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## The Preparation of Colorimetric Standards

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**THE PREPARATION OF COLORIMETRIC STANDARDS**

FERRIN B. MORELAND

In colorimetric determinations it is often found when the color is developed that the standard and unknown differ too much for accurate readings. Usually this is remedied by beginning the determination again and using a different amount of standard or unknown sample. It would be quicker to increase the color by the addition of more standard directly to the paler of the two colored solutions, if it were known that the increase in color intensity were proportional to the amount of added standard. The present investigation established the proportionality between increased color and additional standard added after color has been developed according to the usual procedure, as follows: for the determination of phosphate (Fiske and Subbarow), with an error of less than 2%; of creatinine (Folin), with an error of less than 1%; and of ammonia (performed or from digestion of nitrogenous material) by nesslerization (Koch and McMeekin) within 5%. Uric acid added after the other reagents in the Christman and Ravvich modification of the method of Benedict and Franke, produces no color, hence the colored solution cannot be fortified in this determination.

BIOCHEMICAL LABORATORY

STATE UNIVERSITY OF IOWA, IOWA CITY

**THE ISOLATION OF NEW ANTIOXIDANTS  
FROM VEGETABLE FATS<sup>1</sup>**

CALVIN GOLUMBIC

Many vegetable oils owe their resistance to oxidative deterioration to the presence of natural inhibitors (inhibitols) such as the tocopherols. Equally important antioxygenic factors are the chroman-5, 6-quinones, the reduced forms of which have now been isolated from hydrogenated vegetable fat substrates by chromatographic adsorption on activated alumina. The adsorbed zone contained colorless antioxygenic substances, other than tocopherols, which lost their activity after acetylation but not after oxidation with ferric or gold chlorides. Concentrates obtained from the oxidized fractions, showed the qualitative chemical and spectral absorptive properties of the chroman-5, 6-quinones. The source of these highly colored o-quinones is thus their corresponding hydroquinones, 5-hydroxy tocols, and not tocopherols.

<sup>1</sup>Aided by a grant from Lever Brothers Company.