

VALERANONE, VALERANAL AND VITISPIRANE IN THE LEAF OIL OF *LIQUIDAMBAR STYRACIFLUA*

D. H. E. TARTJE and R. BOS

Laboratory of Pharmacognosy, State University of Groningen, Antonius Deusinglaan 2, 9713 AW Groningen, The Netherlands

(Received 24 October 1978)

Key Word Index—*Liquidambar styraciflua*; Hamamelidaceae; valeranone; valeranal; vitispirane; sesquiterpenes.

From fresh leaves of *Liquidambar styraciflua* L. an essential oil was distilled according to a method previously described [1], yield 0.125% w/w. The essential oil was submitted to column chromatography using petrol (bp 40°) and an increasing amount of ether. Vitispirane (1) could be identified in fraction 3 (petrol-ether, 19:1) by means of IR, NMR and GC-MS (Finnigan 3300 computerized GC-MS system, 70 eV, ion source 200°, capillary column: SE 30, 50 m × 0.25 mm, 50–250°/4°p, min). The amount of 1 in this fraction was ca 90%. Vitispirane can be derived from cyclic carotenoids and has earlier been found in the aroma volatiles of grape juice [2].

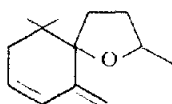
The following fraction (petrol-ether, 9:1) contained valeranone (2) and valeranal (3), which could also be identified by GC-MS. The presence of 2 was confirmed by comparing it with an authentic sample, whereas the presence of both 2 and 3 could be established by comparing the spectral data with literature data [3–5] and the fact that they had also been found in the essential oil

of *Valeriana officinalis* in our laboratory. To the best of our knowledge, this is the first time that valeranone and valeranal have been found outside the Valerianaceae (*Valeriana*, *Nardostachys*).

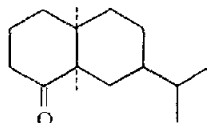
Acknowledgement—The authors wish to thank Dr. H. Hörster (Münster, B.R.D.) for an authentic sample of valeranone.

REFERENCES

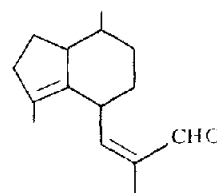
- Hendriks, H. (1973) *Planta Med.* **24**, 158.
- Simpson, R. F., Strauss, C. R. and Williams, P. R. (1977) *Chem. Ind.* 663.
- Hörster, H., Rücker, G. and Tautges, J. (1977) *Phytochemistry* **16**, 1070.
- Hikino, H., Hikino, Y., Takeshita, Y., Meguro, K. and Kamemoto, T. (1963) *Chem. Pharm. Bull.* **11**, 1207 and refs. cited therein.
- Bates, R. R. and Paknikar, S. K. (1965) *Chem. Ind.* 1731.



1 Vitispirane



2 Valeranone



3 Valeranal