

Children exhibit more rapid clearance of linezolid than adults; half-life is reported to range from about 2 to 4 hours, increasing with age.

References

- MacGowan AP. Pharmacokinetic and pharmacodynamic profile of linezolid in healthy volunteers and patients with Gram-positive infections. *J Antimicrob Chemother* 2003; **51** (suppl S2): ii17-ii25.
- Stalker DJ, Jungbluth GL. Clinical pharmacokinetics of linezolid, a novel oxazolidinone antibacterial. *Clin Pharmacokin* 2003; **42**: 1129-40.
- Whitehouse T, et al. Pharmacokinetic studies of linezolid and teicoplanin in the critically ill. *J Antimicrob Chemother* 2005; **55**: 333-40.

Uses and Administration

Linezolid is an oxazolidinone antibacterial used for the treatment of Gram-positive infections of the skin and respiratory tract, including those due to vancomycin-resistant enterococci and meticillin-resistant *Staphylococcus aureus*.

It is given, orally or by intravenous infusion (over 30 to 120 minutes), in a usual adult dose of 600 mg every 12 hours for 10 to 14 days; treatment for up to 28 days may be necessary if there is vancomycin resistance. In uncomplicated skin and skin structure infections an oral dose of 400 mg every 12 hours for 10 to 14 days is usually sufficient.

For doses in neonates and children, see below.

Reviews

- Plouffe JF. Emerging therapies for serious gram-positive bacterial infections: a focus on linezolid. *Clin Infect Dis* 2000; **31**(suppl 4): S144-S149.
- Perry CM, Jarvis B. Linezolid: a review of its use in the management of serious gram-positive infections. *Drugs* 2001; **61**: 525-51.
- Bain KT, Wittbrodt ET. Linezolid for the treatment of resistant gram-positive cocci. *Ann Pharmacother* 2001; **35**: 566-75.
- Paladino JA. Linezolid: an oxazolidinone antimicrobial agent. *Am J Health-Syst Pharm* 2002; **59**: 2413-25.
- Birmingham MC, et al. Linezolid for the treatment of multidrug-resistant, Gram-positive infections: experience from a compassionate-use program. *Clin Infect Dis* 2003; **36**: 159-68.
- Wilcox MH. Efficacy of linezolid versus comparator therapies in Gram-positive infections. *J Antimicrob Chemother* 2003; **51** (suppl S2): ii27-ii35.
- Falagas ME, et al. Linezolid for the treatment of patients with endocarditis: a systematic review of the published evidence. *J Antimicrob Chemother* 2006; **58**: 273-80.
- Ntziora F, Falagas ME. Linezolid for the treatment of patients with central nervous system infection. *Ann Pharmacother* 2007; **41**: 296-308.
- Falagas ME, et al. Linezolid for the treatment of adults with bone and joint infections. *Int J Antimicrob Agents* 2007; **29**: 233-9.
- Manfredi R. Le prospettive terapeutiche di linezolid nelle infezioni da patogeni Gram-positivi multiresistenti. *Recenti Prog Med* 2007; **98**: 143-54.
- Falagas ME, et al. Linezolid versus glycopeptide or beta-lactam for treatment of Gram-positive bacterial infections: meta-analysis of randomised controlled trials. *Lancet Infect Dis* 2008; **8**: 53-66.

Administration in children. UK licensed product information does not recommend the use of linezolid in children and adolescents below 18 years of age. However, the *BNFC* suggests the following doses of linezolid in the treatment of pneumonia or complicated skin and soft-tissue infections, given orally or by intravenous infusion over 30 to 120 minutes:

- neonates up to 7 days old: 10 mg/kg every 12 hours, increasing to every 8 hours if response is poor
- 7 days to 12 years of age: 10 mg/kg (to a maximum of 600 mg) every 8 hours
- 12 to 18 years: usual adult doses (see above).

Similar doses are licensed in the USA. US licensed product information also suggests that in the treatment of *uncomplicated skin and skin structure* infections, oral doses given every 12 hours are sufficient in those aged 5 to 11 years.

Further references

- Cuzzolin L, Fanos V. Linezolid: a new antibiotic for newborns and children? *J Chemother* 2006; **18**: 573-81.
- Velissariou IM. Use of linezolid in children: an overview of recent advances. *Expert Rev Anti Infect Ther* 2006; **4**: 947-52.

Administration in renal impairment. Linezolid should be used with caution in patients with renal impairment (creatinine clearance less than 30 mL/minute). Although no dosage adjustment is required, licensed product information states that peak plasma concentrations of linezolid's two major metabolites were about tenfold higher in such patients after several days of treatment. As about 30% of a dose is removed during 3 hours of haemodialysis it is recommended that linezolid should be given after dialysis.

Mycobacterial infections. A systematic review¹ noted that linezolid has been used with some success as an adjunct in the treatment of multidrug-resistant tuberculosis (p.196); it has also been tried in nontuberculous mycobacterial infections (p.181). However, serious adverse effects such as peripheral or optic neuropathy (in 11 of 24 patients), and anaemia (10 of 24) were ob-

served. The review concluded that although there was limited evidence suggesting linezolid may be effective as second-line adjunct therapy for patients with mycobacterial infections, its usefulness is limited by the frequent potentially severe complications of prolonged linezolid use.

- Ntziora F, Falagas ME. Linezolid for the treatment of patients with mycobacterial infections: a systematic review. *Int J Tuberc Lung Dis* 2007; **11**: 606-11. Correction. *ibid.*: 936. (title change)

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Zyxol; **Austral.:** Zyxol; **Austria:** Zyxolid; **Belg.:** Zyxolid; **Braz.:** Zyxol; **Canada:** Zyxolam; **Chile:** Zyxol; **Cz.:** Zyxolid; **Denm.:** Zyxolid; **Fin.:** Zyxolid; **Fr.:** Zyxol; **Ger.:** Zyxolid; **Gr.:** Zyxolid; **Hong Kong:** Zyxol; **Hung.:** Zyxol; **India:** Linospan; **Lincol.:** Lizo; **Israel:** Zyxol; **Irl.:** Zyxol; **Italy:** Zyxolid; **Malaysia:** Zyxol; **Mex.:** Zyxolam; **Neth.:** Zyxol; **Norw.:** Zyxolid; **NZ:** Zyxol; **Philipp.:** Zyxol; **Pol.:** Zyxolid; **Port.:** Zyxolid; **Rus.:** Zyxol (Зивокс); **S.Afr.:** Zyxolid; **Singapore:** Zyxol; **Spain:** Zyxolid; **Swed.:** Zyxolid; **Switz.:** Zyxolid; **Thai:** Zyxol; **UK:** Zyxol; **USA:** Zyxol; **Venez.:** Zyxol.

Lomefloxacin Hydrochloride

(BANM, USAN, rINN)

Hydrocloruro de lomefloxacin; Lomefloxacinihydrochlorid; Lomefloxacin Hydrochlorid; Lomefloxacin, Chlorhydrate de; Lomefloxacin Hydrochloridum; NY-198; SC-471111; SC-471111A (lomefloxacin). (R)-1-Ethyl-6,8-difluoro-1,4-dihydro-7-(3-methylpiperazin-1-yl)-4-oxoquinoline-3-carboxylic acid hydrochloride.

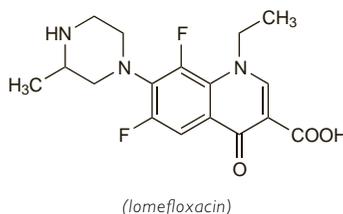
Ломефлоксацина Гидрохлорид

C₁₇H₁₉F₂N₃O₃·HCl = 387.8.

CAS — 98079-51-7 (lomefloxacin); 98079-52-8 (lomefloxacin hydrochloride).

ATC — J01MA07; S01AX17.

ATC Vet — QJ01MA07; QS01AX17.



Adverse Effects and Precautions

As for Ciprofloxacin, p.244.

A relatively high incidence of phototoxic reactions has been seen in patients taking lomefloxacin. Patients should be advised to avoid exposure to sunlight during, and for a few days after, lomefloxacin therapy, and to stop the drug immediately if phototoxicity occurs. Risk of phototoxicity may be reduced by taking lomefloxacin in the evening.

Effects on the skin. Lomefloxacin has been associated with a higher incidence of phototoxic reactions, particularly in patients over 60 years of age and/or with a history of fluoroquinolone treatment; the incidence was also high when used for 30 days or longer.¹ Experimental results² suggest that use of sunscreens to protect against lomefloxacin-induced phototoxicity may be feasible.

- Arata J, et al. Photosensitivity reactions caused by lomefloxacin hydrochloride: a multicenter survey. *Antimicrob Agents Chemother* 1998; **42**: 3141-5.
- Reinhardt P, et al. Broad-spectrum sunscreens prevent the secretion of proinflammatory cytokines in human keratinocytes exposed to ultraviolet A and phototoxic lomefloxacin. *Can J Physiol Pharmacol* 2006; **84**: 221-6.

Interactions

As for Ciprofloxacin, p.246.

Lomefloxacin does not appear to interact significantly with theophylline or caffeine.

Antimicrobial Action

As for Ciprofloxacin, p.246.

Most streptococci, including *Streptococcus pneumoniae*, are relatively resistant to lomefloxacin.

Pharmacokinetics

Lomefloxacin is rapidly and almost completely absorbed after oral doses with peak plasma concentrations of about 3 micrograms/mL occurring about 1.5 hours after a 400-mg dose. Lomefloxacin is about 10%

bound to plasma proteins. It is widely distributed into body tissues including the lungs and prostate.

The elimination half-life of lomefloxacin is about 7 to 8 hours, and is prolonged in patients with renal impairment. Lomefloxacin is excreted in the urine, about 65% as unchanged drug, 9% as the glucuronide, and less than 0.5% as other metabolites. Small amounts (about 10%) are also eliminated unchanged in the faeces. Negligible amounts of lomefloxacin are removed by haemodialysis or peritoneal dialysis.

References

- Freeman CD, et al. Lomefloxacin clinical pharmacokinetics. *Clin Pharmacokin* 1993; **25**: 6-19.

Uses and Administration

Lomefloxacin is a fluoroquinolone antibacterial with actions and uses similar to those of ciprofloxacin (p.247).

It is given orally for the treatment of susceptible infections, including bronchitis due to *Haemophilus influenzae* or *Moraxella catarrhalis* (*Branhamella catarrhalis*), and urinary-tract infections. It is also used for surgical infection prophylaxis. Lomefloxacin is given as the hydrochloride but doses are expressed in terms of the base; lomefloxacin hydrochloride 441.5 mg is equivalent to about 400 mg of lomefloxacin. The usual dose is 400 mg once daily for 10 to 14 days. A dose of 400 mg once daily for 3 days is suitable in women with acute uncomplicated cystitis. Dosage in the evening may minimise the risk of phototoxic reactions.

For details of reduced doses in renal impairment, see below.

A single dose of 400 mg is used for surgical infection prophylaxis, given 1 to 6 hours before the procedure.

Lomefloxacin is also used topically as the hydrochloride in eye drops and ear drops containing the equivalent of 0.3% of lomefloxacin for the treatment of bacterial conjunctivitis and for the treatment of otitis externa and otitis media, respectively.

General references

- Wadworth AN, Goa KL. Lomefloxacin: a review of its antibacterial activity, pharmacokinetic properties and therapeutic use. *Drugs* 1991; **42**: 1018-60.
- Neu HC, ed. Lomefloxacin: development of a once-a-day quinolone. *Am J Med* 1992; **92** (suppl 4A): 1S-137S.

Administration in renal impairment. Dosage of lomefloxacin should be reduced in patients with renal impairment; the initial dose of 400 mg should be followed by maintenance doses of 200 mg daily in those with a creatinine clearance of 10 to 40 mL/minute per 1.73m² and in those on haemodialysis.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Okacin; **Austria:** Okacin; **Uniqin:** Okacin; **Belg.:** Okacin; **Braz.:** Maxaquin; **Meflox;** Okacin; **Chile:** Okacin; **Cz.:** Maxaquin; **Denm.:** Okacin; **Fin.:** Okacin; **Fr.:** Decalogiflox; **Logiflox;** Okacin; **Gr.:** Okacin; **Hong Kong:** Lomeflox; **Hong Kong:** Okacin; **Hung.:** Okacin; **India:** Lomef; **Lomiflox;** Ontop; **Israel:** Okacin; **Ital.:** Chimono; **Lomebact;** Maxaquin; **Okacin;** Uniqin; **Jpn.:** Lomeflox; **Malaysia:** Lomaday; **Okacin; Mex.:** Lomacin; **Maxaquin;** **Philipp.:** Okacin; **Pol.:** Okacin; **Port.:** Basab; **Floxaq; uil;** **Loransil;** **Loxina;** Maxaquin; **Monocin;** Okacin; **Uniqin;** **Rus.:** Ksenakvin (Ксенаквин); **Lomiflox;** (Ломифлокс); **Maxaquin** (Максакин); **Okacin** (Окацин); **S.Afr.:** Maxaquin; **Okacin;** **Uniqin;** **Singapore:** Lomeflox; **Okacin;** **Spain:** Okacin; **Switz.:** Maxaquin; **Okacin;** **Thai:** Maxaquin; **Okacin;** **Turk.:** Okacin; **UAE:** Lomax; **USA:** Maxaquin; **Venez.:** Liexina; **Loflox;** **Lomaday;** **Lomex;** Maxaquin; **Okacin.**

Multi-ingredient: **Rus.:** Lomecomb (Ломекомб); **Protiocomb** (Протиоккомб).

Loracarbef (BAN, USAN, rINN)

KT-3777; Loracarbefum; Lorakarbef; Lorakarbefi; LY-163892. (6R,7S)-3-Chloro-8-oxo-7-*o*-phenylglycylamino-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid monohydrate.

Лоракарбеф

C₁₆H₁₆ClN₂O₄·H₂O = 367.8.

CAS — 76470-66-1 (anhydrous loracarbef); 121961-22-6 (loracarbef monohydrate).

ATC — J01DC08.

ATC Vet — QJ01DC08.

Pharmacopoeias. In US.

USP 31 (Loracarbef). pH of a 10% suspension in water is between 3.0 and 5.5. Store in airtight containers.

Adverse Effects and Precautions

Adverse effects of loracarbef are generally similar to those of other beta lactams (see Benzylpenicillin, p.213, and Cefalotin, p.219). They include gastrointestinal disturbances, particularly diarrhoea, and hypersensitivity reactions such as skin rashes. In-

creases in liver enzymes and abnormalities in haematological parameters have been reported.

Loracarbef should not be given to patients known to be hypersensitive to it or to other beta lactams because of the possibility of cross-sensitivity. It should be given with caution, with appropriate dosage reduction, in patients with renal impairment.

Effects on the kidneys. References.

1. Thieme RE, et al. Acute interstitial nephritis associated with loracarbef therapy. *J Pediatr* 1995; **127**: 997-1000.

Interactions

Probenecid decreases the renal excretion of loracarbef thereby increasing its plasma concentrations.

Antimicrobial Action

Loracarbef is bactericidal with antibacterial activity similar to that of cefaclor (p.217).

Pharmacokinetics

Loracarbef is well absorbed from the gastrointestinal tract with a bioavailability of 90%. Peak plasma concentrations after 200- and 400-mg doses as capsules are about 8 and 14 micrograms/mL respectively at 1.2 hours. Peak concentrations are achieved more rapidly after an oral suspension and a paediatric dose of 15 mg/kg produces a concentration of about 19 micrograms/mL within 40 to 60 minutes. Absorption is delayed by the presence of food. A plasma half-life of about 1 hour has been reported which is prolonged in renal impairment. About 25% is bound to plasma proteins.

Loracarbef is excreted largely unchanged in the urine, and therapeutic concentrations are maintained in the urine for up to 12 hours. Probenecid delays excretion. Loracarbef is removed by haemodialysis.

Uses and Administration

Loracarbef is an oral carbacephem antibiotic. The carbacephems are closely related to the cephalosporins, but replacement of the sulfur atom in the 7-aminocephalosporanic acid nucleus by a methylene group is said to enhance stability. It is used similarly to cefaclor in the treatment of susceptible infections of the respiratory and urinary tracts and of skin and soft tissue. For details of these infections and their treatment, see under Choice of Antibacterial, p.162.

Loracarbef should be given 1 hour before food or on an empty stomach. Loracarbef is given as the monohydrate. Doses are expressed in terms of the equivalent amount of anhydrous loracarbef. The usual adult dose is 200 to 400 mg every 12 hours. In uncomplicated urinary-tract infections, a dose of 200 mg daily may be adequate. A dose for children is 7.5 mg/kg every 12 hours for uncomplicated infections or 15 mg/kg every 12 hours for acute otitis media or acute maxillary sinusitis.

For details of reduced doses of loracarbef in patients with renal impairment, see below.

General references.

1. Moellering RC, Jacobs NF. Advances in outpatient antimicrobial therapy: loracarbef. *Am J Med* 1992; **92** (suppl 6A): 1S-103S.
2. Brogden RN, McTavish D. Loracarbef: a review of its antimicrobial activity, pharmacokinetic properties and therapeutic efficacy. *Drugs* 1993; **45**: 716-36.

Administration in renal impairment. Doses of loracarbef should be reduced in patients with renal impairment; patients with a creatinine clearance of 10 to 49 mL/minute may be given half the usual dose at the usual dosage interval or the full usual dose at twice the usual interval; patients with a creatinine clearance of less than 10 mL/minute may be treated with the usual dose given every 3 to 5 days. Patients on haemodialysis should receive another dose following dialysis.

Preparations

USP 31: Loracarbef Capsules; Loracarbef for Oral Suspension.

Proprietary Preparations (details are given in Part 3)

Ger.: Lorafem; **Gr.:** Lorbef; **Mex.:** Carbacet; Lorabid†; **S.Afr.:** Lorabid; **Swed.:** Lorabid; **Turk.:** Lorabid; **USA:** Lorabid†.

Lymecycline (BAN, rINN)

Limeciclina; Limesiklin; Lymecycline; Lymecyclinum; Lymecyclin; Lymecyclina; Lymesyklini; Tetracyclinemethylene lysine. (+)-N-(5-Amino-5-carboxypentylaminomethyl)-4-dimethylamino-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxonaphthene-2-carboxamide; N²-[[(+)-5-Amino-5-carboxypentylamino]methyl]tetracycline.

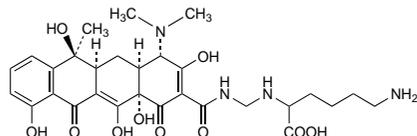
Лимециклин

C₂₉H₃₈N₄O₁₀ = 602.6.

CAS — 992-21-2.

ATC — J01AA04.

ATC Vet — QJ01AA04.



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

Ph. Eur. 6.2 (Lymecycline). A reaction product of formaldehyde, lysine, and tetracycline. A yellow, hygroscopic powder. Very soluble in water; slightly soluble in alcohol; practically insoluble in dichloromethane. A 1% solution in water has a pH of 7.8 to 8.2. Store in airtight containers. Protect from light.

Profile

Lymecycline is a tetracycline derivative with general properties similar to those of tetracycline (p.347). Although its absorption is not significantly affected by moderate amounts of milk, it is still affected by divalent and trivalent cations such as aluminium, bismuth, calcium, iron, magnesium, and zinc.

Lymecycline is given orally and doses are expressed in terms of the equivalent amount of tetracycline base. Lymecycline 407 mg is equivalent to about 300 mg of tetracycline and to about 325 mg of tetracycline hydrochloride. The usual adult dose is the equivalent of 300 mg of tetracycline base twice daily. In severe infections total daily doses of up to the equivalent of 1.2 g may be given. In the treatment of acne, the equivalent of 300 mg is given daily for at least 8 weeks.

For details of use in children and adolescents, see below.

Administration in children. In children, the effects on teeth should be considered and tetracyclines only used when absolutely essential. In the UK, lymecycline is licensed for use in children aged 12 years and over; the usual adult dose (see above) may be given by mouth. However, in some countries, it is licensed for use in those over 8 years old.

Skin disorders. For reference to the use of lymecycline in the treatment of acne, see under Tetracycline, p.350.

Preparations

BP 2008: Lymecycline Capsules.

Proprietary Preparations (details are given in Part 3)

Arg.: Tetralsal; **Austria:** Tetralsal; **Belg.:** Tetralsal; **Braz.:** Tetralsal; **Denm.:** Tetralsal; **Fin.:** Tetralsal; **Fr.:** Tetralsal; **Hong Kong:** Tetralsal; **Hung.:** Tetralsal; **Ir.:** Tetralsal; **Ital.:** Tetralsal; **Mex.:** Tetralsal; **Norw.:** Tetralsal; **NZ:** Tetralsal; **Philipp.:** Tetralsal; **S.Afr.:** Tetralsal; **Swed.:** Tetralsal; **Switz.:** Tetralsal; **UK:** Tetralsal; **Venez.:** Tetralsal.

Mafenide (BAN, USAN, rINN)

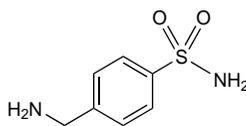
Mafenid; Mafenida; Mafénide; Mafenidi; Mafenidum; NSC-34632. α -Aminotoluene-*p*-sulphonamide.

Мафенид

CAS — 138-39-6.

ATC — D06BA03.

ATC Vet — QD06BA03.



Mafenide Acetate (BANM, rINNM)

Acetato de mafenida; Mafénide, Acétate de; Mafenidi Acetas.

Мафенида Ацетат

C₇H₁₀N₂O₂S·C₂H₄O₂ = 246.3.

CAS — 13009-99-9.

ATC — D06BA03.

ATC Vet — QD06BA03.

Pharmacopoeias. In *Chin.* and *US*.

USP 31 (Mafenide Acetate). A white to pale yellow crystalline powder. Freely soluble in water. pH of a 10% solution in water is between 6.4 and 6.8. Store in airtight containers. Protect from light.

Adverse Effects, Treatment, and Precautions

Mafenide is absorbed to some extent after topical application and may produce systemic effects similar to those of other sulfonamides (see Sulfamethoxazole, p.340). Fatal haemolytic anaemia with disseminated intravascular coagulation, related to G6PD deficiency, has been reported.

Mafenide cream may cause pain or a burning sensation on application to the burnt area, with occasional bleeding or excoriation. The separation of the eschar may be delayed and fungal invasion of the wound has been reported. By its action in inhibiting carbonic anhydrase, mafenide may cause metabolic acidosis and hyperventilation; acid-base balance should therefore be monitored, particularly in patients with extensive burns, or with pulmonary or renal impairment. If persistent acidosis occurs, mafenide treatment should be temporarily suspended and fluid therapy continued.

Pharmacokinetics

Mafenide is absorbed from wounds into the circulation and is metabolised to *p*-carboxybenzenesulfonamide, which is excreted in the urine. The metabolite has no antibacterial action but retains the ability to inhibit carbonic anhydrase.

Uses and Administration

Mafenide is a sulfonamide that is not inactivated by *p*-aminoben-

zoic acid or by pus and serum. The acetate is used as a cream, containing the equivalent of mafenide 8.5%, in conjunction with debridement, for the prevention and treatment of infection, including *Pseudomonas aeruginosa*, in second- and third-degree burns (p.1578). A solution containing mafenide acetate 5% is also available for use under moist dressings in burns. Mafenide hydrochloride and mafenide propionate have also been used.

Preparations

USP 31: Mafenide Acetate Cream; Mafenide Acetate for Topical Solution.

Proprietary Preparations (details are given in Part 3)

USA: Sulfamylon.

Multi-ingredient. Indon.: FG Ointment; **Spain:** Pentol Forte†.

Magainins

Магаинины.

Магаинины

Profile

The magainins are a group of antibacterial peptides derived from amphibians. A number of semisynthetic derivatives including pexiganan acetate (MSI-78), MSI-93, and MSI-94 have been investigated as topical anti-infectives.

References.

1. Lamb HM, Wiseman LR. Pexiganan acetate. *Drugs* 1998; **56**: 1047-52.
2. Rao N, Lipsky BA. Optimising antimicrobial therapy in diabetic foot infections. *Drugs* 2007; **67**: 195-214.

Mandelic Acid

Ácido fenilglicólico; Ácido mandélico racémico; Amygdalic Acid; Mandélico, ácido; Phenylglycolic Acid; Racemic Mandelic Acid. 2-Hydroxy-2-phenylacetic acid.

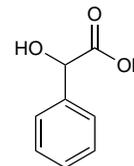
Мицдальная Кислота

C₈H₈O₃ = 152.1.

CAS — 90-64-2; 17199-29-0 ((+)-mandelic acid); 611-71-2 ((-)-mandelic acid); 611-72-3 ((±)-mandelic acid).

ATC — B05CA06; J01XX06.

ATC Vet — QB05CA06; QJ01XX06.



Profile

Mandelic acid has bacteriostatic properties and is used as a 1% flushing solution for the maintenance of indwelling urinary catheters. Mandelic acid and acetyl mandelic acid are used topically in preparations for the treatment of acne. It was formerly given orally in the treatment of urinary-tract infections, usually as the ammonium or calcium salt.

Mandelic acid is a component of methenamine mandelate (p.298).

Preparations

Proprietary Preparations (details are given in Part 3)

Fr.: Rolip†.

Multi-ingredient. Chile: Neostrata; **Fr.:** Sphingogel†; Zeniac LP Fort†; Zeniac LP†; Zeniac†; **Ital.:** Neocuticals Clear Skin; Neocuticals Spot Treatment; **Port.:** Mandelip†.

Marbofloxacin (BAN, rINN)

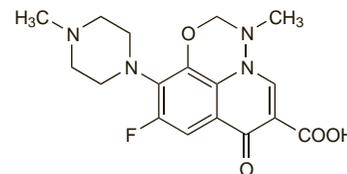
Marbofloksasini; Marbofloxacine; Marbofloxacino; Marbofloxacinum. 9-Fluoro-2,3-dihydro-3-methyl-10-(4-methyl-1-piperazinyl)-7-oxo-7H-pyrido[3,2,1-j][4,1,2]benzoxadiazine-6-carboxylic acid.

Марбофлоксацин

C₁₇H₁₉FN₄O₄ = 362.4.

CAS — 115550-35-1.

ATC Vet — QJ01MA93.



Pharmacopoeias. In *Eur.* (see p.vii) for veterinary use only.

Ph. Eur. 6.2 (Marbofloxacin for Veterinary Use). A light yellow, crystalline powder. Slightly soluble in water; very slightly solu-