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Seasonal Food Security Through Edible Leafy Weeds to Local Inhabitants of A Village In Ranchi District of Jharkhand During Rainy Season

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ABSTRACT

Jharkhand state is blessed with a very rich diversity of wild leafy vegetables as nature's gift to the local inhabitants of in and around forest areas. These are main source of food and nutrition to the poor tribal and other forest dwelling communities. The wild leafy vegetables are available in marshy border habitat of ponds, watersides of crop fields, its border areas, waste land, cultivated land and forest land. These wild leafy vegetables are available in plenty during the rainy season in particular. The present study was undertaken to explore the seasonal food security through wild leafy vegetables in a village having predominantly Oraon tribal community specifically with respect to seasonal availability, use, and traditional knowledge of wild leafy indigenous foods.

Keywords: Food security, Wild Leafy vegetable, traditional knowledge, nutrition.

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INTRODUCTION

The plants including herbs, shrubs, trees and climbers, which are found wild in nature in the forests, on fallow lands, on agricultural cultivated and non cultivated lands, in water or in marshy area, and have edible leaves can be referred as wild leafy vegetables. These wild edible leaves are the gifts of nature to the local poor tribal and other population living in the villages situated within or in the vicinity of the forest areas. These forest dwelling communities depend on these as supplementary food, especially during lean period i.e. during drought or shortfall of agricultural produce.¹ Such wild leafy vegetables are part of the traditional knowledge being passed from one generation to the other from time immemorial. Rainy season is especially rich season when most of such wild leafy vegetables are available in plenty. Wild edible plants provide staple food for indigenous people, serve as complimentary food for non- indigenous people and offer an alternative source of cash income to them.² This study enlists all the wild leafy vegetables available within and in the vicinity of a village forest during the monsoon period which commences in Ranchi district from 2nd week of June and lasts till September. This research work concentrates mainly on documentation of the wild edible leafy vegetable plants species to prepare the valid and authenticated data on identification, availability, folk knowledge and utilization of easily accessible wild edible leafy vegetable species. Such study can be of great help in planning and providing food security to the rural poor.

MATERIALS AND METHOD

Study Area

The study area is the village Gaghari situated in Bero Thana of the Lapung Block of district Ranchi. The village has 150 households belonging to the Scheduled tribe (Oraon 100, Lohara 4, Kumhar 20, Rajput 6, Yadav 6, Sahu 8 and Barahi 6). The village is located at 23^o13'42.34" N latitude and 85^o00'54.91" E longitude.

METHOD

Inventory of Wild edible leafy vegetable plant

Ethno botanical survey was done of the entire village covering ponds, crop land, waste land, cultivated land, rice fields and sides of the water bodies to collect information related to locally available native wild edible leafy vegetable plant species with local name. The wild edible leafy vegetable plant species were identified, enlisted and photographed by conducting village visits in rainy season with the local villagers.

Authentication of Wild edible vegetable plants data:

The surveyed wild edible leafy vegetable plant species information is compared identified and cross verified with herbarium specimens of Ranchi district and State floras. The local/ regional names were collected from tribal and rural people and names were also compared from available literature.

RESULTS AND DISCUSSION

The list of wild edible leafy vegetable plant species with botanical name, family, plant parts used and mode of consumption of 58 wild edible leafy vegetable plant species belonging to 44 genera and 33 families are arranged in alphabetical order (Table 1). Family wise number of wild leafy vegetables has been depicted through Radar diagram in Figure 1. The plants enlisted belong to 33 families. Maximum 6 plants are from the family Amaranthaceae, followed by 4 plants from Scrophulariaceae & Caesalpinaceae each and 3 from Araceae and Capparidaceae each.

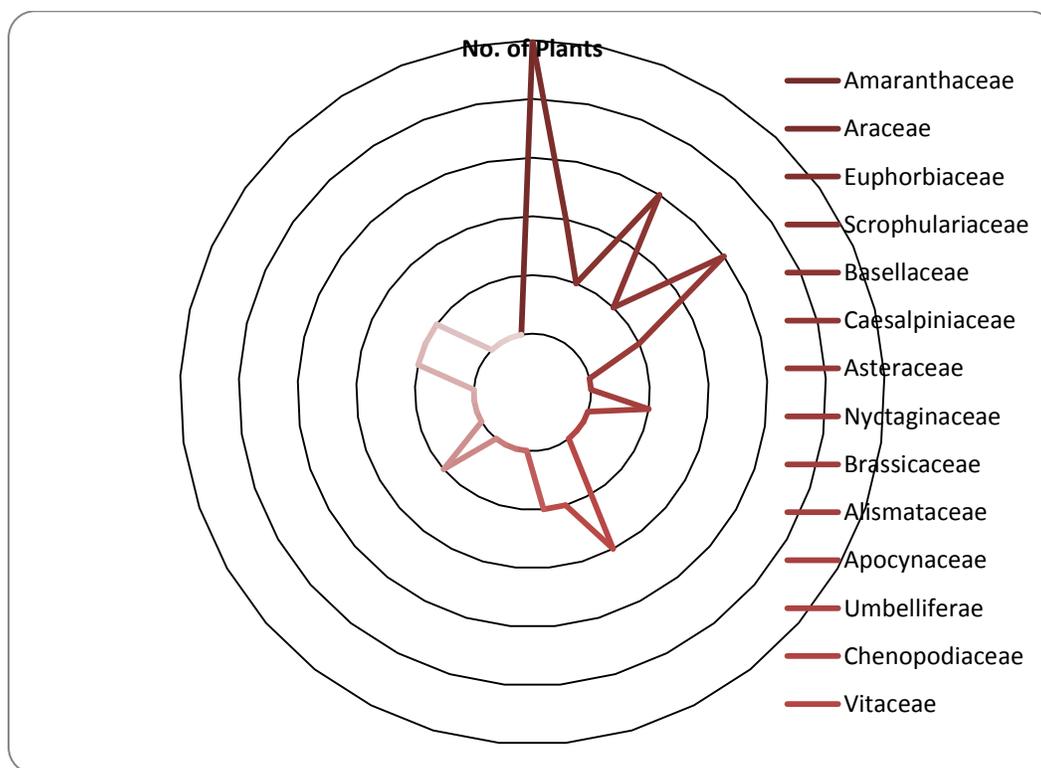


Figure 1: Radar Diagram of family wise No. of Plants

Table 1. List of Wild Leafy Plants

S.N	Botanical Name	Family	Vernacular names	Part consumed	Habit & Habitat	Method of consumption
1	2	3	4	5	6	7
1	<i>Achyranthus aspera</i> L.	Amaranthaceae	Chirchithi (Oraon) Chirchithi (Santhal) Chirchithi (Munda)	Leaves	Herb Weed, Found in waste fields	Fresh leaves together with other spinach greens are cooked and eaten.
2	<i>Alternanthera philoxiroids</i>	Amaranthaceae	Saronchi (Oraon) Garundiarak (Santhal) Salanti (Bhumiz)	Young Plant	Herb Weed, Found in wet places, waste & cultivated fields	Fried/Roasted then eaten.
3	<i>Alternanthera sessilis</i> Br.	Amaranthaceae	Saronchi (Oraon) Garundiarak (Santhal) Salanti (Bhumiz)	Young Plant	Herb Weed, Found in wet places, waste & cultivated fields	Fried/Roasted then eaten.
4	<i>Amaranthus spinosus</i> Linn.	Amaranthaceae	Achcharaka (Oraon) Kanteli Chaulai (Santhal) Achparara (Mundari)	Leaf and tender shoot	Herb Weed, Found in waste places.	Leaves and young shoots are cut into small pieces, cooked with salt and chilly and then eaten.
5	<i>Amaranthus viridis</i> Linn.	Amaranthaceae	Bhaji Sag (Oraon) Lotia Sag (Santhal) Marshi (Bhumiz, Gond)	Leaf and tender shoot	Herb Weed, Found in cultivated grounds.	Roasted then eaten
6	<i>Amorphophallus paeoniifolius</i>	Araceae	Elephant foot yam	Tender Leaves & corm	Herb	Cooked as vegetable
7	<i>Antidesma diandrum</i> Roxb.	Euphorbiaceae	Kundui (Oraon) Matha arak (santhal) Mata ara (Munda)	Leaves	Shrub to tree Weed, found near streams.	Young leaves are used in curry and as vegetable.
8	<i>Bacopa monnieri</i> Linn.	Scrophulariaceae	Brahmi Sag	Leaves	Herb Wet lands	Cooked as vegetable.
9	<i>Basella alba</i> Linn.	Basellaceae	Poi sag (Oraon) Poi Sag (Munda)	Leaves	Climber Moist places	Cooked as vegetable.
10	<i>Basella alba var. rubra</i>	Basellaceae	Poi sag (Oraon) Poi Sag (Munda)	Leaves	climber Weed, often cultivated	Stem and leaves are used to prepare curry.
11	<i>Bauhinia purpurea</i> L.	Caesalpiniaceae	Komaarxa (Oraon) Singarak (Santhal) Singara (Mundari)	Leaves	Tree Forests	Young shoots along with leaves are collected, cooked as curry or fried and taken
12	<i>Bauhinia retusa</i> Roxb.	Caesalpiniaceae	Teor (Oraon) Teor (Santhal) Laba (Munda)	Leaves	Tree Forests	Young shoots along with leaves are collected, cooked as curry or fried and taken

13	<i>Bidens pilosa</i> Linn.	Asteraceae	Maina Mayna arxa	Sag,	Leaves	Herb Waste land	Cooked as vegetable.
14	<i>Boerhaavia diffusa</i> Linn.	Nyctaginaceae	Khapra arxa (Oraon) Khapra sag (Santhal) Kecho Ara (Mundari)		Fresh Whole Plant	Herb Weed, Found in grassy waste grounds.	Season Tender leaves and young shoots are collected, fried/ roasted then eaten.
15	<i>Brassica juncea</i> L.	Brassicaceae	Indian mustard		Whole plant	Herb Weed, Found in grassy waste grounds.	Cooked as Vegetable
16	<i>Butomopsis latifolia</i>	Alismataceae	Lundi ara (Munda)		Leaves	Herb Aquatic & Marshy	Boiled then water is squeezed out and then cooked as pot herb.
17	<i>Cassia occidentalis</i> L.	Caesalpiniaceae	Koha Chakonda (Oraon) Barka Chakonda (Santhal) Murang Chakonda (Munda)		Leaves	Herb Weed, Found in waste places.	Tender leaves are cooked and eaten.
18	<i>Cassia tora</i> L.	Caesalpiniaceae	Chekor (Oraon) Chakoara (Santhal)		Leaves & Seeds	Herb Weed, Found in waste grounds.	Leaves are cooked and eaten as vegetable.
19	<i>Catharanthus pusillus</i> Murr.	Apocynaceae	Marchi Maricha arxa	Sag,	Leaves	Herb Waste land, cultivated land	Cooked as vegetable.
20	<i>Celosia argentea</i> L.	Amaranthaceae	Kim Araxa (Oraon) Siliari (Santhal) Sirgiti Ara (Munda)		Leaves	Herb Weed, found on agricultural fields.	Young leaves and shoots are collected, roasted then eaten.
21	<i>Centella asiatica</i> Linn.	Umbelliferae	Mukha Arka (Oraon) Chauke Ara (Munda)		Whole Plant	Herb Weed, Found in wet places throughout the year	Leaves and young shoots are collected, roasted then eaten.
22	<i>Chenopodium album</i> Linn.	Chenopodiaceae	Bhathua arak (Santhal)		Leaves	Herb Weed along with Rabi crops.	Leaves and young shoots are collected, fried/ roasted then eaten.
23	<i>Cissus adnata</i> Roxb.	Vitaceae	Khatta Sag(Oraon)		Leaves	Creeper Weeds (Moist Forest)	Leaves cooked as vegetable.
24	<i>Cleome gynandra</i> L.	Capparidaceae	Sad Hurhuria Sag (Santhal)		Leaves	Herb Weed, found in waste grounds.	Leaves and young shoots are collected, roasted then eaten.
25	<i>Cleome monophylla</i> L.	Capparidaceae	Tota sirio (Oraon) Hurhuria Sag (Santhal)		Leaves	Herb Weed, found in waste grounds.	Leaves and young shoots are collected, roasted then eaten.
26	<i>Cleome vlscosa</i> Linn.	Capparidaceae	Sirioarkho (Oraon) Namkani (Santhal)		Young Plant	Herb Weed, found in cultivated & uncultivated fields	Leaves and young shoots are collected, fried/ roasted then eaten.
27	<i>Colocasia antiquorum</i> Linn.	Araceae	Pechki Pechki arxa	Sag	Leaves	Herb found in wet lands, Forests	Rainy
28	<i>Colocasia esculenta</i> L.	Araceae	Pechki (Oraon)		Leaves	Herb found in wet lands	Young tender leaves and leafy

						shoots are collected, cut into small piece, cooked with salt and chilly then eaten.
29	<i>Commelina benghalensis</i> Linn.	Commelinaceae	Kenna Sag (Oraon) Kenna Sag (Munda)	Leaves	Herb common in Kharib season, found in cultivated & uncultivated fields	Leaves and young shoots are collected, fried/ roasted then eaten.
30	<i>Corchorus capsularis</i> Linn.	Tiliaceae	Pat Chench koha	Leaves	Herb Moist waste land	Tender Leaves and young shoots are collected, cooked then eaten.
31	<i>Corchorus olerius</i>	Tiliaceae	Koha Chanch (Oraon) Pat Sag (Munda)	Leaves	Herb Weed, also Cultivated	Tender Leaves and young shoots are collected, cooked then eaten.
32	<i>Cyanotis axillaris</i> Roem.	Commenilaceae	Tena arxa	Leaves	Herb Wet grounds, rice fields.	Cooked as vegetable.
33	<i>Diplazium esculentum</i> Retz.	Athyriaceae	Kukri Injo arxa	Leaves	Fern Open marshy area, stream bank	Cooked as vegetable.
34	<i>Dryopteris cochleata</i> Don.	Dryopteridaceae	Kukri Kukri arxa	Leaves	Fern Grassland, Forest	Cooked as vegetable.
35	<i>Euphobia hirta</i>	Euphorbiaceae	Dudhia (Oraon) Dudhia (Santhal) Marang Dudhi (Munda)	Leaves	Herb Weed, Found on waste land and forest	Tender leaves are cooked and eaten.
36	<i>Enhydra fluctuans</i>	Asteraceae	Muchri ara (munda)	Leaves	A trailing marshy perennial herb	It is washed, chopped Cooked/Steamed and eaten.
37	<i>Eryngium foetidum</i>	Apiaceae	Kanta Accho Dhania	Leaves	Herb Waste land	Cooked with vegetable.
38	<i>Ipomoea aquatica</i>	Convolvulaceae	Kalmi (Oraon)	Leaves	Herb Weed, Common in water bodies, floating on mud or trailing in water	Whole Year Leaves and tender shoots are collected, cooked and then eaten.
39	<i>Jussiaea repens</i> Linn.	Onagraceae	Machli Sag Nalkim arxa	Leaves	Herb Wet land	Cooked as vegetable.
40	<i>Jussiaea suffruticosa</i>	Onagraceae	Machli Sag Nalkim arxa	Leaves	Herb Wet lands	Cooked as vegetable.
41	<i>Leucas aspera</i> Spreng.	Labiatae	Guma (Chero&Kharwar)	Tender Young Plant	Herb Annual Weed of Rabi season found in cultivated fields of Wheat, maize & Arhar crops	Leaves and young shoots are roasted and taken as food.
42	<i>Limnophila aromatica</i>	Scrophulariaceae	Lasodh Ara(Munda)	Tender leaves and	Weed, aquatic &	Cooked/Steamed and eaten.

				shoots	Marshy	Chatni is also prepared.
43	<i>Limnophila confirta</i> Benth.	Scrophulariaceae	Muchari (Oraon) Hemcha Sag (Santhal)	Tender Leaves and shoots	Herb Weed found in watery places and rice fields	Leaves and young shoots are roasted and taken as food.
44	<i>Limnophila rugosa</i>	Scrophulariaceae	Lasodh Ara (Munda)	Tender leaves and shoots	Perrenial Herb Weed, aquatic & Marshy	Cooked/Steamed and eaten. Chatni is also prepared Have essence of unripe mango.
45	<i>Marsilia minuta</i> L.	Marsiliaceae	Susuni (Oraon) Sunsunia (Santhal)	Tender leaves and shoots	Herb, found in watery places and rice fields	Tender leaves and young shoots are roasted and taken as food.
46	<i>Melochia corchorifolia</i> Linn.	Sterculiaceae	Susuni (Oraon) Thuiak (Santhal)	Leaves	Shrub Found in wet places	Leaves are cooked and eaten
47	<i>Monochoria vaginalis</i>	Pontederiaceae	Sadom Lochkor Ara (Munda)	Leaves	Weed, aquatic & Marshy	Cooked/Steamed and eaten.
48	<i>Murraya koenigii</i> L.	Rutaceae	Curry Patta	Leaves	Shrub	Used as flavoring agent
49	<i>Oxalis corniculata</i> Linn.	Oxilidaceae	Netho Sag (Oraon) Tandil Chatom arak (Santhal)	Leaves	Herb Weed, Found in Gardens	Leaves are plucked, fried and taken.
50	<i>Oxalis latifolia</i> Linn.	Oxilidaceae	Tinpatia Sag (Oraon) Tandil Chatom arak (Santhal)	Leaves	Herb Weed, Found in Gardens	Leaves are plucked, fried and taken.
51	<i>Polygonum barbatum</i> L.	polygonaceae	Sake arxa (Oraon) Sake Sag (Santhal) Madara (Munda)	Leaves	Herb Weed, found ion wet lands.	Young plants are cooked and consumed.
52	<i>Polygonum glabrum</i> Willd.	polygonaceae	Sukripota (Munda) Sauri Arak (santhal)	Leaves	Herb Weed, found near streams.	Young plants are cooked and consumed.
53	<i>Portulaca oleracea</i> Linn.	Portulacaceae	Golgala (Santhal)	Young Plant	Herb Weed, common on waste open grounds	Tender leaves and shoots are collected, roasted then eaten.
54	<i>Portulaca quadrifida</i>	Portulacaceae	Golgola sag	Leaves	Herb Waste land	Cooked as vegetable.
55	<i>Rungia parviflora</i> Nees.	Acanthaceae	Kawoa Sag (Oraon) Hasa-arak (Munda)	Young Plant	Herb Weed, common on low land harvested rice fields	Tender leaves and shoots are collected, cooked then eaten.
56	<i>Sagittaria sagittifolia</i> L.	Alismataceae	Luchkor (Munda)	Leaves	Weed, aquatic & Marshy	Boiled then water is squeezed out and then cooked as pot herb.
57	<i>Trianthema decandra</i> Linn.	Aizoaceae	Purni (Munda)	Tender Young Plant	Herb Weed, common with Kharif crops	Leaves and young shoots are collected, fried then eaten.
58	<i>Vangueira spinosa</i> roxb.	Rubiaceae	Sarla Kanta (Santhal) sarla achch (Munda)	Leaves	Shrub Forests	Leaves are cooked and eaten.

DISCUSSION

Biodiversity is highly significant in securing different fundamental human needs.³ The villagers consume these leafy vegetables as food but with the experience of generations, they developed the knowledge of medicinal value of such wild vegetables. These properties of leafy vegetables not only nourish them but also keep the tribal healthy and fit for hardworking labour throughout the day.⁴ Jharkhand has undulating terrain, lack of irrigation facilities and also paucity of water. Therefore, in the state of Jharkhand, agricultural practices do not provide sufficient food to local people and therefore they are primarily dependent on natural food resources.⁵ The preference of food and food habits of the tribal and other communities inhabiting the forests depend on the availability of the wild leafy vegetables within the village and from the surrounding forests and hilly areas. From the ancient times, they are identifying the plants with their palatability and taste and the name has been assigned on the basis of their characters.⁶

Of enlisted 58 wild edible leafy vegetable plant species were commonly available in waste land, cultivated land, crop fields, rice fields, wet lands and forest land. These species can be utilized for free of cost for the day to day requirements of local people. The most common species which are available in plenty during rainy season are such as *Commelina bengalensis* L., *Alternanthera philoxeroides* (Mart.) Griseb., *Alternanthera sessilis* L., *Amaranthus spinosus* L., *Amaranthus viridis* L., *Basella alba* L., *Celosia argentea* L., *Cissus quadrangularis* L., *Colocasia esculenta* (L.) Schott, *Portulaca oleracea* L., *Portulaca quadrifida* L.etc.

CONCLUSION

Increasing biotic pressure, subsequent deforestation and environmental degradation the change in landscape is inevitable in an economy in transition like India.⁷ Thus, maintenance of livelihoods, agricultural and environmental biodiversity will remain an ever increasing challenge. The growing population and limited resources are going to be a threat for the very survival of living beings in the days to come. This study provides empirical evidence about diversity and availability of large number of edible leafy weeds within the boundary of a tribal village. Such compilation of traditional knowledge of utilizing natural sources as nutritious and healthy food without any significant cost will be the milestone in the direction of their in-situ conservation through non destructive harvesting and in exploring the possibility of their ex-situ low cost cultivation. Thus, such nature's gift in the form of wild leafy vegetables can play an important role in alleviating hunger and malnutrition. Since these vegetables are full of micro nutrients, vitamins and medicinal

properties; their enhanced production and consumption can bring a remarkable change in the nutrition and health scenario in the tribal state of Jharkhand.

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