

in excess of the recommended concentrations. Water-borne infections are also a hazard.

Fluoride is regarded as an essential constituent of drinking water but may endanger health if present in excess—see Sodium Fluoride, p.1962. Ingestion of water containing large quantities of nitrates may cause methaemoglobinemia in infants; many countries have standards for nitrates in water.

The use of tap water containing metal ions (such as aluminium, copper, and lead), fluoride, or tosylchloramide sodium, for dialysis may be hazardous.

Hard water contains soluble calcium and magnesium salts, which form scale and sludge in boilers, water pipes, and autoclaves; they also cause the precipitation of soap and prevent its lathering. Temporary hardness in water is due to the presence of bicarbonates which are converted to insoluble carbonates on heating. Permanent hardness is due to dissolved chlorides, nitrates, and sulfates, which do not form a precipitate on heating. The presence or absence of such salts can play a part in cardiovascular health.

Without further purification, potable water may be unsuitable for certain pharmaceutical purposes. In such instances, purified water should always be used. Most pharmacopoeias include monographs on various preparations of water, such as water suitable for injections. Potable water should not be used when such preparations of water are specified.

Excessive ingestion of water can lead to water intoxication with disturbances of the electrolyte balance.

#### References

1. Manz F, et al. The most essential nutrient: defining the adequate intake of water. *J Pediatr* 2002; **141**: 587–92.

#### Preparations

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

**Fin.:** Aquasteril; **Hung.:** Humaqua; Rins-Aqua; **Port.:** Estericlan†; **UK:** Aquasoli; Uriflex VV; **USA:** Fleet Bagenema.

#### Wheat

Blé; Froment; Frumento; Grano; Trigo; Weizen.

Пшеница Мягкая

NOTE. Distinguish from Triticum, a synonym for Couch-grass (see p.2288).

#### Profile

Wheat (*Triticum* spp., Poaceae) is a grass cultivated worldwide as a cereal crop. Common wheat (*Triticum aestivum*, (*T. vulgare*)) is the source of wheat germ and wheat-germ oil (below). Malted grain of wheat is used in the preparation of malt extract (p.1955). Wheat is also used as a source of bran (p.1712) and starch (p.1968).

Wheat germ and wheat-germ oil are used in preparations for lesions of the skin and mucous membranes and as nutritional supplements.

#### Preparations

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

**Braz.:** Dermocrem; Vagitrene; **Canad.:** Dermatix Fitocream; **Ger.:** Vulnostimulin; **Ital.:** Fitostimoline; Step 2; **Turk.:** Fito; **Venez.:** Derain; Gynoderain.

**Multi-ingredient: Arg.:** Amenite Plus†; Cicatul; Microlift; **Fr.:** Phytolong-bronze; **Ital.:** Decon Ovuli; Fitostimoline; Sclerovis H; Solecin; **Mex.:** Fitostimulina; Italdermol; **Port.:** Fitocreme; **UK:** S.H.P.H.

#### Wheat-germ Oil

Búzacsíraolaj; Germes de blé, huile de; Kviečių gemalų aliejus; Oleum Tritici Germinis; Pšeničný olej; Tritici aestivi oleum; Tritici Oleum; Vehnänalkioölly; Vetegroddolja.

Масло Пшеничных Зародышей

CAS — 8006-95-9.

**Pharmacopoeias.** *Eur.* (see p.vii) includes Wheat-germ Oil, Refined, and Wheat-germ Oil, Virgin.

**Ph. Eur. 6.2** (Wheat-germ Oil, Refined; Tritici Aestivi Oleum Raffinatum). The fatty oil obtained from the germ of the grain of *Triticum aestivum* by cold expression or by other suitable mechanical means and/or by extraction. It is then refined. A suitable antioxidant may be added. A clear, light yellow liquid. Practically insoluble in water and in alcohol; miscible with light petroleum at 40° to 60°. Relative density about 0.925. Store in an airtight container. Protect from light.

**Ph. Eur. 6.2** (Wheat-germ Oil, Virgin; Tritici Aestivi Oleum Virginale). The fatty oil obtained from the germ of the grain of *Triticum aestivum* by cold expression or other suitable mechanical means. A clear, light yellow or golden-yellow liquid. Practically insoluble in water and in alcohol; miscible with light petroleum at 40° to 60°. Relative density about 0.925. Store in an airtight container. Protect from light.

#### Profile

Wheat-germ oil is a rich source of vitamin E (p.1992). It is included in dietary supplements and in preparations for lesions of the skin and mucous membranes.

The symbol † denotes a preparation no longer actively marketed

#### Preparations

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

**Multi-ingredient: Braz.:** Gamaline-V; **Fr.:** Bio-Selenium; Phytophanere; **Indon.:** Eviprostat; **Ital.:** Babigoz Crema Protettiva; Babysteril; Ottovis; **Jpn.:** Eviprostat; **Singapore:** Eviprostat; **Switz.:** Sanhelios Capsules a la vitamine A†; **UK:** No-Sor Nose Balm.

#### Wild Carrot

Dauci Herba; Daucus; Queen Anne's Lace; Zannahoria silvestre.

NOTE. The name Queen Anne's lace has also been used for cow parsley (*Anthriscus sylvestris*), another umbellifer.

**Pharmacopoeias.** In *Chin*.

#### Profile

The fruits of the wild carrot, *Daucus carota* (Umbelliferae) have been used as a diuretic and antelmintic, and are included in herbal preparations for various indications. Other parts of the plant have been used in folk medicine. Carrot seed oil is used in aromatherapy. The root of the cultivated form, *D. carota* subsp. *sativus*, is a culinary item and a source of carotenoids in the diet.

#### Preparations

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

**Multi-ingredient: Arg.:** Hepatalgina; Metiogen; Palatrobil; **Chile:** Natur-Zin; Natursel-C; **Ital.:** Evamilk; **Malaysia:** Eyebright Plus†; **UK:** Sciargo; Watershed.

#### Wild Cherry Bark

Corteza de cerezo silvestre; Prunus Serotina; Virginian Prune; Virginian Prune Bark; Wild Black Cherry Bark; Wild Cherry.

#### Profile

Wild cherry bark is the dried bark of the wild or black cherry, *Prunus serotina* (Rosaceae), known in commerce as Thin Natural Wild Cherry Bark, containing not less than 10% of water-soluble extractive. It has a slight odour and an astringent, aromatic, bitter taste, recalling that of bitter almonds. It contains (+)-mandelonitrile glucoside (prunasin) and an enzyme system, which interact in the presence of water yielding benzaldehyde, hydrocyanic acid, and glucose.

Wild cherry bark, in the form of the syrup, has been used in the treatment of cough but it has little therapeutic value. It has also been used as a flavour.

#### Preparations

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

**Multi-ingredient: Canad.:** Bronchial Cough; Mielocol; Rophelin†; Wampole Bronchial Cough Syrup†; **Venez.:** Cerylana.

#### Wild Lettuce

Herba Lactucae Virosoe; Laitue Vireuse; Lechuga silvestre.

#### Profile

The wild lettuce, *Lactuca virosa* (Compositae), has been given in herbal medicine as a sedative and antitussive. The dried latex extract (lactucarium; lettuce opium) is also used.

#### Preparations

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

**Multi-ingredient: Canad.:** Sirop Cocillana Codeine; Sirop Cocillana Compose; **S.Afr.:** Choats Extract of Lettuce Cough Mixture; **UK:** Anased; Antibron; Gerard House Somnus HRI Night; Kalms Sleep; Quiet Life; Quiet Nite; Slumber; Unwind Herbal Nytol; **Venez.:** Cerylana.

#### Wild Pansy

European Field Pansy (*Viola arvensis*); European Wild Pansy (*Viola arvensis* or *V. tricolor*); Field Pansy (*Viola arvensis* or *V. tricolor*); Heart's Ease; Heartsease (*Viola tricolor*); Johnny-jump-up (*Viola tricolor*); Keto-orvokki; Love-in-idleness (*Viola tricolor*); Pansy (*Viola tricolor*); Pensée sauvage; Viol; Viola herb; Viola Tricoloris Herba (*viola tricolor*); Ziele fiołka trójbarwnego (*viola tricolor*).

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

**Ph. Eur. 6.2** (Wild Pansy (Flowering Aerial Parts); Viola Herba cum Flore). The dried flowering aerial parts of *Viola arvensis* and/or *V. tricolor*. It contains a minimum of 1.5% of flavonoids, expressed as violanthin (C<sub>27</sub>H<sub>30</sub>O<sub>14</sub> = 578.5), calculated with reference to the dried drug. Protect from light.

#### Profile

Wild pansy, *Viola tricolor* or *V. arvensis* (Violaceae) is used in herbal medicine in topical preparations for minor skin disorders, in particular for seborrhoeic skin diseases. Wild pansy is also included in oral preparations for gastrointestinal and respiratory-tract disorders.

**Homoeopathy.** Wild Pansy has been used in homoeopathic medicines under the following names: *Viola tricolor*.

**Adverse effects.** Haemolysis was reported in a 9-month-old infant with G6PD deficiency given an extract of wild pansy orally.<sup>1</sup>

1. Behmanesh Y, Abdollahi M. Haemolysis after consumption of *Viola tricolor*. *WHO Drug Inf* 2002; **16**: 15–16.

#### Preparations

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

**Multi-ingredient: Austral.:** Bioglan Bioage Peripheral; **Cz.:** Antirevmaticky Caj; Bronchialtee N†; **Fr.:** Depuratif Parnel; Evacrine; Fitacno†; **Ital.:** Neoderma 47; **Switz.:** Antidry; Viola; **UK:** Gerard House Skin.

#### Wild Thyme

Backtimjan; Kangasajuruoho; Mateřidoušková nat' (Nat' mateřidoušky); Mother of Thyme; Paprastuju čiboreliu žolē; Quendel; Serpolet; Serpylli herba.

NOTE. Distinguish from Thyme, p.2401.

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

**Ph. Eur. 6.2** (Wild Thyme; Serpylli Herba). The whole or cut, dried, flowering aerial parts of *Thymus serpyllum* containing a minimum of 0.3% v/w of essential oil, calculated with reference to the dried drug. Protect from light.

#### Profile

Wild thyme (*Thymus serpyllum*, Lamiaceae) is included in herbal medicines for disorders of the upper respiratory tract. Its actions are similar to, but weaker than, those of thyme (p.2401). Commercially, *T. pulegioides* and *T. praecox* subsp. *arcticus* are also offered as *T. serpyllum*.

Wild thyme oil is used similarly.

#### Preparations

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

**Multi-ingredient: Austral.:** Gartech; **Austria:** Scottpect; **Belg.:** Colimax†; Thymoseptine; **Cz.:** Bronchialtee N†; Detsky Caj s Hermankem; Pruduškova; Thymome; **Fr.:** Aromasol; Bronchorectine au Citral; Dinacode avec codeine†; Dinacode†; Nazinette du Docteur Gilbert; **Indon.:** Silex; **Ital.:** Stenobronchial; Tussamag; Tussamag Complex; **Port.:** Pilka F†; **Rus.:** Stoptussin-Fito (Стрптуссин-Фито); **Spain:** Llantusil†; **Switz.:** Frixo-Drag-on Vert†; Nasobol†; Pectosan N†; Tisane contre les refroidissements.

#### Xanthine-containing Beverages

Xantina, bebidas con.

#### Adverse Effects

The adverse effects of xanthine-containing beverages are largely due to their caffeine (p.1116), theophylline (p.1140), and theobromine (p.1140) content. Common adverse effects are sleeplessness, anxiety, tremor, palpitations, and withdrawal headache.

**Breast feeding.** For references to the effects of caffeinated beverages in breast feeding, see under Caffeine, p.1117.

**Effects on the heart.** A meta-analysis of published studies found no evidence of an association between coffee consumption and the development of coronary heart disease,<sup>1</sup> and a large cohort study in men followed up for 14 years and women for up to 20 years also found no evidence of a link.<sup>2</sup> Expert opinion in the UK<sup>3</sup> has been that the evidence that caffeine or coffee consumption contributes to coronary heart disease development is inconsistent. Coffee prepared by boiling, as is the practice in Scandinavia for example, does raise serum cholesterol concentrations due to the presence of the diterpenes cafestol and kahweol, and coffee made in a cafetière (French press) has a similar effect, but filtered coffee does not, as the hypercholesterolaemic fraction does not pass a paper filter.<sup>4</sup> A case-control study has suggested a relationship between consumption of boiled, but not filtered, coffee and incidence of a first non-fatal myocardial infarction.<sup>5</sup> Others have raised concern that the potential pressor effect of caffeine itself may be a cardiovascular risk factor,<sup>6</sup> but as mentioned above there is little evidence for this. A large prospective cohort study<sup>7</sup> found no association between dietary caffeine and risk of atrial fibrillation or flutter.

Tea drinking has not been associated with increased cardiovascular risk<sup>3</sup>—indeed, its polyphenol content has been suggested to have beneficial antioxidant effects.<sup>8,9</sup>

1. Myers MG, Basinski A. Coffee and coronary heart disease. *Arch Intern Med* 1992; **152**: 1767–72.
2. Lopez-Garcia E, et al. Coffee consumption and coronary heart disease in men and women: a prospective cohort study. *Circulation* 2006; **113**: 2045–53.
3. Department of Health. Nutritional aspects of cardiovascular disease. Report of the cardiovascular review group committee on medical aspects of food policy. Report on health and social subjects no. 46. London: HMSO, 1994.
4. Urgert R, et al. Comparison of effect of cafetière and filtered coffee on serum concentrations of liver aminotransferases and lipids: six month randomised controlled trial. *BMJ* 1996; **313**: 1362–6.
5. Hammar N, et al. Association of boiled and filtered coffee with incidence of first nonfatal myocardial infarction: the SHEEP and the VHEEP study. *J Intern Med* 2003; **253**: 653–9.
6. James JE. Is habitual caffeine use a preventable cardiovascular risk factor? *Lancet* 1997; **349**: 279–81.