
CHAP. XIV.**EXTRACTA.—EXTRACTS.**

EXTRACTS are preparations obtained by digesting or boiling vegetable substances in water, alkohol, 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 spiritous extract, as water or alkohol 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 alkohol, the resin is its principal component part; and if proof-spirit, all the fixed principles, which water and alkohol 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 spiritous 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 spiritous 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.*

THE directions for preparing these are given in the Edinburgh Pharmacopœia, under the Extract of Gentian. The directions in the other Pharmacopœias are essentially the same, a common water bath being ordered for the inspissation; the extract being stirred constantly as it becomes thick, and when prepared being kept with a little alkohol sprinkled on the surface.

EXTRACTUM GENTIANÆ LUTÆ. Extract of Gentian.
(*Extr. Gent. Ph. Lond. Dub.*)

“Take of Gentian Root, any quantity. Having cut and bruised it, add eight times its weight of Distilled Water. Boil to one half, and strain, expressing the liquor strongly. Reduce it immediately to the consistence of thick honey, by evaporation in a bath, of boiling water saturated with muriate of soda.”

This extract is intensely bitter, the quality of bitterness appearing in general not to be injured by the operation of decoction or evaporation. It is generally used to form other medicines into pills, particularly those with which it coincides in medicinal virtues, as tonics and emmenagogues.

In the same manner are prepared the following Extracts:

EXTRACTUM FLORUM ANTHEMIDIS NOBILIS. Extract of Chamomile. (Extr. Anthem. *Ph. Lond.*—Extr. Chamom. *Ph. Dub.*)

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. Extract of Senna.

Senna has its activity much impaired by decoction. The extract, therefore, besides that it has no particular advantage, cannot be regarded as a proper preparation of it, and it is accordingly found not to be more powerful than the leaf in substance.

EXTRACTUM RADICIS GLYCYRRHIZÆ GLABRÆ. Extract of Liquorice Root. (Extr. Glycyrrh. *Ph. Lond. Dub.*)

The active matter of this root consists chiefly of mucilage and saccharine matter, and suffers therefore little injury in this preparation. The extract is seldom prepared in the shops but on a large scale; and this extract of commerce is usually in an impure state. In some of the foreign Pharmacopœias, it is purified by solution in water, straining, and a new evaporation; and an extract either prepared in this way, or directly from the root itself, due care being taken in its preparation so as to

have it pure, is now sold under the name of Refined Li-
quorice. It is evaporated so as to be perfectly hard, and
is in common use as a demulcent in catarrh, being al-
lowed to dissolve slowly in the mouth.

EXTRACTUM LIGNI HÆMATOXYLI CAMPECHENSIS. Ex-
tract of Logwood. (Extr. Hæmatoxyl. *Ph. Lond. Dub.*)

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

EXTRACTUM RADICIS HELLEBORI NIGRI. Extract of
Black Hellebore Root. (Extr. Helleb. N. *Ph. Dub.*)

The aqueous extract of this root is comparatively mild
in its operation, and is even said to be milder than the
root itself. In a dose from ten to twenty grains, it ope-
rates as a cathartic, and has been employed as such in
mania, and in a smaller dose, as an emmenagogue, but its
uniformity of operation cannot be depended on. The
spiritous extract, which has a place in some of the foreign
Pharmacopœias, is a more active medicine. It has been
used as a hydragogue cathartic, and is the basis of Bac-
cher's tonic pills, once highly celebrated in the treatment
of dropsy.

EXTRACTUM CAPITUM PAPAVERIS SOMNIFERI. Extract
of Poppy. (Extract. Papav. *Ph. Lond.*)

This extract from the capsule of the poppy retains its

narcotic quality to a certain extent. It is, however, so far injured, that the extract is not uniform in strength, and is therefore little used. Sometimes it is employed in making the syrup of poppy, a drachm of it being dissolved in a pound of water, and boiled with a pound of sugar.

EXTRACTUM FOLIORUM RUTÆ GRAVEOLENTIS. Extract of Rue. (Extr. Rutæ, *Ph. Dub.*)

As the virtues of Rue reside chiefly, if not entirely, in its essential oil, this extract must be regarded as an injudicious preparation. It is intended for administration in amenorrhœa, its dose being from ten to fifteen grains; but it has probably no power.

THE following watery extracts have a place in the Dublin or London Pharmacopœia.

EXTRACTUM ALOES. Extract of Aloes. *Ph. 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 the liquor aside, that the impurities may subside. Pour off the purified liquor, and evaporate, until it attain a proper consistence.”

The object of this preparation is not so much to separate the aloes from any impurities, for the socotorine aloes

scarcely contains any, but to obtain a gummy extract with less resin, which is said to be equally purgative, less stimulating and less ungrateful. Its dose is ten or fifteen grains.

EXTRACTUM CINCHONÆ, *vulgo Corticis Peruviani*. Extract of Peruvian Bark. *Ph. Lond. Dub.*

“Take of Pale Peruvian Bark, in coarse powder, one pound; Water, one gallon. Boil to six pints, and strain the liquor while hot. In the same manner boil it four times, in the same quantity of water, and strain the liquors. Then reduce all these liquors, mixed together, to a proper consistence, by evaporation.

“This extract ought to be kept *soft*, fit to form pills; and *hard*, so that it may be reduced to powder.”

The active matter of bark is in a great measure of an extractive and resinous nature, being more soluble in alcohol than in water; but the water, when assisted by a boiling heat, is capable of dissolving it; and as a great part of the bark in substance consists of inert ligneous matter, it might be supposed that some advantage is derived from this preparation. During the boiling and evaporation, however, it suffers a chemical change to a certain extent; for the decoction itself becomes turbid, during boiling, from the dissolved matter becoming less soluble, a change probably analogous to that which takes place in several varieties of vegetable matter, exposed in a humid state, and at an elevated temperature, and the nature of which, so far as it has been determined, has

been already explained (page 53.). Hence the extract obtained is far from being equal in efficacy to the quantity of bark from which it is prepared. Its medium dose is ten grains, which is supposed to be equivalent to half a drachm of the bark in substance, but from the uncertainty of its strength it is little employed.

EXTRACTUM COLOCYNTHIDIS. Extract of Colocynth.
Ph. Lond.

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

The active matter of colocynth is so far extracted 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. Ph. 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; Cardmaom 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."

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 alone 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, and will probably afford a product more uniform in strength. 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. Ph. 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. Ph. Lond. (Extractum Opii Aquosum, Ph. Dub.)

“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 the mixture that the impurities may subside: then strain the liquor, and evaporate it to the proper consistence.”

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 alkohol, though the solvent is more powerful, requires less heat for its evaporation, and counteracts to a certain extent the

action of the air, still the inspissated mass is found to be inferior in strength to opium in its unpurified state, and this must be still more the case in the present process, where water only is employed. It may therefore be questioned whether any preparation of this kind retains its place with propriety in the Pharmacopœias.

EXTRACTUM RHEI. Extract of Rhubarb. Ph. 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, 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 considered as being more peculiarly extracted by water, and may therefore be obtained in this extract. It will equally be obtained, however, in the simple infusion, which, as being an extemporaneous preparation, is preferable to this one, that besides the change that may be produced in it by inspissation, must be farther liable to decomposition when kept in a soft state.

EXTRACTUM SARSAPARILLÆ. Extract of Sarsaparilla. Ph. 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 hot; lastly, reduce it by evaporation to the proper consistence.”

Sarsaparilla being usually given under the form of wa-

tery 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 extract, mucilaginous 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. *Ph. Lond. Dub.*

“ Take of the Fresh Root of Dandelion bruised, a pound; Boiling Water, a gallon. Macerate for twenty-four hours; then boil to eight 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. *Ph. 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.

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

This extract prepared in the usual manner from the flowering tops of the wormwood, 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. Ph. 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.
Ph. 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 must 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 will be a more active preparation, though neither of them probably is of much utility.

EXTRACTUM CORTICIS QUERCUS. Extract of Oak Bark.
Ph. 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.
Ph. 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.*

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

EXTRACTUM CINCHONÆ OFFICINALIS. Extract of Peruvian Bark. (Extr. Cinch. Resin. Ph. Lond. Dub.)

“Take of Peruvian Bark in powder, one pound; Alkohol, 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 alkohol 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 a bath of boiling water, saturated with muriate of soda.”

This preparation will probably be more active than the watery extract of bark. By the joint action of the alkohol 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 al-

kohol resisting the oxygenation 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. (Extr. Jalap. Resin. *Ph. Dub. Lond.*)

This is ordered to be prepared in the same manner as the Extract of Bark. From the solvent employed, both the resinous and mucilaginous parts of the jalap root are extracted, 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.

BESIDES these two, which have a place both in the Dublin and the London Pharmacopœias, there are other two spiritous extracts admitted by the Dublin College.

EXTRACTUM CASCARILLE RESINOSUM. Resinous Extract of Cascarilla. *Ph. Dub.*

This is prepared from the cascarilla bark, in the same manner as the resinous extract of cinchona is prepared. It 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 ad-

vantage in employing this remedy under this expensive form.

OPIMUM PURIFICATUM. Purified Opium. Ph. Dub.

“ Take of Opium cut into small pieces, one pound ; Proof-Spirit, twelve pounds. Digest them with a gentle heat, stirring them frequently until the opium is dissolved : strain the tincture through paper, and distil it in a retort until the spirit is abstracted ; pour out the remaining liquor, and evaporate it until the extract become of a proper consistence. Purified opium must 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 this 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.