

Fatty Acid Composition of *Spilanthes paniculata*

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AS a part of our programme to explore the herbal drugs from Indian medicinal plants, we chemically investigated an endemic herb of Tripura, *Spilanthes paniculata* Wall. ex DC¹. In earlier communication we reported² the presence of amino acids in the plant. Now we report the fatty acid composition in the aerial parts of the plant.

Aerial parts of the plant, *S. paniculata* (collected from the area of greater Agartala in September 1985) were air-dried, milled and it (1 kg) was extracted with petrol (b.p. 60–80°) in a Soxhlet for 48 h. The petrol extract was concentrated to a gummy residue (6.5 g). The crude residue (6.0 g) was chromatographed through a silica gel column (60–120 mesh). The latter fraction of petrol eluate and earlier fraction of petrol–benzene (9 : 1) eluate on evaporation of solvent afforded an oily residue (1.5 g). The chemical characteristics of this oil were determined by the usual methods: iodine value (Wij's/30 min), 24.5; saponification equivalent (0.5 N alcoholic KOH), 191.5. The oil (1.0 g) was saponified with methanolic 1 N KOH (25 ml) for 2 h in an atmosphere of N₂. The solvent MeOH was removed under reduced pressure and the residue diluted with H₂O. The unsaponifiable matter was recovered by extracting the aqueous layer with ether. The ether layer was washed with H₂O, dried with anhydrous Na₂SO₄ and evaporated to get a residue (0.3 g). The mixture of fatty acids was obtained by acidification of the aqueous layer with dilute HCl to pH 2–3 followed by extraction with solvent ether. The ether layer was washed, dried in the usual manner and evaporated to get an oil of fatty acids (0.6 g).

Me-esters of fatty acids were prepared with CH₃N₃ in the usual manner and were purified through silica gel column chromatography. The purified esters mixture was analysed by glc technique on a Pye Unicam 104 gas chromatograph equipped with a FID and a 10% PEGA column. Operating conditions were inj. port temperature 200°, column temperature 190°, FID temperature 210°, and carrier gas N₂ at flow rate 50 ml min⁻¹. The Me-esters were identified³ by co-glc with authentic samples. The ECL values and relative retention time (with respect to stearic acid) as well as relative abundance (in terms of peak areas) of the Me-esters are given in Table 1.

The presence of unsaturated Me-esters was also confirmed by the catalytic hydrogenation of a part of ester mixture with 10% Pd–C in EtOAc followed by glc analysis under identical condition when the peaks of 10 : 1, 12 : 1, 12 : 2, 14 : 1, 14 : 2, 16 : 1, 18 : 1 and 18 : 2 acids were not observed in the

TABLE 1—EQUIVALENT CHAIN LENGTHS (ECL), RELATIVE RETENTION TIME (RRT) AND RELATIVE ABUNDANCE (RA) OF Me-ESTERS

Me-esters of fatty acids	ECL	RRT (18 : 0)	RA %
Capric (10 : 0)	10.00	0.07	2.4
Decamonoenoic (10 : 1)	10.75	0.09	0.8
Lauric (12 : 0)	12.00	0.14	5.0
Dodecamonoenoic (12 : 1)	12.65	0.17	0.6
Dodecadienoic (12 : 2)	13.55	0.23	0.4
Myristic (14 : 0)	14.00	0.27	8.0
Tetradecamonoenoic (14 : 1)	14.55	0.32	2.2
Tetradecadienoic (14 : 2)	15.50	0.44	2.2
Pentadecanoic (15 : 0)	15.00	0.38	3.3
Palmitic (16 : 0)	16.00	0.52	55.5
Palmitoleic (16 : 1)	16.50	0.61	0.4
Margaric (17 : 0)	17.00	0.72	0.6
Stearic (18 : 0)	18.00	1.00	18.5
Oleic (18 : 1, n-9)	18.95	0.12	3.8
Linoleic (18 : 2, n-6)	18.95	1.96	0.9
Unidentified	—	—	0.4

chromatogram and relative intensities of the corresponding saturated acids were increased.

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Amino Acids of *Ajuga macrosperma*

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THE genus *Ajuga* of the family *Labiatae* comprises 40 species¹ which are found in temperate regions of the world. Only 5 species² are found in India. *Ajuga macrosperma* Wall., an annual hairy herb having flowers in spicate whorls and blue corolla, is found in the upper plain area of greater Agartala. We investigated chemically the whole plant of *A. macrosperma* and detected the presence of twelve amino acids among which six are essential for human system. The identification and relative yields of these amino acids are reported here for the first time.