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FLORISTIC INVENTORY OF LEAFY VEGETABLES WITH SPECIAL REFERENCE TO THEIR ETHNOMEDICINAL USES IN BALASORE DISTRICT OF ODISHA, INDIA

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Nature has gifted indigenous leafy vegetables with innate nutritional and therapeutic potential for curing various ailments. The indigenous leafy vegetables play a crucial role in addressing health issues in rural areas where modern health care facilities are inadequate. Unfortunately, the traditional medicinal knowledge associated with leafy vegetables is declining at a faster rate due to lack of awareness among the public about their multifaceted benefits. The present investigation was carried out in Balasore district, Odisha, India in order to explore the ethnomedicinal uses of indigenous leafy vegetables among the tribal inhabitants. A total of 51 plant species belonging to 50 genera under 27 families were recorded. There is an urgent need for preservation and perpetuation of ethnomedicinal knowledge related to indigenous leafy vegetables which are on the verge of extinction in the coming decades. By investigating these plants for the presence of important bioactive components they can be explored for discovery of new herbal drugs.

Keywords: Ethnomedicinal, Indigenous, Leafy vegetables, Balasore, Odisha.

From the prehistoric period, tribal communities have been using wild plants as food and medicines for curing various human ailments. To date, folk healing practices play a crucial role in primary healthcare among rural ethnic groups and tribal communities. Traditional knowledge related to medicinal uses of plant species used by indigenous people are useful not only for conservation of inherited folk medicine, but also for drug development (Kantati *et al*. 2016). Moreover, these traditional herbal medicines are cost-effective, safe for consumption and affordable by all. However, the ethnobotanical knowledge is declining day by day due to change in culture, lifestyles, food habits, religious beliefs, dependency on the synthetic drugs and access to modern healthcare services.

Currently, research in indigenous leafy vegetables is attracting attention due to their overlapping nutritional and medicinal values. Being enriched with nutrients, antioxidants and bioactive compounds, they have been designated as '*Nature's Anti-aging Wonders*'. Leafy vegetables contribute significantly to protein, vitamins, minerals, fibers, other nutrients which are usually limited in people's daily diets (Mohammed and Sharif 2011, Omara-Achong *et al*. 2012, Mishra and Satapathy 2004). The antioxidants present in leafy vegetables help in controlling oxidative stress and age-related human ailments (Gacch *et al*. 2010). Being low in calories and fats, they help in reducing weight. They also help in overcoming anaemia as they are rich in folic acid which helps in the formation of red blood cells in our body. In addition, high dietary fiber content in leafy vegetables provides necessary roughage in our diet which can stimulate intestinal activities and relieves constipation. Besides, leafy vegetables contain a lot of water which keeps our body hydrated.

Leafy vegetables are classified under "Protective Foods" as they act as nature's healer by boosting our immune system and protecting us against various diseases. They are enriched with compounds having anti-diabetic property (Keshari *et al*. 2005), anti-histaminic (Yamamura *et al.* 1998) and anti-carcinogenic properties (Rajesh Kumar *et al*. 2002). Epidemiological studies indicate that the increased consumption of leafy vegetables is responsible for decreased risk of nutrient deficiency disorders as well as some serious diseases like cancers, cardiovascular disease,

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cataract and other age-related diseases (Acho *et al.* 2014). Common constituent of leafy vegetables like Ascorbic acid (vitamin C), Tocopherol (Vitamin E), Vitamin A (retinol and provitamin A), Lutein and Zeaxanthin, Lycopene, Folate, Riboflavin, Niacin, Molybdenum, Selenium and Zinc (De Bolle *et al*. 1996) can lower the risk of long term eye diseases. Despite their multiple uses, indigenous leafy vegetables have not been fully exploited for the benefit of humankind.

Most of the research has been focused on the antioxidant, nutritional and floristic studies of leafy vegetables in the state of Odisha by several workers (Sahu *et al*. 2013, Panda 2014, Misra and Misra 2014, Tripathy *et al.* 2014, Panda et *al.* 2015, Pradhan and Panda 2015, Samal *et al.* 2019, Mallick *et al*. 2020) while ethnomedicinal documentation of leafy vegetables are often ignored. However, Balasore district in Odisha, India which is gifted with a diversity of indigenous leafy vegetables is not yet explored. Therefore, the present investigation was undertaken to identify the underutilized indigenous leafy vegetables and to document the traditional knowledge of tribal communities of the Balasore district on the medicinal uses of these leafy vegetables. So, research on a wider scale is required for tapping the potential of indigenous leafy vegetables as future medicinal drugs and super food (Noor and Satapathy 2020).

MATERIALS AND METHODS

Study area: The current study was conducted in the Balasore district (21°3' to 21°59' N latitude and 86°20' to 87°29' E longitude) which is located in the north-east coastal section of the state of Odisha, India. It covers an area of *3,806* km² including 3,675.32 km² rural *area* and 130.68 km² urban *area* with a population of 2,320,529 (2011 Census). The scheduled tribe population of Balasore district is 2, 75,678 (11.88%) as per the 2011 census. The principal tribes of the Balasore district are Santal, Bhumija, Kolha, Bathudi, Oraon, Mankidia, Bhuyan and Kandha. The average altitude of the district is 19.08 m. It is bounded by Purba and Paschim Medinipur district of West Bengal in the north, the Bay of Bengal in the east, Bhadrak district in the south, Mayurbhanj and Keonjhar districts on the west

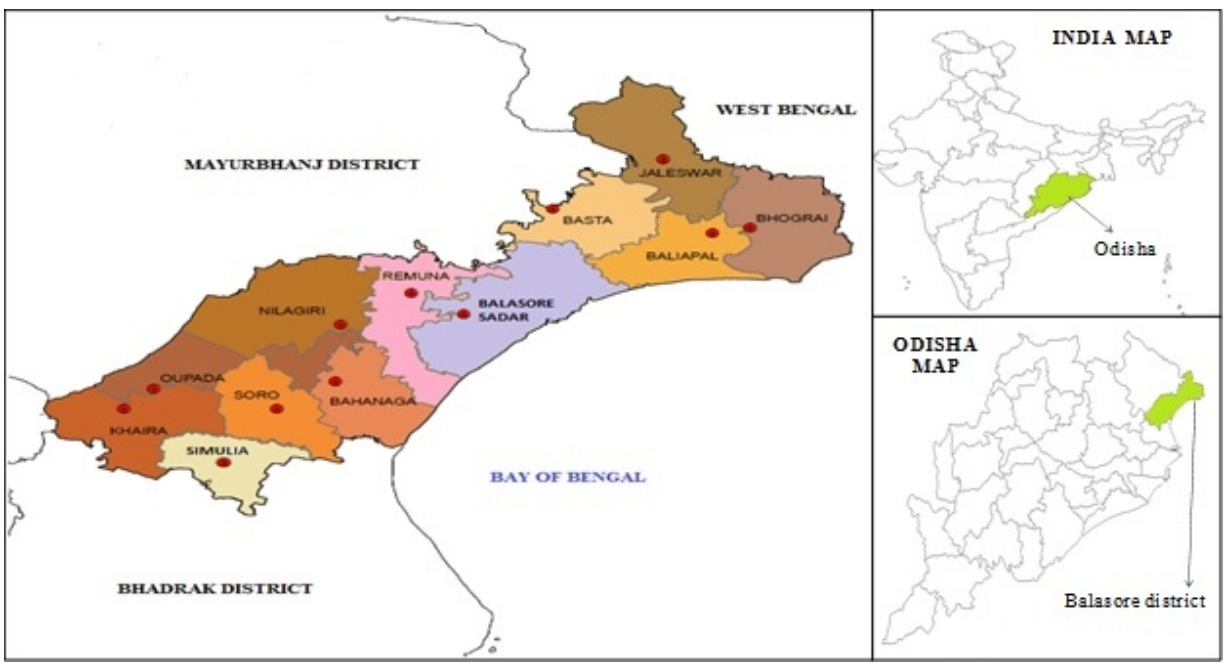

Figure 1: Map of Balasore district of Odisha showing locations of the study area.

(Fig.1). The climate of the district is hot with high humidity. The average air temperatures range from 43.1°C in summer to10.6°C in winter and the annual average rainfall is approximately 1,583 mm. The two main perennial rivers of Odisha, Budhabalanga and Subarnarekha pass through Balasore in the west to the east direction before blending into the Bay of Bengal. The soil of the study area is mostly alluvial-laterite which along with perennial rivers favors the growth of agriculture in this region.

Methodology: An extensive ethnobotanical field survey was carried out to document the medicinal uses of indigenous leafy vegetables in the tribal pockets located in 12 C.D. Blocks namely, Jaleswar, Bhograi, Basta, Baliapal, Balasore, Remuna, Nilagiri, Bahanaga, Oupada, Soro, Khaira and Simulia of Balasore district of Odisha during February 2018 to March 2020. A total of 150 persons including 70 women and 80 men with an average age of 40 were interviewed during the survey. Through prepared questionnaire methods, interactions were made with the tribal herbal practitioners, local inhabitants, and knowledgeable elder persons in and around the study area. During the interviews, local names of the plants, habit, utilized parts, preparation methods, mode of administration and traditional cultivation techniques were recorded. To get authentic data, the folklore claims were cross-checked by interacting with the different dwellers of the same community in the different study areas. By interviewing the vegetable vendors of local markets present in the study area, inventory of indigenous leafy vegetables used for commercial purposes was also recorded. The data acquired for each plant includes botanical name, voucher number, family, local name, habit, part(s) used, mode of use(s) and tribe using leafy vegetables as medicines (Table-1). The botanical names of the plants were arranged in alphabetical order.

The plant specimens were collected and digital photographs were also taken for identification. The collected specimens were then dried and preserved as voucher specimens using the techniques described by Jain and Rao (1967). The collected indigenous leafy vegetables were identified with reference to the regional floras (Saxena and Brahmam1994-1996, Mooney 1950, Haines 1921-1925) and in consultation with standard literature. The herbarium samples were deposited in the Department of Botany, School of Applied Sciences, Centurion University of Technology and Management, Odisha, India.

RESULTS AND DISCUSSION

During the investigation, 50 angiosperms (48 dicotyledonous species under 47 genera included in 24 families; 2 monocotyledonous species under 2 genera included in 2 families) and 1pteridophyte with folklore claims were recorded from the study area (Table-1). Habit-wise analysis of the available species indicated that 32 (63%) were herbs followed by 9 (17%) trees, 8 (16%) climbers, 1 (2%) shrub and 1 (2%) pteridophyte (Fig. 2). Among the families of the documented plant species, Amaranthaceae and Fabaceae with 6 species each were found to be dominant followed by Cucurbitaceae (5), Acanthaceae (3), Apiaceae (3), Lamiaceae (3) and Asteraceae, Brassicaceae, Rubiaceae, Rutaceae with 2 species each (Fig-3). *Amaranthus* with 2 species was recorded to be the dominant genus.

Among the enlisted indigenous leafy vegetables, the widely used leafy vegetables for medicinal purposes by the tribal people are *Azadirachta indica, Bacopa monnieri, Centella asiatica, Eclipta prostrata, Hygrophila auriculata, Mentha spicata, Murraya koenigii, Nyctanthes arbor-tristis, Paederia foetida, Trigonella foenum-graecum, Justicia adhatoda, Moringa oleifera, Oxalis corniculata* and *Andrographis paniculata.*

Wild edible plants ensure food security, balanced nutrition and household income for tribal and rural communities. Many indigenous leafy vegetables used by the tribes are still remaining unknown to the common people of

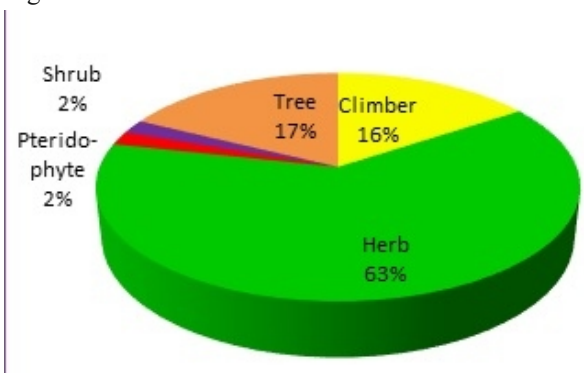

Figure 2: Habit-wise distribution of indigenous leafy vegetables (in %) in the study area

the area under study. Documentation and exploration of indigenous leafy vegetables would open up new horizons for popularizing their wider consumption by the people in their diet thereby promoting good health. Further research on a greater scale is required for revealing their potential as future medicines. With the help of biotechnological intervention, underutilized leafy vegetables can be commercialized for its use in wider scale (Fig.4).

CONCLUSION

The medicinal plant plays a significant role in

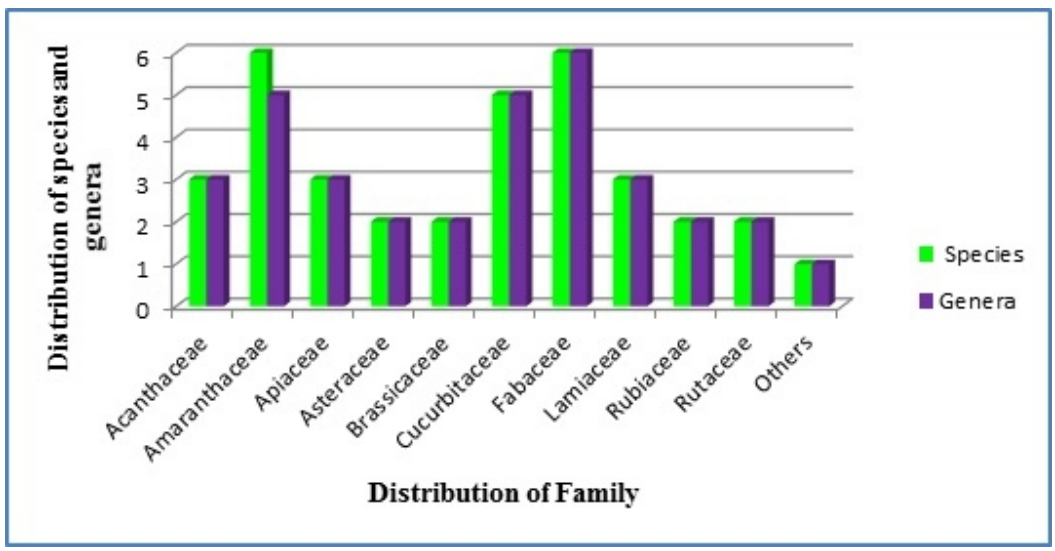

Figure 3: Family-wise distribution of indigenous leafy vegetables genera and species in the study area

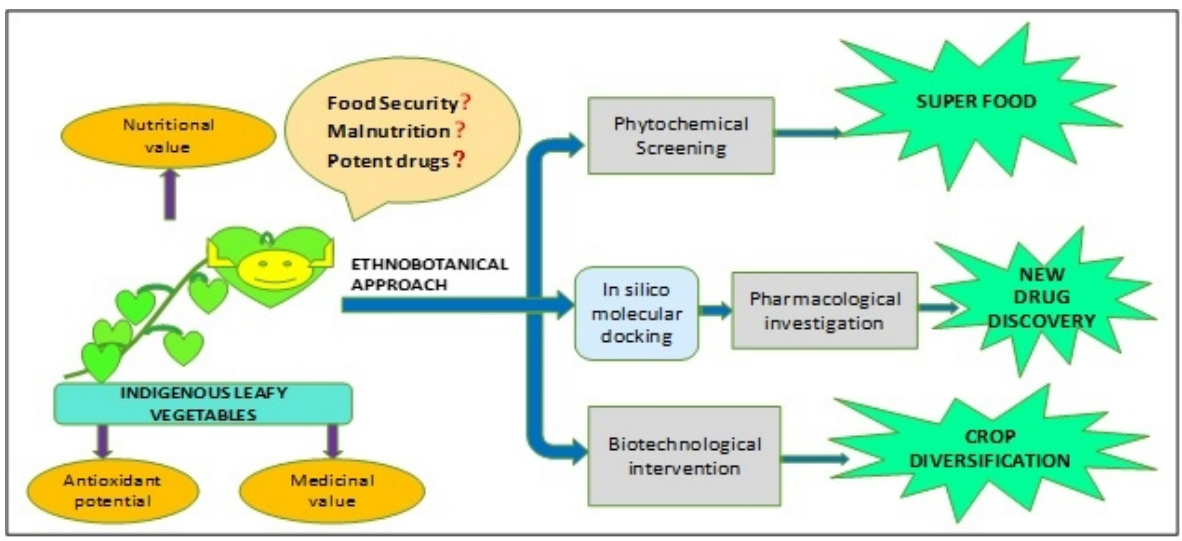

Figure 4: An integrated innovative approach for exploring the use of indigenous leafy vegetables.

Table 1: Ethnomedicinal uses of indigenous leafy vegetables of Balasore district of Odisha

Sl. No.	Botanical name with voucher no. and family	Vernacular name(s)	Habit	Mode of utilization with tribe
1.	*Achyranthes aspera* L. [NN-298] [Amaranthaceae]	Apamaranga (O) Buridataram(S)	Herb	**Leaves:** 1-2 teaspoonful of leaf juice is taken thrice a day in empty stomach for 4 days to treat stomach ulcers. [Santal]
2.	*Aerva lanata* (L.) Juss. ex Schult. [NN-256] [Amaranthaceae]	Paunsia (O) Chindi Saga (Or) Lopon (S)	Herb	**Leaves:** Cake prepared out of the leaves and boiled rice is taken for curing dysentery. [Oraon]
3.	*Allium cepa* L. [NN-305] [Amaryllidaceae]	Piaja (O) Piaz (S)	Herb	**Bulb:** ½ or 1 bulb consumed with lunch or dinner every day is believed to rectify the eye sight defect. [Santal]
4.	*Alternanthera sessilis* (L.) R.Br. ex DC.[NN-227] [Amaranthaceae]	Madaranga Saga (O) Garundi alah (S)	Herb	**Roots:** Roots are ground finely and the juice is used daily as eye drops till the red colour of the eyes disappears and become painless during eye infection especially in conjunctivitis. [Santal]
5.	*Amaranthus caudatus* L. [NN-275] [Amaranthaceae]	Khada saga (O, Bh)	Herb	**Leaves:** Leaf paste is applied on cuts and bandaged to stop bleeding and pain. [Bhumija]
6.	*Amaranthus spinosus* L. [NN-318] [Amaranthaceae]	Kantaneutia (O) Janum alah(S)	Herb	**Leaves:** Leaf paste is applied to the infected areas to cure eczema. **Root:** Root juice (5 ml) taken twice a day for 3 days for poisonous insect bite. [Santal]
7.	*Andrographis paniculata* (Burm.f.) Nees [NN-396] [Acanthaceae]	Bhuinimbo(O) Hasa nimb (S)	Herb	**Whole plant:** Dried plant parts soaked in water overnight and the strained water is taken in the early morning before sunrise for controlling diabetes. [Santal]
8.	*Azadirachta indica* A. Juss. [NN-261] [Meliaceae]	Nimba (O) Neem dare (S)	Tree	**Leaves:** Finely grind leaves powder are heated and wrapped in a piece of cloth and tied firmly in the affected area for curing boils/ulcers. **Leaves:** An equal amount of neem leaves and 'Ajwain'(*Trachyspermum ammi*) are made into a paste and applied below the ear and lower jaw area to stop nose bleeding. [Santal]
9.	*Bacopa monnieri* (L.) Pennell. [NN-211] [Plantaginaceae]	Brahmi saga (O) Brahmi alah (S)	Herb	**Leaves:** Leaves are crushed and the juice obtained is taken 2 teaspoonful twice a day for three days against malarial fever and cough. 5-7 raw leaves are consumed daily in the morning for enhancing memory power. [Santal]
10.	*Basella alba* L. [NN-284] [Basellaceae]	Poi (O) Purai(S)	Climber	**Leaves:** ¼ th of the leaf along with 2 'Golmirich' (*Piper nigrum*) is ground and given to children thrice a day for curing diarrhoea. **Leaves:** Leaf paste is applied on the periphery of the navel region for curing Oliguria (decreased urine production). **Leaves:** Leaf along with little salt is rubbed on the skin to remove stinging hairs of caterpillar. [Santal]
11.	*Bauhinia purpurea* L. [NN-239] [Fabaceae]	Barada (O) Sin alah (S)	Tree	**Bark:** The bark of 'Gambhari' tree (*Gmelina arborea*) along with bark of 'Kanchanar' (*Bauhinia variegata*) tree is ground and mixed with fermented rice water and given to drink for curing ascites infestation. [Santal]
12.	*Boerhavia diffusa* L. nom. cons. [NN-347] [Nyctaginaceae]	Puruni (O) Ohoic alah(S)	Herb	**Root:** The root of this plant along with the blood of the black goat is boiled and given once in a day for 15 days against 'Fistula in ano' disease. [Santal]
13.	*Brassica napus* L. [NN-372] [Brassicaceae]	Sorisha(Bh)	Herb	**Seed:** Warm seed oil is used for massaging the body against body ache. 2-3 drops of warm oil is dropped into the ear to treat earache. [Bhumija]
14.	*Centella asiatica* (L.) Urban [NN-270] [Apiaceae]	Thalkuri (O) Chatum alah (S)	Herb	**Leaves:** Raw leaves or leaf juice mixed with Cow's milk is taken in morning and evening to boost memory power. **Leaves:** Leaf juice of this plant mixed with'Triphala' powder, 'Pointed gourd' leaves powder, 'Coriander' powder in equal quantities are taken along with a little 'Sunthi' (dried ginger) powder twice a day to cure all types of stomach disorders. [Santal]
15.	*Cleome viscosa* L. [NN-202] [Cleomaceae]	Anasorisha (O) Hur hura alah (S)	Herb	**Leaves:** Leaves are ground and plastered on the forehead along the edges of the eyebrows for relieving headache.[Santal]
16.	*Coccinia grandis* (L.) Voigt [NN-269] [Cucurbitaceae]	Kundri (O) Kundri alah (S)	Climber	**Leaves and fruit**: 5-10 ml of decoction of the leaves or young fruits are fried and consumed once daily for seven days against diabetes. [Santal]
17.	*Coleus barbatus* (Andrews) Benth. ex G.Don [NN-283] [Lamiaceae]	Rukuna hata pochha (O)	Herb	**Leaves:** 10 ml leaf juice (10 ml) mixed with a pinch of rock salt and given twice in each one hour for treating diarrhoea in children. [Bhumija]
18.	*Commelina benghalensis* L. [NN-223] [Commelinaceae]	Kaniseera(O) Kana alah(S)	Herb	**Sap of leaf sheath**: Sap is applied on the affected areas for curing eye-sores or styes. [Santal]

19.	*Coriandrum sativum* L. [NN-291] [Apiaceae]	Dhaniya (O) Dhaniya sakaam (S)	Herb	**Leaves:** Leaves are boiled in water and fomented to remove the splinter from the foot. **Seeds:** Coriander seeds and boiled rice are made into a paste then cooked and consumed for curing epilepsy. [Santal]
20.	*Cucurbita pepo* L. [NN-258] [Cucurbitaceae]	Kakharu (O)Kahanda alah (S)	Climber	**Seed:** 25g seed kernel is made into a paste by adding a little water and mixed with jaggery and taken with warm milk (4 tea spoonful) in the morning 2 hours after breakfast for expelling intestinal worms. [Santal]
21.	*Eclipta prostrata* (L.) L. [NN-272] [Asteraceae]	Kesadura (O) Kala kesadura (Or)	Herb	**Leaves:** Leaf juice along with castor oil applied on the scalp for preventing premature greying of hair. Leaf juice (10 ml) mixed with sheep's milk (20 ml) is prescribed for 2 days for curing dysentery. [Oraon]
22.	*Enydra fluctuans* Lour. [NN-311] [Asteraceae]	Hidimicha saga (O)Hamae alah(S)	Herb	**Leaves:** 2-3 teaspoonful of leaf juice is taken early in the morning once a day for controlling diabetes and for reducing inflammation of body. **Leaves:** Leaf juice is orally administered 7 teaspoonful daily for curing hepatomegaly (liver enlargement). [Santal]
23.	*Eryngium foetidum* L. [NN-340] [Apiaceae]	Jangli dhania	Herb	**Leaves:** 10 g leaf decoction is prescribed orally twice a day on empty stomach to check the vomiting due to indigestion. [Bhumija]
24.	*Erythrina variegata* L.[NN-333] [Fabaceae]	Paladhua (Or)	Tree	**Leaves:** 1-2 teaspoonful of leaf juice is given to children once a day for 3-4 days for curing intestinal worms. [Oraon]
25.	*Ficus religiosa* L. [NN-385] [Moraceae]	Aswatta (O) Hesak alah(S)	Tree	**Bark:** The bark is burnt in the fire and the resulted ash is mixed with water and taken 2-4 teaspoonful in every one hour to cure vomiting and diarrhoea in children. [Santal]
26.	*Glinus oppositifolius* (L.) A. DC. [NN-293] [Molluginaceae]	Pitagama (O) Pite gimah(Bh)	Herb	**Whole plant:** Plant paste is applied externally against itches, scabies and other skin diseases. [Bhumija]
27.	*Hibiscus sabdariffa* L. [NN-355] [Malvaceae]	Kaunria saga(O) Kaunri alah(S)	Herb	**Leaves:** 10 g leaf paste is orally administered twice a day for 7days against painful urination. [Santal]
28.	*Hygrophila auriculata* Schumach. [NN-308] [Acanthaceae]	Koilikhia (O) Koelekha(Bh,S)	Herb	**Leaves:** Leaves are boiled and then fried and consumed against body inflammation. Leaf juice is also consumed for preventing anaemia. [Bhumija] Leaf juice mixed with equal amount of lemon juice is taken every day in the evening for expelling intestinal worms [Santal]
29.	*Ipomoea aquatica* Forssk. [NN-260] [Convolvulaceae]	Kalama saga(O) Kalandi alah(S)	Herb	**Leaves:** Leaves are fried and given to the mother of a new born baby for increasing lactation. [Santal]
30.	*Justicia adhatoda* L. [NN-359] [Acanthaceae]	Basanga (O) Basango (Bh)	Shrub	**Leaves:** Leaf juice along with honey is taken for curing cough and cold. [Bhumija]
31.	*Lagenaria siceraria* (Molina) Standl. [NN-377] [Cucurbitaceae]	Lau (O) Hatad alah(Bh)	Climber	**Fruit:** Cooked immature fruits are prescribed for increasing lactation for lactating women and it is also recommended in the diet against constipation and flatulence. [Bhumija]
32.	*Leucas cephalotes* (Roth) Spreng. [NN-292] [Lamiaceae]	Gayasa (O) Dhurup alah (S)	Herb	**Leaves:** Leaf powder of this plant is wrapped in a dry leaf to form a cigarette shape and is inhaled through the nostril against hemicarnia.[Santal]
33.	*Luffa acutangula* (L.) Roxb. [NN-279] [Cucurbitaceae]	Jahni (O, S)	Climber	**Leaves:** Dried leaf powder is applied to the affected area for curing external piles. [Santal]
34.	*Marsilea quadrifolia* L. [NN-325] [Marsileaceae]	Sunsunia saga (O) Susundi saga/ Chatom alah(S)	Pteridophyte	**Leaves:** Leaves are boiled or fried and consumed against insomnia and to cure dysentery. Raw leaf paste is applied on the forehead to cure headaches and for cooling the head. [Santal]
35.	*Mentha spicata* L. [NN-286] [Lamiaceae]	Pudina(O) Pudina sakaam (S)	Herb	**Leaves:** Leaf juice mixed with sunthi powder (dried ginger) and a little salt is taken to cure diarrhoea. **Leaves:** 1 cup of leaf juice is taken in empty stomach in the morning for three days to treat high blood pressure. [Santal]
36.	*Momordica charantia* L. [NN-265] [Cucurbitaceae]	Kalara (O) Kaalra sakaam (S)	Climber	**Leaves:** Leaf juice is applied to the peripheral area of the navel to treat swelling of the navel. **Leaves:** Leaf juice mixed with tulsi leaf juice is applied to the affected area for wound healing. [Santal]
37.	*Moringa oleifera* Lam. [NN-229] [Moringaceae]	Sajana (O) Munga alah (S)	Tree	**Bark:** Bark paste mixed with opium in the proportion of 10:1 and 30 tablets of 5 g each are prepared and taken one tablet daily for 30 days to cure epilepsy. **Leaves:** Leaf juice (1 teaspoonful) taken every day once in the empty stomach for lowering blood pressure. [Santal]

38.	*Murraya koenigii* (L.) Sprengel [NN-375] [Rutaceae]	Kadhi patta (Bh) Bhursunga (O),	Tree	**Leaves:** ½ cup of leaf juice is given in the early morning against severe acidity. [Bhumija]
39.	*Nyctanthes arbor-tristis* L. [NN-399] [Oleaceae]	Singarahara (O, Bh)	Small tree	**Leaves:** 2 to 3 teaspoonful of leaf juice is taken in the morning on empty stomach once in a day for 3 days to cure intermittent fever.[Bhumija]
40.	*Oxalis corniculata* L. [NN-315] [Oxalidaceae]	Ambiliti (O) Ambili(Or) Chomo rakoi alah (S)	Herb	**Leaves:** 1 or two teaspoonfuls of leaf juice is taken twice a day for curing whooping cough. [Oraon] **Leaves:** Leaf juice along with a little sugar candy powder is given to children for curing vomiting and diarrhoea. [Santal] **Leaves:** Sesame seeds and 'Ambiliti' leaves are ground and an equal amount of cow's milk cream is added and taken to cure piles. [Santal]
41.	*Paederia foetida* L.[NN-338] [Rubiaceae]	Prasaruni (O) Gandhiali (Or)	Climber	**Leaves:** Leaf paste mixed with boiled rice paste are made into cakes. This cake is eaten (after frying) against arthritis or body pain.[Oraon]
42.	*Portulaca oleracea* L.[NN-342] [Portulacaceae]	Luna saga (Bh) Bek saga (Or)	Herb	**Leaves:** Leaves are boiled, fried and consumed for expelling intestinal worms. [Oraon]
43.	*Raphanus raphanistrum* subsp. *sativus* (L.) Domin [NN-300] [Brassicaceae]	Mula saga (O) Mula alah(S)	Herb	**Fruit:** Fruit juice (20 ml) mixed with 10g of sugar candy powder is taken 2 times (morning and evening) on an empty stomach to get relief from acidity. [Santal]
44.	*Senna occidentalis* (L.) Link [NN-329] [Fabaceae]	Kola chakunda (O), Cakaoda (S)	Herb	**Leaves:** Leaf paste mixed with 3-4 drops of lemon juice and a pinch of sulphur is applied to affected areas for curing ringworm. [Santal]
45.	*Sesbania grandiflora* (L.) Poiret [NN-213] [Fabaceae]	Agasthi (O, Bh)	Tree	**Flower:** Flower is crushed and inhaled for relieving headache. **Leaves and flowers**: Decoction of both leaves and flowers is prescribed for gargling against throat infection. [Bhumija]
46.	*Solanum tuberosum* L. [NN-268] [Solanaceae]	Alu (O,S)	Herb	**Leaves:** Leaf juice is applied to the infected area to treat ringworm or eczema. Leaves are boiled in water, cooled, filtered and taken for curing cough. [Santal]
47.	*Spermacoce articularis* L.f. [NN-360] [Rubiaceae]	Solaganthi(O) Pitua alah(S)	Herb	**Leaves and roots:** Leaves or roots are ground and its juice is squeezed into the infected eyes to reduce swelling and redness caused due to conjunctivitis [Santal]
48.	*Spinacia oleracea* L. [NN-257] [Amaranthaceae]	Palanga (O,S)	Herb	**Leaves:** Leaf juice mixed with equal amount of tomato juice (50 ml each) is boiled along with a little black salt and black pepper powder and consumed orally for curing indigestion and loss of taste. [Santal]
49.	*Tamarindus indica* L. [NN-216] [Fabaceae]	Tentuli (O), Jojo (S)	Tree	**Leaves:** Leaves are boiled and filtered water is taken for curing chest pain and vomiting. [Santal]
50.	*Toddalia asiatica* (L.) Lam. [NN-345] [Rutaceae]	Tundpora(O, Bh)	Climber	**Leaves:** 2-3ml leaf juice is taken orally once a day for chronic fever till cure.[Bhumija]
51.	*Trigonella foenum-graecum* L. [NN-397] [Fabaceae]	Methi (O), Methi sakaam (S)	Herb	**Seed:** 10g seed powder soaked in water given twice daily for 10 days against irregular menstruation. [Santal]

O: Odia, S: Santali, Or: Oraon, Bh: Bhumija; NN. - Name of the first author in abbreviated form

the treatment of various diseases among the tribes and rural communities inhabiting in different pockets in Balasore district of Odisha. The present study reveals that in addition to their nutritive values, indigenous leafy vegetables are endowed with bioactive compounds which can promote overall health of an individual. Some of the plants cited by the local medicine-men possess scientific validation about therapeutic property and hence the importance and significance of ethnomedicinal knowledge practices for a long period cannot be ruled out. The leafy vegetable plants with ethnomedicinal claims of the area under study, which so far have received very little attention from modern biomedical research could be a promising source of knowledge for the development of novel drugs for the 21st century. The present study may also be helpful, to protect the ancient and traditional ethnomedicines of tribal community and to safeguard and transfer this valuable knowledge to the next generations for the development of effective herbal remedies in the near future.

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