STRUCTURE OF PARFUMIDINE

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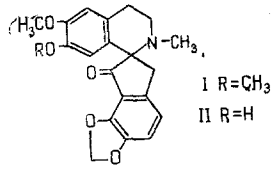
Continuing the separation of the combined alkaloids of Fumaria parviflora Lam. [1], we have isolated a base with the composition $C_{21}H_{21}O_5N$, mp 170–171° C (methanol), $[\alpha]_D^{22}$ +33.3° (c 0.5, chloroform), mol wt 367 (mass spectrometry). The base proved to be new and we have called it "parfumidine." The IR spectrum of the alkaloid has absorption bands at (cm^{-1}) 915 and 1020 (methylenedioxy group), 1520 and 1620 (aromatic ring), and 1720 (carbonyl group). UV spectrum, λ_{max}, mμ: 235, 263, 290, and 360 (log ε 4.46, 4.14, inflection, and 340). In the NMR spectrum (taken on a JNM-4H-100/100 MHz spectrometer in deuterochloroform) there are a three-proton singlet from N—CH_3 at 2.28 ppm (δ scale, HMDS), two three-proton singlets at 3.52 and 3.77 ppm from two methoxy groups, a two-proton singlet at 6.07 ppm from a methylenedioxy group, two one-proton singlets at 6.13 and 6.52 ppm from para aromatic protons, two one-proton doublets at 6.83 and 7.03 ppm (J = 8 Hz) from ortho aromatic protons, and a multiplet at 2.6–3.6 ppm corresponding to six methylene protons. The UV, IR, and NMR spectra of parfumidine are similar to the spectra of parfumine and fumariline [2, 3]. On the basis of these facts, the formula developed for parfumidine is as follows.

$$C_{16}H_{10}(OCH_3)_2\ (CH_2O_2)\ (CO)\ (N{-}CH_3).$$

We can see from a comparison of the formulas developed for parfumine (II) and parfumidine that the latter has a second methoxyl group in place of the hydroxyl in parfumine. The UV, IR, NMR, and mass spectra of parfumidine and of O-methylparfumine [2] obtained by the methylation of parfumine with diazomethane are identical. A mixture of the two substances gave no depression of the melting point. Thus, parfumidine has the structure I.



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