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ALKALOIDS OF THE PAPAVERACEAE. VII.[1] THE ABSOLUTE CONFIGURATION OF ROMNEINE. (-)-RETICULINE FROM ROMNEYA COULTERI.

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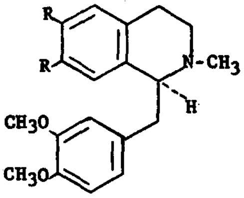
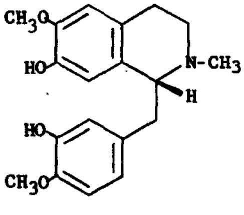
The isolation and structure proof by synthesis of romneine from Romneya coulteri var. trichocalyx was recently described[3]. The natural alkaloid, isolated as an oil, had $[\alpha]_D^{27} = + 37^\circ$ (c 0.11, ethanol)[4]. Attempts to resolve synthetic romneine in order to obtain material for chirality determination failed. By use of the standard isolation procedure[3] with additional large amounts of plant material, romneine was isolated as the hydrobromide salt (m.p. 226-227°; $[\alpha]_D^{28} = + 40^\circ$, c 0.26, ethanol). The alkaloid salt was treated with sulfuric acid and phloroglucinol[5] and the resultant product (after being converted to the free base) was methylated with diazomethane to yield laudanosine (Ia), $[\alpha]_D^{28} = + 83^\circ$ (c 0.091, ethanol), (lit.[6] $[\alpha]_D^{22} = + 105^\circ$, ethanol). Since (+)-laudanosine has been shown[7] to be Ia, (+)-romneine is established as Ib.[8]

Work-up of the combined pH 9 fractions[3] from extraction of several kilograms of R. coulteri yielded, after chromatography on basic alumina, 50 mg of an amorphous white powder, m.p. 78-90°, which was homogeneous by thin-layer chromatography and which had identical UV, IR, and NMR spectra and Rf value as an authentic sample of (+)-reticuline. However, the optical rotation was of the opposite sign: $[\alpha]_D^{28} = - 55^\circ$ (c 0.44, ethanol)[8]. This represents the first isolation of reticuline in which the (-)-isomer (II) predominates, although other



Ia, R = OCH_3
b, R - R = $-OCH_2O-$



II

papaveraceous species have been found to contain an excess of (+)-reticuline along with (±)-reticuline. It is presumed that the low optical rotation value of our isolated reticuline (lit.[9] value for pure (+)-reticuline: $[\alpha]_D = + 132^\circ$, methanol) indicates the presence of (±)-reticuline since it was above shown that *R. coulteri* contains romneine which is configurationally related to (+)-reticuline. We did not have sufficient material so that an actual separation of the isolated reticuline into the pure (-)- and (±)-forms could be carried out.

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