

Chemical Investigation of Some Medicinal Plants of Shivalik Hills

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Sugars and vitamins were estimated in four medicinal plants viz., *Ageratum conyzoides*, *Colebrookea oppositifolia*, *Fumaria parviflora*, and *Pogostemon plectranthoides*. More free sugars are present in *C. oppositifolia*. *Pogostemon* leaves are rich in reducing sugars. Total sugar is in excess in the *F. parviflora*. Vitamin A is present in the flowers of *A. Conyzoides* and in the leaves of *F. parviflora*. Vitamin B is present in *A. conyzoides*, *F. parviflora* and *P. plectranthoides* and absent in *C. oppositifolia*.

INTRODUCTION

Ageratum conyzoides is a small genus of aromatic herb. The plant is common in hilly regions and is used as a drug in Indian medicine. An infusion of the weed is given as a tonic in diarrhoea and flatulent colic. *Colebrookea oppositifolia* is woody type of shrub found in the hilly regions throughout India. The leaves are applied for wound and bruises.

Fumaria parviflora is a genus of the herbs distributed in the mediterranean region. It is regarded as a laxative and diuretic and is said to be beneficial in dyspepsia and scrofulous skin infections. The seeds of the plant are used as a remedy for body ache². *Pogostemon plectranthoides* is a shrubby plant distributed in the lower Himalyas. Its roots are used as a remedy for haemor, useful in uterine haemor and antacid to scorpion sting and snake bite. In the present study the plant parts were tested for sugar and vitamins. In the next communication the authors will report the chemically active constituents of the above medicinal plants.

EXPERIMENTAL

The plants were collected from the surrounding area of Kotdwara and identified botanically. The plant parts were separated, dried in open and powdered for analysis.

Nonstructural carbohydrates were determined by the methods as described by Stoddart³, Nelson⁴, Somogyi⁵, Murphy⁶ and Thomson⁷.

Alcohol extracts of the plant material after purification were analysed by

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co-chromatographic method. The spotted paper was irrigated with 4:1:5 n-BuOH : AcOH : H₂O. After drying the paper was sprayed by ammonical silver nitrate⁸. After oven dried sugars were reveal as brown spots. Reducing sugars were determined by Benedict quantitative reagents⁹. Vitamin A was determined by using the Carr-Price method¹⁰. Vitamin B was determined by using the thiochrome reaction.¹¹

TABLE-1
FREE SUGARS IN PERCENTAGE
(FIGURES SHOW PERCENTAGE)

Free sugars	<i>A. Conyzoides</i>		<i>C. oppositifolia</i>		<i>F. parviflora</i>		<i>P. Plectranthoides</i>	
	L	F	L	R	L	F	L	R
Glucose	0.28	++	+	0.26	0.12	+	0.10	++
Fructose	0.14	0.30	0.32	++	0.14	+	0.30	0.11
Sucrose	++	+	0.22	++	0.32	++	-	-
Maltose	-	-	-	0.12	++	0.20	-	-
Ribose	0.21	0.15	+	0.14	-	++	-	-
Xylose	-	-	0.17	0.21	-	-	+	0.20
Rhamnose	-	-	0.12	0.13	-	-	0.16	+
Vitamin A	-	+++	-	-	+++	-	-	+
Vitamin B	++	++	-	-	++	++	++	++

Note: 1. - = Not detected, + = Trace, ++ = Moderate, +++ = Good, L = Leaves, F = Flowers, R = Roots)

2. Vitamins are qualitatively identified.

TABLE-2

Plant parts mg/100 gm.	Reducing sugars	Total sugars
<i>A. conyzoides</i> leaves	0.56	8.3
<i>A. conyzoides</i> flowers	0.52	1.2
<i>C. oppositifolia</i> leaves	0.71	6.0
<i>C. oppositifolia</i> roots	0.60	3.1
<i>F. parviflora</i> leaves	0.64	8.9
<i>F. parviflora</i> flowers	0.50	5.2
<i>P. plectranthoides</i> leaves	0.42	5.1
<i>P. plectranthoides</i> roots	0.53	6.4

RESULTS AND DISCUSSION

From Table 1 it is clear that in all 7 sugars were identified. In *A. conyzoides* the leaves contain glucose in appreciable amount while the flowers contain fructose. In case of *C. oppositifolia* fructose, sucrose, xylose and rhamnose are found in leaves while the roots contain glucose, maltose, ribose, xylose and rhamnose. In case of *F. parviflora* glucose, fructose, sucrose are present in the

leaves while in flowers only maltose is present. In case of *P. plectranthoides* the leaves contain glucose, fructose and rhamnose in appreciable amount while the roots contain only xylose.

Vitamin A is present in the flowers of *A. conyzoides* and in the leaves of *F. Parviflora* and absent in other plant parts. Vitamin B is present in the leaves and flowers of *Ageratum* plant. It is also found in the leaves of pogosteman and in the roots of pogostemon it is in small quantity. In *C. oppositifolia* vitamin B is almost present in traces.

From Table 2, it is clear that *C. oppositifolia* possesses excess amount of reducing sugars than the others. In *P. Plectranthoides* the reducing sugars are in minimum quantity. In case of *A. conyzoides* the leaves contain more total sugar in comparison to the flowers. In *C. oppositifolia* leaves total sugar is in appreciable amount while the roots contain less amount of total sugars. Leaves of *F. parviflora* are rich in total sugar in comparison to flowers. Leaves and roots of *P. plectranthoides* contain approximately same quantity of total sugar.

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