J. Phytol. Res. **19**(1) : 147-148, 2006

NUTRITIVE VALUE OF SOME EDIBLE WILD PLANTS OF THE ARID REGION OF RAJASTHAN

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A number of edible wild plants are used by local people especially during drought and famine in the arid region of Rajasthan. Present work deals with the nutritive value and toxicity of five edible wild plant species – *Calligonum polygonoides* (Phog), *Leptadenia pyrotechnica* (khimp), *Moringa oleifera* (sahenjana) *Prosopis chilensis* (Angreji Banwalio) and S*alvadora persica* (Mitha Jar) of this region. All the species contained high percentage of crude protein and maximum was estimated in *Moringa oleifera* (pod). Dry fruits of *Salvadora persica* had 22.50% crude fat and 45.82% crude fibres whereas *Moringa oleifera* contained only 2.27% crude fibres. A good amount of free ascorbic acid was present in all the species. *Leptadenia pyrotechnica* and *Salvadora persica* showed the presence of saponins.

Keywords : Alkaloids; Ascorbic acid; Edible wild plants; Nutritive value; Saponins; Tannins.

Edible wild plants have been of significant role in all the geographical regions of the world[1,2]. Arid region of Rajasthan is an important part of Great Indian Desert. The local people of this area use a number of edible wild plants particularly in scarcity for their rescue so named them as an emergency food. Much less attention has been given to the method of use, nutritive value and toxicity of these plants particularly those which are not so common[3-5]. The present study has been under taken for estimating the nutritive value of the edible parts of *Calligonum polygonoides* (Phog), *Leptadenia pyrotechnica* (Khimp), *Moringa oleifera* (Sahenjana), *Prosopis chilensis* (Angreji Banwalio) and *Salvadora persica* (Mitha Jar).

Edible parts of plants were collected, dried and powdered and analysis was made on dry matter basis. Nutritive and mineral contents were estimated by AOAC[6] methods. The quantitative estimation of free ascorbic acid was carried out calorimetrically following the method developed by Chinoy[7]. Qualitative estimation of alkaloids, tannins and saponins were made by the method of Amar Singham *et al.*[8] and Arther and Chan[9].

The desert plants are good source of proteins. It has been suggested that adequate amount of nitrogen supply to plant maintain normal metabolism under water and heat stress which is one of the major factor for the plants of arid areas[10]. The estimation of nutritive value and

Table 1. Nutritive and Mineral (On % dry matter basis) and ascorbic acid (mg/100 gdw) contents in edible part of plants

Nutritive Content	*Calligonum polygonoides* (Flowering buds)	*Leptadenia pyrotechnica* (Pods)	*Moringa oleifera* (Pods)	*Prosopis chilensis* (Pods)	*Salvadora persica* (Fruits)
Crude Protein (CP)	15.20	9.10	19.30	11.94	12.95
Crude Fibre (CF)	08.49	29.90	02.27	25.31	45.82
Ether Extract (EE)	06.21	09.09	06.30	03.70	22.50
Total Ash	07.65	09.45	09.25	07.67	07.55
Nitrogen Free Extract (NFE)	62.45	42.46	63.07	51.38	11.18
Total Organic Matter	92.35	90.55	90.95	92.33	92.45
Total Carbohydrate	70.94	72.36	65.35	76.69	57.00
Calcium (Ca)	01.89	01.07	01.19	01.80	01.73
Phosphorous (P)	0.80	0.58	0.56	01.02	0.69
Ascorbic acid	124.26	109.16	102.83	116.70	132.13

toxicity is essential for the efficient utilization of available plant as a whole or its parts. In the arid region of Rajasthan owing to low rainfall, limited irrigation facilities and low productivity of crops, the purchasing power of the village people is very low so that they use a number of wild plants as food and vegetable especially in the condition of famine and drought. Young pods of *L. pyrotechnica* and *M. oleifera* are used as vegetable, flowering buds of *C. polygonoides* are mixed in curd and whey, pods of *P. chilensis* and fruits of *S. persica* are directly eaten by villagers.

Protein content was found maximum (19.30%) in *M. oleifera* and minimum (9.10%) in *L. pyrotechnica*. The dry fruits of *S. persica* had much higher amount of ether extract (22.50%) as compared to other plants. The amount of crude fibres vary from 2.27% to 45.82% with minimum in *M. oleifera* and maximum in *S. persica*. Amount of calcium and phosphorus ranged from 1.07% to 1.89% in *L. pyrotechnica* and *C. polygonoides* and 0.56% to 1.02% in *M. oleifera* and *P. chilensis*, respectively (Table-1). Sekeroglu *et al.*[11] also found similar results and concluded that the edible wild plants analysed in the study are nutritionally richer than the conventional vegetable crops.

Edible wild plants have the higher ascorbic acid concentration[11,12]. In the present study, all the species had a good amount of ascorbic acid and maximum concentration was observed in the fruits of *S. persica* (132.13 mg/100 gdw). Zennie and Ogzewalla[13] also observed that many of the edible wild plant are rich source of ascorbic acid as compared to some common garden fruits and vegetables.

Alkaloids, tannins and saponins have a major significance in the adaptation of plant species in desert under limited water supply. The presence of these substances in edible wild plant may cause certain side effect to the user. High concentration of saponins may cause foaming in intestinal tract which leads to bloat. Alkaloids and tannins were not found in any species. Saponins were obtained from *L. pyrotechnica* and *S. persica* only in a very low concentrations.

Acknowledgement

Author is thankful to University Grant Commission for providing financial assistance. Thanks are due to Prof. M.M. Bhandari, Department of Botany, J.N.Vyas University, Jodhpur for constant inspiration.

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