

ALKALOIDS.

1. Cultivation of this plant and production of medicinal plant material is under the UNO control and is forbidden in Ukraine. This plant is:

A * Opium poppy

B Locoweed

C Colchicum

D Tulip poppy

E Ginseng

2. Children and pupils often collect medicinal raw material. Choose the medicinal plant material not allowed to be collected by children and pupils:

A * Herba Belladonnae

B Herba Hyperici

C Herba Bidentis

D Herba Leonuri

E Herba Origani

3. Alkaloids-containing medicinal raw material should be dried at the temperature:

A * 50-60°C

B 30-45°C

C 70-80°C

D 80-90°C

E 90-100°C

4. Belladonna, stramonium, and henbane leaves contain tropane alkaloids. This medicinal plant material should be stored:

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 ordinary list

D According to the "Essential oil material" list

E Equated to narcotic

5. Medicines of ephedra herb have bronchodilatory and psychostimulative effect. Such plant material and medicines should be kept:

A * According to the B list

B According to the ordinary list

C Like odorous material

D Like a dye-stuff

E Like a poison

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

- A** * Jimson weed
- B** Motherwort
- C** Milk thistle
- D** Common Thyme
- E** Wild parsnip

7. During the commodity research analysis of the raw material it was discovered that it consists of a mixture of stems, leaves, flowers and fruits. Stems are cylinder, up to 4 cm long, up to 1,5 cm thick, light green with a spongiose core. Flowers are solitary, corolla is five-lobbed and of a dull purplish colour. The plant material is poisonous! It can be concluded that the raw material is:

- A** * Belladonna herb
- B** St. John's-wort herb
- C** Peppermint herb
- D** Nettle herb
- E** Shepherd's-purse herb

8. The MRM with such characteristics is received for analysis: a mixture of obovate-acuminate leaves up to 25 cm long and up to 20 cm wide; base of the leaf is cuneated with deep sinuate margin; petiole is cylindrical. Venation is palmate-netted: the main vein and major veins come out at the inner surface of a leaf. The upper surface is dark and greyish-green, the under surface paler. A smell is weak, narcotic. Taste is never determined. The plant is poisonous! Which plant does the described MRM belong to?

- A** * *Datura stramonium*
- B** *Passiflora incarnata*
- C** *Chelidonium majus*
- D** *Hyoscyamus niger*
- E** *Vinca minor*

9. At identification of poisonous raw material the fact, that such medicinal plants as *Atropa belladonna*, *Hyoscyamus niger*, *Datura stramonium* have a common microscopic diagnostic feature is taken into consideration. This feature is:

- A** * The raw material contains calcium oxalate in its cells
- B** The epidermal cells have wavy cell walls
- C** Location of essential oil inside a cell
- D** Cells are located in two layers
- E** Presence of simple curved hairs

10. The belladonna leaves contain tropane alkaloids and are a poisonous admixture to other types of raw material. This admixture can be identified at microdiagnostics by such anatomic sign:

- A** * Cells, filled with calcium oxalate sand
- B** Cells with essential oils
- C** Cells with fatty oils
- D** Cells, filled with spherical crystals
- E** Cells, filled with prismatic crystals

11. The henbane leaves contain tropane alkaloids and are a poisonous admixture to other types of plant material. This admixture can be identified at microdiagnostics by such anatomic indications:

- A** * Cells, filled with prismatic crystals
- B** Cells with essential oils
- C** Cells with fatty oils
- D** Cells, filled with spherical crystals
- E** Cells, filled with calcium oxalate sand

12. The jimson weed leaves contain tropane alkaloids and are a poisonous admixture to other types of raw material. This admixture can be identified at microdiagnostics by such anatomic indications:

- A** * Numerous druses
- B** Cells with mucilage
- C** Cells with raphides
- D** Cells with needle-like crystals
- E** Cells, filled with calcium oxalate sand

13. The characteristic microdiagnostic feature of the medicinal plant material – the jimson weed leaves – is the presence of multicellular warty hairs and inclusions of calcium oxalate, named:

- A** * Druses
- B** Raphides
- C** Lythocyst cells
- D** Microcrystallic sand
- E** Needle-like crystals

14. The characteristic microdiagnostic feature of the henbane leaves is a presence of multicellular simple and capitate hairs and inclusions of calcium oxalate, named:

- A** * Prismatic crystals
- B** Druses
- C** Cystoliths
- D** Needle-like crystals
- E** Raphides

15. The remedies of Cayenne pepper are used as irritant, warming remedy for neuralgia, radiculitis. This effect is provided by:

- A** * Capsaicinoids
- B** Saponins
- C** Flavonoids
- D** Carotenoids
- E** Phenolic glycosides

16. The alkaloid codeine is prescribed as antitussive. Which MRM contains this alkaloid?

- A** * Opium poppy capsules
- B** Plume Poppy herb
- C** Celandine (Killwort) herb
- D** Common periwinkle herb
- E** Tea leaves

17. Codeine for medical purpose can be received in a semisynthetic way from a plant-derived alkaloid of the similar structure. Specify this alkaloid:

- A** * Morphine
- B** Papaverine
- C** Berberine
- D** Protopine
- E** Chelidonine

18. The *Papaveraceae* family plants contain isoquinoline alkaloids and are widely used in medicine. Indicate the species which grows wildly and is cultivated in Ukraine:

- A** * Tulip poppy
- B** Opium poppy
- C** Plume Poppy
- D** Coral Plume
- E** Field Poppy

19. The tulip poppy herb is used as antitussive remedy. The quality of this raw material is characterized by the content of:

- A** * Glaucine
- B** Berberine
- C** Pachycarpine
- D** Rosevine
- E** Sanguinarine

20. The tulip poppy herb (*Herba Glaucii flavi*) is used as a source of antitussive remedies. Which alkaloid is extracted from it?

- A** * Glaucine
- B** Hyndarine
- C** Codeine

D Thermopsine

E Protopine

21. The alkaloid glaucine has antitussive action. What MRM contains this alkaloid?

A * Tulip poppy herb

B Plume Poppy herb

C Celandine herb

D Common periwinkle herb

E Tea leaves

22. Medicines of Madagascar periwinkle (*Catharanthus roseus*) are used for treatment of lymphogranulomatosis, haematosarcoma and in acute leukaemia therapy. Quality standardization of this raw material is carried out according to the content of:

A * Vinblastine

B Harmine

C Atropine

D Hyoscyamine

E Strophanthidine

23. Medicines of rauwolfia roots are used for high blood pressure treatment. Quality of this raw material is determined according to the quantity of:

A * Reserpine

B Atropine

C Hyoscyamine

D Vinblastine

E Adonitoxin

24. Medicines of ergot are used in obstetric-gynecological practice for uterus contraction and for cardiovascular diseases treatment. Quality of this raw material is estimated according to the quantity of:

A * Ergotoxine

B Atropine

C Hyoscyamine

D Reserpine

E Ajmaline

25. The positive result with Dragendorff 's reagent at chemical analysis of barberry root was received. Presence of which compounds does this reaction confirm?

A * Alkaloids

B Steroids

C Triterpenoids

D Furocoumarins

E Chromones

26. The adulteration with alkaloids-containing medicinal plant material is possible during plant material collection. These compounds can be identified using the reaction with:

- A** * Dragendorff's reagent
- B** Legal's reagent
- C** Trim-Hill's reagent
- D** Stahl's reagent
- E** Fehling's reagent

27. Orange-red spots appear on the yellow background after processing of a chromatogram with Belladonna leaves extract by Dragendorff's reagent. It confirms the presence of:

- A** * Alkaloids
- B** Saponins
- C** Tannins
- D** Cardiac glycosides
- E** Phenolic glycosides

28. Analysis of alkaloid containing raw material was carried out in an analytical lab. Choose drug which gives positive result in Vitali-Morin reaction:

- A** * Scopolamine hydrochloride
- B** Platyphylline hydrotartrate
- C** Quinine sulfate
- D** Papaverine hydrochloride
- E** Morphine hydrochloride

29. Which substance from purine alkaloids forms a white precipitate with 0.1% tannin solution?

- A** * Caffeine
- B** Theobromine
- C** Theophylline
- D** Euphylline
- E** Diprophylline

30. The representatives of *Solanaceae* family are widely used in medical practice as alkaloid-containing plants. Which from the representatives of the family is the source of steroidal alkaloids?

- A** * *Solanum laciniatum*
- B** *Scopolia carniolica*
- C** *Capsicum annuum*
- D** *Solanum tuberosum*
- E** *Atropa belladonna*

31. A tincture and extracts of which raw material are included in complex medicines «Bellataminal», «Becarbon», «Besalol», «Bellalgin»?

A * Belladonna herb

B Lily-of-the-valley herb

C Locoweed herb

D Tickseed herb

E Celandine herb

32. Medicines «Passit», «Novopassit» are used as tranquilizers, sedative and light soporific remedies. These medicines are obtained from:

A * Passionflower herb

B Tickseed herb

C Sage leaves

D Elecampane herb

E Common periwinkle herb

33. An alkaloid-containing phytomedicine is recommended to treat neurasthenia, insomnia, climacteric disorders. Choose this phytomedicine.

A * Novopassit

B Ergotamine

C Glaucine hydrochloride

D Securinine nitrate

E Vinblastine

34. Medicines «Ajmaline» and «Pulsnorma» are used as antiarrhythmic remedies. These medicines are obtained from:

A * Snakeroot

B Common periwinkle herb

C Stramonium leaves

D Catharanthus leaves

E Nux vomica seeds

35. Colchicine alkaloids are used for malignant tumours treatment. These medicines are obtained from:

A * Colchicum

B Bush pea

C Common periwinkle

D Belladonna

E Lobelia (Indian tobacco)

36. Specify the medicinal raw material, which is used for colchamine ointment production:

A * Colchicum corm

- B** Hellebore rhizomes and roots
- C** Scopolia rhizomes
- D** Belladonna root
- E** Snakeweed root

37. Choose the medicinal raw material which is used for obtaining medicine «Sanguiritrin» with antimicrobial activity:

- A** * Plume poppy
- B** Datura
- C** Celandine
- D** Capsicum
- E** Bush pea

38. It is known that fungi can be the source of biologically active substances. For example, the source of indole alkaloids is:

- A** * Ergot
- B** Snakeroot
- C** Nux vomica
- D** Foxfeet
- E** Scopolia

39. The herbal medicine «Ukrain» is used as an antitumour remedy. The medicinal raw material for this medicine is:

- A** * Celandine herb
- B** Sage leaves
- C** Peppermint leaves
- D** Motherwort herb
- E** Barberry root

40. The alkaloid codeine with anticough action also has a narcotic effect. Therefore in pediatric practice it is necessary to replace it by other alkaloid which does not have this side effect:

- A** * Glaucine
- B** Papaverine
- C** Thebaine
- D** Capsaicine
- E** Jervine

41. Replace glaucine hydrochloride, which cannot be found at the pharmacy, with another herbal medicine of a similar action for the patient :

- A** * Broncholytin
- B** Mucaltin
- C** Codeine phosphate

D Anti-cough pills
E Galanthamine hydrobromide

42. Common periwinkle leaves are used for devincan, vincapan production. Vincristine is determined in leaves by a reaction:

- A* * With Dragendorff's reagent
- B* With solution of iron chloride
- C* Legal's reaction
- D* Diazocoupling reaction
- E* Reaction with sulfuric acid

43. For biologically active substances identification 1 % picric acid water solution was added to celadine herb infusion. Yellow precipitation confirms the presence of:

- A* * Alkaloids
- B* Flavonoids
- C* Tannins
- D* Saponins
- E* Anthracene derivatives

44. Berberine is a biologically active compound of barberry. Which group of biologically active compounds does berberine belong to?

- A* * Alkaloids
- B* Glycosides
- C* Saponins
- D* Flavonoids
- E* Anthracene derivatives

45. Snakeweed roots contain reserpine. It has hypotensive and sedative effects. Which class of biologically active substances does reserpine belong to?

- A* * Alkaloids
- B* Saponins
- C* Flavonoids
- D* Anthracene derivatives
- E* Cardioglycosides

46. Choose plant containing quinolizidine alkaloids that have expectorant effect:

- A* * *Thermopsis lanceolata*
- B* *Datura stramonium*
- C* *Chelidonium majus*
- D* *Berberis vulgaris*
- E* *Orthosiphon stamineus*

47. The main active substance of barberry leaves is berberine. Which class of biologically active substances does it belong to?

- A** * Alkaloids
- B** Flavonoids
- C** Coumarins
- D** Tannins
- E** Essential oils (volatile oils)

48. Choose a reagent which pharmacist-analyst should use to identify alkaloids in herbal raw material.

- A** * Dragendorff's reagent
- B** Bromine water
- C** Alkali solution
- D** Stahl's reagent
- E** Trim-Hill's reagent

49. Belladonna, henbane and datura leaves containing tropane alkaloids must be stored according to the following list requirements:

- A** * B list (these drug substances require caution in handling, storage or use)
- B** A list (poisonous drug substances)
- C** General storage list
- D** Essential oil MPM storage list
- E** List of substances equivalent to narcotics

50. Bush pea herb is used for medicines with antitussive activity production. Which alkaloid is isolated from it?

- A** * Thermopsine
- B** Hyndarine
- C** Codeine
- D** Glaucine
- E** Protopine

51. Alkaloid glaucine has an antitussive effect that is stronger and longer if compared to that of codeine, and exhibits no narcotic side effects. What medicinal plant contains glaucine?

- A** * Yellow hornpoppy
- B** Celandine
- C** Thermopsis lanceolata
- D** Datura
- E** Henbane bell (*Scopolia carniolica*)

52. To increase the tone and specific rhythmic activity of the uterus, a certain ergot alkaloids-based herbal drug is used. Name this drug:

- A** * Ergotamine hydrotartrate
- B** Morphine hydrochloride
- C** Atropine sulfate
- D** Codeine phosphate
- E** Papaverine hydrochloride

53. Alkaloids are used in medical practice for treatment of various diseases. Based on its chemical composition, the following substance can be classified as a quinolizidine alkaloid:

- A** * Pachycarpine hydroiodide
- B** Scopolamine hydrobromide
- C** Quinine sulfate
- D** Caffeine monohydrate
- E** Codeine phosphate

54. "Novo-Passit" preparation is used as a sedative. It is manufactured from the following herbal raw material:

- A** * *Passiflora* grass
- B** *Acorns calamus* rhizomes
- C** *Taraxacum* roots
- D** *Viburnum* bark
- E** *Populus nigra* buds

55. Drugs derived from *Rauwolfia serpentina* roots are used in hypertension treatment. Authenticity of *Rauwolfia serpentina* herbal raw material can be confirmed by its content of: (2019, 84){

- A** * Reserpine
- B** Vinblastine
- C** Hyoscyamine
- D** Atropine
- E** Adonitoxin

56. Codeine is used as a cough- depressant. What herbal raw material contains this alkaloid?

- A** * *Capita Papaverts*
- B** *Herba Macleayae*
- C** *Herba Chelidonii*
- D** *Herba Vincae minoris*
- E** *Folia Theae*

57. Crude drugs CANNOT be tasted if they contain:

- A** * Toxins

B Essentialoils
C Polysaccharides
D Bitterglycosides