Phytochemistry, 1970, Vol. 9, p. 665. Pergamon Press. Printed in England.

SHORT COMMUNICATION

TERPENES IN TWO *AMOMUM* SPECIES

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(*Received* 20 *August* 1969)

Plant. *Amomum korarima* Pereira—Zingiberaceae.

Uses. As a spice.[1]

Previous work. Yield of oil and inferred cineol presence.[2]

Fruit. The dried comminuted fruit was steam distilled for 8 hr yielding 3·5% of a pale yellow volatile oil which had a flat cineolic odour. The oil was subjected to direct preparative gas chromatography over Carbowax 20M (see Ref. 3 for a description of technique and conditions). When a sufficient quantity (*ca.* 1 μl) of each peak was collected its i.r. spectrum was recorded and characterized by comparing it with standard i.r. spectra which were obtained either from authentic compounds or from published data. Once each compound was spectrally characterized its retention time was compared with that of an authentic specimen. The following compounds were found to be present in the oil: α-pinene (3·2),* camphene (0·2), β-pinene (6·8), sabinene (6·7), myrcene (0·4), α-phellandrene (0·3), α-terpinene (0·9), limonene (13·5), 1,8-cineol (35·1), γ-terpinene (2·6), *p*-cymene (3·9), terpinolene (0·4), terpinen-4-ol (5·4), α-terpineol (3·4) and geraniol (4·8).

Plant. *A. subulatum* Roxb.

Uses. Medicinally and as a spice.[4]

Previous work. The presence of sabinene (6·6), cineol (64·9), terpinene (10·7), terpineol (7·2), terpinyl acetate (5·1), and bisabolene (3·6) has been previously reported.[4]

Fruit. The dried comminuted fruit was steam distilled for 8 hr, yielding 2·5% of a pale yellow volatile oil which had a flat cineolic odour. The oil was analysed as above and the following compounds were found to be present: α-pinene (2·0),* β-pinene (2·4), sabinene (0·2), myrcene (0·3), α-terpinene (0·2), limonene (10·3), 1,8-cineol (74·0), γ-terpinene (0·2), *p*-cymene (0·2), terpinen-4-ol (2·0), δ-terpineol (0·8), α-terpineol (5·6) and nerolidol (1·0).

Acknowledgements—The author acknowledges the financial assistance of the National Research Council via an Industrial Research Assistantship Grant coded "Spices 807"; also, the interest and support of Stange Canada and Lawry's Foods of Canada. Acknowledgement is also extended to Mr. Abebe Zelleke of the Imperial Ethiopian Government, Ministry of Agriculture, for providing the sample of *Amomum korarima*, and to Dr. L. B. Singh, National Botanical Gardens, Lucknow, India, for providing the sample of *A. subulatum*.

* Numbers in parentheses refer to area percentages calculated from disc integration calculations.

[1] Private communication, Mr. ABEBE ZELLEKE.

[2] E. GUENTHER, *The Essential Oils*, Vol. V, p. 103, Van Nostrand, New York (1952).

[3] B. M. LAWRENCE, J. W. HOGG and S. J. TERHUNE, *Perfumery and Essential Oil Record* **60**, 88 (1969).

[4] S. S. NIGAM and R. M. PUROHIT, *Perfumery and Essential Oil Record* **51**, 121 (1960).