



ISSN 2320-3862

JMPS 2015; 3(5): 155-159

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Received: 20-07-2015

Accepted: 22-08-2015

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Lesser known wild leafy vegetables consumed by “Ho” tribes of W. Singhbhum district, Jharkhand, India

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Abstract

Ethnobotanical survey was conducted in the W. Singhbhum district, Jharkhand during 2011-2013. This paper deals with documentation and study of food potential of some wild edible leafy vegetables consumed by the “Ho” tribes. There are number of plant species which were documented as wild plants used for food purposes. Among those, 42 wild leafy plants, 25 genera and 23 families of vegetable plant species were investigated with their botanical name, local name, habitat, plant part used as a vegetable and some other traditional uses as well as medicinal uses have been documented from study area and observed that traditional knowledge is sharp and valuable. These wild leafy vegetable plant species are rich in minerals. They may provide minerals like sodium, potassium, magnesium, iron, calcium, phosphorus and as well used as remedy for various diseases. This type of study could contribute to educate the younger generations on the importance of wild leafy vegetables and these plants can also be incorporated in commercial crop plantations so as to improve the economy and minimize the scarcity of traditional food availability in tribal areas and help in regeneration of barren land.

Keywords: Wild vegetables, “Ho” tribes, W. Singhbhum

1. Introduction

Mostly Leafy vegetables supplement an important diet component of different tribal and local communities. Physiological, geographic and climatic conditions make Jharkhand state as one of the most diversity-rich region of India and diversity plays a significant role in food and nutritional security of the local tribal and other communities [1]. The state of Jharkhand is very rich in terms of its natural recourses for flora and fauna and it is inhabited by various tribal communities viz. Munda, Uraon, Ho, Santhal, Kharia Birhor among which the “HO” tribes are dominant in the West Singhbhum district of Jharkhand. The west Singhbhum district consists of 4 forest divisions and 15 ranges and many tribal villages are located within the forest ranges of Kolhan, Saranda, Chaibasa and Porhahat. Nowadays “Ho” tribes have richest own specific systematic social, ritual and cultural traditions among them compared to other tribes of Jharkhand. They depend on the forest and its products for their livelihood. They collect various species of edible weeds from their agricultural, non-agricultural fields and forest to supplement their staple food. Wild edible plants refer to species that are neither cultivated nor domesticated but available from their natural habitat and used as source of food [2]. Millions of people in many developed and developing countries still face food scarcity adversely due to natural calamities and unforeseen droughts and face shortage of food grains to meet their daily needs and further more people are prone to deficiency in one or more micro-nutrients [3] and same is true about, India as it is the second largest country in the world in human population. In India mostly rural communities depend on the nearby forests for wild edible plants to compensate their food crisis as well as food supplements. The diversity in wild plant species offers variety in family diet and contributes to household food security, but the lack of awareness, limited nutritional data and the perception that most wild plants are of poor nutritional values have led many wild food plants to be neglected by local people, by researchers & operational organizations, and the governments [4, 5]. The tribal communities have always generated, refined and passed on verbally the knowledge from generations to generations [6]. These edible wild plants play a significant role as a food and medicine in their daily life and also being a source of food security of the tribal people [7], as such these traditional practices of the tribal people are declining because the younger generations of the

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tribes have started moving towards the towns and cities and are losing the scope to consume traditional foods as well as practicing the use of medicinal values from these edible plants. As such the knowledge of these edible plants and their nutrient and medicinal values is put in jeopardy and the danger lurks as it may die out with them. It is therefore of utmost importance and necessity to document and preserve the values of these edible plants for the future generations as no systematic information is yet available.

2. Method and Material

2.1 Study area- West Singhbhum district forms the Southern part of the newly created Jharkhand state and is the largest district in the state. The district spreads from 21.97°N to 23.60°N and from 85.00°E to 86.90°E. The district is situated at an average height of 244 meters above the sea level and covers an area of 5351.41 km². The district is covered with hills alternating with valleys, steep mountains, and deep forests on the mountain slopes. There are plenty of waterfalls and a large variety and span of flora and fauna. The district contains large deposits of iron ore which is increasingly being mined to feed the growing demand for steel production. Jharkhand state in the West Singhbhum District in India consists of 3 Sub-Divisions, 18 Community Development Blocks, 15 Revenue Anchals and 216 Gram Panchayats. There are 1792 Revenue Villages in the District. The district contains one of the best Sal forests and the SARANDA (Seven hundred hills) forest area is known world over. The Saranda division

comprises 4 (four) forest ranges viz., Samta (Hq. at Jeraikela), Koina (Hq. at Manoharpur), Sasangda (Hq. at Kiriburu) and Gua (Hq. at Gua). Most of the villages under study are covered with forest.

2.2 Method- Several field-surveys were undertaken in tribal villages of W. Singhbhum district during the years 2011-2013, at each time of visit to these tribal hamlets of forest residing villages a different season was chosen and the information is accrued after discussion with “Ho” tribes people, Mundas (Head of the villages), elder women and other local informants. They provided useful information on the common names of different plant species, including the uses of parts of the wild edible plants. Repeated interviews through questionnaires were made in different villages to authenticate the information collected from different places and tribes. All the collected information on wild plants was analyzed. Plant specimens were collected to herbarium for taxonomical identification. Local floras were used to identify the specimen. Photographs were taken to show other neighboring communities of the plant materials, author had to look-out to the flowering stages of specimens round the year for the correct identification. Later, standard literatures and recent works of some botanists of India were reviewed and some consulted for cross verification of the accumulated data from native place [19-21]. The plants enumerated alphabetically with their botanical name, family, local name, plant parts used and mode of uses in (Table-1).

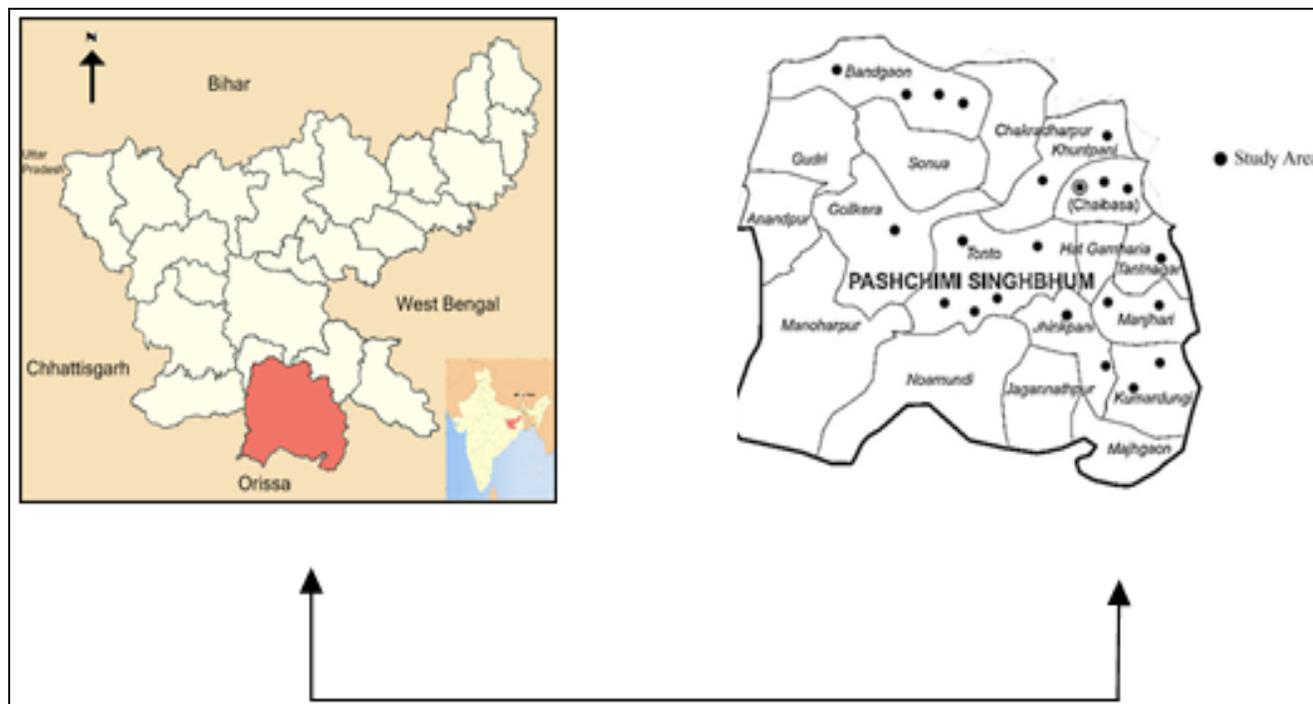


Fig 1: Map of study area of W. Singhbhum, Jharkhand

3. Result

Documentation of wild edible plants from ethno botanical approach is important for enhancing the understanding of indigenous knowledge system. The “Ho” tribe of West Singhbhum district possess a good knowledge on wild leafy vegetables found around agricultural, non-agricultural fields and the forest areas. A total of 42 plant species from 25 genera and 23 families have been recorded as leafy vegetables in the study areas (Table-1) These 42 species belonged to Amaranthaceae (9) Compositae (4), Convolvulaceae (3)

Scrophulariaceae (3), Euphorbiaceae (2), Lamiaceae (2), Cleomaceae (2). While the families Nyctaginaceae, Alismataceae, Caesalpiniaceae, Umbelliferae, Araceae, Commelinaceae, Polygonaceae, Asteraceae, Oxalidaceae, Athyriaceae, Dyopterideae, Apiaceae, Fabaceae, Marsiliaceae, Portulacaceae were represented by 1 specie each. In present study 42 wild leafy vegetable plants have been enumerated, among them 38 are herbs, 2 shrubs and 2 climbers along with 2 were Pteridophytes and 40 are from Angiospermic plants [8-15].

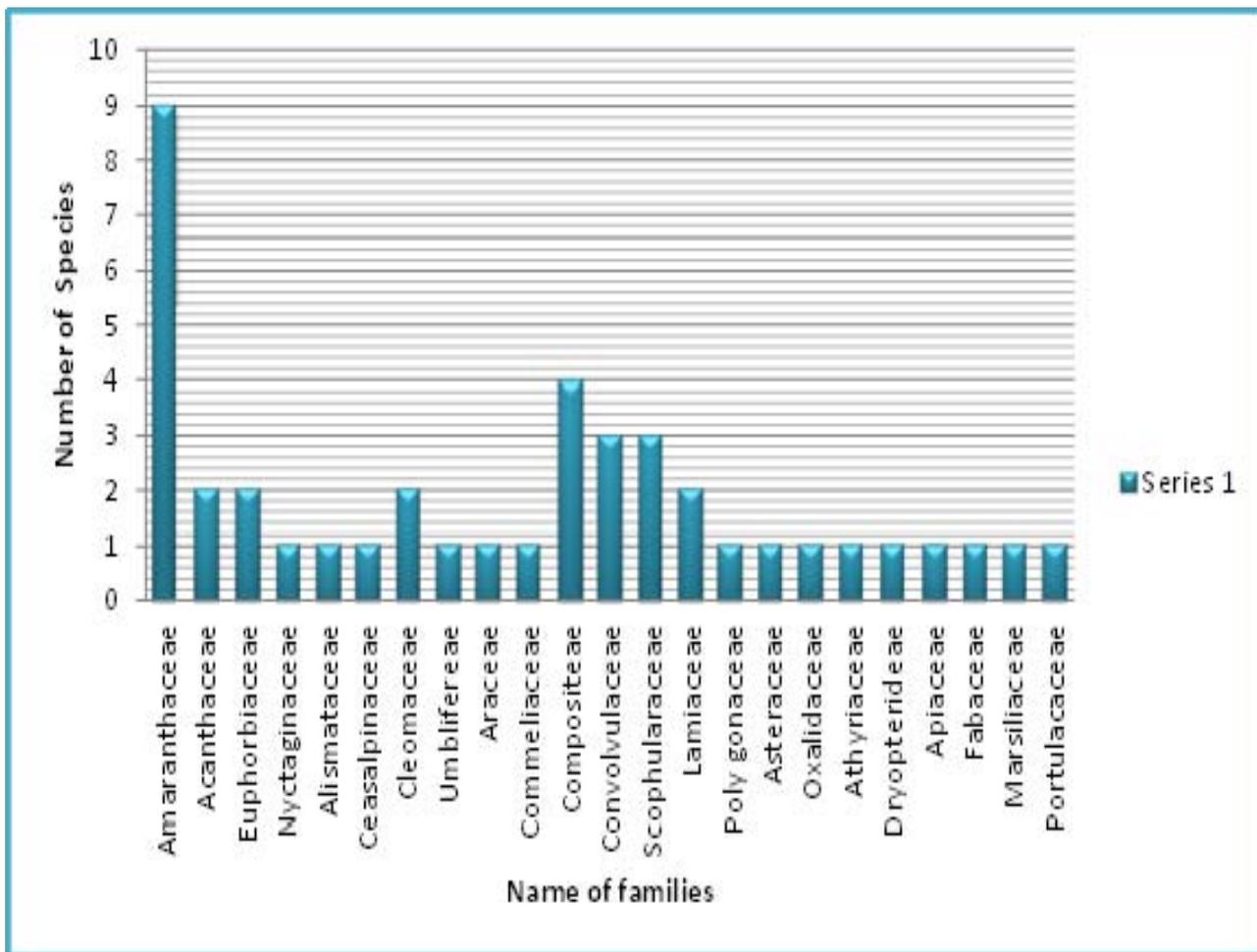
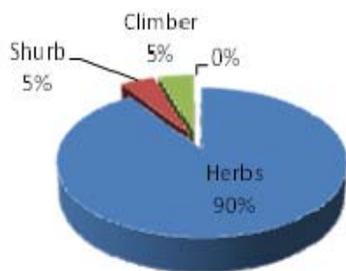


Fig 1: Distribution of wild leafy vegetable under various botanical families

Fig:3- Life form of edible leafy plants



4. Discussion

These edible wild plants play a significant role as food and medicine in their daily life along with food security of the tribals, but the traditional practices are declining because the younger members of the tribe have started migrating towards the towns and cities and are not willing and interested in the practice of traditional food as well as medicine [16-18]. Wild edible leaves are eaten after cooking and also a number of plants are gathered and preserve to be stored in pot vessels or plastic bags and during scarcity they are consumed as vegetable all through the year. In West Singhbhum district the tribal habitat of settled agriculture does not provide sufficient food due to the geographical disadvantages and indifferent

land situation. Thus they are dependent on the natural resources like vegetables eaten which are mainly of leafy variety which grow as wild weeds rather than fruit, flower, rhizome and tuber plant part. It has become their habit and to till date, these edible plants are integral part of their daily diet. Throughout the year as well as mainly during the rainy season, people collect various species of edible weeds from their agricultural, nonagricultural fields and forest to supplement their staple food. The range of these types of vegetables used by the tribals varies from locality to locality depending on the available of resources. As there is immense danger of this valuable knowledge becoming extinct along with the passing-out of these tribes in the near future, it is therefore necessary to document the plants efficiency to conserve them, while no systematic information is yet available. Keeping this in mind it is recommended that a harmonious blend to indigenous knowledge with modern science is essential to promote sustained utilization of these uncultivated source of nutrition.

5. Acknowledgment

The author is grateful to “Ho” tribes of W. Singhbhum District for their active support in providing valuable information about wild leafy vegetable plants, about wild edible plants and traditional methods practiced to preserve them. The author is also thankful to the DFO, Forest Range officers, Foresters and Forest Guards of Chaibasa, Porhahat, Kolhan and Saranda divisions along with many other tribal people of W. Singhbhum district for their co-operation and help during the ethno-botanical studies that were carried out by the author.

Plants used as wild leafy vegetables by “Ho” tribes in the W. Singhbhum district (Table- A)

Sr. no.	Botanical name	Family	“Ho” Name	Habit	Edible part of Plant used as a vegetable	Other tradition knowledge
1.	<i>Aerva lanata</i> Juss.	Amaranthaceae	Lupu aa	Herb	shoot with leaves	The leaves are eaten as potherb and use in diarrhea, leucorrhea.
2.	<i>Amaranthus spinosus</i> Linn.	Amaranthaceae	Janum leper aa	Herb	shoot with leaves	Leaves are eaten as potherb and whole plant extract is used in women leucorrhoea, used by women to increase the flow of breast milk
3.	<i>Amaranthus blitum</i> Linn.	Amaranthaceae	Leper aa	Herb	shoot with leaves	The leaves are eaten as potherb and Used in leucorrhea.
4.	<i>Amaranthus gangeticus</i> Linn.	Amaranthaceae	Jenga Leper aa	Herb	shoot with leaves	The leaves are eaten as potherb and Used in leucorrhea.
5.	<i>Amaranthus mantanus</i> Linn.	Amaranthaceae	Leper aa	Herb	shoot with leaves	Considered sudorific and febrifuge, also used as lactagogue, leaves emollient. Infusion of shoots used in eczema.
6.	<i>Alternanthera sessilis</i> Linn.	Amaranthaceae	Muin aa	Herb	shoot with leaves	The leaves are eaten as potherb and used for cool down the body
7.	<i>Archyranthus aspera</i> Linn.	Amaranthaceae	Shishirkad aa	Herb	shoot with leaves	The leaves are eaten as potherb and the juice of leaf and root applied to scorpion sting.
8.	<i>Astercantha longifolia</i> D.	Acanthaceae	Gara janum aa	Herb	shoot with leaves	The leaves are eaten as potherb and used in tonic an dehydration and blood increasing
9.	<i>Antidesma diandrum</i> , Roxb.	Euphorbiaceae	Matta aa	Shrub	Leaves	The leaves are dries under sunlight, make fine powder, cook with rice starch and eat with rice also used in tonic for dehydration and stomachache.
10.	<i>Antidesma ghaesembilla</i> , Geartn	Euphorbiaceae	Mataa sura aa	Shrub	Leaves	The leaves are dries under sunlight, make fine powder, cook with rice starch and eat with rice also used in tonic for dehydration and stomachache
11.	<i>Boerhaavia diffusa</i> Linn	Nyctaginaceae	Kecho aa	Herb	shoot with leaves	The leaves are eaten as potherb and Skin diseases.
12.	<i>Butomopsis latifolia</i> Linn.	Alismataceae	Lundi aa	Herb	Leaves	Cooked as a vegetable.
13.	<i>Cassia tora</i> Linn.	Caesalpiniaceae	Kanyur aa	Herb	Leaves	The leaves are eaten as potherb and Skin diseases.
14.	<i>Celosia argentea</i> Linn.	Amaranthaceae	Huding Sirgiti	Herb	shoot with leaves	Cooked as a vegetable.
15.	<i>Celosia cristata</i> Linn.	Amaranthaceae	Marang Sirgiti	Herb	shoot with leaves	Cooked as a vegetable.
16.	<i>Cleome monophylla</i> Linn.	Cleomaceae	Hurhuria aa	Herb	shoot with leaves	Cooked as a vegetable.
17.	<i>Cleome viscosa</i> Linn.	Cleomaceae	Hurhuria aa	Herb	shoot with leaves	Cooked as a vegetable.
18.	<i>Centella asiatica</i> Linn.	Umbelliferae	Choke dalopaa	Herb	shoot with leaves	Decoction is used in treating leprosy, useful in tuberculosis and popular brain tonic.
19.	<i>Colocasia antiquorum</i> Linn.	Araceae	Pechki aa	Herb	shoot with leaves	Cooked vegetable contains mucilage, found to be an effective nervice tonic and decoction of the peel is given as a folk medicine to cure diarrhea.
20.	<i>Commelina benghalensis</i> Linn.	Commelinaceae	Upundu aa	Herb	shoot with leaves	Cooked as a vegetable.
21.	<i>Diplazium esculentum</i> Retz.	Athyriaceae	Lindund Bindung aa	Herb	shoot with leaves	Cooked as a vegetable.
22.	<i>Dryopteris cochleata</i> Don.	Dryopteridaceae	Lindung Bindung aa	Herb	shoot with leaves	Cooked as a vegetable.
23.	<i>Eryngium foetidum</i> Linn.	Apiaceae	Janum Dania	Herb	shoot with leaves	Cooked as a vegetable.
24.	<i>Gamochaeta pensylvanica</i> wild.	Compositae	Putam aa	Herb	shoot with leaves shoot with leaves	Cooked as a vegetable.
25.	<i>Gnaphalium indicum</i> Linn.	Compositae	Putam aa	Herb	shoot with leaves shoot with leaves	Cooked as a vegetable.
26.	<i>Gnaphalium luteo album</i> Linn.	Compositae	Putam aa	Herb	shoot with leaves shoot with leaves shoot with leave	Cooked as a vegetable.
27.	<i>Gnaphalium Purpureum</i> Linn.	Compositae	Putam aa	Herb	shoot with leaves	Cooked as a vegetable.
28.	<i>Ipomoea aquatica</i> Forsk.	Convolvulaceae	Korom aa	Herb	shoot with leaves	Juice of the plant is emetic and purgative and antidote to poisoning.
29.	<i>Limnophila gratioides</i> R.Br.	Scrophulariaceae	Losod aa	Herb	shoot with leaves	Cooked as a vegetable.
30.	<i>Limnophila rugosa</i> Roth.	Scrophulariaceae	Losod aa	Herb	shoot with leaves	Cooked as a vegetable.
31.	<i>Limnophila conferta</i> Benth.	Scrophulariaceae	Muchri aa	Herb	shoot with leaves	Cooked as a vegetable.
32.	<i>Leucas aspera</i> , Spreng.	Lamiaceae	Tupi aa	Herb	shoot with leaves	Cooked as a vegetable Leaf paste is applied to bone fractures. Root juice is taken for

						debility. Flowers.
33.	<i>Leucas cephalotes</i> Spreng.	Lamiaceae	Tupi aa	Herb	shoot with leaves	Cooked as a vegetable, flowers are mixed with root juice from <i>Ocimum tenuiflorum</i> and honey and taken for asthma and respiratory difficulties. Flower juice is taken for Coughs.
34.	<i>Medicago lupulina</i>	Fabaceae	Bida aas	Herb	shoot with leaves	Cooked as a vegetable.
35.	<i>Merremia macrocalyx</i> (Ruiz & Pavon) O'Donell	Convolvulaceae	Oye Rams/Oye manda	Climber	Leaves	Cooked as a vegetable.
36.	<i>Marsilea minuta</i> Linn.	Marsiliaceae	Chatom aa	Herb	shoot with leaves	Cooked as a vegetable.
37.	<i>Portulaca quadrifida</i> Linn.	Portulacaceae	Dali aa	Herb	shoot with leaves	Plant is refrigerant (reduces body heat), mild spasmodic, diuretic and antiscorbutic. Used in scurvy and in diseases of liver, spleen, kidney and bladder.
38.	<i>Polygonum plebeium</i> R.Br.	Polygonaceae	Muin aa	Herb	shoot with leaves	For pneumonia & bowl complaints.
39.	<i>Rivea hypocrateriformis</i> Chois.	Convolvulaceae	Pittu aa	Climber	Leaves	Cooked as a vegetable.
40.	<i>Rungia parviflora</i> Nees.	Acanthaceae	Hassa aa	Herb	shoot with leaves	Cooked as a vegetable.
41.	<i>Tridax procumbens</i> Linn.	Asteraceae	Sonamuni aa	Herb	shoot with leaves	Cooked as a vegetable, Leaves is styptic, antiarrhoeal and antidyenteric. The leaf juice exhibits antiseptic, insecticidal and parasitocidal properties.
42.	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Pi Jojo aa	Herb	shoot with leaves	Cooked as a vegetable, Fresh juice of plant is given in dyspepsia, piles, anaemia and tympanitis. Infusion of leaves is used to cure opacity of cornea.

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