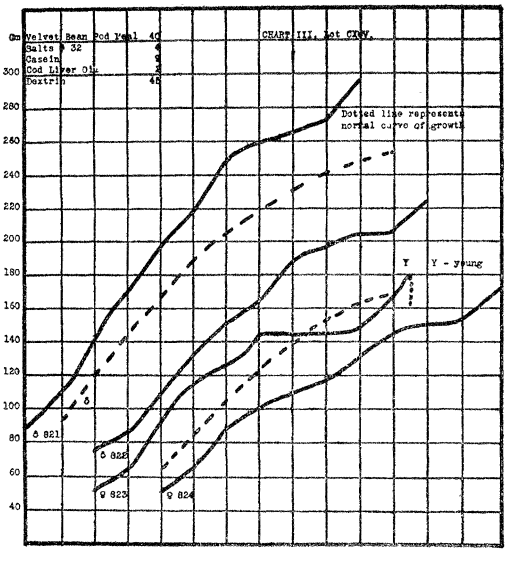
CONCERNING THE VITAMIN B CONTENT OF THE VELVET BEAN

THE question as to whether or not the seed of the velvet bean contains vitamin B in any appreciable quantity has recently been raised by Dr. E. R. Miller,[1] of the Alabama Station, and still more recently by Professor W. D. Salmon, of the South Carolina Experiment Station. In SCIENCE for September 29, 1922, Professor Salmon reports the results of certain experiments in which three groups of mature pigeons suffered ill consequences in a strikingly short period of time when they were fed ground raw velvet bean seed. The statement is also made that the results of certain experiments indicate at least a small quantity of the B vitamin in the velvet bean.

Sure and Read, in their paper reporting the "Biological analysis of the seed of the Georgia velvet bean" which appeared in the *Journal of Agricultural Research* for October 1, 1921, Vol. XXII, No. 1, called attention to the high degree of toxicity of the raw ground velvet beans when fed to rats. Young rats weighing from 40 to 90 grams existed only from 7 to 12 days on a diet composed solely of ground raw velvet bean seed and a liberal supply of distilled water. Miller[2] had previously pointed out that the toxicity of the velvet bean may be due to the presence of dihydroxyphenylalanine. In our paper we reported that the concentration of vitamin B in the seed, exclusive of the tough seed coats and also the seed pods, was low. In a recently completed study of the biological value of velvet bean meal (*i. e.*, the beans and pods ground together) the writer has found that the velvet bean meal carries a good concentration of the B vitamin, even after autoclaving for one hour at 15 pounds pressure. This is shown in the growth curves given in the figure.



This chart shows the growth of young rats on a ration carrying 40 per cent. autoclaved velvet bean meal as the only source of vitamin B. This ration contained all the other dietary essentials in satisfactory amounts.

These experiments show that vitamin B is relatively abundant and stable towards heat in the thick seed pods of the velvet bean, but is of rather low concentration in the seed.

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[1] Do velvet beans contain Vitamin B? Paper presented by Dr. Miller before the Division of Agricultural and Food Chemistry at the April (1922) meeting of the American Chemical Society, Birmingham.

[2] Miller, Emerson R., "Dihydroxyphenylalanine, a constituent of the velvet bean," *Jour. Biol. Chem.*, V. 44, No. 2, p. 481-486, 1920.

THE AMERICAN CHEMICAL SOCIETY

(Continued)

DIVISION OF ORGANIC CHEMISTRY. III.

New methods of splitting pyrimidines. The action of hydrogen peroxide and of sodium pentacyano-aquo-ferroate on thymine: OSKAR BAUDISCH and LAWRENCE W. BASS. Previous experiments have shown that the system $FeSO_4$ + $NaHCO_3$ + air splits thymine with the formation of urea, acetol and pyruvic acid. The observation was made that the same products are obtained, but in different quantities, by using hydrogen peroxide, either alone or with traces of ferrous salts. The splitting of thymine by sodium pentacyano-aquo-ferroate yields pyruvic acid alone or pyruvic acid with traces of acetol. These facts are important for explaining the mechanism of the reaction.

New methods of splitting pyrimidines. The action of iodine solution and sodium bicarbonate on thymine: OSKAR BAUDISCH and LAWRENCE W. BASS. By the action of an aqueous solution of iodine and potassium iodide in the presence