RESEARCH ARTICLE

Wild Food Diversity of Nawegaon-Nagzira Tiger Reserve in Gondia-Bhandara district of Maharashtra, India

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ABSTRACT

National Tiger Conservation Authority (NTCA) has notified Nawegaon-Nagzira as a fifth Tiger reserve of the state and 46th of the country on the date of 7 September 2013. The 655 sq km area covers the Gondia and Bhandara districts of Maharashtra. It comprises five protected areas (PA), which are Nawegaon National park (133 sq km), Nawegaon Wildlife Sanctuary (123 sq km), Nagzira Wildlife Sanctuary (152 sq km), New Nagzira Wildlife Sanctuary (151 sq km) and Koka Wildlife Sanctuary (97 sq km). Present document is based on collection of traditionally consumed food resources. The data generated from shepherd, eco-guides, women's, local teachers and villagers from Pitezari, Jambhali(Khamba), Kosamtondi, Nawegaonbadh, Pawani dhabe, Rampuri, Padhrawani, Parsodi, Chutiya, Khoba (gondi) Dhabetekadi of Nawegaon-Nagzira tiger reserve. There are mix communities living in periphery of Nawegaon-Nagzira Tiger reserve, which is Kohali (Patil), Dhivar, Gond, Mana, Dhamdii, Pradhan and some other backward classes. 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's. Women's describe the preparation of traditionally foods, includes, 12 tubers species, 11 climber's species, 1aquatics plants species**,** 29 terrestrial plant species, 3species of mushroom and one are newly raisebamboo.

Keyword – Wild food, Nawegaon-Nagzira, *Gond* tribes. Communities

INTRODUCTION

There are 427 tribes residing in forest or hilly regions of India. Maharashtra state is a harbours 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 Maharashtra. 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. (Kulkarni *et al*., 2003, Deshpande and Kulkarni, 2015). Such kind of wild food resources areconsumed 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. (Joshi *et al*., 2013).

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 vegetable, 101 flower species, 647 fruits and 118 are seed and dry fruits species. Out of which only 30 species of plants are domesticated. (Datar and Upadhye, 2016).

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 of Tadoba-Andhari Tiger reserve of Maharashtra. Vartak and Kulkarni (1986) documented monsoon season wild edible plants from Western Maharashtra. Deshpande *et al*., (2015) collected information from Deolapar region and Rajgond tribe consume more than 72 plant resources from forest. Bhogaokar and Marathe (2010) surveyed wild edible plants from Melghat forest reserves. 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)

In present study documented 57 wild plants 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. One important thing was observed that some of wilds plants arehaving traditionally great value in tribal cultural because of their importance in specific festivals.For example, some wild plants preferably eat in those specific days, such as Bullock festival, *Nagpanchami*, *Janmashtmi, Dashara*. The young children's of village are very well familiar with the occurrence of wild edible fruit plants and its importance, as it inherit from their traditional culture which is definitely better for long association with nature. (Kulkarni and Kumbhojkar 1992). Chothe *et al*., (2014) has developed preservation of techniques of wild fruits by preparing products. Kulkarni *et al*., documented and analysed wild fruit Flacourtia from Western Maharashtra. Ghate *et al*., conducted survey of Carissa from Western Maharashtra. Role of wild food plants playing major role in consumption, availability in tribal pockets. (Jadhave *et al*., 2015). Exploration of wild food resources are benefited to tribal community of Nawegaon-Nagzira tiger reserve.

The present study includes, documentation, occurrence and to create awareness for their habitat conservation. It will also help in biodiversity conservation of Nawegaon-Nagzira tiger reserve in Gondia-Bhandara districts.

MATERIAL AND METHODS:

The study was conducted during 2014-2016 in Nawegaon-Nagzira tiger reserve. Both qualitative and quantitative data were collected from primary and secondary sources in different seasons of the year. The area is situated in Gondia-Bhandara district of Maharashtra and very famous for wild tigers (*Pantheratigris*) and Migratory birds. The tiger reserve spread 655 sqkm and considered as a critical tiger habitat zone and buffer zone not declared now. In the periphery of one kilometre of Nawegaon-Nagzira tiger reserve contains near about 180 villages. Pitezari is tribal village is situated in New Nagzira Sanctuary and border of Old Nagzira Sanctuary,Kosamtondi and Jambhali(Khamba) villages are situated on the boundary Old Nagzira Sanctuary, Rampuri, Padhrwani,

Chutiya, Khoba (Gondi), Pawani (dhabe), Dhabetekadi, consist *Gond* and *Govari* main tribes and these villages situated on fringe of Nawegaon National park. Zashi Nagar is the completely tribal village, which is situated at Nawegaon Sanctuary and this village declared as naxalite belt. 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 a questionnaire. The paper reports wild food diversity used by the tribal's of the 11 villages of Nawegaon-Nagzira tiger reserve. (Table.1). The given region was surveyed in various stages.

1. Region was geographically explored with help of native people of Villagers of Nawegaon-Nagzira tiger reserve.
2. The documentation started with preparation of questioners.
3. Interaction and conversation with people, such as shepherd, eco-guides, local teachers, old, young men's and women's.
4. Study expedition with the shepherd, eco-guides, local teacher in reserved area, to get important information on wild food, description of plants species, useful, edible parts and methods of preparation.
5. Practically food was prepared several times in the native tribe's home and documented the whole process accordingly. Furthermore, native name of recipe was also recorded.
6. Scientific names and identification were carried out using relevant books and scientific literature. (Bachulkar, 2012, Patil, 2010, Reddy, 2011, Govekar, 2015).

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).

Protected area of Nawegaon-Nagzira tiger reserve have 57 plants species documented 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 57 plants species cooked by several and mix types for the meal, for example *Agaricus bisporus* belonging to the mushroom family and from this mushroom make the dried vegetable, Bhujiya, spicy round cake. So, 40 Plants are consumed as dried vegetable, 8 curry, 5 spicy round cake, 4 boiled, 2 fried, 5 raw, 4 dal fry, 3 Chapatti, 5*Bhujiya,* and 1 pickle, 1 tea, 1 Mother tincture, 1 powder and 1 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. *Theriophonum indicum*, local name is based on its leaf structure look like the ear of mouse so local people called as Undirkan. It has high steroid content so its recipe preparation method is very specific and interesting. (Deshpande and Kulkarni 2013).

It is reveal 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, *Madhuka longifoliya*, jaggery, sugar, tamarind. For cooking spicy round cake, plants leaves mix in rice flour and also make Chapatti. Out of them only 10 plants species found in Nawegaon badh market and Sakoli market which is 13km away from Pitezari from Nagzira sanctuary there found only 5 plants species.

All the plants are very important for nutrition's purpose and improvement of health. Out of 57 plants species 37 plants are used 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 vanishes from the habitat. **E**thno biological exploration of various tribal areas may reveal that many more wild plants prove to be a cure for thirst or hunger depression problems in humans**.** The wild populations of many wild species have been depleted due to destructive

Table 1: Wild Food species consumed by tribal communities

Sr.	Scientific name	Family	Local Name	Part use	Ways of Preparation	Medicine and other important
1	*Dioscoreabulbifera* L. (Willd type)	*Dioscoreaceae*	Ranmataru	Tuber	Boiled	It useful for diabetic patient,
2	*Dioscoreabulbifera Linn.(*Cultivated)	*Dioscoreaceae*	GavthiMatharu	Tuber	Boiled or Fried	Cure of pregnant women, stomach.
3	*Dioscorea pubera*	*Dioscoreaceae*	Ranmomnaru	Tuber	Boiled, Fried	Used as a Medicine
4	*Tacca leontopetaloidis*	*Dioscoreaceae*	Ranwaralu	Tuber	Dry vegetable dish,	Not applicable
5	*Amorphophalluskokenensis* Hett. Yadav and Patil	*Araceae*	Rankakadi	Tuber	Curry	Not applicable
6	*Dioscoreabulbefera*L.	*Dioscoreaceae*	Nanamati	Tuber	Boiled, Eaten Raw	Used as a medicine
7	*Costus speciosus*	*Costaceae*	Kewkanda	Tuber	Dry vegetable dish	It is used blood purification
8	*Colocasiaesculenta*L	*Araceae*	Kochailal	Tuber	Bhujiya, dry vegetable dish	Not applicable
9	*Colocasiaesculenta*L	*Araceae*	Kochaipandhari	Tuber, Leaves	Spicy round cake, dry vegetable dish, curry	Not applicable
10	*Amarphophalluspaeonifollius* (Densst) Nicols.	*Araceae*	Suran	Tuber	Dry Vegetable dish and curry	Used as medicine,
11	*Zingibercernuum*Dalz.	*Zingiberceae*	Ranaal	Tuber	Chappati	Used as medicine
12	*Agaricusbisporus*	*Agaricaceae*	Tekode/ dumber sati	Mushroom	DryVegetable dish	Not applicable
13	*Termitomyces heimii*	*Agaricaceae*	Anas sati	Mushroom	Dry vegetable dish and curry	Not Applicable
14	*Pleurotus ostreatus*	*Pleurotaceae*	Bamboo sati/ welu sati	Mushroom	Dry vegetable dish, Curry Bhujiya, Chapati	Medicinal use
15	*Physalis longifolia Nott.*	*Solanaceae*	Fofoendri	Leave Fruit,	Dry vegetable dish,	Not applicable
16	*Alternathera sessilis*	*Amaranthaceae*	Patur	Stem. Leaves	Dry vegetable dish	Not applicable
17	*Ipomiea aquatica*	*Convolvulaceae*	Karmbhu	Stem, leaves	Dry vegetable dish	Not applicable
18	*Nulumbiumspeeiosum*	*Nelumbonaceae*	Bhisikandda	Kanda	Dry vegetable dish, curry	It useful in heat control
19	*Cryptocoryne retrospiralis* (Roxb.) Kunth	Araceae	Pakanbhed	Leaves,	Spicy round cake, Bhujiya	It useful in arthritis

Table 1: Continued…

Sr.	Scientific name	Family	Local Name	Part use	Ways of Preparation	Medicine and other important
20	*Amaranthusviridis L.*	*Amaranthaceae*	Mathbhaji	Stem	Dry vegetable dish	Not applicable
21	*Grewia rotchi*	*Tiliaceae*	KolhacheAndee	Fruit	Eaten raw	Not applicable
22	*Grewia rotundifolia*	*Tilaceae*	Ghatali	Fruit	Eaten raw	Not applicable
23	*Plumbagozeylanica*L	*Plumbaginaceae*	Chitrak	Leaves	Dry vegetable dish	It useful in medicine
24	*Smilax zeylanica L*	*Smilacaceae*	Kolarbhaji	Leaves	Dry vegetable dish, dal fry	Not applicable
25	*Holarrhenapubescens* (Buch-Ham) Wall.exG.Don.	*Apocynaeeae*	Padharakuda	pod, Flower	Curry and dry Vegetable dish	Worm, dysentery,
26	*Commelinabenghalensis L.*	*Commelinaceae*	Kena	Stem , leaves	Spicy round cake, Chapati, Dry vegetable dish	Not applicable
27	*Cappariszeylenica*L.	*Cappariseeae*	Waghoti (Wagnkhya)	Fruit	Dry Vegetable dish	Not applicable
28	*Oroxylonindicum (L) Vent.*	*Bignoniaceae*	Aaratfari	Leaves	Dry vegetable dish	It useful in worm
29	*Amaranthusspinosus*L	*Amaranthaceae*	Kateri math	Leaves	Dry vegetable dish	Not applicable
30	*Momordicadioica*Roxb. exWilld.	*Cucurbitaceae*	Katwal	Fruit- katwal	Dry Vegetable dish	Diabetics
31	*Cassia tora*L.	*Caesalpinnaceae*	Tarota	Young leaves	Dry Vegetable dish	Piles, Veterinary use
32	*Celosiaargentea*L.	*Amaranthaceae*	Shelar (Kobada, Kukurda)	Leaves	Dry Vegetable dish	It use on piles.
33	*Boerhaaviadiffusa*	*Nyctaginaceae*	Khaprkuti	Leaves	Dal fry	It useful in jaundice
34	*Amaranthuscruentus* L	*Amaranthaceae*	Rajgira	Leaves	Dry Vegetable dish	Not applicable
35	*Theriophonumindicum* (Dalz.) Engler.	*Araceae*	Undirkani	Whole plants	Bar mixed with Curry	Medicinal use
36	*Bambusaarundinacea (*Retz.) Willd	*Poaceae*	Washte	Washte	Spicy round cake,dry Vegetable dish	Not applicable
37	*Puerariatuberosa (Roxb. Ex.wild*	*Fabaceae*	Gholbhaji	Leaves	Dal fry, Dry vegetable dish	Not Applicable
38	*Hibiscus cannabinus L*	*Malvaceae*	Ambadi	Leaves, Flower	Curry, Dry vegetable dish, Juice,	It useful in heat control
39	*Albizia amara*	*Mimosaceae*	Jireful	Flower	Dry vegetable dish	It not applicable
40	*Corchorous trilocularis*	*Tiliaceae*	Lagada	Leaves	Spicy round cake,	It not applicable

Table 1: Continued…

Sr.	Scientific name	Family	Local Name	Part use	Ways of Preparation	Medicine and other important
41	*Dendrocalamusstrictus (Roxb)*	*Poeceae*	Kali musali	Roots	Powder	Medicinal use
42	*Andrographis paniculata (Burm. F)Wall. Exnees*	*Acanthaceae*	Bhuienimb	Stem, Leaves	Mother tincture	Medicinal use
43	*Alocasiamacrorhiza*(L.) G.Don..	*Araceae*	Khajarikochai	Leaves	Dry vegetable dish	It not applicable
44	*Asteracantha longifolia*	*Acanthaceae*	Kate kodasa	Leaves	Dry vegetable dish	It useful in Jaundice
45	*Abelmoschusmanihot*(L.) Medik	*Malvaceae*	Ran bhendii	Pods	Dry vegetable dish	Not applicable
46	*Hemidesmus indicus (L)R.Br*	*Apocynaceae*	Khobarjadiwel	Leaves	Tea	Not applicable
47	*Cocciniagrandis (L.) Voigt.*	*Cucurbitaceae*	Junglitondare	Fruits	Dry vegetable dish	Not applicable
48	*Smilax zeylanica*	*Smilacaceae*	Sherdira	Young stem	Dry vegetable dish	It useful blood purification
49	*Celastrus paniculatus*	*Celastraceae*	Piparfal(Wel)	Flower	Dry vegetable dish	Medicinal use
50	*Basella alba* L.	*Chenopodiaceae*	Poinwel	Leaves	Dal fry, Bhujiya	Not applicable
51	*Cucumis grandis*	*Cucurbitaceae*	Bondal	Fruits	Eaten raw, Pickles	Not applicable
52	*Argeria nervosa*	*Convolvulaceae*	Somdur soup	Leaves	Dry vegetable dish, Bhujiya	It useful in arthritis
53	*Lablab purpureus*(L.) Sweet.	*Fabaceae*	Khadyawal	Pod	Dry vegetable dish	Not applicable
54	*Amaranthus hybridus*	*Amaranthaceae*	Khedabhaji	Stem, leaves	Dry vegetable dish	Not applicable
55	*Menthaspicata*L.	*Lamiaceae*	Pudina	Stem, leaves	Dry vegetable dish	It is useful in stomach disorder
56	*Semecarpusanacardium*L.f.	*Anacardiaceae*	Bibaa	Fruits	Eaten raw	It useful in asthma
57	*Cassia fistula L.*	*Caesalpiniaceae*	Bahawa	Flowers	Dry vegetable dish	It useful in medicine

harvesting and overexploitation. There is much scope for improving the growth forms of wild food resources by using modern agronomic research, experimental cytogenetic studies for future food security. (Kulkarni. 2005)

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