

**SYLLABUS OF THE EDUCATIONAL COMPONENT**

**Pharmacognostic basis of phytotherapy**

**for higher education students of the 4th year of full-time education (2023/2024)**

**((4.10д) years of age for foreign citizens studying English)**

**educational program «Pharmacy»**

**specialty «226 Pharmacy, industrial pharmacy»**

**field of knowledge «22 Healthcare»**

**the second (master's) level of higher education**

**TEACHERS**



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Candidate of Pharmaceutical Sciences, Associate Professor of the institution of higher education, Department of Pharmacognosy and Nutriciology of the National University of Pharmacy. Experience of scientific and pedagogical activity – 11 years. Reads courses: «Pharmacognosy with the basics of resource science», «Nutriciology», «Pharmacognostic basis of phytotherapy». Research interests: chemistry of natural compounds, plant cultivation.

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Candidate of Pharmaceutical Sciences, assistant of the institution of higher education, Department of Pharmacognosy and Nutriciology of the National University of Pharmacy. Experience of scientific and pedagogical activity – 6 years. Reads courses: «Pharmacognosy with the basics of resource science», «Nutriciology», «Pharmacognostic basis of phytotherapy». Research interests: chemistry of natural compounds, plant cultivation.

**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 choleric 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 MPM 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 6. Knowledge and understanding of the subject area and understanding of professional activity.

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

PC 16. Ability to organize and conduct the procurement of medicinal plant raw materials in accordance with the rules of Good Practice of Cultivation and Collection of Raw Materials of Plant Origin (GACP), as a guarantee of the quality of medicinal plant raw materials and medications based on it. Ability to predict and calculate ways to solve the problem of conservation and protection of thickets of wild medicinal plants, in accordance with current legislation.

PC 20. Ability to develop methods for quality control of medications, including active pharmaceutical ingredients, medicinal plant raw materials and excipients using physical, chemical, physicochemical, biological, microbiological, pharmacotechnological and pharmacorganoleptic control methods.

### **9. The program learning outcomes: (PLO):**

PLO 7. To perform professional activities using creative methods and approaches.

PLO 28. To organize and conduct rational procurement of medicinal plant raw materials. To develop and implement measures for the protection, reproduction and rational use of wild species of medicinal plants.

### **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, 24 hours - practical classes, 58 hours of independent work.

### **13. Organization of training:**

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

#### **Content of the educational component:**

**Module 1. Rules and principles of phytotherapy. MP and MPM, collections and teas used in phytotherapy for diseases of various systems of the human body.**

#### **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.

Conditions for admission to control of content modules: the presence of a minimum number of points for topics (lessons) of the content module, for control of content module 1 (for control of content module 2).

Conditions for admission to the semester control: current rating of more than 60 points, availability of the minimum number of points for the control of content modules 1 and 2, absence of unworked passes of practical and seminar classes, fulfillment of all requirements stipulated by the work program of the educational component.

#### 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 Provisions of the document "On measures to prevent cases of academic plagiarism at the National University of Pharmacy ". 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 (Provisions of the document "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 Provisions of the document "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 Provisions of the document "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 Provisions of the document "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:

<p><b>The main reading suggestions</b></p>	<ol style="list-style-type: none"> <li>1. Fundamentals of pharmacognosy and phytotherapy E-BOOK / Heinrich M. et al. – Elsevier Health Sciences, 2017.</li> <li>2. Bone K., Mills S. Principles and practice of phytotherapy: modern herbal medicine. – Elsevier Health Sciences, 2012.</li> <li>3. Pharmacognosy: textbook for higher school students / V.S. Kyslychenko, L.V. Upyr, Ya.V. Dyakonova, V.Yu. Kuznetsova, I.G. Zinchenko, O.A. Kyslychenko; ed. by V.S. Kyslychenko. – Kharkiv : NUPh : GoldenPages, 2011. – 552 p.; il.</li> </ol>
<p><b>Supplementary reading suggestions for in-depth study of the educational component</b></p>	<ol style="list-style-type: none"> <li>1. Governa P. et al. Phytotherapy in the management of diabetes: a review // <i>Molecules</i>. – 2018. – T. 23. – №. 1. – P. 105.</li> <li>2. Kelber O., Bauer R., Kubelka W. Phytotherapy in functional gastrointestinal disorders // <i>Digestive Diseases</i>. – 2018. – T. 35. – №. Suppl. 1. – C. 36-42.</li> <li>3. Lopes C. M. et al. Phytotherapy and nutritional supplements on breast cancer // <i>BioMed research international</i>. – 2017. – T. 2017.</li> <li>4. Textbook of Pharmacognosy and Phytochemistry - E-Book / Shah B., Seth A. – Elsevier Health Sciences, 2012. – 620 p.</li> <li>5. Pieroni A. et al. Traditional phytotherapy and trans-cultural pharmacy among Turkish migrants living in Cologne, Germany // <i>Journal of ethnopharmacology</i>. – 2005. – T. 102. – №. 1. – P. 69-88.</li> <li>6. Akah P. A., Okoli C. O., Nwafor S. V. Phytotherapy in the management of diabetes mellitus // <i>Journal of Natural Remedies</i>. – 2002. – T. 2. – №. 1. – P. 1-10.</li> <li>7. Laccourreye O. et al. Benefits, pitfalls and risks of phytotherapy in clinical practice in otorhinolaryngology // <i>European annals of otorhinolaryngology, head and neck diseases</i>. – 2017. – T. 134. – №. 2. – P. 95-99.</li> <li>8. Kim S. W. Phytotherapy: emerging therapeutic option in urologic disease // <i>Translational andrology and urology</i>. – 2012. – T. 1. – №. 3. – C. 181.</li> </ol>

	<p>9. Medicinal plants resource science : handbook for students of higher schools / V.S. Kyslychenko, L.V. Upyr, I.G. Zinchenko, O.A. Kyslychenko, S.I. Stepanova; ed. by V.S. Kyslychenko. – Kharkiv : NUPh : Golden Pages, 2012. – 168 p.</p> <p>10. Gokhale S. B., Kokate C. K., Purohit A. P. A textbook of Pharmacognosy. 29th Edition. 2017. – 284 p.</p> <p>11. Kumar N. A Textbook Of Pharmacognosy. A.I.T.B.S. Publishers, India. 2010. – 502 p.</p> <p>12. Shah B. N., Seth A.K. Textbook of Pharmacognosy and Phytochemistry. Elsevier. 2010. – 587 p.</p> <p>13. Singh A. A Textbook of Pharmacognosy. Pharma Book Syndicate. 2013. – 836 p.</p>
<b>Current electronic information resources (magazines, websites) for in-depth study of the educational component</b>	<p>1. Website of the Department of Pharmacognosy and Nutriciology – <a href="http://www.cnc.nuph.edu.ua">www.cnc.nuph.edu.ua</a></p> <p>2. Website of the NUPh library – <a href="http://lib.nuph.edu.ua">http://lib.nuph.edu.ua</a></p> <p>3. Electronic archive of the NUPh – <a href="http://dspace.nuph.edu.ua">http://dspace.nuph.edu.ua</a></p> <p>4. Center for Distance Technologies of the National Academy of Sciences of Ukraine – <a href="http://pharmel.kharkiv.edu">pharmel.kharkiv.edu</a></p> <p>5. NUPh. Online tests – <a href="http://tests.nuph.edu.ua">http://tests.nuph.edu.ua</a></p> <p>6. Vernadsky National Library of Ukraine – <a href="http://www.nbu.gov.ua">http://www.nbu.gov.ua</a></p> <p>7. V.G. Korolenko Kharkiv State Scientific Library – <a href="http://korolenko.kharkov.com">http://korolenko.kharkov.com</a></p>
<b>Distance learning system Moodle</b>	<p><a href="https://pharmel.kharkiv.edu/moodle/course/view.php?id=5089">https://pharmel.kharkiv.edu/moodle/course/view.php?id=5089</a></p> <p><a href="https://pharmel.kharkiv.edu/moodle/course/view.php?id=5220">https://pharmel.kharkiv.edu/moodle/course/view.php?id=5220</a></p>

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