

## TANNINS.

1. Whortleberry leaves are harvested in Ukraine. Specify the term of the plant material collection:

*A* \* During the phase of flowering

*B* Before flowering

*C* Before green fruits formation

*D* In the period of fruit ripening

*E* After collection of fruits

2. A pharmaceutical network carries out determination of tormentil rhizomes reserve. How often should this medicinal plant material be collected?

*A* \* Once in 7 years

*B* Once in 3 years

*C* Yearly

*D* Once in 2 years

*E* Once in 15 years

3. A pharmaceutical network carries out determination of bistort rhizomes reserve. How often should this medicinal plant material be collected?

*A* \* Once in 20 years

*B* Once in 2 years

*C* Yearly

*D* Once in 5 years

*E* Once in 10 years

4. Whortleberry fruits are used in medicine as an astringent and anti-inflammatory agent. An admixture for this raw material is:

*A* \* Buckthorn fruits

*B* Dog rose fruits

*C* Hawthorn fruits

*D* Mountain ash fruits

*E* Viburnum fruits

5. Medicinal plant material is stored in different groups and under special conditions in a pharmacy. Point out the herbal raw material which belongs to the general storage group:

*A* \* Oak bark

*B* Belladonna roots

*C* Spring Adonis herb

*D* Strophanthus seed

*E* Valerian rhizome

6. Tannins from Tormentil (*or silwerweed*) roots and rhizomes are used as an astringent. Choose the officinal species of Tormentil (*or silwerweed*):

**A** \* *Potentilla erecta*

**B** *Potentilla argentea*

**C** *Potentilla pilosa*

**D** *Potentilla impolita*

**E** *Potentilla anserine*

7. The analyzed MRM is black shiny drupes up to 6-8 mm in diameter, a stone is large, very strong, spherical, light brown, with one seed, and taste is sweetish, slightly astringent. This MRM is:

**A** \* Bird cherry fruits

**B** Whortleberry fruits

**C** Black chokeberry fruits

**D** Common buckthorn fruits

**E** Hawthorn fruits

8. The batch of oak bark was received by a pharmacy warehouse. Content of which active agents is the characteristic of quality according to the requirements of Pharmacopoeia:

**A** \* Tannins

**B** Anthracene derivatives

**C** Flavonoids

**D** Extracted matter

**E** Coumarins

9. Bilberry fruits are used as an astringent agent and for vision improvement. Quality control of crude drug is carried out according to the content of:

**A** \* Tannins

**B** Saponins

**C** Vitamins

**D** Polysaccharides

**E** Lipids

10. Tannins are used as astringent agent for colitis, enterocolitis and diarrhea treatment. Which crude drug should be recommended by a pharmacist in this case?

**A** \* *Fructus Myrtilli*

**B** *Fructus Sambuci nigri*

**C** *Fructus Ribis nigri*

**D** *Fructus Rhamni catharticae*

**E** *Fructus Frangulae*

11. Tannins have astringent effect and are used for colitis, enterocolitis, diarrhea

treatment. Which herbal raw material contains a lot of tannins?

- A** \* Fructus Myrtilli
- B** Fructus Sambuci nigri
- C** Fructus Ribes nigri
- D** Fructus Rhamni catharticae
- E** Fructus Frangulae

12. Tannins can be used as an antidote in alkaloids poisonings treatment. Choose the crude drug:

- A** \* Tormentil cinquefoil rhizome (*or Cinquefoil rhizome*)
- B** Sweetflag rhizome
- C** Marshmallow root
- D** Madder rhizomes and roots
- E** Elecampane root

13. Burnet (*Sanguisorba officinalis*) plant material contains tannin. Which method should be used to determine tannin content according to Pharmacopoeia:

- A** \* Permanganatometry
- B** Chromatography
- C** Photoelectrocolorimetry
- D** Nephelometry
- E** Spectrophotometry

14. Bird-cherry tree (*Prunus padus*) fruits are used in medicine as an astringent. Content of tannins in fruits is determined by the method:

- A** \* Permanganatometry
- B** Spectroscopy
- C** Iodometry
- D** Chromatography
- E** Gravimetry

15. What method is used to isolate low-molecular tannins from the medicinal plant material in the laboratory?

- A** \* Chromatography
- B** Polarimetry
- C** Spectrophotometry
- D** Potentiometry
- E** Extraction

16. The plant material for industrial tannin production is:

- A** \* Gallae
- B** Rhizomata Valerianae
- C** Rhizomata et radices Inulae

**D** Fructus Viburni  
**E** Rhizomata Calami

17. The plant material for industrial tannin production is:

**A** \* Folium Cotini coggygiae  
**B** Rhizomata Bistortae  
**C** Rhizomata et radices Sanguisorbae  
**D** Fructus Viburni  
**E** Rhizomata Bergeniae

18. Pharmaceutical enterprises produce tannin from medicinal plant material. Choose tannin plant source:

**A** \* Folium Rhois coriariae  
**B** Cortex Quercus  
**C** Rhizoma Bergeniae crassifoliae  
**D** Herba Hyperici  
**E** Radices Sanguisorbae officinalis

19. Whortleberry (bilberry) fruits are rich in flavonoids, anthocyanins, tannins. They are used for:

**A** \* Improvement of eyesight  
**B** Stimulation of digestion  
**C** Stimulation of breathing  
**D** As a cholagogue remedy  
**E** As a laxative remedy

20. Pharmacies determine the Tormentil root reserve. By which method the reserve of this raw material is determined?

**A** \* Method of model specimens  
**B** Method of record plot  
**C** Method of projective cover  
**D** By the Geodesic method  
**E** By sight

21. A doctor advised a patient suffering from diabetes mellitus medicinal herbal tea "Arfazetin". It contains kidney-bean pods, Japanese angelica tree roots, rose hips, common horsetail herb, common St. John's-wort herb, wild chamomile flowers. Choose an absent herbal raw material:

**A** \* Bilberry shoots  
**B** Common plantain leaves  
**C** Immortelle flowers  
**D** Hops strobile  
**E** Mountain ash fruits

22. What biologically active substances of plant origin give a positive reaction with iron alum solution?

- A** \* Tannins
- B** Saponins
- C** Polysaccharides
- D** Bitters
- E** Fatty oils

23. For oak bark decoction authenticity determination few drops of iron chloride solution were added. Appearance of dark-blue colour confirms the presence of:

- A** \* Tannins
- B** Vitamin K
- C** Carotenoids
- D** Flavonoids
- E** Anthracene derivatives

24. What herbal raw material is used as an industrial source of tannins?

- A** \* *Cotinus coggygria* leaves
- B** Rose hips
- C** Nettle leaves
- D** *Persicaria hydropiper* grass
- E** *Solidago canadensis* grass

25. A herbal raw material (fruits) was sent for analysis. This material consists of glossy black drupes 8 mm in diameter with one large spherical light-brown seed that is very firm. Its chemical analysis showed the presence of condensed tannins. What plant is the source of this herbal raw material?

- A** \* *Prunus padus*
- B** *Ribes nigrum*
- C** *Rhamnus cathartica*
- D** *Schisandra chinensis*
- E** *Vaccinium myrtillus*

26. The following herbal raw material is a source of tannin in pharmaceutical manufacture:

- A** \* Folium *Cotini coggygriae*
- B** Rhizomata *Bistortae*
- C** Fructus *Viburni*
- D** Rhizomata et radix *Sanguisorbae*
- E** Rhizomata *Bergenias*