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

GUIDELINES
on independent work of students / VTS / № 16

on the topic: «Tannins. Sumac tannins, bergamot, Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper.

Course: 3rd Faculty: medico-pharmaceutical

Approved on methodical meeting of the department
"30" 08.2024
Protocol № 1
Head department
MD, prof. JV Rozhkovsky

Odessa - 2024

Topic:«Tannins. Sumac tannins, bergamot, Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper. " - 4 years

1. Relevance of the topic

Quinones are a large group of phenolic compounds, which include anthraquinones - the most common in the plant world. On the example of anthraquinones we illustrate the connection between the chemical structure of biologically active substances and their pharmacological action, consider and evaluate the advantages of traditional and modern phytopreparations, pay attention to the application (dosage) of phytopreparations containing together biologically active substances . All this knowledge will be used by students to master some sections of ATL, pharmaceutical chemistry, pharmacology, pharmacotherapy and in future professional activities.

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 tannins.
- the impact on the human body of raw materials that contain tannins.
- LR and LRS, which have tannins: sumac tannin, bergamot, Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper

- be able to:

- to carry out the macroscopic analysis of LRS which contains tannins.
- to carry out microscopic analysis of LRS which has tannins.
- to know LR that contains tannins according to herbarium samples
- distinguish from impurities raw materials that contain tannins.

3. Materials for pre-classroom training of students.

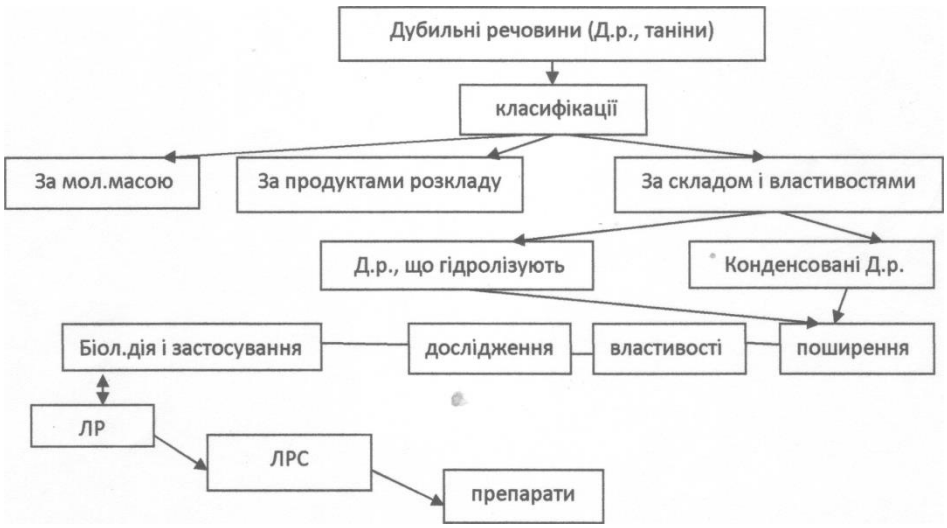
3.1. Basic basic knowledge, skills, abilities that are necessary for independent study and mastering of the topic and which are based on interdisciplinary connections:

№ №	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

	2. Organic chemistry	Physical and chemical properties of polysaccharides, glycosides, terpenoids, derivatives of aromatic series, heterocycles.	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:

- additional

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.

Додаткова література:

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. Сербін А.Г., Сіра Л.М., Слободянюк Т.О. Фармацевтична ботаніка. Підручник. – Вінниця: НОВА КНИГА, 2007. – 488 с.
3. 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.	Write down the Latin name of sumac tanning and LRS, which is obtained from this plant.	
2.	Give a botanical description of tannins	
3.	What organs of sumac tannin are used in medicine, give their pharmacognostic description, how they are harvested and dried.	
4.	Sumac tanning in medicine is used as	
5.	Write down the Latin name of bergamot and LRS, which are obtained from this plant.	
6.	Give a botanical description of bergamot	
7.	What organs of bergamot are used in medicine, give their pharmacognostic description, how to harvest and dry them.	
8.	Badan thick-leaved in medicine is used as	
9.	Write down the Latin name of the following plants: Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper and LRS, which is obtained from this plant.	

10.	Give a botanical description of the following plants: Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper	
11.	What organs of such plants: Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper are used in medicine, give their pharmacognostic description of how to harvest and dry them.	
12.	Such plants: Chinese and Turkish galls, red grapes, Chinese tea, silver foxglove, witch hazel, six-petalled viper are used in medicine as	

3.5. Materials for self-control.

3.5.1. Questions for self-control.

1. Definition of "tannins".
2. Localization of tannins in plant organisms.
3. Physico-chemical properties of tannins.
4. Methods of isolation and research of tannins.
5. What types of raw materials are used for the industrial production of tannin?
6. What phenolic compounds are part of tannins and cause bactericidal action?

3.5.2. Test tasks for self-control.

1. Medicinal plant raw materials of the medicinal product contain tannins. Which method should be used to determine their content according to GF 11A permanganatometryB chromatographyC photoelectrocolorimetryD nephelometryE spectrophotometry

2. When identifying the active substances form precipitates with solutions of gelatin, alkaloids, give precipitates with salts of heavy metals, these are:
A tannins
B carbohydrates
C lipids
D glycosides
E iridoids

3. What biologically active substances of plant origin give a positive reaction with a solution of ammonium alum? A. tanninsB. saponins
C. polysaccharidesD. bitternessE. fatty oils

4. To determine the reliability of the raw material to the decoction of oak bark added a few drops of ferric oxide. The appearance of a dark blue color indicates the presence in the raw material: A. tannins; B. vitamin K; C. carotenoids; D. flavonoids; E. anthracene derivatives.

5. Medicinal plant raw materials contain tannins. For qualitative determination of tannins use reagent: A. gelatin solutionB. sodium hydroxide solutionC. silicic-tungstic acid solutionD. alkali solutionE. sodium nitroprusside solution

6. Oak bark is a source for tannins. To detect these biologically active substances should use a reagent: A. gelatinB. tanninC. meadowD. sodium nitroprussideE. picric acid

7. Pharmaceutical companies produce tannin from vegetable raw materials. What species of medicinal plants can be used as sourcesA Folium Rhus coriariaeB Cortex Quercus roburisC Rhizoma Bergeniae crassifoliaeD Herba Hyperici perforatiE Radix Sanquisorbae officinalis

8. Medicinal plant material is a source of preparations containing tannins.A Folia Cotini CoggyigriaeB Herba ConvallariaeC Radix TaraxaciD Herba MelilotiE Folia Sennae

9. Industrial raw materials for tannin production are LRS: A Folium Cotini coggygriaeB Rhizomata BistortaeC Rhizomata et radix SanguisorbaeD Fructus ViburniE Rhizomata Bergeniae
10. Industrial raw materials for tannin production are LRS: A Galla
B Rhizomata ValerianaeC Rhizomata et radix InulaeD Fructus ViburniE Rhizomata Calami
A batch of medicinal plant raw materials of pedunculate oak bark was delivered to the pharmacy warehouse. The content of which active substances is determined in accordance with the requirements of the Pharmacopoeia: A tannins, B anthracene derivatives, C flavonoids, D extractives, E coumarins.
11. Tannins can be used as an antidote for alkaloid poisoning. Choose plant raw materials that can be recommended for the following intoxication: A foxglove rootB calendula rhizomeC marshmallow rootD rhizome with madder rootE ergot root

Методичні рекомендації склав *доцент Бойко І.А.*