Taylor & Francis
Taylor & Francis Group

Philosophical Magazine Series 3

ISSN: 1941-5966 (Print) 1941-5974 (Online) Journal homepage: http://www.tandfonline.com/loi/tphm14

Composition of Caffein

To cite this article: (1832) Composition of Caffein, Philosophical Magazine Series 3, 1:2, 165-166, DOI: 10.1080/14786443208647860

To link to this article: http://dx.doi.org/10.1080/14786443208647860

Published online: 01 Jun 2009.

Heat chloride of lime till it ceases to destroy vegetable colours. In this case a mixture of chloride of calcium and chlorate of potash is obtained. This is to be dissolved in hot water, and to the solution, concentrated by evaporation, chloride of potassium is to be added, and then suffered to cool. After cooling, a quantity of crystals of chlorate of potash is obtained, which are to be redissolved and crystallized again to purify them. M. Liebig considers that this will be a cheap process for obtaining chlorate of potash. From 12 ounces of chloride of lime, of so bad quality that it left 65 per cent. of insoluble matter, he obtained an ounce of chlorate of potash.

The only difficulty to overcome in this process is, that the chloride of lime is not so easily decomposed by heat as is generally supposed; a solution of it may be kept boiling for an hour without losing its bleaching power. The best method is to form a thin paste with chloride of lime and water, and then to evaporate it to dryness: if it be required to prepare it by passing chlorine into cream of lime, it is advantageous to keep it very hot.

The chlorate of potash, which separates from the solution by crystallization, has not the form of scales, which it usually possesses, but is prismatic: whether this is occasioned by some admixture has not been ascertained; but on recrystallizing, it is obtained in the usual form.

The solution ought not only to be suffered to cool in order to procure crystals, for the crystallization is far from being terminated even after complete cooling; crystals continue to be deposited for three or four days.—*Ann. de Ch. et de Phys. tom.* xlix. *p.* 300.

COMPOSITION OF CAFFEIN.

MM. Pfaff and Liebig have given the following as the composition of Caffein:—

Four atoms carbon	3·05750	49·79
Five atoms hydrogen ..	0·31199	5·08
Two atoms azote.....	1·77036	28·83
One atom oxygen	1·00000	16·30
	6·13985	100·00

At the request of MM. Pfaff and Liebig, the analysis was also performed by M. Wöhler; and he obtained

Carbon	49·93
Hydrogen.....	5·43
Azote.....	28·97
Oxygen	15·67
	100·00

Ibid. p. 305.

The following remarks, appended by MM. Pfaff and Liebig to the results of their analysis, appear to me to constitute a perfect specimen of the manufacture of mystery and confusion, which is likely, if anything can do so, to bring the atomic theory into discredit.

"According to its theoretical composition, caffein may be considered as a compound of a cyanic acid, containing one half less oxygen than the common acid, with æther analogous to cyanic æther. An æther formed of a problematical cyanous acid would be composed of $Cg^2 \frac{1}{2} O + (C^2 H^4 + OH^2) = C^4 H^5 N^2 O$; this formula is the same as that of caffein."

Now, among numerous other compounds, of which this compound may be supposed to be compounded, and for all that I see, with quite as much probability as those above stated, are

One atom of bicarburetted hydrogen,
One atom of ammonia,
One atom of cyanogen,
One atom of water. R. P.

EXPERIMENTS ON BEES' WAX AND VEGETABLE WAX.

M. Oppermann states that the vegetable wax from the East Indies is of a yellowish white colour, transparent at the edges, more brittle and greasy to the touch, but less compact than bees' wax. Its taste is rancid when it has been masticated for some time; its sp. gr. 0·97; at 124° Fahr. it melts, remains fluid at 112°, and solidifies at 109°.

It is soluble both in spirit and in æther; the former solution solidifies in cooling, while the latter merely deposits light flocks. Japan wax yielded by analysis,

Carbon	70·9683
Hydrogen	12·0728
Oxygen	16·9589
	100·0000

Brazilian wax very closely resembles the foregoing: their colour, consistence and odour are almost the same; the Brazilian is however distinguished by the yellowish brown pellicle with which it is covered; it fuses at 120°, and solidifies at 113°. The spirituous and ætherial solutions resemble those of the Japan wax. Brazilian wax gave by analysis,

Carbon	72·8788
Hydrogen	12·0297
Oxygen	15·0915
	100·0000

Bleached and purified bees' wax is harder than the foregoing; but the vegetable wax, dissolved in four parts of oil, gives a compound which is three times firmer than that obtained with the same quantities of bees' wax and oil; but the latter gives greater consistency to fat than the former.

Alcohol, even when hot, dissolves bees' wax with difficulty; the solution solidifies by cooling, and yields a white granular transparent mass. Æther when boiling forms a clear solution of bees' wax, which becomes turbid by spontaneous evaporation; it afterwards thickens, and the wax when separated appears to have suffered no change.