Dey have observed the existence of a new compound containing six molecules of ammonia.

These amino-compounds are formed by the addition of ammonium hydroxide to a solution of copper sulphate. If this addition is done gradually, a precipitate first comes down; with further addition of ammonia it goes into solution developing an intense blue colour. A study of the absorption spectra of this solution by Bhatnagar, Goyle and Prasad has shown that the main blue colour is more or less identical in nature when various concentrations of ammonia are used. This would not happen if definite compounds of different compositions are formed, that is, cupric-ammonium sulphates containing ammonia in definite different proportions do actually exist. Bhatnagar, Goyle and Prasad[3] have shown that the absorption band obtained with the intensely blue-coloured solution formed by the addition of ammonia to copper sulphate is identical with that obtained with a suitably prepared colloidal solution of copper hydroxide. These observations would lead to the conclusion that the variety of the copper ammonia compounds obtained by Bhattacharya and Dey and other workers are adsorption complexes, containing different proportions of ammonia, formed by the peptising action of ammonium hydroxide or ammonium salts on copper hydroxide.

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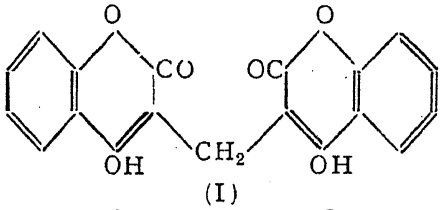
September 13, 1945.

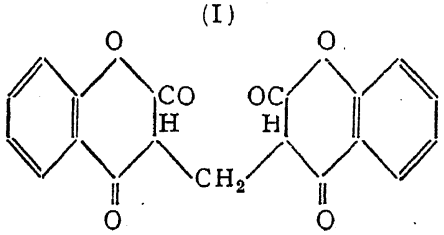
1. *Curr. Sci.*, 1945, **14**, 69. 2. *Ibid.*, 1945, **14**, 201. 3. *Koll. Zeit.*, 1928, **44**, 79.

ON "DICOUMARIN"—SYNTHETIC ANTI-COAGULANT

In search for the causative agent of the hæmorrhagic disease of cattle on feeding spoiled sweet clover hay, it was noticed that 3, 3[1]-methylene-bis-(4-hydroxy) coumarin (I) is the substance that is acting as an anti-coagulant. It has since been synthesized from 4-hydroxy coumarin and is being suggested as an effective agent in post-operative thrombophlebitis, puerperal thrombosis, and pulmonary embolism.



(I)



(II)

It is of interest to note that this naturally occurring coumarin in sweet clover hay is acting as an anti-coagulant whereas other coumarins from *E. Ayapana* are known (cf. Dymock *et al.*,[2] and Bose and Ray[3]) to act as coagulants. The above coumarin derivative (I)—also commercially known as "Dicoumarin", possesses no *in vitro* activity whereas the well-known anti-coagulant, heparin, is active both in *in vivo* and *in vitro*. Does it indicate that "Dicoumarin" is not a coumarin but a chromone of the structure (II)? Link and his collaborators[4] have published a series of papers on the chemistry of 4-hydroxy coumarin from which this "Dicoumarin" is being produced synthetically. But the formation of its salts, its reaction with bromine, behaviour towards alcoholic ferric chloride and certain ketonic reagents, condensation with compounds containing active methylene group and many other reactions, indicate the non-existence of a hydroxy group in these 4-hydroxy coumarins. This, in other words, indicates that the compound may also exist in the form (II) when it becomes a 2-keto chromone derivative and as such may differ physiologically from the other natural coumarins as isolated from *E. Ayapana*. Details of the work are going to be published elsewhere.

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S. P. Dhar.
U. P. Basu.
July 10, 1945.

1. Cambell and Link, *J. Biol. Chem.*, 1941, **138**, 21. 2. Dymock *et al.*, *Pharm. Indica*, **2**, 245. 3. Bose and Ray, *J. Ind. Chem. Soc.*, 1936, **13**, 586. 4. Link *et al.*, *Jour. Amer. Chem. Soc.*, 1943, **65**, 2288 and subsequent papers.

A NOTE ON THE OCCURRENCE OF *ALCALIGENES RADIOBACTER* IN THE AERIAL ROOTS OF *PHOENIX SYLVESTRIS*

Palacios and Bari, in a previous article,[7] had reported the presence of a new organism in the nodules of *Cajanus indicus*. Since then Bergey[2] had also referred to it suggesting that the organism mentioned to by those workers may well be *Alcaligenes radiobacter*, despite the well-marked differences exhibited by the new species. The present workers too had an opportunity of isolating a new micro-organism from the aerial roots of *Phœnix sylvestris*, but in agreement with Bergey's opinion that no new organism should be labelled as new species (to avoid multiplication of the species), but should be, as far as possible, referred to as a variant of one of the existing species, the new organism has been named only as *Alcaligenes radiobacter*.

Phœnix sylvestris is a palm not yet adequately studied. d'Almeida and Correa[1] only recently have studied in detail the anatomy of this plant, and in agreement with the report of Kuster[5] in connection with *Phœnix rectinata*, these workers have also observed the presence of *yellowish brown contents* occurring in the cortical cells of *P. sylvestris*. Richter[8] con-