel for the treatment of rhinitis, which included essential oils of rosemary, lemon, eucalyptus and tea tree. To study the antimicrobial activity, three samples of nasal gel were obtained. As gelling agents, carbopol 980 (sample number 1), HEC (sample number 2) and Aristoflex (sample number 3) in the amount of 2% were selected.

**Materials and methods.** The antimicrobial activity of the prototype samples was studied in vitro by diffusion in agar method ("wells" method). This method is based on the ability of active substances to diffuse into agar medium, which has been previously inoculated with microorganism cultures. As test cultures used pure cultures: gram-positive microorganisms *Staphylococcus aureus* ATCC 25293, spore culture of *Bacillus subtilis* ATCC 6633, gram-negative culture of *Escherichia coli* ATCC 25922 and *Candida albicans* ATCC 885-653. In conducting experiments, one-day suspensions of bacterial microorganisms in physiological solution were used. Microbial loading was 10<sup>7</sup> colony-forming microorganisms units in 1 ml of nutrient medium (CFU / ml).

**Results and discussion.** Data obtained experimentally indicate that the specimens No. 1 and No. 3 of the dosage form studied have a broad spectrum of antimicrobial activity and a significant antimicrobial activity in relation to the used test strains. The investigated sample of gel №1 shows a higher activity in relation to all used cultures of microorganisms compared with the action of sample No. 3 (*Staphylococcus aureus* - 17,8 ± 0,4 and 16,2 ± 0,4 respectively, *Bacillus subtilis* - 17,5 ± 0,4 and 15,2 ± 0,4 respectively,

*Escherichia coli* -  $15,6 \pm 0,5$  and  $14,8 \pm 0,4$ ; *Candida albicans* -  $15,2 \pm 0,5,4$  and  $13,6 \pm 0,4$ ). Thus, it should be noted that in the presence of identical active substances in samples number 1 and number 3 their release from the base of sample number 1 is more effective and antimicrobial activity is higher than in sample number 3 (diameters of microorganisms growth inhibition zones are greater).

**Conclusions.** Studies have shown that prospective for further work in developing the composition and technology of nasal gel for the treatment of rhinitis is sample No. 1 based on Carbopol 980 at a concentration of 2%.

## **DEVELOPMENT OF MODERN NANOTECHNOLOGICAL MEANS FOR TONSILLIT TREATMENT**

Khanina N. V.

Scientific supervisor: prof. Levitin Ye. Ya.

National University of Pharmacy, Kharkiv, Ukraine

neorganic@nuph.edu.ua

**Introduction.** Chronic tonsillitis is a common disease among all population groups, especially among children and young people. With a long course of the disease, there are violations of the immune status, which leads to exacerbations of this disease and promotes the transition of the process into a more severe form, and also correlates with more pronounced changes in the immune status.

**Aim.** In the treatment of inflammatory diseases of the pharynx and tonsils, depending on their etiology, antibiotic therapy is usually used (since the most common pathogens are microorganisms from the group of streptococci, staphylococci), analgesic drugs. Oral administration of antibiotics in the treatment of inflammatory diseases of the pharynx and tonsils in many cases is not rational. In connection with the impossibility of fixing drugs in the pharyngeal cavity, soft medicinal forms are not used in treatment. The task of our research is the development of magnetically controlled ointments for the treatment of tonsillitis with a view to fixing them on the surface of the tonsils.

**Materials and methods.** At the Department of Inorganic Chemistry the development of magneto-controlled ointments on a hydrophilic basis for adults, which contain nano-sized magnetite, levomycetin, ciprofloxacin, trimecaine, methyluracil, a mixture of polyethylene oxide-400 and polyethylene oxide-1500. For children, levomycetin is not used (due to its bitter taste), and instead of ciprofloxacin, azithromycin is used. The use of levomycetin is due to the fact that, being a wide-spectrum antibiotic, it affects many Gram-positive and Gram-negative bacteria. Ciprofloxacin is an antibacterial agent for systemic use from the group of fluoroquinolones. It is active in infections caused by gram-negative microorganisms, in particular *Pseudomonas aeruginosa* or staphylococci. Azithromycin – antibiotic-macrolide, is widely used for infections of the upper and lower respiratory tract and ENT organs. The use of methyluracil is explained by its ability to accelerate the regeneration of cells, promote wound healing, stimulate cellular and humoral immunity factors. Nano particles of synthetic magnetite type  $Fe_3O_4$  are allowed for use in the pharmaceutical industry as a magnetic component of ointments. (ТУ У 24.1–02010936–006:2008). Being in the ointment in a certain concentration, they convert the ointment into a magnetically controlled.

**Results and discussion.** Based on the created ointments, a method of treatment of tonsillitis was developed. It is based on the use of a magnetically controlled ointment that allows not only to retain on the surface of the tonsils, but also to fill the lacunae with the ointment to the full depth under the action of an external magnetic field (neodymium-iron-boron-magnesium magnet with a remanent magnetization of 1.3 Tesla).

The developed composition of the ointment is prepared in the pharmacy under the prescription of a doctor.

**Conclusions.** The use of a new magnetic ointment with its fixation and retention with an external magnetic field makes it possible to carry out effective conservative local treatment of inflammatory diseases of the pharynx and tonsils, allows eliminating (or reducing) the need for taking internal medicines, which increases the pharmacotherapeutic effect and is safer and more rational method of treatment.