Nutrition Content of Some Wild Edible Plants from Bhandara District (M.S.)

K. M. Borkar and A. A. Jagiya
Department of Botany, M. B. Patel College of Arts, commerce and Science, Sakoli-441802

Abstract:

In India, most of the rural tribal population depends on the wild edible plants to meet their additional nutrient requirements. Most of the people of tribal communities of Bhandara District live in the villages. They utilize seasonal wild edible plants for cooking as vegetables. Four such wild vegetables were selected for study. Macronutrients and micronutrient analysis was made. *Bauhinia racemosa* Lam. was found to be the good source of Phosphorus, Potassium, Calcium and magnesium. The *Commelina benghalensis* L. contain higher amount of micronutrients (cu, fe, mg, zn) than the other plants studied. These plants can be cultivated and made available to the other peoples.

Keywords: Macroelements, microelements, human nutrition, wild edible plants, Bhandara district.

Introduction:

Since ancient times, plants have been used by man as a food. Nowadays cultivated plants are being used extensively as edible plants as they have the significant medicinal and the other nutritional properties (i. e. as a food source) on the other hand, consumption of local wild edible plants are restricted comparatively.

The forests play important role for improving food security of tribal people in our country. Wild edible plants are important in the livelihood strategies of forest dwellers/tribal people. Wild edible plants have played an important role in human beings since immemorial. In India, most rural population depends on the wild edible plants to meet their additional food requirements. Most of the people of Bhandara District live in the villages. The rich plant diversity of the area is utilized by the tribal people in various forms as food, fodder, medicine, timber, fuel, agricultural tools, etc. Among these, wild edible plants play an important role in food supplements during scarcity for local inhabitants. Because of small land holdings and subsistent agriculture, the local people collect many wild edible plants for food.

Many peoples worked on the diversity and traditional uses of wild plants from the Country. Their works have provided references about whether the species is edible or otherwise used (Sundriyal et al, 2004; Sinha & Lakra, 2005; Rout, 2007; Yesodharan & Sujana, 2007; Behera et al, 2008).

Many of the plant species have been reported for edible purpose by different workers from various parts of the country (Basu and Mukherjee, 1996; Anonymous, 2001; Nadanakunjidam, 2003). The plant parts used were tuber, leaves, flowers, fruit, grains and whole plant for food supplement. Williams emphasized the need to preserve new plant resources to broaden the biological diversity in human nutrition (1999). Wild plant species provide minerals, fibre, vitamins and essential fatty acids and enhance taste and colour in diets.

As a result of the developments in agricultural techniques and marketing facilities, using of wild edible plants was remarkably decreased. However, many of wild plants are nutritionally important because of their high vitamin, mineral and fiber contents and they can be used as food and will be used alternatively for the poverty problem. Therefore, it is important to determine nutrition contents of wild edible plants and to use them as food.

The aim of this study was to investigate nutritional value of some edible wild plants like *Smilax zelanica, Olax scandens, Commelina benghalensis, Bahunia recemosa* collected from Bhandara District area of eastern Vidharbha in Maharashtra.

Material and Methods:

Plants of *Bauhinia recemosa* Lam., *Smilax zeylanica* L, *Commelina benghalensis* L, *Olax scandens* Roxb. were collected from various localities of Bhandara district. Samples were washed to remove dirt and dried at room temperature. Then the plant parts were powdered, this dried powder was then used for acid digestion.

Preparation of acid digests:

The acid digestion method has been followed for the analysis of inorganic constituents. Five hundred mg oven dried powder of wild edible plants was subjected for acid digestion. After the digestion, the filtrate was stored properly and used for analysis of inorganic constituents. The level of Calcium, Magnesium, Sodium, Iron, Manganese, Zinc, and Copper were estimated by using Atomic Absorption Spectrophotometer. Sodium and Potassium were estimated flame photometrically following the standard method. For standardization, various concentrations of sodium and Potassium were prepared by ranging from 10 to 80 ppm by diluting stock solution of NaCl (100 ppm). The remaining inorganic elements viz. Calcium, Potassium, Magnesium, Iron, Manganese, Zinc and Copper were estimated by using Atomic absorption spectrophotometer. Total nitrogen content in wild edible plants was estimated. Phosphorus was estimated from the same acid digest by the method described by Rathod et al. (2012).

Result and Discussion:

In the macronutrients content, all the plats showed more than 100mg macronutrients. Nitrogen and sodium was found to be more in *Smilax zeylanica* L. Whereas, *Bauhinia racemosa* Lam. was found to be the good source of Phosphorus, Potassium, Calcium and magnesium. Among the plants studied, *Commelina benghalensis* L. was found to contain highest amount of potassium than the other plants studied (Table 1).

Human bodies daily need more than 100 mg of major minerals (N, P, K, Ca, Mg, Na) and less than 100 mg of minor minerals (Cu, Fe, Zn, Mn, Co, Br, Si) Rathod et al. (2012).

In the micronutrients analysis, All the plants contain good sources of micronutrients except *Olax scandense* Roxb. Whereas, the *Commelina benghalensis*

L. contain higher amount of micronutrients (cu, fe, mg, zn) (Table 2). Micronutrients are very important in nutrients point of view in human body as in access amount and in in very less quantity creates health problems.

Table. 1- Analysis of plant parts for macronutrients

Sr. No	Name of plant Species, Family	Vernacular name	Nitro-gen	Phospho-rus	Pota-ssium	Sod-ium	Calci-um	Mag-nesium
			Mg/100ml of DW					
1	*Bauhinia recemosa*, Lam. Caesalpiniaceae	Shahara	216 ± 2.54	230 ±10.11	267 ±11.00	385 ±8.03	2210± 9.82	240 ±4.5
2	*Smilax zeylanica*, L. Smilacaceae	Shel dire	610 ±5.00	140 ±10.20	270 ±12.00	712 ±8.00	825±5. 00	200 ±4.19
3	*Commelina benghalensis*, L. Commelinaceae	Kena	450 ±5.00	201 ±10.23	390 ±13.00	220 ±7.00	1425± 5.52	200 ±5.23
4	*Olax scandense*,Roxb. Olacaceae	Aradfari	301 ±3.23	160 ±8.50	211 ± 9.70	405 ± 760	750± 7.94	195 ± 3.59

Table. 2- Analysis of plant parts for micronutrients

Sr. No	Name of plant Species, Family	Vernacular name	Edible plant part	Copper	Iron	Mang-anese	Zinc
				Mg/100ml of DW			
1	*Bauhinia recemosa* Lam. Caesalpiniaceae	Shahara	young Leaves	0.090 ±0.009	26.12 ± 0.98	3.21 ± 3.4	2.54 ±0.17
2	*Smilax zeylanica*, L. Smilacaceae	Shel dire	shoots apices	2.50 ±0.11	30.00 ± 1.11	6.05 ± 2.33	2.22 ±1.13
3	*Commelina benghalensis*,L. Commelinaceae	Kena	Leaves	2.50 ± 0.96	100.10 ± 5.5	7.00 ±2.21	2.50 ±1.17
4	*Olax scandense*, Roxb. Olacaceae	Aradfari	young leaves	0.49 ± 0.33	9.50 ± 2.80	2.45 ±1.13	0.25 ±0.03

Conclusions:

All the 4 species of edible plants collected from the study area belong to Angiosperms. During the present study it was observed that the tribal people of the study area fulfill the deficiency of minerals by supplementing with wild edible plants in their daily diet. Thus, the wild edible plants are used as common household foods and make a substantial contribution to food security of the people of the study area. Therefore, steps are needed to undertake extensive education about their importance and assess their nutritional values to serve as a direct or indirect source of food to local tribal people as well as local inhabitants through their traditional knowledge infer what to eat and what not to eat. They are thoroughly acquainted with the methods of excluding the harmful substances from wild edible plants and preparing acceptable recipes for their meals.

1 Scientific studies on nutritional values of such wild foods should be carried out so that they can be recommended as a dietary article to supplement

food requirements and to overcome various nutritional deficiencies by the use of nutritionally rich wild foods in far off places.

2 There is much scope for improving the growth forms of wild edible plants by using modern agronomic research and experimental cytogenetical studies. For all such endeavour, thorough field work in various tribal areas and critical ethnobotanical observation on wild edible plants are the basic requirements.

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