

FLAVONOIDS FROM SOME SPECIES OF *Delphinium*

A. I. Arazashvili, I. I. Moniava,
and É. P. Kemertelidze

UDC 547.972

The results of a preliminary phytochemical investigation of plants of genus *Delphinium* growing in the Georgian SSR have shown that they are rich in flavonoid compounds. In the leaves quercetin derivatives predominate, and in the flowers kaempferol derivatives. The present paper gives the results of a study of the flavonoids of the leaves of *D. freynii* and *D. smallhauseni*, and also of the leaves of *D. tamarae* and *D. dzawachischwili*.

For the isolation of the flavonoids, an 80% methanolic extract of the air-dry plant material was evaporated until the alcohol had been eliminated; the aqueous liquid was purified with chloroform, concentrated to small volume, and chromatographed on a column of Sephadex G-75, as described. In this way we isolated from the leaves of *D. freynii* the flavonoids quercetin and rutin; from *D. smallhauseni* rutin and hyperoside; from the leaves of *D. tamarae* rutin kaempferol, and astragalín; and from *D. dzawachischwili* rutin and kaempferol rutinoside.

The substances isolated were identified on the basis of the physicochemical properties both of the initial compounds and of their transformation products, IR and UV spectroscopic analyses with ionizing and complex-forming reagents, and by direct comparison of the compounds obtained with authentic samples. The configurations of the glycosidic links were determined from calculated values according to Klyne [1-3].

LITERATURE CITED

1. I. P. Kovalev and V. I. Litvinenko, *Khim. Prirodn. Soedin.*, 233 (1965).
2. L. Hörhammer, H. S. Gehrman, and L. Endres, *Arch. Pharm.*, **262**, 63, 113 (1959).
3. L. A. Gumenyuk, P. A. Gnetkov, and V. S. Batyuk, *Khim. Prirodn. Soedin.*, 630 (1970).

I. G. Kutateladze Institute of Pharmacochimistry, Academy of Sciences of the Georgian SSR. Translated from *Khimiya Prirodnikh Soedinenii*, No. 2, p. 251, March-April, 1974. Original article submitted September 28, 1973.

© 1975 Plenum Publishing Corporation, 227 West 17th Street, New York, N.Y. 10011. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, microfilming, recording or otherwise, without written permission of the publisher. A copy of this article is available from the publisher for \$15.00.