RESEARCH ARTICLE

THE USE OF GREEN VEGETABLES BY THE RESIDENTS OF HEMGIR BLOCK IN SUNDARGARH DISTRICT, ODISHA, INDIA: AN INITIAL REPORT

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Abstract:

The current study examined the variety of plant species that the residents of Hemgir block in Sundargarh district, Odisha, use as green vegetables. Forty plant species from 19 families were identified. The data were recorded by the local name, common name, botanical name, family, etc. With nine species, the Amaranthaceae family is the most abundant, followed by the Brassicaceae and Fabaceae families with six each, the Cucurbitaceae family with three, and two species each from the family Amarylidaceae, Basellaceae and Solanaceae. Each of the remaining 12 families produced one species. Of the 40 species, there are 26 (65%) herbaceous plants, two (5%) shrubs, seven (18%) climbers, and five (12%) trees. *Amaranthus oleraceous* L., *Brassica oleracea* var. *capitata* L., *B. oleracea* var. *botrytis* L., *A. viridis* L., and *Coriandrum sativum* L. are the species that are most commonly utilized. Native people of the study area rely more on wild leafy vegetables than farmed ones.

Keyword: Sundargarh District, Odisha, Traditional Knowledge, Wild Leafy Vegetables.

Introduction:

Around the world, wild vegetables play a significant role in traditional food systems (Turner *et al.*, 2011). According to Bharucha and Pretty (2010), around 53 million Indian tribal people rely on plant resources for their subsistence. The custom of eating wild plants has not entirely disappeared, despite the fact that Indians are quickly adopting an urbanized lifestyle. To support their subsistence needs, individuals usually gather edible wild plants in addition to planting a few crops. A single staple food predominates in the diets of people in many developing nations, with just trace amounts of other foods. This puts people in danger of not getting enough macro- and micronutrients. The diet in India is based on rice and wheat. The staple food is parboiled polished rice; vegetables, fish, pulses, fruits, and animal products make up a tiny portion of the diet. Vegetables, particularly leafy vegetables, are a good source of nutrients because they are high in carbohydrates, proteins, and oils. They are also important because they contain minerals like calcium, iron, folic acid, ascorbic acid, ß-carotene, phenols, and

antioxidants (Aberoumand and Deokule, 2009; Mishra and Mishra, 2014). A significant substance present in vegetables, flavonoids have a wide range of pharmacological and biochemical effects that impact cellular processes like growth, differentiation, and apoptosis (Carlo *et al.,* 1999). To prevent chronic diseases linked to diet, the World Health Organization (WHO) advised each person to consume over 400 g of fruits and vegetables daily (WHO, 2013). Over the past 20 years, high-yielding varieties have rapidly supplanted traditional leafy vegetables, endangering the survival of numerous priceless characteristics found in India's rural communities. Furthermore, given the growing dependence on processed foods and the sharp decline in traditional knowledge regarding wild edible leafy vegetables, it is imperative to document and assess traditional knowledge about the variety, status, and use of leafy vegetables. Due to urbanization, the use of various plant parts by the tribal community gradually changed day by day. Further, there are no such reports available on the use of leafy vegetables from the study sites. Hence, the present study was aimed to document the use of leafy vegetables by the tribal community of the Hemgir block of the Sundargarh district of Odisha, India.

Materials and Methods:

Study Site

Sundargarh district lies between 21° 36′ N to 22° 32′ N and 83° 32′ E to 85° 22′ E and covers an area of 9712 sq. KM. It is surrounded by the Jharkhand, and Chhatisgarh states to the northern and western part respectively, three districts of Odisha namely Angul, Jharsuguda and Sambalpur to south, Keonjhar district of Odisha to the east. The district had 20,93,437 residents as of the 2011 Census, with 10,61,147 men and 10,32,290 women. This district consists of seventeen blocks, three subdivisions, and eighteen Tahasils. The Hemgir block consists of 143 villages. The block has 84,559 residents, 42,670 (50.5%) of whom are men and 41,889 (49.5%) of them are women, according to the 2011 Census. Of them, 12,258 (14.5%) belonged to Scheduled Castes and 38,312 (45.3%) to Scheduled Tribes.

Data Collection

A survey of the literature on the various regions of Odisha was conducted prior to beginning the documentation of the use of native leafy vegetable plants of study sites (Sahu *et al.* 2010; Sahu *et al.* 2013; Sahu *et al.* 2016; Sahu and Sahu 2019, 2022; Patra *et al.* 2025; Saxena and Brahman 1994-96). Regular visits to the research region allowed for personal interactions with the elderly tribe members who were involved in collecting leafy vegetables for their primary source of curry production and revenue generation. In order to identify the local flora, plant specimens were gathered (Saxena and Brahman 1994-96). Since some elderly patients taking these medications were reluctant to tell the truth outright, information was gathered indirectly. Photographs of the recognized plant species were taken, and voucher specimens were placed in the Botany Department's herbarium at Vikash Degree College, Bargarh. The lists of gathered leafy vegetable plants were arranged in a table with their local names, common names, botanical names and families.

Results and Discussion:

The following findings come from a study on how the indigenous Hemgir people in Sundargarh district, Odisha, India, consume green vegetables. According to the survey and inquiries, 40 plant

species from 20 families were identified (Table 1, Figure 1). These indigenous groups in the Hemgir block of the Sundargarh district eat a variety of green vegetables, including 26 (65%) herbs, two (5%) shrubs, seven (18%) climbers, and five (12%) trees (Figure 2). A total of seven species were contributed from the family Fabaceae, followed by six species from the family Cucurbitaceae; both the families Amaranthaceae and Brassicaceae provided five species each. Two species each were supplied by the families Amaryllidaceae, Basellaceae, and Solanaceae. One species was contributed by each of the remaining 12 families, which include the Apiaceae, Araceae, Commelinaceae, Convolvulaceae, Dioscoreaceae, Malvaceae, Marsileaceae, Meliaceae, Moringaceae, Plantaginaceae, Polygonaceae, and Rutaceae (Table 1, Figure 3). Leafy vegetables like *Amaranthus oleraceous* L., *A. viridis* L., *Brassica oleracea* var. *capitata* L., *B. oleracea* var. *botrytis* L., and *Coriandrum sativum* L. are most commonly utilized by the residents of the study site.

The plants like *Allium cepa* L., *Amaranthus* sp., *Azadirachta indica* A. Juss., *Basella alba* L., *Bauhinia* sp., four species of the genus *Brassica, Colocasia esculenta* (L.) Schott, *Ipomoea* Sp., *Mentha spicata* (L.) emend. Nathh., *Momordica charantia* L., *Moringa oleifera* Lam., *Murraya koenigii* (L.) Spreng., and *Raphanus sativus* L. from the kitchen garden of Bargarh district, Odisha, were all commonly used, according to Sahu and Sahu (2019). The indigenous people of Kalahandi district, Odisha, used a variety of plant parts, such as *Allium cepa* L., *Azadirachta indica* A. Juss., and *Moringa oleifera* Lam., for dental care (Sahu *et al.* 2020). The utilisation of *Azadirachta indica* A. Juss. leaves were described by Rana *et al.* (2020), the Gond tribal population in the Amlipali villages of Padampur N.A.C., Bargarh district, Odisha, uses it for skin diseases. According to Sahu *et al.* (2021), the Sahara Tribal Groups of Kangaon Village in Bargarh District, Western Odisha, employ the leaf of *Azadirachta indica* A. Juss. to treat a variety of skin diseases, and twigs were used as toothbrush. According to Sahu and Ekka (2021), the indigenous people of Bargarh district, Western Odisha, India, use a total of 39 plant species from 26 families as leafy vegetables. According to Sahu and Sahu (2022), the tribal peoples of the Jharigaon block of the Nabarangpur district of Odisha recorded 44 plant species from 27 families as leafy vegetables. According to Dash and Sahu (2023), the indigenous people of Balangir area, Odisha, use 49 green vegetables from 28 families. According to Rout and Sahu (2023), the indigenous people of the Bhawanipatna region in the Kalahandi district use *Azadirachta indica* A. Juss. as an antibacterial and to treat skin conditions and diabetes. Sahu and Sahu (2023) reported that *Allium* bulb and *Marsilea quardifolia* L. leaves were utilized for the treatment of asthma by Gonds tribal peoples in Jharigaon area of Nabarangur district. They used 50 gm fresh decoction of *Allium* bulb is given every morning and evening in empty stomach to lessen the effect of asthmatic pain. Further regular use of *M. quardifolia* L. leaves as food provides relief from breathlessness due to asthma. Sahu *et al.* (2024) reported that the seeds of *Brassica campestris* L. were used for are excellent for digestion, improves cardiovascular health, helps to control diabetes, prevent asthma by the natives of Bargarh municipality in the state of Odisha, India. Leaves of *Coriandrum sativum* L. prevent anaemia, improve skin health when consumed regularly, good for digestion, reduce blood sugar levels, and have anti-inflammatory properties by the natives of Bargarh municipality in the state of Odisha, India.

Table 1: Green vegetables used by the native of *Hemgiri Block* of Sundargarh District, Odisha

Local Name	Common Name	Botanical Name	Family
Aalu	Potato	*Solanum tuberosum* L.	Solanaceae
Agasti	West Indian pea	*Sesbania grandiflora* (L). Pers	Fabaceae
Brahmi	Indian Pennywort	*Bacopa monnieri* (L.) Pennell	Plantaginaceae
Bathua	Goosefoot	*Chenopodium album* L.	Amaranthaceae
Chana	Grass pea	*Lanthynus sativus* L.	Fabaceae
Chakunda	Potcassia	*Cassia tora* L.	Fabaceae
Chiti	Common Nutweed	*Polygonum plebeium* R.Br.	Polygonaceae
Dhania	Coriander	*Coriandrum sativum* L.	Apiaceae
Ganthkobi	Salghum	*Brassica oleracea* Var. *gongylides*	Brassicaceae
Janhi	Ridge Gourd	*Luffa acutangula* L.	Cucurbitaceae
Karmata	Water Spinach	*Ipomoea aquatica* Forssk.	Convolvulaceae
Kuilari	Mountain Ebony	*Bauhinia varegata* L.	Fabaceae
Karala	Bitter Gourd	*Momordica charuntia* L.	Cucurbitaceae
Bandha kobi	Cabbages	*Brassica oleracea* L. var *capitata* L.	Brassicaceae
Kanchan	Purple Orchid	*Bauhinia purpurea* L.	Fabaceae
Kena	Adenanthera Pavonina	*Cammelina benghalensis* L.	Commelinaceae
Kundru	Scarlet Gourd	*Coccinia grandis* (L) Voigt	Cucurbitaceae
Leutia	Mediterranean Amaranth	*Amaranthus graecizans* L.	Amaranthaceae
Lesun	Garlic	*Allium sativum* L.	Amaryllidaceae
Lau	Bottle Gourd	*Lagenaria sicenaria* (Molina) Standley	Cucurbitaceae
Lal bhaji	Red Amaranth	*Amaranthus cruentus* L.	Amaranthaceae
Makhan	Pumpkin	*Cucurbita maxima* Duch ex. Lam	Cucurbitaceae
Methi	Fenugreek	*Teigonella foenum graceum* L.	Fabaceae
Madaranga	Scarlet Gourd	*Coccinia grandis* (L.) Voigt	Cucurbitaceae
Mula	Radish	*Raphnus sativus* L.	Brassicaceae
Munga	Drum Stick Greens	*Moringa oleifera* Lam	Moringaceae
Mirsinga	Curry Leaves	*Murraya koenigii* Linn.	Rutaceae
Mircha	Chilli	*Capsicum annuum* L.	Solanceae
Matialu	Great Yam	*Dioscorea alata* L.	Dioscoreaceae
Nalita	Jute	*Corchorus oliotorious* L.	Malvaceae
Nim	Neem	*Azadirachta indica* A. Juss.	Meliaceae
Palanga	Spinach	*Spinacia oleracea* L.	Amaranthaceae
Phulakobi	Cauli Flower greens	*Brassica oleracea* L. Var *botrytis* L.	Brassicaceae
Piaja	Onion	*Allium cepa* L.	Amaryllidaceae
Podina	Mint	*Mentha spicata* (L.) emend. Nathh.	Basellaceae
Poi	Malabar Spinach	*Basella alba* L.	Basellaceae
Saru	Taro	*Colocasia esculenter* Schott	Araceae
Sorisa	Mustard	*Brassica napus* L.	Brassicaceae
Sunsunia	European water clover	*Marsilea quadrifolia* L.	Marsileaceae
Semi	Lima Beans	*Phaseolus lunatus* L.	Fabaceae

Figure 1: Photographs of representative green vegetables namely Photographa of representative namely *Phaseolus lunatus* L. (1), *Bacopa monnieri* (2), *Azdinacta indica* L. (3), *Basella alba* L. (4), *Murray koenigi* L. (5), *Marsilea quadrifilia* L. (6), *Teigonella foenum-graceum* L. (8), *Spinacia oleracea* L. (9), *Brassica napus* L. (10) *Solanum tuberosum* L. (11) *Amaranthus cruentus* L. (12), *Allium sativum* (13), *Cucurbita maxima* Duchex ex. Lam (14), *Amaranthus graecizans* L. (15), *Chenopodium album* L. (16).

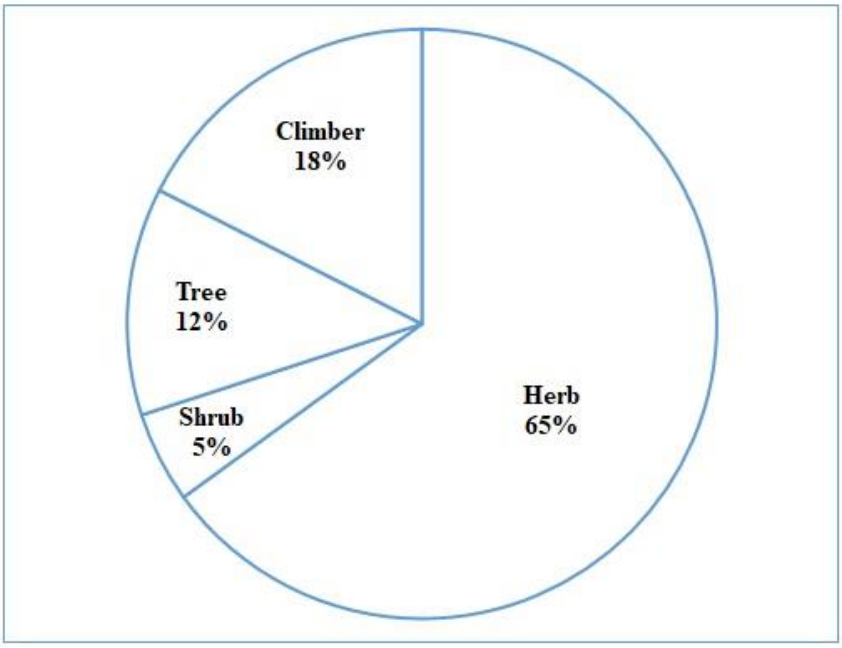

Figure 2: Pie-chart showing diversity of plant species by habit of the study sites.

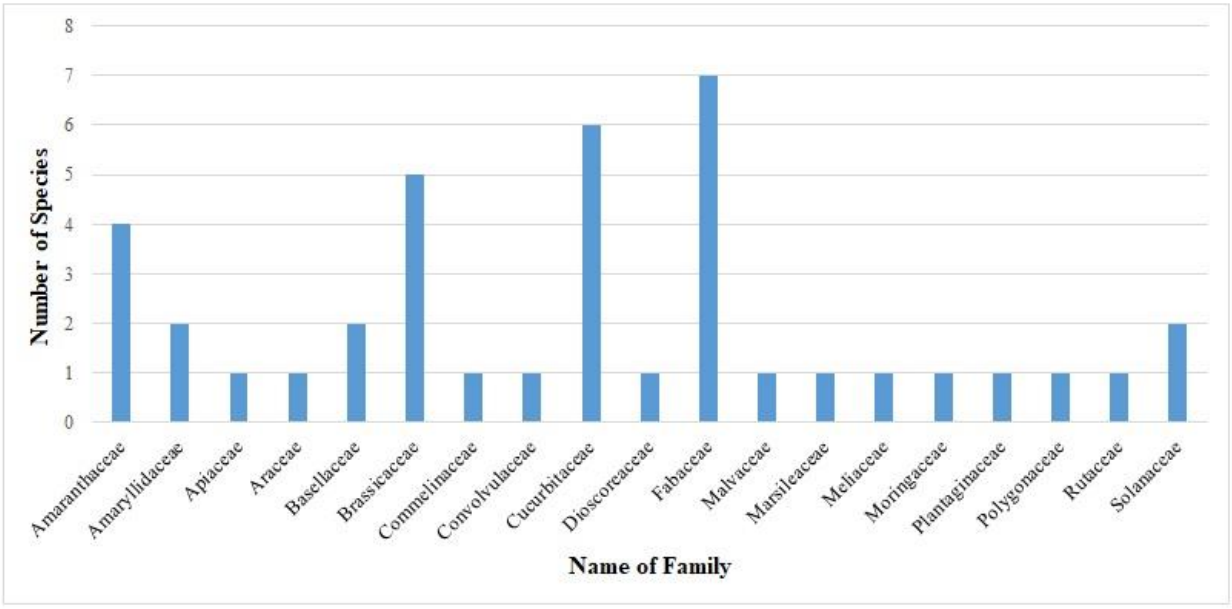

Figure 3: Family wise distribution of green vegetables used by the native of Hemgiri block of Sundargarh district, Western Odisha, India.

According to Sahu and Sahu (2024) plants like *Azadirachta indica* Juss., *Coriandrum sativum* L., and *Mentha spicata* (L.) emend. Nathh. were used as natural dye yielding ethnomedicinal plants by the native of Jharigaon Block of Nabarangpur district. Sahu *et al.* (2024) reported that both the *Azadirachta indica* A. Juss., *Capsicum* sp. was used for ethnomedicinal purposes by the natives of Barpali N.A.C. of Bargarh district of western Odisha, India. Sahu *et al.* (2024) reported that twigs of *Azadirachta indica* A. Juss. used as a toothbrush by the tribal peoples of Jharigaon block of Nabarangpur District, Odisha, India. The phytochemical constituents of *Marsilea minuta* leaves, which are responsible for several known pharmacological traits, were examined by Sharma *et al.* (2024).

Padhan *et al.* (2025) reported that *Moringa* leaves contained tannins, saponins, flavonoid, steroids, terpenoids, cardiac glycosides, anthraquinones and alkaloids as secondary metabolites. Sahu *et al.* (2025) reported that the ethanol extract of *Allium sativum* (bulb) showed positive results for alkaloids, flavonoids, phenolic compounds, tannins, glycosides, saponins, steroids and carbohydrates. The ethanol extract of *Coriander sativum* (seeds and leaves) showed positive results for alkaloids, flavonoids, phenolic compounds, terpenoids & triterpenoids, saponins, steroids and carbohydrates.

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