PHARMACOGNOSY

for 3rd year students 22 Public health 226 «Pharmacy, industrial parmacy», educational program «Pharmacy» Фм18 *(5,0д) англ 1, 2, groups

22.04, 29.04 – group 1,

24.04, 07.05 - – group 2

LABORATORY CLASSES . Topic: « Chemical, morphological and anatomical analysis of saponin-containing herbal drugs »

OBJECTIVE.

Know the definition of " **SAPONIN",** classification of saponins, method of obtaining of them, condition of keeping, method of analysis, chemical tests, analysis of quality, chromatography analysis. Medicinal plants and herbal drugs: licorice or liquorice, ginseng, locoweed (astragalus), marigold (calendula), horse chestnut, greek valerian (polemonium), aralia (spikenard), English ivy, java tea or orthosiphon, yam or dioscorea, yucca, agava.

RELEVANSE.

Saponins are naturally occurring plant glycosides; which is to say they are phytochemicals — chemicals found in plants. They possess soap-like qualities and produce a high and stable foam when mixed with water. Saponins have a unique chemical structure that produces foam when mixed with water, just like a detergent. And, also like detergent, saponins can bind with water as well as fats and oils. This means that, in the digestive tract, saponins produce an emulsification of fat-soluble molecules. Specifically, saponins bind to bile acids and help eliminate them from the body, preventing cholesterol from being reabsorbed. You might even say saponins "wash away" various toxins.

The unique chemical structure of saponins allows them to offer a number of prospective health benefits. It's believed saponins have a favorable effect on cholesterol, can help boost the immune system, have an antioxidant effect, and may even support bone strength.

CONTROL QUESTIONS.

1. Give the definition of saponins
2. Characterize the classification of saponins.
3. Characterize anatomical features of accumulation of volatile oil on medicinal plants.
4. Characterize condition of keeping of saponins-containing medicinal plants.
5. Characterize the chemical composition of following plants and herbal drugs: licorice or liquorice, ginseng, locoweed (astragalus), marigold (calendula), horse chestnut, greek valerian (polemonium), aralia (spikenard), english ivy, java tea, orthosiphon, yam or dioscorea, yucca, agava..
6. Characterize the morphological and anatomical features of the following plants and herbal drugs: or liquorice, ginseng, locoweed (astragalus), marigold (calendula), horse chestnut, greek valerian (polemonium), aralia (spikenard), english ivy, java tea, orthosiphon, yam or dioscorea, yucca, agava.
7. Characterize the pharmacological actions of following plants and herbal drugs: or liquorice, ginseng, locoweed (astragalus), marigold (calendula), horse chestnut, Greek valerian (polemonium), aralia (spikenard), english ivy, java tea, orthosiphon, yam or dioscorea, yucca, agava

TESTS

1.Dust of certain kinds of medicinal plant material can irritate mucous membranes during processing, that's why we should take care working with:

A. Rhizomata Bistortae
B. Rhizomaa Tormentillae
C. Radices Araliae
D. Rhizomata et radices Polemonii
E. Rhizomata et radices Rubiae

2. The MRM with such characteristics is received for analysis: parts of cylindrical roots of different length covered with longitudinally wrinkled cork. Cleared raw material is of light-yellow to brown-yellow colour, light-yellow at fracture, very fibred. Taste is very sweet, slightly irritating. Specify the analyzed MPM:

A Radices Ginseng

B Radices Taraxaci
C Radices Berberidis
D Radices Araliae mandshuricae
E Radices Glycyrrhizae

3. Specify medicinal plant material which has tonic action, and contains triterpenoid saponins:
A Licorice roots
B Ginseng roots
C Eleuthero roots
D Marshmallow roots
E Burdock roots

4. Some saponins show diuretic action. Which medicinal plant contains this group of biologically active substances?
A Chestnut
B Licorice
C Great valerian
D Ginseng
E Indian Java tea

5. Specify medicinal raw material which is the source of semisynthetic corticosteroid hormones***:***
A Fresh Aloë leaves
B Fresh Agave leaves
C Common rue herb
D Strophanthus seed
E Holy thistle seed

6. Medicines from Common horse-chestnut leaves and seeds are used in case of venous insufficiency. The quality of Common horse-chestnut seed is characterized by the content of:
A Eritrozide
B Aesculetin
C Glycyrrhizine
D Aescin
E Erysimosid

7. Medicines of Ginseng roots have restorative, adaptogenic effects, improve mental and physical activity. If the tincture of Ginseng is absent in a pharmacy it is possible to replace it by medicines, which contain similar biologically active substances:
A Radices Araliae

B Radices Valerianae
C Radices Inulae
D Radices Ononidis
E Radices Rhei

8. Java tea is used for kidney diseases treatment. What is the raw material of this plant?
A Roots
B Inflorescences
C Herb
D Leaves
E Flowers

9. A patient appealed to the pharmacy for treatment of the long-term unhealed skin burn. What phytomedicine can be recommended in this case:
A Lily-of-the-valley herb
B Hawthorn fruit
C Motherwort herb
D Calendula flower
E Valerian rhizome with roots

10. What kind of medicinal raw material is used to obtain medicine «Aescusan» with venous tonic activity?
A Fructus Ammi majoris
B Herba Meliloti
C Semina Hippocastani
D Fructus Pastinacae sativae
E Fructus Dauci carotae

PRACTICAL TASKS.

You have to fill in your laboratory hand-book on the topic: Morphological and anatomical analysis of volatile oils-containing herbal drugs (**saponins**).

LITERATURE TO PREPARE FOR THE LESSON.

1. Pharmacognosy: textbook for higher school students / V.S. Kyslychenko, L.V. Upyr, Ya.V. Dyakonova, V.Yu. Kuznetsova, I.G. Zinchenko, O.A. Kyslychenko; ed. by V.S. Kyslychenko. – Kharkiv : NUPH: GoldenPages, 2011. – 552 p.; il.
2. Pharmacognosy: textbook for higher school students / V.S. Kyslychenko, L.V. Lenchyk, I.G. Gurieva et al.; ed. by V.S. Kyslychenko. – Kharkiv : NUPH: GoldenPages, 2019. – 584 p.

Tests KROK–2. Topic Saponins