

## Uses and Administration

Stramonium has the actions of atropine (p.1219). It has been given with other drugs in oral and rectal dosage forms for respiratory-tract disorders. It has also been smoked in cigarettes or burnt in powders and the fumes inhaled but the irritation produced by the fumes may aggravate bronchitis.

**Homoeopathy.** Stramonium has been used in homoeopathic medicines under the following names: *Datura stramonium*; *Stram*.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Austral:** Potassium Iodide and Stramonium Compound†; **Braz:** Asmatron†; Expectol†; Teutos†.

## Streptodornase (BAN, INN)

Streptodornasa; Streptococcal Deoxyribonuclease; Streptodor-naasi; Streptodomasa; Streptodomasum.

Стрептодорназа

CAS — 37340-82-2.

## Profile

Streptodornase is an enzyme obtained from cultures of various strains of *Streptococcus haemolyticus*. It catalyses the depolymerisation of polymerised deoxyribonucleoproteins. It liquefies the viscous nucleoprotein of dead cells; it has no effect on living cells. It is used with streptokinase in the topical treatment of lesions, wounds, and other conditions that require the removal of clots or purulent matter; the combination may also be used to dissolve clots in the bladder or in urinary catheters.

It has also been given orally with streptokinase and sometimes with antibacterials, for its supposed benefit in reducing oedema and inflammation associated with trauma and infection.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Arg:** Varidasa†; **Austral:** Varidase†; **Austria:** Varidase; **Denm:** Varidase; **Fin:** Varidase; **Ger:** Varidase; **Irl:** Varidase†; **Ital:** Varidase†; **Mex:** Varidasa; **Norw:** Varidase; **Pol:** Distreptaza; **Port:** Varidasa†; **Spain:** Ernodasa; Varidasa; **Swed:** Varidase; **UK:** Varidase†.

## Strontium Chloride

Estroncio, cloruro de; Stronsiyum Klorür; Strontii Chloridum; Strontiumklorid; Strontiumkloridi.

SrCl<sub>2</sub>·6H<sub>2</sub>O = 266.6.

CAS — 10476-85-4 (anhydrous strontium chloride).

## Profile

Strontium chloride is used as a 10% toothpaste for the relief of dental hypersensitivity. Strontium acetate has been used similarly.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Arg:** Sensodyne Original; **Austria:** Sensodyne med; **Braz:** Sensodyne Formula Original; **Canad:** Sensodyne; **Chile:** Dentoxil; **Switz:** Sensodent†; **Turk:** Sensodyne Mint; **UK:** Sensodyne Original; **USA:** Sensodyne-SC; **Venez:** Sencia; Tekdent†.

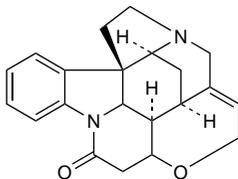
**Multi-ingredient:** **Arg:** Esme Topico; **Canad:** Reversa UV; **Ital:** Ptitene; **Singapore:** 2Sensitiv†.

## Strychnine ⊗

Estricnina; Strychnina. Strychnidin-10-one.

C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub> = 334.4.

CAS — 57-24-9.



**Description.** Strychnine is an alkaloid obtained from the seeds of *nux vomica* (p.2355) and other species of *Strychnos*.

## Strychnine Hydrochloride ⊗

Estricnina, hidrocloreto de; Strych. Hydrochlor; Strychninae Hydrochloridum.

C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub>·HCl·2H<sub>2</sub>O = 406.9.

CAS — 1421-86-9 (anhydrous strychnine hydrochloride); 6101-04-8 (strychnine hydrochloride dihydrate).

The symbol † denotes a preparation no longer actively marketed

## Strychnine Nitrate ⊗

Azotato de Estricnina; Estricnina, nitrato de; Nitrato de Estricnina; Strychninae Nitras; Strychnini Nitras; Strychninum Nitricum; Strykniinitratti; Strykniinitratt.

C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub>·HNO<sub>3</sub> = 397.4.

CAS — 66-32-0.

**Pharmacopeias.** In *Chin*.

## Strychnine Sulfate ⊗

Estricnina, sulfato de; Strychninae Sulphas; Strychnine Sulphate; Strychninum Sulfonicum; Sulfato de Estricnina.

(C<sub>21</sub>H<sub>22</sub>N<sub>2</sub>O<sub>2</sub>)<sub>2</sub>·H<sub>2</sub>SO<sub>4</sub>·5H<sub>2</sub>O = 857.0.

CAS — 60-41-3 (anhydrous strychnine sulfate); 60491-10-3 (strychnine sulfate pentahydrate).

**Pharmacopeias.** In *Fr* and *Viet*.

## Adverse Effects

The symptoms of strychnine poisoning are mainly those arising from stimulation of the CNS. Early signs occurring within 15 to 30 minutes of ingestion include tremors, slight twitching, and stiffness of the face and limbs. Painful convulsions develop and may be triggered by minor sensory stimuli; since consciousness is not impaired patients may be extremely distressed. All forms of sensation are heightened. The body becomes arched backwards in hyperextension with the head retracted, arms and legs extended, fists clenched, and the feet turned inward. The jaw is rigidly clamped and contraction of the facial muscles produces a characteristic grinning expression known as 'risus sardonicus'. The convulsions may recur repeatedly and are interspersed with periods of relaxation. If not treated adequately, few patients survive more than 5 episodes of convulsions, death usually occurring due to respiratory and cardiac arrest. Fatalities in adults have occurred with doses as little as 16 mg.

Secondary effects arising from the severe spasms include lactic acidosis, rhabdomyolysis, renal failure, hyperthermia, hyperkalaemia, and dehydration.

## Poisoning, References.

- O'Callaghan WG, et al. Unusual strychnine poisoning and its treatment: report of eight cases. *BMJ* 1982; **285**: 478.
- Blain PG, et al. Strychnine poisoning: abnormal eye movements. *J Toxicol Clin Toxicol* 1982; **19**: 215-17.
- Boyd RE, et al. Strychnine poisoning: recovery from profound lactic acidosis, hyperthermia, and rhabdomyolysis. *Am J Med* 1983; **74**: 507-12.
- Burn DJ, et al. Strychnine poisoning as an unusual cause of convulsions. *Postgrad Med J* 1989; **65**: 563-4.
- Yamarick W, et al. Strychnine poisoning in an adolescent. *J Toxicol Clin Toxicol* 1992; **30**: 141-8.
- Heiser JM, et al. Massive strychnine intoxication: serial blood levels in a fatal case. *J Toxicol Clin Toxicol* 1992; **30**: 269-83.
- Nishiyama T, Nagase M. Strychnine poisoning: natural course of a nonfatal case. *Am J Emerg Med* 1995; **13**: 172-3.
- Katz J, et al. Strychnine poisoning from a Cambodian traditional remedy. *Am J Emerg Med* 1996; **14**: 475-7.
- Hernandez AF, et al. Acute chemical pancreatitis associated with nonfatal strychnine poisoning. *J Toxicol Clin Toxicol* 1998; **36**: 67-71.
- Greene R, Meatherall R. Dermal exposure to strychnine. *J Anal Toxicol* 2001; **25**: 344-7.
- Wood D, et al. Case report: survival after deliberate strychnine self-poisoning, with toxicokinetic data. *Crit Care* 2002; **6**: 456-9.
- Scheffold N, et al. Strychninvergiftung. *Dtsch Med Wochenschr* 2004; **129**: 2236-8.
- Shadnia S, et al. A case of acute strychnine poisoning. *Vet Hum Toxicol* 2004; **46**: 76-9.

## Treatment of Adverse Effects

The main aim of therapy in strychnine poisoning is the prompt prevention or control of convulsions and asphyxia. Activated charcoal should be given if the patient presents within 1 hour of ingestion. Convulsions should be controlled or prevented by diazepam or lorazepam. Intubation and assisted respiration may be required. Should benzodiazepines fail then phenytoin or phenobarbital may be tried. All unnecessary external stimuli should be avoided and if possible the patient should be kept at rest in a quiet darkened room. Patients should be monitored for any secondary effects such as metabolic acidosis so that appropriate symptomatic treatment can be given.

## Uses and Administration

Strychnine competes with glycine, which is an inhibitory neurotransmitter; it thus exerts a central stimulant effect by blocking an inhibitory activity.

Strychnine was formerly used as a bitter and analeptic but is now mainly used under strict control as a rodenticide. It has also been used as a mole poison, although this use is banned in some countries including the UK. Strychnine has been used in multi-ingredient preparations for the treatment of ophthalmic and urinary-tract disorders. It has also been tried in the treatment of nonketotic hyperglycaemia.

**Nonketotic hyperglycaemia.** Nonketotic hyperglycaemia (also known as glycine encephalopathy) is an inborn defect in the enzyme system responsible for the metabolism of glycine. It is characterised by raised concentrations of glycine in plasma, CSF, and urine. Symptoms of glycine accumulation include res-

piratory distress, muscular hypotonia, seizures, vomiting, and extreme lethargy. Mental retardation and early infant death are common.

Sodium benzoate can reduce plasma-glycine concentrations to near normal<sup>1</sup> but is relatively ineffective in reducing CSF levels or in preventing mental retardation.<sup>2</sup> Strychnine, a glycine antagonist, has been of some benefit in counteracting its CNS effects.<sup>3-5</sup> However, even treatment with both drugs may be ineffective in severe cases<sup>6</sup> and may ultimately have little effect on the course of the disease.<sup>7</sup> Glycine is reported to stimulate *N*-methyl-D-aspartate (NMDA) receptors in the CNS and the combination of strychnine and ketamine (an NMDA receptor antagonist) was of some benefit in a newborn infant with severe non-ketotic hyperglycaemia.<sup>8</sup> Addition of low-dose dextromethorphan (an NMDA receptor antagonist) to treatment with sodium benzoate, arginine, carnitine, diazepam, and phenobarbital in an infant with nonketotic hyperglycaemia<sup>9</sup> was associated with resolution of nystagmus and improvement in eye contact and interactive behaviour, without altering serum- or CSF-glycine concentrations. Dextromethorphan with sodium benzoate alone may also be helpful, although the combination is not uniformly effective.<sup>10</sup> Treatment with sodium benzoate and dextromethorphan was beneficial in a 6-month-old child with mild atypical nonketotic hyperglycaemia,<sup>11</sup> although it was later shown that it was sodium benzoate that had the greatest effect on EEG and behavioural changes. A partial response to low-protein diet and sodium benzoate occurred in a patient with late-onset nonketotic hyperglycaemia; there was a more dramatic response when imipramine was added to therapy.<sup>12</sup>

- Van Hove JLK, et al. Benzoate treatment and the glycine index in nonketotic hyperglycaemia. *J Inher Metab Dis* 2005; **28**: 651-63.
- Krieger I, et al. Cerebrospinal fluid glycine in nonketotic hyperglycaemia: effect of treatment with sodium benzoate and a ventricular shunt. *Metabolism* 1977; **26**: 517-24.
- Ch'ien LT, et al. Glycine encephalopathy. *N Engl J Med* 1978; **298**: 687.
- Gitzelmann R, et al. Strychnine for the treatment of nonketotic hyperglycaemia. *N Engl J Med* 1978; **298**: 1424.
- Arneson D, et al. Strychnine therapy in nonketotic hyperglycaemia. *Pediatrics* 1979; **63**: 369-73.
- Sankaran K, et al. Glycine encephalopathy in a neonate. *Clin Pediatr (Phila)* 1982; **21**: 636-7.
- MacDermot KD, et al. Attempts at use of strychnine sulfate in the treatment of nonketotic hyperglycemia. *Pediatrics* 1980; **65**: 61-4.
- Tegtmeyer-Metzdorf H, et al. Ketamine and strychnine treatment of an infant with nonketotic hyperglycaemia. *Eur J Pediatr* 1995; **154**: 649-53.
- Alenzadeh R, et al. Efficacy of low-dose dextromethorphan in the treatment of nonketotic hyperglycemia. *Pediatrics* 1996; **97**: 924-6.
- Hamosh A, et al. Long-term use of high-dose benzoate and dextromethorphan for the treatment of nonketotic hyperglycemia. *J Pediatr* 1998; **132**: 709-13.
- Neuberger JM, et al. Effect of sodium benzoate in the treatment of atypical nonketotic hyperglycaemia. *J Inher Metab Dis* 2000; **23**: 22-6.
- Wiltshire EJ, et al. Treatment of late-onset nonketotic hyperglycaemia: effectiveness of imipramine and benzoate. *J Inher Metab Dis* 2000; **23**: 15-21.

## Preparations

**Proprietary Preparations** (details are given in Part 3)

**Multi-ingredient:** **Chile:** Vigofortal; **Hung:** Artin†; **Israel:** Tesopalmed Forte cum Yohimbine; **Ital:** Neurofal†; **Pol:** Cardiamid-Coffein; **Port:** Hipersex†; **Thai:** Hemo-Cyto-Serum.

## Suanzaorentang

Ziziphus Soup.

## Profile

Suanzaorentang is a traditional Chinese remedy for anxiety and insomnia. It contains five herbs: suanzaoren (*Zizyphus spinosus*, Rhamnaceae), fuling (*Poria cocos*, Polyporaceae), gancao (*Glycyrrhiza uralensis*, Leguminosae), zhimu (*Anemarrhena asphodeloides*, Liliaceae), and chuanxiong (*Ligusticum sinense*, Umbelliferae).

## Subtilisin A

Subtilisin Carlsberg; Subtilopeptidase A.

Субтиллизин А

CAS — 9014-01-1 (subtilisin).

## Profile

Subtilisins are a class of serine proteases isolated initially from *Bacillus subtilis* but which are also excreted by other *Bacillus* species. They are widely used in the manufacture of enzymatic detergents. Hypersensitivity reactions have been reported.

Subtilisin A, which is obtained from *Bacillus licheniformis*, is used as an enzymatic cleanser for contact lenses.

## References

- Lemiere C, et al. Isolated late asthmatic reaction after exposure to a high-molecular-weight occupational agent, subtilisin. *Chest* 1996; **110**: 823-4.

The symbol ⊗ denotes a substance whose use may be restricted in certain sports (see p.vii)

**Preparations****Proprietary Preparations** (details are given in Part 3)**Arg.:** Ultrazyme; **Austral.:** Complete Protein Remover; Ultrazyme; **Braz.:** Fizziclean; Ultrazyme; **Canad.:** Complete Protein Remover; Efferzyme; Ultrazyme; Ultrazyme; **NZ:** Ultrazyme; **USA:** Renu Enzymatic Cleaner; Soft Mate Enzyme Plus Cleaner; Ultrazyme.**Multi-ingredient:** **Canad.:** Comfortcare Dual Action.**Sucrose Octa-acetate**

Sacarosa, octaacetato de; Sucrose Octaacetate.

 $C_{28}H_{38}O_{19}$  = 678.6.

CAS — 126-14-7.

**Pharmacopoeias.** In *USNF*.**USNF 26** (Sucrose Octaacetate). A white, practically odourless, hygroscopic powder. M.p. not lower than 78°. Soluble 1 in 1100 of water, 1 in 11 of alcohol, 1 in 0.3 of acetone, 1 in 0.5 of toluene, and 1 in 0.6 of benzene; very soluble in chloroform and in methyl alcohol; soluble in ether. Store in airtight containers.**Profile**

Sucrose octa-acetate has been used as an alcohol denaturant. It is also incorporated into preparations intended to deter nail biting.

**Preparations****Proprietary Preparations** (details are given in Part 3)**Spain:** Morde X.**Sulfobromophthalein Sodium**Bromsulphophthalein Sodium; Bromsulphthalein Sodium; BSP; SBP; Sodium Sulfobromophthalein; Sulfobromoftealína sódica; Sulfobromophthalein Sodium (*BANM*). Disodium 4,5,6,7-tetrabromophenolphthalein-3',3'-disulfonate; Disodium 5,5'-(4,5,6,7-tetrabromophthalidylidene)bis(2-hydroxybenzenesulfonate). $C_{20}H_8Br_4Na_2O_{10}S_2$  = 838.0.CAS — 297-83-6 (*sulfobromophthalein*); 71-67-0 (*sulfobromophthalein sodium*).

ATC — V04CE02.

ATC Vet — QV04CE02.

**Pharmacopoeias.** In *Chin.*, *It.*, and *Jpn*.**Profile**

In patients with normal hepatic function sulfobromophthalein sodium is rapidly extracted, conjugated, and excreted in bile. It was formerly used intravenously as a diagnostic agent for testing the functional capacity of the liver but may cause severe hypersensitivity reactions.

**Sulfuric Acid**

Acid. Sulph.; Acid. Sulph. Dil.; Acide sulfurique; Acidum sulfuricum; E513; Kénsav; Kwas siarkowy; Kyselina sírová; Oil of Vitriol; Rikkihappo; Sulfato rūgštis; Sulfúrico, ácido; Sulfuric Acid; Svavelsyra; Verdünnte Schwefelsäure (dilute sulfuric acid).

 $H_2SO_4$  = 98.08.

CAS — 7664-93-9.

NOTE. Concentrated oil of vitriol of commerce, 'COV', contains about 95 to 98% w/w, and brown oil of vitriol, 'BOV', contains 75 to 85% w/w of  $H_2SO_4$ .Nordhausen or fuming sulfuric acid, 'Oleum', is sulfuric acid containing  $SO_3$ .

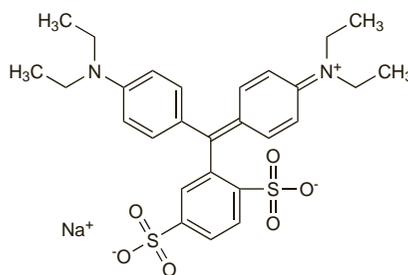
Battery or accumulator acid is sulfuric acid diluted with distilled water to a specific gravity of 1.2 to 1.26.

**Pharmacopoeias.** *Br.* and *Eur.* (see p.vii) include various concentrations. Also in *USNF*.**BP 2008** (Dilute Sulphuric Acid). It contains 9.5 to 10.5% w/w of  $H_2SO_4$  and is prepared by adding 104 g of sulfuric acid to 896 g of water, with constant stirring and cooling.**Ph. Eur. 6.2** (Sulphuric Acid). It contains 95.0 to 100.5% w/w of  $H_2SO_4$ . A colourless, very hygroscopic, oily liquid. Miscible with water and with alcohol producing intense heat. Store in airtight containers.**USNF 26** (Sulfuric Acid). It contains 95.0 to 98.0% w/w of  $H_2SO_4$ . A clear, colourless, oily liquid. Is very caustic and corrosive. Miscible with water and with alcohol with the generation of much heat. Store in airtight containers.**Dilution.** When sulfuric acid is mixed with other liquids, it should always be added slowly, with constant stirring, to the diluent.**Adverse Effects and Treatment**

As for Hydrochloric Acid, p.2322.

**Uses and Administration**

Sulfuric acid has various industrial uses. Dilute sulfuric acid has been used as an astringent in diarrhoea and it has occasionally been prescribed in mixtures with vegetable bitters to stimulate appetite.

**Preparations****Proprietary Preparations** (details are given in Part 3)**Multi-ingredient:** **USA:** Debacterol.**Sulphan Blue** (*BAN*)Azul sulfán; Błękit sulfanowy; Blue VRS; Isosulfan Blue (*USAN*); P-1888; P-4125; Sulfan Blue. Sodium  $\alpha$ -(4-diethylaminophenyl)- $\alpha$ -(4-diethyliminocyclohexa-2,5-dienylidene)toluene-2,5-disulfonate. $C_{27}H_{31}N_3NaO_6S_2$  = 566.7.CAS — 68238-36-8 (*2,5-disulfonate isomer*); 129-17-9 (*2,4-disulfonate isomer*).

(2,5-disulfonate isomer)

NOTE. Sulphan blue was formerly described in *BPC 1954* as the 2,4-disulfonate isomer and the following synonyms have been applied to this 2,4-isomer: Acid Blue 1; Alphazurine 2G; Colour Index No. 42045; Patent Blue V; Sulphanum Caeruleum. The name Patent Blue V, however, is mainly used for CI No. 42051 (p.2363).**Profile**

Intravenous doses of sulphan blue produce staining of the skin and have been used as a direct visual test of the state of the circulation in healthy and damaged tissues, particularly in assessing tissue viability in burns and soft-tissue trauma. It has also been used subcutaneously in lymphangiography to outline the lymph vessels.

Hypersensitivity reactions including anaphylaxis and attacks of asthma have been reported with sulphan blue. It has also been reported to interfere with blood tests for protein and iron.

**Preparations****Proprietary Preparations** (details are given in Part 3)**Canad.:** Lymphazurin; **USA:** Lymphazurin.**Sumatra Benzoin**

Benjoim; Benjoin; Benjoin de sumatra; Benjuí, bálsamo de; Benzoe; Benzoe sumatranus; Benzoin; Benzoina; Gum Benjamin; Gum Benzoin; Styrax tonkinensis et Styrax benzoin.

CAS — 9000-05-9.

**Pharmacopoeias.** In *Eur.* (see p.vii) and *Jpn*.*US* allows both Siam benzoin and Sumatra benzoin under the title Benzoin.**Ph. Eur. 6.2** (Sumatra Benzoin). A resin obtained by incising the trunk of *Styrax benzoin*. It contains 25 to 50% of total acids, calculated as benzoic acid (dried drug).

Creamy white, rounded to ovoid tears, which may be embedded in a dull, greyish-brown or reddish-brown matrix. It is hard and brittle and the fractured surface is dull and uneven.

**USP 31** (Benzoin). A balsamic resin from *Styrax paralleloneurus* or *S. benzoin* (Styracaceae). It yields not less than 75% of alcohol-soluble extractive. It occurs as blocks or lumps of variable size made up of tears, compacted together, with a reddish-brown, reddish-grey, or greyish-brown resinous mass. The tears are externally yellowish or rusty brown, milky white on fresh fracture, hard and brittle at ordinary temperatures but softened by heat. It has an aromatic and balsamic odour. When heated it does not emit a pinaceous odour. When digested with boiling water, the odour suggests cinnamates or storax.**Profile**

Sumatra benzoin is an ingredient of inhalations which are used in the treatment of catarrh of the upper respiratory tract. Sumatra benzoin is also used in topical preparations for its antiseptic and protective properties. Skin sensitisation has been reported.

Preparations of Sumatra and Siam benzoin are used in aromatherapy.

**Preparations****BP 2008:** Benzoin Inhalation; Compound Benzoin Tincture;**BPC 1954:** Compound Iodoform Paint;**Ph. Eur.:** Benzoin Tincture, Sumatra;**USP 31:** Compound Benzoin Tincture; Podophyllum Resin Topical Solution.**Proprietary Preparations** (details are given in Part 3)**Multi-ingredient:** **Austral.:** Nappy-Mate; **Belg.:** Borostyrol; **Braz.:** In-hadrina; Inhalante Yatropan; Micoz; **Canad.:** Cold Sore Lotion; Lotion pour Feux Sauvages; **Fr.:** Balsofumine; Balsofumine Mentholee; **Ger.:** Nur 1 Tropfen medizinisches Mundwasser; **Israel:** Kank-A; **Ital.:** Citrosil Nubesan; Fomentil; **NZ:** Cold Sore; **Port.:** Vaporil; **S.Afr.:** Turulington Tincture;**Switz.:** Baume; Pomme au Baume; **Turk.:** Buguseptil; Rinolar; **UK:** Al-lens Dry Tickly Cough; Frador; Killof; Potters Strong Bronchial Catarrh Pastilles; Potters Sugar Free Cough Pastilles; Snowfire; Throaties Pastilles; **USA:** Pfeiffer's Cold Sore; **Venez.:** Añil; Podoberij.**Summer Savory**

Bohnenkraut; Sarriette; Savory.

**Profile**Summer savory (*Satureja hortensis*, Lamiaceae) is included in herbal preparations and is used as a culinary herb.

It is the source of savory oil which is included in herbal preparations, mainly for the relief of cold symptoms. It is also used in aromatherapy.

**Preparations****Proprietary Preparations** (details are given in Part 3)**Multi-ingredient:** **Austral.:** Gartech; **Fr.:** Resistim; **Spain:** Natusor Astringel; Natusor Low Blood Pressure; Tonimax; **Switz.:** Demonatur Cap-sules contre les refroidissements; Spagyrom.**Surgibone** (*USAN*)**Profile**

Surgibone is sterile, specially processed mature bovine bone, that has been used for grafting procedures in orthopaedic and reconstructive surgery.

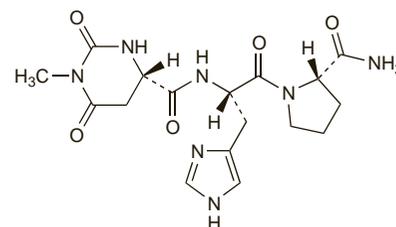
**Taltirelin** (*rINN*)

TA-0910; Taltirelina; Taltiréline; Taltirelinum. (-)-N-[[[(S)-Hexahydro-1-methyl-2,6-dioxo-4-pyrimidinyl]carbonyl]-L-histidyl]-L-prolinamide.

Тальтирелин

 $C_{17}H_{23}N_5O_5$  = 405.4.

CAS — 103300-74-9.

**Profile**

Taltirelin is an analogue of protirelin (p.2175) and is claimed to have beneficial effects on CNS function. It is used in the treatment of spinocerebellar degeneration.

**Preparations****Proprietary Preparations** (details are given in Part 3)**Jpn:** Ceredist.**Tannic Acid**

Acide tannique; Acidum Tannicum; Gallotannic Acid; Garvsyra; Gerbstoff; Kwas taninowy; Tánico, ácido; Tanin; Tanina; Taninas; Tann. Acid; Tanniini (Parkkihappo); Tannin; Tanninum.

CAS — 1401-55-4.

NOTE. In pharmaceutical literature, the name digallic acid is frequently confused with tannic acid.

Commercial grades of tannic acid may contain gallic acid and being less soluble are not suitable for medicinal use.

**Pharmacopoeias.** In *Eur.* (see p.vii), *Jpn.*, and *US*.**Ph. Eur. 6.2** (Tannic Acid). A mixture of esters of glucose with gallic acid and 3-galloylgallic acid. A yellowish-white or slightly brown amorphous light powder or shiny plates. Very soluble in water; freely soluble in alcohol, in acetone, and in glycerol (85%); practically insoluble in dichloromethane. Protect from light.**USP 31** (Tannic Acid). A tannin usually obtained from nutgalls (see Gall, p.2307), the excrescences produced on the young twigs of *Quercus infectoria* and allied species of *Quercus*, from the seed pods of tara (*Caesalpinia spinosa*), or from the nutgalls or leaves of sumac (any of genus *Rhus*).

Amorphous powder, glistening scales, or spongy masses, varying in colour from yellowish-white to light brown. Is odourless or has a faint, characteristic odour. Very soluble in water, in alcohol, and in acetone; freely soluble in diluted alcohol; slightly soluble in dehydrated alcohol; practically insoluble in chloroform, in ether, in petroleum spirit, and in benzene; soluble 1 in about 1 of warm glycerol. Store in airtight containers. Protect from light.

**Profile**

Tannic acid has been used as an astringent for the mucous membranes of the mouth and throat, and in suppositories for the treat-