On the basis of the results of acid and reductive hydrolysis it may be assumed that (+)-catechin, (±)-gallocatechin, (−)-epicatechin, and leucodelphinidin participate in the formation of the proanthocyanidine molecules.

LITERATURE CITED

1. L. S. Alyukina, L. K. Klyshev, and L. B. Matsunina, in: Physiologogenetic Investigations on the Acclimatization of Plants in Kazakhstan [in Russian], Alma-Ata (1969).
2. P. D. Denliev, Abstracts of Lectures at the Ist Congress of Pharmacists of Turkmenia on Current Problems of Pharmaceutical Science and Practice [in Russian], Ashkhabad (1976),
3. P. D. Denliev, N. I. Niklyaeva, and D. G. Leus, Abstracts of Lectures at the Ist Congress of Pharmacists of Turkmenia on Current Problems of Pharmaceutical Science and Practice [in Russian], Ashkhabad (1976), p. 181.
4. G. Sh. Burasheva, M. M. Mukhamed'yarova, and T. K. Chumbalov, Khim. Prir. Soedin., 254 (1975); 425 (1975); 663 (1976); 280 (1972).
5. A. S. Sadykov, A. K. Karimdzhanov, A. I. Ismailov, and O. S. Nazarmukhamedova, Nauchn. Tr. Tashkent. Gos. Univ., 3, No. 341, 68 (1968).
6. A. L. Kursanov and M. N. Zaprometov, Biokhimiya, 14, 487 (1949).
7. Sh. Yu. Islambekov, A. K. Karimdzhanov, A. I. Ismailov, and A. S. Sadykov, Khim. Prir. Soedin., 191 (1968).
8. Z. B. Rakhimkhanov, A. K. Karimdzhanov, A. I. Ismailov, and A. S. Sadykov, Khim. Prir. Soedin., 190 (1968).
9. Z. V. Rakhimkhanov, A. S. Sadykov, A. I. Ismailov, and A. K. Karimdzhanov, Khim. Prir. Soedin., 723 (1971).

PHENOLIC COMPOUNDS OF *Androsace septentrionalis*

E. A. Krasnov and N. M. Pirozhkova

UDC 547.972

In addition to triterpene glycosides, more than 15 phenolic compounds have been detected by chromatography on FN-3 paper in the solvent systems 15% and 60% CH_3COOH and BAW (4:1:2) in *Androsace septrionalis* [~ northern rock jasmine], and on the basis of their chromatographic mobilities, chromogenic reactions, and fluorescence in UV light they have been assigned to the flavonols, flavonol glycosides, phenolcarboxylic acids, and coumarins.

After the precipitation of the triterpene glycosides [1], the methanolic-acetone solution was evaporated in vacuum, the residue was dissolved in water, and the solution was extracted repeatedly and successively with chloroform, diethyl ether, and ethyl acetate. The extracts were concentrated, and the dry residues were studied. On the basis of the results of acid hydrolysis of the ethyl acetate and ether fractions, it was concluded that the dominating flavonoids are quercetin glycosides.

The phenolic compounds were isolated by chromatography on columns with Kapron [nylon-6] powder. When the ethereal fraction was separated with the aid of discrete-gradient elution with mixture of chloroform and ethanol, substances (I)-(III) were isolated, and when the ethyl acetate fraction was separated by the use of mixtures of water and ethanol with increasing concentrations of ethanol, substances (I), (II), and (IV) were obtained.

On the basis of physicochemical properties, qualitative reactions, and IR and UV spectra with diagnostic reagents [2], substance (I) was identified as quercetin, (II) as kaempferol, (III) as 3,4-dihydroxycinnamic (caffeic) acid; and (IV) as rutin.

LITERATURE CITED

1. N. M. Pirozhkova, E. A. Krasnov, and P. K. Kintya, Khim. Prir. Soedin., 846 (1980).
2. T. Y. Mabry, K. R. Markham, and M. B. Thomas, The Systematic Identification of Flavonoids, Springer, New York (1970).

Tomsk Medical Institute and Scientific-Research Institute of Biology and Biophysics at Tomsk State University.

Translated from Khimiya Prirodnykh Soedinenii, No. 5, pp. 653-654, September-October, 1982. Original article submitted April 26, 1982.