

SYLLABUS OF THE EDUCATIONAL COMPONENT

Pharmacognostic basis of phytotherapy

for students of higher education, 4th year of full-time education (4.10Д)

educational program «Pharmacy»

specialty «226 Pharmacy, industrial pharmacy»

field of knowledge «22 Health care»

the second (master's) level of higher education

TEACHERS



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5. Consultations: *online, take place every Thursday from 12.05 to 12.50*

6. Brief summary of the educational component: The «Pharmacognostic basis of phytotherapy» as an educational component provides knowledge, skills and abilities on the basic principles of phytotherapy, medicinal plants of traditional medicine used to treat the most common diseases: cardiovascular system, gastrointestinal tract and liver, genitourinary system and kidneys, and used in aromalogy, phytotherapy, diet therapy, dermatology and cosmetics. In modern clinical medicine, the role of phytotherapy as a complementary (reinforcing, supplementing) method is progressively growing. This is caused, first of all, by the insignificant toxicity and biological safety for the body of most herbal remedies, as well as the specific features of their activity: a significant breadth of the therapeutic spectrum, the gradual increase of the clinical and pharmacological effect, the complexity of the effect on various mechanisms of the pathological process, relatively infrequent manifestations of negative, in particular, allergic reactions even in conditions of their long-term use. These features determine the role of phytotherapy and its means in the long-term outpatient treatment of patients with chronic diseases, at the stage of post-hospital restorative treatment, as well as in sanatorium-resort conditions. The program is designed to enable students of higher education not only to learn the main theoretical aspects of phytotherapy, but also to acquire practical skills in its use in complex treatment at various stages of the pathological process, as well as in the rehabilitation of patients.

7. The purpose of teaching the educational component: the formation of students of higher education with a holistic view of the possibilities, forms and methods of phytotherapy, understanding of its place and role in the complex treatment, rehabilitation and prevention of the patient, taking into account the choleretic approach based on the established diagnosis; learning methods of preparation of various medicinal forms, as well as the ability to find and identify official and unofficial LR in nature by morphological features, periods of their rational preparation, conditions of drying and use.

8. Competences in accordance with the educational program:

Soft-skills / General competences (GC):

GC 02. Knowledge and understanding of the subject area; understanding of professional activity.

GC 05. Ability to evaluate and ensure the quality of performed works.

GC 09. Ability to use information and communication technologies

GC 11. Ability to apply knowledge in practical situations, make informed decisions.

GC 12. Ability to conduct research at the appropriate level.

Hard-skills / Professional (special) competences (PC):

PC 1. Ability to integrate knowledge and solve complex pharmacy problems in broad or multidisciplinary contexts.

PC 2. Ability to collect, interpret and apply data necessary for professional activity, research and implementation of innovative projects in the field of pharmacy.

PC 3. Ability to solve pharmacy problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.

PC 4. The ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, in particular to people who are studying.

PC 6. The ability to consult on prescription and non-prescription drugs and other products of the pharmacy assortment; pharmaceutical care during the selection and sale of an over-the-counter medicinal product by evaluating the risk/benefit ratio, compatibility, indications and contraindications guided by data on the health status of a specific patient, taking into account the biopharmaceutical, pharmacokinetic, pharmacodynamics and physicochemical features of the medicinal product and other products of the pharmacy assortment.

PC 10. Ability to ensure proper storage of medicines and other products of the pharmacy assortment in accordance with their physico-chemical properties and the rules of Good Storage Practice (GSP) in healthcare facilities. FC 19. Ability to organize and carry out quality control of medicinal products of natural and synthetic origin in accordance with the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (quality control methods), technological instructions, etc.; to prevent the distribution of low-quality, falsified and unregistered medicinal products.

PC 19. Ability to organize and carry out quality control of medicinal products of natural and synthetic origin in accordance with the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QC), technological instructions, etc.; to prevent the distribution of low-quality, falsified and unregistered medicinal products.

PC 20. Ability to develop and evaluate methods of quality control of medicinal products of natural and synthetic origin, including active pharmaceutical ingredients, medicinal plant raw materials and auxiliary substances using physical, chemical, physico-chemical, biological, microbiological and pharmaco-technological methods; carry out standardization of medicinal products in accordance with current requirements.

9. The program learning outcomes: (PLO):

PLO 1. To have and apply specialized conceptual knowledge in the field of pharmacy and related fields, taking into account modern scientific achievements.

PLO 2. Critically consider scientific and applied problems in the field of pharmacy.

PLO 3. To have specialized knowledge and skills/skills for solving professional problems and tasks, including for the purpose of further development of knowledge and procedures in the field of pharmacy.

PLO 6. Develop and make effective decisions to solve complex/complex problems of pharmacy personally and based on the results of joint discussion; formulate the goals of one's own activity and the activity of the collective, taking into account public and industrial interests, the general strategy and existing limitations, determine the optimal ways to achieve goals.

PLO 7. Collect the necessary information on the development and production of medicinal products, using professional literature, patents, databases and other sources; systematize, analyze and evaluate it, in particular, using statistical analysis.

PLO 8. Formulate, argue, clearly and concretely convey to specialists and non-specialist's information based on one's own knowledge and professional experience, the main trends in the development of world pharmacy and related industries.

PLO 9. To carry out professional activities using information technologies, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

PLO 12. Determine the advantages and disadvantages of drugs of natural and synthetic origin of various pharmacological groups, taking into account their chemical, physicochemical, biopharmaceutical, pharmacokinetic

and pharmacodynamics features and the type of dosage form. Recommend to consumer's medicinal products and other products of the pharmacy assortment with the provision of advisory assistance and pharmaceutical care.

PLO 17. Predict and determine the impact of environmental factors on the quality and consumer characteristics of medicinal products of natural and synthetic origin and other products of the pharmacy assortment, organize their storage in accordance with their physical and chemical properties and the rules of Good Storage Practices (GSP).

PLO 26. Provide and implement quality control of medicinal products of natural and synthetic origin and document its results; issue quality certificates and analysis certificates taking into account the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QC), technological instructions, etc.; take measures to prevent the distribution of low-quality, falsified and unregistered medicinal products.

PLO 27. Determine the main chemical and pharmaceutical characteristics of medicinal products of natural and synthetic origin; choose and/or develop quality control methods for the purpose of their standardization using physical, chemical, physico-chemical, biological, microbiological and pharmaco-technological methods in accordance with current requirements.

10. Status of the educational component: *selective.*

11. Prerequisites of the discipline: based on the knowledge acquired by students of higher education while studying the Latin language, botany, organic chemistry, biological chemistry, analytical chemistry, physical and colloidal chemistry, pharmaceutical and toxicological chemistry, normal and pathological human physiology, pharmacology, drug technology, technologies of perfumery and cosmetic products, clinical pharmacy.

12. The volume of the educational component: 3.0 ECTS credits (90 h): 8 hours - lectures, 26 hours - practical classes, 56 hours of independent work.

13. Organization of training:

Teaching format of the educational component: lectures, practical classes.

Content of the educational component:

Content module 1. *Basics of phytotherapy.*

Topic 1. Definition of the course "Pharmacognostic basis of phytotherapy" and its connection with related disciplines. The current state of production of phytopreparations.

Topic 2. MPM processing in Ukraine.

Topic 3. Poisonous and potent plants in phytotherapy.

Topic 4. Basic principles of treatment with plants.

Content module 2. *MP and MPM, collections and teas used in phytotherapy for diseases of various systems of the human body.*

Topic 5. Phytotherapy of allergic diseases and diseases of the immune system.

Topic 6. Phytotherapy of neuroses.

Topic 7. Phytotherapy of respiratory diseases.

Topic 8. Phytotherapy of diseases of the cardiovascular system.

Topic 9. Phytotherapy of diseases of the gastrointestinal tract.

Topic 10. Phytotherapy of diseases of the kidneys and genitourinary system.

Topic 11. Phytotherapy in dermatology and cosmetology. Aromatherapy.

Topic 12. Phytotherapy in the prevention and treatment of radiation sickness.

Topic 13. Phytotherapy of hypo- and vitamin deficiency.

Topic 14. Agricultural and technical crops as a source of BAR and their use in the treatment of various diseases.

14. Forms and types of academic achievements supervision:

Forms and types of academic achievements supervision

Current control of theoretical and practical knowledge in the form of an oral, written and test survey using standardized methods for diagnosing knowledge, abilities and skills is carried out at each laboratory session in accordance with the specific goals of the topic and during the individual work of the teacher for topics that are not included in the structure of the lesson and are developed by the student of higher education independently.

Control of content modules - control of theoretical knowledge in the form of an oral, written and test survey of applicants for higher education, as well as practical skills in determining the identity and benignity of MPM. Control refers to knowledge and skills, both acquired in classes, and objects and topics developed independently by students of higher education.

Form of control - semester credit.

15. Evaluation system of the educational component:

The results of the semester control in the form of a semester credit are evaluated on a 100-point, undifferentiated scale ("passed", "failed") and on the ECTS scale.

Points from the educational component are calculated according to the following ratio:

Types of assessment	Maximum number of points (% of the number of points per module - for content modules)
Модуль 1	
Content module 1: • assessment of topics (1-4) (work in classes 1-4): work in classes (oral survey, writing input controls, solving logical problems); • control of content module 1 (solving theoretical, practical and logical tasks)	50 (50 %)
Content module 2: • assessment of topics (5-14) (work in classes 5- 14): work in classes (oral survey, writing input controls, solving logical problems); • control of content module 2 (solving theoretical, practical and logical tasks)	50 (50 %)
Semester control of the module	100

The independent work of students of higher education is evaluated during the current control and during the control of the content module

16. Academic policies of the educational component:

Academic Integrity Policy. It is based on the principles of academic integrity stated in the POL "On measures to prevent cases of academic plagiarism at the National University of Ukraine". Writing off when evaluating the success of a student of higher education during control activities in practical (seminar, laboratory) classes, control of content modules and semester exams is prohibited (including using mobile devices). Abstracts must have correct text references to the used literature. The detection of signs of academic dishonesty in the student's written work is a reason for the teacher not to enroll it.

Class attendance policy. An applicant for higher education is obliged to attend classes (POL "On the organization of the educational process of the National University of Pharmacy ") according to the schedule (<https://nuph.edu.ua/rozklad-zanyat/>), to observe ethical norms of behavior.

Policy regarding deadlines, working out, rating increase, liquidation of academic debts. The completion of missed classes by an applicant for higher education is carried out in accordance with the POL "Regulations on the completion of missed classes by applicants and the procedure for eliminating academic differences in the curricula of the National University of Pharmacy" in accordance with the schedule for working out missed classes established by the department. Increasing the rating and liquidating academic

debts from the educational component is carried out by the applicants in accordance with the procedure specified in the POL "On the procedure for evaluating the results of training of applicants for higher education at the National University of Pharmacy ". Applicants of higher education are obliged to comply with all deadlines set by the department for the completion of written works from the educational component. Works that are submitted late without valid reasons are assessed at a lower grade - up to 20% of the maximum number of points for this type of work.

Policy on appeals of evaluation of the educational component (appeals). Applicants for higher education have the right to contest (appeal) the evaluation of the educational component obtained during control measures. The appeal is carried out in accordance with the POL "Regulations on appealing the results of the final supervision of knowledge by applicants of higher education at the National University of Pharmacy".

17. Information and educational and methodical support of the discipline:

The main reading suggestions	<ol style="list-style-type: none"> 1. Pharmacognosy: textbook for higher school students / V.S. Kyslychenko, L.V. Upry, Ya.V. Dyakonova, V.Yu. Kuznetsova, I.G. Zinchenko, O.A. Kyslychenko; ed. by V.S. Kyslychenko. – Kharkiv : NUPh : GoldenPages, 2011. – 552 p.; il. 2. Medicinal plants resource science : handbook for students of higher schools / V.S. Kyslychenko, L.V. Upry, I.G. Zinchenko, O.A. Kyslychenko, S.I. Stepanova; ed. by V.S. Kyslychenko. – Kharkiv : NUPh : Golden Pages, 2012. – 168 p. 3. Pharmacognosy: textbook for students of higher / V.S. Kyslychenko, L.V. Lenchyk, I.G. Gurieva et al.; ed. by V.S. Kyslychenko. – Kharkiv : NUPh : Golden Pages, 2019. – 584 p. 4. Gokhale S. B., Kokate C. K., Purohit A. P. A textbook of Pharmacognosy. 29th Edition. 2017. – 284 p. 5. Kumar N. A Textbook Of Pharmacognosy. A.I.T.B.S. Publishers, India. 2010. – 502 p.13. 6. Shah B. N., Seth A.K. Textbook of Pharmacognosy and Phytochemistry. Elsevier. 2010. – 587 p. 7. Singh A. A Textbook of Pharmacognosy. Pharma Book Syndicate. 2013. – 836 p.
Supplementary reading suggestions for in-depth study of the educational component	<ol style="list-style-type: none"> 1. British Pharmacopoeia Commission, 2016. British Pharmacopoeia. London: TSO. 2. European Pharmacopoeia. 8th ed including supplements 1 (2014), 2 (2014), 3 (15), 4 (15), 5(2015). Council of Europe, Strasbourg, France. 2014. 3. Textbook of Pharmacognosy and Phytochemistry - E-Book / Shah B., Seth A. – Elsevier Health Sciences, 2012. – 620 p. 4. European Pharmacopoeia. 8th ed including supplements 1 (2014), 2 (2014), 3 (15), 4 (15), 5(2015). Council of Europe, Strasbourg, France. 2014.
Current electronic information resources (magazines, websites) for in-depth study of the educational component	<ol style="list-style-type: none"> 1. Website of the Department of Chemistry of Natural Compounds – www.cnc.nuph.edu.ua 2. Website of the NUPh library – http://lib.nuph.edu.ua 3. Vernadsky National Library of Ukraine – http://www.nbuv.gov.ua 4. V. N. Karazin Kharkiv National University (Official Website) – http://www.univer.kharkov.ua 5. Website of the KhNMU Scientific Library – http://libr.knmu.kharkov.ua 6. V.G. Korolenko Kharkiv State Scientific Library – http://korolenko.kharkov.com 7. The National Center for Biotechnology Information advances science and health - http://www.ncbi.nlm.nih.gov/pubmed.
Distance learning system Moodle	https://pharmel.kharkiv.edu/moodle/course/view.php?id=5089

18. Technical and software support of the educational component: computers for testing, multimedia device, screen, herbarium samples, MPM samples, samples of official collections.