



Capparidaceous Medicinal Plants of North-West Rajasthan: Good Sources of Ascorbic Acid

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Abstract

Ascorbic acid contents of roots, shoots and fruits of three selected medicinal plants like *Capparis decidua*, *Cleome gynandra* and *Cleome viscosa* of family Capparidaceae have been analysed. Maximum ascorbic acid contents were found in the fruits of *Capparis decidua* (108.12mg/100g.d.w.) while, minimum in the roots of *Cleome viscosa* (62.25mg/100g.d.w.).

Key words: Ascorbic acid contents; Capparidaceous medicinal plants; North-west Rajasthan

1. Introduction

The medicinal plants of North-west Rajasthan are good and potential source of nutritionally and phytochemically important compounds so they 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 photosynthetic 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 [5-10]. In the present investigation, attempts have been made to investigate the quantitative production of free endogenous ascorbic acid in the

roots, shoots and fruits of *Capparis decidua*, *Cleome gynandra* and *Cleome viscosa*.

2. Materials and Methods

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 [11]. Absorbance 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

3. Results and Discussion

Table 1: Ascorbic acid contents (mg / 100 g.d.w) of roots, shoots and fruits of selected plant species.

Plants	Roots	Shoots	Fruits
<i>Capparis decidua</i> ,	70.32	82.57	108.12
<i>Cleome gynandra</i>	64.28	82.35	90.68
<i>Cleome viscosa</i>	62.25	89.40	96.18

The roots, shoots and fruits of all the three plant species showed much variation in the ascorbic acid contents. Maximum ascorbic acid contents were found in the fruits of *Capparis decidua* (108.12mg/100g.d.w.) while, minimum in the roots of *Cleome viscosa* (62.25mg/100g.d.w).

Discussion

The present study thus indicates that herbal plants of semi-arid region of Rajasthan are good source of ascorbic acid (Vitamin C) so they can be used as livestock feed.

References

1. Arnon, D.I. Whatley, F.R. and Allen.M.B. Photosynthesis by isolated chloroplast II, Photosynthetic Phosphorylation and the conversion of light into phosphate bound energy .*J. Amer.Chem. Soc.* 1954;**76**: 6324-6329.
2. Aberg, B. Ascorbic acid formation, storage, mobilisation and transformation of carbohydrates. In: *Encyclopedia of Plant Physiology*, Springer Verlag. Berlin 1958;6:479-499
3. Mitsui, A. & Oi, Y. Endogenous changes of photochemical activities of Spinach leaves.

Conflict of interest statement

We declare that we have no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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Plant Cell Physiol. Tokyo, 1961;2: 45-50.

4. Isherwood, F.A. & Mapson , L.W. Ascorbic acid metabolism in plants: Part II. Biosynthesis. *Ann. Rev. Plant Physiol.* 1962;13: 329-350.
5. Kapoor B.B.S. Free endogenous ascorbic acid from *Argemone mexicana* growing in Arid Zone of Rajasthan . *Oikoassay* 1989;6 (2) : 83.
6. Harsh, M.L. and Ahmed, S. *Maytenus emarginata*, *Parkinsonia aculeate* and *Tecomella undulata* : New Sources of ascorbic acid . *Oikoassay* 1994;11:5.
7. Kapoor B.B.S. and Ritu. Comparative evaluation of ascorbic acid from some trees

- growing in arid zone of Rajasthan . *Oikoassay* 1996;13 (1&2): 29.
8. Kapoor B.B.S. and Priydershan Ranga. Ascorbic acid contents from asteraceous medicinal plants of Rajasthan desert . *Indian J. of environmental sciences* 2003;7 (2) : 173 – 174
 9. Kapoor B.B.S., J.S.Khatri, bhumika and Priydershan Ranga. Herbal plants of Hanumangarh district : New sources of ascorbic acid. *J. Phytol.Res.* 2004;17(1): 111-112
 10. Kapoor B.B.S.,J.S.Khatri, bhumika and Priydershan Ranga. Evaluation of ascorbic acid contents in some arid zone tree species. *Indian J. of environmental sciences.* 2005;9(1): 31-32
 11. Jenson, W.A. 1962. *Botanical Histochemistry – Principles and Practice.* W.H. Freem and Co San Fransisco. 201.

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