2,188,863-4; 2,189,661; 2,197,153; 2,197,263; 2,197,433; 2,206,025; 2,212,020-1; 2,212,189; 2,213,943; 2,216,711; 2,223,127-30; 2,223,473; Brit. 509,097; 509-976; Dutch 47,234; Ger. 684,660; 684,821; 684,967; Cl. 23c; Russ. 51,901; 56,128.)

Corrosiveness and sludge formation in lubricants was decreased by reacting the oil with lecithin and triphenyl phosphite at 350° F. (Musher—*U.S. 2,223,941*). The pour depressors for lubricants which were derived from fats and were patented during the year included a reaction product of chlorinated paraffin wax with stearic acid (Cole—*U.S. 2,183,009*), phosphoric acid salts of fat acids (Jordan—*U.S. 2,185,592*) stearylated coumarone or indene compounds (Ralston and Hoffman—*U.S. 2,197,712-3; National Petrol News 31,* #6, 150R) and reaction products of fatty alcohols and cyclic carboxylic acids (Rosen—*U.S. 2,199,187*).

Experiments on producing gasoline-like fuel by cracking cottonseed oil, cottonseeds and mixtures of cottonseeds and oil showed that the best yields were obtained by cracking whole seeds (Lo—*Science, China 24,* 127). Many catalysts were tried without obtaining increased yield. However, the catalysts hastened the reaction. Data on cracking coconut, peanut, sesame and mowrah oils were also tabulated (Dalal and Mehta—*J. Indian Chem. Soc. Ind. & News Ed. 2,* 213). Zinc chloride catalyst was reported most effective for accelerating the process.

A patented process of converting fats into petroleum oil comprised heating the fats in the presence of soda lime and formaldehyde (Bouffort—*Fr. 844,105*).

The production of synthetic fat acids from hydrocarbons was discussed by Meyer (*Riechstoff Ind. Kosmetck 15,* 1, 191), Wittka (*Soap 16,* #8, 28, #9, 34), Burwell and Camelford (*Natl. Petrol. News 31,* 424R). In a new patent (Henkel & Cie.—*Fr. 842,261*) the oxidation of hydrocarbons to fat acids by mixtures of chlorine with other oxidizing gases was claimed. New methods of removing synthetic fat acids from reaction mixtures were by washing with alkali (Lazar—*U.S. 2,196,421*), by use of selective solvents (Leithe—*U.S. 2,193,321*) and by saponification followed by distillation of the non-reacted constituents.

The Isolation of Sucrose from Tung Kernels

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IN the course of studies on the physiology of the tung tree, analyses have shown neither starch nor free reducing sugar present in mature tung kernels (Aleurites fordi Hemsl.). However, non-reducing sugar was found in moderate amounts. A search of the literature (1, 2) disclosed no report on the isolation of a non-reducing sugar from this oil bearing fruit. Consequently, it was of biological importance to identify this sugar. It was isolated in a crystalline state from an alcoholic extract of tung kernels and identified as sucrose. Its melting point, rotation and derivatives agree with those recorded in the literature for sucrose.

EXPERIMENTAL

3730 gms. of tung kernels were flaked on an inverted jack plane (3). They were then placed in a muslin bag and defatted in a large Soxhlet unit with 20 litres of petroleum ether for 36 hours. The petroleum ether was drained off and the extraction apparatus charged with 20 litres of 80% ethanol. Extraction was continued for 12 hours followed by recharging with fresh solvent and extracting for another 12 hours. The alcoholic extracts were combined and concentrated to about 6 litres at 40-45° C. and 20 mm. pressure. The solution was clarified of proteins by precipitation with saturated neutral lead acetate. The precipitate was filtered on a Buchner funnel through an asbestos mat. The solution was concentrated to a litre and the excess lead acetate removed by precipitation with hydrogen sulfide. The lead sulfide was filtered off on an asbestos mat on a Buchner funnel. The solution was concentrated to a thick syrup which was then taken up in glacial acetic acid. After seeding the solution with a crystal of sucrose and letting it stand in the refrigerator, the sugar crystallized in the form of rhomboids. These were collected on a Buchner funnel, washed thoroughly with absolute ethanol and dried in a vacuum desiccator for several days over potassium hydroxide and calcium chloride. The crystals were dissolved in water and the trace of acidity neutralized with calcium carbonate. The solution was filtered and the liquid concentrated to a thick syrup. This syrup was dissolved in ethanol and upon standing in the refrigerator, the sugar separated as crystals. It was recrystallized until a constant rotation was obtained. The yield was 30.5 gms. of sugar. The time required for the formation of the osazone (4) was 28 minutes which agrees very closely with that of the osazone of sucrose. The sugar acetate was prepared according to the method of Hudson and Johnson (5), and Lindstead, et al (6).

The following constants were obtained:

Decomposition point of sugar........185°C.
Rotation of sugar....... $[\alpha]^{25}_{D} = +66.6$ in water where C = 10 percent
Melting point of sugar acetate........86°C.
Rotation of sugar acetate...... $[\alpha]^{25}_{D} = +59.7$ in U.S.P. chloroform where C = 1 percent

From these constants it is evident that the isolated sugar is sucrose.

Summary

A non-reducing disaccharide has been isolated from the kernels of tung (Aleurites fordi Hemsl.) and identified as sucrose.

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