Much lower doses have been recommended for the treatment of gastrointestinal and biliary-tract spasm.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Certonal†; Kollateral.

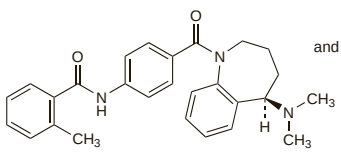
Multi-ingredient: ***Austria:*** Hedonin.

Mozavaptan *(rINN)* ⊗

Manavaptan; Mozavaptán; Mozavaptanum; OPC-31260. *N*-(4-{[(5*RS*)-5-(Dimethylamino)-2,3,4,5-tetrahydro-1*H*-1-benzazepin-1-yl]carbonyl}phenyl)-2-methylbenzamide.

Мозаваптан

$C_{27}H_{29}N_3O_2$ = 427.5.
CAS — 137975-06-5.



and enantiomer

Profile
Mozavaptan is a selective vasopressin V_2-receptor antagonist used for the treatment of hyponatraemia in cancer-related syndrome of inappropriate antidiuretic hormone secretion.

Mulungu

Profile
The bark of the mulungu tree, *Erythrina verna* (*E. mulungu*) Fabaceae, has traditionally been used in South America as a sedative and as a hypotensive.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Braz.:*** Anevrase†; Calmapax; Elixir de Passiflora†; Passaneuro; Passicalm†; Passiflora Composta†; Passilex†; Sedalin†; Xarope Sao Joao†.

Mumps Skin Test Antigen

Parotiditis, prueba cutánea contra el antígeno de la.

Pharmacopoeias. In *US*.
USP 31 (Mumps Skin Test Antigen). A sterile suspension of formaldehyde-inactivated mumps virus prepared from the extra-embryonic fluid of virus-infected chick embryos, concentrated and purified by differential centrifugation, and diluted with isotonic sodium chloride solution. It contains a preservative and glycine as a stabilising agent. Each mL contains not less than 20 complement-fixing units. It should be stored at 2° to 8°. The expiry date is not later than 18 months after date of manufacture or of release from manufacturer's cold storage.

Profile
Recovery from mumps produces skin hypersensitivity to mumps virus. Mumps skin test antigen, has been used with other antigens to assess the status of cell-mediated immunity. A positive reaction may indicate previous infection with mumps virus but it is not considered to be very reliable. It should not be given to patients hypersensitive to egg protein.

Preparations

USP 31: Mumps Skin Test Antigen.

Proprietary Preparations (details are given in Part 3)
USA: MSTA†.

Muramidase Hydrochloride

N-Acetylmuramide Glycanohydrolase Hydrochloride; E1105 (muramidase); Globulin G_1 Hydrochloride; Lysozyme Hydrochloride; Muramidasa, hidrocloruro de.

CAS — 9001-63-2 (muramidase); 9066-59-5 (muramidase hydrochloride).
ATC — D06BB07; J05AX02.
ATC Vet — QD06BB07; QJ05AX02.

Pharmacopoeias. In *Jpn*.

Profile
Muramidase is a mucopolysaccharidase normally present in saliva and other tissues and secretions. It is active against Gram-positive bacteria, possibly by transforming the insoluble polysaccharides of the cell wall to soluble mucopeptides. It is also thought to be active against some viruses and some Gram-negative bacteria.

Muramidase has been given, usually as the hydrochloride, to patients with herpes zoster and other painful viral infections, and for mouth and respiratory-tract disorders. It has been used with antibacterials in an attempt to enhance their activity. Sensitivity reactions have been reported.

Adverse effects. A report[1] of a toxic epidermal necrolysis-type drug eruption in a patient who took an oral cold preparation containing muramidase chloride, which was considered to be the probable cause. The patient's condition improved after intravenous corticosteroid therapy.

1. Kobayashi M, *et al*. A case of toxic epidermal necrolysis-type drug eruption induced by oral lysozyme chloride. *J Dermatol* 2000; **27:** 401–4.

Preparations

Proprietary Preparations (details are given in Part 3)
Belg.: Murazyme; ***Braz.:*** Murazyme†; ***Hong Kong:*** CP-Lyso; Eurozyme; Flemizyme; Jemizym†; Leftose; Lysosmin; Neuzym; ***Ital.:*** Immunozima†; ***Jpn:*** Leftose; Neuzym; ***Malaysia:*** Leftose†; Neuzym; Noflux; ***Singapore:*** Leftose; Lyzyme; Neuflo; Neuzyme; ***Thai.:*** Leftose.

Multi-ingredient: ***Arg.:*** Bim†; Gammanova†; ***Braz.:*** Colpistar; Tricomax; Trinotrex†; ***Cz.:*** Laryprontt†; ***Fr.:*** Cantalene; Glossithiase; Hexalyse; Lyso-6; Lysopaine; ***Ger.:*** Frubienzym; ***Gr.:*** Lyso-6; Lysopaine; Sopain-Plus; ***Hong Kong:*** Hexalyse; Quadezyme; ***Ital.:*** Narlisim; ***Port.:*** Narizima; ***Rus.:*** Hexalyse (Гексализ); Lysobact (Лизобакт); ***Singapore:*** Biotene; ***Spain:*** Egarone†; Espectral†; Lizipaina; Normo Nar†; Pulmotropic; Rino Dexa; Trofalgon; ***Switz.:*** Arbid-top; Gem; Lyso-6†; Lysopaine; Mebucasol f; Sangerol; ***Thai.:*** Siduol; ***UK:*** Biotene Dry Mouth; BioXtra†; ***USA:*** Biotene with Calcium.

Poisonous Mushrooms or Toadstools

Champignons vénéneux; Giftpilze; Setas venenosas.

CAS — 23109-05-9 (α-amanitin); 21150-22-1 (β-amanitin); 21150-23-2 (γ-amanitin); 58919-61-2 (coprine); 16568-02-8 (gyromitrin); 2552-55-8 (ibotenic acid); 60-34-4 (methylhydrazine); 300-54-9 (muscarine); 2763-96-4 (muscimol); 37338-80-0 (orellanine); 17466-45-4 (phalloidin); 28227-92-1 (phalloin); 39412-56-1 (phallolysin).

Classification
This monograph describes poisonous mushrooms often known as toadstools, their toxins, toxic effects, and the treatment of those effects. Their only use is in homoeopathic medicine (see below). *Amanita muscaria* and *Psilocybe* spp. are abused for their psychoactive properties (see also Psilocin, p.2375).

Mushrooms can be classified into 8 groups according to their principal toxins and toxic effects:

- *Group I.* Most deaths due to mushroom poisoning follow the ingestion of mushrooms containing cyclopeptides and among these mushrooms *Amanita phalloides* ('death cap') has been reported to be responsible for 90% of all mushroom fatalities. The cyclopeptides are a group of heat-stable cyclic polypeptides with molecular weights ranging from 800 to 1100 and include the amatoxins (α-, β-, γ-amanitin) and phallotoxins (phalloidin, phaloin, phallolysin). Other mushrooms containing cyclopeptides include *A. verna* ('deadly agaric', 'fool's mushroom'), *A. virosa*, ('destroying angel') and *A. bisporigera* ('white destroying angel'), and *Galerina autumnalis*, *G. marginata*, and *G. venenata*.
- *Group II.* Although *A. muscaria* ('fly agaric') and *A. pantherina* ('panther cap', 'false blusher') may contain small amounts of muscarine, the antimuscarinic effects of the hallucinogenic agent muscimol and the insecticidal agent ibotenic acid usually predominate.
- *Group III.* Many species of *Gyromitra* contain toxins known as gyromitrins that decompose to release methylhydrazine (monomethylhydrazine; MMH) an inhibitor of the coenzyme pyridoxal phosphate.
- *Group IV.* Mushrooms whose principal toxin is muscarine include many of the *Clitocybe* and *Inocybe* spp. *A. muscaria* and *A. pantherina* (see above) may also contain small amounts.
- *Group V. Coprinus atramentarius* ('ink cap') contains the compound coprine, one of whose metabolites is an inhibitor of acetaldehyde dehydrogenase and it may therefore produce 'disulfiram-like' symptoms after drinking alcohol.
- *Group VI.* Mushrooms that may contain the hallucinogenic indoles psilocin and psilocybine include species of *Psilocybe*, *Panaeolus*, *Gymnopilus*, *Stropharia*, and *Conocybe*.
- *Group VII.* Many mushrooms that only act as gastrointestinal irritants and do not produce systemic effects are included in this group.
- *Group VIII.* A further group has sometimes been used to classify some species of *Cortinarius* that contain a renal toxin thought by some to be orellanine, but whose exact nature remains to be determined.

Adverse Effects
The clinical course of poisoning due to mushrooms is related to their principal toxins:

- *Group I.* Initial symptoms may occur 6 to 24 hours after ingestion of mushrooms containing cyclopeptides, and usually consist of gastrointestinal effects such as abdominal pain, nausea, severe vomiting, and profuse diarrhoea similar to that in cholera. The patient may then appear to recover and be symptom-free for 2 to 3 days, although liver-enzyme values may be increasing. After this phase, the more serious toxic effects of the amatoxins become apparent and there are signs of hepatic, renal, cardiac, and CNS toxicity. Symptoms include jaundice, oliguria, anuria, hypoglycaemia, coagulopathies, circulatory collapse, convulsions, and coma. The mortality rate is high in this third phase, with death usually being due to hepatic failure following hepatic necrosis. Up to 90% of untreated patients may die, though the rate can be as low as 15 to 30% after treatment.
- *Group II.* The adverse effects of mushrooms containing ibotenic acid and muscimol usually occur within 2 hours of ingestion. Symptoms may include ataxia, euphoria, delirium, and hallucinations associated with other antimuscarinic effects. Fatalities are rare.
- *Group III.* Patients who have ingested mushrooms containing gyromitrins usually develop symptoms of poisoning within 6 to 24 hours. These consist initially of nausea, vomiting, abdominal pain, and muscle cramps, headache, dizziness and fatigue. Delirium, convulsions, coma, methaemoglobinaemia and haemolysis may also occur. Occasionally jaundice and hepatic necrosis lead to hepatic failure and death. Up to 40% of patients die.
- *Group IV.* Symptoms typical of 'cholinergic crisis' (see Adverse Effects of Neostigmine, p.631) may appear about 30 minutes to 2 hours after ingestion of mushrooms containing muscarine. These include bradycardia, bronchospasm, salivation, perspiration, lachrymation, rhinorrhoea, involuntary urination and defaecation, and diarrhoea. Miosis, hypotension, and cardiac arrhythmias may also occur. Rarely death may follow due to cardiac arrest or respiratory-tract obstruction.
- *Group V.* Since one of the metabolites of coprine is an acetaldehyde dehydrogenase inhibitor, drinking alcohol, even up to several days after ingestion of mushrooms containing this compound, will produce symptoms similar to those of the 'disulfiram-alcohol' interaction (see Disulfiram, Adverse Effects, p.2296). Fatalities are rare.
- *Group VI.* The adverse effects of ingestion of mushrooms containing psilocin and psilocybine are similar to those described under lysergide (p.2335). Symptoms usually occur within about 30 minutes to 2 hours. Fatalities are rare.
- *Group VII.* Generally no treatment is required for adverse gastrointestinal effects seen with this group of mushrooms.
- *Group VIII.* There may be a delay of as long as 14 to 20 days before symptoms of poisoning due to *Cortinarius* appear. Patients will develop an intense thirst. Other symptoms usually include nausea, vomiting, diarrhoea, and anorexia. Muscle aching and spasms and a feeling of coldness may also occur. In severe cases renal failure may lead to death. It has been reported that up to 15% of patients die.

Pregnancy. α-Amanitine does not appear to cross the placental barrier, even during the acute phase of intoxication.[1]

1. Belliardo F, *et al*. Amatoxins do not cross the placental barrier. *Lancet* 1983; **i:** 1381.

Treatment of Adverse Effects
As there are no specific antidotes for the majority of cases of mushroom poisoning and which species is involved is often unknown, treatment consists primarily of symptomatic and supportive measures. The stomach may be emptied by gastric lavage if the patient has not already vomited spontaneously. However, if presentation is delayed (because of the slow onset of symptoms seen with some types of mushrooms) measures to empty the stomach are unlikely to be productive. Activated charcoal may be of use in binding toxins in the gastrointestinal tract and preventing absorption. Determining the interval between ingestion and the onset of symptoms often helps to identify the type of mushrooms ingested. If possible specimens of the mushrooms or a sample of the stomach contents should be sent to an expert mycologist for identification. Particular attention should be paid to intravenous replacement of fluids and electrolytes especially if vomiting and diarrhoea are severe. If the ingestion of hepatotoxic or nephrotoxic mushrooms is suspected liver and renal function should be monitored.

Since some mushrooms contain a wide range of toxins and patients may have ingested more than one species, specific therapy should only be instituted following positive identification.

- *Group I.* There is little clinical evidence to support the efficacy of specific agents or treatments for the management of cyclopeptide poisoning. Drugs such as benzylpenicillin, silymarin or silibinin have been given to try to protect the liver against the hepatotoxic effects of the amatoxins. Exchange transfusions, haemodialysis, or charcoal haemoperfusion have been tried to facilitate amatoxin removal. The removal of bile via a duodenal tube left *in situ* has been suggested to reduce enterohepatic circulation of amatoxins. Forced diuresis has also been advocated. Liver transplantation may be required for progressive hepatic failure. A radio-immunoassay for the detection of amatoxins is available in some countries to confirm a diagnosis of cyclopeptide poisoning.

- *Group II.* Specific treatment is usually only required if symptoms are severe. Physostigmine has been used to treat antimuscarinic symptoms. As mushrooms containing ibotenic acid and muscimol may also contain small amounts of muscarine, atropine may be required to control muscarinic symptoms.
- *Group III.* Pyridoxine hydrochloride has been given as an intravenous infusion as specific therapy to overcome the inhibition of pyridoxal phosphate by methylhydrazine, but the use of large doses of pyridoxine might itself produce adverse neurological effects. Methylthioninium chloride may be required if methaemoglobinaemia is severe.
- *Group IV.* Atropine sulfate may be required to control the symptoms of muscarine poisoning but it should only be used if definite muscarinic symptoms are present.
- *Group V.* There is no specific treatment for the 'disulfiram-alcohol' reaction except for the maintenance of blood pressure.
- *Group VI.* If symptoms are severe some patients may require sedation with diazepam.

◊ General reviews.

1. Köppel C. Clinical symptomatology and management of mushroom poisoning. *Toxicon* 1993; **31:** 1513–40.

Amanita phalloides. The use of specific antidotes in the treatment of poisoning due to *Amanita phalloides* remains controversial. Acetylcysteine, benzylpenicillin, sulfamethoxazole, thioctic acid, cytochrome C, ascorbic acid, insulin, growth hormone, silymarin or silibinin, and corticosteroids have all been used or suggested. Evidence to support most of these is lacking;[1,2] there is limited evidence to support the use of silibinin and acetylcysteine, but benzylpenicillin, although widely used, does not have proven efficacy.[1] In patients who develop fulminant liver failure the definitive treatment is liver transplantation.[1,2]

1. Enjalbert F, *et al*. Treatment of amatoxin poisoning: 20-year retrospective analysis. *J Toxicol Clin Toxicol* 2002; **40:** 715–57.
2. Berger KJ, Guss DA. Mycotoxins revisited: part I. *J Emerg Med* 2005; **28:** 53–62.

Uses

Homoeopathy. Several types of poisonous mushrooms have been used in homoeopathic medicines under the following names:

- *Amanita phalloides*: Agaricus phalloides; Agaricus bulbosus
- *Russula emetica*: Agaricus emeticus: Agar. e.
- *Amanita muscaria*: Agaricus muscarius; Agar. m.
- *Coprinus stercorarius* (*Stropharia stercoraria*): Agaricus stercorarius; Aga. ster.

Musk

Almíscar; Almizcle; Deer Musk; Mosc.; Moschus.

CAS — 541-91-3 (muskone).

Pharmacopoeias. In *Chin.*

Profile

Musk is the dried secretions from the preputial follicles of the musk deer, *Moschus moschiferus* or some other spp. of *Moschus* (Cervidae). It is used as a fragrance and fixative in perfumery. The main source of musk's fragrance is muskone (muscone).

A series of nitrated tertiary butyl toluenes or xylenes, or related compounds, are used as artificial musks. Musk ambrette, a synthetic nitromusk compound used in perfumery and as a food flavour, has been reported to cause contact dermatitis and photosensitivity.

Homoeopathy. Musk has been used in homoeopathic medicines under the following names: Moschus; Mosc.

◊ References.

1. Schmeiser HH, *et al*. Evaluation of health risks caused by musk ketone. *Int J Hyg Environ Health* 2001; **203:** 293–9.

Black Mustard

Graine de Moutarde Noire; Mostarda Preta; Mostaza negra; Moutarde Jonciforme; Schwarzer Senfsame; Semen Sinapis; Semilla de Mostaza; Sinapis Nigra.

Description. Black mustard is the dried ripe seeds of *Brassica nigra* (*B. sinapioides*) (Cruciferae).

Pharmacopoeias. In *Swiss* which allows *B. nigra*, *B. juncea*, and other species.

White Mustard

Mostaza blanca; Sinapis Alba.

Description. White mustard is the dried ripe seeds of *Brassica alba* (Cruciferae).

Pharmacopoeias. *Chin.* allows *B. alba* or *B. juncea*.

Volatile Mustard Oil

Allylsenföl; Essence of Mustard; Mostaza, aceite esencial de; Oleum Sinapis Volatile.

Allyl Isothiocyanate *(USAN)*

Isothiocyanato-l-propene.

C_4H_5NS = 99.15.

CAS — 57-06-7.

Pharmacopoeias. *Fr.* and *US*

USP 31 (Allyl Isothiocyanate). A colourless to pale yellow, very refractive, liquid with a pungent, irritating odour and an acrid taste. Slightly soluble in water; miscible with alcohol, with carbon disulfide, and with ether. Store in airtight containers.

Profile

Black and white mustard seeds have been used as emetics, in counter-irritant and rubefacient preparations, and as condiments. Volatile mustard oil, prepared from black mustard seeds, is largely composed of allyl isothiocyanate. It is an extremely powerful irritant that has been used as a counter-irritant and rubefacient. Expressed mustard oil contains a smaller proportion of volatile oil and has been used as a less powerful counter-irritant.

Adverse effects. A report of 2 cases of IgE-mediated anaphylaxis to mustard condiment.[1]

1. Vidal C, *et al*. Anaphylaxis to mustard. *Postgrad Med J* 1991; **67:** 404.

Handling. Allyl isothiocyanate is a potent lachrymator, with a pungent irritating odour. Care should be taken to protect the eyes, to prevent inhalation of fumes, and to avoid tasting.

Preparations

Proprietary Preparations (details are given in Part 3)
Mon.: Autoplasme Vaillant; Sinapisme Rigollot.

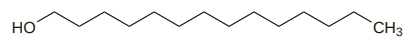
Multi-ingredient: ***Braz.:*** Aliviol; Analgen†; Benegel; Gelflex; Gelol†; Gelonevral†; Mialgex†; Mostardina†; Nevrol; ***Canad.:*** Rheumalan†; ***Cz.:*** Apisarthron; Rheumosin†; ***Ger.:*** Cor-Select†; ***Pol.:*** Reumobonisol; ***Rus.:*** Apisarthron (Апизартрон); Efcamon (Эфкамон); ***Spain:*** Dolokey; ***Switz.:*** Knobel Huile N; ***UK:*** Nine Rubbing Oils; Radian-B Red Oils; Red Oil; ***USA:*** Dermolin; Methalgen†; Musterole Extra.

Myristyl Alcohol

Alcohol miristilo; Alkohol mirystylowy; NSC-8549; 1-Tetradecanol.

$C_{14}H_{30}O$ = 214.4.

CAS — 112-72-1.



Pharmacopoeias. In *USNF.*

USNF 26 (Myristyl Alcohol). M.p. 36° to 42°.

Profile

Myristyl alcohol is used as an oleaginous vehicle. Contact dermatitis has been associated with its use.

Myrrh

Gum Myrrh; Gummiresina Myrrha; Mira; Mirhami; Mirra; Mirrha; Myrhovníková klejopryskyřice; Myrra; Myrrha; Myrrhe.

Мирра

CAS — 9000-45-7 (Myrrh); 8016-37-3 (myrrh oil).

Pharmacopoeias. In *Eur.* (see p.vii) and *US*.

Ph. Eur. 6.2 (Myrrh). A gum-resin, hardened in air, obtained from the stem and branches of *Commiphora molmol* and/or other species of *Commiphora*. Protect from light.

USP 31 (Myrrh). The oleo-gum resin obtained from the stems and branches of *Commiphora molmol* and other related species of *Commiphora* (Burseraceae) other than *C. mukul*. Store in airtight containers in a dry place.

Profile

The principal source of myrrh is *Commiphora myrrha* (*C. molmol*) (Burseraceae). Myrrh is astringent to mucous membranes; the tincture is used in mouthwashes and gargles for inflammatory disorders of the mouth and pharynx. It has also been used as a carminative. Myrrh has been tried in the treatment of schistosomiasis and fascioliasis.

Myrrh oil is used in aromatherapy.

Contact dermatitis has been reported.

Helminth infections. Myrrh was of benefit in a small study[1] of 7 patients with fascioliasis and in another study[2] of 204 patients with schistosomiasis. However, it showed low cure rates in the treatment of schistosomiasis when compared with praziquantel.[3,4]

1. Massoud A, *et al*. Preliminary study of therapeutic efficacy of a new fasciolicidal drug derived from Commiphora molmol (myrrh). *Am J Trop Med Hyg* 2001; **65:** 96–9.
2. Sheir Z, *et al*. A safe, effective, herbal antischistosomal therapy derived from myrrh. *Am J Trop Med Hyg* 2001; **65:** 700–4.
3. Botros S, *et al*. Efficacy of mirazid in comparison with praziquantel in Egyptian Schistosoma mansoni-infected school children and households. *Am J Trop Med Hyg* 2005; **72:** 119–23.
4. Barakat R, *et al*. Efficacy of myrrh in the treatment of human schistosomiasis mansoni. *Am J Trop Med Hyg* 2005; **73:** 365–7.

Preparations

Ph. Eur.: Myrrh Tincture;
USP 31: Myrrh Topical Solution.

Proprietary Preparations (details are given in Part 3)
Ger.: Inspirol P; ***Rus.:*** Myrtoplex (Миртоплекс).

Multi-ingredient: ***Arg.:*** Parodontax Fluor; ***Austral.:*** Eczema Relief; ***Austria:*** Brady's-Magentropfen; Dentinox; Paradenton; Parodontax; ***Braz.:*** Paratonico; Parodontax; ***Canad.:*** Lotion pour Feux Sauvages†; ***Chile:*** Astrijesan; ***Cz.:*** Dr Theiss Rheuma Creme†; Dr Theiss Schweden Krauter; Dr Theiss Schwedenbitter; Original Schwedenbitter; ***Denm.:*** Dolodent; ***Ger.:*** Ad-Muc†; Infi-tract†; Mint-Lysoform; Myrrhinil-Intest; Ratanhia comp; Repha-Os; ***Hong Kong:*** Ad-Muc; ***Israel:*** Parodontax†; ***Ital.:*** Gengivario†; ***Rus.:*** Original Grosser Bittner Balsam (Оригинальный Большой Бальзам Биттнера); ***S.Afr.:*** Helmontskruie; Lewensessens; ***Spain:*** Buco Regis; ***Switz.:*** Baume†; Eubucal†; GU Eau†; Parodontax F†; Parodontax†; Pommade au Baume; Sanogencive; ***UK:*** Herbal Indigestion Naturtabs; HRI Golden Seal Digestive; Indigestion and Flatulence; Vocalzone; Wind & Dyspepsia Relief; ***Venez.:*** One Drop Spray†.

Myrtillus

Baccae Myrtilli; Bilberry; Blåbär (bilberry fruit); Blaeberry; Borůvkový plod; Fekete áfonya termés (bilberry fruit); Heidelbeere; Huckleberry; Hurtleberry; Mėlynių uogos, džiovintos (bilberry fruit); Mirtilo; Mustikka (bilberry fruit); Myrtille, fruit de (bilberry fruit); Myrtilli Fructus; Myrtilli fructus (bilberry fruit); Whortleberry.

Pharmacopoeias. In *Eur.* (see p.vii). *US* includes Powdered Bilberry Extract.

Ph. Eur. 6.2 (Bilberry Fruit, Dried; Dried Bilberry BP 2008; Bilberry Fruit, Fresh; Fresh Bilberry BP 2008). The ripe fruit of *Vaccinium myrtillus*. It has a sweet and slightly astringent taste. The dried fruit contains a minimum of 1.0% of tannins, expressed as pyrogallol, calculated with reference to the dried drug. The fresh or frozen fruit contains a minimum of 0.30% of anthocyanins, expressed as cyanidin-3-glucoside chloride (chrysanthemin, $C_{21}H_{21}ClO_{11}$ = 484.8), calculated with reference to the dried drug. The frozen fruit should be stored at or below –18°.

Profile

Myrtillus has diuretic and astringent properties. It has been used for ophthalmic and circulatory disorders and for diarrhoea.

Homoeopathy. Myrtillus has been used in homoeopathic medicines under the following names: Vaccinium myrtillus; Vac. myrt.

Preparations

Ph. Eur.: Fresh Bilberry Fruit Dry Extract, Refined and Standardised.

Proprietary Preparations (details are given in Part 3)
Arg.: Mirtilene Forte†; ***Austral.:*** Herbal Eye Care Formula†; ***Braz.:*** Miralis; ***Ger.:*** Difrarel; ***Indon.:*** Lanavision; ***Ital.:*** Alcodin; Angiorex†; Mirtilene Forte; Retinol†; Tegens; ***Malaysia:*** Natberry; ***Pol.:*** Bilberin; Fibs; ***Port.:*** Difrarel; Tegens; Varison†; ***Rus.:*** Mirtilene Forte (Миртилене Форте); ***Switz.:*** Myrtaven.

Multi-ingredient: ***Austral.:*** Bilberry Plus; Bilberry Plus Eye Health; Bioglan Pygno-Vite; Bioglan Vision-Eze; Extralife Eye-Care; Extralife Leg-Care; Herbal PMS Formula†; Prophthal†; Pykno†; St Mary's Thistle Plus; ***Austria:*** Amersan; ***Braz.:*** Antomiopic†; ***Chile:*** Gingo-Ther†; ***Cz.:*** Amersan; Diabetan; Diabeticka Cajova Smes-Megadiabetin; Tormentan; Urcyston Planta; ***Fr.:*** Diacure; Difrarel; Difrarel E; Flebior; Klorane Shampooing Antipelliculaire; Stomargil; ***Ger.:*** Salus Augenschutz-Kapseln NA†; ***Hung.:*** Difrarel E; ***Indon.:*** Berry Vision; Bioretin; Eyevit; Lanavision; Lanavision Plus; Lutevision; Lutevision Extra; Matase; Matovit; Matovit Fifty; Nuvision; Oculex; Opibright; Optha-LL; Optimax; Visivit; Vita-Vision; Vitop; ***Israel:*** Opti-safe; ***Ital.:*** Alvear con Ginseng; Angiorex Complex; Angioton; Api Baby; Bebimix; Biolactine; Capill; Dermilia Flebozin; Evamilk; Flebo-Si; Flebofort; Levital Plus; Lipaven; Memovisus†; Mirtilene; Mirtilux; Neomyrt Plus; Nerex; Pik Gel; Promix 3†; Retinovit; Rivuclin; Tussol; Ultravisin; Varicofit; ***Malaysia:*** Natberry Extra; Natberry Plus; ***Neth.:*** Difrarel; ***Pol.:*** Biovision; Pelogel; Reumosol; ***Rus.:*** Strix (Стрикс); ***Spain:*** Antomiopic†; Mirtilus; ***UK:*** Se-Power.

Myrtle

Arrayán; Mirto; Myrte.

CAS — 8008-46-6 (myrtle oil); 8002-55-9 (myrtol).

NOTE. Distinguish from Myrtillus, p.2349, from *Vaccinium myrtillus*.

Profile

Myrtle (*Myrtus communis*, Myrtaceae) has been included in herbal preparations for cough.

Myrtle oil is obtained from the leaves and twigs. Myrtle oil is included in preparations for disorders of the upper respiratory tract and is used in aromatherapy.

The term myrtol has been used to describe an extract of myrtle, standardised on its content of α-pinene, *d*-limonene, and cineole. It is used for respiratory-tract disorders.

◊ References.

1. Matthys H, *et al*. Efficacy and tolerability of myrtol standardized in acute bronchitis. A multi-centre, randomised, double-blind, placebo-controlled parallel group clinical trial vs. cefuroxime and ambroxol. *Arzneimittelforschung* 2000; **50:** 700–11.