

**ALKALOIDS. PLANTS, STRUCTURE, PROPERTIES.
DEDICATED TO THE MEMORY OF ACADEMICIAN
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On the threshold of its 200th anniversary (the first alkaloid, morphine, was isolated from a plant in 1806) alkaloid chemistry is experiencing a period of vigorous development. In contrast to other classes of natural substances, alkaloids are scarcely limited by structural frameworks and are united by the presence of a nitrogen atom in their molecules. This explains the multiplicity of plant bases, their considerable influence on the development of organic chemistry, and their unique place in practical scientific medicine.

The isolation of plant substances and the determination of their structures have been and remain priority tasks. The intensive accumulation and generalization of factual material is putting on the agenda the necessity for a more profound study and interpretation of the facts accumulated by researchers, which must involve the creation of hypotheses and theories, and then the discovery of new laws of nature. This review, drawn up by a group of authors of the Institute and reflecting the achievements of scientists of the former Union in the field of alkaloid study, is being called upon to serve this aim.

The flora of the former Union is extremely diverse. The discovery of new alkaloid-bearing plants, the study of the alkaloids isolated and the determination of their structures, and the creation of valuable medicinal preparations from them is of great scientific and practical value. The authors have set themselves the task of concentrating the physicochemical characteristics of alkaloids that are necessary to the researcher in his daily scientific work and that are scattered in numerous, sometimes poorly accessible, journals.

The review has been compiled from literature reports on the investigation of the alkaloids of plants, of a small number of callus tissues, and of microorganisms that have been published in the journals of the former USSR up to 1994 and unpublished results of the authors. It consists of two chapters. The first chapter gives information on 634 plant species known to contain alkaloids of established structure. References to the literature are given at the end of each family. The names of the taxons given in the original papers have been retained, the authors of such taxons and names in parentheses are given after S. K. Cherepanov (*Vascular Plants of the USSR* [in Russian], Nauka, Leningrad (1981)).

In the second chapter, 1294 alkaloids are described in alphabetical order, with the names of the producing plants, structures, characteristic derivatives, physicochemical details, and pharmacological properties, with references to the original papers. UV spectra were taken in ethanol [λ_{max} , nm, log ϵ], and ^1H and ^{13}C NMR spectra in deuteriochloroform (δ -scale, J, Hz), except where otherwise mentioned.

In the majority of cases, generally accepted abbreviations have been used.

Below we give abbreviations of the most commonly encountered literature sources:

CNC — *Chemistry of Natural Compounds* [Khimiya Prirodnikh Soedinenii].

The Alkaloids — *The Alkaloids. Chemistry and Physiology*, R. H. F. Manske (ed.), Academic Press, New York (1950-1981), Vol. 1-20; A. Brossi (ed.) (1983-1986), Vol. 21-27.

Boit — H. G. Boit, *Ergebnisse der Alkaloid-Chemie bis 1960*, Akademie-Verlag, Berlin (1961).

Holubek — J. Holubek and O. Strouf, Spectral Data and Physical Constants of Alkaloids, Prague. Publishing House of the Czechoslovak Academy of sciences, Heyden, London (1965), Vol. 1; (1966), Vol. 2; (1968). Vol. 3; (1970), Vol. 5; (1972), Vol. 7.

Mashkovskii — M. D. Mashkovskii, Drugs, Parts 1 and 2 [in Russian], Meditsina, Moscow (1984).

Pelletier — S. W. Pelletier, N. V. Mody, B. S. Joshi and L. C. Schram in: Alkaloids. Chemical and Biological Perspectives. S. W. Pelletier (ed.), John Wiley, New York (1984), Vol. 2.

Saritdinov — F. S. Saritdinov and A. G. Kurmukov, The Pharmacology of the Plant Alkaloids and Their Use in Medicine [in Russian], Meditsina UzSSR, Tashkent (1980).

Sadykov — A. S. Sadykov, Kh. A. Aslanov, and Yu. K. Kushmuradov, Alkaloids of the Quinolizidine Series [in Russian], Nauka, Moscow (1975).

Shamma — M. Shamma and D. M. Hindenlang, Carbon-13 NMR Shift Assignments of Amines and Alkaloids, Plenum Press, New York–London (1979).

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