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## Traditional knowledge of indigenous leafy vegetables: A study of herbal medicines and vegetables used by the people of Jorhat district, Assam (India)

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### Abstract

A survey was conducted throughout the Jorhat district and thirty one plant materials were collected from different areas of Jorhat district and identified by taxonomist. During the survey 50 (fifty) numbers of persons were contacted and asked about their traditional belief for consumption of the indigenous leafy vegetables and responds are recorded. The research study aimed to determine the economic values of some weed used as leafy vegetables in Jorhat district used by Assamese communities in traditional purpose. Specifically it aimed to describe the economic value with respect to their use as vegetables and other medicinal benefits. Results of the study revealed 31 species in 24 families of herbal weeds which were collected in the study sites. The herbal weed plants exhibited morphologically were different from each other and were found economically important because of their medicinal values. The traditional knowledge of these weed plants as leafy vegetables and medicine recorded in this paper which are unknown or less known to the world.

**Keywords:** medicinal plants, traditional knowledge, vegetables, weed, leafy vegetables

### Introduction

Man is using plants since the dawn of civilization to treat various diseases, disorders and as food. This interaction of man and plants leads to the establishment of the traditional knowledge of plants. A plant in one place may be useful as food, feed, fibre and medicine, while at others it may be a weed. Thus, plant species cannot be considered as weed under all circumstances [3]. Assam state of India is one of the few places on earth with such a unique biodiversity, comprising different climatic zones with a wide range of plant species. This traditional knowledge of ethnic groups around the globe forms the basis of modern plant based manufacturing especially allopathic medicine as well as food processing industry. Certain practices are unique to a given culture of a society and vary between countries, regions, villages and even communities, and this knowledge of the people has been termed as indigenous knowledge [1].

Leafy vegetables (greens) play a major role in the Assamese diet, probably due to the influence of traditional herbal medicine, easy accessibility and low cost. Further, green leaves are considered as a main source of vitamins, minerals and fibre for local consumers. Due to their dietary importance, many scientific studies have been carried out on the nutritive values of green leaves. Information as well as misinformation regarding the true nutritional and/or undesirable effects plays a major role in this process of selection. There are plenty of reports published worldwide about the risk of misidentification of culinary herbs as well as the consumption of toxic herbs, which can cause irreparable damage to vital organs and body functions including death. Exotic vegetable species cannot be grown under the harsh climatic and resource- poor conditions encountered in many of rural areas with this problem. However, there are a number of indigenous and traditionally grown plant species which could help alleviate this situation. The use of wild plant foods in Jorhat with low agricultural potential or during flood periods contributes to food security and provides dietary supplements to the staple diet.

The north eastern region of India belongs to the Indian Eastern Himalayas – a global biodiversity hot spot which endowed with a great wealth of plant genetic resources. There is an estimated 3895 species of flowering plants found in Assam alone [2]. Out of the vast floral diversity of the region, a large number of indigenous plant species and their wild forms constitute the routine vegetables of the inhabitants which provide sufficient nutrients, novel

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nutraceuticals and medicinal value for the people. Wild vegetables have formed a year round food security strategies for generations, particularly women, children, poor household and tribal communities who rely on consumption of wild traditional vegetables to fulfill their daily requirement of vitamins and minerals especially vitamin A and iron.

The knowledge, values and beliefs of the caregivers, most importantly women, will determine the nutritional contribution of these wild vegetable plants through their multiple uses as foods, feeds or medicines. Distribution, seasonality and availability of these vegetables are governed by the agro-ecological factors while, identification, collection and production, part/s used, preference, method of processing and preservation, culinary practices, extent of use, perception about the content of anti-nutritional and medicinal value/s of a given plant species etc are associated with the traditional knowledge and cultural beliefs.

Even though the current exploitation of many plants by rural and tribal population is restricted in the areas of their origin, some of them have gained significant place in urban market for their equal acceptability among the urban population. The valorization of local products is an opportunity to safeguard marginal land for biodiversity preservation, to improve economy of the local populations and to enlarge the food basket to obtain a more diversified diet. Perhaps, due to the long association of the local people of this region with the vast natural flora and fauna, the occurrence and prevalence of malnutrition diseases associated with vitamins and micronutrients such as anemia, night-blindness and goiter are comparatively less in this region compared with the national average.

Thus, traditional leafy vegetables are plants whose leaves are socially accepted, used and consumed for various purposes as food, nutritional and medicinal values and additives. Leafy vegetables (greens) play a major role in the Assamese diet, probably due to the influence of traditional herbal medicine, easy accessibility and low cost. Further, green leaves are considered as a main source of vitamins, minerals and fibre for local consumers. The use of wild plants as leafy vegetables is very common in Assam. Some of these species

are also very popular but some species are sought-after more than others. In Assam they appear as uncultivated and semi cultivated crops or weedy and wild plants, with ecological, social and cultural values, playing a significant role in the daily food and nutritional requirement of local people mainly in the rural. However, there is no significant basis or reports in the modern literature regarding its traditional knowledge. That is why the present study was designed to know the indigenous beliefs and knowledge of the indigenous leafy vegetables of Jorhat district of Assam

### Materials and Methods

The present study was conducted throughout the different places of Jorhat district of Assam, India. This region of India has been identified as one of the 34 hotspots of the global biodiversity [6]. With the help of questionnaire, plant uses and the indigenous knowledge regarding the traditional uses of plants were collected. Local people especially house wives and elderly people of this area were interviewed for collection of information about vegetables and other uses of plants. The local uses of enigmatic specimens were also confirmed by elderly people having knowledge of local herbs. Available literature on the activity of these plants was also surveyed in order to check the validity and authenticity of vegetables used by the rural folk of the surveyed area. The plant species were collected for identification and confirmed by taxonomist.

### Results and Discussion

The green leafy vegetables as weeds may cause heavy damages. On the other hand, they have many beneficial uses in our daily life. The most important positive aspect of green leafy vegetables is that nearly all of them are known to possess therapeutic properties and are being used by native people as a remedy for a variety of human and cattle diseases [9]. Plants of 24 different families were collected from various places of Jorhat district, Assam and identified with their folk uses. The data of wild plants with local names, botanical names, family, part used as vegetables, ITKs are presented in table 1.

**Table 1:** Indigenous Traditional Knowledge (ITKs) of indigenous leafy vegetables of Jorhat district of Assam

Local name	Scientific name	Family	Part used	ITKs
Brahmi	<i>Bacopa monnieri</i>	Scrophulariaceae	Tender leaf as vegetable	Improves memory, digestion, eye power, cures itching
Dorun	<i>Leucas longifolia</i>	Lamiaceae	Tender leaf as vegetable	Improves digestion, cures tonsil, cures pharyngitis, cures flow disease, clears bowel
Helosi sak	<i>Enhydra Fluctuans</i>	Asteraceae	Tender leaf as vegetable	Cures jaundice, clears bowel
Mandhanian	<i>Eryngium foetidum</i>	Apiaceae	Tender leaf, Mature leaf as spice, vegetable	Improves digestion, flatulence, cures diabetes
Hatikhutora	<i>Amaranthus spinosus</i>	Amaranthaceae	Tender leaf along with tender stem as vegetable	Cures jaundice, cures stomach pain, clears bowel
Dhekia	<i>Pteridium aquilinum</i>	Dennstaedtiaceae	Tender leaf as vegetable	Improves bone formation, improves health, clears bowel
Khutora	<i>Amaranthus viridis</i>	Amaranthaceae	Tender leaf along with tender stem as vegetable	Clears bowel, improves digestion
Saru Manimoni	<i>Hydrocotyl rotundifolia</i>	Umbelliferae	Tender leaf along with tender stem as vegetable	Improves digestion, cures jaundice, cures liver ailments, cures diarrhoea
Matikandori	<i>Alternanthera sessilis</i>	Amaranthaceae	Tender leaf along with tender stem as vegetable	Increases blood, wound healing, cooling brain
Bhedailata	<i>Paederia foetida</i>	Rubiaceae	Tender leaf along with tender stem as vegetable	Improves digestion, cures diarrhea, cures ulcers, clears bowel
Keheraj	<i>Eclipta alba</i>	Asteraceae	Tender leaf along with tender stem as vegetable	Cures jaundice, cures teeth diseases
Masundori	<i>Houttuynia cordata</i>	Saururaceae	Tender leaf along with	Improves digestion, cures diarrhea, cures

			tender stem as vegetable	dysentery
Pirali paleng	<i>Talinum triangulare</i>	Portulacaceae	Tender leaf along with tender stem as vegetable	Clears bowel, sources of vitamin
Madhuholang	<i>Polygonum chinense</i>	Polygonaceae	Tender leaf along with tender stem as vegetable	Cures poxes, clears bowel, sources of vitamin
SaruTengesi	<i>Oxalis corniculata</i>	Oxalidaceae	Tender leaf along with tender stem as vegetable	Purifys blood, cures dysentery, clears bowel
Bonjaluk	<i>Oldenlandia diffusa</i>	Rubiaceae	Tender leaf along with tender stem as vegetable	Cures liver diseases, cures flatulence, cures jaundice, cures eye swelling
Laffa	<i>Malva sylvestris</i>	Malvaceae	Tender leaf along with tender stem as vegetable	Clears bowel, creates problem in throat
Baburi	<i>Chrysopogon coronarium</i>	Asteraceae	Tender leaf along with tender stem as vegetable	Clears bowel, sources of vitamin
Methi	<i>Trigonella foenum-graecum</i>	Fabaceae	Tender leaf along with tender stem as vegetable	Kills worm, cures diabetes, improves digestion
Puroi (red)	<i>Basella rubra</i>	Basellaceae	Tender leaf along with tender stem as vegetable	Cures low pressure, cures burning
Jilmil	<i>Chenopodium album</i>	Chenopodiaceae	Tender leaf along with tender stem as vegetable	Increases blood, clears bowel
Morolia sak	<i>Stellaria media</i>	Caryophyllaceae	Tender leaf along with tender stem as vegetable	Clears bowel, cures dysentery
Puroi (green)	<i>Basella alba</i>	Basellaceae`	Tender leaf along with tender stem	Cures low pressure, cures burning
Bor Manimoni	<i>Centalla asiatica</i>	Mackinlayaceae	Tender leaf along with tender stem as vegetable	Cures jaundice, cures appendix, purifys blood
Bor tangeshi	<i>Oxallis acetosella</i>	Oxalidaceae	Tender leaf along with tender stem as vegetable	Cures allergy, clears bowel, purifys blood
Malbhog Khotura	<i>Portulaca oleraceae</i>	Portulacaceae	Tender leaf along with tender stem as vegetable	Clears bowel, purifys blood, improves digestion
Bharali Bhukoya	<i>Ponzolzia indica</i>	Urticaceae	Tender leaf as vegetable	Cures ulcers, cures skin diseases
Laijabori	<i>Drymaria cordata</i>	Caryophyllaceae	Tender leaf as vegetable	Clears bowel, increases blood
Bhutmoola	<i>Gynandropis gynandra</i>	Capparidaceae	Tender leaf as vegetables	Cures dysentery, improves digestion
Nephaphu	<i>Clerodendrum colebrookianum</i>	Chenopodiaceae	Tender leaf as vegetables	Improves digestion, cures dysentery
Sh-ukloti	<i>Pogostemon benghalensis</i>	Lamiaceae	Tender leaf as vegetables	Cures injury, creates thirsty tendency

The green leafy vegetables as agricultural weeds provides nutrient and phytochemicals for treatment of various diseases and disorders including cancers, heart disease, diabetes, liver ailments and other age related diseases. Human existence, grazing and cultivation exert enormous pressure on the vegetation and results in destruction of habitat. Most of the inhabitants of Jorhat district utilized plant resources for their nutritional and medicinal requirement. However, a large fraction of population also depends on agriculture and agro forestry. Due to ignorance and weak communication most people, especially younger generation, forgot indigenous knowledge of plants. But most of people, especially elderly ones, still possess the knowledge of wild resources<sup>[10]</sup>. There is a need for careful conservation of the plants resources of the region. Otherwise many wild species may become extinct.

The plant studied and identified during the present investigation will provide a base and preliminary knowledge to the world community for scientific investigation and awareness regarding these unknown, traditionally important, ignored, uncultivable agricultural weeds utilized by rural tribal people of Jorhat district. Sarma *et al.* (2008) reported that wild plants used as leafy vegetables are sources of herbal medicines to treat various diseases.

The indigenous knowledge system, traditional technologies and resource management practices of different ethnic communities of north-eastern India provide ample opportunities for agricultural diversification as well as

intensification<sup>[11]</sup>. The present study will throw light on wild plants used as components of agriculture sector and contribute its economic development. The sustainable harvesting of plants having both medicinal and economic value has a great potential.

In fact, there is no awareness about proper collection of various species throughout the states. Thus there is a need to create awareness of the importance of these plants among rural and urban people and to provide them guidance and training in cultivation and marketing to enhance their income. However, the authors feel further intensive studies in this sphere may provide some useful information to phytochemists, pharmacologists etc. for screening of individual species and rapid assessing of some useful drugs. Again, the medicinal plant species used traditionally by the villagers should be properly tested to confirm their safety and efficacy. Big attention should be paid to proper exploitation and utilization of the herbal plant species along with their conservation, preservation, propagation to a certain extent, their domestication and proper scientific investigation to identify the active ingredient for accurate treatment of targeted diseases and disorders.

### Conclusion

From the present study it can be concluded that though Jorhat district is very rich in flora of enormous diversity, a large number of species still remain unexplored. Therefore, proper

attention to the use of the plants as reported in the paper, may lead to the exploration and invention of new drugs and vegetables in the near future.

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