All the information given agrees with literature data for glaucine [3, 4]. TLC on a silica gel plate gave identical R_f values with an authentic sample in the benzene–methanol (4:1 and 9:1) and ethyl acetate–benzene–methanol (10:10:1) systems.

The base with mp 206-208°C (ethanol), M^+ 608 is hydroxyacanthine. Berberine was isolated from the combined chloroform-soluble bases in the form of the iodide.

Thus, five alkaloids have been isolated from the leaves of *B. integerrima*, the main ones being thalicdimine and glaucine.

The leaves of *B. nummularia* collected in the flowering phase in May, 1975 in Chimgan contained 0.052% of alkaloids, from which thalicmidine and isocorydine were isolated.

In the leaves of the three species of *Berberis* that we have studied, the main alkaloids are aporphine alkaloids. This is the first time that thalicmidine and isocorydine have been isolated from plants of the genus *Berberis*.

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ALKALOIDS OF *Ammopiptanthus mongolicus*

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UDC 547/945

We have investigated the alkaloid composition of the leaves of *Ammopiptanthus mongolicus* (*Piptanthus mongolicus*), endemic to Mongolia, collected in September, 1974, in the Ala-Shan Gobi. The usual chloroform extraction gave 2.5% of a mixture of the bases. When these were repeatedly separated according to their basicities, and the resulting fractions were separated further on columns of silica gel and also by the preparation of salts, nine individual alkaloids were isolated. About half the total was formed by a base isolated in the form of a perchlorate with mp 171-172°C. The base (I) obtained from the perchlorate formed an oil, $[\alpha]_D - 12.5°$ (c 4.2; ethanol) giving a picrate with mp 204-205°C, mol. wt. 234, main peaks with m/e 98 and 137 (100%). Judging from the facts given, compound (I) is sparteine (I).

Base (II) was isolated in the form of the hydriodide with mp 189-190°C and the perchlorate with mp 211-213°C, $[\alpha]_D + 44$ (c 3.4; H_2O). It formed a hydrochloride with mp 163°C. The base regenerated from the salts was an oil with mol. wt. 248 giving main peaks with m/e 136, 149. From these facts, compound (II) was identified as d-lupanine [1]. It amounted to 10% of the total alkaloids.

Base (III), mp 105-110°C, $[\alpha]_D - 67°$ (c 0.6; methanol); sulfate 258°C (decomp.) perchlorate 255°C, picrate 218-219°C (decomp.). Mass spectrum: 234 (M^+), 98 (100%), 137. Consequently, the base is α-isosparteine [2].

Base (IV) (mp 130-135°C), base (V) (mp 171-172°C), and base (VI) (mp 168-169°C) were isolated in very small amounts.

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Base (VII) amounted to 10% of the total and was isolated in the form of the perchlorate with mp 216-217°C; it is an oily compound giving a hydrochloride with mp 196-197°C and a hydriodide with mp 231-233°C.

Bases (VIII) and (IX) with mp 143-144°C and 174-175°C, mol. wt. 317 (homo derivatives with mp 187-188°C and 147-148°C, respectively) were identical with piptanthine and piptamine [1]. The piptanthine amounted to 10% of the total and the piptamine to 0.07%.

The last two alkaloids have been isolated previously from this plant [3], thus, in the separation of the combined alkaloids we isolated five known and four new bases.

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ALKALOIDS OF *Thalictrum strictum*. III

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Continuing a study of the alkaloids of *Th. strictum* [1], we have separated the mixture of bases from the leaves, seeds, roots, and rhizomes. A preparative chromatographic investigation showed that the combined alkaloids of the leaves, of the seeds, and of the epigeal part have similar qualitative compositions. By chromatographing the combined bases from the leaves on a column of alumina followed by preparative separation on plates with a fixed layer (silica gel—gypsum) we isolated argemonine (I), thalicmine (II), and 2,3,7-trimethoxy-N-methyl-8,9-methylenedioxypavinan (II) [2]. Similarly, from the seeds we obtained bases (I) and (III). From the ether-soluble alkaloids of the roots and rhizomes we isolated (II), thalicsimidine, an unidentified base A (IV) [1], and base (V). Alkaloid (IV) is inactive, mp 117-118°C (CH_3OH), and gives a hydrochloride with mp 202-203°C. The UV spectrum of (IV) (λ_{max} 264, 285, 313, 327, 348, 366 nm) is characteristic for the ethylaminophenanthrene bases. The mass spectrum of (IV) shows the peak of the molecular ion with m/e 353 and strong peaks of ions with m/e 295, 251, 209, 58 (100%). The NMR spectrum ($CDCl_3$, δ scale) has signals at 2.34 ppm (singlet, 3H, NCH_3), 2.5-3.35 ppm (multiplet, 4H, $-CH_2-CH_2-$), 3.85 and 4.02 ppm (two singlets, 3H each, $2OCH_3$), 6.04 ppm (singlet, 2H, CH_2O_2), 7.12 ppm (singlet, 2H, Ar—H), and 7.47 and 7.75 ppm (two one-proton doublets, J = 10 Hz). These facts have permitted the conclusion that the base (IV) is thalicthuberine, isolated previously only from *Th. thunbergii* [3]. A direct comparison of the R_f values and IR and NMR spectra of (IV) and of thalicthuberine* confirmed their identity.

Base (V) was isolated in the form of a viscous oil. UV spectrum of (V): λ_{max} 280, 305, 315 nm. A bathochromic shift was observed in an alkaline medium. The mass spectrum showed peaks of ions with m/e 371 $(M)^+$, 370, 356, 340, 328. In the NMR spectrum there were signals at 2.49 ppm (singlet, 3H, NCH_3), 3.80, 3.85, and 3.89 ppm (12H, $4OCH_3$), and 6.76 and 7.91 ppm (two one-proton singlets, Ar—H). The spectral characteristics and a comparison of them with literature data permitted the assumption that (V) is preocoteine [4]. To confirm this, we prepared the O-methyl ether of (V) and showed its identity with an authentic sample from

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*The sample of thalicthuberine and its IR and NMR spectra were kindly given to us by Prof. Tomimatsu (Japan).

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