

protein nitrogen compounds which give much trouble in the defecation of the juice for sirup. l-leucin, d-l-asparagin, glutamin and aspartic acid have been identified. The acids found in the juice are aconitic, citric, oxalic, tartaric and malic. The hexoses decrease, and sucrose increases, as maturity approaches. In northern-grown cane the sucrose-hexose ratio is considerably lower than in southern-grown cane, and the total sugars are also much less. During the pre-maturation period the sorghum plant lays down a protein-cellulose framework, which is filled in with carbohydrate during the final maturation period. This carbohydrate is starch in the case of the seed head, and sucrose in the stalk. The removal of the seed heads prior to maturity hastens the production of sucrose in the stalk, but does not affect the total amount formed.

The physiology of germinating Juniperus seeds: D. A. PACK. (By title.) The *Juniperus* seed fails to germinate when put under ordinary germinating conditions. The changes, that prepare this seed for germination, are brought about by storing at 5° C. These changes are characterized as follows: an early and complete imbibition of water; a slow increase of the H⁺ concentration and total acid; evident changes in the stored food material; very slight increase of the respiration and oxidase activity; slow enlargement of the embryo with the development of internal stress; steady decrease in the viscosity of the seed coat; marked increase in catalase activity; and an increase in the vitality of the seed. A good percentage of germination follows at once upon the completion of these changes.

The biochemist on the hospital staff: FREDERICK S. HAMMETT. The paper pointed out the advantage which would accrue to medicine if the hospital biochemist were regarded as a coordinate member of the hospital staff, a specialist in a special field, rather than as a mere technician who makes routine analyses.

A spectrographic study of certain biochemical color reactions: G. L. WENDT AND T. TADOKORO. (By title.)

Studies of wheat flour grades. I. Electrical conductivity of water extracts: C. H. BAILEY AND F. A. COLLATZ. (By title.) The studies previously reported by one of us (SCIENCE, Vol. 47, pp. 645-647) were continued, and it was found that time and temperature of extraction affected the electrical conductivity of water extracts of wheat flour. The conductivity increased with the period of extraction, the proportional increase being

greater when the extraction was conducted at lower temperatures, and also with the lower grades of flour. The relative conductivity increased as the temperature of extraction was raised above 0° until 60° was approached, when it began to diminish. A standard procedure was adopted for comparing a number of flours containing from 0.40 per cent. to 2.38 per cent. of ash. The flour: water (1:10) mixture was held at 25° for exactly 30 minutes, centrifuged, and the conductivity of the clear liquid determined by means of a dipping electrode constructed for the purpose. When examined in this manner a remarkably close parallelism was observed between the conductivity and the ash content.

Studies of wheat flour grades. II. Buffer values of water extracts: C. H. BAILEY AND ANNA PETERSON. (By title.) The hydrogen-ion concentration of water extracts of various grades of wheat flour varies between rather narrow limits. Flours with an ash content of 0.45 per cent. yielded an extract (prepared by extracting a 1:5 mixture for 60 minutes at 25°) of Ph = 6.1, while the extracts of flours containing from 1.2 per cent. to 1.6 per cent. of ash had a Ph = about 6.4. The buffer values of the extracts of these flours varied greatly, however. Thus the addition of 10 c.c. of N/50 NaOH increased the Ph of patent flour extracts 3.3 (*i. e.*, to about 9.4) while the extract of lower grades was increased in some instances only 0.6 to .9 in terms of Ph. The increase in Ph is thus inversely proportional to the ash content, and the ratios are quite exact. The buffer value of extracts uniformly prepared is indicative of the grade of sound flours milled from normal wheat.

The preparation of certain monocarboxylic acids from sugars: I. K. PHELPS AND W. T. MCGEORGE.

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