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The Antioxidant of Lettuce

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periments on the fatty acids of beef heart muscle and liver. The unsaturated acids were separated by two methods, crystallization of the bromine derivatives and fractional distillation of the methyl esters. The method of Armstrong and Hilditch was used for the oxidation of the unsaturated acids and the results obtained up to this time indicate that the first double bond nearest the carboxyl group is in the 9:10 position. Azelaic acid is the only dibasic acid which has been separated from the oxidation products. Evidence of the formation of other dibasic acids has been obtained, but these have not been identified as yet.

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THE MICRO DETERMINATION OF CITRIC ACID BY THE THUNBERG METHYLENE BLUE METHOD

ADRIAN C. KUYPER

The method depends on the specific property of citric acid as a hydrogen donator in accelerating the decolorization of methylene blue by an enzyme found in cucumber seed. It gives reliable results only when enzyme extracts are prepared in the same way and used at the same age. Sodium, calcium and hexose-diphosphate do not interfere unless present in concentrations higher than those found in the blood. Oxalic acid does interfere because it changes the minimum amount of citrate necessary for maximum speed of decolorization. The sensitivity is directly proportional to the amount of methylene blue present in the reaction tube.

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THE ANTIOXIDANT OF LETTUCE

H. S. OLCOVICH AND H. A. MATTILL

The unsaponifiable lipids of lettuce were fractionally crystallized from a number of organic solvents. The distribution of vitamin E was determined by the effects on female rats on a sterility producing ration; that of the antioxidant, by the capacity to prolong the

induction period of an autoxidizable fat mixture. The antioxidant could be separated by extracting a petroleum ether solution with 92% methyl alcohol. A concentrate of the antioxidant was secured by distillation in vacuo, and the compound crystallized from the fraction distilling from 160-180°. It was purified by crystallization from CHCl_3 . Formula: $\text{C}_{13}\text{H}_{14}\text{O}_5$, M.P. 142°. It contains one or more phenolic groups.

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