

ALKALOIDS OF *Sophora alopecuroides*

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Various workers have previously isolated quinolizidine alkaloids of the matrine, sparteine, cytosine, and aloperine group from the plant *Sophora alopecuroides* L. [1-4]. In a study of this plant we have isolated another two, unidentified, alkaloids.

From 4.4 kg of the air-dry plant *S. alopecuroides* by the usual method we isolated 1.81% of combined alkaloids, which were fractionated by extraction with petroleum ether (0.49%), benzene (1.01%), and chloroform (0.3%). Separation of the chloroform fraction on a column of cellulose [butan-1-ol-hydrochloric acid-water (100:15:27) system] yielded a base 7 (0.02%), mp 68-70°C [$[\alpha]_D^{24} + 27.5^\circ$ (c 0.73; water) with R_f 0.68, mol. wt. 262 (mass spectrometrically), and a base 6 (0.076%), mp 164-165°C [$[\alpha]_D^{24} + 15.4^\circ$ (c 1.3; ethanol) with R_f 0.53, mol. wt. 264 (mass spectrometrically), and neosophoramine (0.08%), cytosine (0.026%), and matrine N-oxide (0.1%).

Base 6 with the composition $C_{15}H_{24}N_2O_2$ gave a mass spectrum with the peak of the molecular ion M^+ 264 (low intensity) [5, 6] and peaks of ions with m/e 248, 247 (100%), 205, 177, 151, 150, 149, 148, 136, 98, 96, 82. The IR spectrum had bands at 1670-1630 cm^{-1} (amide carbonyl) and 970-950 cm^{-1} (N-oxide).

Reduction of base 6 with sodium hydrosulfite gave a crystalline compound with mp 108-109°C, [$[\alpha]_D^{24} - 53.4^\circ$ (c 0.56; ethanol), R_f 0.53, mol. wt. 248 (mass spectrometrically) identical with sophoridine. The mass, IR, and NMR spectra completely confirmed the identity of the reduction product of base 6 with sophoridine. A mixture with sophoridine gave no depression of the melting point. Consequently, base 6 is the natural N-oxide of the alkaloid sophoridine.

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