

**Thematic plan of independent work of the student
in the discipline "Medicines from natural raw material"
for students of the educational program
of the specialist in the specialty 33.05.01 Pharmacy,
direction (profile) Pharmacy,
form of study full-time
for the 2023-2024 academic year**

As an independent work, all students complete abstracts. Students choose one topic and work on it, fully disclosing the topic. When performing work, students must learn to work independently with relevant sources: scientific literature and regulatory documents regulating the quality of natural raw materials and the field of application of drugs based on them in medical practice, to analyse what they read, and correctly cite information data sources (including literary sources, regulatory documents, databases), to analyse scientific information. For independent study students are allocated topics, quite fully and at the modern level set out in the textbooks and provided with additional literature.

Each student is allotted 38 hours to prepare an essay.

№	The topic of independent work	Hours (academic)
1.	Natural sources of obtaining medicines. ¹ Current state, development trends and main directions in the creation of drugs of natural origin. Brief characteristics of natural sources of drugs and the history of their use in medicine. Characteristics of resource-saving technologies. ²	38
2.	Complex processing of medicinal plant raw materials. ¹ Technological and economic aspects of complex processing of medicinal plant raw materials. Complex processing of medicinal plant raw materials on the example of sea buckthorn and rosehip fruits. ²	38
3.	Fats and fatty oils. Separation of vegetable oils and animal fats. ¹ Sources of fats and fatty oils. Main methods of obtaining vegetable oils and animal fats. Medico-pharmaceutical importance. ²	38
4.	Aromatic waters and balsams. Preparation of aromatic waters and balsams. ¹ Nomenclature of aromatic waters and balsams. Methods of obtaining aromatic waters and balsams. Medicinal plants serving as a source of aromatic waters and balsams. Application of aromatic waters and balsams in pharmaceutical and medical practice. ²	38
5.	Syrups and elixirs. ¹ Nomenclature of syrups and elixirs. Technological aspects of manufacturing syrups and elixirs. Medicinal plants serving as a source of raw materials for the manufacture of syrups. Medico-pharmaceutical significance. ²	38
6.	Medicinal preparations of cardiac glycosides. ¹ Cardiac glycosides.	38


	Peculiarities of chemical structure. Plant sources of cardiac glycosides. Extraction of cardiac glycosides from medicinal plant raw materials and manufacture of medicinal preparations on their basis. Quality assessment of medicinal plant raw materials containing cardiac glycosides and medicinal preparations based on them. ²	
7.	Medicinal preparations on the basis of saponins. ¹ Saponins. Peculiarities of chemical structure. Plant sources of saponins. Extraction of saponins from medicinal plant raw materials and manufacture of medicinal preparations based on them. Quality assessment of medicinal plant raw materials containing saponins and medicinal preparations based on them. ²	38
8.	Medicinal preparations from fresh plants. Juices. ¹ Methods of obtaining juices from fresh medicinal plant raw materials. Methods of their preservation. Nomenclature of juices. Medicinal plants serving as a source of raw materials for the manufacture of juices. Application in medicine. ²	38
9.	Medicines on the basis of raw materials of animal origin. ¹ Classification of medicines derived from raw materials of animal origin. Organs and tissues of animal origin as a natural source of hormones and medicines based on them. Storage conditions, methods of preservation of animal organs and tissues. ²	38
10.	Microorganisms (bacteria) - natural sources of antibiotics. ¹ Microorganisms (actinomycetes, mould fungi) - natural sources of antibiotics, methods of production. History of discovery and use of antibiotics. Biotechnological ways of obtaining drugs. ²	38
11.	Mineral raw materials as a natural source of medicines. ¹ Substances extracted from the products of refining petroorgsintez, solid fuel and coke-chemical production and their use in the creation of medicines. ²	38
12.	Cell and tissue culture of medicinal plants is a promising direction for obtaining medicinal raw materials. ¹ Main directions of plant biotechnology based on cell and tissue culture methods. History of development of the method of cultivation of plant cells and tissues. Culture of isolated cells and tissues in plant breeding and genetic engineering. ²	38
	Total	38

¹ -Subject

² - essential content (if necessary)

Considered at the meeting of the department of Pharmacognosy and Botany "26" May 2023, protocol No 10

Head of the Department



A.V. Yanitskaya