

## GENTIANA. \*

The discovery of this principle is connected with a circumstance in some degree singular.

M. Henry and M. Caventou were both engaged at the same time, and without any mutual knowledge, in the analysis of gentian. The results on both sides were so perfectly identical, and seemed to have so much the appearance of previous concert, that they resolved to publish them in one memoir. †

*Preparation of Gentiana.*

Treat powdered gentian with cold ether, which in forty-eight hours gives a greenish yellow tincture; this filtered, poured into an open vessel and exposed to heat, passes on cooling—if the liquor be sufficiently concentrated—into a yellow crystalline mass, having a very decided smell and flavour of gentian. This mass is then to be treated with alcohol until it ceases to impart a lemon colour. The washings are collected and exposed to heat, upon which the yellow crystalline substance reappears, and towards the end of the evaporation collects into a mass of an extremely bitter taste. On being again taken up by weak alcohol, it is dissolved, with the exception of a portion of oily matter. This last alcoholic solution contains, besides the bitter prin-

\* M. Caventou has extracted from the root of the tree bearing the cassia fistula, a bitter principle that may be of useful application in intermittent fevers. This principle has the property of forming combinations with nitric, muriatic and sulphuric acids, that are very slightly soluble in water; whilst, on the contrary, its combinations with potass, soda, ammonia, and even magnesia, lime, baryta, &c. are exceedingly soluble.

† This fact is remarkable for two reasons: first, as it proves how the processes of vegetable analysis have been perfected within the last few years; and next, as it shows the changes which the progress of science has effected among its cultivators. A century since, the consequences of such a coincidence would have had any but an agreeable character.

principle of gentian, an acid and the odorous principle of the root.

By evaporating the spirituous fluid to dryness, washing the matter obtained with water, adding a small quantity of calcined and well-washed magnesia, and boiling and evaporating in a sand-bath, the greater part of the odorous principle is driven off, the acid matter is neutralized by the magnesia, and the yellow bitter principle remains, partly free, partly combined with the magnesia, to which it gives a fine yellow colour. Subsequently, on boiling this magnesia with ether, the major part of the bitter principle is carried off, and on evaporation, is obtained in an isolated condition. If it is desired to separate almost all the bitter principle that remains combined with the magnesia, and which the ether was unable to take up, it must be treated with a sufficient quantity of oxalic acid to produce acidity of the fluid. The oxalic acid combines with the magnesia, and sets free the bitter principle which is then taken up in the manner already mentioned.

#### *Properties of Gentiana.*

Gentiana is yellow, inodorous, and has the aromatic bitterness of gentian to a great degree, and this may be increased by solution in an acid. It is highly soluble in ether and alcohol, and by spontaneous evaporation separates in the form of very minute yellow crystalline needles. It is much less soluble in cold water, though it still renders it very bitter: boiling water dissolves a greater quantity of it.

Diluted alkalis deepen its colour by many shades, and dissolve somewhat more of it than water. Acids diminish its yellow colour in a very marked manner. The solutions in sulphuric and phosphoric acids are almost colourless, and with weaker acids, as the acetic, they are only yellowish. Concentrated sulphuric acid chars it and destroys its bitterness.

Exposed in a glass tube to the heat of boiling mer-

cury, gentiana sublimes in the form of small yellow crystalline needles, and is in part decomposed. It does not sensibly alter turnsol either when blue or reddened by acids.

*Action of Gentiana on lower Animals and on Man.*

Some experiments made by myself show that this substance is no way poisonous. Several grains injected into the veins produced no apparent effect. I have myself taken two grains dissolved in alcohol without experiencing any thing beyond an extremely bitter taste in the mouth, and a slight sensation of heat in the stomach.

*Administration of Gentiana.*

The tincture seems to be the most eligible form for administration. It may be made as follows :

Alcohol at 24°.....1 ounce.  
Gentiana.....5 grains.

This may be substituted for the compound tincture of gentian in all cases.

*Syrup of Gentiana.*

Simple syrup..... 1 livre.  
Gentiana .....16 grains.

This is one of the best bitters we can employ in the treatment of scrofulous affections. I continue to use it with the best effect.

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LUPULINE.

The existence of this substance in the hop was discovered by Mr. Ives of New York. It has since been described in France by M. Planche, and more recently