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Use of Wild Vegetables as a Food Resource by the Tribals of Kalsubai Harishchandragarh Wildlife Sanctuary

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ABSTRACT

Kalsubai, Harishchandragarh and Ratangarh forest area have been declared as ‘Kalsubai, Harishchandragarh Wild Life Sanctuary' from 25 February 1986, vide Government of Maharashtra, resolution No. WLP-1085/ CR-75/F.5 -IV. The total area of Kalsubai- Harishchandragarh Wildlife Sanctuary is 361.71 sq. km. (36171.03 hectares). Out of total area, 17119.86 hectares are forest, 2884.17 hectares protected forest and 16167 hectares non-forest area. Before the declaration of wildlife sanctuary, this area was a part of Rajur forest range of A' Nagar District. The study area is mostly hilly and has a tribal setup. Mahadeo Koli and Thakar are the main tribal communities, residing in the area. Agriculture and forest are the main sources of livelihood of the people. Majority of the tribes work in their fields. People rear livestocks like cattle, goats, and poultry. They also collect minor food products from forest to meet their daily needs

INTRODUCTION

Wild edible plants are those plants that are collected from uncultivated resources for human consumption [1,2] These plants are bestowed with one or more parts that can be used for nutrition if gathered at the proper growth stage and prepared appropriately [3] part of livelihood strategies throughout the world [4] Furthermore, wild edible plants are an important source of vegetables, fruits, tubers and nuts which are relevant for many people in ensuring food security and balancing the nutritional value of diets(Heywood, 2011) vegetables as a source of micronutrients in many tropical areas is significant in small children's diet to ensure normal growth and intellectual development [5] .The Western Ghats of Maharashtra covers an area of 52,000 km^2 [6] .Keeping this in view, the present study was conducted as the first ever attempt from the region to explore and identify the vegetables used by the people living in the study area[7]

MATERIALS AND METHODS

The methodology will involve literature search, discussion with the concern experts and organizations working on the field visits will be undertaken in different seasons along with tribal people for collection wild vegetables. Collected plants will be identified with experts using Floras; moreover, photographs of the plants will be taken fine powder for further analysis.

The proximate analyses (moisture, ash, crude fats, proteins, and carbohydrates) of all the samples will be determined using prescribed methods (AOAC 1990). The micronutrient contents, namely, Ca, Fe, Na, and K will be evaluated from the selected vegetables.

Table 1. Plant used as vegetable by tribal and villager of Kalsubai-Harichandra Garh wildlife sanctuary

Sr. No.	Botanical Name	Family	Vernacular Name	Growth Habit	Parts used
1	*Arisaema murrayi* (Grah.) Hook.	Araceae	Diva-kand	Herb	Tuber
2	*Argyreia nervosa* (Burm.f.) Boj.	Convolvulaceae	Samudrashok	Climbers	Leave
3	*Boerrhavia diffusa*	Nyctaginaceae	Vasu	Herb	Leaves
4	*Caralluma adscendens* R.Br.	Asclepiadaceae	Shidadmakad	Herb	Stem
5	Alternanthera sessilis	Amaranthaceae	Getha	Herb	Leaves
6	*Cassia tora* L.	Caesalpiniacea	Tarota	Herb	Leaves,unripe fruit
7	*Celosia argentea* L.	Amaranthaceae	Kurdu	Herb	Leaves
8	*Ceropegia bulbosa*	Asclepiadaceae	Kharpudi	Climber	Tuber
9	*Chlorophytum tuberosum*	Liliaceae	Kolu	Herb	Tuber
10	*Clerodendrum serratum* (L.) Moon.	Verbenaceae	Bharangi	Herb	Leaves
11	*Colocasia esculenta*	Araceae	Alu	Herb	Leaves, Tuber
12	*Coccinia indica*	Cucurbitaceae	Tondli	Climber	Fruit
13	*Cordia dichotoma* Forst.f.	Boraginaceae	Bhokar	Tree	Fruit
14	*Digera muricata* (L.) Mart	Amaranthaceae	Kundursa	Herb	Young fruit
15	*Dioscorea bulbifera* L.	Dioscoreaceae	Aniv/Karanda	Climber	Bulbils
16	*Ipomoea aquatica*	Convolvulaceae	Nalichi- bhaji	Climber	Leaves
17	*Momordica dioica* Roxb. Ex. Wild.	Cucurbitaceae	Kartule	Climber	Fruits
18	*Oxalis corniculata* L.	Oxalidaceae	Ambushi	Herb	Whole plant
19	*Rivea*	Convolvulaceae	Phand- bhaji	Climber	Leaves
20	*Smithia bigemina*	Papilionaceae	Kawala	Herb	Leaves
21	*Smithia purpurea*	Papilionaceae	Bhrki	Herb	Leaves
22	*Solanum anguivi* Lam.	Solanaceae	Ranwangi	Herb	Fruits

Some selected plant

Chlorophytum tuberosum *Diaschoria pentaphylla* *Arisaema murrayi*

Cassia tora *Solanum anguivi* *Caralluma adscendens*

Clerodendrum serratum *Celosia argentea* *Alternanthera sessilis*

Table 2: Proximate analysis of selected wild vegetables

Sr. No.	Parameter	Clerodendrum serratum L.	Alternanthera sessilis	Celosia argentea L.
1	Moisture (%)	6.46±0.49	4.62±0.42	6.6±0.3
2	Ash content (%)	7.31±0.33	20.43±0.77	18.16±0.66
3	Energy value (Kcal/100g)	447.33±15.63	301.66±14.50	301.66±14.50
4	Protein (%)	16.47±0.32	13.96±0.60	22.3±0.55
5	Carbohydrate (%)	69.43±0.90	61.4±0.87	54.26±3.47
6	Crude Fiber (%)	16.93±0.61	10.36±0.70	14.33±0.55
7	Fat (%)	0.15±0.035	0.27±0.04	0.11±0.01

RESULT AND DISCUSSION

Nutritional composition

The observed mean value of carbohydrates (69.43%) in *Clerodendrum serratum* was higher (Table 1) than the contents in *Alternanthera sessilis* (61.40%) and *Celosia argentea* (54.26%).These comparisons showed than *Clerodendrum serratum* is relatively a good source of carbohydrates and the protein content was not very high in all samples. Celosia argentea was observed with highest protein contents (22.3%) Fats results demonstrated that *Alternanthera sessilis* with (0.27%) highest percentage compared to other two plant samples.

Celosia argentea has the highest mean moisture content 6.6% and *Alternanthera sessilis* have the lowest contents of 4.62% moisture. In our samples, the ash contents range between 7.31% (*Clerodendrum serratum*) to 20.43% (*Alternanthera sessilis)*

Table 3. Micro and macro nutrient composition in mg/100 gram

Sr. no.	Parameter (mg/100g)	*ClerodendrumSerratum L.*	*Alternanthera sessilis*	*Celosia argentea L*
1	Na	75.73±0.55	104.67±7.63	1040.33±34.99
2	K	1582.33±41.23	2460±48.87	1877.33±15.94
3	Ca	930±16.9	1036.33±25.77	1617±18.52
4	Mg	752±11.33	1282.66±13.01	2269.33±45.65
5	Mn	3.57±0.20	35.27±0.70	21.6±0.62
6	Fe	211±15.71	7782.33±51.20	483.33±16.62
7	Co	0.042±0.005	0.63±0.046	0.43±0.058
8	P	177±9.0	125.67±7.02	176.33±13.65

Macronutrients and Micronutrients

Results indicated that high concentrations of calcium (Ca), Magnesium (Mg) and sodium (Na) have been found in *Celosia argentea*.Moreover low concentrations of Ca, Mg and Na were observed in *Clerodendrum serratum* (Table 2). The identified Potassium (k) in the regional species i.e. 1582.33mg/100gm (*Clerodendrum serratum*) and 1877.33 mg/100gm

*(Celosia argentea).*However, *Alternanthera sessilis* shows much increase in K concentration (2460 mg/100g). Result showed highest concentrations of Mn, Fe, and Co vegetable samples were found in *Alternanthera sessilis*, highest concentration of phosphorus was found in *Celosia argent* and lowest values of Mn, Fe, Co were recorded in *Clerodendrum serratum*

- Such type of work gives the data of wild vegetables used by tribes from the study area.
- It will be good practice for health.
- It will be helpful for researchers and students
- Study creates awareness about conservation of wild vegetables of study area
- It will be a documentary of traditional knowledge on diet for future generation.

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