MANOOL FROM Salvia sclarea

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UDC 547.913

We extracted the comminuted epigeal part of air-dry Salvia sclarea L. (clary sage) collected in the flowering stage with petroleum ether (40-60°C). The vacuum-concentrated solution was washed with 5% alkali (NaOH) to eliminate acids. The residue was freed from waxes and sclareole by a method described previously [1]. The neutral product was chromatographed on alumina (1 : 50). Elution was performed with solvents of gradually increasing polarity. A mixture of petroleum ether and 20% of benzene eluted manool (0.33% of the weight of the extract or 0.004% of the weight of the dry plant) [2] with R_f 0.61 on a fixed layer of silica gel in the benzene–4% ether system, n_D^{21} 1.5132, $[\alpha]_D^{21}$ +30.2° (chloroform). The IR spectrum of this substance was identical with that of an authentic sample of manool. Extraction of the plant with acetone gave the same results.

Manool is the product of the partial dehydration of sclareole, and therefore to confirm its presence in the native state it was necessary to check the behavior of sclareole under the conditions of the experiment. It was found that neither its prolonged boiling with water or with neutral solvents (benzene, acetone, methanol) nor chromatography on alumina (activity grades II and III) and silica gel led to any changes at all. If, however, the extract was not first freed from acids and the essential oil was distilled off with steam, the amount of manool increased through the acid dehydration of the sclareole, and reached an amount of 1.5% of the weight of the extract. This diterpenoid has been found previously [3, 4] in various species of conifers. This is the first time it has been found in plants of the family Labiatae.

LITERATURE CITED

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Institute of Chemistry of the Academy of Sciences of the Moldavian SSR. Translated from Khimiya Prirodnykh Soedinenii, No. 3, p. 405, May, 1974. Original article submitted October 25, 1973.