

THE OIL OF SANTOLINA CHAMAECYPARISSUS L.  
A NEW, NON ISOPRENOID C<sub>10</sub> HYDROCARBON

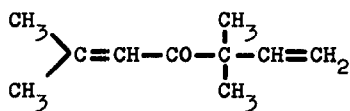
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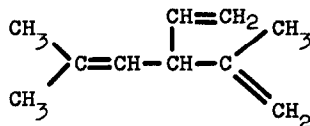
The steam-volatile oil of Santolina chamaecyparissus L. extracted from the plant has recently been examined (1) and the main component identified as artemisia ketone (I). We have also examined a Santolina oil from the South of France, and confirmed that artemisia ketone (I) is the main product (45%). The second component (8%) was identified as myrcene, and would appear to be "Component B" of the American group, though they have additional N.M.R. signals at 0.72 and 1.24 p.p.m. We have also detected  $\alpha$ -pinene.

In addition to this, we have examined the oil obtained from the flowers of S. chamaecyparissus growing at about 1,200 metres altitude near Nuoro, Sardinia (Italy). Steam distillation of 5 kg. flowers yielded 43 g oil, b.p. 50-130°/12mm, that was a much more complex mixture than the oil examined from the whole plant. The main components were isolated by gas chromatography on a combination of carbowax and silicone oil columns. Compounds positively identified (by I.R. and mass spectra) were the hydrocarbons  $\alpha$ -thujene,  $\alpha$ - and  $\beta$ -pinene,  $\beta$ -phellandrene, myrcene, limonene, p-cymene and

ar-curcumene; the carbonyl compounds acetone, cryptone (m.p. and mixed m.p. of 2,4-dinitrophenylhydrazone (2), 130-1°) and phellandral (2,4-dinitrophenylhydrazone (3) m.p. 204-5°) and the alcohols menth-1-en-4-ol and  $\alpha$ -terpineol.



(I)

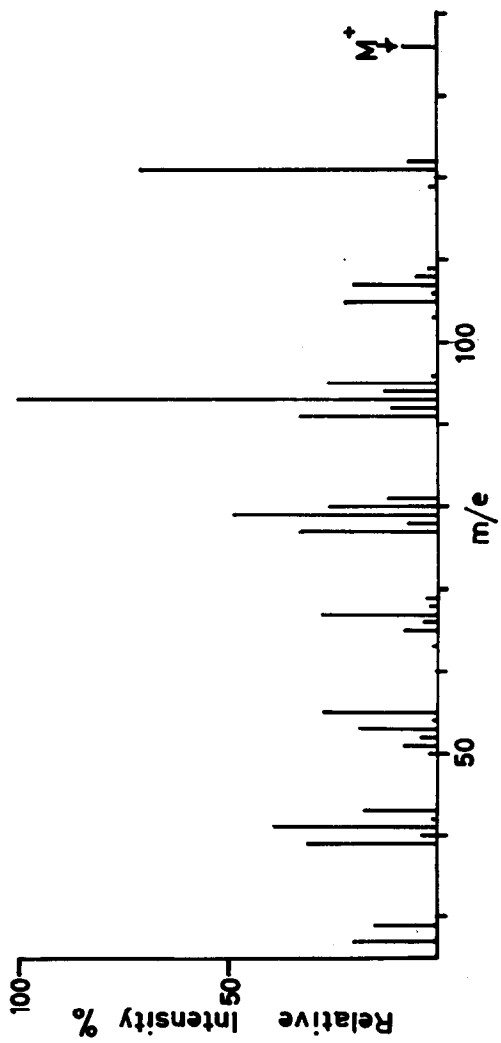


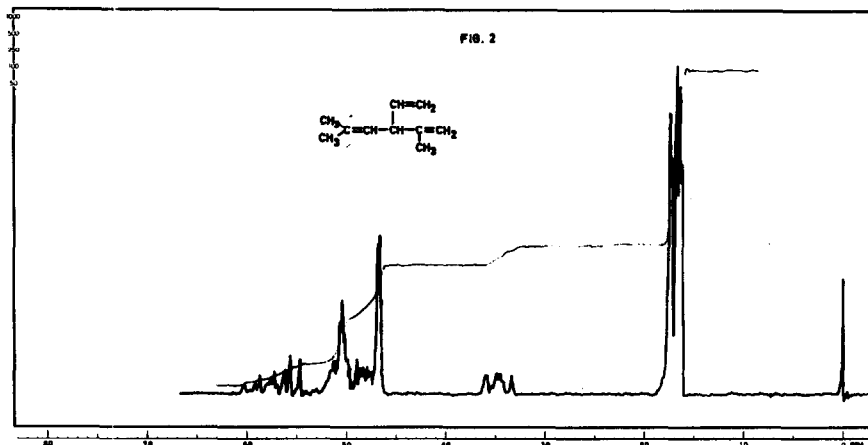
(II)

From the fraction with b.p. 50-60°/13mm, we isolated a new hydrocarbon having the same retention time as  $\alpha$ -thujene and  $\alpha$ -pinene on carbowax columns, but a slightly shorter one on the less polar silicone oil columns. Insufficient material was available for chemical study, and the pure compound polymerised rapidly (1-2 days) at room temperature, but from spectral data, we believe formula (II) to represent this compound. The mass spectrum (fig 1) confirms the  $\text{C}_{10}\text{H}_{16}$  structure and is not identical with any of the common monoterpene hydrocarbons (cf. 4). The I.R. spectrum (liquid) shows bands at 3.23, 6.06, 6.10, 10.08, 10.98 and 11.25  $\mu$ . The U.V. spectrum has  $\lambda_{\text{max}}^{\text{C}_2\text{H}_5\text{OH}}$  205.0 m $\mu$  ( $\epsilon_{\text{max}}$  9535), so there is no conjugated double bond. This evidence would lead one to suppose the existence of a cyclic diene, but the N.M.R. spectrum (fig. 2) shows that nine hydrogens belong to three methyl groups attached to double bonds, six hydrogens are attached to double bonds and the remaining hydrogen (at 3.47 p.p.m.) is allylic to at least two double bonds and coupled with two other hydrogens but not with a methyl group. We are unable to find any structure other than 2,5-dimethyl-3-vinylhexa-1,4-diene (II) that fits these requirements.

We agree with Zalkow et al. (1) concerning the doubt of the existence of the "santolinenones".

FIG. 1





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