

“Affirm”

chief of pharmaceutical chemistry
department prof. T.A.Suleymanov

“ ” 2021-ci il

Azerbaijan Medical University

Program on the subject

of pharmaceutical chemistry

Item code:

Kind of item: mandatory

Academic semester of the subject: P-7

Item credit: 7

The form of teaching the subject: full-time

Language of teaching the subject: Azerbaijan, Russian, English

Teachers: Doctor of pharmaceutical sciences., prof. T.A.Suleymanov,
Doctor of pharmaceutical sciences , prof. İ.S.Movsumov,
PhD., dos. V.H.İskandarov,
PhD., dos. J.Y.Yusifova,
PhD, dos. F.İ.Mammadov
PhD, ass. G.R.Zeynalova
PhD, ass. T.A.Hajibayli

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PREREQUISITES:

Subjects before teaching:

Organic chemistry;

Analitical chemistry

Pharmaceutical chemistry I

Pharmaceutical chemistry II

Correspondents:

Subjects during teaching:

Biological chemistry

Farmacology

Toxicology

Course description: Pharmaceutical chemistry I is the science of studying natural and synthetic heterocyclic compounds. It studies the classification of heterocyclic nature preparations, the history of creation, biochemical properties, the ways of creation of new compounds. The role natural substances in creation heterocyclic compounds. INN of heterocyclic compounds, their isomerism and “Structure-Activity Relationship”, studying structural and pharmacological synthetic analogues of some natural heterocyclic compounds. This subject studies the methods of heterocyclic compounds receiving, identification, assay and stabilization. Pharmaceutical chemistry III studies oxygen-containing (furan, coumarin, chroman, benzo-1,4-dioxane derivatives) and some nitrogen-containing (pyrrole, indole, pyrazole, imidazole, sidnonimine, pyridine, tropane derivatives) heterocyclics

Course purpose:

The main purpose of Pharmaceutical chemistry III studies general information about heterocyclic compounds, their history of creation, synthetic analogues, synthesis and analysis, isomerism and “Structure-Activity Relationship”, standardization of oxygen-containing and some nitrogen-containing heterocyclics.

Course conclusions:

The students have studied the classification of heterocyclic compounds, the role in nature and organism, synthesis and analysis, isomerism and “Structure-Activity Relationship”, standardization of oxygen-containing and some nitrogen-containing heterocyclics.

Course works:

This subject has no course work

Individual works:

There are 5 individual works in semester. Every work may estimated by 0-2 points. Individual work may be written and printed, not less 2 pages. These works are passed out of lesson. Every individual work is the own work of each student, therefore not be plagiarism.

Topics of individual works and last date

N	Topics	Last date
1	Furan, benzofuran and chroman derivatives, standardization	5-th week
2	Pyrrole, natural and synthetic compounds, macrocyclic derivatives, their receiving and analysis	7-th week
3	Indole derivatives, "Structure-Activity Relationship", natural and synthetic compounds, standardization	9-th week
4	Preparations of pyrazole, imidazole and sidnonimine derivatives, analysis.	11-th week
5	Pyridine and tropine derivatives, stereoisomerism, standardization.	14-th week

Individual works must be given not late of specified dates.

The points of individual works must be included in journal

Internship:

This subject has no internship.

Lecture topics:

1. Natural and synthetic heterocyclic compounds, classification, history of creation, biochemical properties, the ways of creation of new compounds. Isomerism in heterocyclic compounds and its role, "Structure-Activity Relationship". Structural and pharmacological synthetic analogues to natural heterocyclic compounds. Methods of receiving, identification, purity and assay of heterocyclic compounds. Furan, benzofuran, benzopyrane derivatives, standardization.

2. Chroman, phenylchroman, benzo-1,4-dioxane, pyrrole, pyrrolidone, pyrrolizidine derivatives, synthesis and analysis methods.

3. Indole, serotonin, yohimbane, lyserginic acid, ezeroline, strychnine derivatives, receiving and standardization.

4. Pyrazole, imidazole and sidnonimine derivatives, their synthesis and analysis.

5. Pyridine, oxypyridine, pyridine-methanol, pyridine-3-carboxylic acid derivatives, receiving and standardization.

6. Pyridine-4-carboxylic acid derivatives, 1,4-dihydropyridine-3,5-dicarboxylic acid derivatives, receiving and analysis

7. Tropine derivatives, ecgonine derivatives, stereoisomerism, synthesis and standardization.

The themes of practical lessons:

1. Natural and synthetic heterocyclic compounds, classification, history of creation, biochemical properties, the ways of creation of new compounds. Methods of receiving, identification, purity and assay of heterocyclic compounds. Furan, benzofuran, benzopyrane derivatives, standardization.

2. Benzopyrane, coumarin derivatives, receiving and standardization.

3. Chroman, phenylchroman, benzo-1,4-dioxane derivatives, synthesis and analysis.

4. Pyrrole, pyrrolidone derivatives and standardization. Makrocyclic system of pyrrole, pyrrolizidine derivatives, synthesis and analysis methods.

5. Indole derivatives, serotonin, yohimbane, lyserginic acid derivatives, receiving and standardization.

6. Ezeroline, strychnine derivatives, receiving and standardization.

7. Pyrazole derivatives, receiving and standardization.

8. Colloquium (central) from 1 till 7 themes. Imidazole and sidnonimine derivatives, their synthesis and analysis.

9. Benzimidazole and sidnonimine derivatives, their synthesis and analysis.

10. Pyridine, oxypyridine, pyridine-methanol derivatives, receiving and standardization.

11. Pyridine-3-carboxylic acid derivatives, receiving and standardization.

12. Pyridine-4-carboxylic acid derivatives, receiving and standardization.

13. Colloquium (in department) from 8 till 12 themes. 1,4-dihydropyridine-3,5-dicarboxylic acid derivatives, receiving and analysis. Tropine derivatives, ecgonine derivatives, receiving and standardization. Last lesson.

GRADING:

100 points for this subject include:

50 points – before exam

and:

10 points - attendance;

10 points – individual works;

20 points – first colloquium (central).

10 points – second colloquium (department).

50 points– in exam

Grading of individual works is written in lesson journal.

Students solve section (relevant) tests every lesson during semester.

LITERATURE AND MATERIALS:

1. Bezugly P.O., Burian G. O., Abu Sharkh A. I., Taran K.A. Pharmaceutical chemistry (lecture for english-speaking students), Kharkiv, NPhAU “Original”, 2013, 528 pp.
2. Tahir Süleymanov, Cəmilə Yusifova, Nizami Babayev. Əczaçılıq kimyası: Dərslik, II hissə, Bakı, “Universal Poliqraf MMC, 2019, 671 pp
3. Əczaçılıq kimyası. Test tapşırıqları, II hissə, prof. T.A.Süleymanovun redaktorluğu ilə, Bakı, 2016, 611 pp.
4. Lecture materials. www.amu.edu.az