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

GUIDELINES
on independent work of students / VTS / 11

on the topic: «Phenolic compounds. Peony is unusual, artichoke sowing, knotweed, species of willow, hemp, species of echinacea. "

Course: 3rd Faculty: medico-pharmaceutical

Approved
at the methodical meeting
departments
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Protocol № 1

Head departments __
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Odessa - 2024

Topic: «Phenolic compounds. Peony is unusual, artichoke sowing, knotweed, species of willow, hemp, species of echinacea. " - 4 years

1. Relevance of the topic

Phenolic compounds are very common in the plant world. According to the structure of the carbon skeleton, they are divided into a number of groups. Natural glucosides, in which aglycones are simple phenols, their di- and trimers, are called phenol glycosides, which will be discussed in the next lecture. Phenolic compounds have antimicrobial, antiviral, disinfectant, anthelmintic, antitumor, adaptogenic activity, so modern knowledge on this topic and skills of analysis of the relevant LRS will be very useful in the practice of pharmacists.

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 phenolic compounds.
- effects on the human body of raw materials containing phenolic compounds.
- LR and LRS, which have phenolic compounds: peony unusual, artichoke, viper, species of willow, hemp, echinacea.

- be able to:

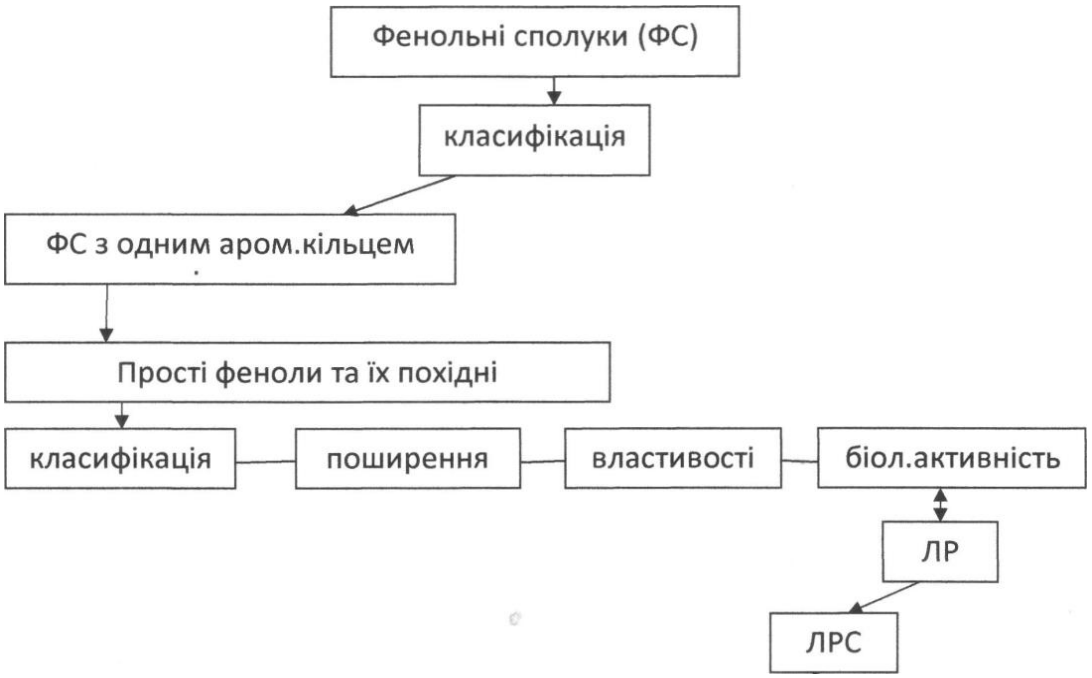
- perform macroscopic analysis of LRS, which contains phenolic compounds.
- perform microscopic analysis of LRS, which has phenolic compounds.
- to know LR containing phenolic compounds by herbarium samples
- distinguish from impurities raw materials that contain phenolic compounds.

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. Carry out qualitative reactions; purification of organic compounds.
	2. Organic chemistry	Physical and chemical properties of polysaccharides, glycosides, terpenoids, derivatives of aromatic series, heterocycles.	
	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.



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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:

№№ p / p	Basic tasks and instructions	Answers
1.	2	3
1.	What are phenolic compounds?	
2.	What are the qualitative reactions to raw materials containing phenolic compounds?	
3.	Write down the Latin name of the unusual peony and LRS, which is obtained from this plant.	
4.	Give a botanical description of the unusual peony	
5.	What organs of an unusual peony are used in medicine, give their pharmacognostic description, how they are harvested and dried.	
6.	Peony unusual in medicine is used as	
7.	Write down the Latin name of artichoke sowing and LRS, which is obtained from this plant.	
8.	Give a botanical description of artichoke sowing	
9.	What organs of artichoke are used in medicine, give their pharmacognostic description, how to harvest and dry them.	
10.	Artichoke sowing in medicine is used as	

11.	Write down the Latin name of the following species of plants: knotweed, species of willow, hemp, species of echinacea and LRS, which are obtained from this plant.	
12.	Give a botanical description of the following species of plants: knotweed, willow species, hemp, echinacea species	
13.	What organs of such plant species: knotweed, willow species, hemp, echinacea species are used in medicine, give their pharmacognostic description, how to harvest and dry them.	
14.	Such plant species: knotweed, willow species, hemp, echinacea species are used in medicine as	

3.5. Materials for self-control.

3.5.1. Questions for self-control.

1. Give a general description (definition) of the class BAV - phenolic compounds.
2. Give the classification of phenols.
3. How are simple phenols classified?
4. Name the most common phenolic glycosides and describe their action.
5. How is the release of phenol glycosides from LRS?
6. Name the qualitative reactions to phenolic glycosides: arbutin; salidroside.

3.5.2. Test tasks for self-control.

1. Phenolglycoside arbutin shows antiseptic, anti-inflammatory activity in diseases of the urinary tract. Indicate pharmacopoeial qualitative reactions to this compound:

A with ammonia and 10% solution of sodium phosphorus-molybdate

B with Wagner's reagent

C with a solution of cholesterol

D with a solution of gelatin

E with a solution of tannin

2. A batch of raw bearberry was received in the control and analytical laboratory. What method of quantitative analysis is used to determine the content of arbutin:

A Iodometric

B Permanganatometric

C Photoelectrocolorimetric

D Gravimetric

E Spectrophotometric

3. The laboratory received a batch of raw bearberry for analysis. Which of the methods will you choose to quantify the composition of arbutin:

A iodometric

B photoelectrocolorimetric

C permanganatometric

D gravimetric

E spectrophotometric

4. Establishing the benignity of bearberry leaf is carried out on the quantitative content of arbutin. To do this, use the method:

A Iodometric

B Gravimetric

C Inverse titration

D Photoelectrocolorimetric

E Chromatographic

5. A batch of medicinal plant raw materials of bearberry leaves arrived at the pharmacy warehouse. The content of which active substances is determined in accordance with the requirements of the Pharmacopoeia.

A Phenolic glycosides;

B Tannins;

C Flavonoids;

D Coumarins;

E Extractives.

6. Okra leaf is a uroseptic agent. Permissible admixture to this raw material is:

A lingonberry leaf

B foxglove leaf

C sumac leaf

D nettle leaf

E leaf of common buckthorn

7. When harvesting bearberry leaves may get impurities, which include:

A Blueberry leaves

B Periwinkle leaves

C Cherry leaves

D Leaves of sumac

E Sumakh leaves

8. Phenologlycoside arbutin is found in significant amounts in bearberry leaves. In the absence of bearberry leaf, replace it with raw materials similar in chemical composition and application;

A Folium Vitis-idaeae

B Folium Menthae piperitae

C Folium Absinthii

D Folium Millefolii

E Folium Salviae

9. There is no bearberry leaf in the pharmacy, which has antiseptic and diuretic effects. What raw materials can be harvested instead of bearberry?

A Cranberry leaves

B Anchor grass

C Fennel fruits

D Mint leaves

E Sage leaves

10. Cranberry leaves containing arbutin are used as a diuretic and antiseptic in urolithiasis. In its absence, we can recommend:

A Folia Uvae Ursi

B Folia Myrtilli

C Folia Padi

D Folia Urticae

E Folia Menthae

11. A patient applied to the pharmacy with a request to release a cranberry leaf. Which of the available medicinal plant raw materials can be offered as a substitute:

A Folium Uvae ursi;

B Rhizoma Calami;

C Rhizoma and radix Sanquisorbae officinalis;

D Herba Achilleae millefolii;

E Radix Taraxaci officinalis.

12. It is known that the violet grass is used as an expectorant, diaphoretic and diuretic. When harvesting it can be confused with a similar plant:

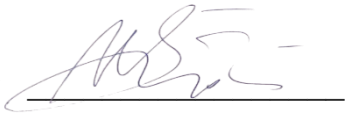
A crossroads grove

B primrose spring

C spring mustard

D common buckthorn

E bought medicinal

Methodical recommendations were made by  *associate professor Boyko IA*