ALKALOIDS OF Elaeagnus angustifolia

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The isolation of harman and of tetrahydroharman from Elaeagnus angustifolia L. has been reported previously [1]. By chromatography on alumina we have obtained another two alkaloids consisting of indole derivatives.

Substance III, $C_{12}H_{12}N_2$, is optically inactive. The following bands are characteristic of the UV spectrum of the alkaloid III: λ_{max}^{EtOH} 233, 315 nm (log ε 4.19, 4.18); $\lambda_{max}^{H^+}$ 246, 350 nm (log ε 4.02; 4.35). R_f 0.30 (TLC, 3% methanol in chloroform system), 0.59 [paper chromatography, butan-1-ol–acetic acid–water (10 : 1 : 5)] system. The base gives a picrate with mp 234°C.

Alkaloid IV, $C_{12}H_{14}N_2$, mp 216-217°C (methanol), is optically inactive; its hydrochloride and picrate melt at 245-246°C and 195-196°C. UV spectrum: λ_{max}^{EtOH} 228, 284 nm (log ε 4.28, 3.90); $\lambda_{max}^{H^+}$ 220, 270 nm (log ε 4.32, 3.98). The IR spectrum has bands at (cm^{-1}): 1630, 1450 (indole ring), 3420 (NH), 750 (four adjacent ring hydrogens), 1465 (methyl group).

Base III was identified with the dihydroharman isolated preparatively by TLC in the synthesis of harman from tryptophan [2]. On the basis of the results given and literature information, alkaloid IV was identified as 2-methyl-1,2,3,4-tetrahydro-β-carboline [3].

We are the first to have isolated dihydroharman from raw plant material and the first to have isolated 2-methyl-1,2,3,4-tetrahydro-β-carboline from Elaeagnus angustifolia L.

LITERATURE CITED

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