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Forest wild vegetable used by the Lai tribe in Lawngtlai district of Mizoram, India

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***Abstract*: The study of forest wild vegetable plants was carried out with the Lai tribe in the Lawngtlai district of Mizoram. In the present study 45 species belonging to 23 families were used. The importance of documenting wild vegetable plants in the region is important because of rapid loss of biodiversity due to anthropogenic activities and will help in conservation of different species.**

***Keywords*: Lai, Tribe, Wild, Edible, Vegetable, plants, Lawngtlai, Mizoram.**

I. INTRODUCTION

Plants are always considered important in traditional system of use. Tribal people live with the nature and maintain a close harmony between man and environment [1]. In recent years the interest in folk use of wild vegetables has increase significantly in different countries. India is one diverse country in the world rich in traditional knowledge and in the use of forest wild vegetables by different tribes.

Mizoram is situated in the extreme end of the Himalayan ranges in the North Eastern part it is located between 21° 58' N and 24° 35' N latitude and 92° 16' E and 93° 29' E longitudes [2]. The studied district Lawngtlai having international boundaries with Bangladesh in the west and Myanmar in the east. Lawngtlai district covers an area of 2,258 sq.km, has predominantly mountaineous terrain; mountain ranges run in north to south direction, the soil in general young, immature, moderate to acidic. The district enjoys a pleasant, moderate climate warm in summer and cold in winter, under the influence of south west monsoon with an average rainfall of 2500 mm per annum, the temperature varies from 11°C to 35°C, forest cover in the region is tropical wet evergreen type and the region is rich in biodiversity with many endemic flora and fauna. The district constitutes one major ethnic group, Lai rich ethnobioculturally on the use of biodiversity and folk knowledge of wild edible plants. Lai people are known as Paul or Chin because most of their settlements were in chin hills of Burma [3]. According to Hengmanga (1992) [4] they came down from chin hills and settled in villages in the present Lawngtlai district of Mizoram. Agriculure is the main occupation of the people, also practice shifting cultivation, hunting and gathering from the wild. The local people solely depend on the available wild edible vegetables from the forest to supplement the daily need and nutritional requirement.

In the present context of study there is no proper scientific study on wild edible plants used by Lai tribe due to remoteness of the region so the study aimed to enumerate, identify, different species in the region and to harness the rich traditional uses of wild vegetables before they are lost forever. Few works done on wild edible plants used in the state reported by Lalramnghinghlova (2001) [5] and Kar *et al*., (2013) [6]. The study proposes in increasing the awareness among the local people and boost the importance of different species, record the edible wild plant wealth as a steady decline in human expertise capable of recognizing various important plants.

II. MATERIALS AND METHODS

Field visits were conducted during the period from January 2012 - December 2014 covering different Lai villages, natural habitat in the region. During the visits to the village transect walks in natural reserve, secondary forest in around the region covered to collect wild edible species. A structured feedback form was used to collect information from the

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resource persons using standard method [7]. Interviews, discussion with knowledgeable resource villagers, local users, elderly men, women utilizing questionnaire on the following aspects of the species local name, parts used, and method of administration. The plant samples collected were processed following the method of plant collection and herbarium technique [8]. The specimen collected identified with the help of relevant floras and standard literatures [9] [10] [11] [12].

III. RESULT AND DISCUSSION

The study reveals the diversity of wild edible plants used by Lai tribe a total of 45 species belonging to 23 families identified. The dominant family with the maximum number of species five belong to Aracaceae and Solanaceae followed by Poaceae and Leguminoseae with four species, Areceae and Araliaceae with three species each, Apiaceae, Lamiaceae, Malvaceae, and Musaceae with two species each, Amaranthaceae, Athyriaceae, Begoniaceae, Compositae, Cucurbitaceae, Dioscoreaceae, Liliaceae, Meliaceae, Plantaginaceae, Rubiaceae, Saurauaceae, Theaceae and Zingiberaceae with one species each (Table 1 and Fig. 1).

The status on the habit of the wild vegetable species in the studied region show the dominant species herbs, followed by trees, shrubs and climbers as such herbs 19 species (42%), Trees 13 species (29%), Shrubs 12 species (27%) and Climbers 1 species (2%) (Table and Fig. 2).

The study on the different parts used as vegetable show the most widely used plant part Leaves 20 species (46%) followed by Shoot 12 species (26%), Fruit 6 species (13%),Flower and Bud 4 species (8%), Stem and Whole plant 3 species (6%), Corm 2 species (4 %), Tuber, Spadix, Inflorescence, Leaf stalk and Pith 1 species (2 %) .(Table 1 and Fig. 3).

The information on form of use of different wild edible species by the ethnic group show the most common form Boiled 32 species (71%), followed by Fried 19 species (42%), Raw 7 species (15%), Combined with pork 5 species (11%), Combined with rice 4 species (8%), Combined with meat 3 species (6%), Roasted, Combined with fish, Flovouring curry and as Pickle 2 species (4%) each, Combined with other vegetable and cooked with fish 1 species (2%) each (Table 1 and Fig. 4).

From the study it is seen that the tribe has a rich traditional knowledge and its affinity to nature of their dependence to the use of wild edible plant resources available around them. The study reveals that several wild edible plants used by the Lai tribe like *Amaranthus viridis, Centella asiatica, Clerodendrum colebrookianum, Colocasis esculenta, Dendrocalamus longispathus, Dioscorea alata, Eryngium foetidium, Leucaena leucocephala, Lycianthes laevis, Melocanan baccifera, Solanum anguivi, Solanum torvum* used by different tribes in India reported by different workers [13] [14] [15] [16]. The ethnic knowledge is confined to few people only, so it is feared that with the passing of time important information may be lost. So, documentation of this undisclosed and traditional knowledge is very much helpful in understanding biodiversity, utilization of the resource and framing policies for conservation14 then knowledge.

Table 1.Diversity of wild edible vegetables used by Lai with family, local name, habit, part(s) used and form of use(s)

Sl.No.	Botanical Name	Family	Local name	Habit	Part(s) used	Form of use(s)
1	*Acacia pennata* (Linn.)Willd.	Leguminosae	Khanghmung	Shrub	Young leaves and Shoot	Boiled, Fried
2	*Alocacia fornicata* (Roxb.) Schott	Araceae	Baibing	Herb	Spadix and Stem	Boiled, Fried
3	*Allium hookeri* Thwaites	Liliaceae	Khachhuan	Herb	Whole plant	Boiled, Fried
4	*Amaranthus viridis* Linn.	Amaranthaceae	Vawkte mama	Herb	Leaves	Boiled, Fried, Combined with fish
5	*Amomum maximum* Roxb.	Zingiberaceae	Aite bawp	Herb	Young shoot and bud	Boiled, Fried
6	*Amorphophallus paeonifolius* (Dennst.) Nicolson	Araceae	Te re	Herb	Corm and Leaf stalk	Boiled
7	*Aralia foliosa* Seem. ex C.B.Clarke	Araliaceae	Chinchawk	Tree	Leaves	Boiled
8	*Arenga pinnata* (Wurmb) Merr.	Arecaceae	Thung	Tree	Young shoot	Raw
9	*Begonia roxburghii* A.DC.	Begoniaceae	Darlungpa kep	Herb	Leaves	Combined with rice
10	*Calamus erectus* Roxb.	Arecaceae	Hripi	tree	Young shoot	Boiled, Fried
11	*Calamus latifolius* Roxb.	Arecaceae	Hripi	Tree	Young shoot	Boiled, Fried, Combined

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						with rice
12	*Caryota mitis* Lour.	Arecaceae	Mei bu	Tree	Tender pith	Boiled, Combined with meat
13	*Caryota urens* Linn.	Arecaceae	Tum	Tree	Bud	Boiled, Combined with fermented pork
14	*Cassia fistula* Linn.	Leguminosae	Hreng an	Shrub	Flower, bud	Boiled, Cooked with dry fishes
15	*Centella asiatica* (Linn.) Urban.	Apiaceae	Rangtin belh	Herb	Leaves	Raw, Fried, Combined with fermented pork
16	*Clerodendrum colebrookianum* Walp.	Lamiaceae	Anphui	Shrub	Leaves	Fried, Boiled, Combined with meat/other vegetables
17	*Colocasia esculenta* (Linn.) Schott.	Araceae	Bal	Herb	Corm, Stem, Leaves	Boiled, Fried, Pickle
18	*Cyphomandra betacea* (Cav.) Sendt.	Solanaceae	Thing tomato	Shrub	Fruit	Combined with fermented pork
19	*Dendrocalamus giganteus* Munro.	Poaceae	Rawpui	Shrub	Young shoot	Fried, Combined with rice
20	*Dendrocalamus hamiltonii* Nees & Arn. ex Munro	Poaceae	Phulrua	Shrub	Young shoot	Boiled
21	*Dendrocalamus longispathus* Kurz.	Poaceae	Rawnal	Shrub	Young shoot	Combined with fermented pork
22	*Diplazium maximum* (Retz.) Sw.	Athyriaceae	Chakawk	Herb	Young shoot, leaves	Boiled, Fried, Raw
23	*Dioscorea alata* Linn.	Dioscoreaceae	Ram bahra	Herb	Tuber	Boiled, Combined with fermented pork
24	*Dysoxylum excelsum* Blume	Meliaceae	Thingthupi	Tree	Young leaves, Flower	Boiled, Fried
25	*Elsholtzia communis* (Collett & Hemsi.) Diels	Lamiaceae	Lengmaser	Herb	Leaves and flower	Flavouring curry
26	*Eryngium foetida* Linn.	Apiaceae	Khamphe	Herb	Leaves	Raw
27	*Eurya cerasifolia* (D.Don) Kobuski	Theaceae	Hnahthria	Tree	Leaves	Combined with rice/meat
28	*Hibiscus sabdariffa* Linn.	Malvaceae	Lakher anthur	Shrub	Leaves	Flavouring curry
29	*Hibiscus surattensis* Linn.	Malvaceae	Anthur	Shrub	Leaves	Combined with fish
30	*Houttuynia cordata* Thunb..	Saurauraceae	Uithinthang	Herb	Whole plant	Boiled, Raw
31	*Leucaena leucocephala* (Lam.) de. Wit	Leguminosae	Japan zawngtah	Tree	Leaves, Fruit	Boiled
32	*Lycianthus laevis* (Dunal) Bitter	Solanaceae	Vahnit	Herb	Young shoot, leaves	Boiled
33	*Macropanax dispermus* (Blume) Kuntze	Araliaceae	Siapawt	Tree	Young Leaves	Boiled
34	*Melocanna baccifera* (Roxb.) Kurz	Poaceae	Mautak	Shrub	Young shoot	Boiled, Fried, Pickle
35	*Musa paradisiaca* Linn.	Musaceae	Changrawp	Herb	Infloresence	Boiled
36	*Musa glauca* Roxb.	Musaceae	Saisua	Herb	Stem	Boiled
37	*Parkia timoriana* (DC.) Merr.	Leguminosae	Zawngtah	Tree	Leaves, Fruit	Boiled, Fried
38	*Plantago major* Linn	Plantaginaceae	Anbawh nu	Herb	Whole plant	Boiled, Raw
39	*Solanum anguivi* Lam.	Solanaceae	Hremte kha	Shrub	Fruit	Boiled, Fried, Raw
40	*Solanum nigrum* Linn	Solanaceae	Anhling	Herb	Leaves	Boiled, Fried
41	*Solanum torvum* Sw.	Solanaceae	Tawkpui	Shrub	Fruit	Roasted, Fried
42	*Spilanthes acmella* Linn.	Compositae	Ansa kir	Herb	Leaves	Roasted
43	*Thladiantha cordifolia* (Blume) Cogn.	Cucurbitaceae	Theithuap	Climber	Leaves	Boiled
44	*Trevesia palmate* (Roxb. Ex Lindl.)Vis.	Araliaceae	Kawhtebel	Tree	Shoot, Bud, Young fruit	Boiled
45	*Wendlandia budleioides* Wall. ex Wight & Arn.	Rubiaceae	Buihnam	Tree	Flower	Boiled, Fried

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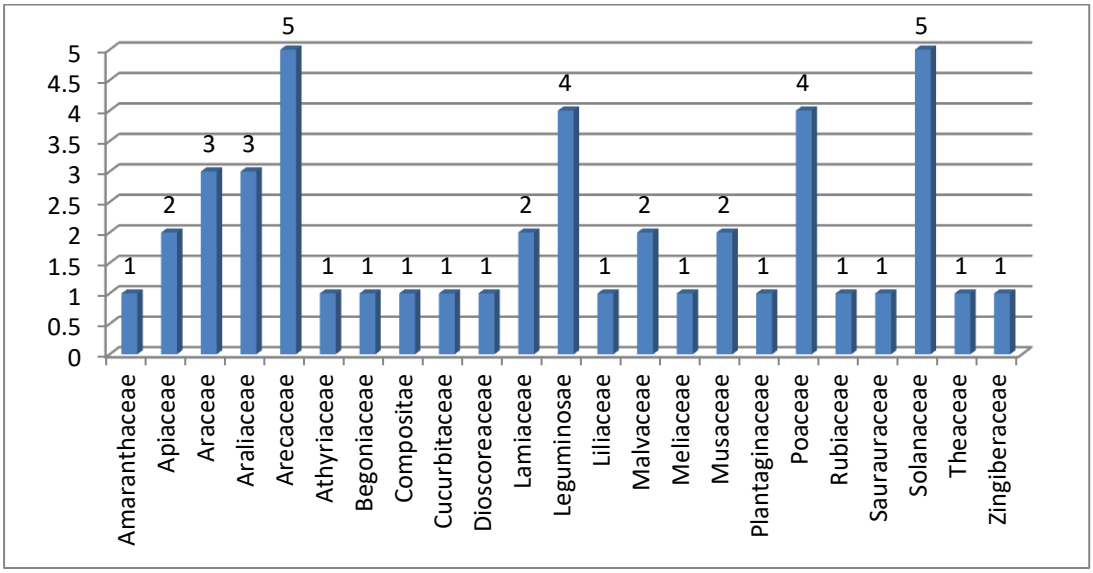

Figure 1. Column showing Family wise distribution of vegetable plants used by Lai tribe

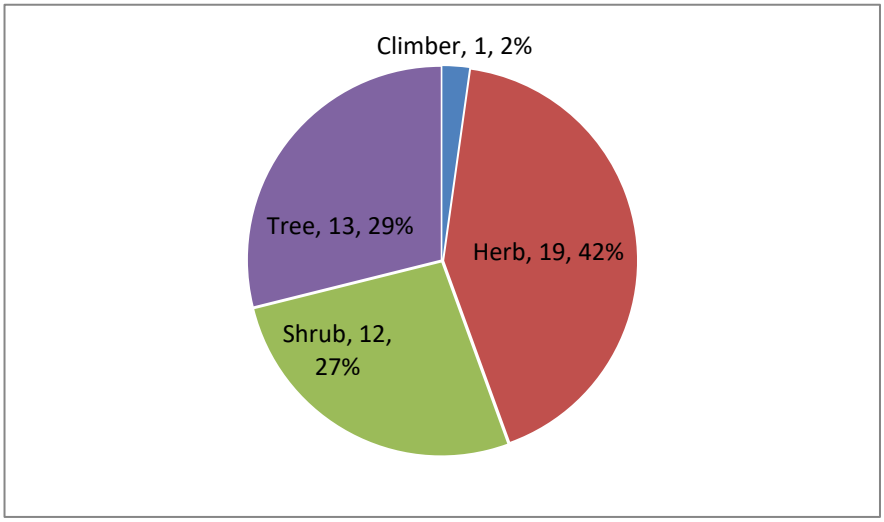

Figure 2: Pie chart showing different habits of vegetable plants used by Lai tribe

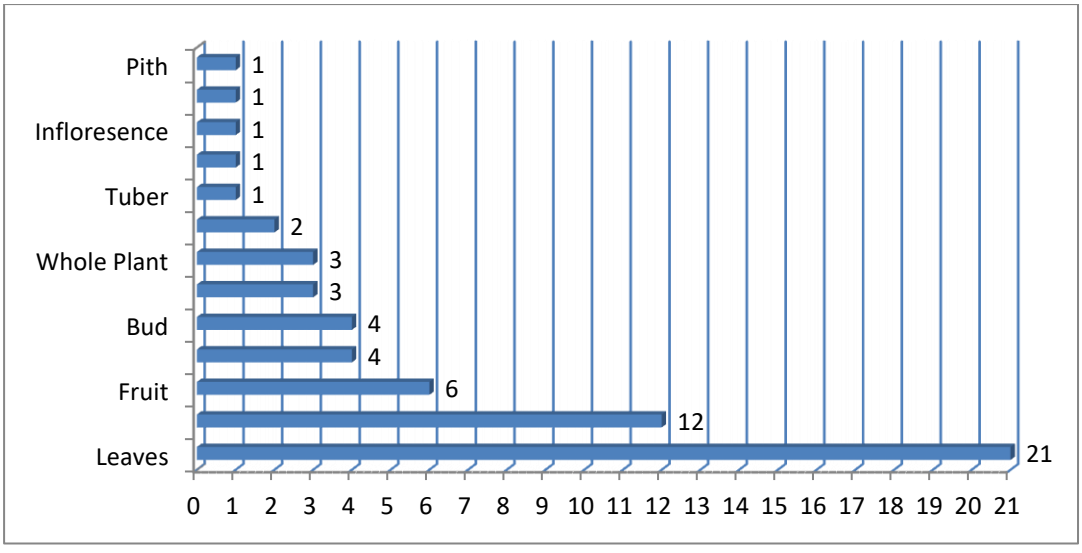

Figure 3: Bar graph showing different parts of vegetable plants used by Lai tribe

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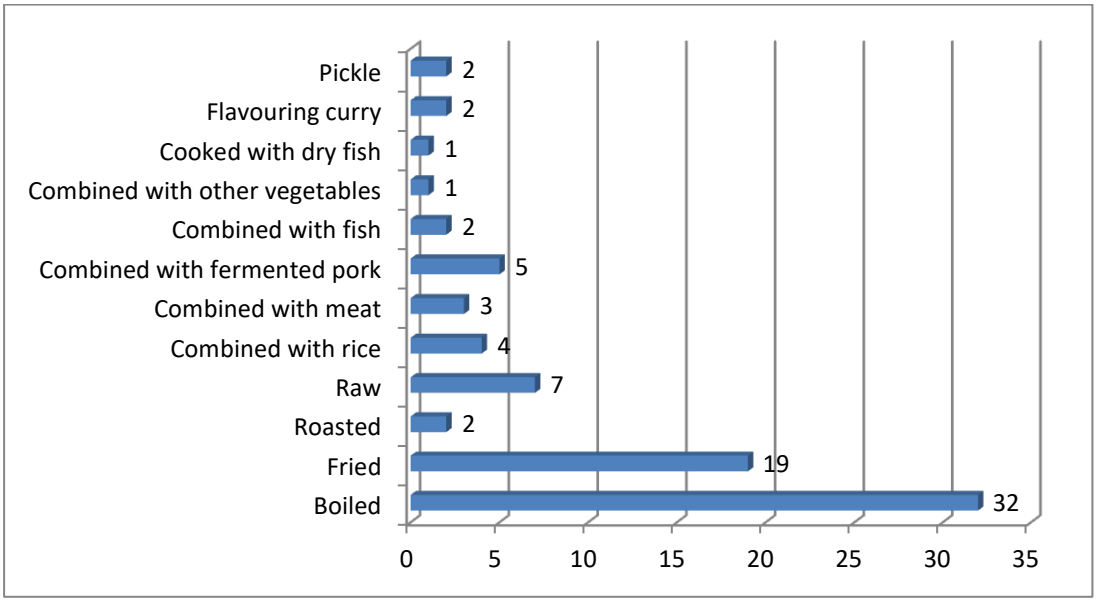

Figure 4: Bar graph showing different forms of use(s) of vegetable plants by Lai tribe

IV. CONCLUSION

This study showed the rich diversity of flora helped for developing the traditional knowledge of wild edible plants in the region and the findings has significant implications for the conservation, management and usefulness of different species. It can contribute to introduce for cultivation of different species in jhum gardens, home gardens, agro-forestry and in restoration of the traditional heritage of the region simultaneousl and promoting the sustainable use. The rich wild bio-resources along with the indigenous knowledge are depleting fast due to anthropogenic activities like deforestation, overgrazing, agriculture, shifting cultivation, fire, indiscriminate exploitation of natural resources from the wild and urbanization. The documentation of the rich knowledge on wild edible species will help in research on the study of the nutrient value, add to market prospects help in improving the socioeconomic conditions reducing poverty of the tribals in the remote region of Northeast India and also ensuring food, security and combating climate change.

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