

1927

New Halogenated Derivatives of Vanillin

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Recommended Citation

Raiford, L. Chas. and Stoesser, W. C. (1927) "New Halogenated Derivatives of Vanillin," *Proceedings of the Iowa Academy of Science*, 34(1), 219-220.

Available at: <https://scholarworks.uni.edu/pias/vol34/iss1/48>

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ures of each solvent with each of the remaining solvents. The mixed solvents were made on a mol fraction basis.

The specific rotation was found to be dependent on the composition of the mixed-solvent, upon the concentration of the ester and upon the temperature. It was also found to be influenced by the nature and proportions of the two solvents forming the binary mixture.

STATE UNIVERSITY,
IOWA CITY.

THE NEWLY COMPLETED WATERWORKS OF THE CITY OF ONEIDA, NEW YORK

NICHOLAS KNIGHT

The supply comes from Florence Creek, 22 miles north of the city. A 20-inch main conveys the water. The watershed contains 17 square miles, very sparsely settled and the danger from contamination is slight. There is an unusual amount of precipitation in that section of New York State, and in the driest year of recent times, the rainfall was 41.28 inches.

A dam 400 feet long and 50 feet high, near the village of Taberg will impound the water, 200,000,000 gallons. It is estimated that this would furnish the city a three months' supply, should no rain fall during the period.

The paper contains a complete chemical analysis of the former supply which was unusually hard in CaSO_4 ; and also an analysis of the new supply which is unusually soft and pure. Both analyses were made in the Cornell College laboratories.

Oneida is a manufacturing city and it is already experiencing quite a boom on account of the quantity and excellent quality of its water supply.

CORNELL COLLEGE,
MT. VERNON, IOWA.

NEW HALOGENATED DERIVATIVES OF VANILLIN

L. CHAS. RAIFORD AND W. C. STOESSER

Carles [Bull. Soc., Chim., 17, 14 (1872)] prepared a monoiodo-vanillin in 1872, but did not prove its structure. Tiemann and Haarmann [Ber., 7, 615 (1874)] obtained a monobromo derivative that was shown by Dakin [Am. Chem. J., 42, 473 (1909)]

to have the halogen in position 5 ($\text{CHO} = 1$). Peratoner [Gazz. Chim. Ital., 28 (1) 235 (1898)] reported a monochloro compound in which the halogen was not oriented, but which may be a 5-derivative. The only dihalogenated vanillin on record is a diiodo compound obtained by Carles, for which no melting point was given, no derivatives prepared, and in which the halogen atoms were not oriented.

In the present work we have obtained the two remaining monobromo compounds, the 2- and 6-derivatives, and two of the possible dibromo substitution products, the 2, 5- and the 5, 6-compounds. Both mono- and dihalogenated compounds have been characterized by the study of several derivatives. All halogenated vanillins condense with amino compounds. No one of them has yet been found to undergo the benzoin condensation. Only one of the stereoisomeric oximes required by theory has been obtained in any case. The nitril obtained from the 5, 6-derivative, viz., 3-methoxy-4-hydroxy-5,6- dibromobenzonitril, resists hydrolysis with alkali to an extraordinary degree.

STATE UNIVERSITY,
IOWA CITY, IOWA.

EFFECT OF SUBSTITUENTS IN THE FORMATION AND REACTIONS OF CERTAIN ETHERS

L. CHAS. RAIFORD AND GARRETT THIESSEN

In a previous report on this study it was found by Raiford and Colbert [Jour. Am. Chem. Soc., 48, 2652 (1926)] that the presence of a nitro radical in diphenyl ether interferes with the entrance of bromine to a much greater degree than could have been predicted on the ground of steric hindrance. Owing to lack of time the structures of several derivatives prepared to test this view were left undetermined, for future study. In the present study these have been determined in several cases and a number of other new halogenated derivatives prepared. These experiments have been conducted in the presence of aqueous alkali, a method which was in part standardized and designated in the previous work as the "wet method." In the present work this process has been shown to be capable of two modifications, each with somewhat specific applications which can, in general, be predicted.

A second point of interest in this work is the structure of the