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HYDRAZONES*

Reviewed by K. N. Zelenin

This monograph by Kazan chemists for the first time correlates data on the structures and properties of a voluminous and, in practice, frequently encountered class of substances - hydrazones. The book contains data up to the start of the 1970's. Many of the diverse transformations of hydrazones are associated with the chemistry of heterocyclic compounds, and the collected data, which are supported by a comprehensive bibliography, should be of undoubted interest to specialists in this field. In particular, in this book one can find definite comparisons of hydrazones with their cyclic isomers - diaziridines. A chemist investigating the problems of heterocycle-linear structure equilibrium will find in it information on the ring-chain tautomerism of functionally substituted hydrazones. The contents of 9 of the 12 chapters all devoted to the principal known types of reactions of hydrazones, many of which lead to closing to a heterocycle. Reactions involving cycloaddition, oxidative cyclization, etc. are singled out in sections within the chapters, and the problem of the indolization of hydrazones is represented by a special chapter. Thus the reader who is interested in theory has the possibility of familiarizing himself with mechanisms, while the synthetic chemist is able to familiarize himself with the scope of the application of numerous condensations of hydrazones, which are important variants of the synthesis of five- and six-membered nitrogen heterocycles (pyrroles, indoles, pyrazoles, indazoles, tri- and tetrazoles, tri- and tetrazines, etc.).

Heterocyclizations of not only the hydrazones themselves but also with substances generated from them - 1,3-dipolar addition of nitrilimines, 1,4-cycloaddition of azoolefins, etc. - are described in the book.

The authors have also included azines, amidrazones, hydrazidines, and formazans in the hydrazone class, and this made it possible to appreciably expand the scope of the discussed reactions and to correlate some properties of similar structures. At the same time, the restriction of the selected compounds only to derivatives with no more than one nitrogen atom of the hydrazine grouping in the nonaromatic ring has excluded the possibility of comparison of the hydrazones with their cyclic analogs. A researcher specializing in heterocycles would also like to have systematized information on the effect of the hydrazone grouping on heterocycles.

One merit of the book is the presentation in it of data on the practical application of hydrazones, including heterocyclic hydrazones, as complexons or medicinal preparations. The problems of the biological activity of hydrazones are discussed in a separate chapter, from which one can secure orientation for the specific syntheses of medicinals with tuberculostatic antimicrobe, bactericidal, antiviral and other types of activity.

* Nauka, 1974.

Translated from *Khimiya Geterotsiklicheskikh Soedinenii*, No. 10, p. 1437, October, 1975.

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