

A NOTE ON THE ESSENTIAL OIL FROM THE RHIZOMES OF *RHEUM EMODI*, WALL.

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The dry powdered rhizomes of *Rheum Emodi*, Wall., were extracted with alcohol and the extract distilled in steam. An account of the non-volatile constituents has been already given (*This Journal*, 1933, 16A, 1). On extraction of the distillate with ether a volatile oil was obtained in a yield of 0.05 per cent., and having a strong odour characteristic of the drug. It had the following constants: d_{20}^{20} , 0.864; n_D^{20} , 1.4378; α_D^{20} —1.7°. On treatment with 5 per cent. sodium hydroxide 30 per cent. of the oil was absorbed. The unabsorbed oil, a portion of which was lost due to an accident, on distillation at 10 mm., gave the following fractions:—

No.	B.P.	d_{20}^{20}	n_D^{20}	α_D^{20}
1	59–62°	0.8154	1.4081	—1.2°
2	110–123°	0.9621	1.4888	—3.0°

Fraction 1.—On oxidation with Beckmann's chromic acid mixture a product was got, from which a semicarbazone was isolated, m.p. 117–118°. It may be methyl-*n*-heptyl ketone which gives a semicarbazone melting at 118° and has the following properties: d_{20}^{20} , 0.821; n_D^{20} , 1.4163. Owing to the limited quantity available no further experiments could be carried out.

Attempts to identify the terpene alcohol in Fraction 2 were unsuccessful.

Eugenol.—The portion of the oil absorbed by sodium hydroxide was regenerated by bubbling carbon dioxide into the potassium hydroxide extract of the oil. It was extracted with ether and after removal of ether, distilled under diminished pressure, the yield being 30 per cent. when it had the following properties:—

130–135°/10 mm.; d_{20}^{20} , 1.070; n_D^{20} , 1.5276; α_D^{20} , \pm 0.

It had a strong odour of eugenol and gave a deep blue colouration with alcoholic ferric chloride, similar to that obtained with eugenol. The fraction (1.0 g.), on treatment with benzoyl chloride (1.5 c.c.) and 10 per cent. caustic soda solution (10 c.c.), yielded a benzoyl derivative which on recrystallisation from alcohol melted at 69–70° and showed no depression when mixed with an authentic specimen of benzoyl eugenol. The characteristic odour of the drug appears to be due to eugenol.

SUMMARY.

The volatile oil obtained from the rhizomes of *Rheum Emodi*. Wall., in a yield of 0.05 per cent. has been examined and its properties recorded. Eugenol has been found to be present, the characteristic odour of the drug being due to this constituent.

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