

8. Rog DJ, *et al.* Randomized, controlled trial of cannabis-based medicine in central pain in multiple sclerosis. *Neurology* 2005; **65**: 812–19.
9. Burns TL, Ineck JR. Cannabinoid analgesia as a potential new therapeutic option in the treatment of chronic pain. *Ann Pharmacother* 2006; **40**: 251–60.
10. Holdcroft A, *et al.* A multicenter dose-escalation study of the analgesic and adverse effects of an oral cannabis extract (Cannador) for postoperative pain management. *Anesthesiology* 2006; **104**: 1040–6.
11. Strasser F, *et al.* Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-In-Cachexia-Study-Group. *J Clin Oncol* 2006; **24**: 3394–3400.
12. Abrams DI, *et al.* Cannabis in painful HIV-associated sensory neuropathy: a randomized placebo-controlled trial. *Neurology* 2007; **68**: 515–21.
13. Abrams DI, *et al.* Vaporization as a smokeless cannabis delivery system: a pilot study. *Clin Pharmacol Ther* 2007; **82**: 572–8.
14. Seamon MJ, *et al.* Medical marijuana and the developing role of the pharmacist. *Am J Health-Syst Pharm* 2007; **64**: 1037–44.

Canola Oil

Cánola, aceite de.

CAS — 120962-03-0.

Profile

Canola oil is a form of rapeseed oil (p.2378) from strains selected for low erucic acid content. It is used as an edible oil and in pharmaceutical manufacturing and cosmetics.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: NZ: Mr Nits.

Cantharides

Blistering Beetle; Cantáridas; Cantharis; Insectes Coléoptères Hétéromères; Lytta; Méloïdes; Russian Flies; Spanish Fly. Шпанские Мушки

Adverse Effects

The adverse effects of cantharides are those of its active component, cantharidin, below.

Uses and Administration

Cantharides is the dried beetle *Cantharis vesicatoria* (Lytta vesicatoria) (Meloidae) or other spp., containing not less than 0.6% of cantharidin, which is a protective exudate produced by the beetles. The properties of cantharides are those of its active principle, cantharidin (below).

Mylabris (Chinese blistering beetle; Chinese cantharides; Indian blistering beetle), the dried beetles of the species *Mylabris sidae* (= *M. phalerata*), *M. cichorii*, and *M. pustulator*, has been used as a substitute for cantharides and as a source of cantharidin (see below) in the East.

Homoeopathy. Cantharides has been used in homoeopathic medicines under the following names: Cantharis; Lytta vesicatoria; Canthr.

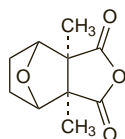
Cantharidin

Cantharidina. Hexahydro-3aa,7aa-dimethyl-4β,7β-epoxysobenzofuran-1,3-dione.

Кантаридин

C₁₀H₁₂O₄ = 196.2.

CAS — 56-25-7.



Adverse Effects and Treatment

The adverse effects of cantharidin, a protective exudate produced by blistering beetles (see under Cantharides above), are a result of its irritant and vesicant properties and may occur after exposure to preparations of cantharidin or to the beetle itself. Cantharidin produces blistering of mucous membranes. After ingestion of cantharidin there is burning pain in the throat and stomach, difficulty in swallowing, nausea, vomiting, haematemesis, abdominal pain, diarrhoea (sometimes bloody), tenesmus, renal pain, frequent micturition, dysuria, priapism, haematuria, proteinuria, renal failure, severe hypotension, and circulatory failure. Severe gastrointestinal disturbances can produce significant morbidity. Oral doses of cantharidin ranging from 10 to 80 mg have been lethal, although there have been reports of survival after doses up to 175 mg. Cantharidin is lipid soluble and oral bioavailability is increased in the presence of fatty substances.

Dermatological exposure may produce dermatitis, blisters, and ulceration, although symptoms may not appear until several hours later. Significant dermal exposure can give rise to systemic toxicity. Keratoconjunctivitis, iritis, and oedema may result from contact with the eyes or surrounding tissues.

Cantharidin has been abused as a sex stimulant.

Treatment of cantharidin poisoning is largely supportive. Emesis must be avoided following oral ingestion because of the severe irritant effect of cantharidin on mucous membranes. Activated charcoal has been tried, although it is not certain whether it binds to cantharidin.

Poisoning. References.

1. Hundt HKL, *et al.* Post-mortem serum concentration of cantharidin in a fatal case of cantharides poisoning. *Hum Exp Toxicol* 1990; **9**: 35–40.
2. Poletti A, *et al.* A fatal case of poisoning with cantharidin. *Forensic Sci Int* 1992; **56**: 37–43.
3. Karras DJ, *et al.* Poisoning from "Spanish fly" (cantharidin). *Am J Emerg Med* 1996; **14**: 478–83.
4. Tagwireyi D, *et al.* Cantharidin poisoning due to "Blister beetle" ingestion. *Toxicol* 2000; **38**: 1865–9.

Uses and Administration

Cantharidin is obtained from cantharides or mylabris (see under Cantharides, above). Cantharidin has vesicant activity and a solution of 0.7% in flexible collodion is applied for the removal of warts and molluscum contagiosum. Preparations of cantharides and cantharidin have also been used externally as rubefacients and counter-irritants. Owing to the intensely irritating nature of cantharidin it should not be taken internally. Also it should not be applied over large surfaces because of the risk of absorption.

Preparations of cantharides and cantharidin were formerly promoted for hair loss but their use in cosmetic products is now prohibited in the UK by law.

Molluscum contagiosum. References.

1. Silverberg NB, *et al.* Childhood molluscum contagiosum: experience with cantharidin therapy in 300 patients. *J Am Acad Dermatol* 2000; **43**: 503–7.
2. Moed L, *et al.* Cantharidin revisited: a blistering defense of an ancient medicine. *Arch Dermatol* 2001; **137**: 1357–60.
3. Ross GL, Orchard DC. Combination topical treatment of molluscum contagiosum with cantharidin and imiquimod 5% in children: a case series of 16 patients. *Australas J Dermatol* 2004; **45**: 100–2.
4. Hanna D, *et al.* A prospective randomized trial comparing the efficacy and adverse effects of four recognized treatments of molluscum contagiosum in children. *Pediatr Dermatol* 2006; **23**: 574–9.

Preparations

Proprietary Preparations (details are given in Part 3)

Canad.: Canthacur; Cantharone.

Multi-ingredient: Canad.: Canthacur-PS; Cantharone Plus.

Capsicum

Capsic.; Capsici fructus; Chillies; Espanjanpippuri; Paprikový plod; Paprikyk vaisia; Piment de cayenne; Piment Rouge; Pimentão; Red Pepper; Spanischer Pfeffer; Spansk peppar.

NOTE. Ground cayenne pepper of commerce is normally a blend of varieties of capsicum. Paprika is from *Capsicum annuum* var. *longum*; it is milder than capsicum.

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

Eur. and *US* also include capsicum oleoresin (capsicin).

Ph. Eur. 6.2 (Capsicum). The dried ripe fruits of *Capsicum annuum* var. *minimum* and small-fruited varieties of *C. frutescens*. It contains a minimum of 0.4% of total capsaicinoids expressed as capsaicin, calculated with reference to the dried drug. Protect from light.

Ph. Eur. 6.2 (Capsicum Oleoresin, Refined and Quantified). A red or brown mobile extract that contains 6.5 to 8.0% of capsaicinoids expressed as capsaicin. It is produced from the herbal drug and alcohol or methyl alcohol by an appropriate procedure.

USP 31 (Capsicum). The dried ripe fruits of *Capsicum frutescens*, known in commerce as African Chillies, or of *C. annuum* var. *comoides*, known in commerce as Tabasco Pepper, or *C. annuum* var. *longum*, known in commerce as Louisiana Long Pepper, or of a hybrid between the Honka variety of Japanese Capsicum and the Old Louisiana Sport Capsicum, known in commerce as Louisiana Sport Pepper.

USP 31 (Capsicum Oleoresin). An alcoholic extract of the dried ripe fruits of *Capsicum annuum* var. *minimum* and small fruited varieties of *C. frutescens* (Solanaceae). It contains not less than 8% of total capsaicins. It is a dark red oily liquid. Soluble in alcohol, in acetone, in chloroform, in ether, and in volatile oils; soluble with opalescence in fixed oils. Store in airtight containers.

Profile

Capsicum has a carminative action but it is mainly used externally, often in the form of capsicum oleoresin, as a counter-irritant (see Rubefacients and Topical Analgesia, p.5). It is also included in preparations for the management of cough and cold symptoms. However, preparations of capsicum and capsicum oleoresin can be very irritant. Capsaicin (p.32), the active ingredient of capsicum, is also used in topical preparations in the treatment of painful skin conditions.

Capsicum oleoresin is used in 'pepper sprays' for law enforcement and self defence.

Capsicum also has culinary uses.

Homoeopathy. Capsicum has been used in homoeopathic medicines under the following names: Capsicum annuum; Cap. a.

Effects on the gastrointestinal tract. The initial response to the ingestion of a hot pepper is a hot or burning sensation in the mouth, which is attributed to the binding of capsaicin to receptors in the oral cavity.¹ Casein-containing substances such as milk can reverse this burning sensation, apparently by displacing capsaicin, this being due to their lipophilicity.

Spicy meals have long been associated with gastrointestinal discomfort and ingestion of meals containing 1.5 g of red or black pepper has been shown to cause signs of gastric mucosal damage comparable with those caused by a 625-mg dose of aspirin.² However, other studies in *animals*³ and *humans*^{4,5} suggest that capsaicin may have a protective effect on gastric mucosa. Ingestion of about 30 g of jalapeño peppers (a capsicum fruit) caused no visible damage to the duodenal or gastric mucosa of 12 healthy subjects⁶ and daily ingestion of meals containing a total of 3 g of chilli powder did not affect the clinical progress of patients with duodenal ulcers given antacids.⁷

1. Henkin R. Cooling the burn from hot peppers. *JAMA* 1991; **266**: 2766.
2. Myers BM, *et al.* Effect of red pepper and black pepper on the stomach. *Am J Gastroenterol* 1987; **82**: 211–14.
3. Holzer P. Peppers, capsaicin, and the gastric mucosa. *JAMA* 1989; **261**: 3244–5.
4. Kang JY, *et al.* Chili—protective factor against peptic ulcer? *Dig Dis Sci* 1995; **40**: 576–9.
5. Yeoh KG, *et al.* Chili protects against aspirin-induced gastroduodenal mucosal injury in humans. *Dig Dis Sci* 1995; **40**: 580–3.
6. Graham DY, *et al.* Spicy food and the stomach: evaluation by videoendoscopy. *JAMA* 1988; **260**: 3473–5.
7. Kumar N, *et al.* Do chillies influence healing of duodenal ulcer? *BMJ* 1984; **288**: 1803–4.

Pepper sprays. References to the toxic effects of 'pepper sprays' containing capsicum oleoresin.

1. Zollman TM, *et al.* Clinical effects of oleoresin capsicum (pepper spray) on the human cornea and conjunctiva. *Ophthalmology* 2000; **107**: 2186–9.
2. Chan TC, *et al.* The effect of oleoresin capsicum "pepper" spray inhalation on respiratory function. *J Forensic Sci* 2002; **47**: 299–304.

Preparations

Ph. Eur.: Capsicum Tincture, Standardised.

Proprietary Preparations (details are given in Part 3)

Arg.: Redol; **Austria:** ABC; **Braz.:** Hercap; **Chile:** Dolorub Capsico; Parche Leon Fortificante; **GB:** ABC Warme-Pflaster; Capsamol; Dolonon; Hansaplast ABC Warme-Pflaster; Jucubra; Rheumadent; Thermo Burger; **Israel:** Dragon Plaster; **Ital.:** Cerotto Bertelli Arnikos; Dolyp; Thermogene; **Port.:** Neodor; **UK:** Fiery Jack; **USA:** Salonas Hot.

Multi-ingredient: **Arg.:** Bifena; Infranub; Sebule; Veracolate; **Austral.:** APR Cream; Bioglan Joint Mobility; Bioglan The Blue One; Euphrasia Complex; Euphrasia Compound; For Peripheral Circulation Herbal Plus Formula 5; Gingo A; Goanna Heat Cream; Lifesystem Herbal Formula 6 For Peripheral Circulation; Percutane; Radian-B; Valerian; **Austria:** Mentopin; Salhum; Trauma-Salbe wamend; **Belg.:** Rado-Sali; Stilete; Thermocream; **Braz.:** Pilulas Ross; **Canad.:** Absorbine Arthritis; Cayenne Plus; Rheumalant; Rhumatisme; **Fr.:** Disalgyl; Kamolt; Le Thermogenet; **Ger.:** Caye Rheuma-Balsam; Gothaplast Rheumadent AC; **Hong Kong:** LEAN Formula w/ Advantra; **India:** Alipgan; Flexi-muv; Inflazone; Relaxyl; **Indon.:** Osteo-C; Sloan's Liniment; **Israel:** Ment-O-Cap; Radian-B; Rublex Massage Cream; **Ital.:** Altradine; Capso; Capsolin; Gelovis; Remy; Sloan; **Malaysia:** Dandelion Complex; Total Mant; **Mex.:** Parche Negro Belladonna; **Neth.:** Cremor capsici comp; Cremor Capsici compositus; Kruidvat; Spierbalsem; **Pol.:** Kapsiplast; **Port.:** Carolid; Medalgian; **Rus.:** Efkamon (Эфкамон); Espol (Эспол); **S.Afr.:** Brooklax Pills; Infranub; Moultons Pain Paint; Muscle Rub; SB 3 Triple Action Pills; SB Shisaleen; Sloan's Heat Rub; Sloan's Liniment Rub; Tandpyndruppels; **Spain:** Doloke; Embrocacion Gras; Linimento Naion; Termosan; **Switz.:** Carmol Plus; Massorax; Midalgan; **Thai:** Flatulence; Meloidis; Veracolate; **Turk.:** Algo-Wax; Capsalgine; Capsi-Gel; Gelocaps; Mentolin; **UK:** Allens Dry Tickly Cough; Balmosa; Buttercup Syrup; Catarrh Mixture; Cremalgin; Fiery Jack; Hactos; Hansaplast Herbal Heat Plaster; Herbal Indigestion Naturtubs; Honey & Molasses; Indian Brandy; Indigestion and Flatulence; Indigestion Relief; Jamaican Sarsaparilla; Kilkof; Life Drops; Potters Strong Bronchial Catarrh Pastilles; Potters Sugar Free Cough Pastilles; Radian-B; Ralgex; Rheumatic Pain Relief; Sanderson's Throat Specific; Vegetable Cough Remover; **USA:** Salonas Gel Patch; Throat Discs; **Venez.:** Ehrlich Balsamo.

Caraway

Alcaravea; Alcaravia; Caraway Fruit; Caraway Seed; Carum; Carvi; Carvi fructus; Cumin des Prés; Fructus Carvi; Kminový plod; Kmyrnų vaisiai; Köménytermés; Kumina; Kümmel; Kummin; Owoc kminku.

Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF*.

Ph. Eur. 6.2 (Caraway Fruit, Caraway BP 2008). The whole, dried fruits of *Carum carvi*. It contains not less than 3.0% v/w of essential oil, calculated with reference to the dried drug. It has an odour reminiscent of carvone. Protect from light.

The BP 2008 directs that when Powdered Caraway is prescribed or demanded, material containing not less than 2.5% v/w of essential oil shall be dispensed or supplied.

USNF 26 (Caraway). The dried, ripe fruit of *Carum carvi* (Apiaceae). Preserve against attack by insects.

Profile

Caraway is an aromatic carminative, and is used in gastrointestinal disorders and as a flavour. The seeds have culinary uses. It is the source of caraway oil (below).

Preparations

USNF 26: Compound Cardamom Tincture.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **Austria:** Mag Kottas Krauterexpress Abfuhrtee; Midro Tee; Montana; Nesthakchen; Species Carvi comp†; **Braz:** Balsamo Branco; **Cz:** Blahungstee N†; Iberogast; **Ger:** Carminativum Hofmann; Carminativum-Hetterich; Carminativum-Pascoe†; Cholosom-Tee; Floradix Multipretten N; Gastrol St†; Gastrosecu†; Iberogast; Lomatol†; Majocarmin-Tee; Montana N; Pascoventral; Presselin Blahungs K 4 N†; Presselin Dyspeptikum†; Stovalid N†; **Israel:** Jungborn; Lido Tea; Midro-Tea; **Ital:** Anice (Specie Composta)†; Cadifen; Cadimint; Camomilla (Specie Composta)†; Florelax; Midro; Relaxcol; Tarassaco (Specie Composta)†; **Pol:** Apinorm; Laxantol; Melis-Tonic; Rhelax; Tabletki Przeciw Niestrawnosci; Tablettae Laxantes; **Rus:** Aromatic Drops for the Gallbladder (Гербон Калли Желчегонные); Herbon Drops for the Stomach (Гербон Желудочные Калли); **S.Afr:** Clairor; **Spain:** Natusor Aerofane†; **Switz:** Kernosan Hei-delberger Foudre; Phytomed Gastro†; Tisane favorisant l'allaitement.

Caraway Oil

Alcaravea, aceite esencial de; Carvi aetheroleum; Carvi Etheroleum; Carvi, huile essentielle de; Křmínová silice; Kuminaöljy; Kümmelöl; Kumminolja; Olejek kminkowy; Oleum Cari; Oleum Carui; Oleum Carvi.

Pharmacopoeias. In *Eur.* (see p.vii). Also in *USNF*.

Ph. Eur. 6.2 (Caraway Oil). The oil obtained by steam distillation from the dry fruits of *Carum carvi*. A clear, colourless or yellow liquid. Relative density 0.904 to 0.920. Store in well-filled, airtight containers at a temperature not exceeding 25°. Protect from light.

USNF 26 (Caraway Oil). The volatile oil distilled from caraway. It contains not more than 50% v/v of carvone (C₁₀H₁₄O). Soluble 1 in 8 of alcohol (80%). Store in airtight containers. Protect from light.

Profile

Caraway oil is an aromatic carminative and is used in gastrointestinal disorders and as a flavour. It is also employed as caraway water for infant colic (see Gastrointestinal Spasm, p.1696).

Preparations

BP 2008: Aromatic Cardamom Tincture; Compound Cardamom Tincture.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **Austria:** Nesthakchen; Parodontax; Sabatif; Sigman-Haustropfen; Spasmo Claim; **Cz:** Contraspán; Naturident†; **Ger:** Áspasmon N†; Enteroplant; Eufiat I†; Floradix Multipretten N; Galloselect M†; Gastricard†; Gastrysat; Lomatol†; Majocarmin forte†; Neo-Ballistol†; Pascopankreat novor†; ratioGast†; **Hung:** Enteroplant; **India:** Bestozyme; Catazyme-P; Neopeptine; Vitazyme; **Ital:** Relaxcol; **Mex:** Enterokan; **Singapore:** Enterokan†; **Switz:** Flatulex; Huile Po-Ho A. Vogel; Parodontax†; **Thai:** Gas-Nep; Gripe Mixture; **UK:** Atkinson & Barker's Gripe Mixture; Nurse Harvey's Gripe Mixture.

Carbon-13

Carbono 13.

CAS — 14762-74-4.

Profile

Carbon-13 is a naturally occurring, non-radioactive, stable isotope of carbon. It has been used to label organic compounds, such as urea (p.1620), for use in diagnostic tests, including breath tests for the diagnosis of *Helicobacter pylori* infection.

Preparations

USP 31: Urea C 13 for Oral Solution.

Proprietary Preparations (details are given in Part 3)

Cz: Pylobactel; **Denm:** Diabact; Helicobacter Test; **Fr:** Heli-Kit; **Gr:** Helicobacter; Pylobactel; **Ital:** Breathquality-UBT; Citredici UBT Kit; Expirobacter; Helicokit; Pylobactell†; **Mex:** Alitest†; **Neth:** Helico State; Pylobactell-13C; UBTtest; **Port:** Helico-teste; Helicobacter Test; Ubit; **Spain:** Pylori Check†; Tau Kit; Ubttest; **Swed:** Diabact UBT; Helicobacter Test; **Switz:** Helicobacter Test; Pylori 13†; **UK:** Diabact UBT; Pylobactell; **USA:** Meretek UBT.

Multi-ingredient: **USA:** Ez-HBT.

Cardamom

Cardamomi; Cardamomo, fruto del.

Pharmacopoeias. In *Br.* and *Jpn.* Also in *USNF*.

BP 2008 (Cardamom Fruit). The dried, nearly ripe fruit of *Elettaria cardamomum* var. *minuscule*. Only the seeds are used in making preparations of cardamom and they are used immediately after removal from the fruit. The seeds should not be stored after removal from the fruit. They have a strongly aromatic odour and taste and contain not less than 4% v/v of volatile oil.

USNF 26 (Cardamom Seed). The dried ripe seed of *Elettaria cardamomum* (Zingiberaceae), recently removed from the capsule. Preserve against attack by insects.

Profile

Preparations of cardamom are used as carminatives and as flavours. The seeds have culinary uses. Cardamom seeds are the source of cardamom oil (below).

The symbol † denotes a preparation no longer actively marketed

Preparations

USNF 26: Compound Cardamom Tincture.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **Austral:** Peritone; Travelaide†; **Austria:** Mariazeller; **Cz:** Dr Theiss Rheuma Creme†; Dr Theiss Schwedenbitter; Klosterfrau Melisana; **Ger:** Gallexier; Montana N; Presselin Dyspeptikum†; Schweden-trunk Elixier; **India:** Carmicide; **Pol:** Melisana Klosterfrau; **Rus:** Suprima-Broncho (Суприма-Бронхо); **S.Afr:** Alma; Enterodyne; Helmontskruie; **Spain:** Digestovital†; **Switz:** Stomacine; **Thai:** Carmicide†; **UK:** Indian Brandy; Pegina.

Cardamom Oil

Cardamomo, aceite esencial de; Ol. Cardamom.

Pharmacopoeias. In *Br.* Also in *USNF*.

BP 2008 (Cardamom Oil). A clear, colourless or pale yellow liquid, visibly free from water, with an odour of cardamom fruit. It is distilled from crushed cardamom fruit. At 20° it is soluble 1 in 6 of alcohol (70%). Store at a temperature not exceeding 25° in well-filled containers. Protect from light.

USNF 26 (Cardamom Oil). The volatile oil obtained from cardamom seed. Soluble 1 in 5 of alcohol (70%). Store in airtight containers. Protect from light.

Profile

Preparations of cardamom oil are used as carminatives and as flavours.

Preparations

BP 2008: Aromatic Cardamom Tincture; Compound Cardamom Tincture; Compound Rhubarb Tincture.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: **India:** Catazyme-P; Digeplex; Vitazyme; **Thai:** Gas-Nep.

Carglumic Acid (HNN)

Acide Carglumique; Ácido carglúmico; Acidum Carglumicum; Carglutamic Acid; Karglumik Asit. N-Carbamoyl-L-glutamic acid.

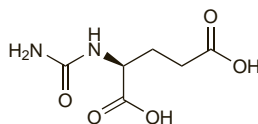
Карглумовая Кислота

C₆H₁₀N₂O₅ = 190.2.

CAS — 1188-38-1.

ATC — A16AA05.

ATC Vet — QA16AA05.



Profile

Carglumic acid is used for the treatment of hyperammonaemia in patients with N-acetylglutamate synthase deficiency. The initial daily dose ranges from 100 to 250 mg/kg, adjusted thereafter to maintain normal plasma levels of ammonia. Individual responsiveness to carglumic acid should be tested before starting long-term therapy; daily maintenance doses range from 10 to 100 mg/kg. The total daily dose should preferably be taken as 2 to 4 divided doses before food.

◇ References to the use of carglumic acid in the management of hyperammonaemia due to N-acetylglutamate synthase deficiency.

1. Bélanger-Quintana A, *et al.* Hyperammonaemia as a cause of psychosis in an adolescent. *Eur J Pediatr* 2003; **162**: 773–5.
2. Caldovic L, *et al.* Restoration of ureagenesis in N-acetylglutamate synthase deficiency by N-carbamylglutamate. *J Pediatr* 2004; **145**: 552–4.
3. Gebhardt B, *et al.* N-carbamylglutamate protects patients with decompensated propionic aciduria from hyperammonaemia. *J Inher Metab Dis* 2005; **28**: 241–4.
4. Guffon N, *et al.* Neonatal hyperammonemia: the N-carbamoyl-L-glutamic acid test. *J Pediatr* 2005; **147**: 260–2.
5. Jones S, *et al.* N-Carbamylglutamate for neonatal hyperammonaemia in propionic acidemia. *J Inher Metab Dis* 2008. Available at: doi: 10.1007/s10545-008-0777-1

Preparations

Proprietary Preparations (details are given in Part 3)

Belg: Carbaglu; **Cz:** Carbaglu; **Denm:** Carbaglu; **Fr:** Carbaglu; **Ger:** Carbaglu; **Ital:** Carbaglu; **Neth:** Carbaglu; **Pol:** Carbaglu; **Port:** Carbaglu; **Spain:** Carbaglu; **UK:** Carbaglu.

Carnauba Wax

Brazil Wax; Caranda Wax; Carnauba, cire de; Cera carnauba; Cera Coperniciae; Cera de carnauba; E903; Karnauba palmavasz; Karnaubavaha; Karnaubavax; Karnauba vaškas; Vosk karnaubský.

CAS — 8015-86-9.

Pharmacopoeias. In *Eur.* (see p.vii), *Int.*, and *Jpn.* Also in *US-NF*.

Ph. Eur. 6.2 (Carnauba Wax). It is obtained from the leaves of

Copernicia cerifera. Pale yellow or yellow powder, flakes, or hard masses. It has a relative density of about 0.97. M.p. 80° to 88°. Practically insoluble in water and in alcohol; soluble on heating in ethyl acetate and in xylene. Protect from light.

USNF 26 (Carnauba Wax). It is obtained from the leaves of *Copernicia cerifera* (Palmae). A light brown to pale yellow, moderately coarse powder or flakes, possessing a characteristic bland odour, and free from rancidity. Sp. gr. about 0.99. M.p. 80° to 86°. Insoluble in water; slightly soluble in boiling alcohol; soluble in warm chloroform and in warm toluene; freely soluble in warm benzene.

Profile

Carnauba wax is used in pharmacy as a coating agent. Its use is also permitted in certain foods. Various types and grades are used industrially in the manufacture of polishes.

Caroverine (pINN)

Caroverina; Caroverine; Caroverinum. 1-[2-(Diethylamino)ethyl]-3-(p-methoxybenzyl)-2(1H)-quinoxalinone.

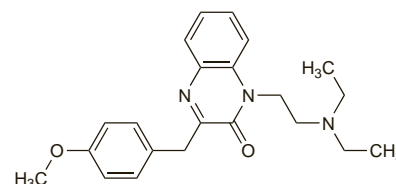
Кароверин

C₂₂H₂₇N₃O₃ = 365.5.

CAS — 23465-76-1.

ATC — A03AX11.

ATC Vet — QA03AX11.



Profile

Caroverine is a smooth muscle relaxant with calcium-channel blocking and glutamate-antagonist properties. It is used as the base or the hydrochloride in conditions associated with painful smooth muscle spasm. Typical doses (expressed as the base) are 20 to 40 mg by mouth three or four times daily. It may also be given by slow intravenous or intramuscular injection in doses of 40 to 80 mg. Caroverine has also been given rectally. It is also used in cerebral circulatory disorders and in tinnitus.

◇ References.

1. Denk DM, *et al.* Caroverine in tinnitus treatment: a placebo-controlled blind study. *Acta Otolaryngol* 1997; **117**: 825–30.
2. Ehrenberger K. Clinical experience with caroverine in inner ear diseases. *Adv Otorhinolaryngol* 2002; **59**: 156–62.
3. Quint C, *et al.* The quinoxaline derivative caroverine in the treatment of sensorineural smell disorders: a proof-of-concept study. *Acta Otolaryngol* 2002; **122**: 877–81.

Preparations

Proprietary Preparations (details are given in Part 3)

Austria: Delirex; Spasmium; Tinnitin; **Switz:** Calmaverine†.

Multi-ingredient: **Austria:** Spagall; Spasmium comp.

Cartilage and Cartilage Extracts

Profile

Preparations containing cartilage or cartilage extracts from various sources have been used in musculoskeletal and joint disorders and as nutritional supplements. A product derived from shark cartilage (AE-941, p.677) is under investigation as an anti-neoplastic.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg: Carti-buron; Cartilade†; Cartilago Vital; Cartimax; **Austral:** Cartilag; **Indon:** Fellaift; Sharko Inside.

Multi-ingredient: **Arg:** Arrumalon†; Carti buron flex; Cartiflex; Collagen T2-Gag†; CT 1000; Rep-Cartil; **Braz:** Rumalon†; **Chile:** Cartilago Compuesto†; Cartilago T-500; Rumalon; **Fr:** Oligo-Yang†; **Hong Kong:** Cervusen; **Hung:** Rumalon†.

Carzenide (HNN)

Carcenida; Carzenida; Carzévide; Carzenidum. p-Sulphamoylbenzoic acid.

Карзенид

C₇H₇NO₄S = 201.2.

CAS — 138-41-0.

