

BRIEF COMMUNICATIONS

LIPIDS OF THE LEAVES OF TWO FORMS OF CENTRAL ASIAN SEA BUCKTHORN

N. P. Goncharova and A. I. Glushenkova

UDC 547.915

We have previously determined the yields of lipids, the total fatty acid compositions, and the amounts of carotenoids in the leaves of several forms of the Central Asian sea buckthorn [1] and also the complete lipid composition of one of these forms [2, 3].

In the present paper we give the results of investigations of the lipids of the leaves of two forms of sea buckthorn growing in the flood plain of the R. Zeravshan (I) and in the Issyk-Kul' basin (II). The air-dry leaves were ground and extracted with chloroform-methanol (2:1). The yield for (I) was 12.2% and for (II) 10.0% (here and below, the yields of extracts are given as % on the weight of the dry leaves). The extracts obtained were reextracted with hexane, with yields of 7.0 for (I) and 5.0 for (II).

The bulk of the leaf lipids consisted of waxy compounds making the analysis of the remaining lipids difficult [2]. In order to eliminate the waxy compounds, the concentrated hexane extracts were left for a day at 25°C for the formation of centers of crystallization, and then, for cooling and the precipitation of the waxes, the extracts were placed for 12 h in a deep freeze, and the resulting precipitates were filtered off under vacuum. The mother solutions obtained after concentration amounted to 6.2 and 4.7%, respectively.

TABLE 1. Lipids of the Leaves of the Zeravshan (I) and Issyk-Kul' Sea Buckthorns

Class of compounds	Form of sea buckthorn	
	I	II
Hydrocarbons	2.6	6.4
Wax esters	30.5	35.2
Carotenoids	0.9	0.6
Triterpenol esters	2.0	4.8
Sterol esters	1.3	0.4
Isoprenols	35.1	34.5
Triterpenol + fatty alcohols	14.2	5.0
Sterols	9.4	8.1
Unidentified	4.0	5.0

TABLE 2. Composition of the Hydrocarbons of the Leaves of the Two Forms of Sea Buckthorn, % GLC

Form of sea buckthorn	C ₂₁	C ₂₂	C ₂₃	C ₂₄	C ₂₅	C ₂₇	C ₂₉	C ₃₀	C ₃₁
I	3.1	2.3	4.0	2.3	8.0	2.7	53.0	3.4	21.2
II	3.1	2.1	2.8	1.4	3.1	1.8	62.0	4.0	19.7

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan, Tashkent, fax (3712) 89 14 75. Translated from *Khimiya Prirodnikh Soedinenii*, No. 4, pp. 605-606, July-August, 1996. Original article submitted February 12, 1996.

In view of the fact that the fatty acid compositions of these forms of sea buckthorn had been studied previously [1], the concentrated mother solutions were saponified with 10% methanolic alkali by the cold saponification method, and the compounds that had not undergone saponification under these conditions were extracted (37.8 and 21.5% of the weights of the total lipids). They were then studied by the CC method: the results obtained are given in Table 1. The leaves of the sea buckthorn growing in Uzbekistan gave a higher yield of lipids richer in carotenoids, free and esterified sterols, triterpenols, and isoprenols.

The hydrocarbons of the leaves of both forms, like those of the sea buckthorn leaves gathered in the Chimgan area and studied previously [2], were represented mainly by the C₂₉ and C₃₁ homologs (Table 2).

REFERENCES

1. N. P. Goncharova and A. I. Glushenkova, *Khim. Prir. Soedin.*, 894 (1993)
2. N. P. Goncharova and A. I. Glushenkova, *Khim. Prir. Soedin.*, 790 (1995).
3. N. P. Goncharova and A. I. Glushenkova, *Khim. Prir. Soedin.*, 667 (1995).