

NEW BOOKS

Tetsuji Kametani

THE CHEMISTRY OF THE ISOQUINOLINE ALKALOIDS *

Reviewed by O. S. Otroshchenko
and M. K. Yusupov

The isoquinoline alkaloids are widely represented in numerous forms of plants of various families that are present over the entire earth. All of the new groups of isoquinoline bases that contain carbon-nitrogen skeletons of various degrees of complexity have presently been detected in plants. The chemistry of isoquinoline bases is extremely vast, and it can be asserted that it constitutes the most substantial part of the chemistry of alkaloids. In addition to chemical studies, problems in biogenesis are under investigation, and the pharmacology of isoquinoline alkaloids is being developed. Many of them have found application in medicine.

Nevertheless, there are no fundamental monographs or handbooks on the isoquinoline bases in the world's literature, and the publication of this book by Professor Kametani, who has done so much research in the chemistry of isoquinoline alkaloids, should therefore be considered to be extremely timely.

The book is of the handbook variety and contains general information regarding the structures of isoquinoline alkaloids, classification and biogenesis, and biosynthesis and total synthesis (a total of 57 pages). The material is set forth briefly yet at the same time encompasses the principal research in the field of isoquinoline alkaloids, including research accomplished in recent years. The major portion of the book (pp. 61-350) consists of tabulated data in which, in accordance with the classification with respect to groups, the names of alkaloids, their producers, empirical compositions, melting points, $[\alpha]_D$ values, molecular weights of the salts, and structures are presented. In addition, the literature references to the primary sources with respect to spectral data, synthesis, and biosynthesis are indicated for each alkaloid. This allocation of the material, which makes it convenient for the reader, makes it possible to readily obtain the necessary information for any alkaloid that is of interest to him.

A total of 1481 literature sources with respect to 26 groups of alkaloids of the isoquinoline series with various degrees of complexity were used in the book.

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V. A. Kopytug (Editor) *

HANDBOOK OF THE LITERATURE
ON MOLECULAR SPECTROSCOPY
(BIBLIOGRAPHIC DESCRIPTION) †

This handbook contains a systematized description of the atlases, catalogs, and card indices on molecular spectroscopy available in the world literature and indicates the most effective ways to obtain information during the establishment of the structure of an unknown substance. The handbook consists of four chapters.

The handbook literature on IR spectroscopy (absorption spectra) of organic and inorganic substances is presented in the chapters dealing with vibrational spectroscopy (by I. K. Korobeinicheva and V. S. Bochkarev). Special attention is devoted to the Sadtler atlases, for which the principles of compilation of indexes (alphabetical indexes, formula indexes, indexes of classes of chemical compounds, etc.) are examined in detail, typical punch cards of the indexes of various spectral catalogs are described, and an interpretation in their case is given. Handbooks on spectral-structural correlations for IR spectroscopy are described, and the handbook literature on Raman spectra is examined somewhat more concisely. Thus a total of more than 100 names of monographs, collections, catalogs, review papers, etc. are presented.

Fundamental information on atlases and collections of absorption spectra (considerable attention was also devoted to Sadtler's catalog of a general type) are set forth in the chapter dealing with absorption spectroscopy in the UV and visible regions (by V. A. Bushmelev), and atlases and collections of spectra of individual classes of compounds or groups of substances are described. It is noted that there is a special catalog of spectra of heteroorganic compounds [see G. F. Bol'shakov, Z. S. Vatago, and S. B. Agrest, Ultraviolet Spectra of Heteroorganic Compounds [in Russian], Khimiya, Leningrad (1969)], in which one can find a great deal of information on the spectra of oxygen, sulfur, and nitrogen heterocycles. Special attention is given to the tables of spectral data published by several firms and indexes of literature sources. More than 50 handbook publications are examined in this chapter. Reviews on the UV and IR spectroscopy of heterocycles published in the book Physical Methods in the Chemistry of Heterocyclic Compounds [edited by A. R. Katritzky, Khimiya (1966)] are noted and characterized in both chapters.

The third chapter (by M. I. Podgornaya) is devoted to NMR spectroscopy. Catalogs, handbook tables, and indexes of the literature on PMR spectra are described, after which the handbook literature on F^{19} spectra and, finally, material on P^{31} and C^{13} magnetic resonance spectroscopy are characterized more concisely. A description of the encoding of the structural environment of proton-containing groups in the Sadtler and Varian catalogs is placed after the list of literature sources (21 citations) in the form of an appendix. In view of the fact that the handbook publications on UV and IR spectra are considerably more widespread and consequently more well known to spectroscopists, a more detailed description of catalogs and the principles of their use is given in this chapter, a rather large number of examples are presented, and typical pages from these catalogs that make it possible for the reader himself to decipher the material without having to resort to the use of a library are described. Tables of code designations that have been adopted in these catalogs are specially singled out, and the structure of the indexes is examined.

The book concludes with a chapter on mass spectrometry (by M. I. Gorfinkel' and L. Yu. Ivanovskaya), in which the reader finds a description of the principal catalogs of the mass spectra of organic compounds, indexes of the current literature, and supplementary tables (tables for the determination of the intensities of isotopic lines and the compositions of molecular and fragment ions). The literature examined in this chapter includes 25 titles.

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