

**Monoxerutin** (*rINN*)

Monohydroxyethylrutosides; Monokserutiini; Monoxerutina; Monoxérutine; Monoxerutinum. 7-( $\beta$ -Hydroxyethyl)rutoside.

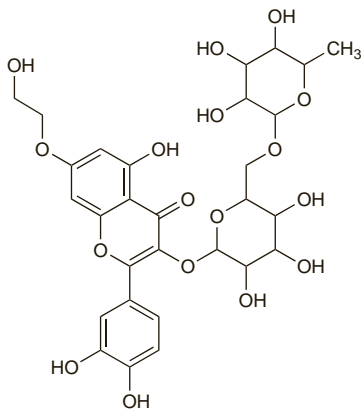
Моноксерутин

$C_{29}H_{34}O_{17} = 654.6$ .

CAS — 23869-24-1.

ATC — C05CA02.

ATC Vet — QC05CA02.

**Oxerutins** (*BAN*)

Hydroxyethylrutosides; Oxerutinas.

Оксерутины

**Description.** Oxerutins consist of a mixture of 5 different *O*-( $\beta$ -hydroxyethyl)rutosides, not less than 45% of which is troxerutin (trihydroxyethylrutoside, below), but which also includes monohydroxyethylrutoside, dihydroxyethylrutoside, and tetrahydroxyethylrutoside.

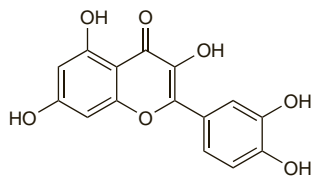
**Quercetin**

3,3',4',5,7-Pentahydroxyflavone; Quercetina. 2-(3,4-Dihydroxyphenyl)-3,5,7-trihydroxy-4*H*-1-benzopyran-4-one.

Кверцетин

$C_{15}H_{10}O_7 = 302.2$ .

CAS — 117-39-5.

**Rutoside** (*BAN, rINN*)

Rutin; Rutosid; Rutoside trihydratē; Rutosidi; Rutosiditrihidraatti; Rutósido; Rutosiditrihydrat; Rutosidum; Rutosidum trihydricum; Rutozidas trihidratas; Rutozid-trihidrāt; Rutozyd; Rutyna. 2-(3,4-Dihydroxyphenyl)-3,5,7-trihydroxy-4-oxo-4*H*-chromen-3-yl rutinoside trihydrate; 2-(3,4-Dihydroxyphenyl)-5,7-dihydroxy-4-oxo-4*H*-chromen-3-yl 6-*O*-( $\alpha$ -L-rhamnosyl)- $\beta$ -D-glucoside.

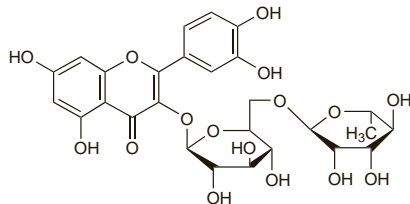
Рутозида

$C_{27}H_{30}O_{16} \cdot 3H_2O = 664.6$ .

CAS — 153-18-4 (anhydrous rutoside).

ATC — C05CA01.

ATC Vet — QC05CA01.



**Description.** Rutoside is a flavonoid obtained from buckwheat, *Fagopyrum esculentum* (Polygonaceae), or from other sources which include the flower buds of the Japanese pagoda-tree, *Sophora japonica*, and the leaves of several species of *Eucalyptus*.

The symbol † denotes a preparation no longer actively marketed

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

**Ph. Eur. 6.2** (Rutoside Trihydrate). A yellow or greenish-yellow crystalline powder. Practically insoluble in water; sparingly soluble in dehydrated alcohol; practically insoluble in dichloromethane; soluble in methyl alcohol. It dissolves in solutions of alkali hydroxides. Protect from light.

**Troxerutin** (*BAN, rINN*)

THR; Trihydroxyethylrutoside; Trioxyethylrutin; Trokserutiini; Trokserutyna; Troxerutina; Troxérutine; Troxerutinum. 3',4',7'-Tris[*O*-(2-hydroxyethyl)]rutin; 5-Hydroxy-7-(2-hydroxyethoxy)-2-[3,4-bis(2-hydroxyethoxy)phenyl]-4-oxo-4*H*-chromen-3-yl rutinoside.

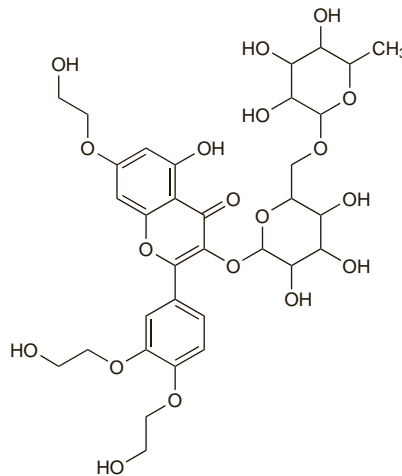
Троксерутин

$C_{33}H_{42}O_{19} = 742.7$ .

CAS — 7085-55-4.

ATC — C05CA04.

ATC Vet — QC05CA04.



**Description.** Troxerutin is the principal component of oxerutins, above.

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

**Ph. Eur. 6.2** (Troxerutin). A yellowish-green, hygroscopic, crystalline powder. Freely soluble in water; slightly soluble in alcohol; practically insoluble in dichloromethane. Store in airtight containers. Protect from light.

**Profile**

Flavonoids are naturally occurring antioxidants that are widely distributed in plants. Preparations containing natural or semisynthetic flavonoids are thought to improve capillary function by reducing abnormal leakage. They have been given to relieve capillary impairment and venous insufficiency of the lower limbs, and for haemorrhoids.

It has been suggested that flavonoids present in some foods, such as fruit, vegetables, tea, and red wine may protect against the development of atherosclerosis (p.1159).

**References**

- Knekt P, *et al.* Flavonoid intake and coronary mortality in Finland: a cohort study. *BMJ* 1996; **312**: 478–81.
- Hertog MGL, *et al.* Antioxidant flavonols and coronary heart disease risk. *Lancet* 1997; **349**: 699.
- Youdim KA, *et al.* Dietary flavonoids as potential neuroprotectants. *Biol Chem* 2002; **383**: 503–19.
- Lopez-Lazaro M. Flavonoids as anticancer agents: structure-activity relationship study. *Curr Med Chem Anti-Canc Agents* 2002; **2**: 691–714.
- Lyseng-Williamson KA, Perry CM. Micronised purified flavonoid fraction: a review of its use in chronic venous insufficiency, venous ulcers and haemorrhoids. *Drugs* 2003; **63**: 71–100.
- Alonso-Coello P, *et al.* Meta-analysis of flavonoids for the treatment of haemorrhoids. *Br J Surg* 2006; **93**: 909–20.
- Cermak R. Effect of dietary flavonoids on pathways involved in drug metabolism. *Expert Opin Drug Metab Toxicol* 2008; **4**: 17–35.

**Interactions.** For a report of quercetin increasing the bioavailability and concentration of ciclosporin, see p.1828.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

**Arg.:** Flebon; Flebotropin; Floerox†; Jatamansin†; Rutlina; Terbenol; Venoruton; Venosmil; **Austral.:** Paroven; **Austria:** Venoruton; **Belg.:** Docrutosi; Veinamitol; Ven-Detrex; Venoruton; **Braz.:** Daflon; Flavonid; Venoruton; **Chile:** Flebopex; Insuven; Venoruton; **Cz.:** Cilkanol; Venoruton; **Denm.:** Venoruton; **Fr.:** Daflon; Diamoril†; Dio; Diosmil†; Diovenol; Endium; Flavan; Flebosmil; Intercyton; Mediveine; Preparation H Veinotonic; Relvene; Rheoflux; Titanoral; Veinamitol; Veineva; Venirene; **Ger.:** Drisi-Ven†; Posorutin; Rutinon; Tovene; Troxeven; Vastribil†; Veno SL; Venoruton; Venotrolan Trox; **Gr.:** Radiavit; Rioven†; Venoruton; **Hong Kong:** Venoruton†; **Hung.:** Veinamitol†; Venoruton; **India:** Venusmin; **Indon.:** Ardium; Venar-

on; **Israel:** Veinamitol†; Venoruton; Vridol†; **Ital.:** Alven; Arvenum; Diosven; Doven; Fericel; Venolen; Venoruton; Venosmine; **Mex.:** Sies; Tebovent; **Neth.:** Venoruton; **NZ:** Paroven; **Philipp.:** Varemold; Venoruton; **Pol.:** Otrex; Phlebodia; Posorutin; Rutinoven; Rutoven; Troxeratio; Venolan; Venoruton; Venotrex; **Port.:** Arvenum; Hepacalmina; Muralion; Venex-Veno V; Venoruton; Venosmil; Veroven; **Rus.:** Phlebodia (Флебодин); Troxevasin (Троксевазин); Venoruton (Венорутон); **S.Afr.:** Paroven; **Spain:** Esberiven; Pentovena†; Venolep; Venoruton; Venosmil; **Switz.:** Hemerven; Neorutin†; Pur-Rutin; Venoruton; Venutabs; **Thai.:** Flavon; Heteroid; Venoruton; **Turk.:** Daflon; Venoruton; **UK:** Paroven; **USA:** Citro-Flav; Limbret; **Venez.:** Dioeveno; Flavol; Hyflon; Verutil.

**Multi-ingredient Arg.:** Accesum; Ajomast Circulatorio†; CVP B1 B6 B12†; CVP Duo; CVP Flebo; CVP Forte; Cyclo 3; Daflon; Dipemina; Diroseal; Eptitelol-C; Esberiven; Escina Forte; Escina Omega; Esculeol P; Exail; Fiblast; Flebitol; Flebotropin†; GB 100; HDG; Kacerutin; Microsury; Mimixin; Phlogenzym†; Terbenol Duo; Troxeven†; Tubarine; Ulcevanin†; Varisedan; Vefluxan†; Venart; Venidium; Veraldid; Vitamina C-Complex; VNS 45; **Austral.:** B-Complex Threshold; Beta A-C; Bio C; Bio-C Complex; Bioglan Circlo†; Bioglan Mega C; Bioglan Super Cal C; Bioglan The Blue One; Bioglan Zelleulan with Escin; Bioglan Zn-A-C; C Supa + Bioflavonoids†; Cold & Flu Tablets Non Drowsy; Devils Claw Plus; Extralife Leg-Care; Eye Health Herbal Plus Formula 4; Flavonoid Complex; Flavons; For Peripheral Circulation Herbal Plus Formula 5; Gentle C with Bioflavonoids†; Lifesystem Herbal Formula 6 For Peripheral Circulation†; Lifesystem Herbal Plus Formula 5 Eye Relief†; Macro C†; Proflon†; Rubus Complex†; Super Cal-C Bio; Sustained Release C; **Austria:** Calcipot C; Cebion plus Rutin; Daflon; Helopyrin; Iroviton Multivitamin; Phlebodril; Phlogenzym; Ruticalzon; Rutiscorbin†; Rutiviscal; Rutozym; Sklerovitol; Tetesept; Traumazym; Trimedil; Venotop; Vit-C-Lutsch; Waldheim Influxidon; Wobenzym; **Belg.:** Daflon; Mictasol-P; **Braz.:** Castanha de India Composta†; Dactil OB; Daflon 500; Diosmin; Flebotrat†; Ginglone; Gripen; Hemodotti; Hemorroidex†; Manolio†; Miroroidin†; Novarutina; Panvitrop; Trimedal; Varicoss; Vanzol†; Venafion; Venalot; Venocur Triplex; Venovaz; **Canada:** Ultra Quercetin; **Chile:** Daflon 500; Dipemina; Diroseal; Duo-CVP; Hemoplex†; Phyo Corrective Gel; Primacy Phyo +†; Venartel; Vesnidan; **Cz.:** Anavenol; Ascorutin; Cyclo 3 Fort; Detralex; Ginkor Fort; Phlogenzym; Wobenzym; **Denm.:** Capiven; **Fr.:** Avene Antirougeurs; Bicirkan; Cemaflavone; Cirkan; Cyclo 3 Fort; Diroseal; Esberiven Fort; Gel a l'Acetotartrate d'Alumine Defresne†; Ginkor; Ginkor Fort; Ophatidil†; Rheobral; Vasocitrol; Yeliten; Veny†; Vivene†; **Ger.:** Antihypertonicum S; Calcium-Rutinon†; Cycloven Forte N; Emocrat forte†; Enzym-Wied†; Essaven N†; Essaven ultra†; Eukalsan N; Fagorutin Buchweizen; Fagorutin Rosskastanien-Balsam N; Intradermi; Lindigoa S†; Movicard; Perivar†; Phlebodril; Phlogenzym; Posti N†; Ruticalzon VC†; Tornix; Vaso-E-Bion; Venalot; Venalot N†; Veno-Tebonin N†; Vitosal†; Wobenzym N; **Gr.:** Abanifan; Antican; Bioflewin; Cidoston; Cyclo 3 Forte; Daflon; Diosper; Dispedrol; Flavon†; Flevion; Flevistol; Gamophen; Mecaton; Noxarel; Oflazet; Pelethrocin; Roxydral; Smudal; Venosman†; **Hong Kong:** Daflon; Ginkor Fort; Hemo Rid; Poly C†; Quali-Flon; **Hung.:** Detralex; Ginkor Fort; Phlogenzym; Rutascorbin; **India:** Cadisper C; CKP; CVP; Gynae-CVP; Kaplastic; Stypotcid; Stypotcip†; **Indon.:** Ambeven Plus; Cifion; Papaven; Vedium; **Israel:** Opti-safe; **Ital.:** Angioton; Capill Venogel; Daflon 500; Dermoaingopant†; Digifar†; Diosmina Complex; Emortroline; Facosmina; Flebil Plus; Flebo-S†; Flebofort; Flebolider; Fleboside; Ginkofal; Levital Plus; Neomyrt Plus; Pulsalux; RepaVen†; Rutsan CE†; Trauma†; Varicofit; Venactive†; Venodin; Venoton; Volttrauma; **Malaysia:** Daflon 500; Ginkor Fort; Hemorid; Nat-C; **Mex.:** Cal-Rutina; Daflon; Elatec; Fabroven; Flavit; Phlogenzym; Variton; Venalot; Wobenzym; **NZ:** Botanica Hayfever; **Philipp.:** Daflon; **Pol.:** Alliorut; Anavenol; Ascorutical; Biovision; Cerutin; Cyclo 3 Fort; Detralex; Kalcidarin; Pelethrocin; Rutinacea; Rutinoscorbin; Rutinoscorbin Plus; Rutokal C; Rutovit C; Sapoven AT; Sapoven T; Sapobolamid; Troxescorbin; Venacorn; Venescin; **Rus.:** Actilam; Segripe; Cyclo 3; Daflon; Rimanal; Rutinice Fortissimo; **Switz.:** Anavenol (Анавенол); Antigrippin-ANVI (Антигриппин-АНВИ); Ascorutical (Аскорутикал); Cyclo 3 Fort (Цикло-3 Форт); Detralex (Детралекс); Ginkor Fort (Гинкор Форт); Ginkor Gel (Гинкор Гель); Indovasin (Индовазин); Phlogenzym (Флогэнзим); Prophylactin C (Профилактин С); Venolife (Венолайф); Wobenzym (Вобэнзим); **S.Afr.:** Essaven†; **Singapore:** Cyclo 3 Fort; Daflon 500; Diosper; Poly C; **Spain:** Caprofidex Hemostatico; Daflon 500; Epistaxol; Fabroven; Flebeside†; Ginglone; Nasopomada; **Switz.:** Biovital Ginseng; Daflon 500; Demoven N; Flavoveny; Lapidar 4; Phlebodril N; Vid-eo-Net†; **Thai.:** Biocalon; Cyclo 3 Fort; Daflon; Dafomin; Essaven; Ginkor Fort; Heroid; Nat-C Medicrafts; Sidoel; **USA:** Amino-Opti-C; C Factors "1000" Plus; Cholinoid; Citrus-flav C; Ester-C Plus; Ester-C Plus Multi-Mineral; Flavons; Lipoflavonoid; Pan C; Peridin-C; Proflavanol; Pycnogonol Plus; Span C; **Venez.:** Daflon; Disolina; Dremo-K†; Phlogenzym; Wobenzym N.

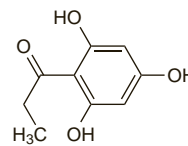
**Flopropione** (*rINN*)

Flopropiona; Flopropionum; Flopropiofenone; Flopropiofenone; Flopropiofenone; RP-13907. 2',4',6'-Trihydroxypropiofenone.

Флопропион

$C_9H_{10}O_4 = 182.2$ .

CAS — 2295-58-1.



**Pharmacopoeias.** In *Jpn.*

**Profile**

Flopropione is an antispasmodic that has been given orally in doses of 40 to 80 mg three times daily.

**Preparations**

**Proprietary Preparations** (details are given in Part 3)

*Jpn.:* Cospanon.