

## CARDIAC GLYCOSIDES.

1. Spring adonis herb is used for various cardiac drugs production. What is the reason of limiting the collection of the raw material?

- A** \* It is guarded
- B** Does not grow in Ukraine
- C** Has limited distribution in Ukraine
- D** Raw material's not available
- E** Grows on the polluted area

2. Spring adonis herb is used as raw material for various cardiac drugs production. Plant material of Adonis is collected from flowering till fruit drop period in the following way:

- A** \* The herb is cut by a knife or sickle at 5-10 cm from the ground
- B** Stems are picked manually
- C** Leaves are picked manually
- D** Aerial part of plant is harvested manually
- E** The herb is harvested together with the underground part

3. Accidents of pupils poisoning during collection of a medicinal plant material were observed. Choose the medicinal raw material not allowed to be collected by children and pupils:

- A** \* Lily-of-the-valley leaf
- B** Nettle herb
- C** Sea-buckthorn fruit
- D** Black alder fruit
- E** Buckthorn bark

4. Preparations of Lily-of-the-valley have cardioactive and sedative effect. While collecting lily-of-the-valley it is possible to gather the following admixture:

- A** \* Solomon's seal
- B** Purple foxglove
- C** Grecian foxglove
- D** Spring adonis
- E** Treacle mustard

5. Purple Foxglove leaves are used for cardioactive drugs production. What temperature should this raw material be dried at?

- A** \* 50-60°C
- B** 30-40°C
- C** 80-90°C
- D** 20-25°C
- E** 90-100°C

6. To obtain the standard medical plant material of Lily-of-the-valley herb the temperature of drying must be 50-60°C to stop the possible biochemical processes:

*A* \* Enzymatic hydrolysis of cardiac glycosides

*B* Oxidation of phenolic compounds

*C* Evaporation of essential oils

*D* Oxidation of resinous matters

*E* Oxidation of terpenoids

7. The medicinal raw material and galenic medicines containing cardiac glycosides should be kept:

*A* \* According to the B list (these drug substances require caution in handling, storage or use)

*B* According to the A list (poisonous drug substances)

*C* According to the general list

*D* Separately from medicinal plant material, which contains nutritives

*E* In the container, closed with paraffin

8. Cardiac glycosides of spring adonis herb are used for cardiac insufficiency treatment. This medicinal plant material must be kept under the following terms:

*A* \* According to the B list (these drug substances require caution in handling, storage or use)

*B* According to the A list (poisonous drug substances)

*C* At ordinary conditions

*D* Preventing the action of CO<sub>2</sub>

*E* In metallic containers

9. Cardiac glycosides have high toxicity that is why the medical plant material should be kept:

*A* \* According to the B list (these drug substances require caution in handling, storage or use)

*B* Together with other medical plant material

*C* According to the A list (poisonous drug substances)

*D* This doesn't matter

*E* In a separate closet

10. Taste is one of organoleptic characteristics of the medicinal raw material's authenticity. For which medicinal plant material taste is never determined?

*A* \* Purple Foxglove

*B* Marshmallow

*C* Common Plantain

*D* Horse-chestnut

*E* Valerian

11. During the commodity research analysis of the raw material it was discovered that it consisted of vaginal oblong-elliptic leaves with arc venation. Flowers were white, bell shaped. Specify this plant:

**A** \* Lily-of-the-Valley

**B** Spring adonis

**C** Milk vetch

**D** Creeping Thyme (wild thyme)

**E** Common St. John's-wort

12. During the commodity research analysis of the raw material it was discovered that it consists of simple or slightly branchy stem, slightly ribbed, covered with leaves, flowers, buds. Leaves are alternate, almost sessile, digitated into 5 parts, 2 lower ones are shorter, pinnatisect. Flowers are large, goldish yellow, solitary. Calyx is green, pubescent. Smell is faint. Taste is never determined! Plant material is poisonous. Therefore this raw material is:

**A** \* Spring Adonis

**B** Stinging nettle

**C** Centaury

**D** Common motherwort

**E** Water pepper

13. A tetracytic stomatal complex, raphides and needle-like crystals of calcium oxalate were detected at microscopic analysis of a medicinal raw material. Specify the MRM:

**A** \* Lily-of-the-valley leaves

**B** Spring Adonis herb

**C** Treacle mustard herb

**D** Foxglove leaves

**E** Strophanthus seeds

14. Lily-of-the-valley herb is a source of cardiotoxic drugs. To identify cardioglycosides it is possible to use the reaction:

**A** \* With Legal's reagent

**B** With Draendorff's reagent

**C** Reaction of cyanidin formation

**D** With tannin

**E** Diazocoupling

15. During the analysis of medicinal herbs a poisonous admixture was found. Which reaction should a pharmacist-analysis choose for cardiac glycosides identification as poisonous admixture?

**A** \* Reaction with Liebermann-Burghard reagent

**B** Reaction with Trim-Hill reagent

**C** Reaction with Stahl's reagent

**D** Reaction with Dragendorff's reagent

**E** Reaction with Marqui's reagent

16. To identify medicinal drug from cardiac glycosides group an analyst should prove the presence of unsaturated lactone ring. Which reagent should be used for the abovementioned?

**A** \* Alkaline solution of picric acid

**B** Alkaline hydroxylamine solution

**C** Alkaline potassium tetraiodomercurate solution

**D** Discoloured magenta (rosein) solution

**E** Saturated sodium chloride solution

17. Activity of plant raw material and drugs containing cardiac glycosides is expressed in activity units. Which method is used for digitalis leaves standardization according to the requirements of the USSR Pharmacopoeia, XI ed.?

**A** \* Biological standardization

**B** Photoelectrocolorimetry

**C** Spectrophotometry

**D** Densitometry

**E** Titrimetry

18. Purple foxglove (*Digitalis purpurea*) leaves standardization is carried out according to the content of cardiac glycosides. Which method of quality determination is used?

**A** \* Biological standardization

**B** Potentiometry

**C** Gravimetry

**D** Permanganatometry

**E** Spectrophotometry

19. One of the methods of active ingredients determination in raw material is biological standardization method. Which group of biologically active substances is it used for?

**A** \* Cardiac glycosides

**B** Alkaloids

**C** Fatty oil

**D** Tannins

**E** Mucilage

20. The content of active substances is determined by the biological method in cases when the major biologically active substances in tinctures are:

**A** \* Cardiac glycosides and bitter substances

**B** Flavonoids and coumarins

**C** Tannins and alkaloids

**D** Hormones and saponins

*E* Essential oils and anthracene derivatives

21. Medicine «Adoniside» contains cardiosteroids. Which medicinal plant material is this medicine obtained from?

*A* \* Spring adonis herb

*B* Strophanthus seed

*C* Lily-of-the-valley herb

*D* Lily-of-the-valley leaves

*E* Purple foxglove leaves

22. Plant medicine «Corglycone» is used as a cardioactive remedy for cardiovascular diseases treatment. Medicinal raw material for this plant-derived medicine is:

*A* \* Lily-of-the-valley leaves

*B* Foxglove purple leaves

*C* Treacle mustard leaves

*D* Eucalyptus leaves

*E* Stramonium leaves

23. Choose medicine the raw material for which is woolly foxglove:

*A* \* Celanide

*B* Corglycone

*C* Digitoxin

*D* Adoniside

*E* Erysimin

24. Choose medicine which is obtained from woolly foxglove:

*A* \* Lantoside

*B* Corglycone

*C* Digitoxin

*D* Adoniside

*E* Erysimin

25. Quality of medicinal raw material is regulated by biologically active substances content. What kind of raw material the content of lanatosides is determined in?

*A* \* Grecian foxglove

*B* Strophanthus

*C* Solomon's seal

*D* Spring adonis

*E* Lily-of-the-valley

26. What cardioglycoside is not present in purple foxglove, unlike other foxglove species?

*A* \* Lantoside

- B** Digitoxin
- C** Purpureaglycoside B
- D** Purpureaglycoside A
- E** Glucogitalotoxin

**27.** Phytomedicine «Digoxin» is used for treating cardiac decompensation. The plant source of this medicine is:

- A** \* Grecian foxglove
- B** Rusty foxglove
- C** Yellow foxglove
- D** Purple foxglove
- E** Ciliated foxglove

28. The 60 years old patient suffers from cardiac insufficiency. Which medicine is of the most efficient use for achieving rapid pharmacological effect?

- A** \* Corglycone
- B** Digitoxin
- C** Digoxin
- D** Celanid
- E** Adonaside

29. Cardioactive medicines are obtained from Foxglove leaves, but they have cumulative characteristic. Specify plants which contain cardiac glycosides and do not possess cumulative properties:

- A** \* Lily-of-the-valley, Spring adonis, Treacle mustard
- B** Strophanthus, Treacle mustard, Tickseed
- C** Spring adonis, Common horstail (*Equisetum*), Primrose
- D** Bird cherry tree, Ephedra, Lily-of-the-valley
- E** Bush pea, Strophanthus, Rhaponticum

30. Which wild-growing raw material from the *Scrophulariaceae* family the cultivated raw material of purple foxglove can be replaced with?

- A** \* *Digitalis grandiflora* Mill.
- B** *Linaria vulgaris* Mill.
- C** *Gratiola officinalis* L.
- D** *Veronica officinalis* L.
- E** *Verbascum phlomoides* L.

31. Foxglove plant material is a source of cardiogenic drugs. Which purple foxglove organs are used as herbal raw material?

- A** \* Leaves
- B** Roots
- C** Fruits

*D* Seeds

*E* Herb

32. Cardioglycosides of Lily-of-the-valley leaves are used for cardiac insufficiency treatment. This raw material should be analyzed every year because such processes are possible:

*A* \* Enzyme hydrolysis of cardioglycosides

*B* Alkaline hydrolysis of cardioglycosides

*C* Weathering of cardioglycosides

*D* Re-establishment of cardioglycosides

*E* Sublimation of cardioglycosides

33. Herbal raw material of spring adonis is used for heart diseases treatment. What is the raw material of this plant?

*A* \* Herb

*B* Inflorescences

*C* Leaves

*D* Roots

*E* Flowers

34. Cardiac glycosides of grecian foxglove medicines show cumulative effect. Therefore it is possible to recommend a patient medicines from hawthorn fruits or flowers containing:

*A* \* Flavonoids

*B* Saponins

*C* Alkaloids

*D* Carotinoids

*E* Capsaicinoids

35. To decrease negative enzymes affection in plant material it is necessary to do:

*A* \* Drying

*B* Extraction

*C* Sorting

*D* Macroscopic analysis

*E* Collection

36. Cardioglycosides of Adonis vernalis are used for heart failure treatment. This plant raw material should be stored:

*A* \* According to the B list

*B* According to the A list

*C* Under ordinary conditions

*D* Protected from CO<sub>2</sub>

*E* In metallic containers

37. Standardization of Lily-of-the-valley herb is carried out by the method:

- A** \* Biological method on frogs
- B** Biological method on dogs
- C** Spectrophotometry
- D** Densitometry
- E** High-efficiency liquid chromatography

38. Preparations containing cardiosteroids are produced out of the following herbal raw material:

- A** \* Herba Convallariae
- B** Cortex Quercus
- C** Radix Taraxaci
- D** Folia Ficus Caricae
- E** Folia Sennae

39. Purpurea glycoside A and purpurea glycoside B are the main active substances of *Digitalis purpurea*. They belong to the following class of bioactive substances:

- A** \* Cardiac glycosides
- B** Alkaloids
- C** Phenolic compounds
- D** Flavonoids
- E** Anthracene derivatives

40. A pharmaceutical company produces a medicine under the brand name "Corglyconum"? What herbal raw material is used in preparation of this drug?

- A** \* Lily-of-the-valley grass
- B** Dandelion roots
- C** Wormwood grass
- D** Plantain leaves