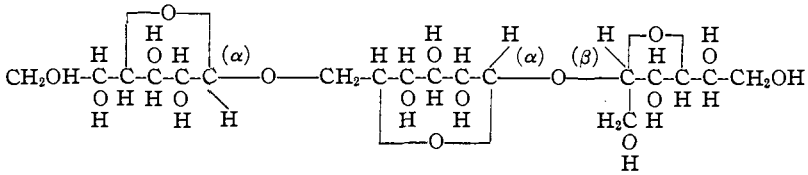
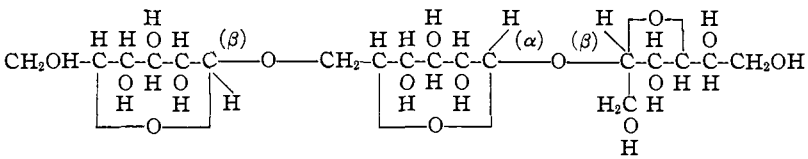


(X) Raffinose



(XI) Gentianose

Postscript of March 4, 1930.—It will be shown in a later article that the rotations of primverose and its beta hepta-acetate agree with the structure 6-[β-*d*-xylosido(1,5)]-*d*-glucose(1,5), that the structure of vicianose is in all probability 6-[α-*l*-arabinosido(1,5)]-*d*-glucose(1,5) and that vicianin is 6-[α-*l*-arabinosido(1,5)]-β-*d*-glucosido(1,5)-*l*-mandelonitrile.

12. Summary

The occurrence of ring shifting during the methylation of some glycosides, as was shown in the preceding article, makes it necessary to determine the structures and configurations of the compound sugars by methods which avoid this disturbing complication. It is shown that the isorotation rules apply closely to the group of compound sugars and that the full structures and configurations of these substances can be determined by the use of these rules in conjunction with other data on structure that are valid whether or not ring shifts occur during methylation. The results give new structures for maltose, melibiose, sucrose, gentianose and raffinose.

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NOTES

A Note on the Preparation of Lecithin.—The preparation of pure lecithin was recently undertaken in order to study the relation of the pure product to the process of blood coagulation.[1]

The method used was that described by Levene and Rolf;[2] a simplification of similar methods previously used by Bergell,[3] McLean[4] and by Levene[5] and his co-workers. It consists in the simple extraction of dried

[1] A. Wadsworth, F. Maltaner and E. Maltaner, *Am. J. Physiol.*, **91**, 423 (1930).

[2] P. A. Levene and I. P. Rolf, *J. Biol. Chem.*, **72**, 587 (1927).

[3] P. Bergell, *Ber.*, **33**, 2584 (1900).

[4] H. McLean, *Biochem. J.*, **9**, 351 (1915).

[5] P. A. Levene and C. J. West, *J. Biol. Chem.*, **34**, 175 (1918); P. A. Levene and I. P. Rolf, *ibid.*, **46**, 353 (1921).

tissue with ethyl alcohol, the chilling out of fats at 0°, precipitation of the lecithin as the cadmium salt, purification of the cadmium salt by exhaustive extraction with ether and recovery of the lecithin by treatment of a chloroform solution of the cadmium salt with a saturated methyl alcohol solution of dry ammonia gas, the recovered lecithin being purified further by emulsifying an ether solution in 10% acetic acid and reprecipitating with acetone.

Considerable difficulty was encountered in the precipitation of the cadmium salt. This was found to be due to the use of absolute methyl alcohol in the preparation of the cadmium chloride solution used for precipitation.

It was found after a considerable loss of time and material that a good yield of a satisfactory cadmium lecithin compound could only be obtained by the use of moist (95%), instead of absolute, methyl alcohol for this step of the procedure.

It was further observed that a pure product could be obtained without recourse to the final purification with acetic acid. This acetic acid treatment decreases the yield greatly and tends to darken the product.

It was possible, moreover, to recover a considerable quantity of pure lecithin from the fats originally precipitated at 0° from the alcoholic extracts of tissue by extraction with alcohol at 0° and subsequent precipitation with the 95% methyl alcohol solution of cadmium chloride.

The results obtained in the preparation of lecithin from beef liver and beef heart are tabulated below.

TABLE I

ANALYSIS OF LECITHIN

Lecithin	Carbon, %	Hydrogen, %	Nitrogen, %	Amino Nitrogen, %	Phosphorus, %
Liver lecithin (one acetic acid treatment)	65.18	10.38	1.94	0.005	3.90
Liver lecithin (no acetic acid used)	65.50	10.69	1.82	0.004	3.84
Liver lecithin (recovered from acetone washings)	64.62	10.51	1.72	...	3.84
Heart lecithin (no acetic acid used)	64.66	11.14	2.06	0.000	3.87
Oleic–stearic lecithin (calcd.)	65.55	11.01	1.73	0.000	3.85
Oleic–palmitic lecithin (calcd.)	64.81	10.81	1.80	0.000	3.99

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