ment of haemorrhoids. It is an ingredient in a number of dermatological preparations.

Former uses of tannic acid include application to burns, addition to barium sulfate enemas to improve the quality of radiological pictures of the colon, and as an ingredient of 'Universal Antidote'. However, tannic acid has been associated with liver toxicity, sometimes fatal.

Tattoo removal. Although tannic acid may be used by plastic surgeons and dermatologists to produce a controlled partial-thickness burn in tattoo removal[1] it has been pointed out that in unskilled or amateur hands this procedure has resulted in full thickness burns requiring skin grafting to obtain satisfactory healing.[2]

1. Mercer NSG, Davies DM. Tattoos. *BMJ* 1991; **303:** 380.
2. Scott M, Ridings P. Tattoos. *BMJ* 1991; **303:** 720.

Preparations

Proprietary Preparations (details are given in Part 3)

Ger.: Tannosynt; ***Spain:*** Tanagel Papeles.

Multi-ingredient: ***Austral.:*** SM-33; ***Austria:*** Haemanal; Paradenton; ***Belg.:*** Hemorrhinol; ***Braz.:*** Lacto Vagin†; ***Canad.:*** Tanac; ***Fr.:*** Allerbiocid S†; Eau Precieuse; HEC; ***Ger.:*** Biogetˆ; Tannolil†; ***Gr.:*** Oulogram; ***Irl.:*** Phytex; ***Israel:*** Rectozorin; ***Ital.:*** Blefarolin; Neo Emocicatrol; ***Philipp.:*** Zilactin; ***Pol.:*** Acifungin; Salumin; ***Rus.:*** Contraceptin T (Контрацептин Т); Neo-Anusol (Нео-анузол); ***Singapore:*** HEC†; ***Spain:*** Antihemorroidal; Depurativo Richelet; Dextricea; Sabanotropico; Tanagel; Tangenol†; ***Switz.:*** HEC; Tanno-Hermal; ***UK:*** Colsor; Phytex; TCP; ***USA:*** Dermasept Antifungal; Orasept; Outgro; Tanac; Tanac Dual Core.

Tansy

Atanasia; Barbotine; Hierba lombriguera; Rainfarn; Tanaceto; Tanaisie.

Profile

Tansy, the flowering tops of *Tanacetum vulgare* (*Chrysanthemum vulgare*) (Compositae), has been used as an anthelmintic and to stimulate menstruation. The oil is highly toxic and use of tansy is generally not recommended.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Austral.:*** Calmo; ***Pol.:*** Artemisol.

Taraxacum

Dandelion Root; Diente de León; Korzeń mniszka (root); Löwenzahnwurzel; Pissenlit; Taraxaci Herba; Taraxaci Radix (root); Taraxacum officinalis; Taraxacum Root; Ziele mniszka.

Pharmacopoeias. In *Pol.*

Chin. specifies Taraxacum Herb from other species of *Taraxacum.*

Profile

Taraxacum is the fresh or dried root of the common dandelion, *Taraxacum officinale* (Compositae). It has been used as a bitter, as a diuretic, and as a mild laxative.

Homoeopathy. Taraxacum has been used in homoeopathic medicines under the following names: Taraxacum officinale; Tarax.

◊ References.

1. Houghton P. Bearberry, dandelion and celery. *Pharm J* 1995; **255:** 272–3.

Preparations

Proprietary Preparations (details are given in Part 3)

Cz.: Gallentee†; ***Ger.:*** Carvicum†; Taraleon†; ***Pol.:*** Talion.

Multi-ingredient: ***Arg.:*** Quelodin F; ***Austral.:*** Berberis Complex; Bioglan Cranbiotic Super; Colax; Digest; Extralife Fluid-Care; Extralife Liva-Care; Feminine Herbal Complex; Fluid Loss†; Glycoplex†; Herbal Cleanse†; Herbal Diuretic Formula†; Lifesystem Herbal Formula 7 Liver Tonic†; Liver Tonic Herbal Formula 6†; Livstim†; Livton Complex†; Profluid†; Silybum Complex†; St Mary's Thistle Plus; Trifolium Complex†; Uva-Ursi Complex†; Uva-Ursi Plus†; ***Austria:*** Gallen- und Lebertee St Severin; Magentee St Severin; Montana; Urelium Neu; ***Canad.:*** Milk Thistle Extract Formula†; ***Cz.:*** Cynarosan†; Diabetan; Diabeticka Cajova Smes-Megadiabetin; Original Schwedenbitter; The Salvat; Ungolen†; ***Fr.:*** Detoxell; Diacure; Drainuryl; Hydracur; Maxidraine†; Romarene; ***Ger.:*** Alasenn; Amara-Tropfen; Aristochol N†; Carmol Magen-Galle-Darm; Cholosom SL†; Cholosom-Tee; Gallemolan forte; Gallemolan G†; Gallexier; Galloselect M†; Neurochol C†; Nieron S†; Nieron-Tee N†; Pascobilin novo†; Presselin Hepaticum P†; Tonsilgon; ***Hong Kong:*** Hepatofalk; ***Indon.:*** Naturica DFM; ***Ital.:*** Centaurea (Specie Composta)†; Cinarepa; Tarassaco (Specie Composta)†; Varicofit; ***Malaysia:*** Dandelion Complex†; ***Pol.:*** Artecholin; Artecholwex; Cholavisol; Cholesol; Cholitol; Diabetosol; Dyspepsin; Gastrobonisol; Nefrobonisol; Nefrol; Tabletki Przeciw Niestrawnosci; ***Rus.:*** Tonsilgon N (Тонзилгон Н); ***S.Afr.:*** Amara; ***Spain:*** Diurette; ***Switz.:*** Boldocynara; Demonatur Gouttes pour le foie et la bile; Gastrosan; Heparfelien; Phytomed Hepato†; Phytomed Nephro†; Strath Gouttes pour les reins et la vessie; Tisane hepatique et biliaire; ***UK:*** Adios; Aqualette; Backache; Boldex; HealthAid Boldo-Plus; Herbulax; HRI Water Balance; Natravene; Natural Herb Tablets; Out-of-Sorts; Rheumatic Pain; Senokot Dual Relief; Stomach Mixture; Uvacin; Weight Loss Aid; Wind & Dyspepsia Relief; ***Venez.:*** Celyth's; Flocadep; Rheu-Tarx 1.

Tartaric Acid

Acide tartrique; Acidum tartaricum; Borkősav; E334; E353 (metatartaric acid); Kwas winowy; Kyselina vinná; Tart. Acid; Tartárico, ácido; Tartarik Asit; Tartrique (Acide); Viinihappo; Vinsyra; Vyno rūgštis; Weinsäure. (+)-L-Tartaric acid; (2*R*,3*R*)-2,3-Dihydroxybutane-1,4-dioic acid.

$C_4H_6O_6$ = 150.1.

CAS — 87-69-4; 526-83-0.

Pharmacopoeias. In *Eur.* (see p.vii) and *Jpn.* Also in *USNF.*

Ph. Eur. 6.2 (Tartaric Acid). A white or almost white, crystalline powder or colourless crystals. Very soluble in water; freely soluble in alcohol.

USNF 26 (Tartaric Acid). Colourless or translucent crystals or a white, fine to granular, crystalline powder. Is odourless. Soluble 1 in 0.8 of water, 1 in 0.5 of boiling water, 1 in 3 of alcohol, 1 in 250 of ether, and 1 in 1.7 of methyl alcohol.

Adverse Effects

Strong solutions of tartaric acid are mildly irritant and if ingested undiluted may cause violent vomiting and diarrhoea, abdominal pain, and thirst. Cardiovascular collapse or acute renal failure may follow.

Pharmacokinetics

Tartaric acid is absorbed from the gastrointestinal tract but up to 80% of an ingested dose is probably destroyed by micro-organisms in the lumen of the intestine before absorption occurs. Absorbed tartaric acid is excreted unchanged in the urine.

Uses and Administration

Tartaric acid is used in the preparation of effervescent powders, granules, and tablets, as an ingredient of cooling drinks, and as a saline purgative. If not neutralised, it must be taken well diluted. Tartaric acid or metatartaric acid are used in wine-making as deacidifying agents to assist in the removal of excess malic acid by forming an insoluble double salt with calcium carbonate.

Preparations

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Austral.:*** Citralite; Citravescent; Dexsal; Salvital; Ural; Uricalm†; ***Austria:*** Duplotrast Weinsaure; Helo-acid; Lactolavol; ***Belg.:*** Zoru†; ***Canad.:*** E-Z-Gas II†; ***Chile:*** Frunalia; Frutasal Knop; Uroknop; ***Fr.:*** Dermacide; Zeniac LP Fort†; ***Ger.:*** Retterspitz Ausserlich; Retterspitz Innerlich; ***India:*** Urisoda; ***Ital.:*** Antimicotica Solforata; Geffer; Magnesia Effervescente Sella; ***Malaysia:*** Citravescent†; Ezee; Ural; ***NZ:*** Ural; ***Port.:*** Safrux; Thiospot; ***S.Afr.:*** Adco-Sodasol; Alkafizz; Citro-Soda; Quatro-Soda†; Uri-Alk; ***Spain:*** Citinoides; Hectonona; Salcedol; Sales de Frutas P G; Sales Fruta Mag Viviar; Salmagne; ***Switz.:*** Siesta-1; ***Turk.:*** Enhos; Purgyl; ***UK:*** Jaaps Health Salt; ***USA:*** Baros.

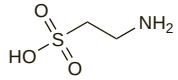
Taurine *(rINN)*

Taurina; Taurinum. 2-Aminoethanesulphonic acid.

Таурин

$C_2H_7NO_3S$ = 125.1.

CAS — 107-35-7.



Pharmacopoeias. In *Chin., Jpn,* and *US.*

USP 31 (Taurine). White crystals or crystalline powder. Soluble in water.

Profile

Taurine is an amino acid known to be involved in bile acid conjugation as well as other physiological functions. It has been included in preparations for parenteral nutrition of low-birthweight infants and in infant formulas but its role as an essential nutrient has not been established.

Taurine is included in some preparations for cardiovascular and metabolic disorders.

◊ References.

1. Redmond HP, *et al.* Immunonutrition: the role of taurine. *Nutrition* 1998; **14:** 599–604.
2. Militante JD, Lombardini JB. Treatment of hypertension with oral taurine: experimental and clinical studies. *Amino Acids* 2002; **23:** 381–93.
3. Bidri M, Choay P. La taurine : un aminoacide particulier aux fonctions multiples. *Ann Pharm Fr* 2003; **61:** 385–91.
4. Kingston R, *et al.* The therapeutic role of taurine in ischaemia-reperfusion injury. *Curr Pharm Des* 2004; **10:** 2401–10.
5. Franconi F, *et al.* Taurine supplementation and diabetes mellitus. *Curr Opin Clin Nutr Metab Care* 2006; **9:** 32–6.
6. Verner A, *et al.* Effect of taurine supplementation on growth and development in preterm or low birth weight infants. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2007 (accessed 25/06/08).

Preparations

Proprietary Preparations (details are given in Part 3)

Ital.: O-Due; ***Philipp.:*** Taurex; ***Rus.:*** Dibicor (Дибикор); Taufone (Тауфон)†.

Multi-ingredient: ***Indon.:*** Biofos; ***Ital.:*** Novostatin; ***Port.:*** Detoxergon; ***Spain:*** Taurobetina†.

Terlipressin *(BAN, USAN, rINN)*

Terlipresina; Terlipressine; Terlipressinum; Triglycyl-lysine-vasopressin. *N*-[*N*-(*N*-Glycylglycyl)glycyl]lypressin; Gly-Gly-Gly-Cys-Tyr-Phe-Gln-Asn-Cys-Pro-Lys-Gly-NH_2 cyclic (4→9) disulphide.

Терлипрессин

$C_{52}H_{74}N_{16}O_{15}S_2$ = 1227.4.

CAS — 14636-12-5.

ATC — H01BA04.

ATC Vet — QH01BA04.

Terlipressin Acetate *(BANM, rINNM)*

Acetato de terlipresina; Terlipresin Asetat; Terlipressiiniasetaatti; Terlipressin Diacetate; Terlipressinacetat; Terlipressine, Acétate de; Terlipressini Acetas.

Терлипрессина Ацетат

$C_{52}H_{74}N_{16}O_{15}S_2.2C_2H_4O_2.5H_2O$ = 1437.6.

ATC — H01BA04.

ATC Vet — QH01BA04.

Adverse Effects, Treatment, and Precautions

As for Vasopressin, p.2412.

The pressor and antidiuretic effects of terlipressin are reported to be less marked than those of vasopressin.

Effects on electrolytes. A report of hypokalaemia in a patient receiving terlipressin.[1]

1. Stéphan F, Paillard F. Terlipressin-exacerbated hypokalaemia. *Lancet* 1998; **351:** 1249–50.

Effects on the skin. Ischaemic skin necrosis developed in 3 patients several days after starting terlipressin treatment.[1] Skin lesions developed on the abdomen and lower limbs, which are not typical areas for ischaemia related to vasoconstrictors, and the authors concluded that obesity and venous insufficiency in these patients put them at particular risk.

1. Donnellan F, *et al.* Ischaemic complications of Glypressin in liver disease: a case series. *Br J Clin Pharmacol* 2007; **64:** 550–2.

Uses and Administration

Terlipressin is an inactive prodrug which is slowly converted in the body to lypressin, and has the general physiological actions of vasopressin (p.2412).

Terlipressin acetate is used to control bleeding oesophageal varices and is given by intravenous injection in doses of 2 mg, followed by 1 or 2 mg every 4 to 6 hours if necessary, until bleeding is controlled, for up to 72 hours.

Terlipressin is under investigation in the treatment of hepatorenal syndrome and shock.

Hepatorenal syndrome. Terlipressin has been found to be of benefit in the hepatorenal syndrome, a form of renal impairment associated with cirrhosis of the liver. A retrospective study[1] found that doses of about 3 mg/day for a mean of 11 days appeared to improve renal function in 58 of 91 patients; it may also have improved survival. Further prospective studies have also reported beneficial effects on renal function; these used doses of terlipressin 1 mg every 4 hours for 7 to 15 days,[2] and 1 mg every 12 hours for up to 15 days.[3] Meta-analysis[4] of 11 studies confirmed the efficacy of terlipressin in hepatorenal syndrome although a significant number of patients who responded to treatment relapsed after it was stopped. A systematic review[5] of 3 small randomised controlled studies of terlipressin suggested that it may reduce mortality and improve renal function in patients with hepatorenal syndrome, although the evidence was not sufficiently reliable to make recommendations for clinical practice.

1. Moreau R, *et al.* Terlipressin in patients with cirrhosis and type 1 hepatorenal syndrome: a retrospective multicenter study. *Gastroenterology* 2002; **122:** 923–30.
2. Alessandria C, *et al.* Renal failure in cirrhotic patients: role of terlipressin in clinical approach to hepatorenal syndrome type 2. *Eur J Gastroenterol Hepatol* 2002; **14:** 1363–8.
3. Solanki P, *et al.* Beneficial effects of terlipressin in hepatorenal syndrome: a prospective, randomized placebo-controlled clinical trial. *J Gastroenterol Hepatol* 2003; **18:** 152–6.
4. Fabrizi F, *et al.* Meta-analysis: terlipressin therapy for the hepatorenal syndrome. *Aliment Pharmacol Ther* 2006; **24:** 935–44.
5. Gluud LL, *et al.* Terlipressin for hepatorenal syndrome. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2006 (accessed 25/06/08).

Shock. Terlipressin has vasopressor effects and has been tried[1,2] in the management of septic shock (p.1183). In a group of 8 patients who could not be adequately managed with conventional vasopressor therapy, an intravenous bolus of terlipressin 1 to 2 mg produced a progressive increase in mean arterial pressure over 10 to 20 minutes that was sustained for at least 5 hours, allowing reduction or cessation of noradrenaline.[3] Similar beneficial results have also been reported by others.[4,5] The use of a continuous infusion of terlipressin (500 micrograms/hour for 6 hours followed by half this dose for a further 12 hours) has been described in one case and appeared to be effective.[6] There is also a report[7] of 4 children treated with bolus doses of 20 micrograms/kg every 4 hours for up to 72 hours.

1. Delmas A, *et al.* Clinical review: vasopressin and terlipressin in septic shock patients. *Crit Care* 2005; **9:** 212–22.
2. Pesaturo AB, *et al.* Terlipressin: vasopressin analog and novel drug for septic shock. *Ann Pharmacother* 2006; **40:** 2170–7.
3. O'Brien A, *et al.* Terlipressin for norepinephrine-resistant septic shock. *Lancet* 2002; **359:** 1209–10.