

ODESSA NATIONAL MEDICAL UNIVERSITY
Department of General and Clinical Pharmacology and Pharmacognosy

GUIDELINES
on independent work of students / VTS / № 5

**on the topic: «Vitamins. Wild strawberries, spring primrose, common
pumpkin, sown carrots, kale, viburnum. »**

Course: 3rd Faculty: medico-pharmaceutical

Approved
at the methodical meeting
departments
August 30, 2024
Protocol № 1



Head departments _____
prof. Rozhkovsky Ya.V.

Topic:«Vitamins. Wild strawberries, spring primrose, common pumpkin, sown carrots, cabbage, viburnum. »- 4 hours.

1. Relevance of the topic

Vitamins are a group of organic substances of various chemical nature, required in minimal quantities for the normal functioning of the body. Together with hormones and enzymes, they form a group of biocatalysts and play a huge role in metabolic processes in the body. Vitamins are involved in cellular respiration, affect the functions of the nervous system, endocrine glands, enhance immunobiological processes, increase the body's resistance to functional diseases, have anti-inflammatory effects and others.

In medicinal plants, vitamins are constant components, and in some of them accumulate in significant quantities. Currently, about 30 vitamins are known, of which about 20 enter the human body with plant and animal foods. Vitamin-containing drugs are used in medical practice for the treatment of various diseases. The amount of knowledge gained by students in the study of this topic is necessary for the successful mastering of some sections of specialized disciplines, pharmacology and pharmacotherapy.

2. Learning objectives:

As a result of independent elaboration of this theme students should:

- *know:*

- basic information about macroscopic and microscopic methods of analysis of LR and LRS, which contain vitamins.
- the effect on the human body of raw materials that contain vitamins
- LR and LRS, which have vitamins: wild strawberries, spring primrose, pumpkin, sown carrots, kale, viburnum.

- *be able to:*

- to carry out the macroscopic analysis of LRS which contains vitamins
- to conduct a microscopic analysis of LRS, which has vitamins
- distinguish from impurities raw materials that contain vitamins

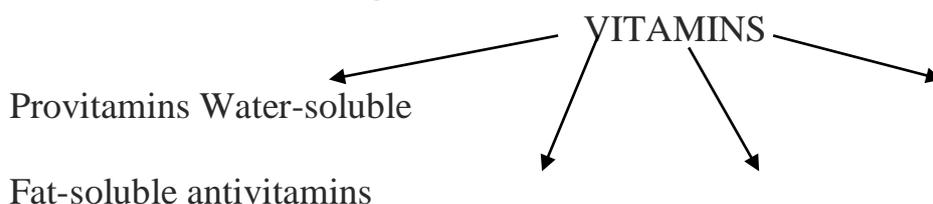
3. Materials for pre-classroom training of students.

3.1. Basic basic knowledge, skills, abilities that are necessary for independent study and mastering of the topic and which are based on interdisciplinary connections:

№ №	Discipline	Know	Be able
1	2	3	4
	1. Botany	Characteristic features of the families of the studied plants. Morphology of stem, bark, leaves, flower, fruit, root and rhizome. Anatomical structure of leaves, bark, fruit, roots, rhizomes.	Use a microscope, prepare surface preparations and cross-sections.
	2. Organic chemistry	Physical and chemical properties of polysaccharides, glycosides, terpenoids, derivatives of aromatic series, heterocycles.	Carry out qualitative reactions; purification of organic compounds.
	3. Analytical chemistry	Methods of acid - base titration (neutralization) and permanganatometry	Work with analytical balances, measuring vessels, photoelectrocalometer, use methods of chromatography on paper and in a thin layer of sorbent.

3.2. Contents of the topic.

- structural and logical scheme



3.3. Recommended Books:

8. Literature

Basic literature

1. Фармакогнозія: підручник (I—III р. а.) / І.А. Бобкова, Л.В. Варлахова. – 3-є видання Всеукраїнське спеціалізоване видавництво «Медицина» 2018, 504с.

2. Фармакогнозія: базовий підручн. для студ. вищ. фармац. навч. закл.(фармац. ф-тів) IV рівня акредитації / В.С. Кисличенко, І.О. Журавель, С.М. Марчишин та ін.; за ред. В.С. Кисличенко. – Харків: НФаУ: Золоті сторінки, 2015. - 736 с.

3. Навчальний посібник з дисципліни «Фармакогнозія» / Я. В. Рожковський, Б. В. Приступа, І. А. Бойко, Н. В. Герасимюк, В. В. Черногорюк -: Методична розробка кафедри фармакогнозії ОНМедУ. – Одеса: ОНМедУ, 2019 – 51 с.

4. Державна Фармакопея України: в 3 т. / Державне підприємство «Український науковий фармакопейний центр якості лікарських засобів». – 2-е вид. – Харків: Державне підприємство «Український науковий фармакопейний центр якості лікарських засобів», 2015. – Т. 1. – 1500 с.

Additional literature:

1 Державна Фармакопея України: в 3 т. / Державне підприємство «Український науковий фармакопейний центр якості лікарських засобів». – 2-е вид. – Харків: Державне підприємство «Український науковий фармакопейний центр якості лікарських засобів», 2014. – Т. 3. – 732 с.

2. Практикум з ідентифікації лікарської рослинної сировини: навч. посіб. / [В. М. Ковальов, С. М. Марчишин, О. П. Хворост та ін.] ; за ред. В. М. Ковальова, С. М. Марчишин. – Тернопіль: ТДМУ, 2014. – 250 с.

3.4. Guidance card for self - study of a student with using the literature on the topic:

№№ р / р	Basic tasks and instructions	Answers
1	Define the concept of "Vitamins"	
2	List the classification systems of vitamins	
3	Name fat-soluble (A) and water-soluble (B)	AND)

	vitamins	B)
4	Name the vitamins of the aliphatic series:	AND) B) IN) D)
5	Name the vitamins of the alicyclic series:	AND) B)
6	Name the vitamins of aromatic (a) and heterocyclic series: b, c, d, d, e, w, c, and, to:	AND) B) IN) D) E) IS) G) WITH) AND) K)
7	What is the main biological function of vitamins in living organisms?	
8	Specify the use in medicine and natural sources of vitamin C.	
9	Specify the use in medicine and natural sources of vitamin A.	
10	Specify the use in medicine and natural sources of vitamin K.	
11	Indicate the use in medicine and natural sources of vitamin D.	
12	Indicate the use in medicine and natural sources of vitamin E.	
13	Indicate the use in medicine and natural sources of vitamin B1	
14	Indicate the use in medicine and natural sources of vitamin B6	
15	Indicate the use in medicine and natural sources of vitamin B12	
16	Specify the use in medicine and natural sources of vitamin H.	
17	Define the concept of "Provitamins"	
18	Define the term "Antivitamins". Bring antivitamin to vitamin C, thiamine, folic acid	
19	Define the term "Vitamin-like substances". List the groups of substances that can act as vitamins.	

3.5. Materials for self-control.

3.5.1. Questions for self-control.

1. What is the botanical name of rose hips, what gave this name?
2. Indicate the diagnostic signs of rosehip powder (micropreparation).

3. What may be impurities to the leaves of nettle; on what grounds are they recognized?

4. Is it easy to establish the authenticity of black currant fruit, on what grounds?

5. Do the fruits of mountain ash change greatly in shape and color in comparison with fresh ones?

6. What is the fruit of sea buckthorn? What raw materials are produced from the plant?

7. Which raw calendula will be more valuable in terms of medicine: with bright orange or yellow flowers?

3.5.2. Test tasks for self-control.

1. The term "Vitamins" suggested: A In 1912 Funk B In 1899 Pirogov C In 1910 Pavlov D In 1905 K. Linnaeus E In 1907 Oparin

2. Which of the proposed classifications of vitamins is the most rational?

A By chemical structure;

B Letter;

C By solubility;

D By morphological features;

E By gender

3. The quality of vegetable raw materials depends on the timing of harvesting. Specify the correct time for harvesting rose hips.

A In autumn before the frosts

B In early spring

C In late spring

D In summer

E In autumn after frosts

4. The drug rosehip "Lipochromin" is considered a means to:

A Prevention and treatment of radiation sickness;

B Prevention and treatment of atherosclerosis;

C Prevention and treatment of immune diseases;

D Prevention of beriberi;

E Treatment of hypervitaminosis;

E Tanacetum vulgare.

5. What is the Latin name of the dog rose in May? A Rosa cinnamomea; B Rosa canina; C Rosa villosa; D Rosa rugosa; E Tanacetum vulgare.

6. The patient suffers from avitaminosis S. The doctor prescribed a course of herbal medicine. What medicinal plant raw materials are rich in this vitamin: A Fructus Rosae B Cortex Quercus; C Rhizoma Tormentillae; D Cortex Viburni opuli; E Folium Menthae piperitae.

7. A batch of medicinal plant raw materials of cinnamon rose hips was delivered to the pharmacy warehouse. According to which indicator in accordance with the requirements of the Pharmacopoeia conduct analysis for the content of active substances: A Ascorbic acid, B Flavonoids, C Tannins D Anthracene derivatives, E Essential oils.

8. The pharmacy warehouse received a batch of LRS of rose hips. Which substance determines the quality of raw materials? A Ascorbic acid B Tannins C Anthracene derivatives D Essential oil E Coumarins

9. In the spring it is recommended to use vitamin remedies. What is the raw material for the manufacture of vitamin phytopreparations with a high content of ascorbic acid? A Fructus Rosae B Flores Calendulae C Folia Digitalis D Fructus

FoeniculiE Radices Glycyrrhizae

10. SF XI regulates the standardization of LRS - Fructus Rosae caninae - on the content of the following BAS:

A Ascorbic acid

B Coumarins

C Fatty oils

D Carotenoids

E Flavonoids

Methodical recommendations were made by  associate professor Boyko IA