

Catalog of elective disciplines for the 2022-2023 academic year

1. The department of Pharmacognosy

2. Level of training "College"

3. Educational program: 0306000 "Pharmacy"

4. Course 3

5. Name of elective discipline: "Phytocosmetology"

6. Amount of credits: 1 credits (30 hours)

7. Purpose: To introduce students to the history of phytocosmetology, phytocosmetology involves skin care using natural herbs that are not part of the cosmetic formula. Phytocosmetology and its tools are a new direction in cosmetics.

8. Discipline content: General characteristics of cosmetics based on vegetable raw materials, methods of studying their quality, effectiveness and safety. Development of perfumery and cosmetic products based on plant raw materials containing various biologically active substances, their general characteristics, application in cosmetology.

9. Tasks:

- to identify the advantages and disadvantages of therapeutic phytocosmetics;
- study of medicinal plants used in phytocosmetics;
- study of pharmacological properties of biologically active substances of medicinal plants used in phytocosmetology;
- review of medicinal plants used in medicinal phytocosmetics, using specific examples.

10. Justification of the choice of discipline:

The subject "Phytocosmetology" studies the types of raw materials, morphological and anatomical features of plants, chemical composition, methods and timing of harvesting, storage of raw materials, pharmacological action of substances in the composition of medicinal plant collections used in phytocosmetology. Forms concepts of rationing and standardization of medicinal plant raw materials, development of draft regulatory and technical documents. Promotes the search for new herbal medicines in order to expand the range and create more effective medicines in phytocosmetology.

11. Results of training (competence):

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
1. Demonstrates knowledge of the subject and purpose of phytocosmetology.	1. The ability to apply knowledge and understanding (the ability to apply this knowledge and understanding at a professional level) 2. Defines the types and genera of medicinal plants. 3. Prepares medicinal raw materials of plant origin and determines the morphological and anatomical structure for diagnosis.	1. Effective preparation of medicinal plant raw materials in cosmetology. 2. Substantiates the botanical and pharmacognostic characteristics of the plant for diagnosis and formulates its opinion in the form of recommendations for the storage and identification of its reserves. 3. Formulates the modern nomenclature of medicinal raw materials of plant and animal origin.

12. Prerequisites: botany, pharmacognosy, technology of dosage forms

13. Postrequisites: pharmacology, innovative pharmaceutical technology.

14. Literature

1. Рахимов, Қ. Д. Фитохимия, фитофармакология, фитотерапия [Мәтін] : оқу құралы / Қ. Д. Рахимов, С. М. Әдекенов ; ҚР ҰЛТТЫҚ ҒЫЛ. АКАД.; "Фитохимия" халықаралық ғыл.-

өндірістік холдингі.; Фармакология ин-ты. - Алматы ; Караганда : ЖШС "Жания-Полиграф", 2015. - 538 бет с

2. Рахимов, Қ. Д. Фитофармакология. Фармакология - Тезаурус. [Мәтін] : оқу құралы = Фитофармакология. Фармакология -Тезаурус : учеб. пособие / Қ. Д. Рахимов ; ҚР ұлттық ғылым акад. Фармакология ин-ты; ҚР денсаулық сақтау және әлеуметтік даму Министрлігі; Қазақ мед. үздіксіз білім беру ун-ті АҚ. - 2-бас. толықт., өңд. және түзет. ; Алматы мемл. дәрігерлер білімін жетіл. ин-ты ғыл. кеңесі бас. ұсынған. - Алматы : ЖШС "Жания-Полиграф", 2015. - 528 с

3. Байзолданов, Т. Косметикалық препараттар және оларды дайындауда қолданылатын белсенді және көмекші заттар [Мәтін] : оқу құралы / Т. Байзолданов. - Алматы : Эверо, 2016. - 212 б.

4. Байзолданов, Т. Косметикалық препараттар және оларды дайындауда қолданылатын белсенді және көмекші заттар [Мәтін] : оқу құралы / Т. Байзолданов ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Алматы : Эверо, 2012. - 212 бет.

5. Дмитрук, С. И.

6. Фармацевтическая и медицинская косметология [Текст] : учебник / С. И. Дмитрук. - М. : Медицинское информационное агентство, 2007. - 178 с.

а. Дополнительная:

7. Толоконников, Е. Г. Инновационные технологии и организация фармацевтического производства. Теория и практика, механизмы [Текст] : монография / Е. Г. Толоконников. - Караганда : "Гласир", 2010. - 248 с.

8. Токсанбаева Ж.С. Применение лекарственных растений в косметологии (учебное пособие). – Шымкент, 2002. – 56 с.

1. Department of Pharmacognosy

2. **Level of training** (Bachelor's degree)

3. **Educational program:** 6B07201- " Technology of pharmaceutical production»

4. **Course:** 3

5. **Name of elective discipline:** "Chemistry of natural medicinal compounds»

6. **Number of credits:** 5 credits (150 hours)

7. **Purpose:** to form the necessary knowledge, skills and abilities of future specialists in the rational, scientifically-based procurement of medicinal plant raw materials, carrying out its standardization and quality control, as well as through the use and application in practice of medicinal products of plant origin

8. **Content of the discipline:** General laws and regularities of the chemistry of natural compounds. Classification of biological active substances, distribution and accumulation of biological active substances in plants. Methods for determining the structure, extraction of medicinal substances from plant sources, separation, purification and identification of biological active substances.

9. **Tasks:**

* to give students knowledge about the botanical, pharmacognostic characteristics, chemical composition of medicinal plants (LR) and medicinal plant raw materials(LRS), ways of its use by the phytoproduction industry;

* teach students to use the methods of pharmacognostic and commodity analysis of medicinal plant raw materials, standardization at various stages of procurement and use;

* teach students to determine the methods of rational harvesting of LRS, stocks of wild plants in connection with the ever-growing needs of the domestic pharmaceutical industry in high-quality medicinal plant raw materials.

* formation of students ' knowledge of phytochemistry of medicinal plants, physical and chemical properties of extractants and solvents, practical skills in the implementation of the technological process of preparation of extraction and complex pharmaceutical preparations with the use of modern equipment and new technologies.

9. **Justification of the choice of discipline:**

10. Taking into account the increased requirements of practical pharmacy and medicine for the use of medicinal raw materials of plant, animal and mineral origin, the subject "Chemistry of natural medicinal compounds" considers a range of issues related to the effectiveness of quality control at all stages of drug development. Ensuring the proper quality of medicinal plant raw materials largely depends on the proper organization of control, its effectiveness and efficiency, as well as on the level of requirements laid down in regulatory documents (GF, RD, VARD) and the methods of analysis used. The study of the system of quality standards of medicinal raw materials, their products, testing methods, etc., established in the national order and mandatory for manufacturers and consumers is currently an urgent problem in the Republic of Kazakhstan.

11. Learning outcomes (competencies):

Knowledge (cognitive sphere)	Skills and abilities (psychomotor sphere)	Personal and professional competencies (relationships)
<ul style="list-style-type: none"> - general laws and regularities of the chemistry of a natural compound; - classification of biological active substances, distribution and accumulation of biological active substances in plants; - apply methods of separation, purification and identification of natural medicinal compounds, formalize the results of laboratory work and draw appropriate conclusions based on them; 	<ul style="list-style-type: none"> - the results of educational experiments, observed facts and phenomena, their causal relationships from a scientific point of view and the maximum yield of biologically active substances from natural sources; - collects information, evaluates and interprets the results of educational experiments, explains the accumulation of biological active substances in medicinal plants; works in a group and solves assigned tasks; - organize production areas and storage areas, maintain documentation in accordance with the RD, GF specifications for raw materials and monitor the quality of plant raw materials, depending on the nature of the PRM; 	<ul style="list-style-type: none"> - Collects information, evaluates and interprets the results of educational and scientific experiments in the field of chemistry of medicinal natural compounds; - evaluates modern achievements of science and the field of pharmacy, compiles reviews and reports, prepares scientific publications - Capable of analyzing medicinal compounds in medicinal plant raw materials - Adheres to the principles of academic integrity and learning behavior in the performance of written works, answers to exams

12. Prerequisites: Processes and devices of chemical and pharmaceutical production

13. Post-requirements: Industrial drug technology

Basic literature: in Kazakh

1. Табиғи дәрілік заттардың химиясы [: оқулық / Ә. Қ. Патсаев.-Шымкент: Әлем,2016.-188 бет
2. Г.Ш. Бурашева и др. Табиғи қосылыстар химиясының негіздері.Оқу құралы. – Алматы, 2013
in Russian
3. Патсаев, А. К. Химия природных лекарственных веществ : учебник / . - Шымкент : Әлем, 2016. - 192 с.
4. Лекарственное сырье растительного и животного происхождения. Фармакогнозия / Под. ред. Г.П. Яковлева. – СПб.: СпецЛит, 2006. – 845 с.: ил.
5. В.В.Племенков. Введение в химию природных соединений, Казань, 2002.
6. Р.А.Музычкина, Д.Ю.Корулькин, Ж.А.Абилов. Основы химии природных

соединений. Учебник.- Алматы, 2010, 566с.

7. Г.Д.Бердимуратова, Р.А.Музычкина, Д.Ю.Корулькин и др. Биологически активные вещества растений. Выделение, разделение, анализ, Алматы: Атамұра, 2006.

8. Государственная фармакопея СССР. XI издание, вып. 1 - МЗ СССР. М.: Медицина, 1987.

9. Государственная фармакопея СССР. XI издание, вып. 2 - МЗ СССР. М.: Медицина, 1989.

10. Кузнецова В.А. Лекарственное растительное сырье и препараты. М.: Высшая школа, 1987.

additional information:

in Russian

1. Р.А.Музычкина, Д.Ю.Корулькин, Ж.А.Абилов. Качественный и количественный анализ основных групп БАВ в лекарственном растительном сырье и фито-препаратах, Алматы, 2004, 287с.

2. С.А.Минина, И.Е.Каухова Химия и технология фитопрепаратов, М,- ГЭОТАР-МЕД. - 2004, 555с.

3. Н.И.Гринкевич и др. Химический анализ лекарственных растений, М.,1983, 492с.

4. С.Ю.Юнусов. Алкалоиды, Ташкент, 1981, 546с.

5. Г.К.Никонов. Кумарины, М., 1982, 252с.

6. Государственная Фармакопея Республики Казахстан. – том 1 – Алматы. – Издательский дом: «Жибек жолы».– 2008.– 592 с.

7. Государственная Фармакопея Республики Казахстан.– том 2. – Алматы.– Издательский дом: «Жибек жолы».– 2009. – 792 с.

8. ГФ СССР X издания М., Медицина.– 1968.

9. ГФ СССР XI издания М., Медицина.– 1987.– том 1.– 1989.– том 2.

10. Правила сбора и сушки лекарственных растений (сборник инструкций). М.: Медицина, 1985. – 328 с., ил.

11. Машковский М.Д. Лекарственные средства. – 15-е изд., перераб., испр. и доп. – М.: РИА “Новая волна”: 2008. – 1206 с.: ил.

12. Головкин Б.Н., Руденская Р.Н., Трофимова И.А., Шретер А.И. Биологически активные вещества растительного происхождения. – М.: Наука, 2001. – 240 с.

13. Пронченко Г.Е. Лекарственные растительные средства. – М.: Гэотар-Мед., 2002. – 285 с.

1. **The department of Pharmacognosy**

2. **Level of training (bachelor degree)**

3. **Educational program:** 6B10106 «Pharmacy»

4. **Course:** 2

5. **Name of elective discipline:** «Fundamentals of pharmacognosy»

6. **Amount of credits:** 4 credits (120 hours)

7. **Purpose:** acquaintance of students with history of development of a pharmacognosy, the organization of preparations of medicinal plant raw materials, the chemical composition and classification of herbs, bases of rational environmental management, methods of procuring process of medicinal plant raw materials and its standardization and also with the main directions of scientific research in the field of studying of herbs.

8. **Discipline content:** Preparation of medicinal plant raw materials, rational and careful attitude to resources of medicinal plants, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

Macroscopic, microscopic, histochemical and microchemical studies of medicinal plant raw materials. Chemical composition of medicinal plants. Determination of benign drug raw materials.

9. **Tasks:**

- orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;

- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the pharmacotherapy of medicines;
- carrying out phytochemical and merchandising analysis of raw materials of natural origin.

10. Justification of the choice of discipline:

Pharmacognosy (from Greek *pharmakon* – medicine, poison and *gnosis* – studying, knowledge) – one of pharmaceutical sciences studying herbs, medicinal plant raw materials and some products of primary processing of floral and animal origin.

Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials of plant, animal and mineral origin, the subject "Fundamentals of pharmacognosy" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

11. Results of training (competence):

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
1. To know history of development of a pharmacognosy and the main stages of its formation; 2. To know the nomenclature and the chemical composition of medicinal raw materials of natural origin; 3. To know bases of preparation of medicinal raw materials of plant, animal and mineral origin.	1. To be able to use standard documentation, reference and scientific books; 2. To be able to provide advice to patients of drugstores and to the population in questions of application, collecting, drying and storage of medicinal plant raw materials; 3. To be able to carry out rational preparation, drying and storage of medicinal plant raw materials and to define its stocks on concrete sites.	1. To carry out macro - and the microscopic analysis of medicinal plant raw materials; 2. To determine herbs by anatomic and morphological features; 3. To carry out the merchandising analysis of raw materials of natural origin; 4. To store medicinal raw materials taking into account features of its chemical composition and content of biologically active agents.

12. **Prerequisites:** botany, Latin, organic chemistry, analytical chemistry, biological chemistry, ecology

13. **Postrequisites:** pharmacognosy, Drug technology, pharmaceutical chemistry.

14. Literature

The main:

1. Фармакогнозия тестовые задания и ситуационные задачи: учеб. пособие / под ред. И. А. Самылиной. - ; Мин-во образования и науки РФ. Рек. ГОУ ВПО "Мос. мед. акад. им. И. М. Сеченова". - М. : ГЭОТАР - Медиа, 2015. - 288 с
2. Дәрілік өсімдіктер және дәрілік өсімдік шикізаттары: фармакогнозия пәні бойынша оқу құралы / Джангозина Д. М. [ж. б.]. - Алматы : Эверо, 2014. - 240 бет. с.
3. Фармакогнозия. Экоотоксиканты в лекарственном растительном сырье и фитопрепаратах: учеб. пособие / И. В. Гравель [и др.] ; М-во образования и науки РФ. - ; Рек. ГОУ ВПО Первый Московский гос. мед. ун-т им. И. М. Сеченова. - М. : ГЭОТАР - Медиа, 2013. - 304 с.

4. Фармакогнозия. Учебная практика: учебное пособие / под ред. И. А. Самылиной. - ; Рек. ГОУ ВПО " Первый МГУ им. И. М. Сеченова". - М. : ООО"Медицинское информационное агентство", 2011. - 432 с.
5. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 1. Общая часть. Термины и техника микроскопического анализа в фармакогнозии [Текст] : учеб. пособие. - М. : ГЭОТАР - Медиа, 2010. - 192 с. : ил.
6. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 2. Лекарственное растительное сырье. Анатомо-диагностические признаки фармакопейного и нефармакопейного лекарственного растительного сырья [Текст] : учеб. пособие. - М. : ГЭОТАР - Медиа, 2010. - 384 с. : ил.
7. Самылина, И. А. Фармакогнозия. Атлас. В 3 т. Т. 3. Лекарственное растительное сырье, сборы. Растительные порошки. Лекарственные средства на основе измельченного растительного сырья: учеб. пособие. - М. : ГЭОТАР - Медиа,

Additional:

8. Келімханова, С. Е. Фармакогнозия: практикум / С. Е. Келімханова ; ҚР денсаулық сақтау министрлігі; С. Ж. Асфендияров атындағы ҚазҰМУ. - Қарағанды : ЖК "Ақнұр", 2014. - 180 бет. с.
9. Фармакогнозия пәнінің зертханалық-тәжірибелік сабақтарына арналған қолданба: оқу құралы / Б. Қ. Махатов [ж. б.] ; ҚР денсаулық сақтау министрлігі; ОҚМФА. - Шымкент : Б. ж., 2013. - 328 бет. с.
10. Фармакогнозия. Рабочая тетрадь к практическим занятиям:И. В. Гравель [и др.]; под ред. И. А. Самылиной ; М-во образования и науки РФ. - 2-е изд., испр. и доп ; Рек. ГОУ ВПО Московская мед. акад. им. И. М. Сеченова. - М. : ГЭОТАР - Медиа, 2013. - 264 с

Electronic resources:

11. Фармакогнозия. Гербарий лекарственных растений [Электронный ресурс] : учеб. пособие / И. А. Самылина [и др.]. - Электрон. текстовые дан. (40,5 Мб). - М. : ГЭОТАР - Медиа, 2012. - эл. опт. диск (CD-ROM).
12. Сорокина А. А. Фармакогнозия. Гербарий лекарственных растений [Электронный ресурс] : учебник. - Электрон. текстовые дан. (42,0 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM)
13. Самылина И. А. Фармакогнозия. Атлас. В 3 т. Т.1 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (71,6 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
14. Самылина И. А. Фармакогнозия. Атлас. В 3 т. Т. 2 [Электронный ресурс] : учебник . - Электрон. текстовые дан. (101 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник)
15. Самылина И. А. Фармакогнозия : Атлас. В 3 т. Т. 3. [Электронный ресурс] : учебник . - Электрон. текстовые дан. (142 Мб). - М. : Изд. группа "ГЭОТАР-Медиа", 2012. - эл. опт. диск (CD-ROM). - (Электронный учебник).
16. Орынбасарова К. К. Некоторые лекарственные растения, содержащие флавоноиды сердечно-сосудистого действия и с Р-витаминной активностью [Электронный ресурс] : учебно-методическое пособие . - Электрон. текстовые дан. (2,25 Мб). - Шымкент : ЮКГМА, 2009
17. Сафонов Н. Н. Лекарственные растения [Электронный ресурс] : полный справочник-атлас. - Электрон. текстовые дан. (6,32 Мб). - М. : ООО "Директмедиа Паблишинг", 2008. - 1309 с. эл. опт. диск (CD-ROM).

1. The department of Pharmacognosy

2. Level of training (bachelor degree)

3. Educational program: 6B10106 «Pharmacy»

4. Course: 5

5. Name of elective discipline: «Resource study and ecology of medicinal plants»

6. **Amount of credits:** 5 credits (150 hours)

7. **Purposes:** formation at students of knowledge when studying a resource study of herbs consists in mobilization of resources of flora for needs of medicine, studying by students of concrete species of herbs giving raw materials used in Kazakh the Republics.

8. **Content of discipline:** Resource science and ecology of medicinal plants. Resource zones and prospects of resource research in the Republic of Kazakhstan. Uniform method of determining the reserves of medicinal plants. Ecology of herbs. Impact of environmental factors on the quality of medicinal plant raw materials. Rational methods of collecting medicinal plant raw materials of different morphological groups.

9. **Tasks:**

- orientation in properties and the chemical composition of herbs according to constantly growing demand in quality phytoproducts and medicinal plant raw materials;

- orientation in properties and the chemical composition of the products of animal and mineral origin which are widely used in a modern arsenal the pharmacotherapy of medicines;

- carrying out phytochemical and merchandising analysis of raw materials of natural origin.

10. **Justification of the choice of discipline:**

Pharmacognosy (from Greek pharmakon – medicine, poison and gnosis – studying, knowledge) – one of pharmaceutical sciences studying herbs, medicinal plant raw materials and some products of primary processing of floral and animal origin.

Considering the increased requirements of practical pharmacy and medicine to use of medicinal raw materials of plant, animal and mineral origin, the subject "Fundamentals of Pharmacognosy" considers a circle of the questions connected with preparation of medicinal plant raw materials, rational and careful attitude to resources of herbs, sources of raw materials of mineral and animal origin, processing of plant raw materials, etc.

11. **Results of training (competence):**

Knowledge (cognitive sphere)	Skills (psychomotor sphere)	Personal and professional competences (relations)
To know history of development of a pharmacognosy and the main stages of its formation; To know the nomenclature and the chemical composition of medicinal raw materials of natural origin; To know bases of preparation of medicinal raw materials of plant, animal and mineral origin.	To be able to use standard documentation, reference and scientific books; To be able to provide advice to patients of drugstores and to the population in questions of application, collecting, drying and storage of medicinal plant raw materials; To be able to carry out rational preparation, drying and storage of medicinal plant raw materials and to define its stocks on concrete sites.	To carry out macro - and the microscopic analysis of medicinal plant raw materials; To determine herbs by anatomic and morphological features; To carry out the merchandising analysis of raw materials of natural origin; To store medicinal raw materials taking into account features of its chemical composition and content of biologically active agents.

12. **Prerequisites:** botany, Latin, Organic chemistry, analytical chemistry, biological chemistry, ecology.

13. **Post-details:** Pharmacognosy, drug technology, pharmaceutical chemistry.

14. **Literature**

The main:

1. Токсанбаева, Ж. С. Лекарственное ресурсоведение: учебное пособие - Алматы : Эверо, 2015. - 116 с

2. Лекарственное ресурсоведение, Шымкент 2014.,Токсанбаева Ж.С., Патсаев А.К., Сейдалиева С.К.
3. Государственная Фармакопея РК, первое издание.,том I. - Астана,2008.
4. Государственная Фармакопея РК, первое издание.,том II. - Астана,2009.
5. Государственная Фармакопея РК, первое издание.,том III. - Астана,2014.
6. Муравьева Д.А. Фармакогнозия. М.: Медицина, 2002.
7. М.Қ.Кукенов. Ресурсы лекарственных растений Казахстанского Тянь-Шаня. 1989
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Additional:

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