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COUMARINS AND FUROCOUMARINS OF HIPPOMARATHRUM MICROCARPUM

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The coumarin composition of the fruits and roots of Hippomarathrum microcarpum (M. B.) B. Fedtsch, which grows in the mountains of the Daghestan Autonomous Soviet Socialist Republic, has been studied previously [1–3].

The present paper gives the results of a determination of the qualitative composition and quantitative content of coumarin compounds in the fruits and roots of this plant collected at the end of August and beginning of September 1963 in the sea-shore dunes of the Daghestan ASSR (table).

Substances from the fruits	Content, % of air-dry weight of material	Substances from the roots	Content, % of air-dry weight of material
Isoimperatorin	0.39	Osthole	2.20
Bergapten	0.50	Oxypeucedanin	2.66
Xanthotoxin	1.20	Heraclenin	0.084
Isopimpinellin	0.12	Oxypeucedanin hydrate	0.014

All these substances were identified with the compounds of the coumarin series that we obtained from the fruits [1] and roots [2–3] of Hippomarathrum microcarpum on the basis of the absence of a depression of the melting point of mixed samples and also by a determination of the R_f values on paper chromatography with reference samples.

In addition to the compounds mentioned, small amounts of imperatorin and umbelliferone have been detected in the fruit and of isoimperatorin, imperatorin, and umbelliferone in the roots.

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FLAVONOLS OF THE BARK OF LARIX SIBIRICA

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The flavonoids were extracted from the bark of Larix sibirica Ledeb. (Siberian larch) by digestion with ether after preliminary elimination of the waxes and resins with petroleum ether and chloroform. The acids were washed out of the concentrated ethereal extract with sodium hydrogen carbonate solution. The position of the spots and the color reactions in paper chromatograms [1, 2] showed that the extract contained two flavonol aglycones. The fact that they were aglycones was confirmed by their immobility in 2% acetic acid.

The separation of the flavonols from contaminating catechins, anthocyanidins, and waxes was effected by chromatography on coarse-pored silica gel with ether as eluant. In chromatography, five zones with different colors were formed. The flavonols were present in the second, yellow, zone, together with a certain amount of wax. The flavonols were