

Odessa National Medical University

Department of General and Clinical Pharmacology and Pharmacognosy

methodological developments
workshops
for full-time department faculty

Discipline: "Resursovedenie medicinal plants"
Session № 7 "Accounting for medicinal plant resources, the principles of their management and protection. Resource group LR Ukraine. The principles of the protection of wild LR. LR Green and Red Book of Ukraine, the Red List of the International Union for Conservation of Nature"

Course 3 Faculty medico-pharmaceutical

approved by
in the methodical meeting of the Department
August 28, 2025
Protocol № 1
Head. Department of



_____ prof. Rozhkovsky YV

Odessa 2025

Subject of practical lesson № 7: Consideration of medicinal plants resources, the principles of their management and protection. Resource group LR Ukraine. The principles of the protection of wild LR. LR Green and Red Book of Ukraine, the Red List of the International Union for Conservation of Nature

1. Background. Natural resources are reduced due to the action of herbal drugs of many abiotic and anthropogenic factors, accompanying the development of mankind. In Western and Central Europe, medicinal plant resources, the problem is already solved by almost a century of cultivation necessary herbal drugs or by imports from third world countries. In our country, pharmaceutical production while mainly focused on domestic raw materials wild LR, which is why the problem of their management, conservation and protection is very important and urgent. Material of this topic is based on the scientific publications of data on the effects of various factors on the current state of resources in some regions of Ukraine, as well as the results of resursovedcheskih research department. Besides,

2. Purpose of the activity:

- familiarize students with the factors that negatively affect the state of the RL resources;
- to discuss preventive measures on pollution of the RL;
- to form a picture of the system of rational use of medicinal plant raw materials resources;
- to provide advanced information about resource groups LR Ukraine and introduce the principles of their allocation;
- to introduce the principles and measures of protection (saving) the gene pool of the Republic of Lithuania in Ukraine and the world.

2.1. Learning Objectives:

-know (The level of assimilation of Bepal'ko -II):

- karegorizatsiyu HR resources in Ukraine, the Republic of Latvia in Ukraine resource groups;
- principles and the protection of wild species of the Republic of Lithuania;
- LR Red Book of Ukraine, the IUCN Red List, security installations involving Latvia listed in the Green Book of Ukraine;
- an international protected area categorization and categorization adopted in Ukraine

- to be able (Mastering level -III):

- to allocate used national pharmacy and medicine, types, which reduced the resources among the medicinal plants and in need of protection;
- assessing the impact of various factors on the state of natural resources of specific wild species of Latvia;
- identify and propose concrete measures to preserve and increase the resources of specific species of wild LR Ukraine

2.2. Educational goals:

-sposobstvovat formation of ecological outlook and liability for future pharmacists the use of natural resources, the RL.

3. Interdisciplinary integration:

number	discipline	Know	be able to
1.	previous Medical botany	Phase of development, the environmental conditions of growth of medicinal plants;	To assess the current conditions of growth of specific types of LR
2.	pharmacognosy	The effect of various factors on the contents of the main storage and a bar RL	Choosing optimum blank areas and periods native RL
3.	Intra integration (the topic of this discipline, which integrates that which is studied) ...	Resursovedenie as science and academic discipline. The raw material base of medicinal plants in Ukraine. The use of herbal medicines in the Republic of Lithuania and the modern world medical practice. Accounting for medicinal plant resources, the principles of their management and protection. Cultivation of Latvia in Ukraine and the world.	develop: on the harvesting instructions, drying and storage of raw wild higher plants, algae, lichens and fungi, newsletters; make reports for doctors and advise the public on matters related to the harvesting and use of raw materials and products of natural origin.

4. Content of the topic

The theoretical material topics outlined in the text of the lecture number 4, and the following sources of information:

1. Heinrich M., Barnes J., Prieto-Garcia J., Gibbons S., Williamson E. M. Fundamentals of Pharmacognosy and Phytotherapy. 3rd ed. Elsevier, 2023. 282 p.
2. Medicinal Plant Resources : textbook / V. M. Minarchenko et al. Kyiv : Palyvoda A. V., 2019. 128 p.

3. Bioprospecting of Ethnomedicinal Plant Resources: Sustainable Utilization and Restoration / ed. by G. Shukla et al. CRC Press, 2024. 466 p.
4. Medicinal Plants: Bioprospecting and Pharmacognosy / ed. by A. B. Sharangi, K. V. Peter. Apple Academic Press, 2022. 602 p.
5. Van Wyk B. E., Wink M. Medicinal Plants of the World. 2nd ed. CABI, 2017.

5. Plan and organizational structure of classes

number	The basic stages of employment, their functions and content	Such. goals in development levels	training and controls	Methodological materials. ensuring and the control of knowledge	duration min., or %
1.	Preparatory stage Organizational measures. The wording of the objectives. Checking homework	II		Methodological developments; test items	1 minute. 2 minutes. 7 min.
2.	The main stage. <i>Location</i> - training room. Carrying out practical work	II-III	Maps, slides, herbaria, background and scientific literature	Methodical development - "Resursoznavstvo medicinal plants. Laboratory Journal"	130 min.
3.	The final stage. <i>Location</i> - training room. Check final level of knowledge. Inspection and assessment of practical skills. Checking and signing of the protocols in the laboratory journal. Scoring knowledge. Summing up the lessons and homework wording.	II-III II-III			15 minutes. 10 min. 10 min. 5 minutes.

6. Materials of methodical maintenance of employment.

6.1. control materials for the preparatory phase of exercises

Test questions:

1. What part of Ukraine, in your opinion, is the richest resources of the Republic of Lithuania, and why? The poor?
2. Resources any wild LR caused the greatest damage to the radioactive contamination of the territory?
3. What are widespread species LR with potentially large reserves of raw materials.
4. What are you famous local views LR with limited resources.
5. What are the HR, in your opinion, require full protection at the state level? at the regional level?
6. What are you known LR from the Red Book of Ukraine.
7. Bring the general rules that provide a rational preform RL.

tests:

1. The main difference from the HFC GF-11, which was used, we still have
 - A. Reducing the total number of articles
 - B. Harmonization with Europe. Pharmacopoeia
 - B. Lack of Latin names of medicinal plants
 - G. Use only brand new herbal drug research methods
 - D. Differences no
2. The source of some dosage forms (substances), which are used by modern medicine are mostly tropical trees and shrubs?
 - A. Essential Oils
 - B. balm
 - V. fatty oils
 - G. gums
 - D. Small
3. Traditional Chinese medicine is the source of use in the modern world of medical practice, such as a medicinal plant
 - A. Ginseng
 - B. Coffee
 - B. Olive
 - G. Eucalyptus
 - D. Castor
4. What is the plant - the source of herbal drugs has been applied in Europe (World) medicine after the discovery of America:
 - A lemon;
 - B. chocolate tree (cocoa)
 - V. coffee tree;
 - G. ginseng;

D.rauvolfiya snake

5. gum arabic, used in the production of emulsions, tablets, pills, extracted from plants of the genus in the world:

- A. Astragalus
- B. Apricot
- B. Plum
- G. Aloe
- D. Cranberry

6. Standartizatsiyu of the raw materials used for the manufacture of many drugs European medicine, carried out on the content of alkaloids calculated as hyoscyamine. Call it raw:

- A. Radices Berberidis
- B. Folia Belladonnae.
- B. Herba Chelidonii.
- G. Herba Thermopsis lanceolatae.
- D. Fructus Capsici.

7. Select the drug, raw material for the manufacture of which are the fruits of parsnip:

- A. Olimetin
- B. Ammifurin
- V. Beroksan
- G. kolhamina
- D. Korglikon

8. The plant of Mediterranean origin cultivated in Crimean as a fruit, as well as a source of crude drug containing furokumariny. Call it raw:

- A. Folia Salviae
- B. Fructus Rosae
- V. Folia Fici caricae
- G. Herba Solani laciniati
- D. Fructus Ribis nigri

9. What is the pharmacopeia of herbal drugs Ukrainian flora plants can be recommended to the patient to beriberi C:

- A. Rhizoma Tormentillae
- B. Cortex Quercus;
- V. Fructus Rosae
- G. Cortex Viburni opuli;
- D. Folium Menthae piperitae.

10. The crushed seeds of this plant - sources of medical oil, which has long been used world medicine, pre-treated with hot steam to destroy toksalbumin ricin. Call it the plant:

- A. Cucurbita pepo

B. Helianthus annuus

B. Corn common

G. castor bean

D. Soy bristly

11. The cultivation of this plant and the production of the corresponding RL is under control of the UN and is illegal in Ukraine. These plants are:

A. Ginseng

B. Astragalus sherstistotsvetkovy

Ungern Victor V.

G. Machok yellow

D. Mack hypnotic

12. Global demand for olive oil as a food product and injectables solvent, very large. Which oil can be replaced with olive oil in its pharmaceutical use

A. Oleum Amugdalarum.

B. Oleum Ricini.

B. Oleum Cucurbitae.

G. Oleum Lini.

D. Oleum Maydis.

Rauwolfia serpentina 13. Formulations used for the treatment of hypertension. High quality raw materials of tropical plants verify the content:

A. Vinblastine

B. atropine

B. hyoscyamine

G.Rezerpina

D. adonitoksina

6.2. Materials of methodical maintenance of the main phase of occupation

Methods of operation, performing the steps of:

A) Specification of concepts and actions that characterize the influence of various factors on the current state of the natural resources of the Republic of Lithuania and the ways of their rational use and protection (replenishment of students own dictionaries of terms and concepts, the development of the scheme).

B) Introduction to the various existing resources categorization LR Ukraine (processing of scientific research DS Ivashina, BV Zavirukha, A. Koziakov)

B) Selection of important HR resource of Ukraine in 5 groups (BV Zavirukha)

D) Characterization of medicinal plants with disappearing and missing resources in Ukraine, protected, or those who need to be protected.

D) Relationship with the network of nature reserve fund of Ukraine and the world.

E) Homework: 1- Develop the content of the previous Red Book of Ukraine (1996) and the last (2009) year of publications, the isolation and characterization of types of LR; 2 Study of the NRF and territories where the European gene pool is maintained LR.

List of educational and practical tasks to be carried out during the practical sessions:

Exercise 1. Using the recommended educational literature conclude own vocabulary of terms (concepts) of the subject (Table fill. 24)

Table 24.

Protection of medicinal plants

The term (concept) one	Definition (content) 2
Rational use of resources	
pesticides	
Laws of Ukraine, which are relevant to the Environment	
The object of natural reserve fund	
reserve	
wildlife sanctuary	
uppercase The Site	
National natural (landscape) park	
Security at international, national levels	
Security at the regional level	
The Red Book of Ukraine	
Evropeysky IUCN Red List	
Approaches to the protection of the Republic of Lithuania	

Problem 2. Summarize theoretical knowledge of topics in the form of a circuit that reproduces the factors that affect the current and future state of the RL resources.

Scheme. Factors of influence on the current and future state of the RL resources.

6.3. Materials control the final phase of occupation

Questions for self-control:

1. How the principles to be followed in the use of natural resources, including herbal drugs?
2. How to calculate the volume of the rational use of HR resources?
3. Resource Group HR Ukraine.
4. Factors affecting the state of the RL resources.
5. The principles and forms of protection of the Republic of Lithuania.
6. The role of protected areas in the preservation of the gene pool of the Republic of Lithuania.
7. International agreement on the conservation and enhancement of biodiversity, including - the gene pool of the Republic of Lithuania.

Tests and situational tasks:

1. The resource potential of the Odessa region. we can estimate the allocation to the zone
 - A. Visoko raw saturation
 - B. Moderate raw saturation
 - B. Low raw saturation
 - G. Negativnogo influence of anthropogenic load
 - D. complete lack of HR feedstock
2. Protection of the Republic of Latvia natural resources is carried out by organizational environmental measures, provides:
 - A. Cultivation best thickets with significant reserves
 - B. Study of the dynamics of accumulation of biologically active substances
 - B. Introduction to the culture and the introduction of
 - G. Perspective and yearly planning sizes and areas RL blank
 - D. Carrying out explanatory work among the population about the need to conserve resources, the Republic of Lithuania
3. In the Odessa region the blank RL lily of the valley is not possible due
 - A. The lack of natural habitat type
 - B. Very low productivity of known populations
 - B. Introduction of species in the European Red List
 - G. Saving the species in the Red Data Book of Ukraine
 - D. The prohibition of blanks as a species protected at the regional level.
4. Distribute HR - wild sources of raw materials for the recovery rate after a one-off pieces (starting with the most rapid): *Persicaria maculosa*; gorchak snake; male fern; St. John's wort; elfwort.
6. Such LR species as yellow gentian, *Baranez vulgaris*, *arnica* protected mainly in goszapovednikah
 - A. Black
 - B. Carpathian

- V. Crimean
- G. Askaniyskoy
- D. Kanev

7. Preparations adonis - kardiotonichnye popular herbal remedies that are not currently provided by natural resources in Ukraine. Determination of raw material stocks was carried out by Spring Adonis

- A. Count Units
- B. According to model instances
- B. By projective cover
- G. geodesic
- D. On Eye

8. The administrative measures are one of the possible ways of protecting LR natural resources, which include:

- A. Introduction to the culture and the introduction of HR
- B. Carrying out explanatory work among the population about the need to conserve resources, the Republic of Lithuania
- B. Establishment of sanctuaries and nature reserves for rare species
- Investigation of the dynamics of accumulation of biologically active substances
- D. Cultivation best thickets with significant reserves

9. It is known that the natural habitat of this valuable medicinal plants - alkaloids sources antitussive actions in Ukraine are very limited, which is why the species was listed as endangered and eventually successfully put into commercial culture. Call it the plant:

- A. Celandine
- B. Belladonna drug
- B. Scopolia karniolijaska
- G. Machok yellow
- D. Thermopsis lantsetolistnogo

10. Select from the provided list of plants that have a limited range and, consequently, little resources in Ukraine:

and -zveroboy ordinary, b - elfwort in - Rhodiola rosea, Mr. -oduvanchik drug, d - Scopolia karniolijaskaya, e - harrow the field.

10. Select from the provided list of HR species protected in the Odessa region: Sherstistotsvetkovy astragalus, mullein usual, Rosa Canina, elfwort, lily of the valley, thyme dvoivodovoy, liquorice, Melilotus officinalis, cyanosis blue, spring adonis, lily yellow chamomile . Which of these species are protected at the state level? At the international level?

1. For some traditional medical system brought to the world of modern scientific medicine raw materials - roots of aconite?

- A. China
- B. Tibet
- B. Indian (Ayurveda)
- G. Arab
- D. Slavic

2. Many food plants show curative and preventive properties. Thus, in a very large number of domestic pharmacy uses as a source LSR

- A. Tomatoes
- B. Cucumbers
- B. Carrots
- G. Apples
- D. Melons

3. This officinal in Ukraine RL contains saponins. Its dust causes irritation of the mucous membranes, so work with this raw material requires caution. Call it raw

- A. Rhizoma et radices Polemonii
- B. Rhizomata Tormentillae
- B. Radices Araliae
- G. Rhizomata Bistortae
- D. Rhizomata et radices Rubiae

4. Received analysis domestic wild medicinal plants of the family Polygonaceae. Grossly found: herbaceous plant, sheets with a red spot lanceolate, sockets available film coated compressed hairs. Inflorescence terminal, spicate dense brush. The plant is diagnosed as:

- A. Highlander bird.
- B. Highlander pepper
- B. Persicaria maculosa.
- G. Highlander snake.
- D. Buckwheat.

5. Trava yarrow is part of the stomach and fees used in Ukraine for the production of herbal medicines. According to the requirements of HFC quality of this raw material is evaluated by content:

- A. Kardioglikozidov,
- B. alkaloids,
- B. polysaccharides
- G. Essential oils and proazulen,
- D. Vitamins.

6. World Medicine uses a hepatoprotective agent of vegetable origin. Name medicinal herbs containing silybin and has hepatoprotective effect.

- A. The fruits of fennel.
- B. Flax seeds.

- B. Schisandra seeds.
- G. The fruits of milk thistle.
- D. pumpkin seeds.

7. The arsenal of the modern world medicine there ointments reparative properties, for the preparation of which requires the use of a fatty oil which has the ability to drying. is as follows:

- A. Oleum Cucurbitae
- B. Oleum Lini
- B. Oleum Persicorum
- G. Oleum Jecoris
- D. Oleum Cacao

8. The preventive properties of soy has long been used in oriental medicine, and now it is a source of substances that make up drugs with hepatoprotective action. What BAS soybeans rise to such action?

- A. polysaccharides
- B. micronutrients
- B. pigments,
- G. essential oils,
- D. phospholipids.

9. *Listya eucalyptus* containing essential oil, used for the production of European and Russian phytopreparations with bactericidal action. According to the requirements of HFC identification of raw materials produced by thin layer chromatography. On chromatografichnoy plate after reagent treatment identified:

- A. Quercetin,
- B. scopoletin,
- B. cineol,
- G. Apigenin,
- D. glaucine.

10. Flower buds tropical allspice contain essential oil used in Europe for the production of herbal medicines with an antiseptic action. According to the requirements of the State Pharmacopoeia of Ukraine, identification of raw materials is carried out by thin layer chromatography. Chromatography plate after reagent treatment zone is identified:

- A. scopoletin and umbeliferon,
- B. quercetin and rutin,
- B. scopolamine and hyoscyamine,
- G. apigenin and luteolin,
- D. eugenol and kariofilenu.

11. fitosredstv from the leaves of *Ginkgo biloba*, which uses the world medicine in the treatment of patients with impaired cerebral circulation. According to the requirements of the State Pharmacopoeia of Ukraine purity raw ginkgo is determined by content:

A anthraquinones
B flavonoids,
The polysaccharides
Mr. alkaloids
D vitamins.

12. Preparations of modern European medicine "Pasito", "novopassit" in Ukraine registered as a tranquilizing, sedative and mild hypnotic. Choose the source of these drugs

- A. Grass series
- B. Passiflora Grass
- B. The leaves of sage
- G. Leaves cranberries
- D. Grass periwinkle

13. Show by examples that traditional medical systems of the East is one of the sources of European medicine and pharmacy.

14. Suggest possible sources of vegetable fatty oils (oils), which uses the world's medicine and pharmacy, distributed them on the basis of: a) - springs with a temperate climate; b) - a tropical plant sources.

7. Literature Basic literature

1. Фармакогностичне ресурсознавство з основами інтродукції лікарських рослин / Навчальний посібник. – Полтава: ПДМУ, 2021.
2. Державна Фармакопея України : в 3 т. / ДП «Український науковий фармакопейний центр якості лікарських засобів». 2-е вид. Харків : Науковий фармакопейний центр, 2015. Т. 1. 1128 с.
3. Ресурсознавство лікарських рослин: Практикум / Тржецинський С. Д. та ін. – Запоріжжя: ЗДМУ, 2021.
4. Фармакогнозія: підручник для студентів фармацевтичних факультетів / Посилкіна О. В. та ін. – Харків: НФаУ, 2015–2018 (розділи, присвячені сировинній базі).
5. Тржецинський С. Д., Доля В. С., Денисенко О. М. Ресурсознавство лікарських рослин : навч.-метод. посіб. Запоріжжя : ЗДМУ, 2015. 115 с.
6. Грицик А. Р., Водославський В. М., Мельник М. В. Фармакогнозія. Ресурсознавство лікарських рослин : навч. посіб. Івано-Франківськ : ПП Голіней О. М., 2019. 248 с.
7. Зузук Б. М. Ресурсознавство лікарських рослин : навч. посіб. для студ. вищ. фармац. навч. закл. Вінниця : Нова Книга, 2015. 232 с.
8. Heinrich M., Barnes J., Prieto-Garcia J., Gibbons S., Williamson E. M. Fundamentals of Pharmacognosy and Phytotherapy. 3rd ed. Elsevier, 2023. 282 p.

9. Medicinal Plant Resources : textbook / V. M. Minarchenko et al. Kyiv : Palyvoda A. V., 2019. 128 p.
10. Bioprospecting of Ethnomedicinal Plant Resources: Sustainable Utilization and Restoration / ed. by G. Shukla et al. CRC Press, 2024. 466 p.
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12. Van Wyk B. E., Wink M. Medicinal Plants of the World. 2nd ed. CABI, 2017.

Additional literature:

13. Лікарські рослини: Рекомендаційний список літератури (актуальні видання 2024 року) / Уманський НУС.
14. Малопоширені ароматичні види лікарських рослин / Наукове видання. – Берегове: ЗУІ ім. Ф. Ракоці II, 2025.
15. Лабораторний журнал з ресурсознавства лікарських рослин : [посібник] / В. М. Мінарченко та ін. Київ : Паливода А. В., 2018. 94 с.
16. Фармакогнозія : підручник для студ. вищ. навч. закл. / В. С. Кисличенко та ін. ; за ред. В. С. Кисличенко. Харків : НФаУ : Золоті сторінки, 2015. 736 с.
17. Державна Фармакопея України : в 3 т. / ДП «Український науковий фармакопейний центр якості лікарських засобів». 2-е вид. Харків : Науковий фармакопейний центр, 2015. Т. 1. 1128 с. 520 p.

electronic resources

18. Medicinal Plant Names Services (MPNS) Resource. Kew Royal Botanic Gardens. URL: kew.org (дата звернення: 22.03.2026).
19. Ресурсознавство лікарських рослин : презентація лекції. Нац. фармац. ун-т. URL: https://cnc.nuph.edu.ua/wp-content/uploads/2023/09/prezentatsiia_resursoznnavstvo-lr.pdf (дата звернення: 22.03.2026).

9. Tema following classes: Accounting for medicinal plant resources, the principles of their management and protection.

Decision on resursovedeniyyu tasks: definition of productivity and operational stocks of wild medicinal plant raw materials. (4 hrs.)

Methodical recommendations were made by



associate professor Boyko IA