UTEROTONICS

INCREASE THE TONUS OF UTERINE MUSCLES

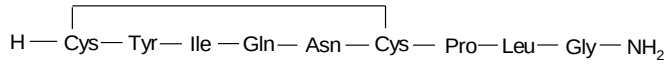
Usage:

- To trigger and increase of uterine contractions
  oxytocin
- To accelerate III. birth-time period
  oxytocin and ergot uterotonics
- To stop afterbirth bleeding from atonic uterus
  oxytocin and ergot uterotonics
- To stop metrorrhagia
  ergot uteronics

Greek OXYS = fast, TICHTEIN = to birth, birth acceleration.

OXYTOCINUM – OXYTOCINE (ČL 2005)

Cyclic nonapeptid produced by posterior lobe of the pituitary gland.
Prepared via synthetic route.



ERGOT UTEROTONICS

EXCLUSIVELY ISOLATED ALKALOIDS AND THEIR DERIVATIVES

Ergometrini maleas – Ergometrin-maleinate (ČL 2005)
- Uterotonic

Ergotamini tartras – Ergotamin-tartrate (ČL 2005)
- Uterotonic
- Component of antimigrenics and sedatives

Methylergometrinium tartaricum – Methylergometrin-tartrate
- Uterotonic

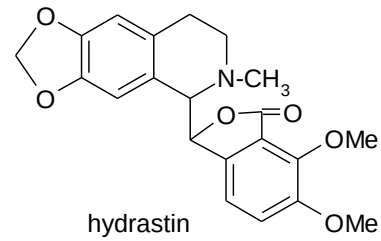
HYDRASTIDIS RHIZOMA – GOLDENSEAL RHIZOME

MP: *Hydrastis canadensis* – goldenseal (Ranunculaceae); perenial plant with creeping rhizome; North America; vegetative propagation

Drug: dried rhizomes harvested from 3.5. year of growth

CC: 2,5-6 % isoquinoline alkaloids, main is hydrastin, kanadin and berberin

Usage: Heamostyptic (weaker effect than ergot alkaloids)



hydrastin

phtalidoisoquinoline type

BURSAE PASTORIS HERBA – SHEPERDS PURSE HERB

MP: *Capsella bursa pastoris* – sheperds purse (Brassicaceae)

Drug: Dried aerial part

CC: cholin, acetylcholin, tyramin, histamin

flavonoid diosmin

Usage: folk medicine for treatment of menstruation disorers and metrorrhagia

ANTIPROTOZOICS

Compounds used for treatment of protozoal diseases

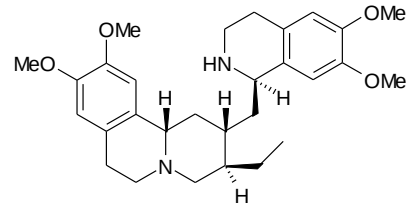
- ANTIAMEBICs
- ANTIMALARICs

ANTIAMEBICs

Emetini dihydrochloridum pentahydricum (ČL 2005)

Source: Ipecacuanhae radix, *Cephaelis ipecacuanha* (Rubiaceae)

Usage: for treatment of ameboid dysenteria (Entameba histolytica) Emetin prevents its multiplication



ANTIMALARICs

Malaria – the most wide spread disease of warm climate countries.

Originates from several *Plasmodium* strains (*P. vivax*, *P. malariae*, *P. falciparum*, *P. ovale*)

Two development cycles

- sexual (Anofeles – gamets – sporozoits in saliva – transfer to human)
  preerythrocytic stadium – 10-14 days of development in hepatic cells, type of incubation period
- asexual (human, in erythrocytes – schizonts. After their multiplication erythrocytes disintegrate and released daughter merozoites infiltrate plasma, and start fever = clinical form of malaria)

Therapeutic interference into phase taking place in human body

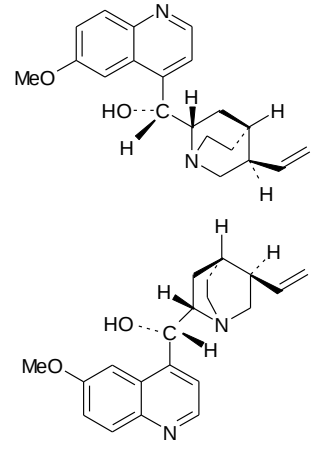
QUININI HYDROCHLORIDUM DIHYDRICUM (ČL 2005)
QUININI SULFAS DIHYDRICUS (ČL 2005)

Source: Chinae cortex from different *Cinchona* species – (Rubiaceae), mainly *C. succirubra*

Trees native to Andes mountains of tropical America, today highly specialized part of tropical agriculture

Quinine is obtained from bark of hybrids old 6-9 years; content of alkaloids up to 17 %, quinine upto 2/3

Protoplasmatic poison – stops numerous enzymatic procedures, therefor possesses ability to kill different infectious agents



ANTHELMINTICs

Compounds used to suppress intestinal parasites

Infection by helmints is serious health problem – touching half of world population

In our country

- tapeworm (*Taenia*)
- roundworm (*Ascaris*)
- pinworm (*Oxyuris* or *Enterobius vermicularis*)

FILICIS MARIS RHIZOMA – COMMON MALE FERN RHIZOME

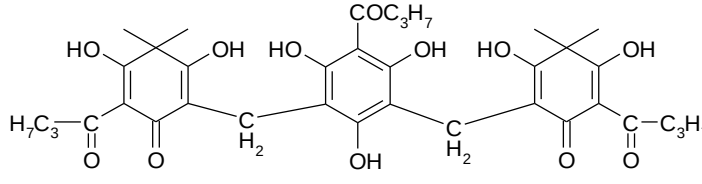
MR: *Dryopteris filix-mas* – Common Male Fern (Dryopteridaceae), perennial plant of Europe, Asia, and America

Drug: in autumn harvested, dried rhizome with sessile leaf base

CC: Filicin; mixture of phloroglucinol derivatives (mono- to tetracyclic compounds); cca 25 % of Et_2O extract of drug

Usage: Taenifugum in combination with laxatives

FILICIS MARIS RHIZOMA Content compounds



filixic acid

GRANATI CORTEX – POMEGRANATE CORTEX

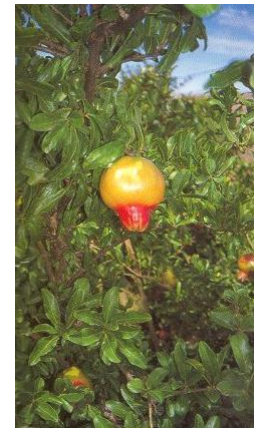
MP: *Punica granatum* – pomegranate (Punicaceae), low tree cultivated in tropics and subtropics

Drug: dried bark from stems, branches, roots

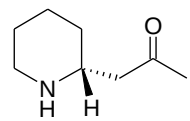
CC: 0,-0,7 % of piperidine alkaloids – pelletierin, isopelletierin, pseudo-pelletierin

Usage: Taenifugum in combination with laxative

Pericarp – does not contain alkaloids, containing up to 28 % of tannins and pigments. Astringens.



GRANATI CORTEX
Content compounds



pelletierin (R)-forma

ARECAE SEMEN – ARECA SEED

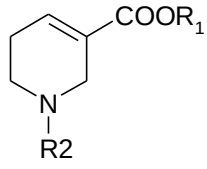
MP: *Areca catechu* – areca palm (Arecaceae); palm 15 m tall, cultivated in India, Ceylon, Malaysia; fruit is a drupe containing seed

Drug: dried seed (after getting from fruit is boiled in water containing quicklime, than it is dried)

CC: 0,2-0,5 % of alkaloids (arecolin, arecaidin (reduced pyridine derivatives), fat, catechin tannins.

Usage: veterinary anthelmitic

ARECAE SEMEN
Contain compounds



	R_1	R_2
arekolin	CH_3	CH_3
arekaidin	H	CH_3
guvacin	H	H
guvakolin	CH_3	H

CHENOPODII ETHEROLEUM – WORMSEED ESSENTIAL OIL

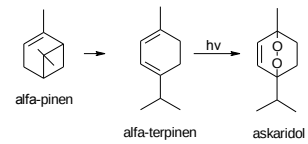
CC: *Chenopodium ambrosioides* subsp. anthelminticum – wormseed (Chenopodiaceae)

Drug: essential oil obtained by hydrodistillation of fresh flowering aerial parts

CC: 60-80 % of ascaridol, p-cymen, limonen, camphor

Usage: Broad spectral anthelmintic, narrow therapeutic window

Veterinary usage



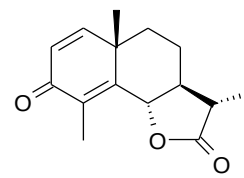
CINAE FLOS – SANTONICA FLOWER

CC: *Artemisia cina* – santonica (Asteraceae); semi shrub from Turkmenistan

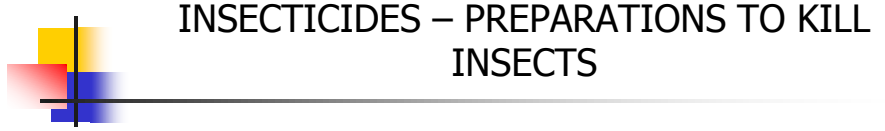
Drug: dried not opened inflorescence harvested in VII and VIII;

CC: essential oil with santonin, cineol and further terpenes

Usage: veterinary anthelmintic (do not kill tapeworm)



santonin



INSECTICIDES – PREPARATIONS TO KILL INSECTS

Occurence in families

- Solanaceae
- Liliaceae (Sabadillae semen, Veratri rhizoma)
- Asteraceae (Pyrethri flos)
- Buxaceae (Buxi folium)
- Apocynaceae

VERATRI RHIZOMA – FALSE HELLEBORINE RHIZOME

CC: *Veratrum album* – false helleborine. White perennial plant of mountains medows of Europe

Drug: in autumn harvested dried rhizome, longitudinaly cutted, often peeled from roots

CC: 1-1,5 % of alkaloids with true or modified steroidal skeleton (C-nor-D-homosteroids - veratramin and jervin). Further more alkamins, esters, glycosides

Usage: Insecticidum

Ester protoveratrins A and B anti-hypertensive

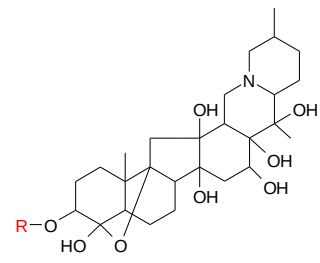
SABADILLAE SEMEN – SABADILLA SEED

MR: *Schoenocaulon officinale* – Sabadilla (Liliaceae); perenial plant of Middle America

Drug: dried seeds

CC: 1-5 % of alkaloids, assigned as „veratrin"; mixture composed of cevadine and veratridine (esters of veracevine with angelic acid resp. veratric acid at C3

Usage: Insecticide (Acetum sabadillae)



R = kys. veratrová = veratridin
R = kys. angeliková = cevadin

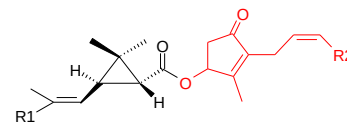
PYRETHRI FLOS – PYRETHRUM DAISY FLOWER

MP: *Chrysanthemum cinerariifolium* – pyrethrum daisy (Asteraceae); perennial plant native in Jadran area, cultivated in Japan, Brazil, Kenya, India

Drug: dried inflorescence, harvested from 2- to 6-year old plants before full opening

CC: esters of chrysanthemic acid (serie I) a pyrethric (serie II) – pyrethrin, jasmolin and cinerin; furthermore essential oil, resin, triterpenes

Usage: contact insecticide (do not affect warm-blooded animals, do not form resistance



$R_1 = CH_3$ (pyrethrová kyselina) serie I

$R_1 = CO_2CH_3$ (chrysanthemová kyselina) serie II

$R_2 = CH\text{-}CH_3$ pyrethriny I a II

$R_2 = CH_3$ cineriny I a II

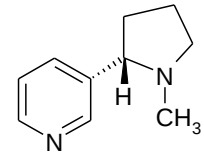
$R_2 = CH_2CH_3$ jasmoliny I a II

NICOTINE

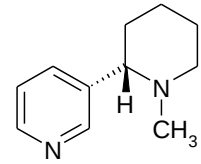
Dark smelling liquid obtained by hyydrodistillation of different *Nicotiana* species (Solanaceae)

CC: green lobacco leaves containing 40 % of saccharides (starch, pectin, cellulose, soluble sugars), 15-20 % of proteins and organic acids and 2-10 % of nikotin and other related alkaloids

Usage: Contact insecticide



nikotin



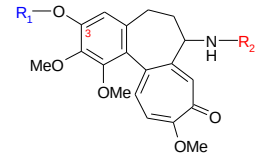
anabasin

ANTIURATICS

COLCHICINUM – COLCHICINE (ČL 2005)

Present in testa and tubers of *Colchicum autumnale* – autumn crocus (Liliaceae)

- Cytotoxic activity known from 40ies of 20th century. Stops cell division, do not stop chromosome division, cuases polyploidia
- Antiuratic ruring acute atacks of gout – painfull iinflammations of joints, where are gathered crystals of uric acid. Stops the movement and penetration of inflammatory cells.
- Serie of side effects



	R1	R2
Kolchicin	CH_3	$COCH_3$
Demekolcin	CH_3	CH_3
3-Desmethylkolchicin	H	$COCH_3$

ANTIPHLOGISTICS – ANTI-INFLAMMATORY PREPARATIONS

Because of anti-inflammatory, analgesic and antipyretic activities are natural antiphlogistics often used pharmaceuticals.

Salicis cortex (ČL 2005)
Salviae officinalis folium (ČL 2005)
Hyperici herba (ČL 2005)
Matricariae flos (ČL 2005)
Arnicae flos (ČL 2005)
Balsamum peruvianum (ČL 2005)
Semen aesculi hippocastani

SEMEN AESCULI HIPPOCASTANI – HORSE CHESTNU SEED

MR: *Aesculus hippocastanum* – horse chestnut (Hippocastanaceae); tree native at Balcaninan peninsula, cultivated widely as a ornamental tree

Drou: fresh or dried seeds

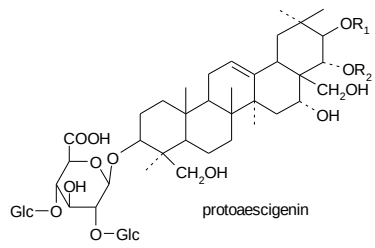
CC: uop to 13 % of saponins, main is aescin, what is a mixture of esterified aglycons protoaescigenine and barringtogenol C;

flavonoid glycosides, starch, fatty oil, proteins

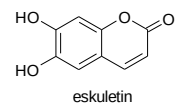
Testa contains coumarin aesculin

Usage: antiphlogistic and antiexsudative; venopharmac; varixes, ulcus cruris

SEMEN AESCULI HIPPOCASTANI
Content compounds



protoaescigenin



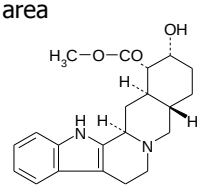
eskuletin

beta-aescin: R1 = zbytky kys. tiglinové, angelikové, alfa-methylmáselné
R2 = acetyl

APHRODISIACs

After development of SILDENAFIL lost biogenic aphrodisiacs partially their importance

- YOHIMBIN isolated from Yohimbea cortex (*Pausinystalia yohimbe* – yohimbe (Rubiaceae). Up to 30 m tall tree native to West Africa, common in Camerun. Triggers hyperaemia of pelvis minor and stimulates centra in medulla oblongata driving sacral area



yohimbin

ROBORANTS - GERIATRICS - TONICs

Group of compounds, which should bring overall enforcing effect, increase of physical strenght, stimulation of intellectual output. Used as preparations to delay and to supress symptoms of eldering or treatmant od diseases connected with age.

Ginseng radix
Eleuterococci radix
Rhodiolae radix
Schizandrae fructus
Vitamins
Lecitins

GINSENG RADIX – GINSENG ROOT

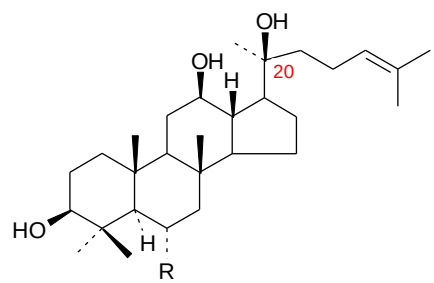
CC: *Panax ginseng* – ginseng (Araliaceae); Asian mountain perennial plant with beet-shaped root, up to 50 cm tall stem, 5-membered leaves. Fruits – red berries.

Drug: dried whole or cutted root of 5-6 years old plants; different processing (white and red ginseng)

CC: at least 0,40 % of mixture of ginsenosides R-G 1

Usage: geriatrics, roborans, adaptogen

GINSENG RADIX
Aglycons of steroidal saponins



R = H 20-S-protopanaxadiol

R = OH 20-S--protopanaxatriol

ELEUTHEROCOCCI RADIX – SIBERIAN GINSENG ROOT (ČL 2005)

MR: *Eleutherococcus senticosus* – siberian radix (Araliaceae); 2,5 m tall woody plant 5-memebered leaves; cultivated in Asia

Drug: whole or cutted dried root and rhizome

CC: saponins – glycosides of oleanolic acid, assigned as eleuterosides A-M; furthermore – eleuterany A-G, lignans, coumarins

Usage: roborans, tonic.

Eleuterans show hypoglycaemic effect.

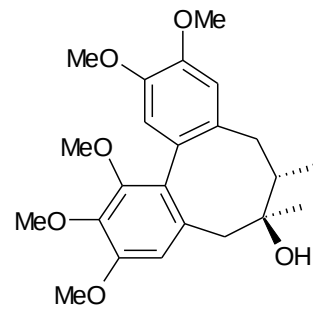
SCHIZANDRAE FRUCTUS – FIVE FLAVOR BERRY

MR: *Schizandra chinensis* – schizandra (Schizandraceae); creeping woody plant of northern China.

Drug: dried fruits

CC: compounds of lignane type (till present described cca 40) with dibenzocyclooctadiene sceleton (schizandrins, gomisins)

Usage: part of geriatric mixtures, hepatoprotective, stimulant



schizandrin

CORRIGENTs

Corrigents are compounds without physiological effect. Their properties can mask unpleasant taste, smell or colour of medicinal preparations.

Corrigents of taste – sugars, sirups, liquorice extract

Corrigents of odour – chosen essential oils

Corrigents of colour – correction of esthetic image of drug, decrease of possibility of mischange (anthocyanins, pigments of fruits, betalains of red beet, chlorophylls, carotenoids)

AURANTII AMARI PERICARPIUM – PERICARP OF BITTER ORANGE (ČL 2005)
(Syn.: AURANTII AMARI EPICARPIUM ET MESOCARPIUM)

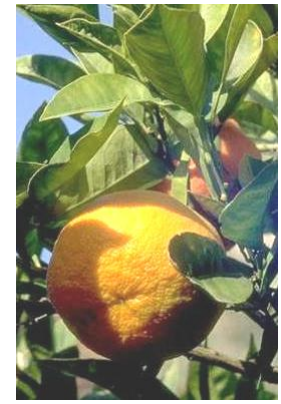
MP: *Citrus aurantium* ssp. *aurantium;* (*Citrus aurantium* ssp. *amara*) – bitter orange tree (Rutaceae); evergreen tree native in India, cultivated in Sicilia, Spain, Lybia.

Drug: dried pericarp of matured fruit, peeled of spongeous white albedo

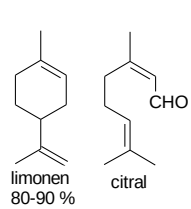
CC: at least 20 ml essential oil /kg of drug (limonen, linalol, citral, geraniol, nerol); flavonoids of bitter taste hesperidin, neohesperidin; in albedo further bitter substances; in flavedo β-caroten, lycopen, xanthophyl;

Usage: Aromatic amare, corrigent, carminative; liquors manufacturing, beverages

Galenic preparation: Aurantii amari pericarpii extract

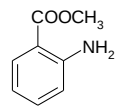


AURANTII AMARI PERICARPIUM – BITTER ORANGE PERICARP (ČL 2005)

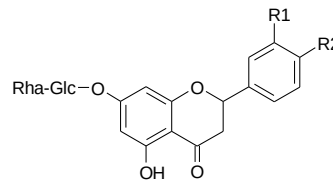


limonen 80-90 %

citral

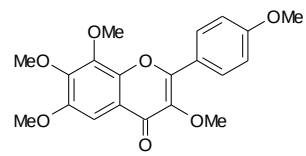


methylester kys. anthranilové



[6-O] naringin R1 = H R2 = OH

[2-O] hesperidin R1 = OH R2 = OMe



auranetin

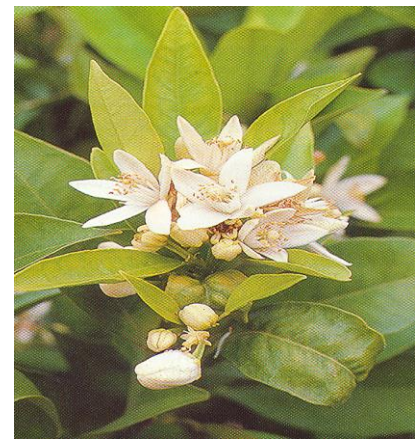
AURANTII AMARI FLOS – BITTER ORANGE FLOWER (ČL 2005)

MR: *Citrus aurantium* ssp. *aurantium;* (*Citrus aurantium* ssp. *amara*) (Rutaceae);

Drug: whole dried not opened flower

CC: at least 8 % of flavonoids expressed as naringin

Usage: corrigens



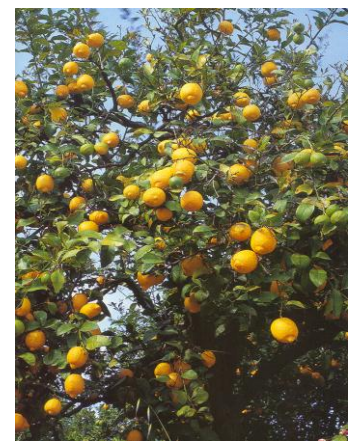
PERICARPIUM CITRI – LEMON TREE PERICARP

MP: *Citrus limonia* – Lemon tree (Rutaceae); evergreen tree native to India, cultivated in subtropics

Drug: dried, spiral-shaped peeled external part of pericarp – flavedo without albedo

CC: 2,5-6 % of essential oil (D-limonen, citral, low amount citronellal, geranylacetate), methylester of anthranilic acid, citropten (5,7-di-methoxycoumarin)

Usage: corrigents, aromatic amare



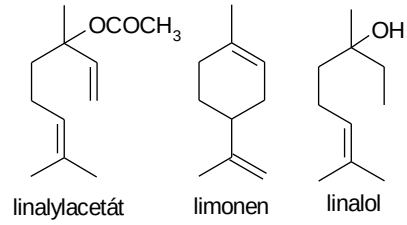
BERGAMOTTAE ETHEROLEUM – BERGAMOT ESSENTIAL OIL

MP: *Citrus aurantium* ssp. *bergamia* – bergam lemon tree; evergreen small tree of tropics and subtropics, fruits with strong pericarp, not edible

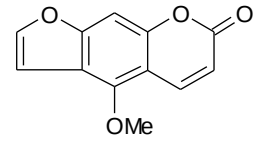
Drug: essential oil obtained by pressing of fresh pericarp

CC: contains at least 30,0 % of esters expressed as linalyl-acetate, limonen, linalol);bergapten (5-methoxyfuranocoumarin)

Usage: corrigens of odour; cosmetics, Earl Grey



linalylacetát limonen linalol



bergapten

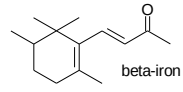
IRIDIS RHIZOMA – IRIS RHIZOME

MR: *Iris germanica*, *I. pallida*, *I. florentina*; perennial plants native in Mediterranean; produced in Italy, France, Morocco

Drug:dried rhizomes of three year old plants, without roots and leaves, sun dried, typical smell

CC: 0,1-0,2 % of essential oil (10 % of irons), aromatic unsatturated ketons; starch, mucilage

Usage: corrigens of odour and taste, aromatic mucilaginose, parfumes



beta-iron

VANILLAE FRUCTUS – VANILLA FRUIT

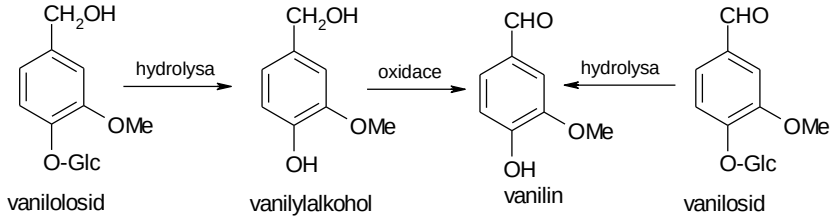
MP: *Vanilla planifolia* – vanilla orchid, *V. tahitensis* (Orchidaceae); perrenial climbing, dioecious epifytes, cultivated in tropics (temperature do not fall bellow 18 ^{0}C, high humidity); prepagation vegetative, in cultures necessary arteficial pollination (native by hummingbirds)

Drug: dried fermented fruits (purse)

CC: Fragrant compounds in papillas on the inner side of pericarp; vanilin is formed during fermentation from vaniloside via action of oxidases and hydrolases. Tahitian vanilla contains also anisalcohol and anisaldehyde

Usage: Aromatic corrigent of taste and odour

VANILLAE FRUCTUS



ROSAE ETHEROLEUM – ROSE ESSENTIAL OIL

MP: *Rosa centifolia* – rose, *R. damas cena, R. gallica* and other ssp. (Rosaceae)

Drug: fresh corona leaves, processed by hydrodistillation to obtain essential oil (1 kg of essential oil = 4000 kg of raw material)

CC: essential oil composed of acyclic oxygenated terpenes (geraniol, nerol, citronellol, fenylethylalcohol)

Usage: corrigens of odour

Substitute: Geranii etheroleum - *Pelargonium* sp. (Geraniaceae). Contains 65 % of terpenic alcohols alkoholů (as geraniol).