Assessment tools for conducting attestation in discipline «Pharmacognosy» for students of 2022 year of admission under the educational programme 33.05.01 Pharmacy, Specialist's degree, form of study full-time for the 2025-2026 academic year

1. Assessment tools for conducting current attestation in discipline.

The current attestation includes the following types of tasks: testing, solving situational problems, test work, interview on test questions, assessment of mastering practical skills (abilities).

1.1. Examples of test tasks

Checked indicators of achievement of competence: ОПК-1.1.1., ОПК-1.2.1, ОПК-1.3.1.

1. The main alkaloids of the raw material of yellow water lily belong to the group:
a) quinoline;
b) isoquinoline;
c) quinolizidine;
d) quinazoline.
2. Pharmacological action of the raw material of small periwinkle:
a) antitussive;
b) hypotensive;
c) hemostatic;
d) antitumor;
d) choleretic.
3. The end of drying of licorice roots is determined by the following signs:
a) the roots darken at the break;
b) the roots become soft, elastic;
c) the soil is easily separated from the roots;
d) the roots break with a characteristic crack;
d) the roots do not stain hands.
4. The content of glycyrrhizic acid in licorice roots according to ND is determined by the method of:
a) titration in non-aqueous media;
b) potentiometric titration;
c) gravimetric;
d) photoelectrocolorimetric;
d) spectrophotometric.
5. Pharmacological action of raw materials of Astragalus dasyanthus:
a) hemostatic;
b) expectorant;
c) hypotensive;
d) hypocholesterolemic;
d) anti-inflammatory.
6. The drug Flacarbin is obtained from raw materials of:
a) blue cyanosis;
b) naked licorice;
c) creeping tribulus;

d) common hops;
d) nipponic dioscorea.
7. The raw material consists of non-lignified leafy stems with flowers. The calyx is bell-shaped with five teeth. The color of the stems in the raw material is brownish-gray, the leaves are grayish-green, the flowers are yellow. The smell is weak, peculiar. The taste is sweetish. This is the characteristic of the raw material:
a) bogbean;
b) dandelion;
c) licorice;
d) woolly-flowered milk vetch;
d) tribulus terrestris.
8. The herb of tribulus terrestris is harvested from plants:
a) only wild;
b) only cultivated;
c) both wild and cultivated.
9. A positive result of the Liebermann-Burkhardt reaction is given by:
a) steroidal saponins;
b) triterpene saponins, derivatives of α-amyrin;
c) triterpene saponins, derivatives of β-amyrin;
d) triterpene saponins.
10. When determining the authenticity of dandelion raw materials, the FS provides for a qualitative reaction:
a) with Lugol's solution;
b) with 5% aluminum chloride solution;
c) Molisch after reaction with iodine;
d) foaming;
d) with Sudan III.

1.2. Examples of situational tasks

Checked indicators of achievement of competence: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.

1. An average sample of raw material of lesser periwinkle was received for analysis by the control and analytical laboratory. The following numerical indicators were established during the analysis: the content of the sum of alkaloids, determined titrimetrically in terms of vincamine hydrochloride, is not less than 0.61%; humidity - 17%; total ash - 8.5%; blackened leaves - 4%; organic impurity - 8%; mineral impurity - 1%. What should be done with the raw material?

2. During the analysis of buckthorn bark, the following was found: 1.0 pieces of bark covered with lichens; 3.0 pieces of bark thicker than 2 mm. No other impurities were found. Make a conclusion on the quality of the raw materials (based on the first analytical sample).

1.3. Examples of control work options

Checked indicators of achieving competence: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.
Option 1
1. Alkaloids. Concept. Classification.
2. Solanum lobata

Option 2
1. Qualitative analysis of raw materials containing alkaloids.
2. Ephedra equisetum

1.4. Examples of interview test questions
Checked indicators of competency achievement: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.

1. Alkaloids. Concept. Classification.
2. Biological role of alkaloids in plants. Distribution of alkaloids in the plant kingdom, distribution in plants.
3. Dynamics of alkaloid formation during plant development. Influence of environmental factors on the content of alkaloids in plants.
4. Physicochemical properties of alkaloids. Isolation of alkaloids from medicinal plant materials.
5. Qualitative analysis of raw materials containing alkaloids.
6. Quantitative analysis of raw materials containing alkaloids.
7. Features of procurement, drying and storage of raw materials. Ways of using alkaloid-bearing raw materials. 8. Medicinal plants and raw materials containing acyclic alkaloids and alkaloids with nitrogen in the side chain:
- Ephedra equisetum
- Capsicum
- Colchicum magnificum
9. Medicinal plant and raw materials containing pyrrolizidine derivatives:
- Senecio planifolia and rhomboidifolia
10. Medicinal plants and raw materials containing pyridine, piperidine derivatives:
- Anabasis aphylla
- Tobacco
- Makhorka
11. Medicinal plants and raw materials containing alkaloids with condensed pyrrolidine and piperidine rings:
- Belladonna species
- Black henbane
- Datura species
- Coca bush
12. Medicinal plants and raw materials containing quinolizidine alkaloids:
- Sophora pachycarpa
- Thermopsis species
- Yellow water lily
- Club moss
13. Medicinal plants and raw materials containing quinoline derivatives:
- Cinchona tree
14. Medicinal plants and raw materials containing isoquinoline derivatives:
- Common barberry
- Opium poppy
- Greater celandine
- Yellow poppy
- Macleaya species
- Canadian goldenseal
- Smooth stephanie
- Ungernia species

15. Medicinal plants and raw materials containing indole derivatives:
- Ergot
- Chilibukha
- Physostigma
- Small periwinkle
- Rose catharanthus
- Rauwolfia serpentina
- Passiflora incarnate
16. Medicinal plants and raw materials containing quinazoline alkaloids:
- Common harmala
17. Medicinal plant materials containing purine alkaloids:
- Chinese tea
- Coffee tree
- Chocolate tree
18. Medicinal plants and raw materials containing steroidal alkaloids:
- Veratrum lobelia
- Solanum lobata
19. Medicinal plant materials containing imidazole:
- Pilocarpus

1.5. Examples of tasks for assessing the development of practical skills (abilities)
Checked indicators of achievement of competence: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.
Medicinal plant material of blue cornflower, sandy immortelle has arrived at the pharmacy warehouse.
1) Give Russian and Latin names of medicinal plant material, producing plants, families.
2) To which subgroup of biologically active substances do the active substances of this plant belong.
3) Specify the features of the chemical structure and structural formulas of the active substances of this subgroup.
4) Name and describe the order regulating the procedure for storing this medicinal plant material.

2. Assessment tools for independent work of students
Assessment of independent work includes testing.
2.1. Examples of test tasks with a single answer
Checked indicators of achievement of competence: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.

1. Choose one answer out of four. The source of non-drying fatty oil are seeds:
a) flax.
b) sunflower.
c) sesame.
d) castor oil plant.
2. Choose one answer out of four. Transparent liquid of light yellow color, odorless or with a specific odor, pleasant oily taste. Does not dry in air. At a temperature of - 10˚C the oil should not solidify, remaining liquid and transparent, the appearance of a thin film on the surface of the oil is allowed. This is
a) peach oil.
b) sunflower oil.
c) olive oil
d) castor oil.

3. Choose one answer out of four. Unsaturated fatty acids form triglycerides, which at normal temperature have:
a) solid consistency
b) liquid consistency
c) viscous consistency
d) amorphous substances.
4. Choose one answer out of four. The amount of free, water-insoluble fatty acids can be determined by the number of:
a) acid
b) saponification
c) Reichert-Meisl
d) Polenske.
5. Choose one answer out of four. Fat-like substances include:
a) camphor
b) glycerin
c) spermaceti
d) rosin.
6. Choose one answer out of four. Fats are:
a) esters of high-molecular monohydric alcohols
b) esters of glycerin and higher fatty acids
c) ethers
d) high-molecular fatty acids.
7. Choose one answer out of four. To carry out a microchemical reaction on fatty oil, use the reagent:
a) Dragendorff
b) Lugol
c) Sudan III
d) Molisch
8. Choose one answer out of four. Lanolin belongs to the group of:
a) fatty oils.
b) fat-like substances.
c) alcohols.
d) solid fats.
9. Choose one answer out of four. The process of rancidity of fats is controlled by the value of the number:
a) Reichart-Meisl
b) acid
c) ether after acetylation
d) ether
10. Choose one answer out of four. The group of fatty oils by drying can be determined by the indicator:
a) ether number
b) density
c) iodine number
d) acid number

2.2. Examples of test tasks with multiple choice and/or matching and/or sequencing
Checked indicators of achievement of competence: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.
1. Choose two answers out of four. Spermaceti is obtained from:
a) cavities in the skull of the sperm whale
b) sperm whale fat
c) sperm whale skin

d) sperm whale bones
2. Choose three answers out of five. Fish oil is obtained from types of cod:
a) Pacific cod
b) Baltic cod
c) Atlantic cod
d) Indian cod
d) Okhotsk cod
3. Choose two answers out of four. Biologically active substances of cocoa raw materials belong to the following groups:
a) alkaloids
b) fatty oils
c) bitter glycosides
d) saponins
4. Select two answers out of four. Specify the refining methods:
a) ultrasonic
b) mechanical
c) coagulation
d) thermal
5. Select two answers out of four. Specify the alkaloids present in the chemical composition of cocoa seeds:
a) theophylline
b) theobromine
c) cocaine
d) caffeine
6. Select two answers out of four. Specify the pharmacological action of fish oil:
a) vitamin
b) hypocholesterolemic
c) expectorant
d) astringent
7. Select two answers out of four. Peach oil is obtained from the following plants of the Rosaceae family:
a) common peach
b) common apricot
c) black chokeberry
d) dog rose
8. Choose two answers out of four. Which saturated acids predominate in the composition of cocoa butter:
a) palmitic
b) stearic
c) linoleic
d) linolenic
9. Choose two answers out of four. Indicate oils that are drying:
a) linseed
b) hemp
c) olive
d) almond
10. Choose two answers out of four. Indicate the biologically active substances of fish oil:
a) fats
b) vitamins
c) alkaloids
d) saponins

2.3. Examples of open-ended tasks (open-ended questions)

Checked indicators of competency achievement: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.

1. The figure shows a microscopic preparation of a peppermint leaf. Name the anatomical and diagnostic feature presented under number 5. In your answer, give a one-word name for this feature in Russian.

2. Name the morphological group of raw materials harvested from motherwort. In your answer, give a one-word name in Russian.

3. Name the group of biologically active substances included in the fruits of Schisandra chinensis. In your answer, give a one-word name in Russian.

4. Name the main dominant substance in the chemical composition of peppermint. Give a one-word name in Russian in your answer.

5. Name the main pharmacological action of the raw material of Eleutherococcus senticosus. Give a one-word name in Russian in your answer.

3. Examples of tasks for assessing theoretical knowledge (in the form of testing) (specialized types of control)

Verifiable indicators of competency achievement: ОПК -1.1.1., ОПК-1.2.1, ОПК-1.3.1., ПК-4.1.1., ПК-4.2.1., ПК-4.3.1.

1. Specify the producing plant from which cinchona bark is harvested:
a) Cinchona pubescens
b) Carthamus dauricum
c) Rheum palmatum
d) Echinops vulgare

2. Types of Cinchona permitted for harvesting: 1) Cinchona pubescens, 2) Cinchona leggeriana, 3) Cinchona recutita, 3) Carthamus dauricum. Specify the correct combination:
a) All are correct
b) 1,2,3 are correct
c) 1,2 are correct
d) 1,2,4 are correct

3. Specify the life form of Cinchona pubescens:
a) evergreen tree
b) subshrub
c) woody liana
d) perennial herbaceous plant

4. Cinchona bark is harvested from plants:
a) only cultivated
b) only wild
c) cultivated and wild
d) raw materials are exported

5. Cinchona raw materials are:
a) leaves
b) bark
c) flowers
d) fruits

6. Cinchona bark contains alkaloid derivatives
a) isoquinoline
b) quinoline

c) quinolizidine
d) imidazole
7. Cinchona bark is standardized by:
a) content alkaloids
b) quinic acid content
c) qualitative Grahe reaction
d) qualitative Molisch reaction
8. Cinchona bark has the following effect:
a) antimalarial
b) antitumor
c) antihistamine
d) anticholinergic
9. Rauwolfia serpentina belongs to the family:
a) Asteraceae
b) Apocynaceae
c) Lamiaceae
d) Apiaceae
10. Specify the life form of Rauwolfia serpentina:
a) tree
b) evergreen shrub
c) woody vine
d) perennial herbaceous plant

4. Examples of tasks for assessing the acquisition of skills, practical abilities (specialized types of control)
Checked indicators of achievement of competence: OPK-1.1.1., OPK-1.2.1, OPK-1.3.1., PC-4.1.1., PC-4.2.1., PC-4.3.1.
1. Name herbariums No. 1; No. 2 in Russian and Latin. Determine which family they belong to, indicate the medicinal plant raw material harvested from these plants.
2. Name the medicinal plant raw material samples No. 1; No. 2; No. 3 in Russian and Latin. Determine the producing plants and families of these types of raw materials. Specify dosage forms and application in medical practice.

2. Assessment tools for conducting intermediate attestation in a discipline.

Intermediate attestation is carried out in the form of an exam.

List of questions to prepare for the intermediate attestation:

№	Questions for interim certification of the student	Indicators of achievement of the competence
1.	Definition of pharmacognosy as a science. Tasks of pharmacognosy, its relationship with related disciplines. The importance of pharmacognosy in the practical activities of pharmacognosy.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
2.	History of the origin and development of pharmacognosy. Domestic scientists and their contribution to the science of medicinal plants.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
3.	Raw material base of medicinal plants. Import and export of medicinal plant raw materials. Harvesting of raw materials from wild and cultivated medicinal plants.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

4.	Introduction of medicinal tropical and subtropical plants. Its importance for the production of valuable medicinal preparations. Cultivation of medicinal plants as a way of intensification of industrial production of medicinal plants in the Russian Federation.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
5.	Chemical composition of medicinal plants. Active, concomitant, ballast substances. Variability of the chemical composition of medicinal plants in the process of ontogenesis and under the influence of environmental factors.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
6.	Classification systems of medicinal plants and medicinal plant raw materials (botanical, morphological, chemical, pharmacological). Their importance for pharmacognosy.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
7.	Basics of the procurement process. Characteristics of its individual stages.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
8.	Technique of collection and primary processing of medicinal plant raw materials of different morphological groups.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
9.	Drying of medicinal plant raw materials (techniques and methods of drying of different chemical and morphological groups of raw materials, types of dryers). Packaging. Labelling.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
10.	Pharmacognostic analysis of medicinal plant raw materials. Determination of authenticity and benignity of raw materials.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
11.	Macroscopic analysis. General techniques and methods of research of separate groups of medicinal plant raw materials. Diagnostic signs of different groups of raw materials, their characteristics and significance.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
12.	Microscopic analysis. Significance. Methods of performance in the study of raw materials of different morphological groups. Anatomo-diagnostic signs, their characteristics and significance.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
13.	Phytochemical analysis of medicinal plant raw materials (qualitative and quantitative).	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
14.	Benignity of medicinal plant raw materials. Characteristics of numerical indicators reflecting the good quality of raw materials.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
15.	Purity of raw materials. Determination of purity of medicinal plant raw materials. Characteristics of impurities.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
16.	Commodity analysis of medicinal plant raw materials, its stages, characteristic of stages. Legal significance of commodity analysis.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
17.	Barn pests. Determination of infestation of raw materials by barn pests. Degrees of infestation. Use of raw materials infested with barn pests. Control measures.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
18.	Standardisation of medicinal plant raw materials. Normative documents regulating the quality of	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1;

	raw materials. Structure of the private pharmacopoeial article.	ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
19.	Storage of medicinal plant raw materials in pharmacies and warehouses. Preventive measures and pest control of medicinal plant raw materials.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
20.	General characteristics of vitamins, their classification. Features of collection, drying and storage.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
21.	Plant sources of vitamin C. Morphological differences between high-vitamin and low-vitamin species of rose hips. The influence of external factors on the accumulation of vitamin C in plants. The influence of drying methods on the content of vitamin C in raw materials.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
22.	Medicinal plants containing vitamin C. Blackcurrant.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
23.	Medicinal plants containing carotenes and carotenoids. Medicinal marigolds.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
24.	Medicinal plants containing carotenes and carotenoids. Common rowan.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
25.	Medicinal plants containing carotenes and carotenoids. Sea buckthorn.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
26.	Medicinal plants containing vitamins of group K. Nettle bilberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
27.	Medicinal plants containing vitamins of group K. Kalina ordinary.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
28.	Medicinal plants containing vitamin K. Corn stalks with stigmas.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
29.	Medicinal plants containing vitamins (B, C and carotenoids). Forest strawberries.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
30.	Polysaccharides. Features of structure. Classification. Physico-chemical properties. Application in medicine and pharmaceutical production.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
31.	Mucilages. Gums. Pectin substances. Brief characterisation. Peculiarities of chemical structure. Application in medicine. Plant sources of mucilages. gum, pectin substances.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
32.	Plant sources of mucilage. Species of althea.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
33.	Plant sources of mucilages. Common flax.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
34.	Plant sources of mucus. Mother and stepmother.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1;

		ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
35.	Plant sources of mucus. Types of plantain.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
36.	Plant sources of mucus. Types of linden.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
37.	Plant sources of pectin. Types of kelp.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
38.	Natural sources of fats. General characterisation of fats. Classification. Physico-chemical properties. Use of fats in medicine and pharmaceutical production.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
39.	Fatty vegetable oils. Localisation in plants. Properties. Variability of fatty oils composition under the influence of environmental factors. Storage of fats in pharmacies and warehouses. The work of domestic scientists in this field.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
40.	Medicinal non-drying oils (almond, peach, olive, castor) and their sources. Chocolate tree.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
41.	Drying and semi-drying medical oils (corn oil, sunflower oil, linseed oil) and their sources.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
42.	Fish oil and marine mammal fat, their use in pharmacy and medical practice.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
43.	Essential oils. Definition, general characterisation. Distribution of essential oils in the plant world, their accumulation, physical and chemical properties, localisation. Methods of obtaining. Features of drying and storage of raw materials containing essential oils.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
44.	Methods of quantitative determination of essential oils in plant raw materials. Determination of purity and benignity of essential oils.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
45.	The concept of terpenoids. Classification of terpenoids. Principle of biogenesis of terpenoids. Physico-chemical properties. Uses in medicine.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
46.	Medicinal plants containing essential oils. Peppermint.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
47.	Medicinal plants containing essential oils. Medicinal sage.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
48.	Medicinal plants containing essential oils. Eucalyptus species.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
49.	Medicinal plants containing essential oils. Valeriana medicinal.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

50.	Medicinal plants containing essential oils. Common juniper.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
51.	Medicinal plants containing essential oils. Chamomile apothecary and fragrant chamomile.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
52.	Medicinal plants containing essential oils. Species of arnica.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
53.	Medicinal plants containing essential oils. Devyasil high.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
54.	Medicinal plants containing essential oils. Species of birch.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
55.	Medicinal plants containing essential oils. Ledum bog.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
56.	Medicinal plants containing essential oils. Marsh St. Aire.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
57.	Medicinal plants containing essential oils. Yarrow.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
58.	Medicinal plants containing essential oils. Artemisia bitterica.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
59.	Medicinal plants containing essential oils. Fennel.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
60.	Medicinal plants containing essential oils. Anise.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
61.	Medicinal plants containing essential oils. Coriander.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
62.	Medicinal plants containing essential oils. Caraway.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
63.	Medicinal plants containing essential oils. Thyme.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
64.	Medicinal plants containing essential oils. Common thyme.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
65.	Medicinal plants containing essential oils. Common oregano.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
66.	Plant sources of camphor. Spruce, Fir.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
67.	Pine products. Buds, needles, turpentine, turpentine, rosin, tar.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-

		1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
68.	General characterisation of alkaloids. Biosynthesis. Influence of external factors on accumulation of alkaloids. Classification.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
69.	Qualitative reactions. Methods of isolation of alkaloids from raw materials. Works of domestic and foreign scientists in the study of alkaloid-bearing plants.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
70.	Medicinal plants and raw materials containing alkaloids. Annual pepper.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
71.	Medicinal plants and raw materials containing alkaloids. Ephedra species.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
72.	Medicinal plants and raw materials containing alkaloids. Flourflower gorgeous.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
73.	Medicinal plants and raw materials containing alkaloids. Species of Krasavka.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
74.	Medicinal plants and raw materials containing alkaloids. Black bilberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
75.	Medicinal plants and raw materials containing alkaloids. Species of durman.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
76.	Medicinal plants and raw materials containing alkaloids. Coca bush.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
77.	Medicinal plants and raw materials containing alkaloids. Hine tree.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
78.	Medicinal plants and raw materials containing alkaloids. Types of thermopsis.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
79.	Medicinal plants and raw materials containing alkaloids. Sophora thick-fruited.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
80.	Medicinal plants and raw materials containing alkaloids. Yellow goblet.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
81.	Medicinal plants and raw materials containing alkaloids. Sporynia.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
82.	Medicinal plants and raw materials containing alkaloids. Rauwolfia serpentina.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
83.	Medicinal plants and raw materials containing alkaloids. Species of periwinkle.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
84.	Medicinal plants and raw materials containing alkaloids. Passiflora incarnata.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

85.	Medicinal plants and raw materials containing alkaloids Common barberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
86.	Medicinal plants and raw materials containing alkaloids. Sleeping poppy.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
87.	Medicinal plants and raw materials containing alkaloids. Poppy yellow.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
88.	Medicinal plants and raw materials containing alkaloids. Greater celandine.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
89.	Medicinal plants and raw materials containing alkaloids. Types of macleia.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
90.	Medicinal plants and raw materials containing alkaloids. Lobel's cemeriza.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
91.	Medicinal plants and raw materials containing alkaloids. Lobel's nightshade.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
92.	Medicinal plants and raw materials containing alkaloids. Chinese tea.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
93.	Medicinal plants and raw materials containing alkaloids. Coffee tree.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
94.	Glycosides. Classification. Features of the structure of glycosides. Influence of hydrolytic decomposition of glycosides on biological activity. Requirements for drying and storage of raw materials containing glycosides.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
95.	Bitter glycosides. General characteristics of bitters and their classification. Medical use.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
96.	Plant sources of bitter glycosides. Water trefoil.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
97.	Plant sources of bitter glycosides. Common goldenseal.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
98.	Plant sources of bitter glycosides. Goldenseal beautiful.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
99.	Plant sources of bitter glycosides. Medicinal dandelion.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
100.	Plant sources of bitter glycosides. Common hops.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
101.	General characteristics and classification of cardiac glycosides. Distribution in nature.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

102.	Phytochemical analysis and biological standardisation of raw materials containing cardiac glycosides.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
103.	Plant sources of cardiac glycosides: Foxglove purpurea, large-flowered, woolly.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
104.	Plant sources of cardiac glycosides. Strophanthus Combe.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
105.	Plant sources of cardiac glycosides. Spring goricolor.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
106.	Plant sources of cardiac glycosides. Species of Lily of the valley	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
107.	Plant sources of cardiac glycosides. Spreading jaundice.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
108.	General characterisation and classification of saponins. Distribution in the plant world. Methods of phytochemical and biological analysis of medicinal plant raw materials containing saponins. Medical application.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
109.	Medicinal plants and raw materials containing saponins. Types of licorice.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
110.	Medicinal plants and raw materials containing saponins. Lilac blue.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
111.	Medicinal plants and raw materials containing saponins. Saponin.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
112.	Medicinal plants and raw materials containing saponins. Manchurian aralia.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
113.	Medicinal plants and raw materials containing saponins. Ginseng.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
114.	Medicinal plants and raw materials containing saponins. Astragalus woolly-flowered.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
115.	Medicinal plants and raw materials containing saponins. Dioscorea nipponica.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
116.	Medicinal plants and raw materials containing saponins. Stalked anchorites.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
117.	General concept of phytoecdysones. Medicinal plant and raw materials containing phytoecdysones: Raponticum safflower.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
118.	Phenolic compounds. General characteristics of phenolic compounds. Classification. Distribution in the plant world. Application in medical	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

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119.	Medicinal plants and raw materials containing simple phenols and phenol glycosides. Common bearberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
120.	Medicinal plants and raw materials containing simple phenols and phenolglycosides. Common lingonberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
121.	Medicinal plants and raw materials containing simple phenols and phenol glycosides. Rhodiola rosea.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
122.	General characteristics of anthracene derivatives. Classification. Distribution in the plant world. Pathways of biosynthesis of medicinal plant raw materials containing anthracene derivatives.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
123.	Phytochemical methods of analysis of medicinal plant raw materials containing anthracene derivatives.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
124.	Medicinal plants and raw materials containing anthracene derivatives. Cassia species.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
125.	Medicinal plants and raw materials containing anthracene derivatives. Aloe arborescens.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
126.	Medicinal plants and raw materials containing anthracene derivatives. Alderberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
127.	Medicinal plants and raw materials containing anthracene derivatives. Laxative joster.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
128.	Medicinal plants and raw materials containing anthracene derivatives. Tangut rhubarb.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
129.	Medicinal plants and raw materials containing anthracene derivatives. Horse sorrel.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
130.	Medicinal plants and raw materials containing anthracene derivatives. Dye mirena.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
131.	General characterisation of flavonoids and their glycosides. Distribution in the plant world. Physico-chemical properties. Classification.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
132.	Phytochemical analysis of medicinal plant raw materials containing flavonoids. Use of medicinal plant raw materials containing flavonoids in medicine.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
133.	Medicinal plants and raw materials containing flavonoids. Types of Hawthorn.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
134.	Medicinal plants and raw materials containing flavonoids. Types of Motherwort.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
135.	Medicinal plants and raw materials containing flavonoids. Sophora japonica.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-

		1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
136.	Medicinal plants and raw materials containing flavonoids. Blackcurrant rowan.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
137.	Medicinal plants and raw materials containing flavonoids. Immortelle sandy.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
138.	Medicinal plants and raw materials containing flavonoids. Common fiddlehead.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
139.	Medicinal plants and raw materials containing flavonoids. Species of bitters: bird's throat, pepper, lentil.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
140.	Medicinal plants and raw materials containing flavonoids. Field horsetail.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
141.	Medicinal plants and raw materials containing flavonoids. Cornflower blue.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
142.	Medicinal plants and raw materials containing flavonoids. Trifoliate succession.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
143.	Medicinal plants and raw materials containing flavonoids. St John's wort and tetrahedral.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
144.	Medicinal plants and raw materials containing flavonoids. Violet tricolour and field violet.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
145.	Medicinal plants and raw materials containing flavonoids. Baikal schlemnia.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
146.	Medicinal plants and raw materials containing flavonoids. Black elderberry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
147.	General characteristics of lignans. Classification. Distribution in the plant world. Medical use.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
148.	Medicinal plants and raw materials containing lignans. Chinese lemongrass.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
149.	Medicinal plants and raw materials containing lignans. Eleutherococcus prickly.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
150.	Medicinal plants and raw materials containing lignans. Podophyllum thyroidum.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
151.	Medicinal plants and raw materials containing lignans. Milk thistle.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
152.	General characteristics of coumarins, their classification. Pathways of biosynthesis in plants. Medical value. Phytochemical analysis of raw materials containing coumarins.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

153.	Medicinal plants and raw materials containing coumarins. Species of turfgrass.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
154.	Medicinal plants and raw materials containing coumarins. Ammi major.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
155.	Medicinal plants and raw materials containing coumarins. Parsnip.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
156.	Medicinal plants and raw materials containing coumarins. Common smokewort.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
157.	Characteristics of chromones. Classification. Physico-chemical properties. Methods of analysis.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
158.	Medicinal plants and raw materials containing chromones. Ammi dentifrice.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
159.	Medicinal plants and raw materials containing chromones. Garden dill.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
160.	General characterisation of tannins. Distribution in plants. Biological role of tannins. Classification. Physical properties. Influence of external factors on the accumulation of tannins. Application in medicine.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
161.	Phytochemical methods of analysis of medicinal plant raw materials containing tannins.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
162.	Medicinal plants and raw materials containing tannins. Sumach tannic.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
163.	Medicinal plants and raw materials containing tannins. Scumpia tannery.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
164.	Medicinal plants and raw materials containing tannins. Species of Oak.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
165.	Medicinal plants and raw materials containing tannins. Lupus erectus.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
166.	Medicinal plants and raw materials containing tannins. Medicinal bloodwort.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
167.	Medicinal plants and raw materials containing tannins. Thick-leaved badanum.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
168.	Medicinal plants and raw materials containing tannins. Types of Alder.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
169.	Medicinal plants and raw materials containing tannins. Common Bird cherry.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

170.	Medicinal plants and raw materials containing tannins. Snake Mountain.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
171.	Medicinal raw materials of animal origin and natural products. General information. Perspective of use of animal raw materials and natural preparations in medicine.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
172.	Medicinal raw materials of animal origin and natural products. Snake venom.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
173.	Medicinal raw materials of animal origin and natural products. Products of life activity of honey bee.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
174.	Medicinal raw materials of animal origin and natural products. Medical leeches.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
175.	Medicinal raw materials of animal origin and natural products. Antlers. Lanolin. Spermaceti.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.
176.	Medicinal raw materials of animal origin and natural products. Shilajit.	УК-1.2.1/У-1; УК-1.3.1/Н-1; ОПК-1.1.1/З-1; ОПК-1.1.1/З-2; ОПК-1.2.1/У-1; ОПК-1.3.1/Н-1; ПК-4.1.1/З-1; ПК-4.2.1/У-1; ПК-4.3.1/Н-1.

EXAMINATION CARD № 1

1. Definition of pharmacognosy as a science. Tasks of pharmacognosy, its relationship with related disciplines. The importance of pharmacognosy in the practical activity of pharmacologist.

2. Poppy soporific.

3. The pharmacy warehouse stores the raw material of the medicinal plant marena dye.

1) Give Russian and Latin names of medicinal plant raw materials, producing plant, family.

2) To which subgroup of biologically active substances do the active substances of this plant belong.

3) Specify the features of the chemical structure of the active substances of this subgroup.

3) Write the structural formulae of the main active substances of this subgroup.

4) Application of this medicinal plant raw material and preparations on its basis.

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Considered at the department meeting of Pharmaceutical, Toxicological Chemistry, Pharmacognosy and Botany , protocol of «30» May 2025. № 10.

Head of the Department A.A. Ozerov.