Phytochemistry, 1967, Vol. 6, pp. 1297 to 1298. Pergamon Press Ltd. Printed in England

SHORT COMMUNICATION

LIPID CONSTITUENTS OF *HYPERICUM ANDROSAEMUM* AND *H. ELATUM*

K. R. HARGREAVES

Chemistry Department, College of Technology, Dundee

F. D. GUNSTONE and GILLIAN M. TAYLOR

Chemistry Department, University of St. Andrews, St. Andrews, Fife

(*Received* 22 *March* 1967)

ONE of us (K. R. H.) has already reported the presence of shikimic acid,[1] hyperin (3-D(+)-galactosidylquercetin),[2] and nonacosane[2] in the tutsan plant (*H. androsaemum* L.), and of α-terpineol and hydrocarbon waxes in both *H. androsaemum* and *H. elatum* Ait.[3] We have now examined some lipid constituents of these plants.

Crushed seeds from the tutsan berry (*H. androsaemum*) were extracted with boiling petrol (b.p. 40–60°) in a soxhlet extractor. The extract (22 per cent) was mainly triglyceride judged from its chromatographic behaviour on thin layers (250 μ) of silica and its NMR spectrum. Transesterification[4] furnished the mixed methyl esters which were examined by gas liquid chromatography on columns containing poly(diethylene glycol succinate) and Apiezon L as stationary phases. From the two chromatograms the composition of the mixed esters was deduced (see Table 1). A similar fraction, extracted in about 10 per cent yield from the whole

TABLE 1. COMPONENT ESTERS OF *H. androsaemum* AND *H. elatum* EXTRACTS

	Ester % of total fraction*					
	16:0	18:0	18:1	18:2	18:3	22:0
H. androsaemum						
Seed oil	8	2	7	51	32	—
Total berry extract (neutral fraction)	9	3	8	51	29	—
H. elatum root bark						
Neutral fraction	19	1	8	50	11	2
Acidic fraction	17	2	11	19	—	33

* The balance required to make these values total 100 per cent represents minor components and unidentified peaks.

[1] K. R. HARGREAVES, *Nature* **206**, 830 (1965).
[2] K. R. HARGREAVES, *Nature* **211**, 417 (1966).
[3] J. CARNDUFF, K. R. HARGREAVES and A. NECHVATAL, *Phytochem.* **5**, 1029 (1966).
[4] E. J. GAUGLITZ, JR. and L. W. LEHMAN, *J. Am. Oil Chemists Soc.* **40**, 197 (1963).

berries, was mainly neutral material (89 per cent). This also proved to be triglyceride and its methyl esters were examined by gas–liquid chromatography. It is apparent that the seed oil contains the usual range of C_{16} and C_{18} acids and that it is particularly rich in polyethenoid C_{18} components ($\sim$80 per cent).

The air-dried bark of the roots of *H. elatum* gave a small amount of petrol-soluble (b.p. 60–80°) material (5 per cent) containing both neutral and acidic substances. The former was again triglyceride and its component acids mainly C_{16} (19 per cent) and C_{18} (70 per cent), accompanied by smaller proportions of other acids, including some with an odd number of carbon atoms. In addition to C_{16} (17 per cent) and C_{18} acids (32 per cent), the acidic fraction contained a C_{22} acid (33 per cent) along with several minor components, some of which were not identified.

Acknowledgement—Mrs. Taylor holds an S.R.C. assistantship and is engaged in a screening programme of seed oils of possible commercial value.