

FLAVONE SORBIFOLIN FROM *Pulicaria uliginosa*

K. A. Éshbakova, G. V. Sagitdinova, V. M. Malikov,
and S. Melibaev

UDC 547.372

Fleabane mullet *Pulicaria uliginosa* Stew. (*P. dysenterica*) grows in Central Asia, Iran, Afganistan, and Southern Europe [1] and has not previously been subjected to chemical study.

We have investigated the epigeal part of fleabane mullet gathered in the Fergana valley (Uzbekistan) in the flowering period. We used methanol to extract the raw material. The extract was separated by column chromatography on silica gel, which led to the isolation of a flavone with the composition $C_{16}H_{12}O_6$, mp 276-278°C.

The IR spectrum of the flavone contained absorption bands at (cm^{-1}) 1350, 1440, 1520, 1570, 1625, 1658, and 3360. The UV spectrum taken in ethanol had absorption maxima at (λ_{max} , nm) 272 ($\log \epsilon$ 3.64) and 340 nm ($\log \epsilon$ 3.80). The fragmentation of the ions in the mass spectrum was characteristic for the breakdown of hydroxymethoxyflavone molecules under the action of electron impact: m/z 300 (M^+), 299 ($M^+ - 1$), 285 ($M^+ - CH_3$), 257 ($M^+ - CH_3 - CO$).

In the PMR spectrum (DMSO, 100 MHz) we also observed signals characteristic for hydroxymethoxy-substituted flavones. A doublet at 7.87 ppm ($J = 8.5$ Hz, 2H) corresponded to the H-2' and H-6' protons, a doublet at 6.87 ppm ($J = 8.5$ Hz, 2H) related to the H-3' and H-5' protons, a singlet at 6.7 ppm (1H) was characteristic for the H-3 proton, and a singlet at 6.5 ppm (1H) assigned to H-8 while at 3.7 ppm a three-proton narrow singlet of the protons of a methoxy group was observed.

Analysis of the UV spectra with additions of sodium methanolate and sodium acetate, and also the combination of the spectral characteristics given above enabled us to identify the flavone isolated as sorbifolin — 4',5,6-trihydroxy-7-methoxyflavone — which has been isolated previously from *Scoparia stellipita*, *Scoparia dulcis* [2], *Anvillea garcini* [3], and *Pleocarpus revolutus* [4].

This is the first time that sorbifolin has been isolated from plants of the genus *Pulicaria*.

REFERENCES

1. Flora of Uzbekistan [in Russian], Vol. 6 (1962), p. 95.
2. E. Wollenweber, and V. H. Dietz, *Phytochemistry*, **20**, 874 (1981).
3. A. Ulubelen, T. J. Mabry, and Y. Aynehehi, *J. Nat. Prod. (Lloydia)*, **42**, 624 (1979).
4. M. Silva, A. Wiesenfeld, P. G. Sammes, and T. W. Tyler, *Phytochemistry*, **16**, 379 (1977).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan, Tashkent, fax (3712) 89 14 75. Translated from *Khimiya Prirodnikh Soedinenii*, No. 1, pp. 100-101, January-February, 1996. Original article submitted April 10, 1995.