

INFLUENCE OF VITAMIN C ON PHOSPHORYLASE

PHOSPHORYLASE was prepared by fractionating fresh potato juice with ammonium sulphate as described by Bourne, *et al.*¹ Glucose-1-phosphate was prepared by Hanes² method.

The phosphorylase activity was determined according to the method described by Green, *et al.*³

The reaction mixture contained 1 ml. of enzyme, 1 ml. of citrate buffer (pH 6.0), 1 ml. of 0.1 M glucose-1-phosphate in citrate buffer of pH 6.0 and 1 ml. of each of the substances added, the total volume being adjusted to 6 ml. Temperature of incubation was 35°C. The results are presented in the following table.

Reaction mixture	Activity of phosphorylase expressed as mgm. of Ing. P. formed in the total digestion mixture in 10 minutes	Percentage inhibition
Phosphorylase alone	.. 0.4752	..
Phosphorylase + Vit. C (5 mgm.)	0.3268	31
Phosphorylase + Vit. C (5 mgm.) + Cu (15γ) as copper sulphate	.. 0.2099	56
Phosphorylase + Vit. C (5 mgm.) + Cu (15γ) + sodium oxalate (20 mgm.)	0.4752	0
Phosphorylase + Vit. C (5 mgm.) + Cu (15γ) + sodium diethyl dithiocarbamate (5 mgms.)	.. 0.4752	0
Phosphorylase + Vit. C (5 mgm.) + Cu (15γ) + 8-oxy-quinoline (5 mgm.)	0.4752	0

The results obtained are similar to those obtained in the case of other enzymes studied in this laboratory. Further work on the exact mechanism of the action of the substances in annulling the inhibition produced by vitamin C-Cu complex is in progress. Full details of the work will be published elsewhere.

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SYNTHESIS OF SACCHARIN FROM ANTHRANILIC ACID

THE most common method of preparation of saccharin is based essentially on the original method of Remsen and Fahlberg¹ through the conversion of toluene to *o*-toluenesulphonyl chloride and thence to the corresponding amide, and oxidation of the latter to saccharin. It has been reported² that during the war the Germans synthesised saccharin from anthranilic acid. The principal steps in the synthesis as described in the German patents³ issued to Ciba are: (1) diazotisation of methyl anthranilate and conversion to *o*-carbmethoxybenzenesulphonic acid, (2) conversion of the latter to *o*-carbmethoxybenzenesulphonyl chloride, and (3) preparation of saccharin (*a*) from the sulphonyl chloride by the action of ammonia or (*b*) directly from the sulphonic acid. Though all these basic reactions are known, scanty information is available in literature on them and particularly about the preparation of saccharin by this method.

A systematic study has now been made on the preparation of a number of sulphonic acids from the corresponding amino compounds as well as on the conversion of these sulphonic acids to sulphonamides either directly or through the corresponding sulphonyl chlorides. The existing methods have been modified where necessary to get optimum yields. The results have then been applied to the preparation of saccharin from anthranilic acid when about 70% yield calculated on anthranilic acid was obtained.

This method is worth considering as a possible manufacturing process in India. It may be noted that the chief difficulty in adopting the 'Remsen-Fahlberg process' for India is the non-availability of cheap chlorosulphonic acid, whose manufacture in India has not yet been established and is difficult. The economic feasibility of the present process, in which the plant requirements would be simpler, would depend upon the price at which anthranilic acid would be available. A detailed account of the work will shortly be published elsewhere. Organic Chem. Laboratories, N. B. DALAL. Royal Institute of Science, R. C. SHAH. Bombay, November 17, 1949.

1. Remsen and Fahlberg, *Ber.*, 1879, 12, 469, 2. *Chem. Industries*, 1946, 737. 3. *D.R.P.*, 130, 119 (*Frdl.*, 6, 64-65) and *D.R.P.*, 122567 (*Frdl.*, 6, 1208).

1. Bourne, E. J., and Peat, S., *Jour. Chem. Soc.*, 1945, 877. 2. Hanes, C. S., *Proc. Roy. Soc.*, 1940, 129B, 174. 3. Green, D. E., and Stumpf, P. K., *Jour. Biol. Chem.*, 1942, 142, 355.