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Wild vegetables sold in local markets of Karbi Anglong, Assam

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The *Karbi* tribes in Assam utilize many wild plants as vegetables. The papers deals with 29 wild vegetables with their botanical name, local (*Karbi*) name, brief description of the plant, time of collection, parts used, mode of use, taste, habitat and regeneration, which are used by the tribe and are also sold in markets of Karbi Anglong. The paper also suggests for detailed ethnobotanical studies, documentation of indigenous knowledge and cultivation of wild vegetable, and develop multi-tier wild edible garden to preserve wild vegetables.

Key words: *Karbi* tribe, Wild edible plants, Wild vegetables, Assam
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Assam, the most thickly populated state of Northeast India covering an area of 78, 438 sq km presents the transitional zone between the Indian, Indo-Malayan and Indo-Chinese biogeographical region[1]. It has 23,688 sq km area under forest cover, with very rich floral and faunal diversity due to its variation of altitude, ranging from 42-1736 m, temperature 6°-36°C, and annual rainfall 800-3,200 mm[2]. The main inhabitants of the hilly area of the state are tribal people, belonging to six major tribes, viz. *Bodo, Karbi, Mishing, Hmar, Kuki and Garo*[3]. Among them, the *Karbi* (*Mikir*) are prominent tribes inhabiting mainly Karbi Anglong district of Assam. Karbi Anglong lies 92º50′ to 94º25′ east longitude and 25º05′ to 26º15′ North latitude4. *Karbi* people prefer to live on the hill slopes by constructing piled houses[5]. *Karbis* belong to the Mongoloid racial stock[6]. As they are hill tribes, their relation with forest is utmost important in their daily life. Numerous vegetables grow abundantly in their surrounding nature and have certain medicinal values. Before, sunrise children and women visit forest in small groups to collect wild vegetables daily, which play a unique role in nutritional security of the family. Wild vegetables are important in the livelihood strategies of *Karbi* population. Locally, they are of great relevance for nutrition and food security. The survey on wild vegetables in different parts of Northeast India have been conducted[7-15]. The wild vegetables of *Karbis*, which are available in the local market and their market prices, have not been studied in depth. The present investigation is an attempt to record the wild vegetable sold in local markets and their market prices, which are not recorded earlier.

Methodology

The ethnobotanical surveys were carried out since 2003 following standard method[16]. Local guides and informants were used to locate and collect the wild edible vegetable. To get the information on the uses and mode of preparation of vegetable, personal interviews with the village head, group discussion and assistance of local informants were used, market price were collected from local vendors, vegetable dealers by frequent visit to the local vegetable market. Collected plants were identified with the help of flora and available reference and deposited at Institute of Integrated Resource Management Herbarium (IIRM), Tezpur for future reference[17-19].

Results

During investigation, 29 wild edible vegetables were recorded from local market and *Karbi* dominated area. 27 species belonged to Angiosperm including 10 species of monocotyledons, 17 species of dicotyledons, and 1 species each belonging to Gymnosperm and Pteridophytes, respectively. Vegetable included 14 leafy vegetables, 5 floral vegetables, 4 vegetable species used as fruits, 4 as root vegetables and 3 serves as stem vegetables. Root

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Table 1 — Wild vegetable of the *Karbi* tribes of Assam

Plant name/ Family	Local name	Parts used	Mode of use	Taste	Habitat	Regeneration part
Alpinia nigra(Gaertn.) Burtt (Zingiberaceae)	Tara	Stem pith	Roasted	Mild sweetaroma	Marshy land and forest patches	Rhizome
Bambusa balcooa Roxb.(Poaceae)	*Henup*	Tender shoot	Boiled	Sour	Forest	Culm/Root
Bambusa spinosa Roxb.(Poaceae)	*Henup*	Tender shoot	Boiled	Sour	Forest	Culm/Root
Celosia argentea L. (Amaranthaceae)	*Leheti*	Tender shoot	Boiled	Sweet and fleshy	Crop field	Seed
Centella asiatica (L.) Urban. (Apiaceae)	*Kyangamo*	Wholeplant	Boiled and as chutney	Fibrous	Crop field and roadsides	Runner
Clerodendrumcolebrookianum Walp.(Verbenaceae)	*Pharklum*	Tender shoot	Boiled	Fleshy with foetid	Forest patches	Root
Colocasia esculenta (L.)Schott.(Araceae)	*Henru*	Leaves and spathe	Boiledand fried	Fleshy and irritant	Roadsides and wasteland	Rhizome
Dillenia indica Roxb.(Dilleniaceae)	*Plim plam*	Fruit	Used for seasonal curries	Sweet and sour	Forest	Fruit
Dioscorea alata L.(Dioscoreaceae)	Ruichin	Tuber	Boiled	Potato like	Forest patches	Bulbil/ Tuber
Dioscorea hamiltonii Hook.f. (Dioscoreaceae)	*Ruipheng*	Tuber	Boiled	Potato like	Forest patches	Bulbil/ Tuber
Diplazium esculentum Sw.(Athyriaceae)	*Dungkek*	Tender leaves	Boiled and fried	Fleshy	Forest floor, roadsides	Spore
Elatostema platyphyllum Wedd. (Urticaceae)	*Tengup*	Tender leaves	Boiled	Mild sweet	Ditches bank	Seed
Eryngium foetidum L. (Apiaceae)	*Vorek Jokk*	Leaves	Chutney flavouring agent	Coriander leaf like	Forest ridges	Root
Gnetum gnemon L. (Gnetaceae)	*Hanthu*	Tender leaves	Boiled	Mild sweet	Forest	Cone
Houttuynia cordata Thunb. (Apiaceae)	*Vorek Jokk*	Leaves	Boiled	Fleshy with fish smell.	Forest floor	Root
Manihot esculenta Crantz.(Euphorbiaceae)	*Ruipharkong*	Tender leaves	Boiledwith pig meat	Sweet	Forest patches	Root
Musa balbisiana Colla. (Musaceae)	*Langdu*	Inflorescence	Boiled	Astringent and mild bitter	Forest	Rhizome
Pandanus minuta L. (Pandanaceae)	*Bapjuha pat*	Leaves	Cooked with rice, vegetable	Gives juha rice smell	Dense forest	Root
Parkia timoriana (A.DC.) Merrill (Mimosaceae)	*Dhemka*	Fruit	Fruit, seed cooked with dry fish	Mild astringent, unique flavour	Forest	Seed
Phlogacanthus thrysiformis (Hardw.) Mab. (Acanthaceae)	*Titaphul*	Inflorescence	Fried	Bitter	Forest	Root, Seed.
Phlogacanthus wallichii Clarke (Acanthaceae)	*Jokan-ke-er*	Inflorescence	Fried	Bitter	Forest	Root, Seed.
Pogostemon benghalense (Burm.f.) Kuntze.(Lamiaceae)	*Hanbipo*	Leaves	Fried and Boiled	Foetid smell.	Open grassy places	Root, Seed
Polygonum chinense L. (Polygonaceae)	Delap	Tender shoot	Seasonal curries	Sour	Road sides	Seed, Stem
Smilax glabra Roxb. (Smilaceae)	*Phelangtang*	Tender shoot	Fried	Sweet	Forest	Seed
Solanum anguivi Lamk.(Solanaceae)	*Bekuri teeta*	Fruit	Fried	Bitter	Scrubs	Seed
Sterculia alata Roxb. (Sterculiaceae)	*Kok terak*	Tender shoot	Boiled	Mild sweet	Primary tropical forest	Seed
Thunbergia grandiflora Roxb. (Thunbergiaceae)	*Nong nong arikang*	Flower	Fried	Sweet	Forest	Seed
Zanthoxylum oxyphyllum Edgw.(Rutaceae)	*Mezenga*	Tender leaves	Cooked with meat, Vegetable.	Oily, mild flavour	In open forest	Seed
Zingiber chrysanthum Rosc. (Zingiberaceae)	*Sobleksin*	Fruit	Fried	Mild sweet	Forest	Rhizome

Table 2 — Market prices of some Karbis wild vegetable in the local market

Plant name	Parts sold	Market price	Market Locality
Alpinia nigra	Stem pith	Rs.5.00/- per bundle (about 400-500 gm)	Diphu
Bambusa balcooa	Tender shoot	Rs. 5.00/- to 8.00/- per piece	Manja, Diphu
Bambusa spinosa	Tender shoot	Rs. 3.00/- to 5.00/- per piece	Manja, Diphu
Centella asiatica	Whole plant	Rs. 5.00/- per part about 80 to 100gm.	Diphu
Celosia argentea	Tender shoot	Rs. 1.00/- per bundle of about 150 to 200gm.	Diphu
Clerodendrum colebrookianum	Tender shoot	Rs. 5.00/- per bundle of about 150 to 300gm.	Bokajan, Diphu
Colocasia esculenta	Tender Leaf,	Rs. 5.00/- per bundle of about 200 to 300gm	Diphu, Bokajan.
	Flower	Rs. 5.00/- per bundle of about 200gm.	Manja, Diphu.
Dillenia indica	Fruit	Rs.1.00/- to 2.00/- per fruit of about 200 to 500gm	Bokajan, Diphu, Manja
Dioscorea alata	Tuber	Rs. 10.00/- to 12.00/- per kg	Diphu, Manja
Dioscorea hamiltonii	Tuber	Rs. 10.00/- to 12.00/- per kg	Diphu, Manja
Diplazium esculentum	Tender Leaf	Rs.1.00/- to 2.00/- per bundle of about 200 to 300gm	Bokajan, Diphu, Manja
Elatostema platyphyllum	Leaf	Rs.2.00/- to 5.00/- per bundle of about 150 to 200gm	Manja, Diphu
Eryngium foetidum	Leaf	Rs.1.00/- per bundle of about 50-100gm	Diphu
Gnetum gnemon	Tender Leaf	Rs.5.00/- per bundle of about 400 to 500gm	Diphu
Houttuynia cordata	Tender shoot	Rs.5.00/- per bundle of about 200gm	Bokajan, Diphu, Manja
Manihot esculenta	Tender Leaf	Rs.5.00/- per bundle of about 200 to 300gm	Diphu.
	Root	Rs.5.00/- to 8.00/- per kg	Diphu, Manja
Musa balbisiana	Inflorescence	Rs.2.00/- to 8.00/- per piece	Manja, Diphu
Pandanus minuta	Leaf	Rs.5.00/- per bundle of about 200gm	Diphu
Parkia timoriana	Fruit	Rs.1.00/- to 2.00/- per fruit of about 100 to 150gm	Diphu, Manja
Phlogacanthus thrysiformis	Inflorescence	Rs.2.00/- to 5.00/- per bundle of about 150 to 200gm	Diphu
Phlogacanthus wallichii	Inflorescence	Rs.2.00/- to 5.00/- per bundle of about 150 to 200gm	Diphu
Pogostemon benghalense	Tender shoot	Rs.2.00/- per bundle of about 300 to 400gm	Diphu
Polygonum chinense	Tender branches	Rs.2.00/- per bundle of about 200 to 300gm	Diphu
Smilax glabra	Tender branches	Rs.5.00/- per bundle of about 200 to 250gm	Diphu
Solanum anguivi	Fruit	Rs.20.00/- to 30.00/- per kg	Diphu
Sterculia alata	Tender leaves	Rs.5.00/- per bundle of about 200 to 300gm	Diphu
Thunbergia grandiflora	Flower	Rs. 5.00/- per part of about 100 to 150gm	Diphu
Zanthoxylum oxyphyllum	Tender leaf	Rs.5.00/- per bundle of about 300 to 400gm	Manja, Diphu, Bokajan
Zingiber chrysanthum	Fruit	Rs.40.00/- per kg	Diphu

and leaves of *Manihot esculenta* and *Houttuynia cordata* and leaf, spathe of *Colocasia esculenta* are used as vegetable. Wild edible plants that are used as vegetables have been arranged alphabetically together with botanical name, family, local (*Karbi*) name, brief description, time of collection, parts used, mode of use, taste, habitat and mode of regeneration (Table 1). Market prices of 29 vegetables, which were collected from Diphu, Bukajan and Manja market, have been provided (Table 2). The prices of the vegetable vary from market to market and fluctuate from season to season depending on their availability.

Discussion

The above investigation deals with 29 wild vegetables with their market price, which is not exhaustive. It is only a fragment of the actual wild vegetables seen in the Karbi Anglong district of Assam. Further inventory and database on wild vegetables will help in better monitoring and management. Wild vegetables have good market prospect in the local market. But, some of the plants are getting depleted in wild condition due to over exploitation and habitat destruction. Multi-tier wild edible garden can be effective measure to conserve

wild vegetables, proper utilization of *jhum* land, to get appropriate price, generate income, and production of wild vegetable and fruit throughout the year. There is also much scope for improving the growth forms of wild edible plants by using modern agronomic techniques through fieldwork in various tribal areas and critical ethnobotanical observation on wild edible plants are the basic requirements.

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