Diterpene Alkaloids. Determination of Basicity Constants

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Diterpene alkaloids are selectively accumulated in plants of the *Aconitum, Delphinium, Carrya* and *Thalictrum* genera. The interest in this alkaloids and the area of their application are ever increasing. Diterpene bases are subdivided into two categories: the ones based on C_{19} skeleton and those based on C_{20} skeleton.

The main goal of the present work is to investigate the basic properties of the alkaloids isolated by us from *Aconitum baicalense* as well as of aconitine and lappaconitine since these characteristics are of great importance for the elucidation of factors responsible for their biological activity. In the literature there are only scarce data on the basicity constants of individual compounds, which are difficult to compare because they were prepared under unspecified conditions and determined in different solvents.

In the present study the basicity constants of alkaloids were determined using potentiometric titration with perchloric acid in acetonitrile. The alkaloids of structure C_{19} are represented by hypaconitine, mesaconitine, aconitine and lappaconitine, whereas those of structure C_{20} are represented by napelline and songorine. In the course of study the alkaloids of structure C_{19} have been found to be stronger bases than C_{20}.

The results obtained can be used in the isolation of alkaloids from plants, in reactivity evaluation as well as in combination with other physico-chemical characteristics (such as distribution coefficient) for a better understanding of the mechanism of penetration to receptors and in solving the problem of structure-activity relationship.