

Profile

The leaves of the cowberry, *Vaccinium vitis-idaea* (Ericaceae), have astringent properties and have been used as a domestic remedy for diarrhoea.

Preparations

Proprietary Preparations (details are given in Part 3)

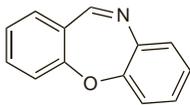
Multi-ingredient: **Pol:** Diuronis.

CR Gas

EA-3547; Gas CR. Dibenz[b,f][1,4]oxazepine.

$C_{13}H_9NO = 195.2$.

CAS — 257-07-8.

**Profile**

A riot-control gas with irritant and lachrymatory properties similar to those of CS gas (p.2290); it is described as a tear gas. CR gas is reported not to be hydrolysed by water and therefore to be suitable for use in water cannons.

◇ References.

- Blain PG. Tear gases and irritant incapacitants. 1-chloroacetophenone, 2-chlorobenzylidene malononitrile and dibenz[b,f]-1,4-oxazepine. *Toxicol Rev* 2003; **22**: 103–10.

Cranberry

Arándano.

Pharmacopoeias. US includes a liquid preparation.

USP 31 (Cranberry Liquid Preparation). The bright red juice derived from the fruits of *Vaccinium macrocarpon* or *V. oxycoccos* (Ericaceae). It contains no added substances and is for manufacturing purposes only. pH between 2.4 and 2.6. Store at 2° to 8°.

Profile

Cranberry consists of the fruit of *Vaccinium macrocarpon*, the American cranberry or *V. oxycoccos*, the European cranberry. Cranberry juice has been reported to reduce the incidence of urinary-tract infections.

Interactions. For a report of interactions between cranberry juice and warfarin, see p.1430.

Urinary-tract infections. Cranberries and cranberry juice have been used widely for many years for both the prevention and treatment of urinary-tract infections. A systematic review¹ of available data concluded that there was some evidence that cranberry juice for prevention may decrease the number of symptomatic urinary-tract infections in women over a 12 month period, particularly those with recurrent infections. However, evidence for efficacy in the elderly is inconclusive, and currently lacking in patients with neurogenic bladder. The authors recommended further controlled studies in all susceptible patient groups, and also into more acceptable dosage formulations. However, another such review² assessing the effectiveness of cranberry for treatment concluded that there was no good quality evidence to suggest that it is effective.

- Jepson RG, Craig JC. Cranberries for preventing urinary tract infections. Available in The Cochrane Database of Systematic Reviews; Issue 1. Chichester: John Wiley; 2008 (accessed 18/04/08).
- Jepson RG, et al. Cranberries for treating urinary tract infections. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 1998 (accessed 18/04/08).

Preparations

Proprietary Preparations (details are given in Part 3)

Arg: Urosecad; **Austral:** Uricleansea†; **Canad:** Cran Max†; **Fr:** Cys Control; Gyndelta; **Ital:** Ivumir.

Multi-ingredient: **Arg:** Uridon; **Austral:** Bioglan Cranbiotic Super; Cranberry Complex; Extralife Uri-Care; **Canad:** Cran-C†; Prostate; **Hong Kong:** Prostate; **Pol:** Diabetosol; Urosept.

Crataegus

Aubépine; Aubépine, baie d' (hawthorn berries); Aubépine, feuille et fleur d' (hawthorn leaf and flowers); Biancospino; Crataegi folium cum flore (hawthorn leaf and flowers); Crataegi fructus (hawthorn berries); Crataegi Inflorescentia (hawthorn leaf and flowers); English Hawthorn; Galagonyatermés (hawthorn berries); Gudobeli vasisai (hawthorn berries); Hagtornsbar (hawthorn berries); Haw; Hlohový plod (hawthorn berries); Kwiatostan glogu (hawthorn leaf and flowers); Orapihlajanmarja (hawthorn berries); Owoc glogu (hawthorn berries); Pilriteiro; Weissdorn; Whitethorn.

ATC — C01EB04.

ATC Vet — QC01EB04.

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

Ph. Eur. 6.2 (Hawthorn Berries; Crataegi Fructus). The dried false fruits of *Crataegus oxyacantha* (*C. laevigata*), or *C. monogyna*, or their hybrids or a mixture of these false fruits. They contain not less than 1% of procyanidins, calculated as cyanidin chloride ($C_{15}H_{11}ClO_6 = 322.7$) with reference to the dried drug. Protect from light.

Ph. Eur. 6.2 (Hawthorn Leaf and Flower; Crataegi Folium cum Flore). The whole or cut, dried flower bearing branches of *Crataegus oxyacantha* (*C. laevigata*), or *C. monogyna*, or their hybrids or, more rarely, other European *Crataegus* species including *C. pentagyna*, *C. nigra*, and *C. azarolus*. It contains not less than 1.5% of flavonoids, calculated as hyperoside ($C_{27}H_{20}O_{12} = 464.4$) calculated with reference to the dried drug. Protect from light.

USP 31 (Hawthorn Leaf with Flower). The dried tips of the flower-bearing branches up to 7 cm in length of *Crataegus monogyna* or *C. laevigata*, also known as *C. oxyacantha* (Rosaceae). It contains not less than 0.6% of C-glycosylated flavones, expressed as vitexin ($C_{27}H_{20}O_{10} = 432.4$), and not less than 0.45% of C-glycosylated flavones, expressed as hyperoside, calculated with reference to the dried drug. Protect from light.

Profile

Crataegus contains flavonoid glycosides with cardiotonic properties similar to those of digoxin (p.1259). Crataegus is used in herbal medicine.

Homeopathy. Crataegus has been used in homeopathic medicines under the following names: Crataegus oxyacantha; Crat. oxy.

◇ Crataegus is used in herbal medicine for cardiovascular disorders.^{1,4} A systematic review² of controlled studies concluded that it shows significant benefit compared with placebo as an adjunctive treatment for chronic heart failure. A review³ of data currently available indicates that it is rarely associated with serious adverse effects, although the authors noted that problems may occur with its unsupervised use, especially if given with other drugs.

- Rigles JM, Sweet BV. Hawthorn: pharmacology and therapeutic uses. *Am J Health-Syst Pharm* 2002; **59**: 417–22.
- Chang Q, et al. Hawthorn. *J Clin Pharmacol* 2002; **42**: 605–12.
- Daniele C, et al. Adverse-event profile of Crataegus spp.: a systematic review. *Drug Safety* 2006; **29**: 523–35.
- Pittler MH, et al. Hawthorn extract for treating chronic heart failure. Available in The Cochrane Database of Systematic Reviews; Issue 1. Chichester: John Wiley; 2008 (accessed 18/04/08).

Preparations

Ph. Eur. Hawthorn Leaf and Flower Dry Extract.

Proprietary Preparations (details are given in Part 3)

Austria: Bericard; Crataegan; Crataegutt; **Belg:** Aubeline; **Braz:** Dekatin; **Chile:** Cratenox; **Cz:** Caj z Hlohú; Cardiplant†; Hloh; Kneipp Pflanzen-Dragees Weissdorn†; **Fr:** Aubeline; Cardicalm; Spasmosedine†; **Ger:** Adenyloract†; Ardeycordal mono; Basticrat†; Born; Chronocard N; Cordapur Novo; Corocrat†; Craegium; Cratae-Loges; Crataegutt; Crataegysat; Crataepas†; Cratocort†; Dr Niedermaier Herztönikum; Ešbericard novo; Faros; Koro-Nyhadin; Kytta-Cor; Lomacard†; Natucor; Orthaning novo; Oxacant-novo; Poikilocard Mono†; Proteccor novo; Regulacor-POS; Senicort†; Steicorton†; Stenocrat mono; **Hung:** Crataegutt†; **Pol:** Cardiplant; Chronocard; Cratonix; **Rus:** Doppelherz Cardioval (Доппельгерц Кардиовалит); Novo-Passit (Ново-Пассит); **Switz:** Cardiplant; Crataegian; Faros; Sedosan-N†; Vitacor.

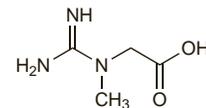
Multi-ingredient: **Arg:** Hepatodirectol; Passacanthine†; Sequals G; **Austral:** Asa Tones; Bioglan Bioage Peripheral; Coleus Complex; Dan Shen Compound; For Peripheral Circulation Herbal Plus Formula 5; Gingo A†; Ginkgo Bloba Plus†; Ginkgo Complex†; Lifechange Circulation Aid†; Life-system Herbal Formula 6 For Peripheral Circulation†; Multi-Vitamin Day & Night†; **Austria:** Corodynt†; Omega; Rutviscal; Virgilocard; Wechsletze St Severin; **Belg:** Natudor; Sedinal; Seneuval; **Braz:** Anevraser†; Calman; Calmazin†; Calmipran; Floriny; Passalio; Passic; Passi Catha†; Passiflora Composita†; Passiflorine; Sedalin†; Serenus; Sominox; **Chile:** Armony†; **Cz:** Alvisan Neo; Fytokliman Planta; Hertz- und Kreislaufteet†; Hypotonidka; Novo-Passit; Valoflyt Neo; **Fr:** Anxoral†; Biocard; Euphytone; Germoste†; Lenicalm†; Mediflor Tisane Calmante Troubles du Sommeil No 14; Mediflor Tisane Circulation du Sang No 12; Natudor; Neuroflorine; Nicoprine; Novcalene†; Okimus; Passiflorine; Passinevry†; Phytocalm†; Sedatif Tiber; Sedopal; Spasmine; Sympaneur†; Sympathyl; Sympavagol; Tranquital; Vagostabyl†; **Ger:** Antihypertonicum S; Ardeycordal N†; Asgovium N†; Biovital Aktiv†; Biovital Classic; Bacomarin; Cardibisan†; Cardio-Kreislauf-Longoral; Chlorophyl liquid "Schuh"†; Convallocor-SL; Convastabil; Cor-Select†; Foyosat†; Ginseng-Complex "Schuh"†; Herz-Starkung N†; Heusint†; Iija Rogoff; JuViton†; Korodin; Lacerodin Mg Plus†; Nephrius P†; Nitro-Crataegutt†; Oxacant N†; Oxacant-forte N†; Oxacant-Khella N†; Oxacant-sedativ; Passin; Presselin Arterien K 5 P†; Proteccor; Salus Herz-Schutz-Kapseln†; Saluscor Herz-Schutz; Septacort; Stenocrat†; Tomix Viscorapas duo†; **Hong Kong:** Ginkgo Plus Vivo-Livo†; **Hung:** Biovital†; **Indon:** Procardio; **Israel:** Nerven-Dragees; Passiflora; **Ital:** Anevrasi; Bianco Val†; Controller; Lenicalm; Noctis; Parvisedil; Passiflorine; Sedatol; Sedofit; Sedosofier F; Vagostabil; **Malaysia:** Circarol; **Mex:** Ifupasil; **Philipp:** Circulan; **Pol:** Alliorut; Biovital N; Cardiaciv; Cardiobonisol; Cardiol C; Cardiotonic; Cravisol; Fitoven; Ginkgocard; Herbaton; Kelicardina; Melis-Tonic; Melisal; Melised; Neocardina; Neospasmina; Neospasmol; Nerwobonisol; Nerwonal; Passibil; Passispasmin; Passispasmol; Perfocrat; Sedomix; Tabletki Tonizujace; Venoforton†; **Port:** Gabisedil†; Neurocardol†; **Rus:** Doppelherz Vitalotonic (Доппельгерц Виталотоник); Herbion Drops for the Heart (Гербион Сердечные Капли); Passifit (Пассифит); **Singapore:** Noricaven†; **Spain:** Natusor High Blood Pressure†; Natusor Somnisedat†; Passiflorine; Sedasor†; Sedonast; Sonofit†; Tensibent†; **Switz:** Arterosan Plus; Cardiaforce; Circulan; Dragees pour le coeur et les nerfs; Dragees sedatives Dr Welti; Gouttes pour le coeur et les nerfs Concentrees†; Ipassin; Phytomed Cardio; Sirop Passi-Par†; Strath Gouttes pour le coeur; Tisane pour le coeur et la circulation; Triallin; Valverde Coeur; **Venez:** Cratex†; Equalvi; Ervostal; Eufytose†; Pasidor; Passifluidina; Passiflorum.

Creatine

N-(Aminiminomethyl)-N-methylglycine.

$C_4H_9N_3O_2 = 131.1$.

CAS — 57-00-1 (creatine); 6020-87-7 (creatine monohydrate).

**Creatine Phosphate**

Creatina, fosfato de; Creatine Phosphoric Acid; Fosfocreatine; Phosphocreatine. N-[Imino(phosphonoamino)-methyl]-N-methylglycine.

$C_4H_{10}N_3O_5P = 211.1$.

CAS — 67-07-2 (creatine phosphate); 922-32-7 (creatine phosphate disodium).

ATC — C01EB06.

ATC Vet — QC01EB06.

Profile

Creatine is an endogenous substance found mainly in skeletal muscle of vertebrates. Creatine phosphate and its disodium salt have been tried in the treatment of cardiac disorders. Creatine phosphate has also been added to cardioplegic solutions. Creatine monohydrate has been tried in metabolic disorders and used as a dietary supplement. It is also under investigation for the treatment of Parkinson's disease, motor neurone disease (p.2380), Duchenne muscular dystrophy, and Huntington disease.

◇ References.

- Pedone V, et al. An assessment of the activity of creatine phosphate (Neoton) on premature ventricular beats by continuous ECG monitoring in patients with coronary cardiac disease. *Clin Trials J* 1984; **21**: 91.
- Ferraro S, et al. Acute and short-term efficacy of high doses of creatine phosphate in the treatment of cardiac failure. *Curr Ther Res* 1990; **47**: 917–23.
- Mastoroberto P, et al. Creatine phosphate protection of the ischemic myocardium during cardiac surgery. *Curr Ther Res* 1992; **51**: 37–45.
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- Juhn MS, Tarnopolsky M. Oral creatine supplementation and athletic performance: a critical review. *Clin J Sport Med* 1998; **8**: 286–97. Correction. *ibid.* 1999; **9**: 62.
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- Persky AM, Brazeau GA. Clinical pharmacology of the dietary supplement creatine monohydrate. *Pharmacol Rev* 2001; **53**: 161–76.
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- Persky AM, et al. Pharmacokinetics of the dietary supplement creatine. *Pharmacol Res* 2003; **42**: 557–74.
- Shefner JM, et al. A clinical trial of creatine in ALS. *Neurology* 2004; **63**: 1656–61.
- Ellis AC, Rosenfeld Jo. The role of creatine in the management of amyotrophic lateral sclerosis and other neurodegenerative disorders. *CNS Drugs* 2004; **18**: 967–80.
- Tarnopolsky MA, et al. Creatine monohydrate enhances strength and body composition in Duchenne muscular dystrophy. *Neurology* 2004; **62**: 1771–7.
- Pline KA, Smith CL. The effect of creatine intake on renal function. *Ann Pharmacol Ther* 2005; **39**: 1093–6.
- Hersch SM, et al. Creatine in Huntington disease is safe, tolerable, bioavailable in brain and reduces serum 8OH2'-dG. *Neurology* 2006; **66**: 250–2.
- Bender A, et al. Creatine supplementation in Parkinson disease: a placebo-controlled randomized pilot trial. *Neurology* 2006; **67**: 1262–4.
- Kley RA, et al. Creatine for treating muscle disorders. Available in The Cochrane Database of Systematic Reviews; Issue 1. Chichester: John Wiley; 2007 (accessed 18/04/08).

Preparations

Proprietary Preparations (details are given in Part 3)

Arg: Musashi Creatina†; **Cz:** Neoton; **Ital:** Creatile; Neoton†; **Pol:** Neoton; **Rus:** Neoton (Heoton).

Multi-ingredient: **Ital:** Fortium.

Creatinine

Creatinina. 2-Amino-1-methyl-4-imidazolidinone.

$C_4H_7N_3O = 113.1$.

CAS — 60-27-5.

Pharmacopoeias. In *Ger.* Also in *USNF*.

USNF 26 (Creatinine). White, odourless, crystals or crystalline powder. Soluble in water; slightly soluble in alcohol; practically insoluble in acetone, in chloroform, and in ether.