ALKALOIDS OF *Magnolia soulangeana*

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We have investigated the plant *Magnolia soulangeana* Soul-Bod (a hybrid of the Chinese species *M. vulan and M. obovata*), family Magnoliaceae [1], collected in September, 1974, in the botanical gardens of the Academy of Sciences of the Uzbek SSR, Tashkent.

Ordinary chloroform extraction of the leaves yielded 0.105% and of the stems 0.14% of total alkaloids. From the mixture of bases obtained from the stems of this plant by chromatography on a column of silica gel we isolated liriodenine [2] and an optically inactive base (I) with the composition $C_{18}H_{11}NO_4$ with mp 265-267°C (from methanol), R_f 0.56 in the benzene–ethanol (4:1) system in a thin layer of silica gel. The base dissolves well in acid, sparingly in chloroform, ethanol, and methanol, and is insoluble in alkali. The UV spectrum of (I) [λ_{max}^{EtOH}, 249, 270, 309, 349 nm (log ε 4.21; 4.08; 3.72; 3.84), $\lambda_{max}^{EtOH+HCl}$ 259, 280, 379 nm (log ε 4.07; 3.99; 3.73)] is typical for alkaloids of the 12-oxodibenzo [de, g] quinoline series [3]. The IR spectrum of the base has maxima at (cm^{-1}): 2850, 1265 (–OCH_3), 1605 (aromatic nucleus), 1060, 970 (–OCH_2O–), and 1650 (>C=O); there are no absorption bands of –OH and >N–H groups.

The mass spectrum of (I) shows strong peaks of ions with m/e M^+ 305 (100 %), 290 $(M-15)^+$, 275 $(M-30)^+$, 262, 234, 206, 204, 176, 175, 149 and M^{++} 152.5, which are characteristic for alkaloids of the liriodenine type [4].

In the NMR spectrum of the alkaloid (JNM-4H-100/100 MHz in CF_3COOH, internal standard HMDS, δ scale) two singlets from protons of methoxy (3.68 ppm, 3H) and methylenedioxy (6.22 ppm, 2H) groups appear distinctly, and in the weak field there are the signals of six aromatic protons. A one-proton singlet at 7.16 ppm, analogous to the singlet observed in the spectrum of liriodenine, corresponds to the C_7 aromatic proton [2], and two one-proton doublets at 8.17 ppm and 8.35 ppm (J = 7.0 Hz) relate to the two protons at C_8 and C_9. Analysis of the signals of the other three protons: doublet at 8.05 ppm (J_{ortho} = 8.5 Hz), quartet with its center at 7.02 ppm (J_{ortho} = 8.5 Hz, J_{meta} = 2.5 Hz), and a signal at 8.45 ppm show that they belong to a 1,2,4-substituted benzene ring. Hence, the methoxy group in (I) is located in ring D at C_2 or C_3.

The presence of the methylenedioxy group in the C_5–C_6 position in the aporphine ring [5] and the nonidentity of the alkaloid (I) with lanuginoside [6, 7], which we have also isolated from the plant *Liriodendron tulipifera* (family Magnoliaceae) indicate that (I) is oxolaureline — 3-methoxy-5,6-methylenedioxy-12-oxodibenzo [de, g] quinoline.

Substance (I) has been synthesized previously [8], but we are the first to have found it in a plant.

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