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The New Valuable Alkaloid Lagochiline

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LAGOCHILINE -- THE NEW VALUABLE ALKALOID

The Soviet science of alkaloids discovers and initiates the study of more and more new alkaloids derived from uncultivated raw materials. Some of them are of great interest in clinical practice.

Among the new alkaloids discovered in recent times, the so-called "lagochiline" was found to be most interesting due to its pronounced hemostatic properties. Lagochiline was discovered in the uncultivated, thorn-bearing shrub, Lagochilus inebrias Bge (Family of Labiates-Labiatae) by the Tashkent chemists G. V. Lazur'yevskiy and A. S. Sadykov as early as 1939 (3), but the study of its chemical nature is only now being undertaken (1).

Labiates were hitherto of interest mainly as essential oil yielding plants, and it is only at present that Soviet chemists are finding in representatives of this family new alkaloids, for three of which -- betonicine, stachydrine, and trigonelline -- the structure has already been established. These alkaloids contain the betaine grouping with a pentavalent nitrogen.

Lagochilus grows on rocky soil, and is found over small areas primarily within the Samarkand and Bukhara oblasts of the Uzbek SSR. Lagochilin is contained in the above-ground portions of this plant in amounts up to 0.5 percent. It is extracted with dichlorethane from the acidified raw material, and from the total extract obtained on neutralization of an acidic infusion with alkali, and crystallizes from water or aqueous alcohol in the form of colorless needles. The melting point is between 106 and 107

degrees Centigrade.

The empirical formula of lagochiline has been found to be  $C_{22}H_{40}N_2O_3 \cdot H_2O$ . On removal of the water of crystallization the base melts at 151 to 152 degrees Centigrade.

Lagochiline is optically inactive and is a very weak base which is incapable of forming salts with mineral acids. It is soluble only in strong acids and does not yield an iodine methy - late. These data justify the inclusion of lagochiline among alkaloids having a betaine grouping. In addition to lagochiline, lagochilus also contains other alkaloids such as inebirin -- not yet investigated even in a preliminary manner.

As has been demonstrated by pharmacological studies conducted at the pharmacological department of the Samarkand Medical Institute imeni Academician I. P. Pavlov, by the department head I. E. Akopov and associate I. I. Ibragimov (2), lagochiline preparations and extracts of lagochilus display very pronounced hemostatic properties on intravenous or subcutaneous administration to experimental animals -- mice, rats, rabbits, dogs, and cats. Tinctures of lagochilus have been tested by the authors also in the course of self-administered treatments and were thus found to be non-toxic to man within certain dosage ranges. In experiments with mice in which the tails of experimental animals were cut off following a subcutaneous injection of lagochiline, hemorrhages were decreased and their shortened by 10 to 20 times and even more, in contrast with control animals having received prior to amputation of the tail only an injection of physiological saline solution.

LITERATURE CITED

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