The general results show decrease in the amount of digestion of starch by the fungus in the presence of low concentrations ($M/10,000$ and $M/100,000$) of the chlorides and sulphates. The view is taken that the decreased digestion is caused by decreased secretion of diastase rather than by inhibition of the activity of secreted diastase. Potassium salts decrease secretion more than corresponding sodium salts. Experiments with nutrient solutions instead of single salts showed the same general effect, decreased secretion. No evidence was found to support the idea that calcium or potassium is intimately related to diastase formation. On the other hand, nitrogen may possibly have some relation to enzyme formation. Nitrates added singly increase the actual amount of starch digestion, but since the mycelial growth is much increased, there is really less digestion per unit of dry weight of mycelium.—C. A. SHULL.

Reaction of the medium and nitrogen assimilating organisms.—FRED and DAVENPORT¹⁷ have studied the relation of the legume bacteria and *Azobacter* to low concentrations of acids and alkalis. When sulphuric acid was added to the nutrient solutions, the following hydrogen ion concentrations were found to be critical for the various legume organisms: alfalfa and sweet clover, P_H 4.9; garden pea, field pea, and vetch, P_H 4.7; red clover and common beans, P_H 4.2; soy beans and velvet beans, P_H 3.3; lupines, P_H 3.15. The authors believe a correlation exists between the acid resistance of the bacteria and the acid resistance of the higher plant with which they are associated. These organisms are not injured by normal alkali additions to the culture medium until the addition is about 10 times that of sulphuric acid producing injury. There seems to be little difference in the several strains as to the alkali resistance.

Azobacter is limited to a much narrower range of reaction than are the legume organisms, the critical limits being 6.5 P_H for acid and 8.6 P_H for alkali. It is to be regretted that the reaction was not determined by the gas chain as well as by the colorimetric method.—WM. CROCKER.

Transpiration.—DUGGAR and BONNS¹⁸ have issued a third paper from the Missouri Botanical Garden on the effect of a film of Bordeaux mixture and other films on the transpiration of leaves. In potted mesophytes such a film increases generally the transpiration at night, but has less or no effect during the day. Similar behavior is shown by excised leaves. In *Cyperus esculentus*, a plant of xerophytic surface modification, such films have no effect on transpiration rate. The writers offer as tentative the following explanation: the film of Bordeaux mixture on the surface of a plant in a state of guttation acts more or less as a bibulous surface, taking water directly from the interior of the plant, through at least some continuous water channels

¹⁷ FRED, E. B., and DAVENPORT, AUDREY, Influence of reaction on nitrogen-assimilating bacteria. Jour. Agric. Research 14:317-336. 1918.

¹⁸ DUGGAR, B. M., and BONNS, W. W., The effect of Bordeaux mixture on the rate of transpiration. Ann. Mo. Bot. Gard. 5:153-176. 1918.

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