FLAVONOID AGLYCONS IN PROPOLIS AND ITS SOURCES

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Earlier, from the buds of the aspen Populus tremulus and propolis of the "aspen" type we have isolated and identified conjugates of hydroxycinnamic acids [1, 2], of trans-coniferyl alcohol [3], and of a number of other compounds [4].

Continuing a study of these plant sources we have investigated the composition of their flavonoid aglycons in detail.

The investigations performed have shown that flavonoid aglycons are minor components of auxillary aspen buds and of propolis of the "aspen" type, and are represented by two groups of flavonoids: flavones – apigenin (I) and acacetin (II); and flavonols – kaempferide (III) and ermanin (IV).

For the analysis of compounds (I-IV) we used a method [5] permitting the identification of flavonoid aglycons in mixed fractions in the form of CD_3 ethers. The plant extracts under investigation were extracted with a 10% aqueous solution of KOH. The flavonoids obtained in this way were subjected to the action of CD_3I in DMSO solution in the presence of NaH. The mixture of full CD_3 ethers of flavonoids formed as the result of the reaction was separated on a column of silica gel. The fractions so obtained were identified by mass-spectrometric comparison with authentic samples of flavonoid CD_3 ethers [6, 7]. Analysis of the results obtained permitted the compounds to be determined as (I-IV).

Thus, the composition of the flavonoid aglycons in propolis of the "aspen" type and in its source (aspen buds) has been determined. Furthermore, the suitability of the method of analysis employed [5] for plant sources with a low aglycon content has been demonstrated.

LITERATURE CITED

1. S. A. Popravko, I. V. Sokolov, and I. V. Torgov, Khim. Prir. Soedin., 169 (1982).
2. S. A. Popravko, I. V. Sokolov, and I. V. Torgov, Khim. Prir. Soedin., 152 (1984).
3. I. V. Sokolov and I. V. Torgov, Khim. Prir. Soedin., 319 (1989).
4. I. V. Sokolov and I. V. Torgov, Khim. Prir. Soedin., 261 (1990).
5. G. P. Kononenko, S. A. Popravko, and N. S. Vul'fson, Bioorg. Khim., 1, 506 (1975).
6. G. P. Kononenko, S. A. Popravko, B. V. Rozynov, V. G. Zaikin, and N. S. Vul'fson, Bioorg. Khim., 6, 267 (1980).
7. G. P. Kononenko, S. A. Popravko, and N. S. Vul'fson, Bioorg. Khim., 5, 1836 (1979).

Vitaminy Scientific-Production Combine, Moscow. M. M. Shemyakin Institute of Bioorganic Chemistry, Academy of Sciences of the USSR, Moscow. Translated from Khimiya Prirodnykh Soedinenii, No. 4, pp. 550-551, July-August, 1990. Original article submitted November 20, 1989.

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