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Study of Nutrition Content and Medicinal Value in Some Edible Wild Forest Vegetables Commonly Found in Bhandara District (M.S.)

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Abstract: *Wild edible plants play a major role in meeting the nutritional requirement of the rural population. The use of wild plants by human as a source of food is in practice since time immemorial. Most tribals are still depend on wild food bearing vegetal plants for food, medicine and nutritional supplement. These people are consuming near about 57 species of plants, which are seasonally available and especially tribal communities more consuming wild plants, which are Gond, Dhamdii. Wild foods are nutritious and powerful for improving the health and provide medicine, especially for pregnant women's and children. In present study documented as such 20 wild forest vegetables species from core area forest, reserve forest, villages fringe, home courtyard and backyard, farm, lake, river side, canal with the help of native shepherd, eco-guides, farmers, local teachers and villagers from Sakoli, Umari, Lavhari, Parsodi, Jambhali, Kosamtondi, Pathri, Tudamapuri. There are mix communities living in periphery of Bhandara District, which is Kohali (Patil), Dhivar, Gond, Mana, Dhamdii, Pradhan and some other backward classes. These wild forest vegetables provide macronutrients such as Fat, Carbohydrates, Dietary fibre, Sugars, Protein, Moisture, as well as micronutrients as Folic acid, Ascorbic Acid, Alpha Tocopherol, Beta Carotene, Lycopene, anthocyanins, Sodium, Potassium, Calcium, Magnesium, Manganese, amino acid, cholesterol, and Iron, Cobalt, Chromium. Zinc, Copper and Boron.*

Keywords: Wild Forest vegetable, Nutritional values, Gond and Dhamdii tribes, Tribal communities.

I. INTRODUCTION

During early civilization, before agriculture was practiced, man lived by hunting and gatheringof various types of fruits and vegetables from the wild. There are 427 tribes residing in forest or hilly regions of India. Maharashtra state is a harbour of 47 tribal communities of which Bhil, Mahadeokoli, Gond, Warali, Korku; Andh, etc. Gond, Gavari, Koli and Dhivar are main tribes in the Gondia and Bhandara districts. Some of tribes are absolutely ill- literate about their surrounding cities, talukas places within Bhandara. Despite the many threats to their way of life, these communities' loyalty to their cultural roots and food traditions remains intact.

The wild food plants play a significant role in human life. It provides essential nutrient, vitamins, minerals which are most viable part of wild food [1-6, 13-15]. Such kind of wild food resources are used consumed by tribal and fodder for animals. Leaves of wild food species are mostly consumed. Besides leaves, they consume fruits, corms, shoots, seeds and young stem of plants [7]. Earlier literature gives information that more than 32, 83,000 species of plants are documented at worldwide. Among them 2, 86,000 are angiosperm. Nearly 7,000 plant species are cultivated or grown naturally in forest habitat. Indian tribes consume more than 1530 plants species for food in day-to-day life. Out of them 145 are tubers, 521 green vegetables, 101 flower species, 647 fruits and 118 are seed and dry fruits species. Out of which only 30 species of plants are domesticated [8,12]. People are living near forest area and depend on seasonally available wild food resources. In this connection Sawarkar P U and Kulkarni (2015) documented Wild food resources

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of Tadoba-Andhari Tiger reserve of Maharashtra [1]. Vartak and Kulkarni (1986) documented monsoon season wild edible plants from Western Maharashtra [9]. Deshpande et al., (2015) collected information from Deolapar region and Rajgond tribe consume more than 72 plant resources from forest [10]. Bhogaokar and Marathe (2010) surveyed wild edible plants from Melghat forest reserves [2,3]. It is observed that communities living in the region of protected forest areas get enrich quantity of wild food for entire year. On the border of protected areas villagers consumed several wild edible plants consist edible parts in the form of tubers, climbers, flower, leaves, seed and roots. It has been observed that traditional knowledge of wild food is a sharply declining due to rapid depletion of forest cover and our education system. It is not focus on the traditional knowledge which has been established in our social and cultural system. It is essential to educate teachers on this platform to teach the students. The new generation will be interested to study the plants and local resources. This method of education is known as CBR (Children Biodiversity register) need to implement at school level and it will impact on younger generation. (CBR 2014) [11].

It is felt that there is a need of growing such plants commercially. Nutritionally rich vegetable used for food and medicine purpose manufactured to generate income for poor rural people and reduce their economic and livelihood burden [22-23]. Fruits, leaves, nuts, gums, mushrooms, roots, tubers etc. from forest are important sources of food. Forests fill the gap in hungry season by supplying food during seasonal shortage periods and act as emergency food in times of drought or other crises. These wild vegetables are playing an extraordinary role in the prosperity of many people. India has nutritional problems. The food on which the majority of Indians feed lacks essential nutrients. Consequently, many people especially children suffer from malnutrition.

Most of the people of tribal communities of Bhandara District live in the villages. Most of the rural tribal population depends on the wild edible plants to meet their additional nutrient requirements. They utilize seasonal wild edible plants for cooking as vegetables[22,23]. In present study documented 20 wild forest vegetables species from core area forest, reserve forest, villages fringe, home courtyard and backyard, farm, lake, river side, canal with the help of native shepherd, eco-guides, farmers, local teachers and villagers, Major participant are women's and local girl preparing recipes of wild plants.

The present study includes, documentation, occurrence and to create awareness for their habitat conservation. It will also help in biodiversity conservation of wild vegetable plants Bhandara districts.

II. Material And Methods

The study was conducted during 2019-2020 in villages of Bhandara district. The area is situated in Bhandara district of Maharashtra. This area is considered as They are depending upon the forest produce for their basic needs as well as livelihood activities such as timber-wood, bamboo, fodder and food. The aim of the study was to explore, collect, identify and preserve the wild plants species used by the communities. The data were collected from the tribal's through interaction and conversation with people, such as shepherd, eco-guides, local teachers, old, young men's and women's to get important information on wild food, description of plants species, useful, edible parts and methods of preparation. Scientific names and identification were carried out using relevant books and scientific literature [20-22].

III. Result and Discussion

Most of the tribal communities has good knowledge of edible plants available in surrounding forest and know how to eat the edible part and discard the other parts. This traditional knowledge of consuming wild plants is passed on orally from one generation to another and need to be safeguarded. Thus, wild edible plants can act as a link between habitat, season of availability, local people and culture associated with tribal people. (Patil et al., 2015).

First-hand information collected on their vernacular names and plant parts used were documented and given in Table 1.The present check list has been compiled from the observation made by the authors as well as reports in literature. Research on wild vegetable species is intended to promote the preservation of these twenty species presently under study. In addition to their nutritional value, the preservation of these underutilized fruits also has economic advantages. These wild vegetables consumed by people throughout the year in fresh and dried forms. These vegetables have potential food supplements so as to increase quality of daily food for the rural population. An attempt can be made to utilize these wild vegetables as a source of income, particularly for poor rural inhabitants and unemployed youths by

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making a variety of edible products from the wild edible vegetable plants. The medicinal values of these vegetable plants have additional attraction and there is a tremendous scope for its further exploration.

In present study documented 20 wild forest vegetables species from core area forest, reserve forest, villages fringe, home courtyard and backyard, farm, lake, river side, canal with the help of tribal's and other peoples who's live on border. It mainly includes tubers, leaves, flowers, bamboo shoots, pods, fruits, roots. These 20 plants species cooked by several and mix types for the meal such as dried vegetable, Bhujiya, spicy round cake, curry, dal fry, Chapatti, and also used for making pickle,tea, Mother tincture, powder and juice. These people are still depending on wild food resources during monsoon season and consume with traditional way. During the first shower of rain in June –July leafy vegetables are available on a large scale. The local name of these plants isbased on its leaf structure and their way of use. It is revealed that wild plants have a profound influence on them. The tribal were well-acquainted with the food resources of surrounding forests, and knew what to eat and how to separate harmful substances from the edible items. For making the food they mixed up with other plants such pear, ginger, mango chips, Madhukalongifoliya, jaggery, sugar, tamarind. For cooking spicy round cake, plants leave mix in rice flour and also make Chapatti. Out of them only 10 plants species found in Sakoli market which is 40 km away from Bhandara and others are collected from villagers ofSakoli, Umari, Lavhari, Parsodi, Jambhali, Kosamtondi, Pathri, Tudamapuri.All the plants are very important for nutrition's purpose and improvement of health. These wild plants are also useful for medicine purposes, like, Diabetics, Malaria, Jaundice, Stomach disorder, Cough, Piles, Amebic stool, Gastritis, Arthritis, Blood purification, Cyst, Fibroma, Worm, etc. some plant useful for pregnant women and children and malnutrition. Different dishes prepared by them having medicinal properties. Considering the above factors, the documentation of wild food resources is urgent need of researchers before it is vanishing from the habitat[1-6,23,25].

Table 1: Nutritional values of wild Food species consumed by tribal communities in Bhandara District.

Sr.	Local Name	Botanical name	Family	Part use	Ways of Preparation	Medicinal Use	Nutrients Present in Major Proportion
1	Patur	Alternatherasessilis	Amaranthaceae	Stem. Leaves	Dry vegetable dish	Not applicable	Fat, Carbohydrates Dietary fibre, Sugars, Protein, Vitamin C, Calcium, Iron
2	Sati	Termitomycesheimii	AgaricaceaeAnas	Mushroom	Dry vegetable dish and curry	Not applicable	protein, vitamins: vitamins B and D, antioxidantsminerals: selenium, potassium, copper, iron, and phosphorus.
3	Mathbhaji	Amaranthusviridis L.	Amaranthaceae	Stem	Dry vegetable dish	Not applicable	protein,fiber, fat, carbohydrate antioxidant activity, calcium and iron, magnesium, potassium sodium, zinc, copper, manganese, selenium, chromium
4	Kena	Commelinabenghalensis L.	Commelinaceae	Stem, leaves	Spicy round cake, Chapati,Dry vegetable dish	Not applicable	Vitamin,carbohydrate, vitamin C, vitamin B, anti-oxidant, Sodium, calcium, magnesium, Iodine,

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5	Suran	Amarphophalluspaeonifollius (Densst) Nicols.	Araceae	Tuber	Dry Vegetable dish and curry	Used as medicine,	Carbohydrate,Protein, Fat, Moisture, Ascorbic Acid Alpha Tocopherol, Beta Carotene, Lycopene, Sodium, Potassium, Calcium, Magnesium Manganese, amino acid, cholesterol, and Iron, Cobalt, Chromium. Zinc, Copper, Boron
6	Bamboo sati/ welu sati	Pleurotusostreatus	Pleurotaceae	Mushroom	Dry vegetable dish, Curry Bhujiya, Chapati	Medicinal use	Protein, fat, fiber, carbohydrate, potassium, sodium, calcium, iron, and zinc, small quantities of essential vitamins
7	Aaratfari	Oroxylonindicum (L) Vent.	Bignoniaceae	Leaves	Dry vegetable dish	It useful in worm	Protein, fat, fiber, carbohydrate, potassium, sodium, calcium, iron, zinc, magnesium, phosphorus, zinc, copper, manganese, and selenium.
8	Katwal	MomordicadioicaRoxb. exWilld.	Cucurbitaceae	Fruit-katwal	Dry Vegetable dish	Used in Diabetics	carbohydrate, Protein,fat, fiber, potassium, sodium, calcium, iron, and zinc, small quantities of essential vitamins like carotene, thiamin, riboflavin and niacin , phytic acid, alkaloids, steroids, triterpenoids, and saponins
9	Tarota	Cassia toraL.	Caesalpinnaceae	Young leaves	Dry Vegetable dish	Piles, Veterinary use	Fat, fibre, protein, carbohydrate, moisture, tannin, saponin, steroids, terpenoids, alkaloids, flavonoids and glycosides, calcium, magnesium, iron, nitrogen
10	Shelar	CelosiaargenteaL.	Amarantha	Leaves	Dry	It use on	carbohydrate,

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	(Kobada, Kukurda)		ceae		Vegetable dish	piles.	fiber, moisture, Vitamins A, C and E, Mg, Na and Fe. Ca, K, P and Cu. Zinc, alkaloid and saponin, oxalateand phytate content
11	Khaprkuti	Boerhaaviadiffusa	Nyctaginaceae	Leaves	Dal fry	It useful in jaundice	protein, fat and vitamins, mineral alkaloids, tannins, flavonoids, saponin, terpenoid and phenols carbohydrate, The major element present in the plant is magnesium (142.9 mg/100 g).
12	Rajgira	Amaranthuscruentus L	Amaranthaceae	Leaves	Dry Vegetable dish	Not applicable	**Protein,** carbohydrate, **Fat,** calcium, iron.The major element present in the plant is magnesium, phosphorus, potassium, sodium, zinc, copper, manganese, and selenium.
13	Washte	Bambusaarundinacea (Retz.) Willd	Poaceae	Washte	Spicy round cake,dry Vegetable dish	Various parts of this plant such as leaf, root, shoot and seed possess anti-inflammatory, antiulcer, anti-diabetic, anti-oxidant, anthelmintic, antifertilit	protein, fat, carbohydrate (cellulose and hemicellulose)fiber, and lignins with a small number of resins. silica, pentosans, and cholin, betain, cynogenetic glycosides, albuminoids, oxalic acid, reducing sugar, resins, waxes, benzoic acid, various amino acids, proteolytic enzyme, nuclease, urease.

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						y, antibacterial, insectisidal, antiarthritic, vessele protection etc.	
14	GavthiMatharu	Dioscoreabulbifera Linn.(Cultivated)	Dioscoreaceae	Tuber	Boiled or Fried	Cure of pregnant women, stomach.	Lipids, fiber, protein carbohydrates, The presence of secondary metabolites such as anthraquinones, anthrones, coumarins, essential oils, fatty acids, flavonoids, phenols, steroids, triterpenes, and tannins
15	Khedabhaji	Amaranthus hybridus	Amaranthaceae	Stem, leaves	Dry vegetable dish	Not applicable	moisture content, fat, protein, fibre carbohydrate,calcium, phosphorus, potassium, magnesium, iron, sodium,copper, zinc cobalt selenium, and chromium B-carotene, thiamine, riboflavin, niacin, pyridoxine, ascorbic acids and β-tocopherol and various amino acids alkaloid, flavonoid, saponin, tannins, phenols, hydrocyanic acid and phytic acid
16	Sherdira	Smilax zeylanica	Smilacaceae	Young stem	Dry vegetable dish	It useful blood purification	carbohydrate, protein, flavonoid, alkaloid and tannin saponin, glycosides, diosgenin, saponins, B-sitosterol, sarsapogenin/ smilagenin, phytosterols, fixed

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							oils, fats, gums, mucilage, polyphenolic compounds,calcium is found to be higher in this plants followed by nitrogen, sodium, potassium and phosphorus etc, whereas the amount of iron is higher than copper, zinc and manganese etc in all plants.
17	Gholb haji	Puerariatuberosa (Roxb. Ex.wild)	Fabaceae	Leaves	Dal fry, Dry vegetable dish	Not Applicable	carbohydrates, glycosides, tannins and phenolic compound, flavonoids, steroid, triterpenoids, alkaloid, proteins, amino acids, gums and mucilage,moisture
18	Amba di,	Hibiscus cannabinus L	Malvaceae	Leaves , Flower	Curry, Dry vegetable dish, Juice,	It useful in heat control	Major source of nitrogen.**protein**, Carbohydrates, Fat, Vitamin: VitaminA, Thiamine, Riboflavin, Niacin, Vitamin C, Calcium, Iron, phosphorous,
19	Kolar bhaji	Smilax zeylanica L	Smilacaceae	Leaves	Dry vegetable dish, dal fry	Not applicable	Fat, Carbohydrates Dietary fibre, Sugars, Protein, Alkaloids Flavonoids Saponins Tannins Glycosides Triterpenoids Sterols, Phenolic compounds Nitrogen Phosphorus Potassium Sodium Calcium Magnesium
20	Pudin a	MenthaspicataL.	Lamiaceae	Stem, leaves	Dry vegetable dish	It is useful in stomach disorder	Fat, Carbohydrates Dietary fibre, Sugars, Protein, The concentration of tissue of mint showed

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							micronutrients such as K, N Ca, P, Mg, Fe, Mn, Zn, B, C

IV. CONCLUSION

From the present documentation it is evident that, all the species of edible plants collected from the study area have nutritional value in them. During the present study it was observed that the tribal people of the study area fulfil the deficiency of different 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. These wild forest vegetable plants were found to be the good source of Fat, Carbohydrates, Dietary fibre, Sugars, Protein, Moisture, as well as micronutrients as Folic acid, Ascorbic Acid, Alpha Tocopherol, Beta Carotene, Lycopene, anthocyanins, Sodium, Potassium, Calcium, Magnesium, Manganese, amino acid, cholesterol, and Iron, Cobalt, Chromium. Zinc, Copper and Boron. These plants can be cultivated and made available to the other peoples. 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.

Further studies are also necessary to find out more wild vegetable plants, which will definitely fulfil our nutrition need. Wild vegetable plants provide nutrition for the forest dwellers and many of the marginalized rural communities since the common cultivar vegetables are costly and unaffordable for them. Advocacy of wild edibles plants can definitely provide the economic support to the rural people.

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