E. G. Babayan and V. A. Mnatsakanyan

UDC 547.918:547.192

The genus <u>Scrophularia</u> L. (family Scrophulariaceae) includes more than 150 species growing in the temperate zone of Eurasia, the Mediterranean region, and North America. In the Armenian SSR it is represented by 22 species, found in all floristic regions of the Republic at heights of from 700 to 3500 m above sea level [1].

An analysis of literature material has shown that, in addition to flavonoids [2], characteristic biologically active compounds for the figworts (Scrophularia) are iridoid glycosides.

We have studied the iridoid composition of the epigeal parts of <u>Scrophularia variegata</u> Bieb and \underline{S} . <u>chrisantha</u> Jaub et Spach. collected in the flowering period in the Seran and Ashtarak regions of the Armenian SSR.

The comminuted raw material was exhaustively extracted with methanol. In each case, four iridoid glycosides were detected in the methanolic extracts by TLC [ethyl acetate-methanol-water (7:2:1) system] on Silufol by means of the benzidine reagent. The combined extracts were concentrated in vacuum, water was added, and the resulting solution was washed with benzene and extracted with chloroform-methanol (3:1). This extract was chromatographed repeatedly on silica gel columns. The substances were eluted from the columns with CHCl₃-MeOH mixtures. Substances (I) and (II) were isolated from S. variegata and substances (III) and (IV) from S. chrisantha. On the basis of physical and chemical properties and the results of IR, ¹H and ¹³C NMR, and mass spectroscopies and, for compounds (I) and (II), also by a comparison with authentic samples, substances (I-IV) were identified as harpagide (I), giving hexa- and heptaacetates melting at 226-228 and 185-192°C, respectively; 8-0-acetyl-harpagide (II), mp 154-158°C; harpagoside (III), giving a hexaacetate melting at 193-195°C and a pentaacetate melting at 213-215°C; and 8-0-methylcoumaroylharpagide (IV), giving a hexaacetate melting at 78-83°C.

Substances (I-III) have prevously been isolated from <u>S. nodosa</u> L. and <u>S. vernalis</u> Bieb. [3, 4], while this is the first time that substance (IV) has been isolated from plants in the individual state.

LITERATURE CITED

- 1. The Flora of Armenia [in Russian], Erevan, Vol. VIII (1987), p. 267.
- 2. S. G. Akhmedov and V. I. Litvinenko, Khim. Prir. Soedin., 54 (1969).
- 3. H. Becker and S. Richter, Pharm. Ztg., <u>120</u>, 411 (1975).
- 4. L. Swiatek and T. Krzachek, Acta Pol. Pharm., 33, 653 (1976).

Institute of Botany, Academy of Sciences of the Armenian SSR, Erevan. Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 726-727, September-October, 1989. Original article submitted December 16, 1988.