

*The effect of conditions on the relation of seed plants to H-ion concentration of nutrient solutions:* B. M. DUGGAR. The results of work previously reported indicate that in the preparation of salt (or so-called mineral nutrient) solutions for the solution culture of seed plants under the most favorable conditions, consideration must be given to the hydrogen ion concentration as well as to salt proportions. The hydrogen ion concentrations of carefully prepared and analytically pure monobasic phosphates are for some plants near or above the critical point for growth maintenance. The effects of changes in the environment, especially temperature and humidity affect in no simple manner the response of the plant to changes in  $P_H$ . The optimum  $P_H$  like the optimum temperature may be represented by a considerable range of values and may be defined closely only in relation to other environmental conditions.

*The relation of dextrose to hydrogen ion concentration with B. Coli:* WILLIAM H. CHAMBERS. By correlating the property of *B. coli* to produce acid from dextrose with the property of alkali formation in dextrose-free bouillon, it was possible to control the hydrogen ion concentration of a growing culture within a narrow zone by the addition of small amounts of dextrose at frequent intervals. The initial amount of dextrose furnished determined the maximum hydrogen ion concentration attained. Reversion of reaction is demonstrated in bouillon with .3 per cent. or less of dextrose. Growth curves plotted from plate determinations show the inhibitory and lethal effects of alkali and acid.

*The determination of small amounts of chlorine in tissues:* RICHARD D. BELL and E. A. DOISY. A method, based on that of Neumann, is described for the rapid determination of 3-10 mg. of chlorine in tissues. The tissue is digested with sulfuric acid and persulfate and the gases absorbed in alkali. No cyanide is formed by this digestion process. The sulfur dioxide evolved reduces hypo-chlorite to chloride. The chlorides are precipitated with standard silver nitrate. The mixture is concentrated to a small volume, made up to 25 c.c. and filtered. The filtrate is titrated using the solutions of McLean and Van Slyke. For whole blood and plasma, the results agree with those obtained by Foster's modification of the method of McLean and Van Slyke.

*Pectin studies; I. Effect of pectin on the hydrogen ion concentration of acid and of alkaline solutions:* H. E. PATTEN and T. O. KELLEMS.

*The oxidation of acetoacetic acid by hydrogen peroxide in the presence of glucose:* P. A. SCHAFER.

*Influence of fermentation on the starch content of experimental silage:* A. W. DOX and LESTER YODER. A study of experimental corn silage at different stages of fermentation which was normal as regards development of aroma and changes in acidity, alcohol and sugar content, leads to the following conclusions: (1) Changes in total acidity, alcohol and sugar are independent of the starch content of the ensiled corn and of the silage produced from it. (2) The first intermediate products resulting from decomposition of starch are not present in demonstrable quantities. (3) The starch content remains constant throughout the fermentation process. (4) The starch granules remain intact, undergoing no physical change that can be detected by microscopic examination.

*Water-soluble B vitamins: II. Are the antineuritic and the growth-promoting vitamins the same?* A. D. EMMETT and MABEL STOCKHOLM. In previous work in feeding pigeons and young rats the same basal diet as the only source of water-soluble B vitamins, we found that the antineuritic vitamin (pigeons) and the growth-promoting (rats) were not the same. In further studies, carried out on yeast, rats and pigeons, it has been ascertained, by using the Williams quantitative yeast method, that the "vitamine" that stimulates growth in the yeast cell is not antineuritic, as has been claimed, but simply growth-promoting. Further, this "vitamine" apparently has very little if anything to do with the growth of the rat. Therefore, the water-soluble B vitamins appears to be much more complex than many have been led to believe.

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Secretary

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