

(8) or else the hypothesis that chlorophyll acts as a donor of hydrogen in photosynthesis should be abandoned.

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Summary

1. The formation of chlorophyll containing T could not be detected during photosynthesis of

Chlorella pyrenoidosa in HTO + H₂O.

2. No (<5%) thermal exchange was observed between purified chlorophyll and 80% ethanol containing HTO.

3. The implications of these results for the theory that chlorophyll acts as a hydrogen donor in photosynthesis are discussed.

4. It is pointed out that repetition of the experiments herein described using 100% D₂O would avoid the question of isotope separation and make possible an unequivocal conclusion regarding the role of chlorophyll.

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NOTES

Characteristics of β -[2,5-Dimethoxyphenyl]- β -hydroxyisopropylamine Hydrochloride

BY RICHARD BALTZLY AND JOHANNES S. BUCK

This compound was reported recently¹; subsequent investigation makes it evident that the substance to which that formula was attributed is actually β -[2,5-dimethoxyphenyl]- β -oxoisopropylamine hydrochloride. This could have been anticipated² but was not at the time. The error arose partly from the difficulty of interpreting small absorptions of hydrogen when using a catalyst (palladized charcoal) that itself binds relatively large amounts of hydrogen and partly from adverse conditions over which the analyst had no control.

The substance previously obtained (m. p. 176° dec.) when dissolved in water and reduced with hydrogen and platinum-black absorbed 1 mole of hydrogen. A new hydrochloride was isolated melting at 215°.

Anal. Calcd. for C₁₁H₁₈O₂N: C, 53.31; H, 7.33. Found: C, 53.43; H, 7.53.

When the corresponding base was acetylated with acetic anhydride a diacetyl derivative was formed melting at 120° and crystallizing from ethyl acetate-hexane in parallelogrammatic plates.

Anal. Calcd. for C₁₅H₂₁O₅N: C, 60.98; H, 7.17. Calcd. for C₁₈H₁₇O₄N: C, 62.12; H, 6.83. Found: C, 61.09; H, 7.30.

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(1) Baltzly and Buck, *THIS JOURNAL*, **62**, 164 (1940).

(2) Cf. Hartung, *ibid.*, **53**, 4149 (1931).

Identification of *o*- and *p*-Sulfobenzoic Acids¹ as their S-Benzylthiuronium Salts

BY E. CAMPAIGNE² AND C. M. SUTER³

The structure of the alkylated benzenesulfonic acids may be partially clarified by oxidation to the sulfobenzoic acids. The identity of the *o*-, *m*- and *p*-sulfobenzoic acids may be determined by conversion to the acid chlorides and to the amides.⁴ This involves separation and drying of the salts of the sulfobenzoic acids, and the somewhat tedious conversion to the chlorides with a phosphorus halide. The use of S-benzylthiuronium chloride as an analytical reagent for sulfonic acids⁵ has recently been reported. Since the benzylthiuronium derivatives are prepared in water solutions, the use of this reagent should give a quick and easy method for the identification of the oxidation products of alkylbenzenesulfonic acids and related compounds.

The S-benzylthiuronium salts of *o*- and *p*-sulfobenzoic acid were obtained in good yield from water solutions of the acid sodium or ammonium salts, but the derivative of the *m*-sulfobenzoic acid was found to be quite soluble in water, and could not be isolated conveniently. The *o*-sulfo-

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(4) Beilstein's "Handbuch," 4th ed., Vol. XI, p. 369.

(5) Chambers and Watt, *J. Org. Chem.*, **6**, 376 (1941).