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PHYTO-CHEMICAL ANALYSIS OF THE SEEDS OF *ASTERACANTHA LONGIFOLIA* (NEES)

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ABSTRACT

On phyto-chemical analysis, the seeds of the plant *Asteracantha Longifolia* (Nees) were found to consist of *Asteracantha Longifolia* (Nees) a sugars *Asteracantha longifolia* (Nees) as amino acids.

Key words: *Asteracantha longifolia* (Nees), Paper chromatography, Sugars and amino acids.

INTRODUCTION

Asteracantha longifolia[1] (Nees) (No Acanthaceae) is commonly known as Tal.-Makhana in Hindi and Niramali in Malayalam.

The plant is distributed in moist places in throughout India. The decoction of the roots of this plant is reported to be diuretic, while the seeds are prescribed for the treatment of gonorrhoea and also with milk and sugar for the treatment of sugar spermatorrhoea. The leaves, roots and seeds are reported to be diuretic and useful for treating jaundice, dropsy and also for rheumatism along with the diseases of urino genital tract.

EXPERIMENTAL

The seeds of plant were collected locally and got identified by senior taxonomist of the region. About 50 g of powdered seeds were refluxed with 10 g of calcium carbonate and 100 mL of distilled water in a round bottomed flask for 1 hour. The aqueous extract was separated by filtration and the powdered seeds were refluxed again thrice with 50 mL of distilled water each time in the same round bottomed flask. The aqueous filtrates were combined and in it 10% solution of lead acetate was added till the precipitation was

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complete. It was filtered and hydrogen shlphide gas was passed in the filterate. The residue was separated by the filtration and the filtrate was neutralised with ammoma. The neutral solution was concentrated on water bath till the volume was reduced to 20 mL.

The analysis of sugars

The identification[2] of sugars was done by application of the spot of the concentrated test mixture and authentic sugars on Whatman No. 1 filter paper and chromatograms were developed in the solvent system n-butanol : acetic acid : water (4 : 1 : 5, upper layer). After development of the chromatogram, it was sprayed with anisaldehyde sulphuric acid reagent[3]. The identity of test sugars were established by comparision of their R_f values with those of authentic sugar samples as tabulated below:

Table 1: Solvent system-Butanol-acetic acid-Water (4 : 1 : 5 V/V) spraying reagent-aniline hydrogen phthalate

S. No.	R_f recorded	R_f of authentic sample found	Sugar Identified
1	0.10	0.09	Lactose
2	0.17	0.17	D-galactose
3	0.18	0.18	D-mannose
4	0.19	0.19	D-glucose
5	0.20	0.21	Arabinose
6	0.25	0.26	D-fructose
7	0.28	0.27	Xylose
8	0.61	0.60	Sucrose

The analysis of amino acids

Isolation protein

About 100 g of powdered seeds were defatted with petroleum ether and the defatted seeds were macerated with brine solution at room temperature. The mixture was centrifuged and supernatant liquid was decanted. The residue was again stirred with brine solution and centrifuged. This process was repeated till the liquid gave negative biuret test. To the

combined supernatant, liquids, 6 N HCl was added to precipitate the crude protein. The mixture was centrifuged and crude protein was thus obtained.

Hydrolysis of the crude protein[4]

About 100 mg of the crude protein was hydrolysed by refluxing with 100 mL of 6 N HCl for 20 h at 105-110^{o}C. The solution was decolorized by animal charcoal and the hydrolysate was dissolved in water (30 mL) filtered and concentrated to dryness. The excess of acid was removed by repeatedly dissolving in water and evaporations, and finally it was dissolved in 10% isopropanol. The solution thus obtained was subjected to descending paper chromatography, developing in the solvent system n-butanol : acetic acid : water (4 : 1 : 5, upper layer) and sprayed with ninhydrin in 95% butanol containing 5% 2 N acetic acid. Amino acids were identified by co-chromatography with authentic samples. R_f values are reported[5] and observed are given in the Table 2.

Table 2: Identification of amino-acids

S. No.	R_f of authentic	R_f Observed	Amino acid identified
1.	0.18	0.17	Serine
2.	0.20	0.20	Glycine
3.	0.24	0.26	Threonine
4.	0.30	0.30	Proline
5.	0.37	0.35	Valine
6.	0.42	0.42	Tyrosine
7.	0.51	0.51	Glutamic acid
8.	0.71	0.72	Methionine

RESULTS AND DISCUSSION

The perusal of Table 1 and 2 concluded that on the basis of paper chromatography the seeds of the plant *Asteracantha longifolia* (Nees) consisted as; Lactose, D-galactose, D-mannose, D-glucose, Arabinose, D-fructose, xylose, Sucrose, as Carbohydrates and Serine, Glycine, Threonine, Proline, Valine, Tyrosine, Glutamic acid, and Methionine as amino acids.

REFERENCES

1. R. N. Chopra, S. L. Nayar and I. C. Chopra, Glossarry, Glossary of Indian Medicinal Plants, C. S. I. R. Publication (1956) p. 29.
2. J. K. N. Jones and F. Smith, Advances in Carbohydrate Chemistry, Part IV, 2nd Edn., Academic Press, N.Y. (1967).
3. W. G. Overend, The Carbohydrates, Academic Press, New York (1972) p. 321 & 324.
4. E. Lederer and M. Lederer, Chromatography Elsevier Publication, Company Amsterdam New York (1957).
5. E. G. V. Percival, Structural Carbohydrate Chemistry, J. Garent Miller, London (1962) p. 70.

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