

POLYISOPRENOIDS FROM *Rhus coriaria*^a

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Rhus coriaria L. (tanner's sumac) is a perennial bush of the family Anacardiaceae that is distributed in Central Asia (South Pamir-Alai, Kopet Dag), the Caucasus, Crimea, Iran, and Uzbekistan (Surkhandar'ya and Tashkent Oblasts). Leaves of *R. coriaria* exhibit astringent, hemostatic, anti-inflammatory, wound-healing, antiseptic, and diuretic action [1].

Leaves of *R. coriaria* are known to be rich in tanning agents [2, 3], phenolcarboxylic acids, their derivatives, flavonoids [4], and fatty acids [5]. Polyisoprenoids of this plant have not yet been studied.

We studied the chemical composition of leaves of *R. coriaria* collected during budding in Tashkent oasis in order to determine the polyisoprenoids.

Air-dried ground raw material (2.5 kg) was extracted (×3) beforehand with benzene (3 × 9000 mL, bp 70–80°C) in order to isolate pigments and neutral substances and then with the same amount of CHCl₃ to afford the benzene extract (206.53 g, 8.26%). The benzene extract (200 g) was separated by column chromatography over KSK silica gel in order to isolate polyisoprenoids. The adsorbent:substance mass ratio was 40:1. The eluent was hexane:CHCl₃ of gradually increasing polarity. A total of 40 fractions was obtained. Of these, fractions 25, 26, and 27 contained polyisoprenols (PPs) in the amount of 24.5, 16.2, and 10.25 g, respectively, for a total of 50.95 g. Furthermore, fractions amounting to 25.05 g containing 50% PPs were isolated.

The component composition of the PPs was determined using HPTLC [6]. Table 1 presents the results.

The analytical results showed that PPs from *R. coriaria* leaves, like for PPs from cotton leaves, were prenols with $n = 10$ –13, where undecaprenol ($n = 11$) dominated. GC–MS of accompanying substances of fraction 25 showed that the main substances were α -tocopherol (6.93%) and minor components of tocopherol mannoside (0.13%), farnesylacetate (0.18%), pentadecanal (0.10%), and hexadecanal (0.08%). The ballast substances were identified by comparison of retention times with those of known samples, comparison of experimental mass spectra with those from the NIST 02 MS database included in the Agilent G1701AA Chemstation data processing system, and selective detection of pure characteristic ions of α -tocopherol, m/z 430 [M]⁺, 205, 165, 121, 71, 69 43; tocopherol mannoside, m/z 592 [M]⁺, 285, 125, 85; farnesylacetate, m/z 264 [M]⁺, 204, 189, 161, 135, 107, 81, 69, 43; hexadecanal, m/z 240 [M]⁺, 222, 180, 166, 152, 137, 124, 110, 96, 82, 68, 57, 43; pentadecanal, m/z 226 [M]⁺, 208, 152, 137, 124, 109, 96, 82, 67, 57, 43.

TABLE 1. Component Composition of Polyisoprenols from Leaves of *Rhus coriaria*

Fraction	P* ₁₀	P ₁₁	P ₁₂	P ₁₃	Total polyisoprenols content in sample, %
Standard,** polyisoprenol	Tr.	65.20	20.75	12.22	98.17
25	Tr.	62.63	17.54	12.41	92.58
26	Tr.	61.63	16.98	14.76	93.37
27	Tr.	59.18	16.98	14.40	90.56

P*, prenol; **standard sample, polyisoprenols from cotton leaves.

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Thus, PPs and ballast substances from leaves of *R. coriaria* were studied for the first time. The total content of PPs isolated from the hydrocarbon (200 g) extract was 63.1 g (2.2–2.5% of air-dried mass of leaves).

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