

taken in 2 or 3 draughts at short intervals. It should be taken in the morning on an empty stomach, the bowels having previously acted. After 3 or 4 hours a brisk purgative should be administered. On account of its liability to produce nausea a little Lemonade may be taken afterwards.

Foreign Pharmacopœias.—Official in Austr., Dutch, Ger. and Russ., Koso; Belg., Fr. and Port., Couso; Ital., Kouso; Jap., Flores Koso; Dan., Hung., and Swed., Kusso; Mex., Cuso; Norw., Flos Koso; Span., Couso; Swiss, Kosso; U.S., Cusso.

The Infusion is Official in Fr. (Apozème de Couso) about 1 in 8; Span. (Inf. de Couso), 1 in 11½.

Description.—Usually in more or less cylindrical rolls, from one to two feet (three to six decimetres) in length, composed of reddish panicles of pistillate flowers. The panicles are much branched, the branches arising from the axils of large sheathing bracts; they are more or less covered with hairs and glands. Flowers numerous, small, shortly stalked, mostly unisexual, with two roundish membranous veined bracts at the base of each. The calyx has reddish veins, is hairy externally, and consists of two alternating whorls each of five segments, the inner whorl being curved inwards over the young fruit and shrivelled. No marked odour; taste bitter and acrid.

Not Official.

CYDONIUM.

QUINCE SEED.

The seeds of *Pyrus Cydonia*.

Their coriaceous envelope abounds in mucilage.

Medicinal Properties.—Demulcent. The decoction is used externally for cracks in the skin. A nice adjunct to eye-lotions in cases of irritation and inflammation.

Foreign Pharmacopœias.—Official in Austr., Belg., Dutch, Fr. (Coing), Port. (Marmelo), Russ., Mex. and Span. (Membrillo), Swed. and Swiss; not in the others.

Preparations.

DECOCTUM CYDONII.—Quince Seed, 1; Distilled Water, 80; boil for ten minutes, and strain.

MUCILAGO CYDONII, by cold maceration.—Austr., 1 in 25; Belg. and Port., 1 in 100; Norw., Russ., Swed. and Swiss, 1 in 50; Fr., 1 in 10; Span., 1 in 46.

Not Official.

DAMIANA.

The leaves of one or more species of *Turnera*, from Mexico and California.

Contains a bitter substance, resins, and a volatile oil.

Medicinal Properties.—Tonic, diuretic, and aphrodisiac.

Prescribing Notes.—Frequently given in the form of Pill; the Hard Extract makes a good pill with a small quantity of Alcohol (90 p.c.), the Soft Extract is best hardened with the powdered Leaves.

Preparations.

EXTRACTUM DAMIANÆ LIQUIDUM.—Damiana leaves exhausted with Alcohol (60 p.c.) so that 1 of fluid will represent 1 of the drug.

Dose.—30 to 60 minims.

EXTRACTUM DAMIANÆ.—The above evaporated to a soft extract.

Dose.—5 to 10 grains.

DECOCTA.

DECOCTIONS.

The following are the Decoctions of the British Pharmacopœia, the formulas of which will be found under the names of the substances from which they are prepared:—

	Proportion of active ingredients to the whole.	Dose.
DECOCTUM ALOES COMPOSITUM . . .	1 in 100.	$\frac{1}{2}$ to 2 fl. oz.
DECOCTUM GRANATI CORTICIS . . .	1 in 5.	$\frac{1}{2}$ to 2 " "
DECOCTUM HÆMATOXYLI	1 in 20.	$\frac{1}{2}$ to 2 " "

Decoctions not Official are enumerated in the Index.

U.S. Ph. gives a general formula for Decoctions: pour 20 of cold Water upon 1 of the substance, cover it well, and boil for fifteen minutes. Then let it cool to about 104° F. (40° C.), express, strain the expressed liquid, and pour through the strainer enough cold Water to make the product measure 20.

Ger. Ph. :—Pour cold Water upon the substances in a suitable vessel and expose for half an hour with occasional agitation to the steam from boiling Water on a water-bath, and strain with expression while still warm; 10 of strained product should be obtained from 1 of substance.

Both U.S. and Ger. Ph. state that in Decoctions of energetic substances the strength should be specially prescribed by the physician.

Paper on Decoctions.—*P.J.* '95, ii. 415.

DIGITALIS FOLIA.

DIGITALIS LEAVES.

The dried leaves of *Digitalis purpurea*. Collected from plants commencing to flower.

Medicinal Properties.—Cardiac and circulatory stimulant and tonic, increases the strength and efficiency of the cardiac contractions, and reduces the pulse rate without diminishing tension. Specially useful in mitral and tricuspid lesions with loss of compensation; in cardiac insufficiency from whatever cause, with irregular and rapid action and low arterial tension; not indicated in purely aortic cases. Of great value as a cardiac stimulant in acute pneumonia; useful in pulmonary hæmorrhage due to mitral disease. Diuretic, useful in cardiac dropsy; also in renal dropsy when acute or when due to failure of a hypertrophied heart.

It is cumulative in action, and requires watchfulness. Its continued use deranges the alimentary system; therefore, after it has been taken for eight or ten days it should be left off for three or four days and then recommenced. According to Lauder Brunton, *Digitalis*

is distinctly dangerous in advanced fatty degeneration of the heart; he also thinks it harmful in advanced Bright's disease. For a comparison with *Strophanthus* see under *Strophanthi Semina*.

Treatment of pneumonia by Digitalis.—*B.M.J.E.* '95, ii. 32; '96, ii. 76; '97, i. 15.
Digitoxin in doses of $\frac{1}{4}$ milligramme = $\frac{1}{200}$ grain.—*B.M.J.E.* '97, i. 31.

Research on the histological effects produced by Digitalis.—*T.G.* '97, 800; *Pr.* ix. 293.

Therapeutics of Digitalis.—*L.* '96, i. 1477.

Dose.—In powder $\frac{1}{2}$ to 2 grains.

Prescribing Notes.—The fresh Infusion is preferred by some to the Tincture. The powdered leaf is ordered in Pills with other ingredients.

Incompatibles.—Ferrous Sulphate, Tincture of Ferric Chloride, preparations of Cinchona, and Lead Acetate.

Official Preparations.—Infusum Digitalis and Tinctura Digitalis.

Not Official.—Pilula Digitalis Composita, Succus Digitalis, and Digitalin (various).

Antidotes.—In case of an overdose, a recumbent posture is of paramount importance; and after the stomach has been emptied, 20 grains of Tannic Acid in hot Water given frequently, or hot strong tea or coffee; stimulants and warmth should be employed.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex., Norw., Port. (Dedaleira), Russ., Span. (Digital), Swed., Swiss and U.S.

Description.—From four to twelve inches (ten to thirty centimetres) or more in length, and sometimes as much as five or six inches (twelve and a half to fifteen centimetres) broad, with a winged petiole of varying length down which the lower veins are decurrent; broadly ovate or ovate-lanceolate, subacute, crenate or irregularly crenate-dentate. Upper surface somewhat rugose, dull green and slightly hairy, with glandular, simple, usually three-celled hairs, under surface paler and densely pubescent. The transverse section exhibits a mesophyll free from crystals of Calcium Oxalate. No marked odour, taste very bitter.

According to Kiliani the seeds of *Digitalis purpurea* contain Digitalinum verum, and Digitonin; the leaves contain Digitoxin, but neither of the other two. Preparation of Digitalin also described.—*J.C.S. Abs.* '96, i. 58, 59, 180; '97, i. 95; *P.J.* '95, ii. 29, 120; '96, ii. 289.

The more or less definite principles contained in Digitalis may be arranged as follows under the names applied to them by Schmiedeberg, and the important references connected with the subject are *P.J.* (3) v. 741; (3) xvii. 163, 871; (3) xx. 503; (3) xxii. 694:—

(a) **Digitonin.**—A crystallisable body resembling Saponin, constituting the larger part of the glucosidal constituents. Soluble in Water, insoluble in cold Alcohol, Ether, Benzol, or Chloroform. It has none of the physiological action peculiar to Digitalis and in other respects is directly injurious.

(b) **Digitalein.**—An amorphous glucoside (possibly a mixture). Soluble in Water and in Alcohol, insoluble in Ether or Chloroform. Its action on the heart is non-cumulative and causes no irritation when subcutaneously injected.

- (c) **Digitalin**.—A granular (if not crystalline) glucoside, soluble in Alcohol, almost insoluble in Water, sparingly soluble in Ether or Chloroform.
Possesses in a high degree the medicinal action of Digitalis.
- (d) **Digitoxin**.—Crystalline. Easily soluble in Alcohol, slowly in Chloroform, very sparingly in Ether, quite insoluble in Water.
The most toxic of all the constituents, but uncertain, cumulative and dangerous in its action.
- (e) **Digitin**.—A crystalline body, physiologically inert, difficultly soluble in Water, more readily in Alcohol, insoluble in Ether or Chloroform.

The commercial varieties are given under Digitalin, p. 264.

Reactions of glucosides of Digitalis with Sulphuric Acid to which has been added 1 p.c. of an aqueous solution containing 5 p.c. of Ferric Sulphate. Digitalinum verum is coloured a deep golden yellow, and then forms a red solution, which rapidly changes to a permanent reddish-violet.—*J.C.S. Abs.* '96, ii. 551.

A proposal to standardise preparations of Digitalis on the Digitoxin constituent.—*P.J.* '97, ii. 62; *A.J.P.* '97, 450. Valuation of Digitalis Leaves by the process.—*P.J.* '97, ii. 283.

A characteristic reaction for Digitoxin. When dissolved in Acetic Acid to which has been added 1 p.c. of a solution containing 5 p.c. of Ferric Sulphate, and Sulphuric Acid containing the same quantity of Ferric Sulphate is poured into the tube so as to form a layer beneath it, a blue coloration is gradually developed in the Acetic Acid, whilst the Sulphuric Acid remains colourless. This coloration in the Acetic Acid is not produced by any other of these compounds. If Digitalinum verum is present, the Sulphuric Acid becomes reddish-violet, and the Acetic Acid indigo-blue.—*J.S.C. Abs.* '96, ii. 551.

Preparations.

INFUSUM DIGITALIS. INFUSION OF DIGITALIS. (ALTERED.)
Digitalis leaves, in No. 20 powder, 60 grains; Distilled Water, boiling, 20 fl. oz. Infuse in a covered vessel for fifteen minutes; strain.
=(1 in 146).

Formerly made 56 grains to the pint.

Dose.—2 to 4 fl. drm.

It seems generally admitted in France that a cold infusion is the best of the preparations of Digitalis. 25 to 40 centigrammes of coarsely powdered leaves are macerated in 300 grammes of cold Water for twelve hours and filtered. This quantity is taken in 2 or 3 doses, as a powerful diuretic.—*L.* '90, i. 1153.

Foreign Pharmacopœias.—Official in Dutch, Mex., and Port., 1 in 200; Span., 1 in 345; Swed., 1 in 100; U.S., with Cinnamon, 3 in 200; not in the others.

TINCTURA DIGITALIS.—TINCTURE OF DIGITALIS. (MODIFIED.)

Digitalis leaves, in No. 20 powder, 2½; Alcohol (60 p.c.) a sufficient quantity. Moisten the powder with 2 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20.
=(1 in 18).

Now made with Alcohol (60 p.c.) in place of Proof Spirit.

Dose.—5 to 15 minims.

Larger doses are occasionally given, but, according to some observers, the results with small doses are equally good and not nearly so dangerous.

In cases of delirium tremens, 1 fl. drm. every three hours. Two or even three fl. drm. have been given in cases carefully watched.—*P.* xxvii. 373.

Foreign Pharmacopœias.—Official in Austr., Dan., Dutch, Ital., Jap., Norw., Russ., Swed. and Swiss, 1 in 10; Belg., Fr., Hung., Port. and Span., 1 in 5; U.S., 15 in 100. Also Belg., Fr., Port. and Span., 1 **fresh leaves**, 1 Spirit; Ger., **fresh leaves** 5, Spirit 6; Fr., with Ether, 1 dried leaves in 5; Dan. and Port., with Spirit of Ether, 1 dried leaves in 10; Mex., **seeds** 1 in 5; also Ethereal Tincture 1 and 5: all by weight except U.S.

Not Official.

PILULA DIGITALIS COMPOSITA.—Digitalis Powder $\frac{1}{2}$ grain; Squill, 1 grain; Blue Pill, $1\frac{1}{2}$ grains: in one pill.—*St. George's.*

SUCCUS DIGITALIS.—The Expressed Juice, 3; Alcohol (90 p.c.), 1.

This preparation may be given for a longer period than the Tincture without causing nausea.

Dose.—5 to 10 minims.

DIGITALIN.—Under this name four distinct varieties occur in commerce, which differ so considerably in their medicinal properties that prescribers should be careful to distinguish and specify the kind intended. All four of them are soluble in Alcohol.

1. **Digitalin Amorphous (Homolle).**—Stated to consist mainly of Digitalin with some Digitoxin.

Soluble in Chloroform, slightly soluble in Water.

Foreign Pharmacopœias.—Official in Belg., Fr., Port., Russ. and Span.; formerly in Brit.

2. **Digitalin Crystallised (Nativelle).**—Stated to consist almost entirely of Digitoxin.

Soluble in Chloroform, insoluble in Water.

Foreign Pharmacopœias.—Official in Fr., Mex., and Span.

Granules de Digitaline Cristallisée (Fr. Codex Supp.) contains $\frac{1}{5}$ milligramme in each granule. Soluté Officiel de Digitaline Cristallisée au Millième contains 1 milligramme in each gramme.

3. **Digitalin German.**—Amorphous; consists principally of Digitalein with some Digitonin and Digitalin.

Readily soluble in Water, almost insoluble in Chloroform.

4. **Digitalin Verum.**—Kiliani (*P.J.* (3) xxii. 1061) states, with some show of reason, that the Digitalin of Schmiedeberg is the best form in which to prescribe Digitalis, and to distinguish it he applies the name Digitalin Verum. Its composition is definite; it is obtainable commercially in a sufficiently pure condition; it possesses all the medicinal activity in regard to the action of Digitalis upon the heart; it is non-cumulative in its action; the dose is $\frac{1}{4}$ mgrm. ($\frac{1}{25}$ grain) every 2 or 3 hours; it is soluble about 1 in 1000 of Water, about 1 in 100 of (50 p.c.) Alcohol. The aqueous solution froths upon being shaken, and is remarkably prone to become mouldy.

Not Official.

DUBOISIA MYOPOROIDES.

A plant indigenous in N.S. Wales and Queensland; it has been classed in the order *Solanaceæ*.

Foreign Pharmacopœias.—Official in Span.; not in the others.

Ringer's experiments show that the physiological action of the extract is apparently identical with that of Atropine. Tweedy has used it as an application to the eye in all cases in which Atropine is indicated.

Ladenburg examined a sample of Duboisine Sulphate received from Merck, and found the alkaloid to be identical with Hyoscyamine, the Gold salt melting at 159°C .—*P.J.* (3) x. 790. Ladenburg some years later examined another sample from the same maker, and found it to be identical with Hyoscine, the Gold salt melting at $197\text{--}198^{\circ}\text{C}$.—*P.J.* (3) xvii. 1049. The identity of **Duboisine** with any other of the mydriatic alkaloids has not as yet been proved, but it is extremely probable that it is a mixture in varying proportions of Hyoscyamine and Hyoscine.—*P.J.* (3) xx. 709 ; (3) xxii. 59.

The name Duboisine should be once and for all abandoned as it only represents a variable product obtained from a particular plant. Pseudo-hyoscyamine from *Duboisia myoporoides*, isomeric with Atropine and Hyoscyamine, has been described by Merck.—*P.J.* '98, ii. 195.

Preparation.

DUBOISINÆ SULPHAS.—Amorphous, hygroscopic. Very soluble in Water.

It dilates the pupil ; its action is quicker, more powerful, and more transient than that of Atropine. Its application, however, sometimes causes toxic symptoms.

Recommended as a sedative and hypnotic in certain excited mental conditions (delirium and mania and hystero-epilepsy), in doses of $\frac{1}{150}$ to $\frac{1}{4}$ grain.—*B.M.J.E.* '93, ii. 52, 76, 84. Should be given hypodermically in fractional doses and interruptedly.—*M.A.* '95, 23. It disorders the nutritive processes except in general paralytics.—*T.G.* '94, 342.

Given hypodermically or by the mouth in dose of $\frac{1}{100}$ to $\frac{1}{30}$ grain. Indications for and against its use: Cases of excitement due to hallucinations and delusions give excellent results. In all forms of chronic insanity with excitement, and in occasional cases of epilepsy, it may be used as a sedative with good results. Duboisin should be used only in physically healthy persons. It should never be used, or only very carefully, in debilitated persons. It is not suited to acute mania, and is distinctly injurious in melancholia.—*B.M.J.E.* '97, ii. 39.

Antidotes.—The same as for Atropine.

Foreign Pharmacopœias.—Official in Dutch ; Mex. (Duboisina) ; not in the others.

Not Official.

DUGONG OIL.

An oil obtained in Australia from *Halicore australis* and *H. Dugong* by boiling the superficial fat. A substitute for Cod-Liver Oil, recommended at one time (*P.J.* (3) iii. 100) as not being disagreeable in taste, but does not possess this character now.

Not Official.

DULCAMARA.

The dried young branches of *Solanum Dulcamara* (Bittersweet), from indigenous plants which have shed their leaves.

Medicinal Properties.—Alterative, analgesic and narcotic of feeble power, Used in cutaneous eruptions, chiefly of a scaly nature, as psoriasis and pityriasis. a decoction being applied externally, at the same time that it is used internally. Also in chronic rheumatism and pulmonary catarrh.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr. (Douce-amère), Ital., Mex., Port. (Doce-amarga), Span., Swed., Swiss and U.S. ; not in Dan., Dutch, Ger., Hung., Jap., Norw. or Russ.

Preparations.

EXTRACTUM DULCAMARÆ FLUIDUM (U.S.).

1 fl. oz. equals 1 oz. Dulcamara. Prepared with Diluted Alcohol.

Dose.—30 to 60 minims.

INFUSUM DULCAMARÆ.

Dulcamara, 1; boiling Water, 10: infuse one hour.

Dose.—1 to 2 fl. oz.

Foreign Pharmacopœias.—Official in Fr. (Tisane), 1 in 50; not in the others.

SOLANINE.—An Alkaloid obtained from *Solanum nigrum*, *S. Dulcamara*, and *S. tuberosum* (Potato plant).

It has been recommended as an analgesic.—*L.M.R.* '86, 496; '88, 242; *T.G.* '87, 56; '88, 630; *L.* '87, ii. 1097.

ELATERIUM.

ELATERIUM.

A sediment from the juice of the fruit of *Ecballium Elaterium*.

'Extractum Elaterii' was the official synonym in B.P. '85 for Elaterium.

Medicinal Properties.—The most powerful hydragogue cathartic. Used in dropsical affections connected with cardiac or renal disease and in cerebral congestion. Its administration in a debilitated state of the system or in gastro-intestinal inflammation requires caution.

Dose.— $\frac{1}{10}$ to $\frac{1}{2}$ grain.

Prescribing Notes.—On account of the similarity in name to the active principle care must be exercised to avoid confusion. The Pulvis Elaterini Compositus is often preferred; it is frequently given in the form of Pill with Compound Extract of Colocynth and Henbane. To prevent it causing persistent diarrhœa, it may be given with Henbane, especially in renal diseases; in cardiac cases it should be guarded by a stimulant to prevent too much depression.

Official Preparations.—Elaterinum. **Elaterin** is contained in Pulvis Elaterini Compositus.

Not Official.—Pilula Elaterii Composita.

Antidotes.—The same as for Croton Oil (q.v.)

Foreign Pharmacopœias.—Official in Mex., Elaterio; Port., Extracto de Pepinos de S. Gregorio; Swed., Elaterium Album; not in the others.

Description.—In light friable flat or slightly curved opaque cakes about one-tenth of an inch (two and a half millimetres) thick; pale green, greyish-green, or yellowish-grey in colour; fracture finely granular; odour faint, tea-like; taste bitter and acrid.

Tests.—It should not give the characteristic reactions with the tests for Carbonates or for Starch, and should yield half its weight to boiling Alcohol (90 p.c.). When exhausted with Chloroform, the solution evaporated, the residue washed with Ether, and the process of solution, evaporation, and washing repeated, Elaterium should yield 25 p.c., or not less than 20 p.c. of Elaterin.

Preparations.

ELATERINUM. ELATERIN.

The active principle of Elaterium ($C_{20}H_{28}O_6$), eq. 345.6.