

Coltsfoot

Coughwort; Fáfara; Huflattich; Tusilago; Tussilage.
Камчужная Трава

Pharmacopoeias. *Chin.* and *Fr.* include Coltsfoot Flower.

Profile

The leaves and flowers of coltsfoot (*Tussilago farfara*) have been used for their demulcent and supposed expectorant properties in the treatment of cough and other mild respiratory disorders. However, there has been some concern about potential hepatotoxicity and carcinogenicity due to the content of pyrrolizidine alkaloids.

◊ A review¹ of the actions and uses of coltsfoot pointed out that given the potential risks of its use long-term or in pregnancy, and the availability of other demulcent herbs, the use of coltsfoot preparations to treat throat irritations can no longer be considered appropriate.

1. Berry M. *Coltsfoot. Pharm J* 1996; **256**: 234–5.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient. **Arg.:** Arcelgiasol; **Negacne;** **Cz.:** Perospir†; **Species** Pectorales Planta; **Ital.:** Lozione Same Urto; **Pol.:** Mucosit; **Fyrosal;** **Spain:** Llantusil†; **UK:** Antibron; Chesty Cough Relief.

Creosote

Creasote; Creosota; Creosotal (creosote carbonate); Wood Creosote.

Древесный Креозот

CAS — 8021-39-4 (creosote); 8001-59-0 (creosote carbonate).

ATC — R05CA08.

ATC Vet — QR05CA08.

Pharmacopoeias. In *Jpn.*

Profile

Creosote is a liquid consisting of a mixture of guaiacol, cresol, and other phenols obtained from wood tar. It possesses disinfectant properties and has been used as an expectorant. It has also been used as the carbonate and as lacto-creosote.

Adverse effects are similar to those of Phenol, p.1656.

Commercial creosote used for timber preservation is obtained from coal tar.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient. **Austral.:** Compound Inhalation of Menthol; **Austria:** Famel cum Codein; Famel cum Ephedrin; **Braz.:** Rhum Creosotado; **Hung.:** Fagifort†; **India:** Pulmo-Cod (C & G); **Ital.:** Creosoto Composto; **Famel†;** **Switz.:** Famel; **UK:** Famel Original.

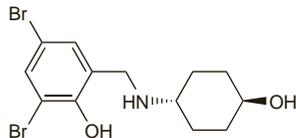
Dembrexine (BAN, rINN)

Dembreksini; Dembrexin; Dembrexina; Dembrexinum; Dembroxol. *trans*-4-[(3,5-Dibromosalicyl)amino]cyclohexanol.

Дембрексин

C₁₃H₁₇Br₂NO₂ = 379.1.

CAS — 83200-09-3 (dembrexine); 52702-51-9 (dembrexine hydrochloride).



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

Ph. Eur. 6.2 (Dembrexine Hydrochloride Monohydrate for Veterinary Use; Dembrexine Hydrochloride Monohydrate BP(Vet) 2008). A white or almost white, crystalline powder. Slightly soluble in water and in anhydrous ethanol; freely soluble in methyl alcohol.

Profile

Dembrexine is a mucolytic used as the hydrochloride in veterinary medicine.

Denufosal Tetrasodium (USAN, rINN)

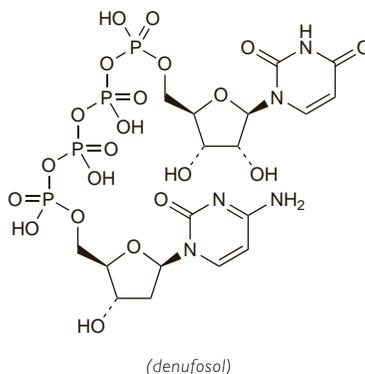
Denufosal tetrasódico; Dénufofol tetrasodique; Denufosolium tetranatricum; INS-37217. 2'-Deoxycytidine(5')tetraphospho(5')uridine tetrasodium.

Денуфозол Тетранатрий

C₁₈H₂₃N₅Na₄O₂₁P₄ = 861.3.

CAS — 211448-85-0 (denufosal); 318250-11-2 (denufosal tetrasodium).

The symbol † denotes a preparation no longer actively marketed

**Profile**

Denufosal tetrasodium is a selective P2Y₂-receptor agonist that stimulates chloride and water secretion from respiratory tract epithelial cells, and increases mucosal hydration and mucociliary clearance. An inhaled preparation is under investigation for the treatment of cystic fibrosis.

Dextromethorphan (BAN, pINN)

Dekstrometorfaani; Dextrométhorphane; Dextromethorphanum; Dextrometorfan; Dextrometorfanó. (+)-3-Methoxy-9α-methylmorphinan; (9S,13S,14S)-6,18-Dideoxy-7,8-dihydro-3-O-methylmorphine.

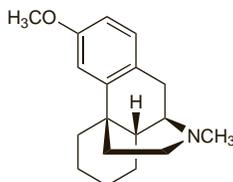
Декстрометорфан

C₁₈H₂₅NO = 271.4.

CAS — 125-71-3.

ATC — R05DA09.

ATC Vet — QR05DA09.



NOTE. The following terms have been used as 'street names' (see p.vi) or slang names for various forms of dextromethorphan: Bromage; Brome; Candy; CCC; C-C-C; Dex; Dextro; DM; Drex; DXM; Red Devils; Robo; Rojo; Skittles; Triple C; Triple C's; Tussin; Velvet; Vitamin D.

Pharmacopoeias. In *US.*

USP 31 (Dextromethorphan). A practically white to slightly yellow, odourless, crystalline powder. Practically insoluble in water; freely soluble in chloroform. Store in airtight containers.

Dextromethorphan Hydrobromide (BANM, pINN)

Dekstrometorfaanihydrobromidi; Dekstrometorfan Hydrobromür; Dekstrometorfanó hidrobromidas; Dekstrometorfanó bromowodorek; Dextrometorfan-hydrobromid monohydrát; Dextrométhorphane, bromhydrate de; Dextromethorphani hydrobromidum; Dextromethorphani Hydrobromidum Monohydricum; Dextrometorfan-hidrobromid; Dextrometorfanhydrobromid; Hidrobromuro de dextrometorfanó. Dextromethorphan hydrobromide monohydrate.

Декстрометорфана Гидробромид

C₁₈H₂₅NO.HBr.H₂O = 370.3.

CAS — 125-69-9 (anhydrous dextromethorphan hydrobromide); 6700-34-1 (dextromethorphan hydrobromide monohydrate).

ATC — R05DA09.

ATC Vet — QR05DA09.

Pharmacopoeias. In *Eur.* (see p.vii), *Int.*, *Jpn.*, *US.* and *Viet.*

Ph. Eur. 6.2 (Dextromethorphan Hydrobromide). An almost white, crystalline powder. Sparingly soluble in water; freely soluble in alcohol. Protect from light.

USP 31 (Dextromethorphan Hydrobromide). Practically white crystals or crystalline powder having a faint odour. Soluble 1 in 65 of water; freely soluble in alcohol and in chloroform; insoluble in ether. pH of a 1% solution in water is between 5.2 and 6.5. Store in airtight containers.

Adverse Effects and Treatment

Adverse effects with dextromethorphan appear to be rare and may include dizziness and gastrointestinal disturbances. Excitation, confusion, and respiratory depression may occur after overdosage. Dextromethorphan has been subject to abuse, but there is little evidence of dependence of the morphine type.

◊ General references.

1. Bem JL, Peck R. Dextromethorphan: an overview of safety issues. *Drug Safety* 1992; **7**: 190–9.

Hypersensitivity. A fixed-drug reaction developed in a patient after ingestion of dextromethorphan 30 mg.¹ Oral provocation with dextromethorphan produced a positive reaction but the results of topical application tests were negative. Urticaria, angioedema, and shortness of breath were reported in another patient;² symptoms recurred on oral challenge, but no skin test was performed. Similar symptoms were reported in a third patient;³ skin testing provoked a positive reaction. On oral rechallenge, the patient developed urticaria initially, followed by generalised erythema and pruritus and decreased blood pressure after a second dose.

1. Stubb S, Reitano S. Fixed-drug eruption due to dextromethorphan. *Arch Dermatol* 1990; **126**: 970–1.

2. Knowles SR, Weber E. Dextromethorphan anaphylaxis. *J Allergy Clin Immunol* 1998; **102**: 316–17.

3. Robledo T, et al. Adverse reaction to dextromethorphan. *Allergy* 2004; **59**: 890.

Overdosage. There have been reports^{1–7} of overdosage or accidental poisoning (usually in children) due to dextromethorphan, including rare fatalities. Naloxone may be effective in reversing toxicity. Extrapyramidal reactions were seen in a child who ingested dextromethorphan.⁶ Overdosage has also been associated with abuse (see below).

1. Shaul WL, et al. Dextromethorphan toxicity: reversal by naloxone. *Pediatrics* 1977; **59**: 117–19.

2. Katona B, Wason S. Dextromethorphan danger. *N Engl J Med* 1986; **314**: 993.

3. Rammer L, et al. Fatal intoxication by dextromethorphan: a report on two cases. *Forensic Sci Int* 1988; **37**: 233–6.

4. Schneider SM, et al. Dextromethorphan poisoning reversed by naloxone. *Am J Emerg Med* 1991; **9**: 237–8.

5. Pender ES, Parks BR. Toxicity with dextromethorphan-containing preparations: a literature review and report of two additional cases. *Pediatr Emerg Care* 1991; **7**: 163–5.

6. Warden CR, et al. Dystonic reaction associated with dextromethorphan ingestion in a toddler. *Pediatr Emerg Care* 1997; **13**: 214–15.

7. Roberge RJ, et al. Dextromethorphan- and pseudoephedrine-induced agitated psychosis and ataxia: case report. *J Emerg Med* 1999; **17**: 285–8.

Precautions

Dextromethorphan should not be given to patients at risk of developing respiratory failure. Caution is needed in patients with a history of asthma and it should not be given during an acute attack. Care is also advisable in patients with bronchitis, emphysema, or in other conditions where chronic or persistent cough occurs.

Abuse. Dextromethorphan has been abused,^{1,12} alone or with other drugs in over-the-counter preparations or as a powder sold under the name DXM. There have been a few reports of dependence,^{1,2,11} but evidence of classical opioid dependence is generally considered to be lacking.

1. Fleming PM. Dependence on dextromethorphan hydrobromide. *BMJ* 1986; **293**: 597.

2. Orrell MW, Campbell PG. Dependence on dextromethorphan hydrobromide. *BMJ* 1986; **293**: 1242–3.

3. Walker J, Yatham LN. Benlylin (dextromethorphan) abuse and mania. *BMJ* 1993; **306**: 896.

4. Wolfe TR, Caravati EM. Massive dextromethorphan ingestion and abuse. *Am J Emerg Med* 1995; **13**: 174–6.

5. Nordt SP. DXM: a new drug of abuse? *Ann Emerg Med* 1998; **31**: 794–5.

6. Cranston JW, Yoast R. Abuse of dextromethorphan. *Arch Fam Med* 1999; **8**: 99–100.

7. Price LH, Lebel J. Dextromethorphan-induced psychosis. *Am J Psychiatry* 2000; **157**: 304.

8. Noonan WC, et al. Dextromethorphan abuse among youth. *Arch Fam Med* 2000; **9**: 791–2.

9. Banerji S, Anderson IB. Abuse of Coricidin HBP cough and cold tablets: episodes recorded by a poison center. *Am J Health-Syst Pharm* 2001; **58**: 1811–14.

10. Food and Drug Administration. FDA warns against abuse of dextromethorphan (DXM) (issued 20 May 2005). Available at: <http://www.fda.gov/bbs/topics/ANSWERS/2005/ANS01360.html> (accessed 16/05/07)

11. Desai S, et al. Chronic addiction to dextromethorphan cough syrup: a case report. *J Am Board Fam Med* 2006; **19**: 320–3.

12. Bryner JK, et al. Dextromethorphan abuse in adolescence: an increasing trend: 1999–2004. *Arch Pediatr Adolesc Med* 2006; **160**: 1217–22.

Children. For doubts about the use of dextromethorphan as an antitussive in children see Cough, under Uses and Administration, below.

Interactions

Severe and sometimes fatal reactions have been reported after use of dextromethorphan in patients receiving

The symbol ⊗ denotes a substance whose use may be restricted in certain sports (see p.vii)