Taken internally camphor has irritant and carminative properties and has been used as a mild expectorant. It has also been used in mixed preparations for cardiovascular disorders.

Preparations

BP 2008: Camphorated Opium Tincture; Concentrated Camphor Water; Concentrated Camphorated Opium Tincture;
USP 31: Camphor Spirit; Camphorated Phenol Topical Gel; Flexible Collodion.

Proprietary Preparations (details are given in Part 3)
Canad.: Band-Aid Anti-Itch; ***Fr.:*** Camphrice Du Canada; ***Ger.:*** Camphoderm N; Caprisana†; Mulmicor; Pectocor N; Rheunervol N; Vaopin N; ***Pol.:*** Migrenol; ***Port.:*** Vicks Vaporub; ***Switz.:*** Nicobrevin N†; ***UK:*** Rohto Zi.

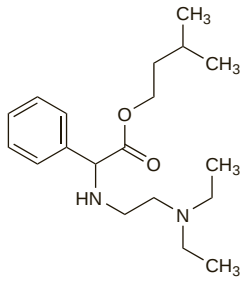
Multi-ingredient: numerous preparations are listed in Part 3.

Camylofin Hydrochloride *(rINNM)*

Acamylophenine Hydrochloride; Camylofin Dihydrochloride; Camylofine, Chlorhydrate de; Camylofini Hydrochloridum; Hidrocloruro de camilofina. Isopentyl 2-(2-diethylaminoethylamino)-2-phenylacetate dihydrochloride.

Камилофина Гидрохлорид

$C_{19}H_{32}N_2O_2,2HCl$ = 393.4.
CAS — 54-30-8 (camylofin); 5892-41-1 (camylofin hydrochloride).
ATC — A03AA03.
ATC Vet — QA03AA03.



(camylofin)

Profile

Camylofin is used as an antispasmodic, usually in combination preparations. It is usually used as the hydrochloride; the noramidopyrine mesilate and the sodium salts have also been used.

Overdosage. Ingestion of large doses of camylofin by 2 infants produced symptoms similar to those of opioid intoxication.[1] Both infants responded to treatment with naloxone.

1. Schvartsman S, *et al.* Camylofin intoxication reversed by naloxone. *Lancet* 1988; **ii:** 1246.

Preparations

Proprietary Preparations (details are given in Part 3)
India: Anafortan.

Multi-ingredient: ***Arg.:*** Apasmo; ***Austria:*** Avamigran; ***Braz.:*** Espasmo Silidron; ***Fr.:*** Avafortan†; ***India:*** Anafortan.

Cannabidiol ⊗

CBD. (3*R*, 4*R*)-2-*p*-Mentha-1,8-dien-3-yl-5-pentylresorcinol.
$C_{21}H_{30}O_2$ = 314.5.
CAS — 13956-29-1.

Profile

Cannabidiol is a cannabinoid present in cannabis (p.2274) that is being used or under investigation for a number of potential therapeutic uses, including in combination with Δ^9-tetrahydrocannabinol (dronabinol, p.1728) in a buccal spray preparation (see under Cannabis, below).

◊ For references to the potential uses of cannabidiol, see under Cannabis, p.2275.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Canad.:*** Sativex.

Cannabis ⊗

Cáñamo Indiano; Cannab.; Cannabis Indica; Chanvre; Hanfkraut; Indian Hemp.
CAS — 8063-14-7.

Description. Cannabis consists of the dried flowering or fruiting tops of the pistillate plant of *Cannabis sativa* (Cannabinaceae). In the UK cannabis is defined by law as any part of any plant of the genus *Cannabis*. *Marihuana* usually refers to a mixture of the leaves and flowering tops. *Bhang*, *dagga*, *ganja*, *kif*, and *maconha* are commonly used in various countries to describe similar preparations. *Hashish* and *charas* are names often applied to the resin, although in some countries *hashish* is applied to any cannabis preparation.

A series of cannabinoids has been extracted from the plant, the most important being Δ^9-tetrahydrocannabinol (dronabinol), Δ^8-tetrahydrocannabinol, Δ^9-tetrahydrocannabinolic acid, cannabinol, and cannabidiol.

Cannabis and cannabis preparations have also been known by the following names, many of which are 'street names' (see p.vi) or slang names:

30s; 50; 420; 4.20; 4:20; 4/20; Abu-Sufian; Acapulco; Acapulco gold; Acapulco red; Ace; Afgani indica; Afghan; Afghan black; Afghanais; Afi; African; African black; African bush; Airplane; Ait makhlif; Ak-47; Al Green; Al Sharpton; Aliamba; Amsterdam; Anassa; Angola; Angolaise; Anhascha; Arathi; Arathi Highlands; Ashes; Assassin of Youth; Assyuni; Astro turf; Atshitshi; Aunt Mary; Baby; Baby belong; Baby bhang; Babysitter; Bad One; Bad seed; Bale; Bamba; Bambalacha; Bambia; Bammer; Bammies; Bammy; Bangi-Aku; Bango; Bangoo; Bangue; Banji; Bank Head Bud; Banzai Buds; Bar; Barbara Jean; Barn Man; Bash; BC bud; BC budd; BC Kindbud; Beaster; Beat N Sleep; Belyando spruce; Bergspinasie; Bhang; Bhangaku; Bheng; Biff; Bigfoot; Biggy; Birthday Cake; Black; Black bart; Black ganga; Black gold; Black gungi; Black gunion; Black Maria; Black mo; Black moat; Black powder; Black Russian; Blah; Blast; Blaze; Block; Blonde; Blonde hash; Blow; Blowhead; Blowing smoke; Blue de hue; Blue sage; Blue sky blond; Blueberry; Bo; Bob Hope; Bobby Brown; Bo-bo; Bobo bush; Bohd; Boi; Boléia; Bomb; Bombay Black; Bomb-dizzle; Bone; Boo; Boo boo bama; Boom; Bowgma-Chuff; Brass; Bread; Brick; Bristol Brown; Broccoli; Brown; Brown Frown; B-ster; Bubble gum; Bubonic Chronic; Bud; Buda; Buddha; Buddha grass; Buds; Buen; Bueno; Bullyon; Bunk; Burnie; Burrito; Bush; Butt; Butter; Butter flower; Buzzles; Cabbage; Cable; Caca; Caca de Chango; Cam red; Cam trip; Cambodian red; Can; Canadian black; Canamo; Canapa; Canappa; Cangonha; Canhama; Cann; Cannabis tea; Cannacoro; Can-Yac; Carmabis; Caroçuda; Cavite All Star; Cavite All Stars; CDs; Cereal; Cess; Cest; Chamom; Chara; Charas; Charge; Charris; Cheeba; Cheebong; Cheech and Chong; Cheeo; Cheese; Chemo; Chiba chiba; Chicago black; Chicago green; Chillums; Chippie; Chira; Chitari; Chocolate; Chocolate Thai; Choof; Chrin; Christmas bud; Christmas tree; Chro; Chron; Chron Chron; Chronic; Chucky; Chunky; Chur ganja; Churrus; Churus; Chus; Chutras; Chutsao; Citral; Citrol; Clone; Club; Cochornis; Coconut Rabbi; Colarado cocktail; Colas; Coli; Coliflor tostao; Collie Weed; Colombian; Colombo; Columbia; Columbian; Columbus black; Compresses; Cosa; Costo; Crazy weed; Creeper; Creeper Weed; Crippy; Crown Town Brown; Crying weed; Cryppie; Cryptonie; C.S.; Cubes; Culican; Cumming Air; Cung; Curro; Cush; D Nugs; Daboa; Dacha; Dagga; Dak; Dancouver; Dan K; Dank; Darakte-Bang; Dark; Dawamesk; Deaf; Dew; Diamba; Diambista; Diggidy; Diggity; Dimba; Ding; Dinkie dow; Dirijo; Dirt; Dirt grass; Ditch; Ditch weed; Ditchweed; Dizz; Djamba; Djoma; Do a joint; Doctor Kissinger's Crutch; DoggyNuggz; Doja; Dokka; Dolja; Domestic; Don jem; Don Juan; Dona Juana; Dona Juanita; Donajuanita; Doob; Doobee; Doobie; Dooko; Dope; Doradilla; Dormilona; Doshia; Double zero; Doug; Doug Funnie; Downtown brown; Dozer; Draf; Draf weed; Drag weed; Draw; Dread; Dro; Droski; Drottleneck; Dry high; Dubbe; Dube; Duby; Durban Poison; Durijo; Durog; Durong; Duros; Dustwallow Marsh; Ebenieghber; El Gallo; Electric Puha; Elephant; Elva; Endo; Erva do norte; Erva maligna; Esra; Esrar; Exotics; Fallbrook redhair; Faso; Feeling; Fêmea; Feng Shui inner tam-tam; Fine stuff; Finger; Finger lid; Fininha; Finote; Fir; Fire; Firebush; Firewood; Flack Juice; Flame; Flower; Flower tops; Fokkra; Food; Four twenty; Fraho; Frajo; Friend; Fruit; Fu; Fuma D'Angola; Fumo brabo; Fumo de caboclo; Funk; Funny stuff; Fur; Gage; Gandia; Ganga; Gange; Gangster; Ganj; Ganja; Ganjila; Garaouich; Garawiche; Garbage; Garoarsch; Gash; Gauche butt; Gauge; Gauge butt; Gauja; Gear; Gerp; Ghana; Ghanja; Giggle smoke; Giggle weed; Gnaoui; Goblet of jam; Gold; Gold star; Golden; Golden leaf; Gong; Gongo; Gonj; Good giggles; Good Goods; Good stuff; Goody-goody; Goof; Goof butt; Gorge; Gozah; Grahni Sherdool; Grain; Grand Pants; Gram; Grapefruit Hydro; Grass; Grass brownies; Grasshopper; Grata; Greefe; Green; Green buds; Green Candy; Green cheesy wham; Green Funk; Green Goblin; Green goddess; Green Jesus Love; Green paint; Green Penis; Greens; Greeter; Grefa; Grefer; Greta; Grey shields; Griefo; Griefs; Grifa; Griff; Griffa; Griffa-griffo; Griffo; Grim Creeper; Grimmy; Grolid; Guabza; Guaza; Gunga; Gungeon; Gungun; Gunja; Gunjah; Gunney; Gunney sack; Gunza; Gweeler; H; H caps; Hachiche; Haircut; Hairy Ogre; Hameni; Hamp; Hang Liu; Hanhich; Haouzi; Harm reducer; Harry Potter; Harsh; Has; Hascisc; Hash; Hash oil; Hashish; Hasis; Hasji's; Hasjisj; Haszysz; Hawaiian; Hawaiian Black; Hawiian homegrown hay; Hax; Haxixe; Hay; Haze; Headies; Heady Nugs; Heat; Heloua; Hemp; Hen-Nab; Herb; Herba; Herbals; Herbalz: High; High-Grade; Hippie Lettuce; Hocus; Hola-wola-shupidy-doo; Home Grown; Homegrown; Hooch; Hooda; Hooter; Huile; Humboltd Green; Hursini; Hydro; Hydrophonic; Hyge; Ice Cream; Igbo; Indian boy; Indian hay; Indian hemp; Indiana ditchweed; Indiana hay; Indica; Indische-hennepkruid; Indisk hampa; Indo; Indonesian bud; Indoor; Instaga; Instagu; Intianhamppu; Intsangu; Isangu; Ish; IZM; Jamaican gold; Jamaican red; Jamaican red hair; Jane; Janjah; Janjaweed; Jatiphaladya churna; Jay smoke; Jea; Jive; Jive stick; Johnson grass; Jolly green; Jonko; Joy smoke; Juan Valdez; Juana; Juanita; Juja; Kabak; Kaff; Kajees; Kalakit; Kali; Kamonga; Kanab; Kansas Grass; Karpura rasa; Kate bush; Kawaii electric; Kaya; KB; K.B.; Kee; Keif; Kentucky blue; Key; KGB; K.G.B.; Khanh-Chha; Khanje; Khayf; Khif-kiff; Ki; Kief; Kif; Kif Ktami; Kiff; Kill; Killer; Killer green bud; Killer weed; Kilroy; Kilter; Kind; Kind bud; Kind-Bud; Kine-Bud; King bud; Kinnab; Kitt; Kolto; Kona gold; Kraut; Krippies; Krippy; Kronic; Kryptonite; Kumba; Kush; Kushempeng; Kutchie; Kynd; Kynd-Bud; La-LaLa; Ladies; Lakbay diva; Lakbay viva; Lamb's bread; Lang; Laughing grass; Laughing weed; Leaf; Lebanese; Lebanese blonde; Lebanese gold; Leno; Leon Mcarthy; Leon Punders; LG; Liamba; Lianda; Light Green; Light stuff; Lima; Limbo; Lime green; Little green friends; Little smoke; L.L.; Llesca; Loaf; Lobo; Local weed; Loco; Loco Weed; Locoweed; Longbottom Leaf; Loose shank; Love nuggets; Love weed; Lows; Lubage; Lucas; Lumber; M; Macaroni; Machinery; Macon; Maconha; Maconia; Madi; Mafu; Maggie; Magic smoke; Magiyam; Majat; Makhlif; Malak; Malawi Cob; Malawi Gold; Malawi grass; Malawian gold; Malva; Manhattan silver; Manitoba Hydro; Manzul; Marachuan; Maraguango; Marajuana; Marie Jeanne; Marie-Jane; Marie-Juana; Marigongo; Marihuana; Marijuana; Marimba; Mariquita; Marley; Maroc; Marocaine; Maruamba; Mary; Mary Ann; Mary Jane; Mary and Johnny; Mary Jonas; Mary Warner; Mary Weaver; Mary-Ann; Mary-Jane; Mary-Jonas; Matekwane; Maui wauie; Maui-wowie; May Ann; Mbanje; Meck; Meconha; Meg; Meggie; Merda; Merde; Mersh; Messorole; Method; Methtical; Mex; Mexican brown; Mexican green; Mexican locoweed; Mexican red; Mezz; Mid-Grade; Middies; Middys; Midies; Mids; Mighty mite; Mint; Misari; Mister Brownstone; M.J.; Mnoana; Mo; M.O.; Modams; Mohasky; Mohasty; Momea; Momeka; Monte; Mooca; Moocah; Mooster; Moota; Mooters; Mootie; Mootos; Mor a grifa; Moragrifa; Moroc; Mota; Motah; Mother; Moto; Mr. Piff; Mu; M.U.; Muggie; Muggle; Muggles; Mulatinha; Mull; Mundyadi vatika; Murphy; Musty Marty; Muta; Mutah; Mutha; Nail; Namba; Nederweed; Nederwiet; Neihe; Nigra; Nordle; Northern lights; N'rama; Ntsangu; Nug; Nugget; Nuggets; Nuggs; Nugglets; Nwonkaka; Oboy; O.J.; Old Toby; Oleo; Olja; Ooh-Wee; Orange Cat; Oregano; Out-Do; Owl; Ozone; Paca lolo; Pack; Pack a bowl; Pakaloco; Pakalolo; Paki black; Pakistani black; Panama cut; Panama gold; Panama red; Pappa C's funky space boots; Parsley; Passa; Pasta; Pasto; Pat; Pétard; Peinka; Penek; Penka; Philip Drummond; Philly blunts; Piff; Pin; Pine; Pito; Pizza; Platters; Plow; Pocket rocket; Pod; Poison; Poke; Poke Smot; Politics; Po-Pa; Porro; Pot; Potlikker; Potten bush; P.R.; Pretendica; Pretendo; Pretinha; Pretties; Pretty Ladies; Puff; Purp; Purple; Purple haze; Purple Urple; Purps; Quarter moon; Queen Ann's lace; Rafe; Rafi; Rafo; Ragweed; Railroad weed; Rainy day woman; Rangood; Rasta Plant; Rasta weed; RB; Red bud; Red cross; Red dirt; Red oil; Red seal; Redge; Reef; Reefer; Reggies; Reggiwegs; Regs; Regular; Relish; Resin; R.G.B.; Riamba; Righteous bush; Rip; RIP; Roacha; Rocky; Rongony; Root; Rope; Rora; Rosa Maria; Rose Maria; Rose Marie; Rose-Marie; Rough stuff; Rube; Rubia; Ruderalis; Rugs; Sabsi; Sadda; Salad; Salt and pepper; Santa Marta; Sasfras; Sativa; Schwag; Schwagg; Schwamp; Scissors; Scraps; Scrapes; Scrub; Seeds; Sen; Sense; Sensemilia; Sensi; Sess; Sezz; Shake; Sheeba; Sheebz; Shit; Shmagma; Shrimp; Shrubs; Shwig; Shwiggity Shwag; Shwag; Shwuggets; Siddhi; Siddi; Sighirma; Sins; Sinse; Sinsemilla; Sizzla; Skunk; Skunkweed; Sky; Smokage; Smoke; Smoke a bowl; Smoke Canada; Smoochywoochypoochy; Snop; Soap bar; Soles; Soñadora; Soruma; Soul Flower; Soussi; Speed boat; Splim; Square mackerel; Stack; Stank; Stank-a-dank; Stash; Stems; Stick; Sticks; Sticky; Sticky Black; Sticky brown; Sticky Icky; Sticky Icky Icky; Stink weed; Stinkweed; Stinky; Stoney weed; Stress; Striijj; Stuff; Subji; Sugar weed; Summitates cannabis; SupaDank; Super grass; Super pot; Supergrass; Suruma; Swag; Swamp Grass; Swazi Gold; SWED; Sweet Leaf; Sweet Lucy; T; Tablete; Tack; Tahgalim; Tai Alon; Taima; Takkouri; Takrouri; Tea; Tedrika; Teloeut; Tempel; Temple; Temple balls; Teriaki; Texas pot; Texas Red; Texas tea; Tex-mex; Thai Sticks; That Shit; THC; The Dank; The Peeping Jesus; The Pig Farmer's laptop; The Shit That Killed Elvis; The Wizard; Thirteen; Thumb; Thump! Thump! Thump!; Tia; Tical; Tijuana; Time; Time Machine's Glory; TJ; Tochi; Toke; Torch; Towels; Transkei; Trauma; Trees; Triple A; Tronadora; Trupence bag; Turtle; Tustin; Tweed; Tweeds; Twenty Twen Twen; Tweny Bag; Umya; Unotque; Urumogi; Utilities; Vipe; Viper's weed; Wacky Baccy; Wacky Backy; Wacky Tabacky; Wacky terbacky; Wacky tobaccky; Wacky weed; Wag; Wake and Bake; Wasch; Weasel feed; Wee; Weed; Weed tea; Weed tear; Wewe; Whack; Whackatabacky; Wheat; White Rhino; White Russian; White Widow; White-haired lady; Woo blunts; Woodle; Woof; Wooz; Wooze; X; Yaa; Yamba; Yandi; Yarndi; Yeah; Yeh; Yellow submarine; Yen pop; Yerba; Yerhia; Yesca; Yesco; Yeska; Ying; Yoda; Yoruba; Yum Yum; Zacate chino; Zacatecas purple; Zambi; Zani; Zerouali; Ziele konopi indyjskich; Zig Zag man; Zol; Zoot.

Pharmacopoeias. In *Chin.* and *Jpn.*

Dependence

Prolonged heavy use of cannabis may lead to tolerance and psychological dependence but the existence of physical dependence remains somewhat controversial. Reported withdrawal symptoms have included anorexia, agitation, apprehension, aggression, anxiety, insomnia, irritability, restlessness, fever, sweating, tremor, dysphoria, rhinorrhoea, headache, and nausea.

Symptoms of withdrawal have been reported in neonates born to mothers who used cannabis during pregnancy, and have included jitteriness and tremulousness, crying, and disturbances in sleep and response to light occurring up to 30 days after birth.

◊ References.

1. Smith NT. A review of the published literature into cannabis withdrawal symptoms in human users. *Addiction* 2002; **97:** 621–32.

2. Budney AJ, Moore BA. Development and consequences of cannabis dependence. *J Clin Pharmacol* 2002; **42** (11 suppl): 28S–33S.
3. Haney M. Effects of smoked marijuana in healthy and HIV+ marijuana smokers. *J Clin Pharmacol* 2002; **42** (11 suppl): 34S–40S.
4. Haney M. The marijuana withdrawal syndrome: diagnosis and treatment. *Curr Psychiatry Rep* 2005; **7:** 360–6.
5. Nordstrom BR, Levin FR. Treatment of cannabis use disorders: a review of the literature. *Am J Addict* 2007; **16:** 331–42.
6. Budney AJ, *et al.* Marijuana dependence and its treatment. *Addict Sci Clin Pract* 2007; **4:** 4–16.
7. Benyamina A, *et al.* Pharmacotherapy and psychotherapy in cannabis withdrawal and dependence. *Expert Rev Neurother* 2008; **8:** 479–91.

Adverse Effects, Treatment, and Precautions

Cannabis is widely abused for its psychological effects and the most important psychoactive cannabinoid is Δ^9-tetrahydrocannabinol. The toxicity of cannabis is dose-related and when used recreationally depends to a large extent on the experience of the user and degree of tolerance. The effects may also be affected by CNS depressants taken at the same time.

The psychological effects produced by low doses of cannabis include calmness, euphoria, relaxation, drowsiness, a feeling of well-being, heightened sensory awareness, and alterations in perception of time, space, colour, or sound. Sedation may occur some time later after the initial effects. Anxiety or panic reactions may also occur at low doses.

As the level of intoxication increases, the user may experience feelings of depersonalisation, disorientation, decreased inhibition, altered mood, memory impairment, and difficulty in maintaining attention. Symptoms of heavy intoxication include incoordination, ataxia, skeletal muscle jerks, and slurred speech. Distrust, dysphoria, poor concentration, slowed reaction times, lethargy, and sedation may also occur. Fear, panic attacks in apprehensive patients, hallucinations, and transient paranoia or psychosis have also been reported.

Cannabis additionally affects several physiological body systems and symptoms of intoxication include tachycardia, palpitations, paroxysmal atrial fibrillation, and orthostatic hypotension; life-threatening ventricular tachycardia may occur after large doses. Decrease in intra-ocular pressure, conjunctival injection, cough, dry mouth, increased appetite, and reduced bowel motility have also been reported.

The toxicity of cannabis is increased with intravenous use. Gastrointestinal disturbances have been reported including nausea and vomiting, abdominal pain, and diarrhoea. Other symptoms include headache, rigors, fever, dyspnoea, cardiovascular irregularities, jaundice, shock, disseminated intravascular coagulation, renal impairment, and death.

Ingestion of cannabis by children is potentially fatal. Mydriasis, hypotonia, hyporeflexia, ataxia, hypothermia, tachycardia, respiratory depression, drowsiness, stupor, and coma have been reported.

Chronic use of cannabis has been reported to reduce resistance to infection, produce persistent neurotoxicity, and the carcinogens present in cannabis smoke potentially increase the risk of cancer. However, there is little conclusive evidence for the long-term effects of cannabis.

Cannabis has been presumed to affect driving because of slowed reaction times, effects on cognition, and perceptual alterations, although there is no conclusive evidence to this effect, and it has not been possible to correlate cannabis blood concentration with specific levels of impaired driving performance.

The risks of gastrointestinal decontamination following ingestion of cannabis may outweigh the benefits if the patient is drowsy or agitated. However, activated charcoal has been recommended within one hour of ingestion of a potentially toxic dose. Ipecacuanha given within 30 to 90 minutes of ingestion has been used as an alternative. Treatment of an overdose or acute toxicity following ingestion or inhalation of cannabis products is symptomatic and supportive. Adults often require little more than reassurance as clinical toxicity is rarely serious and recovery usually occurs spontaneously within several hours. Patients should be monitored for 6 hours after intravenous injection of cannabis products. Children should also be observed for 6 hours after ingestion. Agitated patients may require sedation with diazepam; lorazepam or midazolam have also been used. Haloperidol or ziprasidone are alternatives to benzodiazepines.

◊ Reviews.

1. Johnson BA. Psychopharmacological effects of cannabis. *Br J Hosp Med* 1990; **43**: 114–22.
2. American Academy of Pediatrics. Marijuana: a continuing concern for pediatricians. *Pediatrics* 1991; **88**: 1070–2.
3. Wills S. Cannabis and cocaine. *Pharm J* 1993; **251:** 483–5.
4. Hall W, Solowij N. Adverse effects of cannabis. *Lancet* 1998; **352:** 1611–16.
5. Ashton CH. Adverse effects of cannabis and cannabinoids. *Br J Anaesth* 1999; **83:** 637–49.
6. Ashton CH. Pharmacology and effects of cannabis: a brief review. *Br J Psychiatry* 2001; **178:** 101–6.

Breast feeding. The American Academy of Pediatrics deprecates[1] the use of cannabis as a drug of abuse by breast-feeding mothers; a published report[2] indicated that cannabinoids were secreted into breast milk and absorbed by nursing infants, and while no adverse effect was reported to have occurred, some components do have a very long half-life.

1. American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. *Pediatrics* 2001; **108:** 776–89. Correction. *ibid.*; 1029. Also available at: http://aappolicy.aappublications.org/cgi/content/full/pediatrics%3b108/3/776 (accessed 06/07/04)
2. Perez-Reyes M, Wall ME. Presence of delta9-tetrahydrocannabinol in human milk. *N Engl J Med* 1982; **307:** 819–20.

Effects on the cardiovascular system. References.

1. Jones RT. Cardiovascular system effects of marijuana. *J Clin Pharmacol* 2002; **42** (11 suppl): 58S–63S.
2. Sidney S. Cardiovascular consequences of marijuana use. *J Clin Pharmacol* 2002; **42** (11 suppl): 64S–70S.

Effects on the cerebrovascular system. References.

1. Herning RI, *et al.* Cerebrovascular perfusion in marijuana users during a month of monitored abstinence. *Neurology* 2005; **64:** 488–93.

Effects on the CNS. References to, and reviews of, the CNS effects of cannabis, including effects on cognition,[1-4] anxiety and depression,[5] and psychosis,[6-11] including schizophrenia.[12,13] Coma, reversed by flumazenil, has been reported in 2 children who had ingested cannabis.[14]

1. Pope HG Jr, *et al.* Neuropsychological performance in long-term cannabis users. *Arch Gen Psychiatry* 2001; **58:** 909–15.
2. Solowij N, *et al.* Cognitive functioning of long-term heavy cannabis users seeking treatment. *JAMA* 2002; **287:** 1123–31. Correction: *ibid.*: 1651.
3. Harrison GP Jr, *et al.* Cognitive measures in long-term cannabis users. *J Clin Pharmacol* 2002; **42** (11 suppl): 41S–47S.
4. Gonzalez R, *et al.* Nonacute (residual) neuropsychological effects of cannabis use: a qualitative analysis and systematic review. *J Clin Pharmacol* 2002; **42** (11 suppl): 48S–57S.
5. Patton GC, *et al.* Cannabis use and mental health in young people: cohort study. *BMJ* 2002; **325:** 1195–8.
6. McKay DR, Tennant CC. Is the grass greener? The link between cannabis and psychosis. *Med J Aust* 2000; **172:** 284–6.
7. Johns A. Psychiatric effects of cannabis. *Br J Psychiatry* 2001; **178:** 116–22.
8. Henquet C, *et al.* Prospective cohort study of cannabis use, predisposition for psychosis, and psychotic symptoms in young people. *BMJ* 2005; **330:** 11.
9. Fergusson DM, *et al.* Cannabis and psychosis. *BMJ* 2006; **332:** 172–5.
10. Hall W. Is cannabis use psychotogenic? *Lancet* 2006; **367:** 193–5. Correction. *ibid.*; 1056.
11. Moore THM, *et al.* Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *Lancet* 2007; **370:** 319–28.
12. Zammit S, *et al.* Self reported cannabis use as a risk factor for schizophrenia in Swedish conscripts of 1969: historical cohort study. *BMJ* 2002; **325:** 1199.
13. Arseneault L, *et al.* Cannabis use in adolescence and risk for adult psychosis: longitudinal prospective study. *BMJ* 2002; **325:** 1212–3.
14. Rubio F, *et al.* Flumazenil for coma reversal in children after cannabis. *Lancet* 1993; **341:** 1028–9.

Effects on the eyes. A report of persistent visual abnormalities in a patient after discontinuation of heavy abuse of cannabis.[1] No organic cause for the effects, which were accompanied by less persistent mental changes, could be found.

1. Laffi GL, Safran AB. Persistent visual changes following hashish consumption. *Br J Ophthalmol* 1993; **77:** 601–2.

Effects on the lungs. References.

1. Tashkin DR, *et al.* Respiratory and immunologic consequences of marijuana smoking. *J Clin Pharmacol* 2002; **42** (11 suppl): 71S–81S.
2. Aldington S, *et al.* Effects of cannabis on pulmonary structure, function and symptoms. *Thorax* 2007; **62:** 1058–63. Correction. *ibid.* 2008; **63:** 385.

Hyperthermia. Life-threatening hyperthermia was reported[1] in a 24-year-old man who went jogging after smoking cannabis.

1. Walter FG, *et al.* Marijuana and hyperthermia. *J Toxicol Clin Toxicol* 1996; **34:** 217–21.

Peripheral vascular disease. References.

1. Combemale P, *et al.* Cannabis arteritis. *Br J Dermatol* 2005; **152:** 166–9.

Pregnancy. Cannabis has effects on sperm and can alter reproductive hormonal systems. Infants born to mothers exposed to cannabis during pregnancy tend to have a lower birth-weight[1,2] and may suffer from increased excitation in the postnatal period.[3]

1. Zuckerman B, *et al.* Effects of maternal marijuana and cocaine use on fetal growth. *N Engl J Med* 1989; **320**: 762–8.
2. Frank DA, *et al.* Neonatal body proportionality and body composition after in utero exposure to cocaine and marijuana. *J Pediatr* 1990; **117:** 622–6.
3. Silverman S. Interaction of drug-abusing mother, fetus, types of drugs examined in numerous studies. *JAMA* 1989; **261**: 1689, 1693.

Interactions

Cannabis and alcohol have additive effects. The sedative effects of cannabis may be potentiated by other CNS depressants. Additive antimuscarinic effects, for example tachycardia, may occur with drugs such as tricyclic antidepressants. Cannabis induces microsomal enzymes and therefore interactions with a wide range of drugs that are metabolised by these enzymes might be expected (see, for example, Theophylline, p.1144).

Disulfiram. Limited evidence indicates that use of disulfiram with cannabis may produce a hypomanic state.[1]

1. Lacoursiere RB, Swatek R. Adverse interaction between disulfiram and marijuana: a case report. *Am J Psychiatry* 1983; **140:** 243–4.

Pharmacokinetics

Time to onset and duration of effects of cannabis vary with factors such as route of administration and the user's experience. The active principles of cannabis are readily absorbed from the lungs. Systemic bioavailability of Δ^9-tetrahydrocannabinol from smoked cannabis generally ranges between about 10 and 35%, with regular users achieving a higher efficiency. This produces an effect within minutes, reaches a peak in about 30 minutes, and lasts for about 3 to 4 hours. The pharmacokinetics of cannabis following injection are similar to smoking.

Δ^9-Tetrahydrocannabinol absorption may be slow and erratic from the gastrointestinal tract, and extensive first-pass liver metabolism reduces the systemic bioavailability to less than 20% with high interindividual variation. Effects peak in about 1 to 4 hours and last for up to 6 hours.

Δ^9-Tetrahydrocannabinol is lipophilic and becomes widely distributed in the body. Plasma protein binding is about 97 to 99%. Δ^9-Tetrahydrocannabinol is extensively metabolised in the liver via the cytochrome P450 isoenzyme CYP2C subfamily, primarily to the active 11-hydroxy derivative.

Within 72 hours of an oral dose, 10 to 15% is excreted in the urine mainly as conjugates and metabolites, and 35 to 50% in faeces mainly as unconjugated metabolites. About 80 to 90% of a dose is excreted within 5 days after ingestion. Duration of detectability of urinary metabolites varies greatly and can be several weeks for heavy chronic users.

Cannabis crosses the placenta and is distributed into breast milk.

◊ Review.

1. Grotenhermen F. Pharmacokinetics and pharmacodynamics of cannabinoids. *Clin Pharmacokinet* 2003; **42:** 327–60.

Uses and Administration

Cannabis contains about 60 cannabinoids of which the main active constituent is Δ^9-tetrahydrocannabinol. Two types of specific endogenous cannabinoid-binding receptors have been identified. CB_1 receptors are distributed throughout the CNS and some peripheral tissues and are involved in modulation of a number of neurotransmitters, which is thought to be responsible for the clinical effects of cannabinoids. CB_2 receptors are expressed mainly in immune cells and are thought to be involved in modulation of the immune system. Cannabinoid receptor agonists and antagonists have also been identified.

Therapeutic use. Cannabis was formerly used therapeutically as a sedative or narcotic. The cannabinoid Δ^9-tetrahydrocannabinol (dronabinol, p.1728) and a synthetic cannabinol (nabilone, p.1750) are used as antiemetics in patients receiving cancer chemotherapy. Dronabinol is also used to stimulate appetite in HIV patients with cachexia. Dronabinol and cannabidiol (p.2274), another cannabinoid, are used in combination in a buccal spray preparation (*Sativex*) as adjunctive treatment for the symptomatic relief of neuropathic pain in multiple sclerosis in adults. This same preparation is also used as adjunctive analgesic treatment in adult patients with advanced cancer who have moderate to severe pain during the highest tolerated dose of strong opioid therapy for persistent background pain.

Cannabinoids are also being investigated for a number of other potential therapeutic uses, including relief of spasticity in multiple sclerosis, in spinal cord injury, and in various forms of pain, including diabetic neuropathy and other types of neuropathic pain, and pain associated with rheumatoid arthritis. Cannabis reduces intra-ocular pressure and it has been reported to be of benefit in glaucoma. Vaporisation is being investigated as a means of delivering therapeutic doses of cannabinoids.

Abuse. Cannabis is widely abused as a psychoactive agent and has a long history of such use. The amount of Δ^9-tetrahydrocannabinol in cannabis depends on its geographical source. Proportions also differ depending on the form used and have been reported as: 1 to 4% in the leaves and flowering tops, or even up to 15% in some varieties bred for a high yield of cannabinoids (so-called skunk); 5 to 12% in sinsemilla (obtained from unpollinated female plants); 3 to 6% in the dried resin (hashish); and 30 to 50% in hashish oil expressed from the pressed resin. The usual route of abuse is by smoking cigarettes containing the dried leaves and flowering parts of the plant or the more potent dried resin (hashish); inhalation using water pipes or vaporisers are alternative methods. Cannabis is also ingested in cakes or sweets. Less commonly, cannabis extract or hashish oil is injected intravenously.

◊ References to the potential medical uses of cannabis.

1. Robson P. Therapeutic aspects of cannabis and cannabinoids. *Br J Psychiatry* 2001; **178:** 107–15.
2. Mechoulam R, *et al.* Cannabidiol: an overview of some pharmacological aspects. *J Clin Pharmacol* 2002; **42** (11 suppl): 11S–19S.
3. Zajicek J, *et al.* Cannabinoids for treatment of spasticity and other symptoms related to multiple sclerosis (CAMS study): multicentre randomised placebo-controlled trial. *Lancet* 2003; **362:** 1517–26.
4. Killestein J, *et al.* Cannabinoids in multiple sclerosis: do they have a therapeutic role? *Drugs* 2004; **64:** 1–11.
5. Berman JS, *et al.* Efficacy of two cannabis based medicinal extracts for relief of central neuropathic pain from brachial plexus avulsion: results of a randomised controlled trial. *Pain* 2004; **112:** 299–306.
6. Guy GW, *et al. The Medicinal Uses of Cannabis and Cannabinoids*, London: The Pharmaceutical Press, 2004.
7. Fox P, *et al.* The effect of cannabis on tremor in patients with multiple sclerosis. *Neurology* 2004; **62:** 1105–9.

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; Méloides; 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 *Mylabrus 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.

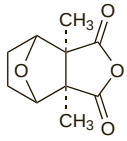
Cantharidin

Cantaridina. Hexahydro-3aα,7aα-dimethyl-4β,7β-epoxyisobenzofuran-1,3-dione.

Кантаридин

$C_{10}H_{12}O_4$ = 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. Polettini 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. *Toxicon* 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; Paprikų vaisiai; 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. *connoides*, 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 annum* var. *minimum* and small fruited varieties of *C. fruiscons* (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 subjects[6] 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; ***Ger.:*** ABC Warme-Pflaster†; Capsamol; Dolenon†; Hansaplast ABC Warme-Pflaster†; Jucurba; Rheumamed; Thermo Burger; ***Israel:*** Dragon Plaster; ***Ital.:*** Cerotto Bertelli Arnikos; Dolpyc; Thermogene; ***Port.:*** Neodor; ***UK:*** Fiery Jack; ***USA:*** Salonpas Hot.

Multi-ingredient: ***Arg.:*** Bifena; Infrarub†; Sebulex; 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; Salhumin; Trauma-Salbe warmend; ***Belg.:*** Rado-Salil; Stilene; Thermocream; ***Braz.:*** Pilulas Ross; ***Canad.:*** Absorbine Arthritis; Cayenne Plus†; Rheumalan†; Rhumatisme; ***Fr.:*** Disalgyl†; Kamol†; Le Thermogene†; ***Ger.:*** Caye Rheuma-Balsam; Gothaplast Rheumamed AC; ***Hong Kong:*** LEAN Formula w/ Advantra†; ***India:*** Algipan; Flexi-muv; Inflazone; Relaxyl; ***Indon.:*** Osteor-C; Sloan's Liniment; ***Israel:*** Ment-O-Cap; Radian-B; Rublex Massage Cream; ***Ital.:*** Altadrine; Capso; Capsolin; Gelovis; Remy; Sloan; ***Malaysia:*** Dandelion Complex†; Total Man†; ***Mex.:*** Parche Negro Belladona; ***Neth.:*** Cremor capsici comp; Cremor Capsici compositus; Kruidvat Spierbalsem; ***Pol.:*** Kapsiplast; ***Port.:*** Caroid†; Medalginan; ***Rus.:*** Efcamon (Эфкамон); Espol (Эспол); ***S.Afr.:*** Brooklax Pills; Infrarub; Moultons Pain Paint; Muscle Rub; SB 3 Triple Action Pills; SB Shisalene; Sloan's Heat Rub; Sloan's Liniment Rub; Tandpyndruppels; ***Spain:*** Dolokey; Embrocacion Gras; Linimento Naion; Termosan; ***Switz.:*** Carmol Plus†; Massorax†; Midalgan; ***Thai.:*** Flatulence; Meloids; 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 Naturtabs; Honey & Molasses; Indian Brandee; 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:*** Salonpas Gel Patch; Throat Discs; ***Venez.:*** Ehrlich Balsamo.

Caraway

Alcaravea; Alcaravia; Caraway Fruit; Caraway Seed; Carum; Carvi; Carvi fructus; Cumin des Prés; Fructus Carvi; Kmínový plod; Kmynų 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.