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Ascorbic Acid Contents from Some Medicinal Tree Species of Nagaur District of Rajasthan

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ABSTRACT

Evaluation of Ascorbic acid contents of stems, leaves and fruits from four selected medicinal tree growing in Nagaur district of Rajasthan was carried out. Trees like *Acacia tortilis*, *Prosopis cineraria*, *Salvadora persica* and *Tecomella undulata* were collected from three different sites of study area for analysis. Among all the three selected tree species the Among all the four plant species the maximum (57.21 mg/100 g.d.w.) amount of ascorbic acid was found in fruits of *Salvadora persica* collected from Alaye area, while the stems of *Tecomella undulata* had minimum concentration (41.00 mg/100 g.d.w.) collected from Khinvsar area.

Keywords: Ascorbic acid contents, Medicinal tree species, Nagaur district, Rajasthan

1. Introduction

The medicinal tree species of growing in Nagaur district of Rajasthan are good and potential source of nutritionally and phytochemically important compounds so these can be considered as livestock feed. Ascorbic acid, also called as anti-scorbutic (Vitamin C), is an important primary product and well known for its property as an electron donner in photophosphorylation.

The role of ascorbic acid in plant growth and metabolism has been worked out by various workers [1-4]. Free endogenous ascorbic acid has been recently reported from some arid zone plant species [5-13].

2. Materials and Methods

The present investigation deals with evaluation of free endogenous ascorbic acid contents of stems, leaves and fruits of four selected medicinal tree species growing in Nagaur district of Rajasthan like like *Acacia tortilis*, *Prosopis cineraria*, *Salvadora persica* and *Tecomella undulata*.

The stems, leaves and fruits of all the three selected plant species taken for present investigation were collected from three different sites Alaye, Khinvsar and Merta areas of Nagaur district.

Plant parts were collected in polythene bags. The samples were dried, powdered and then used for the estimation of free endogenous ascorbic acid.

Fresh and healthy roots, shoots and fruits of selected plants collected from Bikaner district were dried and homogenized in a mortar with 2% metaphosphoric acid (MPA)(10 mg powder: 100 ml MPA) and allow to macerate for one hour. The mixtures were centrifuged at low speed (2500 rpm) and supernatants were used for estimation of ascorbic acid following the colorimetric method [14]. Absorbancy of each of the sample was measured on a spectronic-20 colorimeter (Bausch & Lamb) set at 546 nm against blank. Values are expressed in mg/100 g.d.w.

3. Results and Discussion

Concentration of the ascorbic acid in the various parts (stems, leaves and fruits) of all the plant species i.e. *Acacia tortilis*, *Prosopis cineraria*, *Salvadora persica* and *Tecomella undulata* collected from three different sites i.e. Alaye, Khinvsar and Merta sites of Nagaur district are presented in Table 1.

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Table 1: Ascorbic Acid Contents (mg/100 g.d.w.) of Various Plant Parts of Selected Tree Species

Plants	Stems			Leaves			Fruits		
	I	II	III	I	II	III	I	II	III
<i>Acacia tortilis</i>	45.02	44.42	43.31	49.42	49.00	47.76	52.42	51.44	50.00
<i>Prosopis cineraria</i>	42.25	41.15	42.00	30.30	31.32	30.00	43.58	42.50	42.00
<i>Salvadora persica</i>	54.40	50.10	50.00	52.20	48.00	49.10	57.21	49.44	56.00
<i>Tecomella undulata</i>	44.02	41.00	42.20	43.39	41.19	40.00	45.54	44.16	44.00

I - Alaye area

II - Khinvsar area

III - Merta area

In *Acacia tortilis* maximum (52.42 mg/100 g.d.w.) ascorbic acid contents was found in fruits collected from Alaye area while minimum (43.31 mg/100 g.d.w.) in its stems collected from Merta area.

In *Prosopis cineraria* maximum (43.58 mg/100 g.d.w.) ascorbic acid contents was found in fruits collected from Alaye area while minimum (30.30 mg/100 g.d.w.) in its leaves collected from the Alaye area.

In *Salvadora persica* maximum (57.21 mg/100 g.d.w.) ascorbic acid contents was found in its fruits collected from Alaye area, while minimum (48.00 mg/100 g.d.w.) in its leaves collected from the Khinvsar area.

In *Tecomella undulata* maximum (45.54 mg/100 g.d.w.) ascorbic acid contents was found in its fruits collected from Alaye area, while minimum (41.00 mg/100 g.d.w.) in its stems collected from the Khinvsar area.

Among all the four plant species the maximum (57.21 mg/100 g.d.w.) amount of ascorbic acid was found in fruits of *Salvadora persica* collected from Alaye area, while the stems of *Tecomella undulata* had minimum concentration (41.00 mg/100 g.d.w.) collected from Khinvsar area.

4. Conclusion

The present investigation shows that increasing amount of ascorbic acid contents in various plant parts of all selected plant species is directly proportional to growth of an arid zone plant in the direction of rooting to fruiting stages.

The present study thus indicates that medicinal tree of this arid region of Rajasthan are good source of ascorbic acid (Vitamin C) so these can be used as livestock feed.

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