

## ALKALOIDS OF *Leucanthemum vulgare*

T. G. Sagareishvili

UDC 547.994

Field daisy flowers *Leucanthemum vulgare* Lam. (Compositae) growing in Georgia were rich in flavonoids. We have previously isolated from the flowers apigenin, cosmosiine, apigenin 7-O- $\beta$ -D-glucuronide, and vitexin; from other parts of the flowers, rutin, hyperin, quercetin, luteolin, isorhamnetin, chrysin 7-O- $\beta$ -D-glucuronide, and chrysin [1-4]. The petroleum-ether extract of the flower heads yielded 4-methylsterols, the principal one of which was 24-ethylidenelophenol [5].

In continuation of the phytochemical investigation of this plant, we isolated from the flowers pyrrolizidine alkaloids and choline. Alkaloids were extracted by H<sub>2</sub>SO<sub>4</sub> (10%) from the CHCl<sub>3</sub> extract obtained after basicifying separately the flower parts. The acid extract was washed with ether, basicified to pH 9.0, and extracted with ether. The solution was evaporated. The solid was repeatedly recrystallized from acetone. Thus, two compounds were obtained from the flowers. They give positive reactions for alkaloids. The physicochemical constants of the first of them correspond fully with platiphylline **1** {mp 125-126 C, soluble in CHCl<sub>3</sub> and alcohol,  $[\alpha]_D^{20}$  -45 (c 2.0, CHCl<sub>3</sub>),  $\lambda_{\max}$  217 nm}; the second, to senecionine **2** {mp 230-232 C, soluble in CHCl<sub>3</sub> and alcohol,  $[\alpha]_D^{20}$  -56 (c 2.0; CHCl<sub>3</sub>),  $\lambda_{\max}$  (MeOH) 218 nm} [6, 7].

A pure compound that gives a Dragendorff reaction was isolated from the alcohol (80%) extract of the flowers after purification by CHCl<sub>3</sub> and separation on an Al<sub>2</sub>O<sub>3</sub> column with elution by CHCl<sub>3</sub> and CHCl<sub>3</sub>-CH<sub>3</sub>OH with a constantly increasing CH<sub>3</sub>OH concentration. These colorless crystals dissolve in water, CH<sub>3</sub>OH, and ethanol. The picrate has mp 250-252 C; reineckate, 248-251 C. A sample mixed with authentic choline gives one inseparable spot on TLC and paper chromatography. This compound was characterized as choline [8].

## REFERENCES

1. T. G. Sagareishvili and M. D. Alaniya, *Khim. Prir. Soedin.*, 583 (1991).
2. T. G. Sagareishvili, M. Alaniya, J. N. Aneli, and A. Ya. Stromberg, *Resource Inventory and Phytochemical Study of Medicinal Flora of the USSR* [in Russian], Nauch. Tr. VNII Farmatsii, Moscow (1991), XXIX, p. 115.
3. T. G. Sagareishvili, M.D. Alaniya, and E. P. Kemertelidze, *Khim. Prir. Soedin.*, 567 (1980).
4. T. G. Sagareishvili, M. D. Alaniya, and E. P. Kemertelidze, *Khim. Prir. Soedin.*, 647 (1983).
5. T. G. Sagareishvili, N. E. Zambakhidze, and E. P. Kemertelidze, *Khim. Prir. Soedin.*, 240 (1983).
6. T. D. Dargaeva, *Chemical Investigation of Crowned Scabiose and Siberian Daisy Growing Beyond Baikal* [in Russian], Author's Abstract of a Candidate Dissertation, Moscow (1976).
7. E. Kh. Batirov, in: *Progress in Research of Alkaloid-bearing Plants* [in Russian], Fan, Tashkent (1993), p. 267.
8. L. M. Kozlova, *Farmatsiya*, 23 (1967).

---

I. G. Kutateladze Institute of Pharmacochimistry, Academy of Sciences of Georgia, Tbilisi, fax (99532) 25 00 26.  
Translated from *Khimiya Prirodnikh Soedinenii*, No. 3, p. 265, May-June, 2000. Original article submitted August 17, 2000.