

A study on the Uses of Edible Wild plants and their Contribution to Household Income in Kyauk tan Village tract, Minbu Township

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Abstract

Ten species of edible wild plants were studied in Kyauk tan village tracts, Minbu Township. Data were collected through twenty household survey in Kyauk tan village tracts. In this paper, *Acacia concinna* (Kinmon chin), *Azadirachta indica* (Tama), *Boscia variabilis* (Thamone), *Chenopodium album* (Myu), *Clitoria ternatea* (Aung mae nyo), *Leucaena leucocephala* (Aweya), *Tamarindus indica* (Magyi), *Ocimum basilicum* (Pin sein), *Leptadenia reticulata* (Gon) and *Dregea volubilis* (Gwe dauk) were carried out in January 2019 to August 2019. The household income, morphology and uses of edible wild plants were also expressed in this paper. The populations were grouped into eight different monthly income sources. The main income sources were pieces job (daily worker), farmer, market sellers, government staff, livestock farming, small business, sale of edible wild plants and old age pensions. Among them, the third income sources were sale of edible wild plants. The sale of edible wild plants is the most common primary sources of income for low income households

Keywords: Edible wild plants, income sources, selling prices

Introduction

Economic plants are defined as being useful either directly, as in food, or indirectly. Plants are essential to life on earth; they produce the oxygen to breathe through photosynthesis and provide much of the food. Plants are extremely important in the lives of people throughout the world. People depend upon plants to satisfy such basic human needs as food, clothing, shelter, and health care. These needs are raised rapidly because of an increasing world population, incomes, and urbanization. Rural communities around the world depend on various edible wild plants in different seasons to supply both their dietary and income needs. They are relevant to household food security and nutrition in some rural areas particularly dry lands. Edible Wild plants are of critical importance to the rural communities and source of income more especially to those who live in unsuitable area for crop production. Rural communities experience elevated unemployment rate and usually consists of larger number of poor people. Edible wild plants had significant nutritional, economic, ecological and socio-cultural values. For instance, income and employment can be obtained through selling of their fruits, leaves, flowers, buds, juice and local drinks (Dandy Badimo, et.al., 2012).

Edible wild plants refer to both indigenous and naturalized exotic plants occurring in the natural environment. Also, edible wild plants are defined as those plants with edible parts that grow naturally on farmland, fallow or uncultivated. Traditionally, wild indigenous trees were important sources of vitamins and minerals, played an important role in times of scarcity, and were sometimes used as medicines. Edible wild plants are also associated with treatment or protection of medical conditions such as malnutrition, heart disease, cancer and diabetes (Lukasneudeck, 2012). However, edible wild plant utilization and their benefits have been neglected in some regions. As a result, traditional knowledge of wild food plants is quickly disappearing and, in most cases, survives only with the elderly (Dandy Badimo, et.al., 2012).

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Minbu Township is located in the dry zone of central Myanmar. It consists of (67) village tracts, (150) villages and (7) quarters. Kyauk tan village tract is located in Minbu Township. It consists of two villages; namely Kyauk tan and Yay myet. Among them Kyauk tan is highest population. The villages are abundantly rich with vegetables, fruits and other foods. They can be abundantly and cheaply got any sort of vegetables. Ten edible wild plants were studied in this research paper. The aim and objectives are to document indigenous knowledge related to use of edible wild plants, to assess their contribution to household food supply and income in this village tract, to identify the edible wild plants species used as source of food in this area, to know consumption of the edible wild plants and income generation of households.

Materials and Methods

Study area

This research had been carried out during January 2019 to August 2019. Minbu Township is located in the dry zone of central Myanmar. It lies between 19° 53' and 20° 19' N latitudes and 94° 28' and 95° 00' E longitudes (Fig.1). Kyauk tan village tract is saturated at north latitude 19° 55' 08.412" and east longitude 94° 30' 05.720".

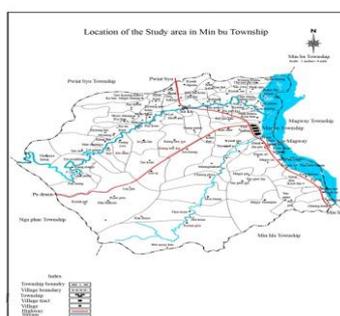


Fig. 1. Map of Minbu Township

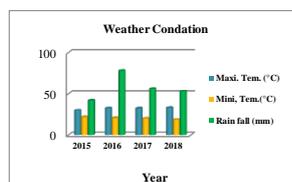


Fig. 2. Weather condition

Source: Department of Meteorology and Hydrology, Minbu District

Data collection

Two data collection methods were employed, namely key information interviews and household survey. For the key information interviews, knowledgeable people in the Village, Village Chief, elders, women and some government agents were chosen to be identified the database of the knowledge. In the household survey, an interview schedule was prepared to interview selected participants. For the survey, the respondent households were collected through random sampling. Twenty residents were sampled and interviewed.

Data analysis

After the data collection, questionnaires were validated and coded. Descriptive statistics were used to document the harvesting, consumption and the knowledge concerning edible wild plants. The consumption and incomes through the sale of edible wild plants were compared between households of different socio-economic status.

Results

Demographic and socio-economic characteristics of households

Kyauk tan village tracts is predominantly inhabited by different classes of people, which is represented by about half of the respondents of the household survey. There were (3225) of total population and (829) households in this area (Table. 3). The majority of the respondents (80%) were females. The size of the households

varied greatly. The population was grouped into eight different monthly income sources (Fig. 2).

Table. 3. List of the households and total populations of Kyauk tan village tract

Village name	Household	Female	Male	Total
Kyauk tan	674	1346	1233	2579
Yway myet	155	349	297	646

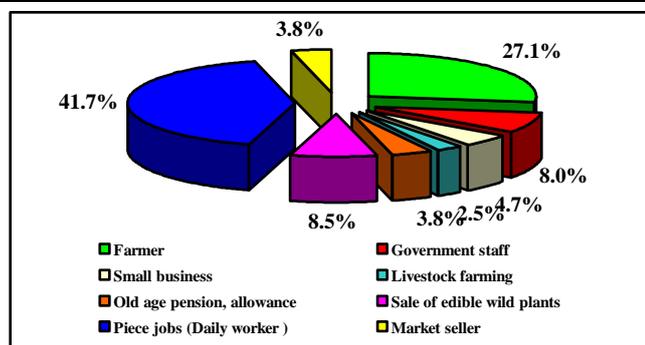


Fig. 2. Sources of income of population in Kyauk tan village tract
***Acacia concinna* (Willdenow) Candolle, Prodr. (Kinmonchin)**
Distinctive characters - Climbers, scandent shrubs, or small trees; prickles abundant, minute, hooked; stipules deciduous; glands near base of petiole and one between uppermost pinnae.

Uses

Fruits - Shampoo

Leaves - vegetables, anti-dandruff preparations, therapy of jaundice, mouth and throat problems and malaria

2. *Azadirachta indica* A. Juss. (Tama)

Distinctive characters

Tree; flowers white, sweet-scented; staminal tube present, 10-striate; anthers oblong, basifixed; ovary sub-globose; style linear; stigma trifid; drupe oblong.

Uses

Leaves - poultice for boils, skin diseases like eczema, psoriasis

Seeds - purgative and anthelmintic, antifungal, antibacterial, antiviral, contraceptive and sedative.

3. *Boscia variabilis* Collett & Hemsl. (Thamone)

Distinctive characters

Perennial, small tree; leaves 2- 3 foliolate compound; inflorescences axillary, paniculate raceme, many- flowered; stamens 7-11, free, inserted at the middle of gynophore; carpels 2, united; ovary superior, parietal placentation.

Uses

Young leaves and the flowers - Salad

Roots and Bark - Eye disease aching, edema, cold extremities, stomachic, expectorant, and counter irritant.

4. *Chenopodium album* L. (Myu)

Distinctive characters

Annual herbs, stems erect to sprawling; inflorescences glomerules or occasionally 1-flowered peduncles in terminal and lateral compound spikes.

Uses

Leaves and young shoots - Vegetable, anthelmintic, antiphlogistic, antirheumatic, contraceptive, laxative, adontalgic, rheumatism bug-bites, sunstroke, urinary problems, skin problems, sedative and refrigerant properties.

5. *Clitoria ternatea* L. (Aung mae nyo)**Distinctive characters**

Herbs, stems twining; flowers solitary in axil; bracteoles green; ovary villous. Legume brown, linear-oblong, compressed, with long beak.

Uses

The young pods and leaves, flower - Vegetable, eye problems

Roots - Powerfully cathartic, diuretic and purgative

6. *Leucaena leucocephala* (Lamarck) de Wit. (Aweya)**Distinctive characters**

A large shrub or small, slightly fissured, young shoots covered by tomentum; stamens 10, anthers eglandular; ovary stalked, pubescent, style filiform, stigma minute.

Uses

Young leaves and pods - vegetables, green manure and fodder

Wood - Charcoal

Lead tree - Land reclamation, erosion control, water conservation, reforestation, good cover and green manure crop.

7. *Tamarindus indica* L. (Magyi)**Distinctive characters**

Trees; bark dark ashy; flowers yellowish tinged with purplish red stripes; stamens pubescent, anthers elliptic; ovary slightly incurved, terete, hairy.

Uses

The fruit - Fever and constipation, antiscorbutic, laxative

Hard, heavy wood - houses and making farm tools and furniture

Trunk - robust, wind-resistant strength.

8. *Ocimum basilicum* L. (Pin sein)**Distinctive characters**

Herbs annual; inflorescence thyrses; verticillasters puberulent or densely pilose; stamens free, posterior 2 dentate, base puberulent; nutlets dark brown, ovoid.

Uses

The green aromatic leaves - Flavorings or spices, vegetables, confectionery products, sedative, headaches, coughs, diarrhea, constipation, warts, worms, and kidney malfunctions, antispasmodic, stomachache, carminative, stimulant and insect repellent.

9. *Leptadenia reticulata* (Retz.) Wight & Arn. (Gon)**Distinctive characters**

Perennial much branched, twining, and laticiferous climber; flowers profusely; staminal column short; corona five-lobed, filaments fuse with the stigmatic head to form a five-angled disc called gynostegium;

Uses

The whole plant - Stimulant and restorative

Leaves and roots - Ringworm, wounds, nose and also in ear disorders, asthma, habitual abortion in women, cold, sweet, aphrodisiac, rejuvenative and antibacterial and anti-fungal agent.

10. *Dregea volubilis* (L. f.) Benth. ex.Hook.f. (Gwe dauk)**Distinctive characters**

Perennial lianas; branches lenticellate; inflorescences pendent, many flowered; peduncle slender, puberulent; flowers green or yellowish green, fragrant; corona yellowish green; pollinia oblong; ovaries pilose.

Uses

The young leaves – curries, rheumatic pain, cough, fever and severe cold, dyspepsia, pyoderma, eye infections, suppuration
pyodermas , fevers in children.

The roots – emetic, diaphoretic, diuretic, emetic and expectorant.

Table. 4. Selling Prices of Twenty five edible wild plants in this area (One viss)

Sr. No	Scientific name	Part use				Price (kyats)
		Leaves	Fruits	Flowers buds	shoot	
1	<i>Acacia concinna</i>	✓	✓	✓		1200 2000 5000
2	<i>Azadirachta indica</i>	✓				2000
3	<i>Boscia variabilis</i>	✓		✓		10000 2000
4	<i>Chenopodium album</i>	✓				1300
5	<i>Clitoria ternatea</i>	✓		✓		2000 3000
6	<i>Leucaena leucocephala</i>	✓	✓			4000
7	<i>Tamarindus indica</i>	✓	✓	✓		2000 2000 3000
8	<i>Ocimum basilicum</i>	✓				2000
9	<i>Leptadenia reticulata</i>	✓				2000
10	<i>Dregea volubilis</i>	✓				5000

Discussion and Conclusion

In Kyauk tan village tract, the villagers were dependent on subsistence agriculture, growing of traditional crops, such as maize, sorghum and beans and rearing of cattle in small scale in free range system. The population was grouped into eight different monthly income sources. The main income sources were pieces job (daily worker), farmer, market sellers, government staff, livestock farming, small business, sale of edible wild plants and old age pensions.

A few people have small businesses. The livestock farming is further source of income for a few of the people. Farmer income is higher than the income of most of the other people. Among them, livestock farming had an extra income. The most income sources was pieces job (41.7%) and the second was farmers (27.1%) and the third one was sale of edible wild plants (8.5%). In this area, the number of households that earn income through the sale of edible wild plants were 67. The sale of edible wild plants was the most common primary sources of income for low income households. They do not play a vital role and there is no economical contribution in this region.

There are a large number of wild plants which provide edible fruits, seeds, leaves and buds. Many plants used as leafy vegetables are grown in the farm land and waste land. The edible wild plants are utilized differently by varied groups. Edible wild plants are part of common traditional meals that are eaten by the majority of the poor and wealthy people. There are a few edible wild plants that are available outside the crop harvesting season or throughout the year. In this region, *Leucaena leucocephala* (Aweya), *Clitoria ternatea* (Aungmae nyo) and *Tamarindus indica* (Magyi) are available throughout the year.

In this research paper, ten leafy vegetables, three fruit vegetables and four flowers vegetables were also expressed. The most common edible wild plants were leafy vegetables; e.g. *Acacia concinna* (Kinmon chin), *Ocimum basilicum* (Pin sein), *Leptadenia reticulata* (Gon) and *Dregea volubilis* (Gwe dauk), indigenous fruit; e.g. *Tamarindus indica* (Magyi), boiled leafy; *Azadirachta indica* (Tama), *Leucaena leucocephala* (Aweya) and *Chenopodium album* (Myu) and flowers; *Boscia variabilis* (Thamone) and *Clitoria ternatea* (Aung mae nyo).

The most used part of edible wild plants was found in *Tamarindus indica* (Magyi). The second highest was *Acacia concinna* (Kinmon chin). *Chenopodium album* (Myu) has an extensive distribution across the farm land. The fruit pulp of *Tamarindus indica* (Magyi) was widely sold in Minbu Township. There are hundreds of indigenous edible wild plants that, although relatively unknown in the markets, are important locally. *Leucaena leucocephala* (Aweya) was found an extensive distribution across dry land habitats in the Kyauk tan village tract. Some of the edible wild plants were utilized as medicinal plants. In this area, *Boscia variabilis* (Thamone), *Tamarindus indica* (Magyi), *Leptadenia reticulata* (Gon) and *Dregea volubilis* (Gwe dauk) were abundantly used in medicine. Today *Clitoria ternatea* (Aung mae nyo) is very popular in everybody for eye treatment.

Edible wild plants were high importance to local population and the availability of them played an important role in rural livelihoods through ensured food security, dietary diversity and sustained income. The commercially important plant species enumerated in the study area supported economic condition of the local inhabitants residing in and around the sanctuary of Kyauk tan village tract. 60-80% of the rural people in the Kyauk tan village tracts faced food shortage for 3-4 months in a year and used indigenous edible wild plants to sustain their livelihoods.

In this research paper, the exploration and document of edible wild plants in Kyauk tan village tract were studied as well as appreciated for their contribution to household income generation and rural food security.

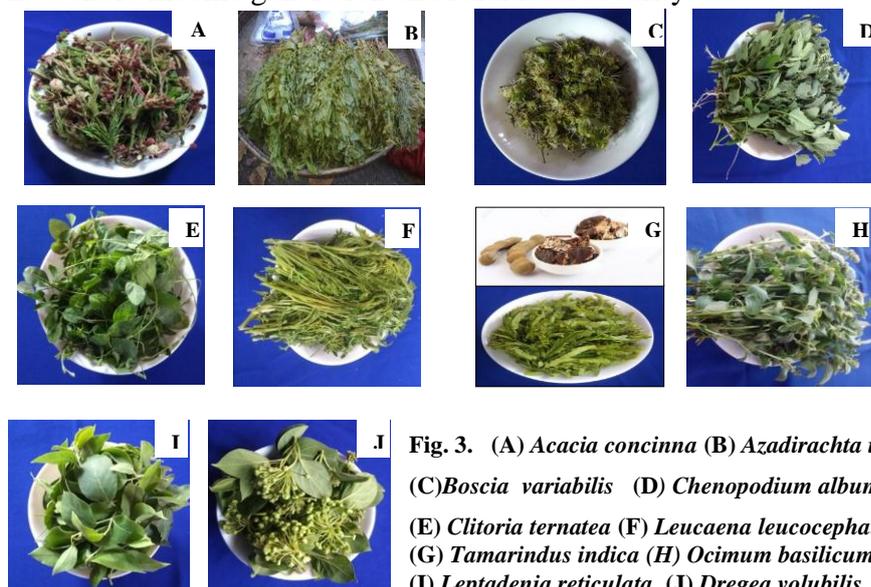


Fig. 3. (A) *Acacia concinna* (B) *Azadirachta indica* (C) *Boscia variabilis* (D) *Chenopodium album* (E) *Clitoria ternatea* (F) *Leucaena leucocephala* (G) *Tamarindus indica* (H) *Ocimum basilicum* (I) *Leptadenia reticulata* (J) *Dregea volubilis*

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