Homoeopathy. Kava has been used in homoeopathic medicines under the following names: Piper methysticum; Piper. m.

◊ References.
1. Anonymous. Kava. *Lancet* 1988; **ii:** 258–9.
2. Anonymous. Tonga trouble. *Pharm J* 1990; **245:** 288.
3. Ruze P. Kava-induced dermopathy: a niacin deficiency? *Lancet* 1990; **335:** 1442–5.
4. Schelosky L, *et al.* Kava and dopamine antagonism. *J Neurol Neurosurg Psychiatry* 1995; **58:** 639–40.
5. Spillane PK, *et al.* Neurological manifestations of kava intoxication. *Med J Aust* 1997; **167:** 172–3.
6. Pepping J. Kava: piper methysticum. *Am J Health-Syst Pharm* 1999; **56:** 957–60.
7. Anonymous. Kava extract linked to hepatitis. *WHO Drug Inf* 2000; **14:** 98.
8. Escher M, *et al.* Hepatitis associated with kava, a herbal remedy for anxiety. *BMJ* 2001; **322:** 139.
9. Anonymous. Hepatic toxicity possibly associated with kava-containing products—United States, Germany, and Switzerland, 1999-2002. *MMWR* 2002; **51:** 1065–7. Also available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5147a1.htm (accessed 15/07/04)
10. Stickel F, *et al.* Hepatitis induced by Kava (Piper methysticum rhizoma). *J Hepatol* 2003; **39:** 62–7.
11. Clouatre DL. Kava kava: examining new reports of toxicity. *Toxicol Lett* 2004; **150:** 85–96.
12. Anke J, Ramzan I. Pharmacokinetic and pharmacodynamic drug interactions with Kava (Piper methysticum Forst. f.). *J Ethnopharmacol* 2004; **93:** 153–60.
13. Perez J, Holmes JF. Altered mental status and ataxia secondary to acute Kava ingestion. *J Emerg Med* 2005; **28:** 49–51.
14. Ulbricht C, *et al.* Safety review of kava (Piper methysticum) by the Natural Standard Research Collaboration. *Expert Opin Drug Saf* 2005; **4:** 779–94.

Preparations

Proprietary Preparations (details are given in Part 3)
Braz.: Ansiopax†; Calmiton†; Calmonex; Farmakava†; Kavakan; Kavalac†; Kavamed; Kavasedon; Laitan; Natuzilium†; ***Chile:*** Laikan 100†; ***Cz.:*** Antares†; Kavasedon†; Leikan†; ***Ger.:*** Aigin†; Ardeydystin†; Eukavan†; Ka-Sabona†; Kava-Phyton†; Kavain Harras N†; Kavasedon†; Kavosporal forte†; Laitan†; Maoni†; Nervonocton N†; Neuronika†; ***Mex.:*** Laiken; ***Switz.:*** Kavasedon†; ***Venez.:*** Kavasedon†.

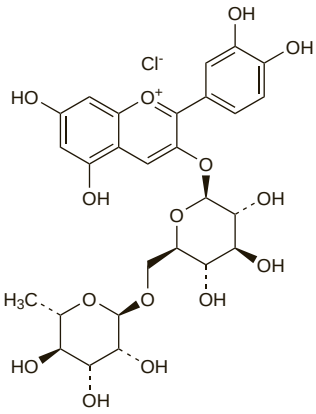
Multi-ingredient: ***Ger.:*** Bilicura Forte†; Hewepsychon duo†; Hyposedon N†; Kavosporal comp†; Somnuvis S†; ***Ital.:*** Controller; ***Switz.:*** Kawaform†; Yakona N†.

Keracyanin *(rINN)*

Cyaninoside; Keracianina; Kéracyanine; Keracyaninum. 3-[6-*O*-(6-Deoxy-α-L-mannopyranosyl)-β-D-glucopyranosyloxy]-3′,4′,5,7-tetrahydroxyflavylium chloride.

Керацианин

$C_{27}H_{31}ClO_{15}$ = 631.0.
CAS — 18719-76-1.



Profile
Keracyanin is claimed to improve visual function in poor light conditions and has been given orally in vision disorders.

Preparations

Proprietary Preparations (details are given in Part 3)
Ital.: Meralop†; ***Spain:*** Meralop†.

Keratinase

Queratinasa.
CAS — 9025-41-6.

Profile
Keratinase is a proteolytic enzyme that has been obtained from cultures of *Streptomyces fradiae*. It can digest keratin, which is resistant to most proteolytic enzymes, in the presence of trace amounts of metal ions. It is used in the commercial separation of hair from animal hides, and has been tried as a depilatory; it has also been included in some topical antibacterial ointments, presumably to aid penetration of the active substances.

Kinkeliba

Combreti Folium; Kinkéliba.

Pharmacopoeias. In *Fr.*

Profile
Kinkeliba is the dried leaves of *Combretum micranthum* (*C. altum*; *C. raimbaultii*) (Combretaceae), a shrub indigenous to West Africa. It has been used as an ingredient of herbal remedies given for the treatment of biliary, liver, and gastrointestinal disorders. Other species of *Combretum* are also used.

Homoeopathy. Kinkeliba has been used in homoeopathic medicines.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Fr.:*** Hepaclem; Hepax; Jecopeptol; Mediflor Tisane Hepatique No 5; Romarene; Solution Stago Diluee; ***Mon.:*** Romarinex; ***Switz.:*** Bilifuge.

Klebsiella Pneumoniae Glycoprotein

Glucoproteína de Klebsiella pneumoniae; RU-41740.

Profile
Klebsiella pneumoniae glycoprotein is an immunostimulant that has been used in the management of respiratory-tract infections, wounds, and burns.

Preparations

Proprietary Preparations (details are given in Part 3)
Braz.: Biostim; ***Cz.:*** Biostim; ***Fr.:*** Biostim†; ***Ital.:*** Acintor; Biostim; ***Mex.:*** Biostim; ***Port.:*** Biostim†.

Knotgrass

Knotweed; Nat' rdesna ptačího; Pihatatar; Polygoni avicularis herba; Renouée des oiseaux; Takažolių žolė; Trampgräs; Vogelknöterichkraut; Ziele rdestu ptasiego.

Pharmacopoeias. In *Chin.* and *Eur.* (see p.vii).
Ph. Eur. 6.2 (Knotgrass; Polygoni Avicularis Herba). It consists of the whole or cut, dried aerial parts of *Polygonum aviculare*. It contains not less than 0.3% of flavonoids, expressed as hyperoside ($C_{21}H_{20}O_{12}$ = 464.4) calculated with reference to the dried drug. Protect from light.

Profile
Knotgrass, *Polygonum aviculare* (*P. heterophyllum*) (Polygonaceae), is included in herbal preparations for mild catarrh and associated upper respiratory-tract disorders.

Homoeopathy. Knotgrass has been used in homoeopathic medicines under the following names: Polygonum aviculare.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Cz.:*** Pulmoran; Species Urologicae Planta; ***Pol.:*** Cholesol; Reumosol.

Krebiozen

Crebiocén.

Кребиозен

CAS — 9008-19-9.

Profile
Krebiozen is the name of a preparation that was formerly promoted as a 'cancer cure' in the USA, but totally discredited by the FDA. It was stated to be obtained from the blood of horses previously injected with an extract of *Actinomyces bovis*.

Kveim Antigen

Antígeno de Kveim.

Profile
Kveim antigen is a fine suspension in physiological saline of sarcoid tissue prepared from spleens taken from patients with active sarcoidosis. It is used as an intradermal injection in the Kveim (Kveim-Siltzbach) test for the diagnosis of sarcoidosis (p.1512).

◊ References.
1. James DG, Williams WJ. Kveim-Siltzbach test revisited. *Sarcoidosis* 1991; **8:** 6–9.

◊ The safety of the Kveim test has been questioned, particularly with reference to the risk of transmission of sarcoidosis, and of hepatitis B, HIV, and Creutzfeldt-Jakob disease.[1] However, the procedure to identify acceptable sarcoid spleens and the method of preparation were considered sufficient to reduce the risk of transmission of infections[2] and of Creutzfeldt-Jakob disease.[3]

1. Wigly RD. Moratorium on Kveim tests. *Lancet* 1993; **341:** 1284.
2. du Bois RM, *et al.* Moratorium on Kveim tests. *Lancet* 1993; **342:** 173.
3. de Silva RN, Will RG. Moratorium on Kveim tests. *Lancet* 1993; **342:** 173.

Laburnum

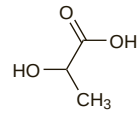
Golden Chain; Golden Rain; Lluvia de oro.

Profile
All parts of laburnum, *Laburnum anagyroides* (*L. vulgare*; *Cytisus laburnum*) (Leguminosae), are toxic. The toxic principle is cytisine (p.2291) which has actions similar to nicotine.

Lactic Acid

Acide lactique; Acidum lacticum; E270; E326 (potassium lactate); Kwas mlekowy; Kyselina mléčná; Láctico, ácido; Laktik Asit; Maitohappo; Milchsäure; Mjölksyra; Pieno rūgštis; Tejsav. 2-Hydroxypropionic acid; 2-Hydroxypropanoic acid.

$C_3H_6O_3$ = 90.08.
CAS — 50-21-5; 79-33-4 ((+)-lactic acid); 10326-41-7 ((–)-lactic acid); 598-82-3 ((±)-lactic acid).
ATC — G01AD01.
ATC Vet — QG01AD01; QP53AG02.



Pharmacopoeias. In *Chin.*, *Int.*, *Jpn*, and *US*.
Eur. (see p.vii) includes monographs for the racemate and the (*S*)-enantiomer.
Ph. Eur. 6.2 (Lactic Acid). A mixture of lactic acid, its condensation products, such as lactoyl-lactic acid and other polylactic acids, and water. The equilibrium between lactic acid and polylactic acids depends on the concentration and temperature. It is usually the racemate (*RS*-lactic acid), and contains the equivalent of 88 to 92% w/w of $C_3H_6O_3$. A colourless or slightly yellow, syrupy liquid. Miscible with water and with alcohol.
Ph. Eur. 6.2 ((*S*)-Lactic Acid). A mixture of (*S*)-lactic acid, its condensation products, such as lactoyl-lactic acid and other polylactic acids, and water. The equilibrium between lactic acid and polylactic acids depends on the concentration and temperature. It contains the equivalent of 88 to 92% w/w of $C_3H_6O_3$, of which not less than 95% is the (*S*)-enantiomer. A colourless or slightly yellow, syrupy liquid. Miscible with water and with alcohol.
USP 31 (Lactic Acid). A mixture of lactic acid and lactic acid lactate equivalent to a total of 88 to 92% w/w of $C_3H_6O_3$. It is obtained by the lactic fermentation of sugars or is prepared synthetically. Lactic acid obtained by fermentation of sugars is laevorotatory, while that prepared synthetically is racemic.
A colourless or yellowish, hygroscopic, practically odourless, syrupy liquid. When it is concentrated by boiling, lactic acid lactate is formed. Miscible with water, with alcohol, and with ether; insoluble in chloroform. Store in airtight containers.

Adverse Effects and Treatment
As for Hydrochloric Acid, p.2322, although in the concentrations used it is less corrosive.

Neonates. There was evidence that neonates had difficulty in metabolising *R*-(–)-lactic acid and this isomer and the racemate should not be used in foods for infants less than 3 months old.[1]

1. FAO/WHO. Toxicological evaluation of certain food additives with a review of general principles and of specifications: seventeenth report of the joint FAO/WHO expert committee on food additives. *WHO Tech Rep Ser 539* 1974.

Uses and Administration
Lactic acid has actions similar to those of acetic acid (p.2244) and has been used similarly in the treatment of infective skin and vaginal disorders. It has been used in the preparation of lactate injections and infusions to provide a source of bicarbonate for the treatment of metabolic acidosis (for the problems of using lactate in metabolic acidosis, see p.1667). It is also applied topically in the treatment of warts (p.1584), often with salicylic acid, and in emollient creams. Other uses include the treatment of severe aphthous stomatitis in terminally ill, immunocompromised patients.
Lactic acid has also been used as a food preservative and as an ingredient of cosmetics.

Preparations

BP 2008: Lactic Acid Pessaries;
USP 31: Compound Clioquinol Topical Powder.

Proprietary Preparations (details are given in Part 3)
Arg.: Celucrem†; ***Austria:*** Espritin; Warzin; ***Belg.:*** Lacta-Gynecogel; ***Braz.:*** Verrux; ***Canad.:*** Dermalac; Lubriderm AHA†; Penederm†; ***Chile:*** Eucerin; ***Fr.:*** Ictyoderm†; Lactacyd Femina; ***Ger.:*** Lactisan; Lactisol; RMS†; ***Irl.:*** Relact; ***Ital.:*** Saugella Intilac; Unigyn; ***Malaysia:*** Avecyde†; ***Mex.:*** Acid-Lac; Avecyde; Eucerin Piel con Tendencia Acneica†; Lactibon; ***NZ:*** BK†; ***Philipp.:*** Lactacyd VG; ***Pol.:*** Keratolysin; ***Port.:*** Atopic†; ***Singapore:*** Avecyde†; ***Spain:*** Keratisdin; ***Swed.:*** Calmuril; ***Switz.:*** Vagoclyss; ***USA:*** Lactinol; Lactrex; ***Venez.:*** Dermalact; Jabolac†; Lactibon.

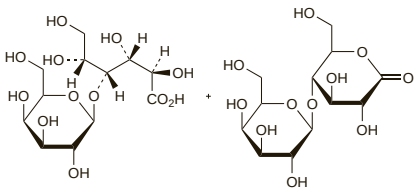
Multi-ingredient: ***Arg.:*** Acilac; Akerat; Callicida; Caminol†; Cellskinlab C + AHA; Coltix†; Controlacne; Dermocridin; Duofilm; Hidrolac; Keracnyl; Lacticare; Muvar; Nutrafilm; Opoenterol†; Oxidermos; Pasem; Ureadin Facial; Verruclean; Verrutopic; ***Austral.:*** Aussie Tan Skin Moisturiser; Calmurid; Cornkil†; Dermadrate; Dermatech Wart Treatment; Duofilm; ***Austria:*** Calmurid; Calmurid HC; Duofilm; Helo-acid; Hylak; Hylak Forte; Lavagin; ***Belg.:*** Aporil; Calmurid†; ***Braz.:*** Calope†; Calotrat†; Colpolase;

Dermacyd; Dermafree; Duofilm; Kalostop†; Lacticare; Lacto Vagin†; Salic; ***Canad.:*** Duofilm; Duoplant; Epi-Lyt; P & S; Penederm†; Viron Wart Lotion; ***Chile:*** Akerat; Cuidado Intimo; Duofilm; Eucerin Piel Grasa; Lactacyd; Lacticare†; Node DS; Primacy C+AHA†; Ureadin 30; ***Cz.:*** Acne Lotio†; Duofilm; ***Denm.:*** Verucid; ***Fin.:*** Calmuril; Wicnelact; ***Fr.:*** Akerat; Cleanance K; Contragel Vert; Correcteur Anti-Taches; Duofilm; Geliofil; Keracnyl; Kerafilm; Lactacyd Derma; Lactacyd Femina; Lacticare; Pedi-Relax Anti-callosites†; Propy-Lacticare; Saugella; Sebium AKN; Topic 10; Verrufilm; Verrupan; ***Ger.:*** Akaderm N; Calmurid†; Clabin; Collomack†; Duofilm; Gehwol Huhneraugen Pflaster†; Sagrosept†; Solco-Derman; Vagisan; W-Tropfen; Warzen-Alldahin†; ***Gr.:*** Duofilm; ***Hong Kong:*** Collomack; Dermadrate; Dermatech Wart Treatment; Duofilm; Eubos Feminin; Lactacyd; Lacticare†; Solcoderm; Verrufilm; ***Hung.:*** Duofilm; ***India:*** Cotaryl; Lacgel; ***Indon.:*** Exfoliac; Lactacyd; Lacticare; ***Irl.:*** Calmurid; Calmurid HC; Cuplex; Duofilm; Lacticare; Salactol; Salatac; ***Israel:*** Babyzim; Calmurid; Calmurid HC†; Salatac; U-Lactin Foot Cream; U-Lactin Forte; ***Ital.:*** Bruciaporri; Decon Lavanda; Duofilm; Eudermico†; Gastro-Pepsin; Geliofil; Geroderm Zolfo†; Ginil; Ipso Urea; Kerafilmver; Lactacyd Derma; Lactacyd Intimo; Lactocol; Saugella Salviettine; Sensigel; Sensiquell; Triacid; Unidermo; Verel; Verunec; ***Malaysia:*** Collomack†; Duofilm; Lactacyd; Lacticare; Lorasil Feminine Hygeine†; Solcoderm†; ***Mex.:*** Duofilm; Kinor; Lacticare; Rug-Derm; Urader Lactato; ***Neth.:*** Calmurid; Calmurid HC; Duofilm; ***Norw.:*** Verucid; ***NZ:*** Calmurid†; Dermadrate; Duofilm; ***Philipp.:*** Duofilm; Intima; Lactacyd; Lacticare; ***Pol.:*** ABE-Plyn; Acerin; Brodacid; Duofilm; Masc na Odciski; ***Port.:*** Atopic†; Bioclin Sebo Care; Calicida Indiano; Calmurid; Creme Laser Hidrante; Despigmentante; Duofilm†; Halitol†; Lactacyd†; Lecia†; Pansebase; Pansebase Composto; Secpel; Secpel Composto; Ureadin Maos; Verrucare; ***Rus.:*** Solcoderm (Солкодерм); ***S.Afr.:*** Duofilm; Kroko; Lacticare; ***Singapore:*** Collomack†; Dermadrate; Dermatech Wart Treatment; Duofilm; Lactacyd; Lacticare; U-Lactin; ***Spain:*** Antiverrugas; Callicida Cor Pik; Callix; Euzymina Lisina I; Ginejuvent; Keranin; Roidhemo†; Unguento Callicida Naion; Verufil; ***Switz.:*** Calmurid; Calmurid HC†; Clabin; Coruzol†; Duofilm; Solcoderm; Va-t'en; Vin Tonique de Vial†; Waruzol; Warz-ab Extor; ***Thai.:*** Collomack†; Duofilm; Lactacyd; Lacticare; ***Turk.:*** Duoderm; ***UK:*** Bazuka; Calmurid; Calmurid HC; Cuplex; Duofilm; Lacticare†; Salactol; Salatac; ***USA:*** AmLactin AP; Epi-Lyt; Lacticare; Lactinol-E; SLT†; ***Venez.:*** Akerat; Collomack; Duofilm†; Kayivis.

Lactobionic Acid

Acide Lactobionique; Acidum lactobionicum; Kwas laktobionowy; Kyselina laktobionová; Laktobionihappo; Laktobiono rūgštis; Laktobionsyra.

CAS — 96-82-2 (4-O-β-D-galactopyranosyl-D-gluconic acid).



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

Ph. Eur. 6.2 (Lactobionic Acid). A mixture in variable proportions of 4-*O*-β-D-galactopyranosyl-D-gluconic acid ($C_{12}H_{22}O_{12}$ = 358.3) and 4-*O*-β-D-galactopyranosyl-D-glucono-1,5-lactone ($C_{12}H_{20}O_{11}$ = 340.3). A white or almost white powder. Freely soluble in water; slightly soluble in anhydrous ethanol, methyl alcohol, and glacial acetic acid.

Profile

Lactobionic acid is used to form water-soluble salts of drugs such as calcium and the macrolide antibacterials clarithromycin and erythromycin. It is present, in the form of potassium lactobionate, in preservation fluids such as UW (University of Wisconsin) solution for organ transplantation; the lactobionate anion acts as an impermeant and provides an osmotic force to oppose cellular oedema in the stored organ. Lactobionic acid has similar properties to gluconic acid (p.2313) and is being tried in skin care products.

Lactoferrin

Lactotransferrin; rhLF (talactoferrin alfa).

CAS — 308240-58-6 (talactoferrin alfa).

Profile

Lactoferrin is an iron-binding protein found in milk, saliva, and other exocrine secretions. It has antimicrobial actions and has been used in preparations for the management of dry mouth (p.2140) and other mouth disorders.

Lactoferrin and other whey proteins have also been used as nutritional supplements. Recombinant forms of lactoferrin such as talactoferrin alfa are under investigation.

◊ Reviews.

1. Marshall K. Therapeutic applications of whey protein. *Altern Med Rev* 2004; **9:** 136–56.
2. Valenti P, *et al*. Lactoferrin functions: current status and perspectives. *J Clin Gastroenterol* 2004; **38** (suppl 2): S127–S129.

Preparations

Proprietary Preparations (details are given in Part 3)
Austral.: Immune Boost; ImmunoDefence; ***Ital.:*** Endvir Simplex.

Multi-ingredient: ***Indon.:*** Laktobion; ***Ital.:*** Liverton; Nepiros; Rivuclin; ***Singapore:*** Biotene; ***UK:*** Biotene Dry Mouth; BioXtra†; ***USA:*** Biotene with Calcium.

Lactoperoxidase

CAS — 9003-99-0.

Profile

Lactoperoxidase is a peroxidase enzyme that is present in milk and saliva. It reacts with hydrogen peroxide and thiocyanate to produce an antibacterial effect and has been used in preparations for the management of dry mouth (p.2140) and other mouth disorders. It has also been used for its preservative action in cosmetics and skin-care products.

In the lactoperoxidase system for milk preservation, sodium thiocyanate and sodium percarbonate (a source of hydrogen peroxide) are added to fresh bovine milk to activate the lactoperoxidase it contains.

◊ Reviews.

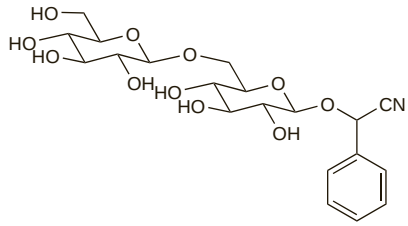
1. Kussendrager KD, van Hooijdonk AC. Lactoperoxidase: physico-chemical properties, occurrence, mechanism of action and applications. *Br J Nutr* 2000; **84** (suppl 1): S19–S25.
2. Tenovuo J. Clinical applications of antimicrobial host proteins lactoperoxidase, lysozyme and lactoferrin in xerostomia: efficacy and safety. *Oral Dis* 2002; **8:** 23–9.
3. Lönnerdal B. Nutritional and physiologic significance of human milk proteins. *Am J Clin Nutr* 2003; **77** (suppl): 1537S–1543S.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Singapore:*** Biotene; ***UK:*** Biotene Dry Mouth; Biotene Oralbalance; BioXtra†; ***USA:*** Biotene with Calcium.

Laetrile

CAS — 1332-94-1 (laetrile); 29883-15-6 (amygdalin).



(amygdalin)

Profile

Laetrile is the term used for a product consisting chiefly of amygdalin, which is the major cyanogenic glycoside of apricot kernels. Amygdalin is *R*-α-cyanobenzyl-6-*O*-β-D-glucopyranosyl-β-D-glucopyranoside ($C_{20}H_{27}NO_{11}$ = 457.4). Laetrile is also used as a term for *R*-α-cyanobenzyl-6-*O*-β-D-glucopyranosiduronic acid ($C_{14}H_{15}NO_7$ = 309.3).

Laetrile was claimed to be preferentially hydrolysed in cancer cells by β-glucosidases to benzaldehyde and hydrogen cyanide, which killed the cell, but amygdalin does not appear to be absorbed from the gastrointestinal tract, and both normal and malignant cells contain only traces of β-glucosidases. Laetrile has also been claimed to be 'vitamin B_{17}', the deficiency of which is said to result in cancer; there is no evidence for this view and laetrile is of no known value in human nutrition.

There have been several reports of cyanide poisoning and other adverse reactions associated with the use of laetrile, especially when taken orally.

◊ A systematic review[1] concluded that data from controlled studies do not support the claims of efficacy for laetrile in cancer patients. Further references[2-4] to laetrile, including case reports[3,4] of toxic effects.

1. Milazzo S, *et al*. Laetrile treatment for cancer. Available in The Cochrane Database of Systematic Reviews; Issue 2. Chichester: John Wiley; 2006 (accessed 17/07/08).
2. Chandler RF, *et al*. Controversial laetrile. *Pharm J* 1984; **232:** 330–2.
3. Bromley J, *et al*. Life-threatening interaction between complementary medicines: cyanide toxicity following ingestion of amygdalin and vitamin C. *Ann Pharmacother* 2005; **39:** 1566–9.
4. O'Brien B, *et al*. Severe cyanide toxicity from 'vitamin supplements'. *Eur J Emerg Med* 2005; **12:** 257–8.

Laminaria

Stipites Laminariae; Styli Laminariae; Thallus Eckloniae; Thallus Laminariae.

Pharmacopoeias. In *Chin.*

Profile

Laminaria is the dried stalks of the seaweeds *Laminaria japonica*, *L. digitata*, and possibly other species of *Laminaria*. The stalks swell in water to about 6 times their volume and have been used surgically to dilate cavities and to dilate the cervix in labour or abortion induction.

An extract of various species of *Laminaria* has been used as a dietary supplement (see Seaweeds, Kelps, and Wracks, p.2384).

Adverse effects. Anaphylaxis[1-3] and toxic shock syndrome[4] have been reported after the insertion of laminaria for cervical dilatation.

1. Nguyen MT, Hoffman DR. Anaphylaxis to laminaria. *J Allergy Clin Immunol* 1995; **95:** 138–9.
2. Cole DS, Bruck LR. Anaphylaxis after laminaria insertion. *Obstet Gynecol* 2000; **95:** 1025.
3. Chanda M, *et al*. Hypersensitivity reactions following laminaria placement. *Contraception* 2000; **62:** 105–6.
4. Sutkin G, *et al*. Toxic shock syndrome after laminaria insertion. *Obstet Gynecol* 2001; **98:** 959–61.

Preparations

Proprietary Preparations (details are given in Part 3)
Rus.: Okovidit (Оковидит).

Multi-ingredient: ***Fr.:*** Marinol; ***Spain:*** Fucusor†.

Lappa

Bardana; Bardanae Radix; Bardane (Grande); Burdock; Burdock Root; Lappa Root.

Pharmacopoeias. In *Fr.*
Chin. and *Jpn* include the fruits.

Profile

Lappa is the dried root of the great burdock, *Arctium lappa* (*A. majus*), and other species of *Arctium* (Compositae). It was formerly used in the form of a decoction as a diuretic and diaphoretic but there is little evidence of its efficacy. Herbal preparations containing lappa have been used in the treatment of skin, musculoskeletal, and gastrointestinal disorders. The leaves and fruits of *Arctium* spp. have also been used.

Homoeopathy. Lappa has been used in homoeopathic medicines under the following names: Lappa major; Lap. maj.

Preparations

Proprietary Preparations (details are given in Part 3)
Mex.: Saforelle†; ***Port.:*** Saforelle; ***Venez.:*** Saforelle.

Multi-ingredient: ***Austral.:*** Acne Oral Spray†; Dermaco; Herbal Cleanse†; Percutane; Trifolium Complex†; ***Canad.:*** Herbal Laxative; Natural HRT; ***Cz.:*** Diabetan; ***Fr.:*** Arbum; Depuratif Parnel; Fitacnol†; Zeniac LP†; Zeniac†; ***Ital.:*** Allerlux; ***Malaysia:*** Celery Plus†; Cleansa Plus†; Dandelion Complex†; ***Pol.:*** Betasol; Immunofort; Seboren; ***S.Afr.:*** Lotio Pruni Comp cum Cupro; ***Spain:*** Diabesor†; ***UK:*** Aqua Ban Herbal; Backache; Cascade; Catarrh Mixture; GB Tablets; Gerard House Skin; Gerard House Water Relief Tablets; HRI Clear Complexion; Modern Herbals Water Retention; Rheumatic Pain Remedy; Skin Cleansing; Skin Eruptions Mixture; Tabritis; Water Naturtabs.

Laronidase *(USAN, rINN)*

Alpha-L-iduronidase; Alronidase; Laronidasa; Laronidasum; Laronidaz. 8-L-Histidine-α-L-iduronidase (human).

Ларонидаз

CAS — 210589-09-6.
ATC — A16AB05.
ATC Vet — QA16AB05.

Adverse Effects, Treatment, and Precautions

Anaphylactic and other infusion reactions, sometimes delayed in onset, have been reported in patients given laronidase and facilities for resuscitation should be available whenever laronidase is used. Common symptoms include flushing, fever, headache, and rash; bronchospasm has also been reported. Other adverse effects commonly reported include abdominal pain, arthralgia, back pain, nausea, vomiting, diarrhoea, cough, dyspnoea, urticaria, angioedema, pruritus, chills, paraesthesia, dizziness, tachycardia, increased blood pressure, and decreased oxygen saturation. Patients with existing respiratory disease may be at risk of more severe reactions. Antihistamines and/or antipyretics (e.g. paracetamol or ibuprofen) may relieve symptoms. A reduction in the rate of infusion to half the rate at which the reaction occurred should also be considered for mild or moderate reactions; for severe reactions, the infusion should be stopped until symptoms have subsided, and then restarted at one-half to one-quarter the rate at which the reaction occurred. Adrenaline should be used with caution because there is a greater incidence of coronary artery disease in patients with mucopolysaccharidosis I. Pre-treatment with antihistamines and/or antipyretics about 60 minutes before infusion is recommended to prevent reactions. IgG antibodies to laronidase are expected to develop within 3 months of starting treatment in the majority of patients, although the effect of this on safety and efficacy is not clear. However, such patients may be at increased risk of hypersensitivity reactions and should be treated with caution. Injection site reactions have also been reported.

Interactions

Licensed product information for laronidase recommends that it should not be given with chloroquine or procaine because of the potential risk of interference with the intracellular uptake of the enzyme.

Uses and Administration

Laronidase is recombinant human α-L-iduronidase and is used as enzyme replacement therapy for the treatment of the non-neurological manifestations of mucopolysaccharidosis I (see below). It is given by intravenous infusion in a dose of 100 units/kg each week. The initial infusion rate should be 2 units/kg per hour,