2. Viallon A, *et al.* Methemoglobinemia due to riluzole. *N Engl J Med* 2000; **343:** 665–6.
3. Haaxma CA, *et al.* Delayed amnesic syndrome after riluzole autointoxication in Huntington disease. *Neurology* 2006; **66:** 1123–4.

Precautions

Riluzole is contra-indicated in patients with hepatic disease or markedly raised liver enzyme values. Liver function tests should be performed before and throughout treatment with riluzole. In the UK, riluzole is not recommended in patients with renal impairment although US licensed product information states that the pharmacokinetics are not significantly different in renal impairment. Caution should be exercised in those with a history of liver disorders. Patients or their carers should be told how to recognise signs of neutropenia and should be advised to seek immediate medical attention if symptoms such as fever develop; white blood cell counts should be determined in febrile illness and riluzole stopped if neutropenia occurs. Riluzole may cause dizziness or vertigo and patients should be warned not to drive or operate machinery if these symptoms occur.

Riluzole has been reported to impair fertility in *animals*.

Pharmacokinetics

Riluzole is rapidly absorbed from the gastrointestinal tract after oral doses, with peak plasma concentrations occurring in 1 to 1½ hours. The rate and extent of absorption are decreased when riluzole is given with a high-fat meal. Riluzole is widely distributed throughout the body and is about 97% bound to plasma proteins. It crosses the blood-brain barrier. Riluzole is extensively metabolised to several metabolites in the liver, mainly by the cytochrome P450 isoenzyme CYP1A2, and subsequent glucuronidation. Riluzole is excreted mainly in the urine, mainly as glucuronides, with an elimination half-life of about 9 to 15 hours. About 2% is excreted unchanged in the urine. Small amounts are excreted in faeces. There is some evidence that clearance of riluzole is reduced in Japanese patients.

◊ References.

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2. Le Liboux A, *et al.* A comparison of the pharmacokinetics and tolerability of riluzole after repeat dose administration in healthy elderly and young volunteers. *J Clin Pharmacol* 1999; **39:** 480–6.
3. Groeneveld GJ, *et al.* Riluzole serum concentrations in patients with ALS: associations with side effects and symptoms. *Neurology* 2003; **61:** 1141–3.
4. van Kan HJ, *et al.* Association between CYP1A2 activity and riluzole clearance in patients with amyotrophic lateral sclerosis. *Br J Clin Pharmacol* 2005; **59:** 310–13.

Uses and Administration

Riluzole is a glutamate antagonist used in the management of amyotrophic lateral sclerosis, a form of motor neurone disease. Riluzole is indicated to slow progression of early disease but efficacy has not been demonstrated in its late stages. The precise mechanism of action is unknown but it may inhibit presynaptic glutamate release and interfere with its postsynaptic effects. The usual adult dose of riluzole is 50 mg twice daily by mouth on an empty stomach.

Motor neurone disease. Motor neurone disease (motoneuron disease) represents a group of fatal progressive degenerative disorders that affect upper and/or lower motor neurones in the brain and spinal cord. The most common form of motor neurone disease is amyotrophic lateral sclerosis (known in the USA as Lou Gehrig's disease), which involves both upper and lower motor neurones. It produces muscular atrophy and weakness and symptoms of progressive bulbar palsy such as slowness of movement and speech disturbances. Most patients die within 2 to 5 years of disease onset, usually from respiratory failure. There is no completely effective treatment and management remains largely supportive with appropriate symptomatic management of spasticity (p.1887), pain (p.8), and sialorrhoea. Tricyclic antidepressants are widely used for their multiple beneficial effects. Occupational and speech therapy also play a crucial role in maximising function. Pathological crying or laughing (pseudobulbar affect) may occur in as many as 50% of patients and has been treated with amitriptyline or fluvoxamine. Dysphagia may eventually compromise food and fluid intake necessitating enteral nutrition as an alternative or supplemental route for oral nutrition. Respiratory support will ultimately be necessary, initially with non-invasive ventilation but progressing eventually to tracheostomy.

Although the pathogenesis of motor neurone disease is still uncertain, it is thought that accumulation of the excitatory neurotransmitter glutamate in the CNS may be involved. Clinical studies have shown riluzole, a glutamate antagonist, to be modestly effective in prolonging survival by an average of 3 months and delaying the time to use of tracheostomy. However, there is still insufficient data to be able to assess which patients would derive greatest benefit. Additionally, questions have been raised about the clinical usefulness of riluzole in terms of cost-benefit, and there are concerns about adverse effects, notably hepatotoxicity.

Also under study for the treatment of motor neurone disease are somatomedins, in particular mecasermin (insulin-like growth factor I). Neurotrophic factors have been investigated including brain-derived neurotrophic factor (BDNF) and recombinant ciliary neurotrophic factor (CNTF), but results have been generally inconclusive. Glial-cell-derived neurotrophic factor (GDNF) and xaliproden are under investigation.

There has been some interest in the antiepileptic drug gabapentin, which may inhibit glutamate formation in the CNS from branched-chain amino acids. Lamotrigine and topiramate have also been tried but with disappointing results. ONO-2506 is an enantiomeric homologue of valproate that is also under investigation. Dextromethorphan has been studied in amyotrophic lateral sclerosis. Minocycline has demonstrated neuroprotective effects in *animal* studies and is therefore also being studied in this condition; ceftriaxone is also under investigation. Immunoglobulins have been tried in some forms of motor neurone disease such as multifocal motor neuropathy.

Antoxidants, including vitamins C and E, are commonly used by patients in the belief that one mechanism for neuronal death is free radical accumulation resulting from oxidative stress. However, despite substantial literature on the subject and widespread use of antoxidants, significant evidence to support their benefit in motor neurone disease is lacking. Creatine supplements have been tried in a bid to preserve motor function and motor neurones, although benefit has not been shown in controlled studies.

A small percentage of patients with familial amyotrophic lateral sclerosis has been shown to have a mutation in the gene encoding for the enzyme copper-zinc superoxide dismutase but there has been no consensus as to whether patients with this mutation should be given superoxide dismutase supplements.

References.

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2. Cashman NR. Do the benefits of currently available treatments justify early diagnosis and announcement? — Arguments for. *Neurology* 1999; **53** (suppl 5): S50–S52.
3. Rowland LP, Shneider NA. Amyotrophic lateral sclerosis. *N Engl J Med* 2001; **344:** 1688–1700.
4. Dib M. Amyotrophic lateral sclerosis: progress and prospects for treatment. *Drugs* 2003; **63:** 289–310.
5. Leigh PN, *et al.* The management of motor neurone disease. *J Neurol Neurosurg Psychiatry* 2003; **74** (suppl 4): iv32–iv47.
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10. Orrell RW, *et al.* Antioxidant treatment for amyotrophic lateral sclerosis / motor neuron disease. Available in The Cochrane Database of Systematic Reviews; Issue 1. Chichester: John Wiley; 2007 (accessed 17/06/08).
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12. Mitsumoto H, Rabkin JG. Palliative care for patients with amyotrophic lateral sclerosis: prepare for the worst and hope for the best. *JAMA* 2007; **298:** 207–16.
13. McDermott CJ, Shaw PJ. Diagnosis and management of motor neurone disease. *BMJ* 2008; **336:** 658–62.
14. Corcia P, Meininger V. Management of amyotrophic lateral sclerosis. *Drugs* 2008; **68:** 1037–48.

Movement disorders. Beneficial results have been obtained with riluzole in small studies of patients with Huntington's chorea.[1,2] Riluzole has been tried in a small number of patients with early Parkinson's disease but no evidence of benefit was observed.[3] It has also been tried in levodopa-induced dyskinesias in advanced Parkinson's disease with conflicting reports of benefit[4] or no benefit.[5]

1. Rosas HD, *et al.* Riluzole therapy in Huntington's disease (HD). *Mov Disord* 1999; **14:** 326–30.
2. Huntington Study Group. Dosage effects of riluzole in Huntington's disease: a multicenter placebo-controlled study. *Neurology* 2003; **61:** 1551–6.
3. Jankovic J, Hunter C. A double-blind, placebo-controlled and longitudinal study of riluzole in early Parkinson's disease. *Parkinsonism Relat Disord* 2002; **8:** 271–6.
4. Merims D, *et al.* Riluzole for levodopa-induced dyskinesias in advanced Parkinson's disease. *Lancet* 1999; **353:** 1764–5.
5. Braz CA, *et al.* Effect of riluzole on dyskinesia and duration of the ON state in Parkinson disease patients: a double-blind, placebo-controlled pilot study. *Clin Neuropharmacol* 2004; **27:** 25–9.

Psychiatric disorders. Glutamate is implicated in the aetiology of various psychiatric disorders and consequently riluzole has been suggested as a potential treatment in view of its glutamate-modulating properties.

References.

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2. Sanacora G, *et al.* Riluzole augmentation for treatment-resistant depression. *Am J Psychiatry* 2004; **161:** 2132.
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4. Coric V, *et al.* Riluzole augmentation in treatment-resistant obsessive-compulsive disorder: an open-label trial. *Biol Psychiatry* 2005; **58:** 424–8.
5. Coric V, *et al.* Beneficial effects of the antiglutamatergic agent riluzole in a patient diagnosed with trichotillomania. *J Clin Psychiatry* 2007; **68:** 170–1.

Preparations

Proprietary Preparations (details are given in Part 3)

Arg.: Rilasat; Rilutek; ***Austral.:*** Rilutek; ***Austria:*** Rilutek; ***Belg.:*** Rilutek; ***Braz.:*** Rilutek; ***Canad.:*** Rilutek; ***Chile:*** Rilutek; ***Cz.:*** Rilutek; ***Denm.:*** Rilutek; ***Fin.:*** Rilutek; ***Fr.:*** Rilutek; ***Ger.:*** Rilutek; ***Hong Kong:*** Rilutek; ***Hung.:*** Rilutek; ***Irl.:*** Rilutek; ***Israel:*** Rilutek; ***Ital.:*** Rilutek; ***Jpn:*** Rilutek; ***Mex.:*** Rilutek; ***Neth.:*** Rilutek; ***Norw.:*** Rilutek; ***NZ:*** Rilutek; ***Pol.:*** Rilutek; ***Port.:*** Rilutek; ***S.Afr.:*** Rilutek; ***Singapore:*** Rilutek; ***Spain:*** Rilutek; ***Swed.:*** Rilutek; ***Switz.:*** Rilutek; ***Thai.:*** Rilutek; ***Turk.:*** Rilutek; ***UK:*** Rilutek; ***USA:*** Rilutek; ***Venez.:*** Rilutek.

Rimonabant *(USAN, rINN)*

Rimocaban; Rimonabantum; SR-141716. 5-(*p*-Chlorophenyl)-1-(2,4-dichlorophenyl)-4-methyl-*N*-piperidinopyrazole-3-carboxamide.

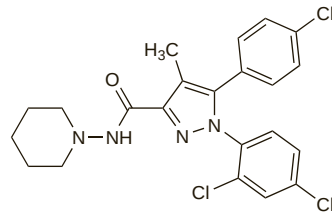
Римонабант

$C_{22}H_{21}Cl_3N_4O$ = 463.8.

CAS — 168273-06-1 (rimonabant); 158681-13-1 (rimonabant hydrochloride).

ATC — A08AX01.

ATC Vet — QA08AX01.



Profile

Rimonabant is a selective cannabinoid type-1 receptor antagonist used as an adjunct to diet and exercise for the treatment of obese patients (BMI ≥ 30 kg/m^2), and also for overweight patients (BMI > 27 kg/m^2) who have associated risk factors such as type 2 diabetes mellitus or dyslipidaemia. It is given orally in doses of 20 mg daily before breakfast. However, following concern about psychiatric reactions marketing of rimonabant was suspended in Europe in October 2008.

Nausea, anxiety, and dizziness occur commonly with rimonabant. Depressive symptoms have also occurred and rimonabant should not be given to patients with major depression or to those being treated with antidepressants; it is also not recommended in patients with other uncontrolled serious psychiatric disorders. Since rimonabant is metabolised by the liver, caution is advised in patients with moderate hepatic impairment. Licensed product information does not recommend its use in patients with severe hepatic or renal impairment because of lack of data in these patient groups. Plasma concentrations of rimonabant are increased when given with ketoconazole; other CYP3A4 inhibitors might have the same effect.

Rimonabant is also being investigated as an aid for smoking cessation.

◊ The action and potential uses of rimonabant have been reviewed.[1-5] Rimonabant is a selective cannabinoid type-1 receptor antagonist that reduces the overactivity of the endocannabinoid (endogenous cannabinoid) system. Studies of rimonabant *in vitro* and in *animals* have shown that it inhibits the proliferation and maturation of adipocytes, improves lipid and glucose metabolism, and regulates food intake and energy balance.[1,3,4]

Four large multicentre randomised controlled studies have been carried out to examine the effects of rimonabant in obesity (RIO) in conjunction with a mildly hypocalorific diet (deficit of about 600 kcal/day),[6-9] and all studies showed that rimonabant was of benefit when given at a dose of 20 mg daily. A significant decrease in body-weight and waist circumference was reported from the RIO-Europe study[6] over 1 year, although results from the RIO-North America study[7] conducted over 2 years were more modest; both studies also showed improvement in cardiovascular risk factors. The RIO-Lipids study[8] examined the effects of rimonabant over 1 year in overweight or obese patients with untreated dyslipidaemias and noted improvement in several metabolic risk factors as well as weight loss. Similar results including improvement in plasma-glucose concentrations (as indicated by glycosylated haemoglobin measurements) were obtained in overweight or obese patients with type 2 diabetes mellitus given rimonabant over 1 year in the RIO-Diabetes study.[9] Meta-analysis[10] and systematic review[11] of the 4 studies in the RIO-programme agreed that rimonabant produced statistically greater weight loss than placebo, although some problems with methodology were noted. Since no follow-up data were reported, no conclusion could be reached about weight regain.[10] Of particular concern was the increase in incidence of psychiatric adverse effects such as depression and anxiety in the treatment group.[10]

Rimonabant is also being studied as an aid to smoking cessation but a systematic review[12] of randomised controlled studies concluded that although rimonabant 20 mg daily may be of benefit in stopping smoking, the evidence in maintaining abstinence is inconclusive.

1. Boyd ST, Fremming BA. Rimonabant—a selective CB1 antagonist. *Ann Pharmacother* 2005; **39:** 684–90.
2. Gelfand EV, Cannon CP. Rimonabant: a cannabinoid receptor type 1 blocker for management of multiple cardiometabolic risk factors. *J Am Coll Cardiol* 2006; **47:** 1919–26.
3. Henness S, *et al*. Rimonabant. *Drugs* 2006; **66:** 2109–19.
4. Patel PN, Pathak R. Rimonabant: a novel selective cannabinoid-1 receptor antagonist for treatment of obesity. *Am J Health-Syst Pharm* 2007; **64:** 481–9.
5. Xie S, *et al*. The endocannabinoid system and rimonabant: a new drug with a novel mechanism of action involving cannabinoid CB receptor antagonism — or inverse agonism — as potential obesity treatment and other therapeutic use. *J Clin Pharm Ther* 2007; **32:** 209–31.
6. Van Gaal LF, *et al*. Effects of the cannabinoid-1 receptor blocker rimonabant on weight reduction and cardiovascular risk factors in overweight patients: 1-year experience from the RIO-Europe study. *Lancet* 2005; **365:** 1389–97. Correction. *ibid*. **366:** 370.
7. Pi-Sunyer FX, *et al*. Effect of rimonabant, a cannabinoid-1 receptor blocker, on weight and cardiometabolic risk factors in overweight or obese patients: RIO-North America: a randomized controlled trial. *JAMA* 2006; **295:** 761–75.
8. Després J-P, *et al*. Effects of rimonabant on metabolic risk factors in overweight patients with dyslipidemia. *N Engl J Med* 2005; **353:** 2121–34.
9. Scheen AJ, *et al*. RIO-Diabetes Study Group. Efficacy and tolerability of rimonabant in overweight or obese patients with type 2 diabetes: a randomised controlled study. *Lancet* 2006; **368:** 1660–72.
10. Christensen R, *et al*. Efficacy and safety of the weight-loss drug rimonabant: a meta-analysis of randomised trials. *Lancet* 2007; **370:** 1706–13.
11. Curioni C, André C. Rimonabant for overweight or obesity. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2006 (accessed 14/02/08).
12. Cahill K, Ussher M. Cannabinoid type 1 receptor antagonists (rimonabant) for smoking cessation. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2007 (accessed 14/02/08).

Preparations

Proprietary Preparations (details are given in Part 3)
Arg.: Acomplia; Resibant; ***Cz.:*** Acomplia†; Zimulti; ***Fr.:*** Acomplia†; ***Gr.:*** Acomplia† ***Port.:*** Zimulti; ***UK:*** Acomplia†.

Rociverine *(rINN)*

LG-30158; Rociverina; Rocivérine; Rociverinum. 2-Diethylamino-1-methylethyl *cis*-1-hydroxy(bicyclohexyl)-2-carboxylate.

Рociверин

$C_{20}H_{37}NO_3$ = 339.5.
CAS — 5371 6-44-2.
ATC — A03AA06.
ATC Vet — QA03AA06.

Profile

Rociverine is an antispasmodic that has been given orally in doses of 30 to 40 mg or rectally in doses of 50 to 75 mg daily. It has also been given by injection.

Preparations

Proprietary Preparations (details are given in Part 3)
Ital.: Rilaten.

Rose Bengal Sodium

CI Acid Red 94; Colour Index No. 45440; Rosa de bengala sódico; Rose Bengal; Sodium Rose Bengal. The disodium salt of 4,5,6,7-tetrachloro-2′,4′,5′,7′-tetraiodofluorescein .

$C_{20}H_2Cl_4I_4Na_2O_5$ = 1017.6.
CAS — 11121-48-5 (rose bengal); 632-69-9 (rose bengal disodium).
ATC — S01JA02.
ATC Vet — QS01JA02.

NOTE. The name Rose Bengale has been applied to the substance described in this monograph as well as to dichlorotetraiodofluorescein (CI Acid Red 93; Ext. D & C Reds Nos. 5 and 6; Colour Index No. 45435), a compound used as its disodium or dipotassium salt as a colouring agent.
ROS is a code approved by the BP 2008 for use on single unit doses of eye drops containing rose bengal sodium where the individual container may be too small to bear all the appropriate labelling information.

Profile

Rose bengal sodium stains devitalised conjunctival and corneal epithelial cells as well as mucus and is used as an aid in the diagnosis of dry eye. It is used to detect or assess ocular damage resulting from Sjögren's syndrome or from ill-fitting contact lenses, and for keratitis, squamous cell carcinomas, and detection of foreign bodies. Rose bengal sodium is applied as 1% eye drops or as sterile papers impregnated with the dye.

Instillation of this dye may be painful, especially in dry eyes. Rose bengal sodium can stain exposed skin, clothing, and soft contact lenses. Rose bengal sodium should not be used before taking swabs as it possesses some antiviral activity.

Rose bengal sodium is taken up by the liver and excreted in the bile; the iodine-131-labelled compound (p.2054) has been used as a diagnostic aid in the determination of hepato-biliary function.

Preparations

Proprietary Preparations (details are given in Part 3)
Canad.: Ak-Rose; ***USA:*** Rosets.

Rose Fruit

Brier Fruit; Csipkerózsa általmés; Cynorrhodon; Cynosbati Fructus; Cynosbati Pseudofructus; Dog Rose Fruits; Églantier; Erškėčių vaisiai; Escaramujo; Hips; Hypanthium Rosae; Nypon; Rosae Fructus; Rosae pseudo-fructus; Rose Hips; Ruusunmarja; Šípek.

Pharmacopoeias. In *Eur.* (see p.vii) and *Jpn*.
Ph. Eur. 6.2 (Dog Rose). The rose hips made up by the receptacle and the remains of the dried sepals of *Rosa canina*, *R. pendulina*, and other *Rosa* spp., with the achenes removed. It contains not less than 0.3% of ascorbic acid, calculated with reference to the dried drug. Protect from light.

Profile

The fruits of various *Rosa* species, in particular the dog rose, *R. canina*, are used as a source of vitamin C (p.1983). Rose fruit is included in herbal preparations for constipation and urinary-tract disorders.

Preparations

Proprietary Preparations (details are given in Part 3)
UK: LitoZin.

Multi-ingredient: ***Arg.:*** Vitamina C-Complex; ***Austral.:*** Bio C; Bioglan Mega C; Bioglan Super Cal C; C Supa + Bioflavonoids†; Flavons; Glycyrrhiza Complex†; Plantiodine Plus†; Sustained Release C; ***Austria:*** Amersan; ***Chile:*** Calcio 520; Natursel-C; Reduc-Te; Romox-ARL; ***Cz.:*** Amersan; Bronchicum Hustensirup†; Prudušková; Stoffwechseltee N†; ***Ger.:*** Nephronorm med†; ***Ital.:*** Angiorex Complex; Golapiol C; Longevital; Nepiros; Sambuco (Specie Composta)†; ***Malaysia:*** Nat-C; ***Philipp.:*** Delrosa; ***Pol.:*** Cholesol; Diabetofort; Diges-Tonic; Echinasal; Sedomix; Tiliros; ***Rus.:*** Bronchicum Husten (Бронхикум Сироп от Кашля); ***Switz.:*** A Vogel Capsules polyvitamineesT; Tisane contre les refroidissements; ***Thai.:*** Nat-C Medicrafts; ***UK:*** GlucOsamax; Top C; ***USA:*** Amino-Opti-C; C Factors "1000" Plus; Ester-C Plus; Ester-C Plus Multi-Mineral; ***Venez.:*** Ro-C-Var.

Rose Oil

Attar of Rose; Esencia de Rosa; Oleum Rosae; Otto of Rose; Rosa, aceite esencial de.

Pharmacopoeias. In *USNF*.
USNF 26 (Rose Oil). A volatile oil distilled with steam from the fresh flowers of *Rosa gallica*, *R. damascena*, *R. alba*, *R. centifolia*, and varieties of these species (Rosaceae). It is a colourless or yellow liquid, having the characteristic odour of rose. At 25° it is a viscous liquid. On gradual cooling, it changes to a translucent, crystalline mass, easily liquefied by warming. Miscible with an equal volume of chloroform. Store in well-filled airtight containers.

Profile

Rose oil is largely employed in perfumery and toilet preparations and has been used as a flavour. It is also used in aromatherapy. It contains citronellol. Hypersensitivity reactions have been reported.

Preparations

USNF 26: Stronger Rose Water;
USP 31: Rose Water Ointment.

Proprietary Preparations (details are given in Part 3)
Hung.: Naksol†.

Multi-ingredient: ***Arg.:*** Estri-Atlas; ***Chile:*** Cicapost; ***Ger.:*** Rosatum Heilsalbe; ***Port.:*** Cicapost.

Rosemary

Romarin; Romarin (rosemary leaf); Roris Marini; Rosmariininlehti (rosemary leaf); Rosmarin; Rosmarinblad (rosemary leaf); Rosmarini folium (rosemary leaf); Rozmaringlevél (rosemary leaf); Rozmarinų lapai (rosemary leaf); Rozmarýnový list (rosemary leaf).

Pharmacopoeias. *Eur.* (see p.vii) includes the dried leaf.
Ph. Eur. 6.2 (Rosemary Leaf; Rosmarini Folium). The whole, dried leaf of *Rosmarinus officinalis*. It contains not less than 1.2% v/w of essential oil and not less than 3% of total hydroxycinnamic derivatives, expressed as rosmarinic acid ($C_{18}H_{16}O_8$ = 360.3) both with reference to the anhydrous drug.

Profile

Rosemary (*Rosmarinus officinalis*, Lamiaceae) has rubefacient and mild analgesic activity when applied topically, and is included in external preparations for rheumatic and circulatory disorders. It is also reported to have carminative, spasmolytic, and diuretic effects and is included in herbal preparations for gastrointestinal, cardiovascular, and urinary-tract disorders.

Rosemary is a source of rosemary oil (below).

Preparations

Proprietary Preparations (details are given in Part 3)
Braz.: Alrinte.

Multi-ingredient: ***Arg.:*** Acnetrol; Sequals G; ***Austral.:*** Avena Complex; Garlic Allium Complex; Vitanox; ***Austria:*** Euka; ***Chile:*** Rhus Opodeldoc; Romox-ARL; ***Cz.:*** Hertz- und Kreislauftee†; Naturland Grosser Swedenbitter†; ***Fr.:*** Depuratum; Hepax; Mediflor Tisane Contre la Constipation Passagere No 7; Mediflor Tisane Digestive No 3; Mediflor Tisane Hepatique No 5; Romarene; ***Ger.:*** Canephron; JuViton†; Melissengeist; Seda-Plantina†; ***Mon.:*** Romarinex; ***Pol.:*** Cardiactiv; ***Rus.:*** Canephron N (Канефрон Н); ***Spain:*** Linimento Naion; Mesatil†; Natusor Hepavesical†; Natusor Low Blood Pressure†; Natusor Sinulan†; Resolutivo Regium; ***Switz.:*** Phytomed Cardio; ***Venez.:*** Flocadep.

Rosemary Oil

Esencia de Romero; Essence de Romarin; Essência de Alecrim; Oleum Roris Marini; Oleum Rosmarini; Romarin, huile essentielle de; Romero, aceite esencial de; Rosmariiniõlja; Rosmarini aetheroleum; Rosmarini Etheroleum; Rosmarinöl; Rosmarinolja; Rozmaringolaj; Rozmarinų eterinis aliejus; Rozmarýnová silice.

Pharmacopoeias. In *Eur.* (see p.vii).
Ph. Eur. 6.2 (Rosemary Oil). The essential oil obtained by steam distillation from the flowering aerial parts of *Rosmarinus officinalis*. It is available as Spanish type rosemary oil and Moroccan and Tunisian type rosemary oil. Spanish type rosemary oil contains 2.0 to 4.5% borneol, 0.5 to 2.5% bornyl acetate, 8.0 to 12.0% camphene, 13.0 to 21.0% camphor, 16.0 to 25.0% cineole, 1.0 to 2.2% *p*-cymene, 2.5 to 5.0% limonene, 1.5 to 5.0% β-myrcene, 18 to 26% α-pinene, 2.0 to 6.0% β-pinene, 1.0 to 3.5% α-terpineol, and 0.7 to 2.5% verbenone. Moroccan and Tunisian type rosemary oil contains 1.5 to 5.0% borneol, 0.1 to 1.5% bornyl acetate, 2.5 to 6.0% camphene, 5.0 to 15.0% camphor, 38.0 to 55.0% cineole, 0.8 to 2.5% *p*-cymene, 1.5 to 4.0% limonene, 1.0 to 2.0% β-myrcene, 9.0 to 14.0% α-pinene, 4.0 to 9.0% β-pinene, 1.0 to 2.6% α-terpineol, and a maximum of 0.4% verbenone.
A clear, mobile, colourless to pale yellow liquid with a characteristic odour. Store in well-filled airtight containers at a temperature not exceeding 25°. Protect from light.

Profile

Rosemary oil is carminative and mildly irritant. It is used in perfumery and as a flavour and has been employed in hair lotions, inhalations, and liniments. It is also used in aromatherapy.

Preparations

Proprietary Preparations (details are given in Part 3)
Ger.: Caprisana†; Rosapinol.

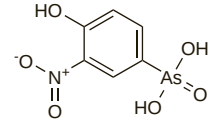
Multi-ingredient: ***Arg.:*** Bano Liquido con Eucalipto†; ***Austral.:*** Bacopa Complex; Bosisto's Vaporising Ointment; Euky Bearub; Tixylix Chest Rub†; ***Austria:*** Berggeist; Carl Baders Divinal; Criniton; Opino; Pulmex; Rheuma; Rowalind; Salhumin; ***Belg.:*** Perubore; Pulmex; Pulmex Baby; ***Braz.:*** Aliviol; Analgen†; Benegel; Gelflex; Geloł†; Gelonevral†; Mialgex†; Nevrol; ***Chile:*** Agua del Carmen; Agua Melisa Carminativa; Lefkaflam; Pulmex†; ***Cz.:*** Pulmex Baby†; Pulmex†; Thrombocid; ***Fr.:*** Aromasol; Dinacode†; Item Lentes; Maghora; Perubore; ***Ger.:*** Arthrodeformat P†; Arthrodynat P†; Cor-Vel; Criniton†; Dolo-cyl; Hingfong-Essenz Hofmanns; Leukona-Kreislauf-Bad†; Leukona-Rheumasalbe†; polio-elan; Retterspitz Ausserlich; Retterspitz Quick; Rheuma Bad; Rosarthron†; Tetesept Badekonzentrat Rheuma Bad†; Thrombocid; Top-Sabona†; Vaxicum NA†; Weleda-Rheumasalbe M; ***Gr.:*** Opino-jel; ***Indon.:*** Opino; ***Ital.:*** Calyptol; Cinarepa; Neuralta Migren; Valda Propoli; Vicks Baby Balsam†; ***Malaysia:*** Purporent†; ***NZ:*** Electric Blue Headlice; Tixylix Chest Rub; Vicks Baby Balsam; ***Pol.:*** Argol Rheuma; Aromagel; Depulol; Pulmex Baby; ***Port.:*** Thrombocid; ***Rus.:*** Carmolis Fluid (Кармолис Жидкость)†; Pulmex (Пульмекс); Pulmex Baby (Пульмекс Бэби); Theraflu Bro (Терафлю Бро); ***S.Afr.:*** Arnica Massage Oil; Balsem Vita GEEL; Balsem Vita ROOI; Entressdruppels HM; Oleum Salviae Comp; Rooilavental; Stuidruppels; ***Spain:*** Beta Romero; Dolokey; Linimento Klari†; Masagil; Tonimax; ***Switz.:*** Carmol; Carmol Plus†; Frigoplasma†; Frixo-Dragon Vert†; Liberol Bain†; Nasobol N; Novital; Perskindol Classic; Perubare†; Pulmex; Pulmex Baby; Spagyrom; Thrombocid; Wolo Medicinal bain antirhumatismal; Ziegella; ***UK:*** Adiantine; Arnica Massage Balm; Medicated Extract of Rosemary; Soothol.

Roxarsone *(BAN, USAN, rINN)*

NSC-2101; Roxarsona; Roxarsonum. 4-Hydroxy-3-nitrophenylarsonic acid.

Роксарсон

$C_6H_6AsNO_6$ = 263.0.
CAS — 121-19-7.



Pharmacopoeias. In *US* for veterinary use only.
USP 31 (Roxarsone). A pale yellow, crystalline powder. Slightly soluble in cold water; soluble in boiling water; freely soluble in dehydrated alcohol, in acetic acid, in acetone, in methyl alco-