

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.

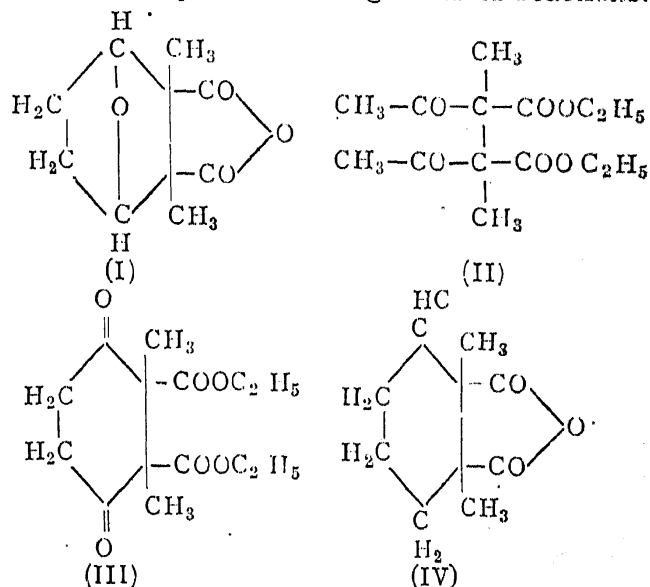
B. MUKERJI.

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 Loftfield<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

molecular silver gave diethyl 1-4-diketo-2-3-dimethyl cyclohexane-2-3-dicarboxylate (III). Clemmensen reduction of (III) followed by hydrolysis gave desoxycanthalidin (IV). Reduction of (III) by aluminum isopropoxide followed by etherification and hydrolysis by sulphuric acid gave canthalidin (I), m.p. 217°. Mixed m.p. of the synthetical canthalidin with an authentic sample from *Mylabris pusiulata*, kindly supplied by Dr. P. C. Guha (Indian Institute of Science, Bangalore) to whom our thanks are due, was also 217°. Further details will be published shortly.

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Chemical Laboratories, (MISS) K. PARANJAPÉ.  
Sir Parashurambhao N. L. PHALNIKAR.  
College, Poona, B. V. BHIDE.  
August 10, 1943. K. S. NARGUND.

1. Galetzer, *Arch. Pharm.*, 1914, **252**, 623, 636, 660.
2. Woodward and Löffelield, *J. A.C.S.*, 1911, **63**, 3967.
3. Coffey, *Rec. Trav. Chim.*, 1923, **42**, 1026; Steele, *J. A.C.S.*, 1931, **53**, 283; Iyer and Guha, *Jour. Ind. Nat. Sci.*, 1931, **14A**, 31; 1938, **21A**, 115; 1940, **23A**, 159; Pai and Guha, *Jour. Ind. Chem. Soc.*, 1934, **11**, 231.

### CLAVICEPS PURPUREA (Fr.) Tul. AND A NEW SPECIES FROM SIMLA

PUSHKAR NATH AND PADWICK<sup>1</sup> recorded the presence of ergots on grasses at Simla, the hosts including *Brachypodium sylvaticum* Beauv. and *Oplismenus compositus* Beauv.

The fungus producing ergots on *Brachypodium sylvaticum* is *Claviceps purpurea* (Fr.) Tul.

A large number of *Brachypodium* ergots was found germinating in nature immediately below the plants at Simla on August 9th, 1942. These ergots measured 1.6 × 16 (1.4 - 2.0 × 7 - 35) mm. The stromata were purple or brownish yellow, slightly pitted or tuberculate, borne on a purple or brownish-yellow stipe, measuring up to 1.5 × 28 mm. The globose to subglobose capitula measured 2.8 (1.5-3.0) mm., and the ovate perithecia 147 × 259 (119-170 × 246-280) μ, asci 2.6 × 125 (2.4-3.6 × 81-173) μ and ascospores 98 (81-136) μ.

In 1942 successful attempts were made to inoculate rye and wheat with spores formed in potato dextrose agar cultures of the *Brachypodium* fungus. Ergots formed on rye, and eventually reached a maximum size of 2.5 × 13 mm., and were straight, furrowed, purplish-brown in colour, and hard at maturity. They were in every way typical of *Claviceps purpurea*. Those on wheat were smaller, measuring up to 4 × 10 mm.

In addition to the collection of germinating ergots of *Brachypodium sylvaticum*, a large number of germinating ergots from *Oplismenus compositus* was collected immediately beneath plants of that species on August 22nd, 1942. The ergots measured 1.3 × 6.4 (1.0-1.5 × 4-10) millimetres. The capitula were yellowish-green in colour, tuberculate, borne on a yellow stipe which measured up to 4.2 cm. in length. The diameters of the capitula varied from 1.0 to 1.6 mm. The perithecia measured 203 × 323

(170-229 × 280-357) μ; asci 2.6 × 178 (2.0-3.1 × 148-242) μ; and ascospores 145 (119-188) μ. Conidia found on ergots on the host plant were greenish coloured in mass, giving the sclerotia a greenish hue. Even singly they had a slightly green colour. They measured 3.8-8.4 (3.4-4.6 × 4.2-18.9) μ.

Pure cultures of the *Oplismenus* fungus were repeatedly obtained by surface sterilizing the sclerotia and plating on potato dextrose agar. Slow-growing cultures resulted, consisting of a much convoluted greenish-yellow mass, finally becoming darker green, and consisting largely of masses of spores which were somewhat smaller than those formed on the ergots, namely, 2.4 × 9.8 (1.6-3.8 × 3.3-12.6) μ.

On the basis of spore length, colour of stipe, and particularly the striking green colour exhibited by the fungus in all its stages, it differs from all known species of *Claviceps*, and is regarded as a distinct new species, to which is given the name *Claviceps viridis*.

*Claviceps viridis*, Padwick et Azmatullah,  
sp. nov.

*Sclerotium viridibus vel viride-nigris, cylindraceis, curvatis*, 1.3 × 6.4 (1.0-1.5 × 4-10) mm. *Stromatibus* in quoque sclerotio quotcumque 4; *stipitibus cylindraceis, flavis*, ad 4.2 cm. longis, 0.5 vel 0.8 mm. diam.; *capitulis globosis vel subglobosis, flavide-viridibus vel fuscis, tuberculosus*, 1.0 vel 1.6 mm. diam. *Peritheciis ovalis, ostiolatis papillaribus*, 203 × 323 (170-229 × 280-351) μ; *ascis cylindraceis, apicibus rotundatis, basibus attenuis*, 2.6 × 178 (2.0-3.1 × 148-242) μ; *ascosporidiis* 145 (119-188) μ longis. *Conidiis hyalinis vel palido viridibus globosis vel cylindraceis, strictis vel curvatis*, 3.8 × 8.4 (3.4-4.6 × 4.2-18.9) μ.

In terra, sub plantis *Oplismenorum compositorum* Beauv., leg. Md. Azmatullah, Simla, 25-8-42 (Typus). *Statis conidicis et scleroticeis in ovariiis Oplismenorum compositorum*, leg. Pushkar Nath, Simla, Nov. 1942.

Imperial Agricultural  
Research Institute, G. WATTS-PADWICK.  
New Delhi, MD. AZMATULLAH.  
August 9, 1943.

<sup>1</sup> *Curr. Sci.*, 1941, **10**, 488.

### ON THE NEMATODE INDIANA GRYLLOTALPAE, GEN. et. SP. NOV. FROM GRYLLOTALPA SP.

HOST: *Gryllotalpa* sp.  
LOCATION: Gul.  
LOCALITY: Calcutta.

BASIR\* has recently founded four new genera of nematode worms obtained from *Gryllotalpa* sp. in the Aligarh district. At the time of examination of the gut contents of the insect in this laboratory four Oxyurid worms were collected and placed at my disposal. All the specimens except one have unfortunately been mutilated at the time of collection.

The worms collected are all female and small in size. The entire specimen measures 1.7 mm. in length. The lips are inconspicuous, behind which there is a number of broad