THE SYNTHESIS OF 1-*beta*-GLUCOSIDOFRUCTOSE. A CORRECTION

Sir:

In a recent publication by Pacsu, Wilson and Graf [THIS JOURNAL, **61**, 2675 (1939)] 1-β-glucosidofructose was described as a new disaccharide. The authors regret that in carrying out and publishing their work they have overlooked the fact that the same sugar had previously been prepared by Brigl and Widmaier [*Ber.*, **69**, 1219 (1936)] by a different method. The latter investigators used dibenzal-fructopyranose as starting material and obtained the disaccharide in a 18.8% over-all yield, whereas Pacsu, Wilson and Graf prepared the sugar from 2,3-4,5-diacetone-β-fructopyranose in a 50% yield. The physical constants of the disaccharide as reported from the two sources are practically identical. It should be added that no reference to the work of Brigl and Widmaier can be found either in the latest book on the carbohydrates (Micheel, "Chemie der Zucker und Polysaccharide," Akademische Verlagsgesellschaft m. b. H., Leipzig, 1939), or in the latest comprehensive report on the synthesis of the oligosaccharides (Zemplén, "Neuere Richtungen der Oligosaccharid-Synthese" in "Fortschritte der Chemie organischer Naturstoffe" edited by Zechmeister, Julius Springer, Wien, 1939).

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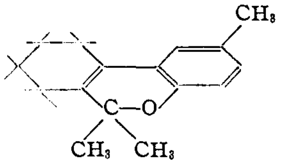
SYNTHESIS OF CANNABINOL

Sir:

We note in a recent communication (THIS JOURNAL, **62**, 2245 (1940)) that Adams and his coworkers have reported a method for the preparation of compounds analogous to cannabinol which involves the condensation of 5-methylcyclohexanone-2-carboxylate with orcinol in the presence of phosphorous oxychloride, followed by treatment with methylmagnesium iodide. One instance of the use of this method was reported to give a tetrahydropyran.

We wish to report that we have been using this method for some time in the synthesis of compounds analogous to cannabinol with the view to the synthesis of cannabinol itself. The condensation of cyclohexanone-2-carboxylate as well as 5-methylcyclohexanone-2-carboxylate with *p*-cresol, orcinol and olivetol in the presence of sulfuric acid have been carried out with subsequent treatment with methylmagnesium iodide to give the tetrahydropyran I (plates from alcohol, m. p. 69°, found: C, 84.24; H, 8.98; calcd.: C, 84.2; H, 8.77) and the glycol III (white crystals, m. p. 105–106°, found: C, 74.47; H, 8.98; calcd.: C, 74.5; H, 8.98).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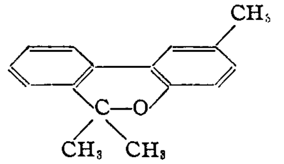
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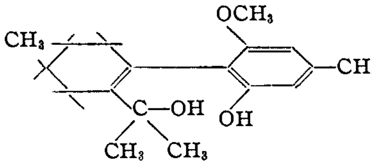
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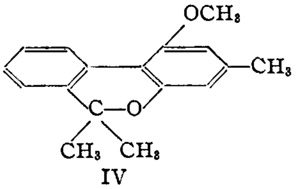
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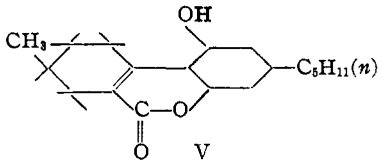
V

Some of these tetrahydropyrans have been dehydrogenated (II, white plates, m. p. 58°, found: C, 85.9; H, 7.35; calcd.: C, 85.7; H, 7.2) to establish the feasibility of passing from these to the pyrans of the cannabinol type. The condensation with orcinol has been carried out and the monomethyl ether of the condensation product treated with methylmagnesium iodide to give the glycol III, which was dehydrogenated, after the loss of the elements of water to close the pyran ring, to give a cannabinol type of compound, IV.

This route to cannabinol having been thus fairly well examined, we condensed 5-methylcyclohexanone-2-carboxylate with olivetol, giving a compound which we believe to be V (light brown crystals, m. p. 172–173°, found: C, 75.77; H, 8.2; calcd.: C, 76.0; H, 8.1). Work is now in progress in the treatment of pyrone V or its methyl ether with methylmagnesium iodide with the view of dehydrogenating it to cannabinol.