

POLYPHENOLS OF GERANIUM RECTUM

A. S. Sadykov, N. I. Iskhakov, and B. Usmanov

Kimiya Prirodnikh Soedinenii, Vol. 4, No. 4, pp. 265-266, 1968

Geranium rectum Trautv. is a perennial herbaceous plant widely distributed in southern Kirghiz. In a determination of the content of tanning substances in Geranium rectum by Löwenthal's method [1], the presence of phenolic compounds was established: 15.3% in the leaves, 16.1% in the roots, and 1.4% in the stems.

It is known that (+)-catechin and (–)-epicatechin have been isolated from the roots of meadow geranium (Geranium pratense) and (+)-catechin, (–)-epicatechin, and (±)-gallocatechin from the roots of Geranium palustre [3].

To eliminate the pigments and other accompanying materials, the ground and dried samples were first extracted with chloroform. Then, after drying, they were extracted with methanol in the cold. The methanolic extracts were concentrated and treated with ethyl acetate. The tanning substances were isolated from the concentrated ethyl acetate solution by the precipitation with chloroform. They consisted of amorphous substances with an astringent taste.

On paper chromatography in the solvent system 1-butanol–acetic acid–water (40:12:28) with a reference material (tea tannin), the material from Geranium gave five spots: (–)-epigallocatechin, (±)-gallocatechin, [(–)-epicatechin and (±)-catechin], (+)-catechin, and (–)-epicatechin gallate, and the stems gave traces of (–)-epicatechin gallate, (+)-catechin, and (–)-epigallocatechin.

The two-dimensional chromatography of the total substances from the leaves of Geranium first in the 2% acetic acid system and then in the 1-butanol–acetic acid–water (40:12:28) system yielded 11 spots of a phenolic nature relating to a hydrolyzable series of tanning substances. The nature of these substances is being studied.

REFERENCES

1. Löwenthal, Z. *Analyt. Chem.*, **16**, 33, and 201, 1877.
2. F. Gstirner and K. H. Zisken, *Arch. Pharmazie*, **295/67**, 823, 1962.
3. F. Gstirner and W. Hoch, *Arch. Pharmazie*, **296/68**, 97, 1963.

7 February 1968

Scientific-Research Institute for the Chemistry and
Technology of Cotton Cellulose, Tashkent