2. R. TSCHESCHE and G. WULFF, *Prog. Chem. Org. Natural Prod.*, 1973, 30, 461.
3. K. G. LEWIS and D. J. TUCKER, *Aust. J. Chem.*, 1983, 36, 2297.
4. H. BUDZIKIEWICZ, J. M. WILSON and C. DJERASSI, *J. Am. Chem. Soc.*, 1963, 85, 3688.
5. F. D. DODGE, *J. Am. Chem. Soc.*, 1918, 40, 1917.
6. R. SAVOIR, R. OTTINGER, B. TURSCH and G. CHIURDOGLU, *Bull. Soc. Chim. Belg.*, 1967, 76, 371.
7. G. ROMEO, P. GIANNETTO and M. C. AVERSA, *Org. Magn. Reson.*, 1977, 9, 29.
8. S. SEO, Y. TOMITA and K. TORI, *Tetrahedron Lett.*, 1975, 7.

## Amino Acids from *Leucas lanata*

B. DINDA*, U. K. JANA and J. CHATTERJEE

Department of Chemistry,
Calcutta University Post Graduate Centre,
Agartala-799 004

*Manuscript received 18 August 1986, revised 4 May 1987, accepted 19 May 1987*

THE genus *Leucas*[1] belonging to *Labiatae* family comprises 100 species found throughout the world. The species, *Leucas lanata* Benth.[1,2] is found in Tripura along with *L. aspera* Spreng. It is a perennial herb with much branches from a stout rootstock having white flowers in axillary dense whorls, which have calyx straight mouths and setaceous bracts. Tender shoots are used as vegetables and leaves, and used medicinally[1]. To find out the diet value of the plant with respect to amino acid content, we investigated chemically for the first time the aerial parts of the plant and isolated fourteen amino acids among which six are essential. In this communication, we report the isolation, characterisation and relative occurrence of these amino acids.

The aerial parts of the plant, *L. lanata* were collected from Khayerpur area of Agartala in September, 1985. The air-dried milled aerial parts (1 kg) were extracted with petrol (b.p. 60–80°) and 90% ethanol successively in a Soxhlet for 48 h each. The alcoholic extract was concentrated and decolourised by refluxing with a little charcoal. The greenish filtrate was evaporated under reduced pressure to a gummy residue (30.2 g). A part of the residue (1.5 g) was chromatographed[3,4] through Amberlite IR 120(H). Working up the column for neutral and basic amino acids as described[5] led to the identification of lysine, threonine and histidine by co-pc with authentic samples.

Another portion of the crude residue (2.0 g) was chromatographed through Amberlite 1RA 400(OH) and elution with 2 *N* acetic acid for basic and neutral amino acids led to the characterisation of glycine, serine, aspartic acid, glutamic acid, hydroxy proline, proline, alanine, tyrosine, tryptophan, methionine and phenyl alanine by co-pc with authentic samples.

The relative occurrences of amino acids in μg per g of air-dried aerial parts isolated through their ninhydrin complexes and estimated colorimetrically[6] were found to be histidine, 6 80 ; lysine, 4.80 ; threonine, 2.40 ; aspartic acid, 2.28 ; proline, 2.18 ; alanine, 2.01 ; phenylalanine, 1.98 ; glycine, 1.60 ; serine, 1.40 ; tyrosine, 1.05 ; glutamic acid, 1.01 ; hydroxyproline, 0.93 ; tryptophan, 0.75 and methionine, 0.30. The amounts of glycine and serine may be inaccurate as their bands were very close in preparative pc. Among these, histidine, lysine, threonine, phenyl alanine, tryptophan and methionine are essential amino acids for human system.

**Acknowledgement**

Sincere thanks are due to Dr. N. K. Chakraborty, M. B. B. College, Agartala, for identification of plant species, to Prof. J. B. Ganguly, Director of this Centre and to Dr. L. M. Mukherjee, In-charge of this Department for facilities and to U.G.C., New Delhi, for financial assistance.

**References**

1. B. D. DEB, "The Flora of Tripura State", Today & Tomorrow, New Delhi, 1983, Vol. 2, p. 325.
2. "The Wealth of India. A Dictionary of Indian Raw Materials and Industrial Products", C. S. I. R., New Delhi, 1962, Vol. 6, p. 80.
3. E. LEDERER and M. LEDERER, "Chromatography", Elsevier, New York, 1957, p. 127.
4. E. STAHL, "Thin-Layer Chromatography", 2nd. ed., Toppan, Tokyo, 1969, p. 737.
5. B. DINDA and M. K. SAHA, *J. Indian Chem. Soc.*, 1985, 62, 789.

## Amino Acids from *Spilanthes paniculata*

B. DINDA* and S. GUHA

Department of Chemistry,
Calcutta University Post Graduate Centre,
Agartala-799 004

*Manuscript received 7 October 1986, revised 4 May 1987, accepted 19 May 1987*

THE genus *Spilanthes*[1] belonging to *Compositae* family comprises 60 species found in tropical America and exotic in other countries. The species, *Spilanthes paniculata* Wall. ex DC.[1,2] is found in the jhum land and waste places of Tripura. It is an annual herb of 2.5–5 cm long with many branches and yellow paleae embracing flowers. The juice of this plant is used by the tribesmen in the relief of gum pain. We investigated chemically for the first time the aerial parts of the plant and isolated twelve amino acids among which six are essen-