

## NOTE

**Phytochemical Study of Some Medicinal Plant**

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Leaves, root and bark of *Adhatoda vasica* Nees, leaves, root and seed of *Argemone mexicana* Linn. and leaves and root of *Asparagus racemosus* Willd. were analysed for the estimation of sugar and vitamins. In general, thirteen sugars were identified in various medicinal plant parts. *A. vasica* contains more amount of free sugars as compared to other plants.

*Adhatoda vasica* Nees is a small gregarious evergreen shrub; the plant is common in sub-Himalayan forests and throughout the plains of India. *A. vasica* is a well known drug in Ayurvedic and Unani systems of medicine and is recommended for a variety of ailments as a diaphoretic and prophylactic and for diarrhoea. The roots are also used as a febrifuge<sup>1</sup>.

*A. mexicana* Linn<sup>2</sup> is a genus of prickly herbs including about twelve species, out of which only one species *Argemone mexicana* is found in India. The juice of this weed is diuretic and alterative<sup>3</sup>. It is given in dropsy, jaundice, skin disease and gonorrhoea. Being mildly corrosive, the juice is applied to blisters, rheumatic pains, excoriations, ulcer, scabies and cancers. The seed yields a nonedible oil which is applied locally over skin diseases.

*A. racemosus*<sup>4</sup> is a scandent climber common in India. The tuberous roots are unctuous, demulcent, diuretic, laxative, expectorant, tonic, astringent to the bowels. They are useful in throat complaints, tuberculosis, leprosy and epilepsy.

In the present study the plant parts were tested for sugars and vitamins. In the next communication, the authors will report the principal constituents of the above medicinal plants.

The plants were collected from the surrounding areas of Kotdwar and identified botanically. The plant parts were separated, dried in open and powdered for analysis. Defatted 1 g powder was extracted with 80% ethanol and centrifuged. The supernatant was evaporated to a semidried film in a water bath at 40°C and then 1 ml of ethanol was added to it. This solution was used for chromatography for sugars.

The sugars were identified and estimated by paper chromatography<sup>5</sup> and calorimeter<sup>6</sup>. The total sugar and reducing sugars were estimated by calorimeter

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(phenol-sulphuric method) and Benedict's quantitative method<sup>7</sup> respectively. For vitamins<sup>8</sup> the sample was refluxed gently for at least 30 min with 30 mL of ethanol and 3 mL of a solution of 50 gm. KOH in 50 mL of water. After saponification the sample was partitioned with ether, which was washed free of alkali, dried and filtered. The solution was carefully evaporated and the residue immediately taken up in chloroform and anhydrous solution of antimony trichloride reagent was added.

TABLE-1

Plants	<i>Adhatoda vasica</i>			<i>Argemone mexicana</i>			<i>Asparagus racemosus</i>	
	L	R	B	L	R	S	L	R
<i>Sugars (%)</i>								
Total sugars	8.90	2.30	7.40	1.30	5.30	1.40	3.80	8.70
Reducing sugars	0.61	0.72	0.93	0.82	0.75	0.97	0.49	0.51

L = leaves, R = root, B = bark, S = seed, Figures shown on % matter basis.

TABLE-2

Plants	<i>Adhatoda vasica</i>			<i>Argemone mexicana</i>			<i>Asparagus racemosus</i>	
	L	R	B	L	R	S	L	R
<i>Sugars (%)</i>								
Raffinose	+++	11	10	++	1	-	++	++
Lactose	14	++	12	+	++	12	-	-
Maltose	++	+	+	33	17	++	11	1
Sucrose	-	-	-	-	+	++	-	-
Glucose	+++	++	+	++	-	++	+	++
Mannose	21	2	20	++++	++	21	2	20
Arabinose	-	-	-	+++	20	++	-	-
Fructose	+	-	++	-	+	+	22	++
Xylose	++	+++	21	-	-	-	25	+++
Ribose	24	++	23	+	19	++	++	25
Rhamnose	+	++	18	++	21	+	-	-
Vitamin A	-	-	-	-	-	++++	-	++
Vitamin B	++	+++	+	+++	+	++	++	+++
Vitamin C	-	-	-	++	+++	+	++	+

- = not detected, + = trace, ++ = moderate, +++ = good, ++++ = rich, S = stem, L = leaves, B = bark, S = seed, R = root.

Sugars and vitamins were identified and estimated by paper chromatography and spectrophotometric method and colorimetrically<sup>7</sup>.

Chemical analysis of various parts of all plants is given in Table 1. It indicates that *Asparagus* leaves and roots contained lesser reducing sugars and more total sugar and vitamin values compared to other parts of all plants. In general, plants accumulated more reducing sugar and attained higher value of total sugars. Eleven free sugars were identified in different parts of the plants (Table 2). Raffinose, sucrose, glucose, mannose, arabinose, ribose and rhamnose were found in all parts

of the plant. Bark of *A. vasica* contained nine free sugars while leaves contained eight free sugars. Lactose was found in *A. vasica* and *Argemone*. Arabinose was the only sugar noted in *Argemone*. From Table 2 it is clear that all parts of the plant contain more Vitamin B in comparison to Vitamin A. Vitamin A was rich in the seeds of *Argemone*. Approximately 3 to 10 free sugars were identified in each plant part. In general, the level of free sugars is not below the average value. In all plant parts vitamin B has given very good value

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