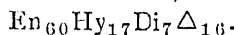


The chemical analysis of the Dodkanya orthopyroxene does not accord with that of the Charnockite type, but is in fair agreement with the analysis of the Bushveldt type, except for the high content of ferric iron, which accounts for the intense pleochroism of the Mysore mineral. The presence of alumina and alkalis in the analyses of orthopyroxenes is pointed out by Hess and Phillips to be characteristic of orthopyroxenes of the Bushveldt type. It may be remarked that the ratio of soda to potash, and of both to lime, are ratios, fairly constant in the rock analyses of the Charnockites of India. Hess and Phillips ascribe the CaO content to the presence of the Diopsidic molecule as lamellar intergrowths in the orthopyroxene host; they also hold that some of the low extinction angles are due to this intergrowth.

Calculating the chemical analysis in terms of metasilicate molecules, and expressing the mineral in terms of its minals, the mineral of Dodkanya has the formula,



Winchell<sup>5</sup> has proposed the restriction of the term Bronzite to an FeO tenor of 5-14 per cent. or of FeSiO<sub>3</sub> tenor of 9.2-25.72 per cent. The mineral under study is, therefore, a Bronzite of the Enstenite series, but it has not the typical inclusions of Bronzite.

University of Mysore,  
Bangalore,  
August 14, 1943.

P. R. J. NAIDU.

1. Winchell, A. N., *Elements of Optical Mineralogy*, 1933, 2, 217. 2. Naidu, P. R. J., *Curr. Sci.*, 1943, 12, No. 5, 158. 3. Johannsen, A., *Petrography*, 1937, 3, 213. 4. *American Mineralogist*, 1938, 23, 453. 5. Alling, H. L., *Interpretative Petrology of the Igneous Rocks*, 1936, p. 85.

### A NOTE ON THE COAGULATION STUDIES OF THE LATEX OF *CRYPTOSTEGIA GRANDIFLORA* R. Br. AS A WAR-TIME SOURCE OF VEGETABLE RUBBER

IN a previous communication<sup>1</sup> describing the Chemical and Technological investigations on *Cryptostegia grandiflora*, a method of coagulating cryptostegia latex with water was reported. This method consists in mixing 20 volumes of distilled water, 15-16 volumes of tap water or 6-8 volumes of hot water, to latex whereby it gets coagulated yielding a white coagulum of rubber which can be sheeted and a clear straw coloured or red serum.

When the pH value shifts towards the alkalinity side, coagulation takes place. Continuation of the investigations showed that although this method has the advantage that it does not require acids or other chemicals, it has the disadvantage that on the large scale it involves the use of large quantities of water and bigger coagulating tanks. It was, therefore, considered necessary to devise a still simpler and more advantageous method of coagulation. Investigations were carried out

with a large number of substances such as calcium and sodium chlorides, sodium, potassium, calcium and ammonium hydroxides and carbonates, alcohol, acetic acid and formaldehyde and eventually the following method has been found to answer the purpose in view. The following tentative conclusions can be drawn:—

1. Latex can be coagulated by diluting it with water (1/100 part that of latex) of an alkalinity which would bring the final pH value to the vicinity of 7.7.

2. The per cent. dry rubber obtained does not vary much with coagulants.

3. Three volumes of a solution of lime water saturated at 31° C. (approximately N/25.5) are required to bring about coagulation, while of N/10 NaOH, N-NaOH, 10 N-NaOH, only 1, 1/10 and 1/100 volumes respectively are required.

4. The quality of rubber in every case is satisfactory and the coagulum can be sheeted.

*Description of the Method.*—Take latex (20 c.c.) in a beaker, add 10 N-NaOH (0.2 c.c.). The solution turns dirty pink. On warming to 80-90° C. it separates into a clear blood red to brownish red serum and a white coagulum of rubber. The coagulum is sheeted and after washing it with water till it is free of alkalinity, it is dried at 90-95° C. in an air oven.

The details will appear elsewhere.

Imperial Agricultural  
Research Institute,  
New Delhi,  
August 17, 1943.

B. VISWA NATH.  
R. H. SIDDIQUI.  
S. A. WARISI.  
V. V. K. SASTRY.

<sup>1</sup> *Journal, Board of Scientific and Industrial Research*, July 1943, 1, No. 4, 365-37.

### THE BERBERINE CONTENT OF *COSCIINIUM FENESTRATUM* (COLEBR.)

WE are glad to confirm the observation of Varier and Pillai<sup>1</sup> that berberine is the predominant alkaloidal constituent of *Coscinium fenestratum* by putting on record a brief note of an examination of Ceylon material carried out in 1939.

Air-dried stems (moisture 6.8 per cent., ash 2.6 per cent.) were exhausted with 95 per cent. alcohol in a Soxhlet apparatus, which removed 9.2 per cent. of material. From the alcoholic extract berberine is readily precipitated as the acid sulphate by addition of a slight excess of sulphuric acid (the yield of crude salt 4.1 per cent.).

The combined filtrates after separating and washing the berberine acid sulphate with alcohol, were evaporated and taken up in water and ether; the latter solvent removed resinous matter (4.1 per cent.). The aqueous solution after thorough ether extraction was made alkaline with caustic soda and again extracted with ether which removed 0.67 per cent. of crude alkaloids. After treatment with carbon dioxide, the aqueous liquor yielded to ether a further 0.2 per cent. of crude phenolic alkaloids.

We should not, therefore, go as far as Varier and Pillai in stating that berberine is the only

alkaloid present and we consider that further investigation (for which we have not the opportunity) would be worth while.

*Composition of Ash.*—Insoluble in 2-N hydrochloric acid: 6.6, CaO 36.8, K<sub>2</sub>O 7.6, Cl 0.33 per cent. The high calcium content is noticeable, corresponding to 1.0 per cent. CaO on the original stems.

Coconut Research Scheme,  
Lunuwila, Ceylon, R. CHILD.  
September 1, 1943. W. R. N. NATHANAEL.

I. Varier N. S., and Pillai, P. P., *Curr. Sci.*, August 1943, 12, No. 8, pp. 228-229.

### THYROXINE-IODINE CONTENT OF THYROID GLAND POWDERS OF INDIAN MANUFACTURE

In June 1942, Prof. B. B. Dey of the Madras Presidency College stated in a personal communication to the writer that "the thyroid glands of cattle collected in Madras have been found to contain a much higher iodine content than the continental specimens". This statement, not being in consonance with the widespread belief that Indian cattle are poor sources of glandular products, did not attract much attention of the writer and his co-workers at that time. Evidences have since been obtained which strongly support the statement of Prof. Dey and as this is likely to have a definite bearing on the manufacture of glandular products in India, the publication of a 'note' is considered worth while.

Desiccated Thyroid gland powders prepared from local glands in a University Chemical Laboratory, in a Research Institute and in a commercial firm were carefully tested for their thyroxine-iodine contents by the method outlined in the B.P., 1932, and the First Addendum to the B.P., 1936, with the following results:—

Sample from:	Thyroxine-iodine
(1) Univ. Lab. (S. India) (Average—3 determinations)	0.33 per cent.
(2) Research Institute (S. India) (Average—3 determinations)	0.20 per cent.
(3) Commercial Firm (Bengal) (Average—3 determinations)	0.18 per cent.
B.P. limits—(0.09 to 0.11 per cent.)	

Three samples of Thyroid powder obtained from Great Britain and Canada in 1939 and stored in the Refrigerator in sealed amber bottles were simultaneously tested for their thyroxine-iodine contents with the results given below:—

Sample from:	Thyroxine-iodine
(1) A. H. & Co., Ltd. (Average—3 determinations)	0.142 per cent.
(2) B. D. H. & Co. (Average—3 determinations)	0.235 per cent.
(3) Canadian Sample (Average—2 determinations)	0.120 per cent.

It will be seen that excepting in one instance (No. 2), thyroxine-iodine content of foreign thyroid gland powders are lower than the values obtained with powders prepared from glands of Indian cattle.

In addition to this, the author has carried out biological assays on several samples of thyroid bearing the name of Indian manufacturers but where no information was available with regard to the exact origin of the powders. Presumably some of these are of Indian make and in many such cases, a potency higher than B.P. (using a standard powder with known thyroxine-iodine content as control) was obtained by the 'tadpole method'.<sup>1</sup> Some of these samples were received in such small quantities that confirmatory chemical assay and determination of thyroxine-iodine contents were not possible.

While it is realised that the data available are not comprehensive, a tentative opinion may be expressed that, at least as far as the thyroid gland preparations are concerned, Indian manufacturers need not always feel that the raw material obtainable in India is of an inferior grade than that obtainable in Western countries where the nutrition of the cattle is definitely superior.

I am indebted to my colleagues in the Laboratory for carrying out most of the tests.

Bio-Chemical Standardisation  
Laboratory, Calcutta,  
August 11, 1943.

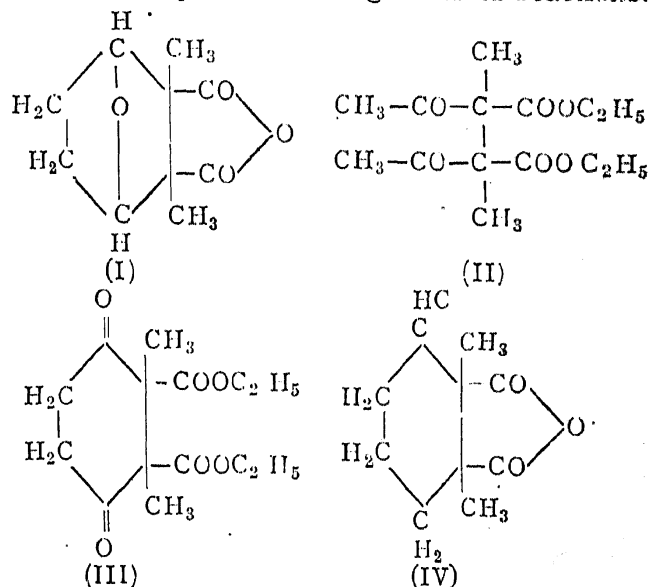
B. MUKERJI.

1. Dutt and Mukerji, *Curr. Sci.*, 1942, 11, 104.

### SYNTHESIS OF CANTHARIDIN

CANTHARIDIN, the active principle of *Cantharis vesicatoria* and *Mylabris pustulata* Fb. India, has been assigned the structure (I) mainly on the basis of analytical evidence by Gadamer and collaborators.<sup>1</sup> Recently the synthesis of desoxycantharidin (IV) by Woodward and Loffield<sup>2</sup> has confirmed the structure (I) for cantharidin.

Various unsuccessful attempts at the synthesis of cantharidin have been recorded.<sup>3</sup> We have now synthesised cantharidin and desoxycantharidin by the following series of reactions.



Sodio derivative of ethyl methyl acetoacetate when treated with iodine gave diethyl  $\alpha\alpha'$ -dimethyl  $\alpha\alpha'$ -diacetyl succinate (II). Bromination of (II) followed by debromination by