Asian Journal of Chemistry Vol. 12, No. 4 (2000), 1339–1340

NOTE

Chemical Analysis of Certain Medicinal Plants of Garhwal Himalayas

M. CHAUHAN and G.S. RAWAT*
Natural Product Laboratory, Department of Chemistry
P.G. College Kotdwara-246 149, India

Total sugar and vitamins were estimated in four medicinal plants *viz Desmodium triflorum, Malvastrum coromendelianium, Parthenium hysterophorus* and *Asparagus racemosus* (Wild). Leaves and roots are analysed. Total sugar, reducing sugar and Vitamin-C is quantitatively and Vitamin-A and Vitamin-B are qualitatively estimated.

Desmodium triflorum is a large genus of perennial or anuual herbs found in the plains and the Himalayas up to 7000 ft. Fresh leaves are applied to wounds and abscesses, used internally as galactagogue and for diarrhoea and dysentery[1-3]. *Malvastrum coromendelianium* leaves given in dysentery and applied to inflamed sores and wounds as cooling and diaphoretic[4]. *Parthenium hysterophorus* is noxious; it reduces fever and analgesic in neuralgia. Its leaves resemble those of carrot[5].

Asparagus racemosus is a climber common in India. Its roots are used in dysentery, diseases of blood, kidney, liver, eye complaints and general debility. It is very nutritive and a good health tonic with cooling and soothing effect on body[6].

The plants were collected from Kotdwara and Rishikesh Hills and identified botanically. The plant's roots and leaves dried in an oven and powdered for analysis. Total sugar estimated by the anthrone method and the spectrophotometric method[7-9, 13,14].

Reducing sugar was determined by Benedict quantitative reagent[10, 11].

Vitamin-A was identified by Carr Price method[10, 12, 15, 16]. Vitamin-B identified by thiochrome reaction method[12, 15, 16]. Vitamin-C was determined by volumetric method using[2, 6] dichlorophenol indophenol dye[8, 12].

All plant materials were analysed by AOAC methods. Table shows reducing and total sugar in percentage value. *M. coromendelianium* roots have more percentage of reducing sugar (0.71%) and *A. racemosus* roots also contain the same value. While malvastrum leaves have low value of reducing sugar-(0.35%) and total sugar is more in *Asparagus* roots (13%) in appreciable amount. Vitamin A is absent in almost all four plant parts but *Parthenium hysterophorus* roots have

the most appreciable quantity. Vitamin-B is present in all plant leaves and Vitamin-C is also present in all plant parts, but *Asparagus racemosus* roots have more (0.1236 mg per 100 g).

TABLE-1

Plant parts	Reducing sugar (%)	Total sugar (%)	Vitamin-A	Vitamin-B	Vitamin-C mg per 100 g
D. triflorum leaves	0.54	5	–	+	0.0769
D. triflorum roots	0.65	6	–	–	0.0492
M. coromendelianium leaves	0.35	9	–	+	0.0309
M. coromendelianium roots	0.71	8	–	–	0.0309
P. hysterophorus leaves	0.56	4	+	+	0.0720
P. hysterophorus roots	0.45	4.5	+++	–	0.0420
A. racemosus leaves	0.65	7.5	–	+	0.0950
A. racemosus roots	0.71	13	–	–	0.1236

Note: + = trace, +++ = good, – = not detected

All samples were analysed only on dry basis.

REFERENCES

1. R.N. Chopra, S.L. Nayar and I.C. Chopra, Glossary of Indian Medicinal Plants, CSIR Publication 94 (1980).
2. Fl. Br. India, Vol. II, p. 173.
3. I.H. Burkill, A Dictionary of Economic Products of Malay Peninsula, Vol. I, p. 795.
4. Fl. Br. India, Vol. I, p. 321.
5. *J. Bombay Nat. Hist. Soc.*, **57**, 218 (1956).
6. Fl. Br. India, Vol. IV, p. 316.
7. D. Michet, K.A. Gilles, J.K. Hamilton, P.A. Rebers and F. Smith, *Nature*, 166 (1951).
8. S. Sadasivam and A. Manickam, Biochemical Methods, New Age International Publ. and Tamilnadu Agri. Univ., Coimbatore, 2nd Edn., 8–9, 184 (1996).
9. Ayesha Siddique and M.A. Kashem, *Indian J. Agri. Res.*, **27**, 57 (1993).
10. D.T. Plummer, An Introduction to Practical Biochemistry, Tata McGraw-Hill Publ. Co. Ltd., Bombay-New Delhi, p. 114 (1971).
11. Abdel Razek, A. Salama, Malak A. El-Sahn, S. Mesallam Ahmed and M. El-Tabey Shehata Ahmed, *J. Sci. Food Agri.*, **75**, 50 (1997).
12. M.A. Joslyn, Methods in Food Analysis, Academic Press, New York, p. 752 (1970).
13. S. Tyagi, S. Sarraf, A.C. Ojha and G.S. Rawat, *Himalayan Chem. Pharm. Bull.*, **11** (1994).
14. S. Sarraf, A.C. Ojha and G.S. Rawat, *Asian J. Chem.* **6**, 733 (1994).
15. K.S. Sandhu and F. C. Shukla, *J. Food Sci. Tech.*, **33**, 455 (1996).
16. N.G. Malleshi and C.F. Klopfenstein, *J. Food Sci. Tech.*, **33**, 479 (1996).

(*Received:* 6 April 2000; *Accepted:* 26 July 2000) AJC-2104