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M. M. SHEMYAKIN'S WORK ON ANTIBIOTICS

Shemyakin has published a great number of original scientific investigations which deal with various problems of organic chemistry. Of great importance is the theory of the hydrolytic splitting of the C-C bond, which was discovered by him; it disclosed the causes, character, and mechanism of many commonly encountered types of chemical conversions. One must emphasize that on the basis of this theory Shemyakin succeeded in explaining many important transformations of the following antibiotics: actidione, humulone, the streptomycins, and others. In connection with this work, the explanation of the formation of maltol from streptomycin is particularly interesting, because it clarifies the transition from straight-chain carbohydrates to branched carbohydrates. From the standpoint of the same theory, Shemyakin explained the nature of the reactions of transamination and alpha-decarboxylation of amino acids, beta-decarboxylation of aminodicarboxylic acids, the fission of gamma-keto-alpha-amino acids, and many other biochemical transformations.

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Among other theoretical investigations done by Shemyakin one may note his research on the chemistry of aldehyde acids, which has elucidated completely the structure of these compounds and has enabled him to find general methods for the transformation of aldehyde acids into compounds of the quinoline and isoquinoline series. In connection with this work he first investigated the thermal decomposition of salts of aldehyde acids, and then of salts of carboxylic acids in general. Also important is Shemyakin's work in the field of other carbonyl compounds, particularly quinones, which has culminated at present in the development of a general method for the conversion of quinones and their derivatives into diketocarboxylic acids, hydroxydiketocarboxylic acids, and triketocarboxylic acids of the alicyclic and aromatic series.

Of great practical interest is Shemyakin's work in the field of sulfa drugs, on the preparation of soluble sulfonamides, etc. His investigations in the field of vitamin chemistry have yielded very valuable results. Shemyakin has studied in particular detail problems pertaining to tautomeric transformations in the vitamin B₆ group and clarified the significance of pyridoxal phosphate in amino acid metabolism.

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