of the names, hydroxylysine and allohydroxylysine, to the pure isomers has been made.

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(15) U. S. Public Health Service, Department of Health, Education and Welfare.

LOW MOLECULAR WEIGHT DEXTRAN AS A MODIFIER OF DEXTRAN SYNTHESIS[1]

Sir:

Dextran synthesis by *Leuconostoc mesenteroides* is brought about by a special enzyme, dextransucrase, that apparently causes the direct transfer of α-D-glucopyranosyl radicals from many sucrose molecules to a few acceptor molecules which become growing dextran chains.[2] Following the report of Koepsell, *et al.*,[3] that certain sugars can serve as "alternate" acceptors for dextransucrase, we[4] and independently Tsuchiya, Hellman and Koepsell[5] have found that low molecular weight dextrans also serve as acceptors. An especially significant point revealed by our experiments is that small-sized dextrans are intrinsically much more potent modifiers of dextran synthesis than such sugars as maltose or glucose.

To compare the modifying action of dextrans and sugars, dextransucrase from *L. mesenteroides* strain B[2] was incubated at 25° and *p*H 5.0 with sucrose (50 mg./ml. final concentration) and the substance to be tested as a supplement. Individual controls were prepared, comprising enzyme and sucrose incubated together, with the supplementary substance added after incubation. The final mixtures were analyzed for dextran and oligosaccharide contents (Fig. 1).

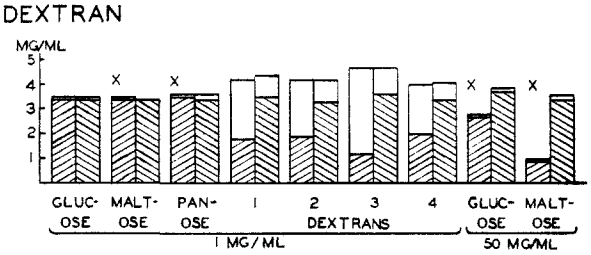

Fig. 1.—Low molecular weight dextrans *vs.* sugars as modifiers of dextran synthesis. Analyses of incubated enzyme–sucrose–supplement mixtures shown at the left of analyses of control enzyme–sucrose mixtures with the supplement added after incubation. Hatched area show dextran precipitated at 25° by 40% (v./v.) methanol; open areas show dextran precipitated between 40 and 65% methanol; × indicates oligosaccharide(s), other than sucrose or supplement, detected by chromatography.[3] Dextrans 1 and 2 were clinical products, kindly supplied by Commercial Solvents Corp., Terre Haute, Ind., and Dextran Corp., Yonkers, N. Y.; dextrans 3 and 4 were fractions of mol. wt. *ca.* 20,000 and 18,000 kindly supplied by Dr. F. R. Senti and Dr. B. Ingelman.

At 1 mg./ml., glucose as a supplement had no detectable effect on the dextran polymerization, while maltose and crystalline panose (kindly supplied by Dr. S. C. Pan) induced formation only of traces of oligosaccharides. "Normal" dextran, precipitable by 40% methanol, was synthesized to the same extent in the presence as in the absence of the three sugars. In contrast, each of four different low molecular weight dextrans (actually fractions of partly hydrolyzed dextrans) profoundly affected the synthesis. Mixtures incubated with these supplements contained smaller amounts of dextran precipitated by 40% methanol than the controls, and had appreciable contents of presumably lower molecular weight dextran, precipitating between 40 and 65% methanol. In the control mixtures, most of the 40 to 65% fraction represents added dextran supplement.

The modifying effect of the 1 mg./ml. dextran supplements was greater than that of 50 mg./ml. glucose and, in at least one instance, approached that caused by 50 mg./ml. maltose. Taking molecular concentration into account, it is evident that the acceptor capacity of an individual small dextran molecule is exceedingly high and of a different order of magnitude than the sugars tested. Attention is directed to this capacity as one factor that may enable useful modifications of dextran synthesis to be made.

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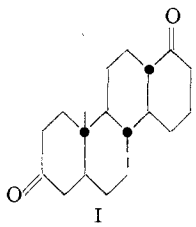
18-NOR-D-HOMOANDROSTANE-3,17a-DIONE

Sir:

The (±) diketone I, m.p. 149–150.5° cor. (Found: C, 79.0; H, 9.91) has been prepared by chromic acid oxidation of 18-nor-D-homoepiandrosterone which, as already reported,[1] is readily made in five operations from 2,5-dimethoxynaphthalene.



I

Androgenic assays in rats performed under the direction of Drs. R. K. Meyer and Elva G. Shipley of the Department of Zoölogy show this racemic compound to be at least one-tenth as active as testosterone. Since androstane-3,17-dione itself

(1) Supported by a grant from the Corn Industries Research Foundation.

(2) E. J. Hehre, *Proc. Soc. Exp. Biol. Med.*, **54**, 240 (1943); *J. Biol. Chem.*, **163**, 221 (1946); "Advances in Enzymology," Interscience Publishers, Inc., New York, N. Y., **11**, 297 (1951).

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(5) H. M. Tsuchiya, N. N. Hellman and H. J. Koepsell, THIS JOURNAL, **75**, 757 (1953).

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