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 β -AMYRIN AND β -AMYRIN ACETATE FROM *Euphorbia ferganensis*

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We have continued a study of the low-molecular-weight metabolites of the plant *Euphorbia ferganensis* B. Fedtsch. (*Euphorbiaceae*) [1].

A chloroform extract obtained from an ethanolic extract of the roots of *Euphorbia ferganensis* was chromatographed on a column of silica gel with elution by hexane-benzene (7:1). Crystalline substances (I) and (II) were isolated.

Substance (I) had mp 195-197°C, $[\alpha]_D^{24} +89 \pm 2^\circ$ (s 1.0; chloroform), M^+ 426, composition $C_{30}H_{50}O$. Its IR spectrum had the absorption band of a hydroxy group (3460-3400 cm^{-1}). In the strong-field region of its PMR spectrum ($CDCl_3$), the signals of eight methyl groups were observed in the form of singlets and a one-proton quartet at 3.18 ppm ($^3J_1 = 11$ and $^3J_1 = 5$ Hz), assigned to a hemihydroxylic proton, and also the signal of an olefinic proton at 5.14 ppm (triplet with $^3J = 3$ Hz) of one proton unit.

The facts given permit the assumption that substance (I) belongs to the tetracyclic triterpenoids of the olean-12-ene series. This was also shown by the mass-spectrometric fragmentation of compound (I), which was characteristic for pentacyclic triterpenoids [2]. The peaks of ions with m/z 218 and 207 arising as a consequence of retrodiene decomposition appeared in the mass spectrum. The spectral characteristics and physicochemical constants of substance (I) showed its identity as β -amyrin [3].

Substance (II) had mp 233-235°C, $[\alpha]_D^{24} +75 \pm 2^\circ$ (s 1.3 benzene), M^+ 468, composition $C_{32}H_{52}O_2$. The IR spectrum of the compound showed absorption bands of an ester group (1735, 1260 cm^{-1}). The PMR spectrum of substance (II) ($CDCl_3$), having a three-proton singlet at 2.01 ppm, showed that it contained one acetyl group.

The alkaline hydrolysis of substance (II) with 0.5% methanolic potassium hydroxide at room temperature led to a product identified as β -amyrin from physicochemical constants and also from its R_f values on TLC in various solvent systems.

Thus, β -amyrin and β -amyrin acetate have been isolated from the roots of *Euphorbia ferganensis*.

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