

Research Article

ASCORBIC ACID CONTENTS FROM SOME MEDICINAL TREE SPECIES OF SIROHI DISTRICT OF RAJASTHAN

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ABSTRACT

Evaluation of Ascorbic acid contents of stems, leaves and fruits from three selected medicinal tree growing in sirohi district of Rajasthan was carried out. Medicinal Tree species like *Butea monosperma*, *Cassia fistula* and *Madhuka indica* were collected from three different sites i.e. Mount Abu, Pindwara and Shivganj of Sirohi district for analysis. Among all the three selected tree species the maximum (58.58 mg/100 g.d.w.) amount of ascorbic acid was found in leaves of *Butea monosperma* collected from Mount Abu area, while the stems had minimum concentration (40.27 mg/100 g.d.w.) collected from same area.

Keywords: Ascorbic Acid Contents, Medicinal Tree Species, Sirohi District, Rajasthan

INTRODUCTION

The medicinal tree species of growing in Sirohi district of Rajasthan are potential source of nutritionally 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 donor in photophosphorylation.

The role of ascorbic acid in plant growth and metabolism has been worked out by various workers (Arnon *et al.*, 2004, 1954; Aberg, 1958; Mitsui and Oi, 1961; Isherwood and Mapson, 1962.) Free endogenous ascorbic acid has been recently reported from some arid zone plant species (Kapoor, 1989; Harsh and Ahmed, 1994; Kapoor and Ritu, 1996; Kapoor *et al.*, 2004; Kapoor *et al.*, 2005; Kapoor and Mishra, 2013; Kapoor and Purohit, 20013; Kapoor and Pandita, 2013).

MATERIALS AND METHODS

The present investigation deals with evaluation of free endogenous ascorbic acid contents of stems, leaves and fruits of three selected medicinal tree species growing in Sirohi district of Rajasthan like *Butea monosperma*, *Cassia fistula* and *Madhuka indica*.

The stems, leaves and fruits of all the three selected plant species taken for present investigation were collected from three different sites Mount Abu, Pindwara and Shivganj areas of Sirohi 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 stems, leaves and fruits of selected plants collected from Sirohi 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 (Jenson, 1962). Absorbancy of each of the sample was measured on a spectronic-20 colorimeter (Bausch & Lomb) set at 546nm against blank. Values are expressed in mg / 100 g.d.w.

RESULTS AND DISCUSSION

Concentration of the ascorbic acid in the various parts (stems, leaves and fruits) of all the selected plant species i.e. like *Butea monosperma*, *Cassia fistula* and *Madhuka indica* were collected from three different sites i.e. Mount Abu, Pindwara and Shivganj of Sirohi 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 Medicinal Tree Species

Plants	Stems			Leaves			Fruits		
	I	II	III	I	II	III	I	II	III
<i>Butea monosperma</i>	40.27	46.12	40.48	58.58	54.35	49.74	55.72	52.32	47.47
<i>Cassia fistula</i>	42.57	41.16	44.29	50.34	49.17	47.30	48.47	46.73	50.58
<i>Madhuka indica</i>	43.61	47.00	41.81	45.12	48.03	53.81	53.40	54.11	57.06
I - Mount Abu			II - Pindwara			III - Shivganj			

In *Butea monosperma* maximum (58.58 mg/100 g.d.w.) ascorbic acid contents was found in leaves collected from Mount Abu area while minimum (40.27 mg/100 g.d.w.) in its stems.

In *Cassia fistula* maximum (50.58 mg/100 g.d.w.) ascorbic acid contents was found in fruits collected from Shivganj area while minimum (41.16 mg/100 g.d.w.) in its stems collected from the Pindwara area.

In *Madhuka indica* maximum (57.06 mg/100 g.d.w.) ascorbic acid contents was found in its fruits collected from Shivganj area, while minimum (41.81 mg/100 g.d.w.) in its stems collected from the same area.

Among all the three plant species the maximum (58.58 mg/100 g.d.w.) amount of ascorbic acid was found in leaves of *Butea monosperma* collected from Mount Abu area, while the stems had minimum concentration (40.27 mg/100 g.d.w.) collected from same area.

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 species of this Sirohi region of Rajasthan are potential source of ascorbic acid (Vitamin C) so these can be used as livestock feed.

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