
CHAP. XIV.**EXTRACTA.—EXTRACTS.**

EXTRACTS are preparations obtained by digesting or boiling vegetable substances in water, alcohol, or proof-spirit. The menstruum dissolves the active matter of the vegetable; the tincture or decoction is strained, and is evaporated until a mass of a stiff consistence is obtained. This is named an Extract; and either a watery or spirituous extract, as water or alcohol, has been employed as the menstruum. If water has been used, the mucilage, extract, tannin, saccharine, and saline parts of the vegetable remain in the extract; if alcohol, the resin is its principal component part; and if proof-spirit, all the fixed principles which water and alcohol are separately capable of dissolving, are obtained.

It is evident, therefore, that the same mode of preparing these extracts is not applicable to every vegetable substance. Where the virtues depend principally on the extract or tannin which the substance contains, the watery extract will be proper; while if it depend on a resinous part, the spirituous extract only will possess its virtues.

It is to be observed, however, that in the preparation of these extracts, the virtues of the substances are almost always injured to a certain extent. The essential oil, on which their flavour and aromatic quality depend, are dissipated; and in the preparation of the watery extracts, there is generally a partial decomposition of the active matter, by

the necessary decoction. This preparation, therefore, is not now very frequently employed; and with the exception of some of the pure bitters, as gentian, or some of the saccharine vegetables, as liquorice, there is no medicine, perhaps, but what may be given with more advantage under some other form.

The Edinburgh and Dublin Colleges preserve the distinction of Watery and Spirituous Extracts: the London College do not observe it; and they have farther associated with what are more strictly named Extracts, the inspissated juices of vegetables, the consistence of these being similar, and the only circumstance in which they differ, that, in the one, the matter naturally dissolved in the juice of the plant, in the other, the matter extracted by the operation of a solvent, is obtained, is not, it has been conceived, sufficiently important to constitute a distinction between them. I have adhered, however, to the arrangement of the Edinburgh Pharmacopœia, and under the Chapter of Inspissated Juices, have already introduced those which are peculiar to the London Pharmacopœia.

I —EXTRACTA PER AQUAM.—EXTRACTS BY WATER. Ed.
EXTRACTA SIMPLICIORA.—MORE SIMPLE EXTRACTS. Dub.

THE directions for preparing these are given in the Edinburgh Pharmacopœia, under the Extract of Gentian.

Take of Gentian Root, any quantity. Pour on it cut and bruised, eight times its weight of Distilled Water. Boil to one half, and expressing it strongly, strain the liquor. Reduce the boiled liquor immediately to the consistence of thick honey, by

evaporation in a bath of boiling water, saturated with muriate of soda.

The Dublin College give the following general directions:

The Simpler Extracts, unless it be otherwise ordered, are to be prepared according to the following formula: Boil the vegetable matter in eight times its weight of water, to the consumption of half the liquor; then express the liquor, and after the impurities have subsided, strain it; evaporate with a heat of from 200° to 212° , until it begin to thicken: lastly, inspissate it with a heat of from 100° to 200° , stirring frequently, until it attain a consistence fit for forming pills.

The directions in the London Pharmacopœia are in part given under the individual extracts; and partly under the following general formula:

In preparing all Extracts, evaporate as quickly as possible, in a shallow open vessel by a water bath, until the consistence be such as is fit for forming pills, and towards the end, stir constantly with a spatula. Sprinkle on all the softer extracts a little spirit of wine.

EXTRACTUM GENTIANÆ. Extract of Gentian. Ed. Lond. Dub.

This extract, (the formula for preparing which, according to the Edinburgh Pharmacopœia, is given above, and which is prepared in a similar mode according to the directions in the other Pharmacopœias), is intensely bitter, the quality of bitterness appearing in general not to be injured by decoction or evaporation. It is sometimes used to form other medicines into pills, especially those with which it coincides in medicinal virtue.

EXTRACTUM FLORUM ANTHEMIDIS NOBILIS. Ed. EXTRAC-
TUM ANTHEMIDIS. Lond. EXTRACTUM FLORUM CHAMÆ-
MELI. Dub. Extract of Chamomile.

The bitterness of chamomile is rendered rather ungrateful in its infusion by the flavour of its essential oil. This is entirely dissipated by decoction, and the extract is therefore a pure and grateful bitter. It is scarcely applied, however, to any use.

EXTRACTUM FOLIORUM CASSIÆ SENNÆ. Ed. Extract of Senna Leaves.

Senna has its activity much impaired by decoction. The extract, therefore, cannot be a proper preparation of it. It is accordingly uncertain and inactive, and is never used.

EXTRACTUM RADICIS GLYCYRRHIZÆ GLABRÆ. Ed. EXTRACTUM GLYCYRRHIZÆ. Lond. Dub. Extract of Liquorice.

The soluble matter of this root appears to be chiefly sugar and mucilage, and it suffers, therefore, little or no injury in this extraction of it by water, or in the subsequent evaporation. The extract is usually prepared on a large scale, and much of it is imported into this country. It is often, however, in an impure state. Purified by solution in water, straining and evaporation, or prepared with care from the root itself, and evaporated nearly to dryness, it forms the Refined Liquorice of the shops. Under this form it is in common use as a demulcent in catarrh.

EXTRACTUM LIGNI HÆMATOXYLI CAMPECHENSIS. Ed. EXTRACTUM HÆMATOXYLI. Lond. EXTRACTUM SCOBIS HÆMATOXYLI. Dub. Extract of Logwood.

The astringency of the logwood is obtained with no sensible injury in this extract. It has been proposed to be employed as an astringent, but has never been established in use. Its dose is from ten to twenty grains.

EXTRACTUM RADICIS HELLEBORI NIGRI. Ed. Dub. Extract of the Root of Black Hellebore.

This extract has been employed as a cathartic, principally in mania, and as an emmenagogue in a dose from five to fifteen grains, but it is uncertain in strength. The spiritous extract which has a place in some of the foreign Pharmacopœias, is a more active preparation. It has been used as a hydragogue cathartic, and is the basis of Baccher's tonic pills, once highly celebrated in the treatment of dropsy.

EXTRACTUM CAPITUM PAPAVERIS SOMNIFERI. Ed. EXTRACTUM PAPAVERIS. Lond. Extract of Poppy.

This extract of the capsule of the poppy retains, to a certain extent, its narcotic quality, but usually so far weakened as to leave it uncertain in strength. It is therefore scarcely used. The Syrup of Poppy is sometimes prepared from it, by dissolving a drachm of the extract in a pint of water, and boiling this with the due proportion of sugar.

EXTRACTUM FOLIORUM RUTÆ GRAVEOLENTIS. Ed. EXTRACTUM FOLIORUM RUTÆ. Dub. Extract of the Leaves of Rue.

As any medicinal virtue belonging to rue resides in its essential oil, this extract must be an injudicious preparation. It has been given in amenorrhœa, in a dose of from ten to fifteen grains; but it has probably no power.

The following Watery Extracts have a place in the London, or the Dublin Pharmacopœia :

EXTRACTUM ALOES. Extract of Aloes. Lond.

Take of Socotorine Aloes in powder, half a pound; Boiling Water, four pints. Macerate for three days, with a gentle heat; then strain, and put aside, that the impurities may sub-

side. Pour off the purified liquor, and evaporate until it attain a proper consistence.

The object of this preparation is principally to obtain an extract with less resin than is usually contained in aloes: this, it has been affirmed, is equally powerful as a purgative, and is less stimulating and more grateful. Its dose is ten or fifteen grains.

EXTRACTUM CINCHONÆ. Extract of Cinchona. Lond. Dub.

Take of Pale Peruvian Bark bruised, a pound; Water, a gallon. Boil to six pints, and strain the liquor while warm. In the same manner, boil it four times in the same quantity of water, and strain. Having mixed the liquors, evaporate until a proper consistence is attained. This extract ought to be kept *Soft*, so as to be fit for forming pills, and *Hard*, so as to be reduced to powder. (These are the directions in the London Pharmacopœia, in the other they are essentially the same.

The active matter of Peruvian Bark is of an extractive and resinous nature, and is more soluble in alcohol than in water. Water, however, when aided by heat, is capable of dissolving the greater part of it; and as a great part of the substance of the bark consists of inert ligneous matter, it might be supposed that some advantage is derived from thus separating the more active principles. During the boiling and evaporation, however, they suffer a chemical change to a certain extent, analogous to that which takes place in several varieties of vegetable matter exposed in a humid state, and at an elevated temperature, to the action of the air, and the nature of which, so far as it has been determined, has been already explained, (page 54.). Hence the extract obtained is not equal in efficacy to the quantity of bark from which it has been prepared. Its medium dose is ten grains, which

is supposed equivalent to half a drachm of cinchona in substance.

EXTRACTUM COLOCYNTHIDIS. Extract of Colocynth. Lond.

Take of the Pulp of Colocynth, one pound; Water, a gallon. Boil to four pounds, and strain the liquor while warm; then reduce it by evaporation to the proper consistence.

The active matter of colocynth is so far dissolved by water, by decoction, that the extract has a cathartic quality. It is less powerful, however, and has been supposed to be less irritating than the pulp itself. Its dose is from six to ten grains.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM. Compound Extract of Colocynth. Lond. Dub.

Take of the Pulp of Colocynth cut, six drachms; Socotorine Aloes in powder, an ounce and a half; Scammony in powder, half an ounce; Cardamom Seeds in powder, a drachm; Hard Soap, three drachms; Boiling Water, two pints. Macerate the pulp of colocynth in the water, with a gentle heat for four days. Strain the liquor, and add to it the aloes, scammony and soap; then evaporate until it attain a proper consistence, and towards the end of the evaporation mix in the cardamom seeds.—The process in the Dublin Pharmacopœia is the same, except that a pint of water only is ordered; but as the same consistence is attained by evaporation, this probably gives rise to no diversity of strength.

This is the officinal preparation which has long had a place in the Pharmacopœias, under the name of *Extractum Catharticum*. It is a combination of the more powerful cathartics; and as these operate more effectually, and with less irritation, when combined, than when one only in a large dose

is employed, the composition is well adapted for administration in cases where it is difficult to excite purging. It used formerly to be prepared by employing diluted alcohol as the solvent, not only of the colocynth, but also of the resinous substances, and evaporating the solution: the present method is more economical. The extract is usually given in doses of from five to ten or fifteen grains, repeated at short intervals, until it produce purging. Its power may also be safely promoted by adding a portion of calomel.

EXTRACTUM HUMULI. Extract of Hop. Lond.

Take of Hops, half a pound; Water, a gallon. Boil to four pints, and strain the liquor while it is hot; then reduce it by evaporation to the proper consistence.

Hop has been introduced into practice as a narcotic, possessing also from its bitterness a degree of tonic power. The bitterness will be obtained in this extract; but it is probable that the narcotic power is impaired, and that in this property it will not be uniform in strength. The dose of this extract is from five to fifteen grains.

EXTRACTUM OPII. Extract of Opium. Lond.

Take of Opium cut into pieces, half a pound; Water, three pints. Add to the opium a small quantity of the water, and macerate for twelve hours that it may become soft; then add gradually the remaining water; triturate until they are intimately mixed, and put aside that the impurities may subside; then strain the liquor, and evaporate it to the proper consistence.

EXTRACTUM OPII AQUOSUM. Watery Extract of Opium. Dub.

Take of Opium, two ounces; Boiling Water, a pint. Rub the opium with the water for ten minutes, and after a little time pour off the liquor; rub the remaining opium with an equal quantity of boiling water for the same time, and in like

manner pour off the liquor: Repeat this a third time; then mix the liquors, and expose the mixture to the air in an open vessel for two days. Lastly, strain through linen, and by gentle evaporation form an extract.

Any process of this kind designed to purify opium is altogether superfluous, for the impurities of the opium of commerce are inconsiderable, and neither alter its powers nor add materially to its bulk. And if such processes are designed to correct any of the qualities of the opium, whence the unpleasant symptoms which sometimes follow from its administration are supposed to arise, they probably rest on inaccurate views of its operation. The active matter of opium is not entirely extracted by water; in the present process, therefore, the product must differ from the crude opium, and it would require clinical experience more extensive and accurate than we yet have to ascertain correctly its real powers. It must besides be altered, and rendered at the same time uncertain in strength, by the chemical change which it will suffer during its inspissation. Even when the active principles of the opium have been extracted by diluted alcohol, (the method which was formerly followed in the process of the Pharmacopœia,) though the solvent is more powerful, requires less heat for its evaporation, and counteracts to a certain extent the action of the air, the inspissated mass is found to be inferior in strength to opium in its impurified state, and this must be still more the case in the present process, where water only is employed. It is a process, therefore, the propriety of which is extremely doubtful.

EXTRACTUM RHEI. Extract of Rhubarb. Lond.

Take of the Root of Rhubarb bruised, one pound; Diluted Alcohol, a pint; Water, seven pints. Macerate for four days

with a gentle heat, then strain and put aside the liquor, that the impurities may subside; pour it off when clear, and reduce it by evaporation to the proper consistence.

The purgative power of rhubarb is usually supposed to be more peculiarly extracted by water, and it may therefore be obtained by this process. It will equally be obtained, however, in the simple infusion, which, as being an extemporaneous preparation, is preferable to this extract, which, besides the change that may be produced during the inspissation, must be farther liable to decomposition when kept in a soft state.

EXTRACTUM SARSAPARILLÆ. Extract of Sarsaparilla. Lond.

Take of Sarsaparilla Root cut, a pound; Boiling Water, a gallon. Macerate for twenty-four hours, then boil to four pints, and strain the liquor while warm; lastly, reduce it by evaporation to the proper consistence.

Sarsaparilla being usually given under the form of watery decoction, there appears to be no particular advantage in preparing from this an extract, as the decoction may be brought to any state of concentration, by using an increased proportion of the root, or continuing the boiling for a longer time. And a watery mucilaginous extract as this is, besides the injury it will probably suffer in its inspissation, will farther be liable to spontaneous decomposition on keeping, and is therefore unfit for an officinal preparation.

EXTRACTUM TARAXACI. Extract of Dandelion. Lond. Dub.

Take of the fresh Root of Dandelion bruised, a pound; Boiling Water, a gallon. Macerate for twenty-four hours, then boil to four pints, and strain the liquor while hot; lastly, evaporate it to the proper consistence.

The recent root of dandelion has been ranked as an aperient and diuretic. The expressed juice, or decoction of the root, has been employed as a remedy in dropsy, biliary obstructions and induration of the liver; and, according to Bergius, has proved frequently successful where other remedies had failed. Whatever may be the powers of the plant, it may be doubted if the form of the watery extract be the best for its administration.

EXTRACTUM VALERIANÆ. Extract of Valerian. Dub.

Take of Valerian Root in coarse powder, six ounces; Boiling Water, three pints. Digest for twenty-four hours in a close vessel with a moderate heat; press out the liquor, and reduce it to a proper consistence by evaporation.

The medicinal powers of valerian appear to be connected with the principle in which its odour resides, and as this must be in a great measure dissipated by evaporation, it may be doubted if this is a form of preparation properly adapted. It can at least have no advantage over the extemporaneous infusion or decoction.

The following Watery Extracts, peculiar to the Dublin Pharmacopœia, are prepared according to the general formula already inserted.

EXTRACTUM CACUMINUM ABSINTHII. Extract of the Tops of Wormwood. Dub.

This extract is intensely bitter, and the unpleasant odour of the plant is dissipated during the evaporation. It may be substituted medicinally for extract of gentian. It is sometimes used, instead of hops, to give bitterness to fermented liquors.

EXTRACTUM CACUMINUM GENISTÆ. Extract of Broom-tops.
Dub.

The infusion of the tops of the broom has a degree of diuretic power, whence it has been employed as a remedy in dropsy. The extract can scarcely be supposed to have much power, and it is now expunged from the Edinburgh Pharmacopœia, where it formerly had a place.

EXTRACTUM RADICIS JALAPÆ. Extract of Jalap Root. Dub.

The active matter of jalap is partly resinous, and must therefore be imperfectly extracted by water. The extract thus prepared may be milder than the root, but will be liable to be uncertain in strength. A resinous extract is prepared by the action of diluted alcohol, which has a place in all the Pharmacopœias, and which must be a more active preparation, though neither of them probably is of much utility.

EXTRACTUM CORTICIS QUERCUS. Extract of Oak Bark. Dub.

In this extract the astringency of the oak bark will be obtained probably with little injury, and, consisting principally of tannin, it will not be very liable to spontaneous decomposition. It can have scarcely any advantage, however, but what may be equally obtained from the decoction.

EXTRACTUM FOLIORUM SABINÆ. Extract of Leaves of Savin.
Dub.

The medicinal powers of this herb seem in a great measure to depend on its essential oil, and as this must be dissipated during the evaporation, the extract must be comparatively an inactive preparation. It is never used.

II.—EXTRACTA PER AQUAM ET ALKOHOL.—EXTRACTS BY WATER
AND ALKOHOL. ED.

EXTRACTA RESINOSA.—RESINOUS EXTRACTS. DUB.

THE directions for preparing these, in the Edinburgh Pharmacopœia, are given under the first of them, the Extract of Bark.

EXTRACTUM CINCHONÆ OFFICINALIS. Extract of Peruvian Bark. Ed.

Take of Peruvian Bark in powder, one pound; Alcohol, four pounds. Digest for four days, and pour off the tincture. Boil the residuum in five pounds of distilled water for a quarter of an hour, and strain the decoction while hot through linen. Repeat this boiling and straining with an equal quantity of distilled water, and reduce the liquor by evaporation to the consistence of thin honey. Draw off the alcohol from the tincture by distillation, until it is reduced to a similar consistence. Then mix the liquors thus inspissated, and reduce to a proper consistence by evaporation in a bath of boiling water, saturated with muriate of soda.

EXTRACTUM CINCHONÆ RESINOSUM. Resinous Extract of Bark. Lond.

Take of Peruvian Bark bruised, a pound; Rectified Spirit, four pints. Macerate for four days, and strain. Let the tincture be distilled from a water-bath until it is of a proper consistence.

EXTRACTUM CINCHONÆ RUBRÆ RESINOSUM. Resinous Extract of Red Bark. Dub.

Is to be prepared in the same manner as the Resinous Extract of Cascarilla.

This preparation will probably be more active than the

watery extract of bark already noticed. By the joint action of the alcohol and water, all the principles of the bark are extracted, and nothing remains but the inert ligneous fibre. And in the subsequent evaporation, the dissolved matter suffers less injury, partly from less heat being required to bring it to the due consistence, and partly perhaps from the alcohol resisting the oxygenation or decomposition of the extract. It is, however, much more expensive; and the extract of bark to be found in the shops is almost always that which is prepared by the other formula. The dose of the spiritous extract is ten grains, and it affords a very convenient vehicle for combining bark with the more active preparations of iron in the form of pill.

EXTRACTUM RADICIS CONVULVULI JALAPÆ. Extract of Jalap. Ed.

This is ordered in the Edinburgh Pharmacopœia to be prepared in the same manner as the Extract of Bark, and, as prepared in the same mode, it has a place in the Dublin Pharmacopœia. The London College gives the following process, which is somewhat different.

Take of the Root of Jalap bruised, one pound; Rectified Spirit, four pints; Water, ten pints. Macerate the jalap root in the spirit for four days, and pour off the tincture. Boil the residuum with the water to two pints. Then strain the tincture and the decoction separately: evaporate the latter, and distil the former until each begin to become thick. Lastly, mix the extract with the resin, and evaporate to the proper consistence. This extract is to be kept *soft*, so that it may be fit to form pills, and *hard* that it may be rubbed into powder.

In the preparation of this extract, both the resinous and mucilaginous parts of the jalap root are dissolved, and it is therefore a more active preparation than the watery extract

of jalap already noticed. It exerts its cathartic operation fully in a dose of ten or twelve grains, but it has no particular advantage, and is seldom employed.

Besides these, there are other two spiritous extracts admitted by the Dublin College.

EXTRACTUM CASCARILLÆ RESINOSUM. Resinous Extract of Cascarilla. Dub.

Take of Cascarilla Bark in coarse powder, a pound; Rectified Spirit of Wine, four pints. Digest for four days, then pour off the tincture and strain. Boil the residuum of the cascarilla in ten pounds of water to two pounds. Evaporate the strained decoction, and distil the tincture from a retort until each become thick; then mix them together, and reduce them by evaporation to a consistence fit for forming pills; lastly, mix both extracts well together.

This extract may contain the active matter of the cascarilla, and may be given as a bitter and tonic, in the dose of a scruple; but there does not appear to be any peculiar advantage in employing this remedy under this expensive form.

OPIMUM PURIFICATUM. Purified Opium. Dub.

Take of Opium cut into small pieces, one pound; Proof-spirit, twelve pints. Digest with a gentle heat, stirring frequently until the opium is dissolved: strain the tincture through paper, and distil from a retort that the spirit may be separated; pour out the remaining liquor, and evaporate until the extract become of a proper consistence. Purified opium is to be kept in two states; one *soft*, so as to be fit for forming pills; the other *hard*, so as to be capable of being reduced to powder.

The objections to the purification of opium by the action

of water have been already stated. In the present process, as the power of the solvent is greater, and the degree of heat necessary to evaporate it less considerable, it is probable that the opium will suffer less change. Still we cannot be certain of its real power in this state, and the process is expensive, and altogether superfluous.

CHAP. XV.

AQUÆ STILLATITIE.—DISTILLED WATERS.

SEVERAL of the principles of vegetable matter are so far volatile as to be elevated in vapour at the temperature of 212° ; hence when water is distilled from them, it is frequently impregnated with their taste and odour, and sometimes even with their more active powers. The odour, and frequently the pungency of plants reside in their essential oil; and this being always volatile at this temperature, the aromatic plants, in which essential oil is most abundant, communicate these qualities to water distilled from them, a portion of the oil being retained in solution by the water. The acrid principle of some vegetables appears likewise to be so far volatile as to rise in distillation with water; and the prussic acid, in which the narcotic power of the bitter almond, cherry laurel, and similar plants resides, is also obtained by the same process: But these vegetables are comparatively few, and there are no officinal distilled waters having a place in the Pharmacopœias possessed of any important power; they are design-