[CONTRIBUTION FROM THE MEAT INSPECTION LABORATORY, BUREAU OF ANIMAL INDUSTRY]

BOA CONSTRICTOR FAT

BY ROBERT H. KERR

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I. Source and Preparation of Material

The material used was obtained from the carcass of a large boa constrictor which had died from natural causes at the National Zoölogical Park, and consisted of egg-shaped masses of fat located along the intestines. These were chopped into fine bits, a small amount of sodium bicarbonate was added to the hashed mass and the whole heated over a free flame with constant stirring to a temperature of 125°. After being held at this temperature for a few minutes the rendered fat was filtered through a large folded filter. The rendered fat was a clear liquid of faint yellow color, and a peculiar and somewhat unpleasant odor. When cold it was a soft, yellowish solid.

II. Analysis of the Rendered Fat

M. p.	28.5°	Specific gravity at 100° (water at 15.5 = 1)	0.8629
Iodine no. (Hanus)	79.43%	Saponification no.	196.83%
Iodine no. of liquid fatty acids	113.17%	Free fatty acids	0.17%
Refractive index at 40°	1.4619		

Identification of Unsaturated Acids

(a) **Highly Unsaturated Acid.**—The liquid fatty acids were dissolved in a mixture of equal parts of glacial acetic acid and ether, and bromine was added to the development of a permanent red color. A white precipitate appeared at once. This was filtered off and washed with cold ether. It proved to be insoluble in boiling ether, but was sparingly soluble in boiling benzene. It did not exhibit a definite melting point but turned brown and decomposed at 180–190°. As the amount of the material was not sufficient for further investigation, a larger amount was prepared by brominating the mixed fatty acids obtained from 10 g. of the fat. The precipitate was found to be insoluble in ether, alcohol and chloroform, and sparingly soluble in hot benzene. It decomposed at 180–190°. Analysis showed that it contained 70.15% of bromine. The bromine content corresponds to that of octobromostearic acid, indicating the presence of an acid corresponding to the formula $C_{18}H_{28}O_2$.

(b) **Linolic Acid.**—After the removal of the precipitate of octobromostearic acid, the acetic acid and excess of bromine were removed from the ether solution of the brominated acids by shaking in a separatory funnel with a solution of potassium iodide and sodium thiosulfate and then washing thoroughly with water. The ether was then evaporated and the residue dried in a vacuum. The dried residue was treated with successive small portions of ice-cold petroleum ether and the insoluble portion carefully washed with cold petroleum ether and finally dried. The residue was white and granular. It exhibited all of the characteristic properties of tetrabromostearic acid, including melting point and neutralization value, thus showing the presence of linolic acid.

(c) **Oleic Acid.**—The presence of oleic acid was demonstrated by examination of the residue remaining after the removal of the octo- and tetrabromostearic acids from

the brominated liquid acids. The physical characters, solubility and bromine content of this residue corresponded to those of dibromostearic acid.

Solid Acids

The separation of liquid and solid fatty acids by the lead salt-ether method gave 33.13% of solid acids, melting at 41.2° and having a mean molecular weight of 282.96, the latter being calculated from the neutralization value.

By fractional precipitation with magnesium acetate and crystallization from alcohol, two fractions melting at 64.0 and 58.0°, respectively, were obtained. Neutralization gave a calculated mean molecular weight of 281.7 for the fraction melting at 64.0° and of 264.6 for the portion melting at 58.0°. The quantity of material was not sufficient to permit the preparation of pure acids.

Summary

A specimen of boa-constrictor fat was prepared and examined. The unsaturated acids were found to consist of oleic acid, linolic acid and a highly unsaturated acid which formed an insoluble bromo addition product, tentatively identified as octobromostearic acid. The saturated acids evidently consisted of palmitic and stearic acids.

WASHINGTON, D. C.

[CONTRIBUTION FROM THE SECTION OF BIOCHEMISTRY OF THE MAYO FOUNDATION]

SOME HALOGEN AND HYDROXYL DERIVATIVES OF 2-OXO-DIHYDRO, 2-OXO-HEXAHYDRO-INDOLE-3-PROPIONIC ACID, AND OF 2-OXO-HEXAHYDROBENZOFURAN-3-PROPIONIC ACID

BY EDWARD C. KENDALL AND ARNOLD E. OSTERBERG

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The preparation of 2-oxo-hexahydro-benzofuran-3-propionic acid has been described.[1] If this compound is treated in dilute aqueous hydrobromic acid with bromine, a monobromo derivative can be separated (I). If a solution of the sodium salts of the lactone is treated with bromine a monobromo derivative of the lactone crystallizes from solution (II). These two monobromo derivatives are not identical; the one prepared from the sodium salt has the percentage composition of a monobromo derivative of the lactone. However, it is a neutral compound possessing no acidic properties although the carboxyl group in the original lactone requires one equivalent of sodium hydroxide for its neutralization.

[1] Kendall, Osterberg and MacKenzie, THIS JOURNAL, **48**, 1384 (1926). The indole nucleus is referred to by the following numbers, and the open pyrrolidine ring compounds are numbered in the usual manner for aromatic derivatives.