

POLYSACCHARIDES.

1. Coltsfoot leaves are used as an expectorant agent. This plant material should be collected:

- A* * After flowering
- B* During flowering
- C* Before flowering
- D* During fruiting
- E* At the beginning of fruiting

2. Common plantain leaves are collected in summer. They are cut by knife or sickle. Specify the period of vegetation for this plant material collection:

- A** In the period of flowering
- B* In the bud formation period
- C* Decumbent crown formation
- D* In the beginning of fruiting
- E* In the period of ripe fruiting

3. Marshmallow roots are used as a mucolytic agent. Underground organs of marshmallow are collected:

- A* * After ripening of seeds and disappearing of the aerial part
- B* In the phase of blossoming
- C* At the period of unripe fruit
- D* In the phase of bud formation
- E* In the phase of stem formation

4. Preparations of marshmallow's roots are used in the treatment of upper respiratory tract disorders. During its collection it is possible to get the following admixture:

- A* * Lavatera
- B* Common plantain
- C* Common tansy
- D* Blue dandelion
- E* Common dandelion

5. Preparations of coltsfoot are used in treatment of upper respiratory tract disorders. During its collection it is possible to get the following admixture:

- A* * Burdock
- B* Common plantain
- C* Spring adonis
- D* Marshmallow
- E* Pot marjoram

6. Foalfoot leaves are used as expectorant and emollient drugs. During their collection it is possible to get the following admixture:

- A* * Burdock leaves

- B** Bearberry leaves
- C** Cowberry leaves
- D** Plantain leaves
- E** Whortleberry leaves

7. Marshmallow roots contain from 10 to 20% of polysaccharides. The main peculiarity of drying is the temperature which must be:

- A** * 45-60 °C
- B** 10-15 °C
- C** 80-90 °C
- D** 100-120 °C
- E** 85-95 °C

8. Medicines of plants from *Plantago* genus are widely used in medical practice. What plant is cultivated for that purpose:

- A** * *Plantago psyllium*
- B** *Plantago media*
- C** *Plantago lanceolata*
- D** *Plantago stepposa*
- E** *Plantago maxima*

9. At microscopic analysis of a raw material such diagnostic features were detected: multilayer cork, large parenchymal cells filled with inulin; expressive cambium line; large vessels; schizogenous receptacles with essential oil. For what type of plant material the indicated features can serve as the authenticity confirmation?

- A** * Rhizomata et radices Inulae
- B** Rhizomata et radices Rubiae
- C** Rhizomata cum radicibus Valerianae
- D** Radices Taraxaci
- E** Radices Ononidis

10. At microscopic analysis of Marshmallow root it's necessary to determine the content of starch grains. What reagent permits to do this?

- A** * Lugol's solution
- B** Ammonium hydroxide
- C** Concentrated sulfuric acid
- D** α -Naphthol alcoholic solution
- E** Thymol solution

11. Which compound turns dark blue on adding iodine solution?

- A** * Amylose
- B** Glucose
- C** Lactose
- D** Cellulose
- E** Saccharose

12. The mucilage-containing herbal raw material is used for treatment of upper respiratory tract disorders. The source of this class of compounds is:

- A** * Radix Althaeae
- B** Radix Inulae
- C** Radix Ipecacuanhae
- D** Radix Rhodiolae
- E** Radix Belladonnae

13. A storehouse received a batch of althaea roots. For its verification a drop of ammonia solution was applied upon the root section; the spot of section turned yellow. This is the evidence of the following substance presence:

- A** * Mucilages
- B** Tannins
- C** Gum
- D** Pectins
- E** Vitamin C

14. Coltsfoot preparations are used for upper airways treatment. During collection of this herbal raw material the following admixture may appear:

- A** * Great bur (*Arctium lappa*)
- B** Common plantain (*Plantago major*)
- C** Spring adonis (*Adonis vernalis*)
- D** Marsh mallow (*Althaea officinalis*)
- E** Pot marjoram (*Origanum vulgare*)

15. Plantaglucid, which is used as antiulcer medicine, is received from the common plantain leaves. What class of compounds is quantitatively defined?

- A** * Polysaccharides
- B** Vitamins
- C** Iridoids
- D** Terpenes
- E** Carotenoids

16. Remedies from polysaccharide-containing medicinal plant material are used as expectorants. Which of the following plants contains polysaccharides?

- A** * Common plantain
- B** Hellebore
- C** Java tea
- D** Motherwort
- E** Nettle

17. A party of the medicinal raw material of common plantain was received by a pharmacy's storehouse. The content of what active substances is a sign of authenticity according to the Pharmacopoeia requirements?

- A** * Polysaccharides

- B** Flavonoids
- C** Tannins
- D** Anthraquinones
- E** Extracted substances

18. Ukrainian medicine “Plantaglucid”, which is used to treat gastritis, gastric ulcer and duodenal ulcer, is the sum of polysaccharides of medicinal plant material:

- A** * Common plantain leaves
- B** Foalfoot leaves
- C** Kelp (laminaria)
- D** Hawthorn fruits
- E** Chicory roots

19. Most types of raw material are kept dry. For the juice production fresh raw material is processed from:

- A** * *Plantago major*
- B** *Althaea officinalis*
- C** *Rosa canina*
- D** *Urtica dioica*
- E** *Capsella bursa-pastoris*

20. Elecampane rhizomes and roots contain essential oil and polysaccharides. Qualitative reactions with α -naphthol and concentrated sulfuric acid confirm the presence of:

- A** * Inulin
- D** Starch
- C** Tannins
- D** Flavonoids
- E** Phospholipids

21. Polysaccharide inulin increases the level of bifidobacteria, that’s why it’s recommended for diabetes treatment. In this case preparations from the following plant are used:

- A** * Chicory roots
- B** Licorice roots
- C** Ginseng roots
- D** Valerian roots
- E** Sweetflag rhizomes

22. The pharmacist has prepared the infusion of Marshmallow roots (mucilage). Specify the correct version of technology:

- A** * Cold infusion for 30 min and filtration without plant material expression
- B** Pressing raw material after infusion at room temperature
- C** Heating for 30 min, filtering without cooling
- D** Heating on boiling water bath for 15 minutes, cooling for 45 min, filtering

E Heating for 30 minutes, cooling 10 min, filtering

23. Tragacanth gum is used in the production of emulsions, tablets, pills, and also in perfumery and cosmetics industry. It is produced from plants of the genus:

A * Astragalus

B Armeniaca

C Prunus

D Aloe

E Vaccinium

24. Which medicinal plant can be used for the appetite stimulation?

A * Common dandelion

B Red-seeded dandelion

C White-flowering dandelion

D Japanese dandelion

E Chinese dandelion

25. Flowers with characteristic odor were received for analysis. The flowerheads had diameter 5 cm, a wrapper was grey-green, a receptacle was slightly protuberant, regional ligulate florets with curved short puberulent tube and a three-teeth limb, red-orange colour. The center of the flowerhead bore tubular florets with five-teeth yellow corolla. What plant does this characteristic correspond to?

A * Tussilago farfara

B Matricaria chamomilla

C Calendula officinalis

D Saponaria officinalis

E Tanacetum vulgare

26. A consignment of herbal raw material was received by a pharmacy without an analytical certificate. After macroscopic analysis it was discovered to be chicory roots. The reaction with α -naphthol showed a positive result that confirmed the presence of:

A * Inulin

B Cellulose

C Starch

D Mucilages

E Saponins

27. The main active substances of marshmallow are mucilage and pectins. Which class of biologically active substances do they belong to?

A * Polysaccharides

B Vitamins

C Flavonoids

D Lignans

E Coumarins

28. At tablets production polysaccharides are used as binding agents and excipients. Which compound is the most suitable for this purpose?

- A** * Starch
- B** Pectins
- C** Gum
- D** Mucilages
- E** Inulin

29. A consignment of herbal raw material was received by pharmacy without an analytical certificate. According to macroscopic analysis it was marshmallow roots. A reaction with 5% alkali solution gave a positive result that confirmed presence of:

- A** * Mucilage
- B** Gum
- C** Starch
- D** Pectin
- E** Cellulose

30. During coltsfoot leaves collection it is necessary to pay attention to possible adulterants, such as:

- A** * Cotton burdock leaves
- B** Common plantain leaves
- C** Common nettle leaves
- D** Marshmallow leaves
- E** cowslip primrose leaves

31. A pharmaceutical enterprise received coneflower rhizomes for tincture production. What effect does this medicine have?

- A** * Immune modulation
- B** Expectorant
- C** Purgative
- D** Cardiotonic
- E** Enterosorbic

32. Choose a reagent for histochemical reaction on mucilage :

- A** * Methylene blue alcohol solution
- B** 1% solution of phloroglucin
- C** 1% iron alum solution
- D** Sudan III solution
- E** Dragendorff's reagent

33. Inulin present in the underground organs of *Asteraceae* plants (dandelion, elecampane, chicory) is prescribed to treat diabetes and for bifidobacteria level increasing. According to its chemical structure it belongs to:

- A** * Polysaccharides
- B** Vitamins

- C** Lipids
- D** Proteins
- E** Lipoids

34. Which group of compounds is determined by the swelling index?

- A** * Polysaccharides
- B** Iridoids
- C** Cardiac glycosides
- D** Flavonoids
- E** Volatile oils

35. During microscopy of althaea root it is necessary to determine the presence of starch granules within the plant cells. What reagent enables such analysis?

- A** * Lugol's solution
- B** Ammonium hydroxide
- C** Concentrated sulfuric acid
- D** Thymol solution
- E** Alcohol solution of a-naphthol

36. The possible admixture in the crop of raw coltsfoot leaves (*Tussilago farfara*) is the leaf of:

- A** * Cotton burdock (*Arctium tomentosum*)
- B** Common plantain
- C** Nettle
- D** Marshmallow (*Althaea officinalis*)
- E** *Primula officinalis*

37. Leaves of greater plantain are harvested in summer by mowing or cutting them with a knife or a sickle. There is always one developed plant left per 1 m². The plant is harvested in the following vegetation period:

- A** * Blooming
- B** Budding
- C** Rosetting
- D** Beginning of fruiting
- E** Ripeness

38. While preparing marshmallow root extract, a pharmacist mistakenly used the water of improper temperature for this extract, and the end product came up turbid. What is the required water temperature for the extraction of this herbal material?

- A** * Room temperature
- B** 40°C
- C** 100°C
- D** 60°C
- E** 80°C

39. Plantain leaves are used for production of Plantaglucidum which has antiulcerogenic action. The plant material analysis involves quantitative determination of the following class of compounds:

- A** * Polysaccharides
- B** Vitamins
- C** Alkaloids
- D** Terpenes
- E** Carotenoids

40. A pharmacy network received a batch of raw material without analysis protocol. It was identified as marshmallow root by the external characteristics. The reaction with 5% alkali liquor was positive. This indicates the presence of:

- A** * Slimes
- B** Gums
- C** Starch
- D** Pectins
- E** Cellulose

41. Plantaglucide is used to treat peptic ulcer disease of stomach and duodenum with normal acidity and hypoacidity. This drug is obtained from the following plant:

- A** * *Plantago major*
- B** *Plantago psyllium*
- C** *Plantagomedia*
- D** *Plantagostepposa*
- E** *Plantagolanceolata*

42. Preparations from *Althaea officinalis* roots are used for treatment of upper air ways conditions. During harvest this herbal raw material the following can become an admixture:

- A** * *Lavatera thuringiaca*
- B** *Plantago major*
- C** *Tanacetum vulgare*
- D** *Cichorium intybus*
- E** *Taraxacum officinale*

43. During microscopy of *Althaea* root it is necessary to determine the presence of starch granules within the plant cells. What reagent enables such analysis?

- A** * Lugol's solution
- B** Ammoniumhydroxide
- C** Concentrated sulfuric acid
- D** Alcohol solution of α -naphthol
- E** Thymol solution

44. Althaea roots are used as a mucolytic agent. Underground parts of this plant are harvested:

A * After the seeds have ripened, and the above-ground part have died off

B In the period of blossoming

C In the period off ruiting

D In the period of budding

E In the period of stem extension

45. A herbal raw material was sent for analysis: rounded cordate leaves with incised margins that are irregularly coarsely, and finely toothed; the upper leaf surface is naked, while its lower surface is covered in white down. Leaf petioles are thin, with a groove on the upper part, often downy. Leaf blade length is usually 8-15 cm. a petiole is approximately 5 cm long. The upper leaf surface is green, while the lower leaf surface is whitish-gray. No odor. The taste is slightly bitter with a slimy texture. What herbal raw material is it?

A * *Folia Farfarae*

B *Folia Urticae*

C *Folia Menthae*

D *Folia Uvae-ursi*

E *Folia Eucalypti*

46. To check the identity of a herbal raw material, several drops of an alcoholic solution of alpha-naphthol and concentrated sulfuric acid were applied to the root section of *Cichorium intybus* L.. It resulted in pink-violet coloring that indicates the presence of the following in the herbal raw material:

A * Inulin

B Essential oils

C Slime

D Pectin

E *Fatty oils*

47. During microscopy of Althaea root it is necessary to determine the presence of starch granules within the plant cells. What reagent allows such analysis?

A * Lugol's solution

B Thymol solution

C Concentrated sulfuric acid

D Ammonium hydroxide

E Alcohol solution of o-naphthol

48. Pharmaceutical factory received a batch of Althaea roots. What reagent should be used in histochemical test for slime production in the course of qualitative analysis?

A * Alcoholic solution of methylene blue

B 1 % phloroglucinol solution

C Dragendorff reagent

D Sudan III solution