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AMINO ACID AND SUGAR CONSTITUENTS OF FLOWERS OF *MANGIFERA INDICA*

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INTRODUCTION

Mangifera indica belongs to family Anacardiacea a fairly large genus of evergreen trees distributed in tropical and subtropical parts of South Asia [1]. It is widely distributed throughout Pakistan, specially in Sind, Punjab and Northern areas of this country.

Mangifera indica has a large number of medicinal properties specially in traditional system of medicine [2]. During 1931-1988 different group of workers reported the presence of a variety of chemical constituents [3-35].

Our continued interest in indogenous plants of medicinal importance prompted us to investigate the sugar and amino acid constituents of the flowers of *Mangifera indica*, which have not been carried out so far. As a result of paper chromatographic examination. *DL*-threonine alanine, valine *L*-triptophane and two unidentified amino acids were found to be present in the flowers of this plant (Table 1). In addition to this three sugars were also identified which were glucose, galactose and *D*-arabinose (Table 2).

Table 1.

S.	Solvent system	Elution time	Standard amino acids	R_f of standard	R_f of sample
1.	BuOH:AcOH: (H_2) (4:1:5) (upper layer)	22 hrs	–	–	0.3383
			DL-Threonine	0.4173	0.4120
			Alanine	0.5565	0.5122
			–	–	0.6393
			Valine	0.8304	0.8296
			L-Tryptophane	0.9130	0.9106

(i) Descending paper chromatography technique was carried out on Whatman Paper No. 1 (55x22 cm); (ii) Spots were located by spraying ninhydrin solution and heating the chromatogram in an oven at 80° for 15 min.

Table 2.

S.	Solvent system	Elution time	Sugars identified	R_f of standard	R_f of sample
1.	*n*-Butanol:acetic acid:water (4 : 1 : 1)	24 hrs	Glucose	0.26	0.262
			D-Arabinose	0.314	0.300
2.	*n*-Butanol: ethanol:water (4 : 1 : 1)	24 hrs	Glucose	0.2934	0.2869
			Galactose	0.2826	0.2869
			D-Arabinose	0.3826	0.3804

(i) The spots were located by spraying aniline phthalate followed by heating the chromatogram in an oven at 100° for 20 min.

Key words: Amino acids, Sugar, *Mangifera indica.*

REFERENCES

1. The Wealth of India of Raw Materials, Sree Saraswaty Press, Calcutta, **4**, 265 (1962).
2. Indian *Meteria Medica,* **1**, 764 (1976).
3. Hans Molishch, Ber. Deut-botan. Ges., **49**, 324 (1931).
4. S. Ranganatan, Indian J. Med. Res. **23**, 755 (1936).
5. L. Vink (Rehoboth, Palestine), Yedeoth (Proc. Agr. Exp. Sta, Palestine) **4**, .(1-2), 65 (1938).
6. S. K. Vassistha and S. Siddiqui, J. Indian Chem.Soc., **15**, 110 (1938).
7. V. L. Quinones, N.B. Guerrant and R. Adams Dutcher, **9**, 415 (1944).
8. J.L. Bose and S. Siddiqui, J. Sci. Ind. Res., **7B**, 100 (1948).
9. I.H.C. Srivastava, J.Sci.Ind., **Res., 12B**, 363 (1953).
10. G.S.S. Siddappa and B.S. Bhatia, Indian J. Hort., **11**, 104 (1954).
11. S. Iseda, Bull. Chem. Soc. Japan, **30**, 625 (1957).
12. D.L. Nandi, Sci. and Culture, **23**, 618 (1958).
13. P.K. Sen, S. K. Sen and D. Guha, Indian Agriculturist **7**, 133 (1963).
14. L.B. Singh and J.L. Bose, J. Sci. Ind. Res., **20B**, 296 (1961).
15. I.H.I. EL. Sissi and N.A.M. Saleh, Planta Med., **12**, 421 (1964).
16. S.K. Nigam and C.R. Mitra, Indian J. Chem., **21**, 378 (1964).
17. S. Corsano and E. Mincions, Tetrahedron Letters,

28, 2377 (1965).
18. H.I. EL. Sissi, N.A.M. Saleh, A.E.A.El Sherbeiny and M.A.I.El. Ansary Qaualitas Plant, Mater-Vegetabiles, **12**, 262 (1965).
19. H.I.EL. Sissi and M.A.I.EL Ansary, Plant Med., **14**, 171 (1966).
20. S. Corsano and E. Mincione, Rice. Sci., **36**, 494 (1966).
21. S. Corsano and E. Mincione, Ann.Chim. (Rome), **57**, 508 (1967).
22. S. Corsano and E. Mincione, Rice. Sci., **37**, 370 (1967).
23. Aritomi, Masakazu, Kawasaki, Toshio, Chem.Pharm. Bull., **16**, 760, (1968).
24. Mincione, Enrico, Iavarone, Carlo, Corsano, Stefano, Rice. Sci., **38**, 537 (1968).
25. H.I.EL. Sissi, N.A.M. Saleh, Planta Med., **18**, 73 (1969).
26. H.I.EL. Sissi, N.A.M. Saleh, Planta Med., **18**, 185 (1970).
27. Paris, R. Rene Henri Jacquemen, C.R. Acad. Sci., Ser. D., **270**(26), 3232 (1970).
28. A.M. Osman, M.El-Garby Younes, Sheta A.E.J.Chem., **13**, 489 (1970).
29. M.A. Abd-Allah, Ferial M. Abusalem, M.A. Goma, Elemiszervizsgulati Kozl, **21**, 53 (1975).
30. Unilever. N.V. Ger. Offen, 2,635, 549(CI.A 23 D5/00), 24 Feb. 1977, Brit. App. 75/33, 168, 08 Aug. 1975, 15pp.
31. Pal. Surrendra, Ram, Sant Sci. Hortic., **9**, 369 (1978).
32. C. Bandhyo Padhyah, A.S. Gholap, Bhaddha Curr.Sci., **48**, 935 (Eng), (1979).
33. L. Boni, M. Foma, M. Moylacrts, Hendrikx, J.Am.Oil. Chem.Soc., **57**, 243 (1980).
34. J. Sliwosky and Z. Kasprzyk, Phytochemistry, **13**, 1451 (1974).
35. S. Ghosal and D.K. Chakrabarti, Phytochemistry, **27**, 1339 (1988).