VOLATILES PRESENT IN ARACHIS HYPOGAEA*

S. E. YOUNG† and G. R. WALLER

Department of Biochemistry, Agricultural Experiment Station, Oklahoma State University, Stillwater, OK 74074, U.S.A.

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Many volatile compounds have been identified in both raw¹ and roasted peanuts²-⁴ but so far the plant itself has not been studied. An Et₂O extract of the steam distillate of the aerial parts was, therefore, subjected to GC–MS analysis. Twenty-eight peaks were detected and five were identified as 1-pentene-3-ol, 1-hexanol, linalool, α-terpineol, and geraniol which comprised, on the average, 4, 4, 28, 6 and 6 %, respectively, of the total extract.

Preliminary identification of the MS was accomplished by comparison with published spectra.⁵ ⁶ The identity of the five compounds was established by comparing GLC retention times, and MS with chemically pure standards. In addition, co-GLC analyses were performed and confirmed the results. Sufficient linalool was isolated by preparative GLC to permit its identity to be confirmed by IR.

EXPERIMENTAL

Extraction of peanut plants. A procedure similar to that of H. Auda et al.⁷ was used for the steam distillation of 1500 g of the aerial parts of peanut plants grown near Perkins, Oklahoma and harvested at maturity. 3 l. of distillate were collected in 5 hr, saturated with NaCl and extracted 5 x 500 ml Et₂O. The combined Et₂O extract was dried (Na₂SO₄) and reduced to 100 ml in vacuo, then to 5 ml under N₂.

Gas Chromatography. Analytical analyses were performed on a 3.3 m x 6 mm glass column (15 % Carbowax 20 M on 80/100 Gas Chrom Q) with a modified hydrogen flame ionization detector⁸ programmed 100–200° at 3°/min. The helium carrier gas flow rate was 40 ml/min. Preparative GC was performed using a 5.4 m x 10 mm glass column (15 % Carbowax 20 M on 60/80 anakrom ABS). Samples were collected in Et₂O at −72°.

GC–MS. The same analytical column and conditions as described above were used to introduce the volatiles into a LKB 9000 mass spectrometer.⁹ MS were taken at 70 eV with the ion source at 250° and the separator at 200°.

IR. Spectra were obtained with samples of 2–5 μl in a cell equipped with AgCl windows.

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† Present address; Department of Biochemistry, Southwestern Medical School, University of Texas.