

ON THE DETECTION OF FAHLBERG'S SACCHARINE.

BY SAMUEL C. HOOKER, Ph. D.

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A test has been recently described by E. Börnstein* for the detection of saccharine, based upon the supposed formation of a sulpho-phtaleïn. Saccharine is heated with a slight excess of resorcine and a few drops of concentrated sulphuric acid; on the addition of water a solution is obtained which fluoresces strongly when rendered alkaline.

I wish to point out that this test is rendered valueless by an observation I made about a year ago. Resorcine, when treated with sulphuric acid *alone*, gives apparently precisely the same reaction as that which Börnstein describes as characteristic of saccharine.

The reaction has unfortunately been already used in several instances which have come under my notice, and the presence of saccharine inferred in cases in which it was probably altogether absent.

It has long been known that resorcine, when heated with zinc chloride, also gives rise to products which fluoresce strongly.

A RAPID COLORIMETRIC METHOD FOR THE ESTIMATION OF NITRATES IN NATURAL WATERS.

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It was long ago observed by Graebe and Glaser,* that the addition of oxidizing agents, in small quantity, to carbazol dissolved in concentrated sulphuric acid, gave rise to an intensely green solution. Up to the present time no useful application has been made of this reaction.

* *Berichte*, **21**, 488, R.

In devising a process for the rapid estimation of nitrates in the minute quantities in which they occur in natural waters, I have taken advantage of this property of carbazol. I have ascertained that under certain conditions, water containing as little as two parts of nitric acid per million gives a distinct reaction with the sulphuric-acid solution of carbazol; and that within certain limits the intensity of the color produced may be taken as the measure of the nitric acid present.

The estimation briefly described, omitting the necessary precautions, is conducted as follows: A measured quantity of the water, 2 cc. or less according to circumstances, is mixed with about 4 cc. of concentrated sulphuric acid, and when this has cooled a small quantity of sulphuric acid containing carbazol in solution is added. The green color produced is compared with that given by standard solutions of potassic nitrate, under precisely similar conditions, until the color is closely matched. The estimation is very rapidly effected, and provided the water contains as much nitric acid as two parts per million, as is very often the case, it need not be concentrated by evaporation.

The details of this process, together with the precautions to be taken in the presence of chlorides, nitrites, etc., will be described shortly in a paper giving the results of analyses made with the object of testing the delicacy of the method.

In conclusion, I would suggest the possibility that other compounds, diphenylamine or brucine, for instance, may prove as serviceable as carbazol for the purpose here described.

* *Ann.*, **163**, 347.