

A pharmacy depot received a batch of common plantain leaves. According to the requirements of the Pharmacopoeia, this herbal raw material is of adequate quality if it contains the following active substances:

- A. Polysaccharides
- B. Flavonoids
- C. Tannins
- D. Anthracene derivatives
- E. Essential oils

Coltsfoot preparations are used for upper airways treatment. During procurement 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*)

Specify the herbal raw material with high concentration of carotenoids which is used for production of phytopreparations:

- A. Sea-buckthorn fruits
- B. Currant leaflets
- C. Caseweed grass
- D. Wild strawberry leaves
- E. Parsley roots

Calamus rhizome is likely to be confused with some other plant rhizome that can be found as an admixture in the herbal raw material. Specify the most likely admixture:

- A. Iris rhizome
- B. Valerian rhizome
- C. Elecampane roots
- D. Althaea roots
- E. Phlojodicarpus roots

Tannins can be used as an antidote for alkaloid poisoning. What herbal remedy should be applied in case of such intoxication:

- A. Cinquefoil root
- B. Calamus rhizome
- C. Althaea root
- D. Rhizome and roots of madder
- E. Elecampane root

Tannins have astringent effect and are used for treatment of colitis, enterocolitis, diarrhea. What herbal raw material contains a lot of tannins?

- A. *Fructus Myrtilli*
- B. *Fructus Sambucci nigri*
- C. *Fructus Ribes nigri*
- D. *Fructus Rhamni catharticae*
- E. *Fructus Frangulae*

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

- A. According to the list B
- B. According to the list A
- C. Under normal conditions
- D. Protected from CO_2
- E. In metal containers

Underground organs of medicinal plants that accumulate the most of active substances should be collected:

- A. After the seeds have ripened and the over ground parts died off
- B. At the flowering stage
- C. During the green fruiting
- D. At the budding stage
- E. At the stem extension stage

Styles of maize with stigmata containing fatty acids, vitamins, essential oils, saponins and other substances are used as:

- A. Diuretic and choleric
- B. Sedative and anticonvulsant
- C. Cardiotonic and antiarrhythmic
- D. Expectorant and antitussive
- E. Bactericidal and astringent

It is required to analyze some herbal raw material in form of shiny black drupes up to 6-8 mm in diameter; the stone is large, very firm, spherical, light brown, with a single seed; it has a sweet, slightly astringent taste. This herbal raw material should be qualified as a fruit of:

- A. Bird cherry
- B. Blueberry
- C. Black chokeberry
- D. Buckthorn
- E. Hawthorn

Most alkaloids are isolated from the biological material by polar solvents. Which of the listed alkaloids is isolated by the way of distillation with water vapor?

- A. Coniine
- B. Strychnine
- C. Cocaine
- D. Atropine
- E. Quinine

Essential oil of rose is used as an anti-inflammatory and antispasmodic agent. It is localized in the following excretory organs:

- A. Glandular spots
- B. Essential oil glandules
- C. Essential oil conceptacles

- D. Secretory cells**
- E. Glandular hairs**

The main active components of hawthorn berries are flavonoids. What is their pharmacological effect?

- A. Hypotensive and sedative**
- B. Laxative and sedative**
- C. Tonic and antispasmodic**
- D. Diuretic and styptic**
- E. Antispasmodic and anti-inflammatory**

Fatty oil containing saturated fatty acids is used for atherosclerosis prevention. Specify the medicinal plant that is used for oil production:

- A. Flax seeds**
- B. Fennelflower seeds**
- C. Dill seeds**
- D. Black chokeberry fruits**
- E. Hawthorn fruits**

Upper airways diseases can be treated by means of herbal raw materials containing mucilages. The plant source of this compound class is:

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

A laboratory received some herbal raw material for analysis. It is a composition of ovoid-pointed leaves up to 25 cm long and 20 cm wide; the leaf base is cuneate, the leaf edge is emarginate. The cutting is long and cylindrical. The leaf venation is pinnatisect; the midrib and the first-order veins project significantly on the inferior surface of the leaf. The superior leaf surface is dark green, the inferior surface is light green. The plant has a weak narcotic smell. The taste cannot be determined. The plant is poisonous! The described herbal raw material relates to the following plant:

- A. *Datura stramonium***
- B. *Passiflora incarnata***
- C. *Chelidonium majus***
- D. *Vinca minor***
- E. –**

Preparations made out of eleutherococcus roots and rhizomes are administered as a tonic and adaptogenic drug. If these preparations cannot be found in a pharmacy, they can be substituted by the analogous preparations made of the following raw material:

- A. Ginseng roots**
- B. Elecampane roots**
- C. Rhizomes and roots of valerian**
- D. Polemonium roots**
- E. Acorus calamus roots**

A biennial or perennial plant from the *Apiaceae* family has a blue-grey stem branching in its lower part. Its leaves are also blue-grey, finely dissected, with the ultimate filiform segments. The flowers are yellow, in compound umbels. Its fruit is used for production of "dill water". What plant is it?

- A. *Foeniculum vulgare*
- B. *Carum carvi*
- C. *Petroselinum crispum*
- D. *Coriandrum sativum*
- E. *Conium maculatum*

Common juniper is applied as a diuretic, anti-inflammatory and cholagogic agent. This plant gives the following medicinal raw material:

- A. Fruits
- B. Sprouts
- C. Leaves
- D. Roots
- E. Seeds

A laboratory received some herbal raw material for analysis. The plant had flowerheads up to 4 cm in diameter, the marginal flowers were agamic, blue, funnel-shaped; the inner flowers were bisexual, purple, tubular. What plant has these features?

- A. *Centaurea cyanus*
- B. *Solidago virgaurea*
- C. *Polygonum persicaria*
- D. *Scutellaria baicalensis*
- E. *Viola tricolor*

A patient came to a drugstore and ordered cowberry leaves. Which of the available herbal raw materials can be offered as a substitute?

- A. *Folium Uvae ursi*
- B. *Rizoma Calami*
- C. *Rizoma et radix Sanquisorbiae officinalis*
- D. *Herba Achilleae millefolii*
- E. *Radix Taraxaci officinalis*

Medicinal plant *Rhamnus cathartica* is used as a laxative. What part of this plant is used as herbal raw material?

- A. Fruits
- B. Leaves
- C. Rind
- D. Roots
- E. Shoots

Select a reagent that should be applied by an analytical chemist in order to detect alkaloids in the herbal raw material:

- A. Dragendorff reagent
- B. Bromine water

- C. Alkaline solution
- D. Stahl's reagent
- E. Trim-Hill reagent

Preparations of sorrel roots can have both a laxative and astringent effect. This is due to the presence of the following biologically active substances:

- A. Anthracene derivatives and tannins
- B. Flavonoids and essential oils
- C. Essential and fatty oils
- D. Coumarins and phenol glycosides
- E. Iridoids and vitamins

Emodin, an anthracene derivative, has a purgative effect. Large quantities of anthracene-derived groups of emodin are contained in the fruits of the following plant:

- A. Buckthorn
- B. Elder (*Sambucus*)
- C. Blackcurrant
- D. Blueberry (*Vaccinium myrtillus*)
- E. Alder buckthorn (*Frangula alnus*)

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*

In order to determine the purity a drop of lavender essential oil was applied on a strip of filter paper and warmed up in the stream of warm air. Some time later the stain increased in diameter. What impurity substance was found in the lavender oil?

- A. Fatty or mineral oil
- B. Phenol
- C. Ethanol
- D. Acetone
- E. Diethyl ether

A pharmacy received a batch of raw material chamomile flowers. How should this material be stored?

- A. Separately from all other kinds of raw material
- B. According to the list B requirements
- C. According to the list A requirements
- D. As a narcotic raw material
- E. In a light room

Having ascertained that the quality of raw material meets the requirements of the analytical normative documentation the quality control department should issue a document. Specify this document:

- A. Certificate of analysis
- B. Pharmacopoeia entry
- C. Order
- D. Request
- E. Standard

One of the methods of quantitative analysis of active substances in the raw material is the biological standardization. It can be applied with the following group of biologically active substances:

- A. Cardiac glycosides
- B. Alkaloids
- C. Fatty oils
- D. Tannins
- E. Mucilages

A phytopreparation "Flacarbinum" has spasmolytic, anti-inflammatory and antiulcer effect. This preparation is produced out of the following plant:

- A. Licorice (*Glycyrrhiza*)
- B. Jacob's ladder blue (*Polemonium caeruleum*)
- C. Buckeye (*Aesculus*)
- D. Mountain angelica (*Aralia mandshurica*)
- E. Pot marigold (*Calendula officinalis*)

Fatty oil containing unsaturated fatty acids is used for the prevention of atherosclerosis. Specify the herbal raw material used for oil production:

- A. Seeds of flax
- B. Seeds of fennelflower
- C. Fruits of dill
- D. Fruits of black chokeberry
- E. Hawthorn berries

In order to identify ouabain (strophanthine G), a drug from the group of cardiac glycosides, an analytical chemist must prove the presence of a steroid cycle. What acid should be used as a reagent?

- A. Sulfuric
- B. Oxalic
- C. Citric
- D. Formic
- E. Chromotropic

A teenager with hyporexia has been recommended to drink medicinal herbal tea of the following composition: *Herba Absinthii*, *Herba Millefolii*. Specify the characteristic microscopic features of *Artemisia absinthium*, which indicate its presence in the herb mixture:

- A. T-shaped hairs along the leaf edge
- B. Simple and capitate hairs
- C. Branched, simple and ciliated hairs
- D. Retor-shaped hairs

E. Branched and capitate hairs

In order to verify identity of tropan derivatives, Vitali's reaction is applied. For that purpose the medications should be first decomposed with nitric acid and then treated with alcoholic solution of potassium hydroxide and acetone. What effect will be observed?

- A. The solution will turn purple**
- B. The solution will turn green**
- C. Emission of gas bubbles**
- D. Setting of black precipitate**
- E. Setting of white precipitate**

A pharmacy procured common origanum. What drying conditions should be applied for producing high quality crude drug?

- A. 35 – 40°C**
- B. 80 – 90°C**
- C. 60 – 70°C**
- D. 50 – 60°C**
- E. 70 – 80°C**

Standard herbal material of lily-of-the-valley is obtained by drying it at a temperature of 50-60°C in order to prevent the following possible biochemical process:

- A. Enzymatic hydrolysis of cardiac glycosides**
- B. Oxidation of phenolic compounds**
- C. Volatilization of essential oils**
- D. Oxidation of resins**
- E. Oxidation of terpenoids**

Medications *Passit* and *Novopassit* are used as tranquilizing, sedative and mild hypnotic agents. These medications are produced from the following grass:

- A. Purple passionflower**
- B. Three-lobed beggarticks**
- C. Garden sage**
- D. Elecampane**
- E. Lesser periwinkle**

Pharmaceutical depot received a batch of herbal material of cinnamon rose. What substance determines the quality of the raw material?

- A. Ascorbic acid**
- B. Tannins**
- C. Anthracene derivatives**
- D. Essential oil**
- E. Coumarins**

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

A certain plant is used for production of tinctures and extracts which are the part of complex drugs *Bellataminal*, *Becarbon*, *Besalol*, etc. Specify the grass that is used for this purpose:

- A. Belladonna
- B. Lily of the valley
- C. Astragalus
- D. Beggarticks
- E. Celandine

Rose essential oil is used as an antiinflammatory and antispasmodic agent. It is localized in the following excretory structures:

- A. Glandular spots
- B. Essential oil glandules
- C. Essential oil conceptacles
- D. Secretory cells
- E. Glandular hairs

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. Amarines
- D. Terpenes
- E. Carotenoids

What herbal drug produced from alkaloid-containing raw materials can be recommended for neurasthenia, insomnia, menopausal disorders?

- A. Novopassit
- B. Ergotamine
- C. Glaucine hydrochloride
- D. Securinine nitrate
- E. Vinblastine

Representatives of the family *Solanaceae* are widely used in medical practice as alkaloid-containing plants. Which representative is the source for production of semi-synthetic steroid hormones?

- A. *Solanum laciniatum*
- B. *Atropa belladonna*
- C. *Datura Stramonium*
- D. *Hyoscyamus niger*
- E. *Solanum tuberosum*

After harvesting the calamus rhizomes the received material should be dried. What temperature range is required for obtaining good-quality raw material?

- A. 35-40°C
- B. 40-60°C
- C. 60-70°C
- D. 70-80°C
- E. 80-90°C

Field horsetail grass is recommend as a diuretic. What herbal material can be used as a substitute?

- A. Herba Aervae lanatae
- B. Herba Leonuri
- C. Herba Menthae piperitae
- D. Herba Convallariae
- E. Herba Adonidis

Under the SPhU (appendix 2), leaves of ginkgo are standardized by the content of:

- A. Flavonoids
- B. Saponins
- C. Alkaloids
- D. Coumarins
- E. Chromones

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

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

A pharmacy has no quinquelobate motherwort in stock. It can be substituted by the following herbal material:

- A. Rhizomes and roots of valerian
- B. Linden flowers
- C. Beggarticks grass
- D. Raspberry fruits
- E. Hypericum grass

Drug plant *Dioscorea nipponica* is the source for production of Polysponinum drug which is used in the complex treatment of atherosclerosis. Specify the active compounds of dioscorea material:

- A. Steroidal saponins
- B. Alkaloids
- C. Essential oil
- D. Cardiac glycosides
- E. Triterpene saponins

A drug raw material from the family *Polygonaceae* had been sent to a laboratory for analysis. On macroscopic examination the material was identified as a herbaceous plant with lanceolate leaves with a red spot, and filmy ocreae covered with appressed hairs. The plant had the apical inflorescence in dense spicate panicles. What plant is it?

- A. Redshank (*Persicaria*)
- B. Common knotweed
- C. Biting knotweed
- D. Snakeweed
- E. Common buckwheat

Phytochemical workshop of a factory manufactures pancreatin. What is the source material for obtaining pancreatin?

- A. Pancreas of pigs or cattle
- B. Gastric mucosa of pigs
- C. Lungs of cattle
- D. Heart of cattle
- E. Egg white

Menthol has anesthetic and antiseptic effect. What plant is the source of menthol?

- A. *Folia Menthae piperitae*
- B. *Folia Uvae ursi*
- C. *Folia Eucalypti*
- D. *Folia Salviae*
- E. *Folia Absinthii*

The thyme grass is used for the production of herbal medical products for the treatment of respiratory tract infections. Under the SPhU, the herbal raw material is subject to chromatographic identification by means of thin layer chromatography. What substances are detected on the chromatographic plate after its treatment with due reagent?

- A. Thymol and carvacrol
- B. Atropine and hyoscyamine
- C. Quercetin and rutin
- D. Apigenin and luteolin
- E. Arbutin and methyl arbutin

Flower buds of clove contain the essential oil used for production of herbal antiseptics. Under the State Pharmacopoeia of Ukraine, the raw materials are identified by the method of thin layer chromatography. What zones can be identified on the chromatographic plate after their treatment with reagent?

- A. Eugenol and caryophyllene
- B. Quercetin and rutin
- C. Hyoscyamine and scopolamine
- D. Apigenin and luteolin
- E. Scopoletin and umbelliferon

Patients with heart failure caused by persisting cardiac and coronary vessel dysfunction can be recommended preparations produced from the following herbal raw material:

- A. *Hawthorn fruits*

- B. *Calendula flowers***
- C. *Ginseng roots***
- D. *Aralia roots***
- E. *Barberry roots***

Rutin exhibits P-vitamin activity. What medicinal plant is used as starting materials for the industrial production of rutin?

- A. Fructus Sophorae japonicae**
- B. Fructus Hippophaes rhamnoides**
- C. Flores Helichrysi arenarii**
- D. Herba Bidentis tripartitae**
- E. Herba Polygoni avicularis**

Pharmaceutical warehouse received a batch of herbal raw material of cinnamon rose. Under the State Pharmacopoeia, it is required to test this raw material for the following active substances:

- A. Ascorbic acid**
- B. Flavonoids**
- C. Tannins**
- D. Anthracene derivatives**
- E. Essential oil**

Ergot (*Secale cornutum*) is used as an uterotonic agent in obstetric practice and for the treatment of cardiovascular diseases. The authenticity of the raw materials is proved by the content of:

- A. Ergotoxine**
- B. Atropine**
- C. Hyoscyamine**
- D. Reserpine**
- E. Ajmaline**

Woolly foxglove is used as raw material for the production of the following drug:

- A. Lantosidum**
- B. Corglycon**
- C. Digitoxin**
- D. Adonizid**
- E. Erysimosidum**

Sage leaves procured for the production of essential oil should be dried at a temperature of:

- A. 25-30°C**
- B. 50-60°C**
- C. 100°C**
- D. 60-70°C**
- E. 70-80°C**

In order to verify the purity of the essential oil, some ethanol was added into the test tube with peppermint oil. The mixture became turbid. This means that the peppermint oil contains the following impurity:

- A.** Fatty oil
- B.** Phenol
- C.** Acetone
- D.** Ethyl acetate
- E.** Diethyl ether

Ammifurinum contains furocumarines. These biologically active substances are derived from:

- A.** Fruits of large ammi
- B.** Fruits of psoralea
- C.** Fruits of common parsnip
- D.** Fruits of toothpick ammi
- E.** Rhizomes and roots of angelica

One of the packagings stored at the warehouse of finished products has a damaged label. It is known that the drug substance in this packaging relates to alkaloids. In course of group qualitative tests for alkaloids the drug substance reacted positively with murexide. Further identification of the drug substance should be limited to the following group of derivatives:

- A.** Purine
- B.** Quinoline
- C.** Tropane
- D.** Isoquinoline
- E.** Indole

Fatty oils containing unsaturated fatty acids are used for the prophylaxis of atherosclerosis. Specify the starting materials of herbal origin that contain fatty oil:

- A.** Pumpkin seed
- B.** Ispaghula seed
- C.** Chestnut seed
- D.** Parsnip fruits
- E.** Psoralea fruits

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

A student has been prescribed a tonic. This may be the tincture of the following medicinal plant:

- A.** *Rhodiola rosea*

- B.** Common yarrow
- C.** Java tea (*orthosiphon aristatus*)
- D.** Purple foxglove
- E.** Black locust

Vincamine alkaloid reduces blood pressure, has a pronounced sedation effect, as well as hemostatic and anti-inflammatory effect. What herb is the source of this alkaloid?

- A.** Common periwinkle
- B.** Thick-fruited pagoda tree
- C.** Bluish larkspur
- D.** Northern wolfsbane
- E.** Yellow water-lily

Lily of the valley is widely regarded as a cardiac stimulant and sedative. During the raw material procurement, the following plant may occur in the harvested crop:

- A.** Round-leaved pyrola
- B.** Spring adonis
- C.** Treacle-mustard (*Erysimum cheiranthoides*)
- D.** Viola tricolor
- E.** Viola arvensis

Analytical and control laboratory determines quality of fatty oils by using certain chemical indices. Specify the chemical index that is demonstrative of the fatty oil drying:

- A.** Iodine absorption number
- B.** Acid number
- C.** Saponification number
- D.** Ester number
- E.** Peroxide number

Buckthorn bark is used as a laxative. Specify the period for procurement of raw material of alder buckthorn bark:

- A.** Spring, during the circulation of sap
- B.** The period of full ripeness
- C.** Winter
- D.** Frondescence
- E.** Autumn

A dispensing chemist can recommend a drug made from seeds of *Aesculus hippocastanum* to be taken as a veintonic and antithrombotic agent to treat venous congestion and veins dilatation of lower extremities. This drug is:

- A.** Aescusan
- B.** Phytolysin
- C.** Flamin
- D.** Marelin
- E.** Ajmaline

Specify which of the alkaloids given below will react positively to xanthenes (murexide test):

- A. Caffeine
- B. Atropine sulfate
- C. Papaverine hydrochloride
- D. Quinine sulfate
- E. Ephedrine hydrochloride

Bellasthesin is a spasmolytic drug used in treatment of gastrointestinal diseases. What substance contained in *Atropa belladonna* provides such an effect of the drug?

- A. Hyoscyamine
- B. Morphine
- C. Codeine
- D. Reserpine
- E. Caffeine

Stinging nettle (*Urtica dioica*) leaves are mostly used as a hemostatic in tinctures and liquid extract to treat lung, intestinal, and uterine hemorrhages. What bioactive substance provides hemostatic effect?

- A. Vitamin K
- B. Beta-carotene
- C. Rutin
- D. Reserpine
- E. Digitoxin

Vitali-Morin's reaction is used to identify tropane alkaloids in raw herbal material. Name the alkaloid that can be detected by this specific reaction.

- A. Scopolamine
- B. Codeine
- C. Morphine
- D. Platyphyllin
- E. Papaverine

Coumarins are natural compounds with their structure based on an benzo-alpha-pyrone skeleton. What reaction allows to detect this group of compounds?

- A. Lactone test
- B. Cyanide test
- C. Iron (III) chloride reaction
- D. Wilson's reaction
- E. Trim-Hill reagent

The following raw herbal material was delivered for analysis: capitulum inflorescence is semicircular or conic in shape; no pedicles or only their remains; floral disk is naked, conic, hollow. Semiflorets are white, disk florets are yellow, involucre are yellow-green. The smell is specific, aromatic. The taste is bitter-spicy. What raw herbal material is it?

- A. *Flores Chamomillae*
- B. *Flores Arnicae*
- C. *Flores Calendulae*
- D. *Flores Helichrysi arenarii*
- E. *Flores Millefolii*

Standard raw herbal material of lily-of-the-valley is obtained by drying it at a temperature of 50-60°C in order to prevent the possibility of the following biochemical process:

- A. Enzymatic hydrolysis of cardiac glycosides
- B. Oxidation of phenolic compounds
- C. Volatilization of essential oils
- D. Oxidation of resins
- E. Oxidation of terpenoids

A patient with heart failure induced by long-term coronary vessel disorder can be administered a drug produced out of the following raw herbal material:

- A. Hawthorn berries
- B. Calendula flowers
- C. Ginseng roots
- D. Aralia roots
- E. Berberis roots

The following fruit was received for analysis: succulent drupes circular or elongated-ellipsoid in shape, 4-12 mm in length. The colour of fruit varies from yellow to dark orange. The smell is faint. The taste is sour-sweet. What plant is it?

- A. *Hippophae rhamnoides*
- B. *Ammi majus*
- C. *Aronia melanocarpa*
- D. *Vaccinium myrtillus*
- E. *Coriandrum sativum*

Cumulating drugs – Digitoxin and Cordigitum - are used to treat chronic cardiac insufficiency. What plant is used as a raw material to produce them?

- A. *Digitalis purpurea*
- B. *Strophanthus kombe*
- C. *Adonis vernalis*
- D. *Convallaria majalis*
- E. *Erysimum canescens*

Thymol is the main component of *Thymus serpyllum* essential oil. What is the time of harvesting for this raw herbal material?

- A. Peak floescence period
- B. In autumn after above-ground part of a plant dies-off
- C. During peak of sap movement
- D. During fruiting
- E. Beginning of vegetation

An essential oil is a component of such compound drugs as: Inhalypt, Corvalol, Pinosol, Corvaldin, tooth drops. What raw herbal material is a source of this essential oil?

- A. *Folia Menthae piperitae*
- B. *Folia Betulae*
- C. *Folia Urticae*
- D. *Folia Agavae*

E. Folia Absinthii

Yellow gentian contains bitter glycosides. Raw material of this plant is recommended for production of drugs with the following effect:

- A. Stimulates appetite
- B. Tonic
- C. Diuretic
- D. Hepatoprotective
- E. Venotonic

Raw herbal material with the following features was delivered to a laboratory for analysis: fine flat glossy egg-shaped seeds (one end is sharp, other - rounded). Seed surface is smooth, vary in colour from pale yellow to brown, has pale yellow raphe. No smell is detected. The taste is slimy and oily. Name this raw herbal material.

- A. Flax seeds
- B. Pumpkin seeds
- C. Plantago psyllium seeds
- D. Strophanthus seeds
- E. Peanut seeds

Intoxication cases were observed during harvesting raw herbal material containing potent and toxic substances. What raw herbal material SHOULD NOT be harvested by underage and pregnant?

- A. Celandine grass
- B. Walnut leaves
- C. Valerian rootstock
- D. Buckthorn bark
- E. Blueberries

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. *Plantago media*
- D. *Plantago stepposa*
- E. *Plantago lanceolata*

Preparations of common valerian are used in medical practice as sedative drugs. The main feature that allows to distinguish valerian from the admixtures is:

- A. Specific odor
- B. No specific odor
- C. Specific taste
- D. Specific color of raw materials
- E. Stems remains

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

- A. *Herba Convallariae*

- B.** *Cortex Quercus*
- C.** *Radix Taraxaci*
- D.** *Folia Ficus Caricae*
- E.** *Folia Sennae*

Admixtures can be accidentally included in raw herbal material in the process of harvesting, drying and primary processing. Mineral admixtures include:

- A.** Sand, earth, stones
- B.** Metal objects
- C.** Other similar plants
- D.** Droppings of birds and rodents
- E.** Other organs of the same plant

Choose the substance that is a tropane-derived alkaloid:

- A.** Cocaine
- B.** Caffeine
- C.** Strychnine
- D.** Pilocarpine
- E.** Platyphyllin

Grass of yellow hornpoppy (*Glaucium flavum*) contains alkaloid glaucine. What pharmacological effect does this plant have because of this alkaloid?

- A.** Antitussive
- B.** Expectorant
- C.** Analgetic
- D.** Anti-inflammatory
- E.** Antipyretic

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

- A.** Opium poppy
- B.** Locoweed
- C.** *Ungernia victoris*
- D.** Tulip poppy
- E.** Ginseng

Buckthorn bark contains anthroquinones. When the harvested bark can be used:

- A** in 1 year after harvesting
- B** just harvested
- C** in 1 month after harvesting
- D** immediately after drying
- E** in 6 months after harvesting

Some kind of medicinal plant material could cause a burns during collection, because it contain:

- A** Furocoumarins
- B** Lignans
- C** Flavonoids

D Polysaccharides

E Iridoids

Camomile flowers are used in medicine widely. What plant should be collected for that:

A *Chamomilla recutita*

B *Leucanthemum vulgare*

C *Anthemis cotula*

D *Anthemis arvensis*

E *Tripleurospermum inodorum*

Taste is one of organoleptic characteristics of the medicinal raw materials authenticity. For what medicinal raw material taste is never determined?

A. Purple Foxglove

B. Marshmallow

C. Common Plantain

D. Horse-chestnut

E. Valerian

At microscopic analysis of a raw material such diagnostic signs were detected: multilayer cork, large parenchyma cells filled with inulin; expressive cambium line; large vessels; schizogenous receptacle with essential oil. For what type of plant material the indicated signs can serve confirmations of authenticity:

A. *Rhizomata* et radices of *Inulae*

B. *Rhizomata* et radices of *Rubiae*

C. *Rhizomata cum radicibus* of *Valerianae*

D. *Radices Taraxaci*

E. *Radices Ononidis*

A lot of patients suffer from avitaminosis in spring. Specify the medicinal raw material that a pharmacist may recommend in this case:

A. *Folium* *Urticae*

B. *Folium Althaeae*

C. *Folium Menthae*

D. *Folium Farfarae*

E. *Folium Salviae*

Galenic medicines of a raw material, which contain vitamins, oxycinnamic acids, coumarins, have pronounced anti-hemorrhagic effect and stimulate uterine contractions. Which raw material is used for production of such medicines?

A. The shepherd's-purse herb

B. The dog rose fruits

C. The Marigold flowers

D. The sea-buckthorn fruits

E. The European mountain ash fruits

The essential oil of peppermint leaves has specific smell. What compound causes it?

A. Menthol

B. Carvacrol

- C. Cymole
- D. Citral
- E. Thymol

The hawthorn flowers medicines are prescribed as cardiogenic. The quality of the raw material is characterized by the presence of:

- A. Hyperoside
- B. Purpureaglycoside
- C. Lanatoside
- D. Strophantidin
- E. Adonitoxin

A group of Ukrainian and foreign remedies of the Holy thistle fruits with hepatoprotective activity is produced. The quality of the raw material is characterized by the presence of:

- A. Flavolignans
- B. Coumarins
- C. Alkaloids
- D. Vitamins
- E. Terpenes

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

- A. Capsaicinoids
- B. Saponins
- C. Flavanoids
- D. Carotenoids
- E. Phenologlycosides

In case of treatment of urolithiasis by preparation of madder rhizomes and roots, coloring of urine and sweat in red color is possible, that is conditioned by such class of active agents in this raw material:

- A. Anthracene derivatives
- B. Flavonoids
- C. Alkaloids
- D. Tannins
- E. Terpenes

Part of medicinal raw material of bearberry leaves was received by pharmacy warehouse. Content of what active agents is the characteristic of quality according to the requirements of Pharmacopoeia:

- A. Phenolic glycosides;
- B. Tannins;
- C. Flavonoids;
- D. Coumarins;
- E. Extract substances

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

- A.** Tannins
- B.** Anthracene derivatives
- C.** Flavanoids
- D.** Extractive substances
- E.** Coumarins

The batch of the crude drug was received by pharmacy without analytical certificate. Find out that it's a bark. The positive result of reaction (red color) with solution of potassium hydroxide let us to admit that it's:

- A.** Cortex Frangulae
- B.** Cortex Quercus
- C.** Cortex Salicis
- D.** Cortex Viburni
- E.** Cortex Quillajae

To identify senna leaves pharmacist- analyst carried out the qualitative reaction on extract of herb with 10% sodium hydroxide solution (red color). What group of biologically active substances exist in the crude drug?

- A.** Anthracene derivatives
- B.** Alkaloids
- C.** Fatty oils
- D.** Tannins
- E.** Mucilage

To identify medicinal plant material pharmacist-analyst prepared water extract and shook intensively a test tube, stable and abundant foam appeared. What biologically active substances was present at the raw material?

- A.** Saponins
- B.** Tannins
- C.** Alkaloids
- D.** Derivatives of anthracene
- E.** Fatty oil

Quality of St. John's wort herb is defined according to flavonoids content by method:

- A.** the Spectrophotometry
- B.** the chromatography
- C.** the method of acid-basic titration
- D.** the permanganometry
- E.** the method of steam distillation

Menthol, the main component of mint oil is part of many drug. Choose method to obtain menthol from essential oil?

- A.** Freezing
- B.** Organic solvent extraction
- C.** Enfleurage
- D.** Compression
- E.** Fat oil extraction

Almond oil is used in the production of several dosage forms. The ways to get this oil are:

- A.** pressing
- B.** Enfleurage
- C.** distillation with water
- D.** steam distillation
- E.** sublimation

Thymol has pronounced antiseptic effect. Choose medicinal plant material - the source of thymol:

- A.** Herba Thymi vulgaris
- B.** Folia Salviae
- C.** Folia Eucalypti
- D.** Folia Betulae
- E.** Folia Absinthii

Menthol has anaesthetic and antiseptic effects. Choose medicinal raw material, that is the source of menthol.

- A.** Folia Menthae piperitae,
- B.** Folia Salviae,
- C.** Folia Eucalypti,
- D.** Folia Betulae,
- E.** Folia Absinthii

What plant could be used for industrial manufacturing expectorant medicine «Pertussin».

- A.** *Thymus serpyllum*,
- B.** Bursae pastoris,
- C.** Hyperici perforati,
- D.** Erysimi diffusi,
- E.** Polygoni avicularis

The sage leaves have antimicrobial, astringent and anti-inflammatory activity. Medicines from it are used in stomatological practice. Specify medicine the acetone extract from sage leaves:

- A.** Salvin,
- B.** Rotokan,
- C.** Chlorophyllipt,
- D.** Urolesan,
- E.** Vicair

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

- A.** Colchicum,
- B.** Bush pea,
- C.** Common periwinkle,
- D.** Belladonna
- E.** Lobelia (Indian tobacco)

Medicine «Adonisid» contains cardiosteroids. What medicinal plant material is obtained

this medicine from?

- A.** Spring adonis herb,
- B.** Strophanthus seed,
- C.** Lily of the valley herb,
- D.** Lily of the valley leaves,
- E.** Foxglove purple leaves

Quality of medicinal raw material is regulated by biological active substance content. What kind of raw material is determined the content of lanatosides in?

- A.** Grecian foxglove,
- B.** Strophanthus,
- C.** Solomon's seal,
- D.** Spring adonis,
- E.** Lily of the valley

What medicinal raw material is the source of the medicine «Senadeksin» with laxative action?

- A.** *Folia Sennae*,
- B.** Herba Meliloti,
- C.** Fructus Ammi majoris,
- D.** Fructus Pastinacae sativae,
- E.** Herba Hyperici

A patient appealed to the pharmacy's phytodepartment with a request to give him diuretic medicine. What medicinal raw material it is better to use?

- A.** Herba Equiseti arvensis,
- B.** Fructus Sophorae,
- C.** Herba Leonuri quinquelobati,
- D.** Cormus Ledi palustris,
- E.** Radix Araliae

Gentian contains bitter glycosides. What biological action has medicine from a Gentian?

- A.** Appetite stimulation,
- B.** Tonic,
- C.** Diuretic,
- D.** Hepatoprotective,
- E.** Venotonic