CHAP. XXI.

OF DEMULCENTS.

DEMULCENTS are defined, "Medicines suited to obviate and prevent the action of acrid and stimulant matters; and that, not by correcting or changing their acrimony, but by involving it in a mild and viscid matter, which prevents it from acting upon the sensible parts of the body," or by covering the surface to which they may be applied. Their action has been supposed to be exemplified in catarrh, where the irritation at the top of the trachea, occasioning coughing, is removed by mucilaginous substances; or in gonorrhœa, where the sense of heat and pain from the application of the stimulus of urine to the inflamed surface of the urethra is prevented by similar means.

Where these substances are directly applied to the part, it may be understood how this operation is obtained from them. But where they are received by the medium of the stomach into the circulating system, it has been supposed that they can have no such effect. They must be changed by the process of digestion, and lose that viscidity by which only they operate, so that they cannot afterwards be separated by any secretion in their original form. Hence their utility in gonorrhœa and similar affections has been altogether denied.

It is not clear, however, that such a conclusion is just. It is sufficiently certain, that many substances, which undergo the process of digestion, are afterwards separated in their entire state from the blood, by particular secreting organs. There is no gland which has this power more particularly than the kidneys; substances received into the stomach and digested, afterwards passing off in the urine with all their peculiar properties. Saccharine matter for example, there is reason to believe, can be separated in this manner; and it is equally probable, that mucilaginous or oily substances, which form the principal demulcents, are capable of such a separation. There can be no doubt, however, but that a great share of the relief demulcents afford in irritation, or inflammation of the urinary passages, is owing to the large quantity of water in which they are diffused, by which the urine is diluted, and rendered less stimulating. Perhaps the relief is to be ascribed solely to this dilution: since no alteration is perceived in the quality of the urine, from the use of these substances. And, in general, we may consider demulcents as being merely substances less stimulating than the fluids usually applied to the parts.

The diseases in which demulcents are used, are principally catarrh, diarrhœa, dysentery, calculus and gonorrhœa. They are evidently not medicines of any great power; they are only calculated to alleviate symptoms, and may be freely used in as large quantities as the stomach will receive them.

Demulcents may be arranged under the two divisions of Mucilages, and Expressed Oils.

DEMULCENTS.

Mimosa nilotica.
Astragalus tragacantha.
Linum usitatissimum.
Althæa officinalis.
Malva sylvestris.
Glycyrrhiza glabra.
Smilax sarsaparilla.
Cycas circinalis.
Orchis mascula.
Maranta arundinacea.
Triticum hybernum.
Lichen icelandicus.
Cornu cervi.
Ichthyocolla.
Amygdalus communis.
Olea europæa.
Sevum ceti.
Cera.

ARABICUM GUMMI. Gum Arabic. Mimosa Nilotica. *Polygam. Monœc. Lomentaceæ. Africa.*

GUM is a proximate vegetable principle, which is obtained by exudation, more or less pure, from a number of plants. The gum Arabic of commerce is not exclusively the produce of one vegetable: that which is most pure, and used to be imported from Egypt, is from a species of mimosa. The London College admit, on the authority of Wildenow, a different genus, Acacia, as substituted for that of Mimosa; they refer to the species producing this gum by the name Acacia Vera, and name the gum itself Gummi Acaciæ, while the Edinburgh College name it Gummi Mimosæ Niloticæ. The purest gum of the shops is in small irregular pieces, white or yellowish, semi-pellucid, without taste or smell: there are other varieties coarser, of a yellow or red colour. All of them have the properties of gum; are insoluble in alkohol or oils, and soluble in water, forming a viscid solution named Mucilage.

Gum Arabic is in common use as a demulcent. In catarrh it is allowed to dissolve slowly in the mouth, and its mucilage is the basis of the mixtures usually employed to allay coughing. Sometimes, too, it is employed in tenesmus, strangury, and *ardor urinæ*. In Pharmacy, mucilage of gum Arabic is employed for a variety of purposes. It serves to suspend heavy powders in waters;

to diffuse oils, balsams and resins in water, and give tenacity to substances made into pills.

Offic. Prep.—Emuls. Gummi Mimosæ Nil. *Ph. Ed. Dub.*—Muc. Gum. Mim. Nil. *Ed. Lond. Dub.*—Troch. Gum. *Ed.*

ASTRAGALUS TRAGACANTHA. Tragacanth. *Diadelph. Decand. Papilionaceæ. Gummi. South of Europe, Asia.*

TRAGACANTH is obtained by exudation: the plant producing it, a native of Persia, is said to differ from the Astralagus Tragacantha of Linnæus; it is described by Olivier as a distinct species, under the name of Astragalus Verus; and this is admitted by the London College. Tragacanth is in small wrinkled pieces, semi-transparent and brittle, and has neither taste nor smell. It is regarded as a gum, yet it differs from the other pure gums in not being perfectly soluble in cold water: it is softened and diffused, but remains flocculent and turbid. When heat is applied, it communicates to the water a great degree of viscidity, but still the solution remains turbid. It is greatly superior to all the gums, in giving viscidity to water; its power in this respect being to that of gum Arabic as 1 to 24.

Tragacanth has virtues similar to gum Arabic. It is less employed, except in some pharmaceutical processes, in which, from its greater viscidity, it is preferred, as in making of troches.

Offic. Prep.—Mucil. Astrag. Trag. *Pharm. Ed. Dub.*—Pulv. Trag. C. *Lond.*

LINUM USITATISSIMUM. Flax. *Pentand. Pentagyn. Gruinales. Semen. Indigenous.*

THE seeds of this plant afford a strong mucilage by infusion or decoction in water, which has no unpleasant taste or smell. These preparations of it are, therefore, frequently used as demulcents in catarrh and gonorrhœa, in a dilute state, being rendered more grateful by the addition of a little sugar and lemon juice.

Offic. Prep.—Infus. Lini, *Ph. Lond.*

ALTHÆA OFFICINALIS. Althæa. Marsh-mallow. *Monadelph. Polyand. Columniferæ. Radix. Indigenous.*

ALL the parts of this plant yield a mucilage by infusion or decoction in water: the root does so most abundantly, and freed from its outer bark, is kept in the shops. Its mucilage is similar to that from lintseed, and is used for the same purposes. It is even preferable, as being more pure.

Offic. Prep.—Decoct. Alth. Off. *Ph. Ed.*—Syr. Alth. Off. *Ed. Lond.*

MALVA SYLVESTRIS. Common Mallow. *Monadelph. Polyand. Columniferæ. Folia. Indig.*

THE leaves of this plant afford a mucilage by infusion in water, weaker, however, than that from lintseed or althæa. The plant is therefore little used, and might be discarded.

Offic. Prep.—Decoct. Malv. Comp. *Ph. Lond.*

GLYCYRRHIZA GLABRA. Liquorice. *Diadelph. Decand. Papilionac. Radix. South of Europe.*

THE root of this plant has a sweet agreeable taste, with no flavour. This sweetness is extracted by water by infusion or decoction; and by evaporation a dark-coloured extract of the same sweet taste is obtained, consisting principally of saccharine and mucilaginous matter. Alkohol likewise extracts the sweetness of liquorice, with less of the mucilage.

Liquorice-root is employed as a demulcent, and on account of its sweet taste is frequently added to infusions of lintseed, or althæa. Its watery extract is also in common use as a demulcent in catarrh, being allowed to dissolve slowly in the mouth.

Offic. Prep. — Extr. Glycyrrh. Gl. *Ph. Ed. Dub.* — Troch. Glycyrrh. Troch. Glycyrrh. cum Opio, *Ed.*

SMILAX SARSAPARILLA. Sarsaparilla. *Diœcia Hexand. Sarmentaceæ. Radix. South America.*

THIS root is in long slender twigs, internally white, and covered with a brownish bark: it has scarcely any smell; its taste is mucilaginous, and slightly bitter. Water extracts its bitterness; by beating it with water, a portion of fecula is separated, white and insipid, in which the virtues of the root appear to reside. For pharmaceutic preparation it is split and cut into small pieces.

Sarsaparilla produces no sensible effect on the system,

and it can scarcely be regarded except as a demulcent, when given under its usual form of decoction. It has, however, been considered as a specific in the treatment of some venereal affections, particularly those of the bones or periosteum, and as a restorative in that state of debility which is the consequence of the disease protracted, or of the mercurial irritation. It has also been recommended in extensive ulceration, in cutaneous affections, and in chronic rheumatism. It is given in the form of decoction, and is very frequently joined with guaiac and mezereon, the pungency of which at least it covers.

Offic. Prep.—Dec. Smil. Sarsap. *Ph. Ed. Lond. Dub.* —Dec. Sarsap. Comp. *Lond. Dub.*—Extr. Sarsaparill. *Lond.*

CYCAS CIRCINALIS. Sago. *Cryptogamia. Filices. East Indies.*

SAGO is a fecula obtained from the pith or medullary part of the branches of the plant, by maceration in water. It is in small grains of a brownish colour, without taste or smell. Boiled in milk or water, it dissolves entirely; and this with sugar, and the addition frequently of a little wine, forms a nutritious jelly, prescribed in diarrhœa as a demulcent, and in convalescence as a nutritious article of diet, easy of digestion.

ORCHIS MASCULA. Salop. *Gynand. Diand. Orchideæ. Indigenous.*

THE root of this plant, by maceration in water and

beating, affords the fecula known by the name of Salop. Its qualities and virtues are similar to those of Sago.

MARANTA ARUNDINACEA. *Monand. Monogyn. Scitamineæ. South America.*

THE fecula which has been lately introduced under the name of Arrow-Root Powder, has been said to be the produce of this plant, though there is now generally substituted for it the fecula of some indigenous plants. It is used as a demulcent in diarrhœa and dysentery, and as a nutritious article of diet for convalescents. It forms a jelly by boiling with water or milk, and it is under this form that it is taken.

TRITICUM HYBERNUM. Wheat. *Triand. Digyn. Gramina. Fecula seminum. Amylum.*

STARCH, the fecula of wheat, obtained by beating the grains previously soaked in water, forms a gelatinous solution when boiled with water, which is used as a demulcent. It is sometimes given as an enema in tenesmus, and is the common vehicle for giving opium under that form.

Offic. Prep.—Mucilag. Amyli, *Ph. Ed. Lond. Dub.*

LICHEN ISLANDICUS. Iceland Liverwort. *Cryptogamia Algæ. Iceland.*

THE different lichens contain a kind of mucilaginous matter or fecula, which is extracted by boiling in water. The lichen islandicus consists principally of this kind of

matter, with a portion of extractive principle having a degree of bitterness. This bitterness is removed by maceration in cold water, and then by decoction with water a gelatinous solution is obtained. This is used as an article of diet in the countries of which this lichen is a native; and it has been introduced into medical practice as a demulcent, and a nutritious substance easy of digestion. The decoction has received a place in the London Pharmacopœia.

Offic. Prep.—Decoct. Lichenis, *Ph. Lond. Dub.*

Cornu cervi rasura. Hartshorn Shavings. Cervus Elaphus. Cornu. *Mammalia. Pecora.*

Bone, and horn which is of similar composition, contain a considerable quantity of gelatin, along with phosphate of lime. The horns of the deer have been supposed to afford this in the purest state, and they have therefore been received into the Materia Medica. They are freed from their outer rough covering, and the internal white part is rasped down for use. The shavings afford, by decoction in water, a jelly, which, rendered grateful by sugar, and a little wine, is used in diarrhœa and dysentery as a demulcent, and in convalescence as a light nutritious article of diet.

Ichthyocolla. Isinglass. Acipenser Sturio. *Pisces. Chondropterygii.*

Isinglass is obtained from the skin and other parts of the sturgeon, as well as several other kinds of fish

caught in the northern seas. The internal skin is boiled in water; the strained decoction is inspissated; and the solid mass formed into convoluted pieces is the isinglass of the shops. It is nearly pure gelatin, is almost entirely soluble in water by boiling, forming a gelatinous solution, which has sometimes been employed as a demulcent.

AMYGDALUS COMMUNIS. *Icosandria. Monog. Pomaceæ. Fructus; Nucleus; Ol. Express. South of Europe.*

THE kernel of the fruit of the almond is farinaceous with a portion of expressed oil. This oil is obtained by expression from the seeds, or by decoction of them in water. It is very similar to the olive oil, but purer, and more free from any rancidity. In common with expressed oils, it has the properties of a demulcent; and diffused in water by the medium of mucilage, or a few drops of an alkaline solution, it is given in catarrh.

There is another mode in which this oil is given as a demulcent, more grateful, that of emulsion. The almonds are triturated with water; the oil is diffused in the water by the medium of the mucilage and fecula of the almond, and a milky-like liquor is formed, which is used as a pleasant demulcent and diluent, particularly to obviate strangury from the application of a blister.

Offic. Prep.—Emuls. Amygd. *Ph. Ed. Lond. Dub.* —Confect. Amygd. *Ph. Lond.*

OLEA EUROPÆA. Olive Oil. (Page 491.)

THE oil obtained from the fruit of the olive by expression, is of a light yellowish or greenish colour, without either taste or smell. It is the expressed oil which is most commonly used in medicine. It is employed as a demulcent in catarrh, and some other affections, diffused in water by the medium of mucilage, or by a very small quantity of one of the alkalis, and is thus taken in as large quantities as the stomach can bear; it may be doubted, however, whether with any advantage. Its application as an anthelmintic has been already noticed. Externally it is used as an emollient.

SEVUM CETI. Spermaceti. Physeter Macrocephalus. *Mammalia. Cetacea.*

THIS fatty matter is obtained from the head of the particular species of whale above stated. The cavity of the head contains a large quantity of an oily fluid, from which, on standing, a concrete substance separates. This, freed from the oil by expression, and purified by melting and boiling with a weak alkaline solution, is the common spermaceti. It is in white flakes, unctuous and friable, and has neither taste nor smell. Its chemical properties are the same as those of the expressed oils and fats, except that it does not easily unite with the alkalis, and that it is soluble to a certain extent in alkohol and ether. Its medicinal virtues are those of a mild demulcent, and as such it is given in catarrh and gonorrhœa, mixed with

sugar, or sometimes diffused in water by the medium of the yolk of an egg. It enters as an unctuous substance into the composition of ointments.

Offic. Prep.—Cerat. Cetacei, Unguent. Cetaceæ, *Ph. Lond.*

Cera. Wax.—This is a concrete substance of a particular nature, supposed to be collected from the antheræ of vegetables by the bee. The experiments of Huber appear to have proved, that it can be formed by this insect from changes produced on it by its saccharine food. Still it is to be regarded as a vegetable product. It exists in the fruit and flowers of many plants, and some, as the Myrica Cerifera, afford a substance perfectly analogous in large quantity. Wax, in its chemical properties, resembles most nearly the expressed oils, differing from them principally in solidity, and in combining less readily with the alkalis. It is of a yellow colour, but by bleaching can be rendered white.

Wax has been used as a demulcent in dysentery, being diffused in water by means of mucilage of gum Arabic, but it has no particular quality to recommend it. It is used in the composition of ointments and plasters, communicating to them consistence and tenacity.

Offic. Prep.—Emp. Ceræ, *Ph. Ed. Lond.*