Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Austria:*** Mariazeller; ***Braz.:*** Balsamo Branco; ***Cz.:*** Klosterfrau Melisana; Naturland Grosser Swedenbitter†; Stomatosan†; ***Ger.:*** Doppelherz Melissengeist†; Inconturina†; Melissengeist; ***Ital.:*** Biophase Shampoo; Promix†; Saugella Uomo; ***Port.:*** Midro†; ***Rus.:*** Doppelherz Melissa (Доппельгерц Мелисса); Maraslavin (Мараславин); Original Grosser Bittner Balsam (Оригинальный Большой Бальзам Биттнера); ***S.Afr.:*** Clairo; Melissengeist; Spiritus Contra Tussim Drops; ***Switz.:*** Alcoolat de Melisse†; Odontal; Tisane pour les problemes de prostate; ***UK:*** Melissa Comp.; Revitonil.

Clove Oil

Caryophylli floris aetheroleum; Caryophylli Floris Etheroleum; Clavo, aceite esencial de; Clou de girofle, huile essentielle de; Essencia de Clavo; Essence de Girofle; Gvazdikėlių eterinis aliejus; Neilikkaöljy; Nejlikolja; Nelkenöl; Ol. Caryoph.; Oleum Caryophylli; Silice hřebíčkovcového květu; Szegfűszegolaj.

Pharmacopoeias. In *Eur.* (see p.vii) and *Jpn.* Also in *USNF*.
Ph. Eur. 6.2 (Clove Oil). A clear yellow liquid obtained by steam distillation from clove containing 75.0 to 88.0% of eugenol. It becomes brown on exposure to air. Miscible with dichloromethane, with toluene, and with fatty oils. Store in well-filled airtight containers. Protect from light and heat.
USNF 26 (Clove Oil). The volatile oil distilled with steam from clove. It contains not less than 85.0% of phenolic substances, chiefly eugenol. Soluble 1 in 2 of alcohol (70%). Store in well-filled airtight containers.

Incompatibility. PVC bottles softened and distorted fairly rapidly in the presence of clove oil, which should not be stored or dispensed in such bottles.[1]

1. Department of Pharmaceutical Sciences of the Pharmaceutical Society of Great Britain. Plastics medicine bottles of rigid PVC. *Pharm J* 1973; **210:** 100.

Profile
Clove oil is a carminative that is sometimes used in the treatment of flatulent colic. It is also used as a flavour.

Applied externally clove oil is irritant but can produce local anaesthesia. It is used as a domestic remedy for toothache, a plug of cotton wool soaked in the oil being inserted in the cavity of the carious tooth; repeated application may damage the gingival tissues. Mixed with zinc oxide, it is used as a temporary anodyne dental filling, although eugenol (p.2301), one of its constituents, is often preferred. Clove oil is included as a counter-irritant in preparations for musculoskeletal and joint disorders. It is also used in aromatherapy.

Eugenol may cause hypersensitivity.

Adverse effects. Severe toxicity after ingestion of clove oil by young children has been reported.[1-4] Adverse effects included coma, acidosis, a generalised seizure, disordered blood clotting, and acute liver damage.

For reference to the harmful effects of smoking clove cigarettes, see under Clove, above.

1. Lane BW, *et al*. Clove oil ingestion in an infant. *Hum Exp Toxicol* 1991; **10:** 291–4.
2. Hartnoll G, *et al*. Near fatal ingestion of oil of cloves. *Arch Dis Child* 1993; **69:** 392–3.
3. Eisen JS, *et al*. N-acetylcysteine for the treatment of clove oil-induced fulminant hepatic failure. *J Toxicol Clin Toxicol* 2004; **42:** 89–92.
4. Janes SE, *et al*. Essential oil poisoning: N-acetylcysteine for eugenol-induced hepatic failure and analysis of a national database. *Eur J Pediatr* 2005; **164:** 520–2.

Preparations

BP 2008: Aromatic Cardamom Tincture.

Proprietary Preparations (details are given in Part 3)
S.Afr.: Naeltjie-Olie; ***UK:*** Dentogen; Soothake Toothache Gel.

Multi-ingredient: ***Austral.:*** Tiger Balm Red; Tiger Balm White; ***Austria:*** Parodontax; Tiger Balsam Rot; ***Braz.:*** Algidente†; Anestesiol†; Dentisan; ***Canad.:*** Tiger Balm Red; Tiger Balm Ultra; Tiger Balm White; ***Chile:*** Agua del Carmen; Agua Melisa Carminativa; Hustagil†; ***Cz.:*** Amol; Herbadent; Parodontal F5†; Stopangin; Tiger Balm Rot†; ***Fr.:*** Aromasol; Baume Aroma; Gouttes aux Essences; Nazinette du Docteur Gilbert; Tigridol; ***Ger.:*** Amol Heilkrautergeist N; China-Balsam†; esto-gast; Hustagil Erkaltungsbalsam†; Melissengeist; Nur 1 Tropfen medizinisches Mundwasser†; Repha-Os; Salviathymol N; ***Hong Kong:*** Magesto; ***India:*** Arowash; Sensur; ***Indon.:*** Balsam Sakti; Corsabalm; ***Israel:*** Tiger Balm Red; Tiger Balm White; ***Ital.:*** Dentosan Azione Intensiva; Dentosan Mese; Fialetta Odontalgica Dr Knapp; Ondroly-A†; ***NZ:*** Electric Blue Headlice; Toothache Drops†; ***Pol.:*** Amol; Argol Essenza Balsamica; Argol Grip; Argol Rheuma; Aromatol; Carmolis; Olbas; Salviasept; ***Rus.:*** Carmolis (Кармолис)†; Carmolis Fluid (Кармолис Жидкость)†; Efcamon (Эфкамон); ***S.Afr.:*** Alpha Toothache Essence; Balsem Vita GEEL; Balsem Vita ROOI; Balsem Vita WIT; Enterodyne; Helmontskruie; Moultons Pain Paint; Muscle Rub; Prep; Puma Balm; SB Toothache Drops; ***Spain:*** Dentol Topico; Otogen Calmante; ***Switz.:*** Baume de Chine Temple of Heaven blanc; Carmol; Carmol Plus†; Olbas; Osa gel dentaire aux plantes; Parodontax†; Sansilla; Spagyrom; ***Thai.:*** Magesto; Masaga; Mesto-Of; ***Turk.:*** Disinol; ***UK:*** Hactos; Nine Rubbing Oils; Olbas; Olbas for Children; Potters Sugar Free Cough Pastilles; Red Oil; Snowfire; Soothake Toothache Tincture; Teenstick; Tiger Balm; ***USA:*** Dentapaine; Numzit†; Toothache Gel; ***Venez.:*** One Drop Only†.

Red Clover

Cow Clover; Meadow Clover; Purple Clover; Trébol rojo; Trefoil.

Pharmacopoeias. In *US*, which also includes the powdered form and powdered extract.
USP 31 (Red Clover). The dried inflorescence of *Trifolium pratense* (Fabaceae). It contains not less than 0.5% of isoflavones, calculated on the dried basis as the sum of daidzein (p.2391), genistein (p.2391), formononetin, and biochanin A. Protect from light and moisture.

Profile
The flowerheads of red clover have been used in herbal medicine. The isoflavones present in red clover have been investigated, similarly to other phytoestrogens, for their potential endocrine effects.

Preparations

USP 31: Red Clover Tablets.

Proprietary Preparations (details are given in Part 3)
Austral.: Promensil; Trinovin; ***Braz.:*** Climadil; Clinet; ***Indon.:*** Promeno; ***UK:*** Menoflavon.

Multi-ingredient: ***Austral.:*** Bioglan Mens Super Soy/Clover; Bioglan Soy Power Plus; Lifechange Menopause Formula†; Trifolium Complex†; ***Indon.:*** Femosa; Osteopor; ***Malaysia:*** Cleansa Plus†; ***Spain:*** Fitogyn.

Cnicus Benedictus

Blessed Thistle; Cardo Santo; Chardon Bénit; Holy Thistle; Kardobenediktenkraut.

Profile
Cnicus benedictus, the flowering tops of *Cnicus benedictus* (*Carbenia benedicta; Carduus benedictus*) (Compositae), has been used as a bitter.

Homoeopathy. Cnicus benedictus has been used in homoeopathic medicines under the following names: Carduus benedictus.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Austria:*** Mariazeller; ***Braz.:*** Digestron†; ***Cz.:*** Ungolen†; ***Ger.:*** Carvomin†; Cheirantho†; Gallexier; Gastritol; ***Pol.:*** Artecholin; Artecholwex; ***Rus.:*** Original Grosser Bittner Balsam (Оригинальный Большой Бальзам Биттнера); ***S.Afr.:*** Essens Amara of Groen Amara; ***Switz.:*** Gastrosan; ***UK:*** Bio-Strath Artichoke Formula; Sure-Lax (Herbal).

Cobalt Chloride

Cloruro cobaltoso; Cobalto, cloruro de; Cobaltous Chloride; Kobaltu(II) chlorek.

$CoCl_2,6H_2O$ = 237.9.
CAS — 7646-79-9 (anhydrous cobalt chloride); 7791-13-1 (cobalt chloride hexahydrate).

Adverse Effects
Reactions to cobalt have included anorexia, nausea and vomiting, diarrhoea, precordial pain, cardiomyopathy, flushing of the face and extremities, skin rashes, tinnitus, temporary nerve deafness, renal injury, diffuse thyroid enlargement, and hypothyroidism. In large doses it may reduce the production of erythrocytes.

◊ References.

1. Kennedy A, *et al*. Fatal myocardial disease associated with industrial exposure to cobalt. *Lancet* 1981; **i:** 412–4.
2. Cugell DW, *et al*. The respiratory effects of cobalt. *Arch Intern Med* 1990; **150**: 177–83.
3. Evans P, *et al*. Cobalt and cobalt compounds. *Toxicity Review 29*. London: HMSO, 1993.

Uses and Administration
Cobalt chloride, when given to both normal and anaemic subjects, produces reticulocytosis and a rise in the erythrocyte count. This property suggested its use in the treatment of certain types of anaemia, but its general therapeutic use is, however, unjustified and not without danger.

In veterinary medicine, cobalt chloride has been given as a dietary supplement to ruminants.

Cobalt Oxide

Cobalto, óxido de; Tetraóxido de tricobalto; Tricobalt Tetroxide.

Co_3O_4 = 240.8.
CAS — 1308-06-1.

Pharmacopoeias. In *BP(Vet)*.
BP(Vet) 2008 (Cobalt Oxide). It consists of cobalt (II, III) oxide (tricobalt tetroxide) with a small proportion of cobalt (III) oxide (dicobalt trioxide). A black powder. Practically insoluble in water; dissolves in mineral acids and in solutions of alkali hydroxides.

Profile
Cobalt oxide is used in veterinary practice for the prevention of cobalt deficiency in ruminants. The chloride and sulfate have been used similarly. For the adverse effects of cobalt, see Cobalt Chloride, above.

Coccidioidin

Coccidioidina.

Pharmacopoeias. In *US*.
USP 31 (Coccidioidin). A sterile solution containing the antigens obtained from the byproducts of mycelial growth or from the spherules of the fungus *Coccidioides immitis*; it contains a suitable antimicrobial. A clear, practically colourless or amber-coloured liquid. Store at 2° to 8°. Any dilutions should be stored at 2° to 8° and used within 24 hours. The expiry date is not later than 3 years (mycelial product) or 18 months (spherule-derived product) after release from the manufacturer's cold storage.

Profile
Coccidioidin has been used as an aid to the diagnosis of coccidioidomycosis and, in conjunction with other antigens, to assess the status of cell-mediated immunity. A usual dose of 0.1 mL of a 1 in 100 dilution by intradermal (intracutaneous) injection has been used.

Preparations

USP 31: Coccidioidin.

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

Cocoyl Caprylocaprate

Coco-Caprylate/Caprate; Cocoyle, caprylocaprate de; Cocoylis caprylocapras; Cocoylis Octanodecanoas; Kokoilo kaprilokapratas; Kokoyl oktanodekanoát; Kokoylkaprylokaprat; Kokoyylikaprylokapraatti; Kókuszalkoholok kaprilátjai és kaprátjai.
CAS — 95912-86-0.

Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Cocoyl Caprylocaprate). A mixture of esters of saturated C_{12} to C_{18} alcohols with caprylic (octanoic) and capric (decanoic) acids obtained by the reaction of these acids with vegetable saturated fatty alcohols. Relative density about 0.86. Viscosity about 11 mPa s. A slightly yellowish liquid. Practically insoluble in water; miscible with alcohol and with liquid paraffin.

Profile
Cocoyl caprylocaprate is used as an emollient.

Coenzyme A

CoA; CoASH; Coenzima A. 5′-*O*-{3-Hydroxy-3-[2-(2-mercaptoethylcarbamoyl)ethylcarbamoyl]-2,2-dimethylpropyl}adenosine-3′-dihydrogenphosphate-5′-trihydrogendiphosphate.
$C_{21}H_{36}N_7O_{16}P_3S$ = 767.5.
CAS — 85-61-0.

Profile
Formed from adenosine triphosphate, cysteine, and pantothenic acid, coenzyme A is involved in the body in many physiological roles, including the formation of citrate, the oxidation of pyruvate, the oxidation and synthesis of fatty acids, the synthesis of triglycerides, cholesterol, and phospholipids, and the acetylation of amines, choline, and glucosamine. It has been given by injection in a variety of metabolic disorders.

Cogalactoisomerase Sodium

Cogalactoisomerasa sódica; UDPG; Uridine-5′-diphosphoglucose Sodium.
$C_{15}H_{22}N_2Na_2O_{17}P_2,3H_2O$ = 664.3.
CAS — 133-89-1 (cogalactoisomerase).

Profile
Cogalactoisomerase sodium has been used in various hepatic disorders.

Preparations

Proprietary Preparations (details are given in Part 3)
Ital.: Bivitox†; Epatoxil†; Liverasi†; Toxepasi†.

Colforsin *(USAN, rINN)*

Boforsin; Colforsina; Colforsine; Colforsinum; Forscolin; Forskolin; HL-362; L-75-1362B. (3*R*,4a*R*,5*S*,6*S*,6a*S*,10*S*,10a*R*,10b*S*)-Dodecahydro-5,6,10,10b-tetrahydroxy-3,4a,7,7,10a-pentamethyl-3-vinyl-1*H*-naphtho[2,1-*b*]pyran-1-one, 5-acetate.

Колфорсин
$C_{22}H_{34}O_7$ = 410.5.
CAS — 66575-29-9.

Colforsin Daropate Hydrochloride *(rINNM)*

Colforsin Dapropate Hydrochloride; Colforsine, Chlorhydrate de Daropate de; Colforsini Daropatis Hydrochloridum; Hidrocloruro del daropato de colforsina; NKH-477.

Колфорсина Даропата Гидрохлорид

$C_{27}H_{43}NO_8$,HCl = 546.1.

CAS — 138605-00-2.

Profile

Colforsin is an adenylate cyclase stimulator derived from the plant *Plectranthus barbatus* (*Coleus forskohlii*) (Labiatae). It has been investigated for a number of conditions, including glaucoma and impotence. It is reported to have positive inotropic and bronchodilator effects. It has been used in the form of colforsin daropate hydrochloride.

Preparations

Proprietary Preparations (details are given in Part 3)
Jpn: Adehl.

Collagen

Colágeno.

ATC — B02BC07; G04BX11.

ATC Vet — QB02BC07; QG04BX11.

Pharmacopoeias. *US* includes Bovine Acellular Dermal Matrix.

USP 31 (Bovine Acellular Dermal Matrix). A remodelable collagen scaffold derived from fetal or neonatal bovine skin. It is presented as a flat white sheet that is cut to size and hydrated in sterile saline solution prior to implantation. It is utilised as a structural scaffold in orthopaedic, neurosurgical, urogynaecological, dermatological, plastic, and other reconstructive procedures. The source fetal or neonatal bovine skin is mechanically and chemically processed to isolate the dermis and remove cells and cellular components. To prevent the transmission of infectious disease, the manufacturing process is validated to inactivate viruses potentially present in the source material. To prevent the spread of transmissible spongiform encephalopathies, the source material is acquired from appropriate geographic locations. Store at 15° to 30°.

Profile

Collagen is a fibrous protein component of mammalian connective tissue making up almost one third of the total body protein.

Collagen, processed in a variety of ways, has been used in surgery as a haemostatic and as a repair and suture material. For cosmetic purposes it has been injected into the dermis to correct scars and other contour deformities of the skin. Collagen implants have been used to block tear outflow in the management of dry eye (p.2140).

Intraurethral administration of collagen has been used in the treatment of stress incontinence (p.2180). There has also been interest in the use of collagen by mouth to suppress the inflammatory process in rheumatoid arthritis (p.11), osteoarthritis (p.11), and scleroderma (p.1817).

Elastin, another component of connective tissue, is an ingredient, often with collagen, of various topical preparations promoted for skin disorders.

◊ References.

1. Herschorn S, *et al.* Early experience with intraurethral collagen injections for urinary incontinence. *J Urol (Baltimore)* 1992; **148:** 1797–1800.
2. Sieper J, *et al.* Oral type II collagen treatment in early rheumatoid arthritis: a double-blind, placebo-controlled, randomized trial. *Arthritis Rheum* 1996; **39:** 41–51.
3. Stanton SL, Monga AK. Incontinence in elderly women: is periurethral collagen an advance? *Br J Obstet Gynaecol* 1997; **104:** 154–7.
4. Anonymous. GAX collagen for genuine stress incontinence. *Drug Ther Bull* 1997; **35:** 86–7.
5. Moskowitz RW. Role of collagen hydrolysate in bone and joint disease. *Semin Arthritis Rheum* 2000; **30:** 87–99.
6. Hamraoui K, *et al.* Efficacy and safety of percutaneous treatment of iatrogenic femoral artery pseudoaneurysm by biodegradable collagen injection. *J Am Coll Cardiol* 2002; **39:** 1297–1304.
7. Corcos J, *et al.* Multicenter randomized clinical trial comparing surgery and collagen injections for treatment of female stress urinary incontinence. *Urology* 2005; **65:** 898–904.
8. Bello AE, Oesser S. Collagen hydrolysate for the treatment of osteoarthritis and other joint disorders: a review of the literature. *Curr Med Res Opin* 2006; **22:** 2221–32.
9. Poon CI, Zimmern PE. Is there a role for periurethral collagen injection in the management of urodynamically proven mixed urinary incontinence? *Urology* 2006; **67:** 725–9.
10. Sakamoto K, *et al.* Long-term subjective continence status and use of alternative treatments by women with stress urinary incontinence after collagen injection therapy. *World J Urol* 2007; **25:** 431–3.

Preparations

Proprietary Preparations (details are given in Part 3)
Arg.: Covadenyl; Eurohair; Hidroplus CL; Medic-S†; Membracel†; Proteita†; Skinderm CL; Zyplast†; ***Austral.:*** Ionil Rinse; Zyderm; Zyplast; ***Canad.:*** Dermatix Catrix†; ***Chile:*** Artrimax; ***Fr.:*** Pangen; ***Ger.:*** Catrix; Colloss; Hemocol; Matricur; Medifome; Pangen†; Porcoll†; Promogran†; Surgicoll†; Tachotop N†; TissuCone; TissuFleece; TissuFoil; Tutoplast Dura; Tutoplast Fascia lata; Zyderm†; Zyplast†; ***Gr.:*** Gelfix; ***Hong Kong:*** Avitene†; Zyderm†; Zyplast†; ***Ital.:*** Alfagen†; Condress; Idroskin; Neopelle†; Skinat; Stimtes†; ***Mex.:*** Fibroquel; ***Neth.:*** Willospon Forte†; ***NZ:*** Contigen; Ionil Rinse†; ***Port.:*** Catrix†; ***Singapore:*** Articolase†; CosmoDerm; CosmoPlast; Zyderm†; Zyplast†; ***UK:*** Catrix†; Contigen; ***USA:*** Avitene; Hemotene†.

Multi-ingredient: ***Arg.:*** Amenite E†; Amenite Plus†; Aristaloe; Aspergun†; Celuvital†; Colageno + C; Collagen T2-Gag†; E-devit; Estri-Atlas; Fibracol Plus; Galenic Restaurador Capilar; Hidroplus Nieve†; Hidrosam; Hidrosam T; Lociherp Liposomas Antiage; Lociherp Liposomas Vitaminado; Medicreme; Puraloe Nutritivo; Rep-Cartil; Skinderm R; Totalos Plus; Turgent Colageno; ***Austral.:*** John Plunketts Protective Day Cream; John Plunketts Super Wrinkle Cream; ***Austria:*** TachoComb; ***Belg.:*** Duracoll; ***Chile:*** Acnoxyl Gel Humectante; ***Cz.:*** TachoComb†; ***Fr.:*** Collatamp G†; Promogran; Taido; ***Ger.:*** Collapat II; Integra†; Septocoll; TachoComb†; Targobone; ***Hong Kong:*** TachoComb; ***Hung.:*** TachoComb†; ***Indon.:*** Biolastin; Jointfit; Legreskin; OA Plus; ***Ital.:*** Artrodue; Biomineral 5-Alfa Shampoo; Emofix; Osteoclar; Promogran; Reumilase SD; Secril; Unidermo; ***Malaysia:*** Balance Elastin E†; ***Rus.:*** TachoComb (ТахоКомб); ***Singapore:*** Articolase (w/glucosamine); Seven Seas JointCare Max; ***Switz.:*** Gorgonium; ***Thai.:*** TachoComb†; ***UK:*** Collatamp EG; Jointace; JointCare Max; ***USA:*** PDP Liquid Protein; ***Venez.:*** Artrosamin.

Collagenase

Clostridiopeptidas; Clostridiopeptidase A; Clostridiopeptidasum A; Colagenasa; Klostridiopeptidaasi A.

CAS — 9001-12-1.

ATC Vet — QD03BA02.

Profile

Collagenase is a proteolytic enzyme derived from the fermentation of *Clostridium histolyticum* and has the ability to break down collagen. Preparations containing collagenase are used topically for the debridement of dermal ulcers and burns, and possibly other necrotic lesions, to facilitate granulation and epithelialisation. It has also been given by injection into the intervertebral disc for chemonucleolysis in the treatment of lumbar disc herniation (see low Back Pain, p.7). Collagenase is under investigation for use in Dupuytren's disease and Peyronie's disease.

Hypersensitivity reactions may occur. Local burning, erythema, and pain have been reported at the site of application. It has been suggested that debridement of infected wounds may increase the risk of bacteraemia and that patients should be watched for signs of systemic bacterial infection. The activity of collagenase may be reduced by antiseptics containing detergents, hexachlorophene, and heavy metal ions.

Collagenase potency is expressed in units based on the amount of enzyme required to degrade a standard preparation of undenatured collagen.

Chemonucleolysis. Collagenase has been studied as an alternative to chymopapain (p.2281) for chemonucleolysis because of the risk of anaphylaxis with the latter. Although early studies with collagenase reported benefit, there were also reports of back pain and muscle spasm.[1] Collagenase was not as effective as chymopapain in a comparative study,[2] and further study may be warranted before a firm recommendation can be made.

1. Brown MD. Update on chemonucleolysis. *Spine* 1996; **21** (24 suppl): 62S–68S.
2. Wittenberg RH, *et al.* Five-year results from chemonucleolysis with chymopapain or collagenase: a prospective randomized study. *Spine* 2001; **26:** 1835–41.

Dupuytren's disease. Collagenase has been reported to be of benefit in the treatment of Dupuytren's contracture.[1]

1. Badalamente MA, Hurst LC. Efficacy and safety of injectable mixed collagenase subtypes in the treatment of Dupuytren's contracture. *J Hand Surg (Am)* 2007; **32:** 767–74.

Peyronie's disease. Beneficial effects have been reported with intralesional collagenase in men with Peyronie's disease.[1-3]

1. Gelbard MK, *et al.* The use of collagenase in the treatment of Peyronie's disease. *J Urol (Baltimore)* 1985; **134:** 280–3.
2. Gelbard MK, *et al.* Collagenase versus placebo in the treatment of Peyronie's disease: a double-blind study. *J Urol (Baltimore)* 1993; **149:** 56–8.
3. Jordan GH. The use of intralesional clostridial collagenase injection therapy for Peyronie's disease: a prospective, single-center, non-placebo-controlled study. *J Sex Med* 2008; **5:** 180–7.

Preparations

Proprietary Preparations (details are given in Part 3)
Belg.: Iruxol Mono; ***Braz.:*** Iruxol Mono; Kollagenase; ***Canad.:*** Santyl†; ***Gr.:*** Iruxol Mono; ***Hong Kong:*** Iruxol Mono; ***Ital.:*** Noruxol; ***Neth.:*** Novuxol; ***Port.:*** Ulcerase; ***Switz.:*** Iruxol Mono; ***Turk.:*** Novuxol; ***USA:*** Santyl; ***Venez.:*** Iruxol Simplex.

Multi-ingredient: ***Arg.:*** Iruxol; ***Braz.:*** Gyno Iruxol; Iruxol; Kollagenase com cloranfenicol; ***Cz.:*** Iruxol Mono; ***Fin.:*** Iruxol; Iruxol Mono; ***Ger.:*** Iruxol N†; ***Hung.:*** Iruxol Mono; ***Irl.:*** Iruxol Mono; ***Ital.:*** Iruxol; ***Malaysia:*** Iruxol Mono; ***Mex.:*** Ulcoderma; ***Rus.:*** Iruxol (Ируксол); ***S.Afr.:*** Iruxol Mono; ***Singapore:*** Iruxol Mono; ***Spain:*** Iruxol Mono; Iruxol Neo.

Colophony

Colofonia; Coloph.; Colophane; Colophonium; Kalafuna; Kanifolija; Kolofoni; Kolofónium; Kolofonium; Resin; Resina Pini; Resina Terebinthinae; Rosin.

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

Ph. Eur. 6.2 (Colophony). The residue remaining after distillation of the volatile oil from the oleoresin obtained from various species of *Pinus*. Translucent, pale yellow to brownish-yellow, angular, irregularly shaped, brittle, glassy pieces of different sizes the surfaces of which bear conchoidal markings. Do not reduce to a fine powder.

Profile

Colophony is an ingredient of some collodions and plaster-masses. It has been used as an ingredient of ointments and dressings for wounds and minor skin disorders. Skin sensitisation and allergic respiratory symptoms have been reported.

Hypersensitivity. Reviews.

1. Downs AM, Sansom JE. Colophony allergy: a review. *Contact Dermatitis* 1999; **41:** 305–10.

Preparations

BP 2008: Flexible Collodion.

Proprietary Preparations (details are given in Part 3)
Rus.: Biopin (Биопин)†.

Multi-ingredient: ***Austral.:*** Zam-Buk†; ***Austria:*** Ehrenhofer-Salbe; Vulpuran; ***Braz.:*** Basilicao†; ***Ital.:*** Fialetta Odontalgica Dr Knapp; ***Mex.:*** Parche Negro Belladona; ***Switz.:*** Leucen; ***UK:*** Dispello; Herbheal Ointment; Pickles Corn Caps.

Comfrey

Boneset; Comfrey Root; Consolidae Radix; Consuelda; Symphytum.

NOTE. Boneset is also a common name used for *Eupatorium perfoliatum* (see p.2267).

Pharmacopoeias. *Br.* includes Symphytum Officinale Root for Homoeopathic Preparations and Symphytum Officinale Root, Ethanol. decoctum for Homoeopathic Preparations.

BP 2008 (Symphytum Officinale Root for Homoeopathic Preparations). The fresh root of *Symphytum officinale*.

BP 2008 (Symphytum Officinale Root, Ethanol. decoctum for Homoeopathic Preparations). The fresh root of *Symphytum officinale*.

Profile

Comfrey consists of the dried root and rhizome of *Symphytum officinale* (Boraginaceae); the leaf has also been used. It contains about 0.7% of allantoin, large quantities of mucilage, and some tannin. It may also contain pyrrolizidine alkaloids.

Comfrey was formerly used as an application to wounds and ulcers to stimulate healing and was also given systemically for gastric ulceration. It has been applied topically in the treatment of inflammatory disorders. The healing action of comfrey has been attributed to the presence of allantoin (p.1588).

There are reports of hepatotoxicity attributed to pyrrolizidine alkaloids present in comfrey preparations and such preparations have been withdrawn or banned in a number of countries.

Homoeopathy. Comfrey has been used in homoeopathic medicines under the following names: Symphytum officinale; Symph. of.

◊ References.

1. Stickel F, Seitz HK. The efficacy and safety of comfrey. *Public Health Nutr* 2000; **3:** 501–8.
2. Grube B, *et al.* Efficacy of a comfrey root (Symphyti offic. radix) extract ointment in the treatment of patients with painful osteoarthritis of the knee: results of a double-blind, randomised, bicenter, placebo-controlled trial. *Phytomedicine* 2007; **14:** 2–10.
3. D'Anchise R, *et al.* Comfrey extract ointment in comparison to diclofenac gel in the treatment of acute unilateral ankle sprains (distortions). *Arzneimittelforschung* 2007; **57:** 712–16.

Adverse effects. Toxic pyrrolizidine alkaloids have been isolated from several species of comfrey plants including common comfrey (*Symphytum officinale*), prickly comfrey (*S. asperum*), and Russian comfrey (*S. uplandicum*). Ingestion of plants containing pyrrolizidine alkaloids is a common cause of hepatic veno-occlusive disease in developing countries[1] and pyrrolizidine alkaloid hepatotoxicity presumably due to comfrey has been reported in North America and Europe.[1,2] Pulmonary endothelial hyperplasia and carcinogenic activity have also been reported in *animals*.[1,2]

1. Ridker PM, McDermott WV. Comfrey herb tea and hepatic veno-occlusive disease. *Lancet* 1989; **i:** 657–8.
2. Bach N, *et al.* Comfrey herb tea-induced hepatic veno-occlusive disease. *Am J Med* 1989; **87**: 97–9.

Preparations

Proprietary Preparations (details are given in Part 3)
Austria: Traumaplant; ***Cz.:*** Traumaplant; ***Ger.:*** Kytta-Plasma f; Kytta-Salbe f; Traumaplant; ***Indon.:*** Mediflor; ***Switz.:*** Kytta Pommade; ***UK:*** Comfrelieve; ***Venez.:*** Traumaplant.

Multi-ingredient: ***Cz.:*** Dr Theiss Beinwell Salbe†; Stomatosan†; ***Ger.:*** Kytta-Balsam f; Rhus-Rheuma-Gel N; Syviman N†; ***Israel:*** Comfrey Plus; ***Switz.:*** Gel a la consoude; Keppur; Kytta Baume; Kytta Gel†.

Complement Blockers

Inhibidores del complemento.

Блокаторы Комплемента

Profile

Complement is a group of plasma and cellular proteins contributing to the innate immune system and is so called because it complements the microbicidal action of antibodies. The complement system is activated by the antigen-antibody complex followed by a cascade reaction of complement proteins culminating in microbial cell lysis. Complement also plays a part in many other physiological processes and regulatory mechanisms are in place to prevent inflammatory damage to host tissues through the