

Plants associated with *Singju*: a traditional salad delicacy of Meitei community of Manipur, India

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Abstract

Singju is an indigenous delicacy of *Meitei* community of Manipur State, prepared mainly of green vegetables with other plant parts as a salad. A survey programme on wild edible plants associated with *Singju* preparation found naturally in the valley Districts of Manipur was conducted for 2 years (January 2013–December 2014). Eighty one (81) species of wild edible plants pertaining to 58 genera and 29 families were collected. Among them 60 are available in the valley markets having economic value and 21 plants are non–marketable i.e. not available in the market. Among the plants 19 species were selected on priority basis for commercialization to uplift economy of the poorer people. Vernacular names along with their plant parts used are incorporated. Marketable values in Manipur are also described in the present paper. It is worth to be mentioned that some of the plants are not available in the natural habitat; conservation for sustainable harvesting of these plants is a burning issue.

Key words: Manipur, *Meitei* community, Traditional food, *Singju*

INTRODUCTION

The indigenous societies have discovered various plants around them as food both in the raw as well as in cooked form. Among the raw edible forms of food taken by the people of Manipur, *Singju* (in Manipuri *Sing/ Napi/ Singbi* = plants; *ju/ su/ suba* = combination) is one of the most common forms. *Singju* is an indigenous delicacy prepared mainly of green vegetables with other plant parts like inflorescence, flower, seeds, roots, rhizomes, etc. along with (non-vegetarian) or without (vegetarian) fermented dry fish commonly known as *Ngari*. *Singju* is of many types according to a particular vegetable such as: i. Mono-herbal i.e. single plant based; ii. Poly-herbal i.e. combination of different plant parts based. *Singju* is one of the important and preferred delicacies in family and community based lunch and dinners of the *Meitei* communities of Manipur.

Singju is a highly nutritious food item used as salad prepared traditionally from the wild and cultivated plants and commonly taken by the people of Manipur, especially by the *Meiteis* in the valley. It is also a compulsory item during societal meal organized by *Meiteis*. *Singju* is taken along with main meals or it can be taken alone after meals. It is prepared with an individual plant e.g. *Heibi mana-singju/Laphu-singju* or combination with many

plant parts. The prepared *Singju* is usually found to be sold in every market and many other localities by the women folks as women vendors. *Meiteis* always take raw except some ingredients like spices and condiments, which are used to increase the flavour of the preparation. Both wild forms as well as cultivated forms of plants are used in the preparation of *Singju*. The indigenous knowledge on plants among the local people is essential for the identification, cataloguing and documentation of plants in recent years attaining significant attention due to sustainable management (Maheswari 1994; Gajurel *et al.* 2006; Borkataki *et al.* 2008).

The state of Manipur, lies in the North-Eastern part of India, is located within the IUCN recognized Indo-Burma Hotspot for Biodiversity Conservation (Meyers *et al.* 2000) with extraordinarily rich plant diversity. It is one of the floristically rich states in India with unique composition of plants including a number of endemic species due to its physical geographic structure coupled with varied nature of climatic conditions (Singh *et al.* 2000). The total geographical area of the state is 22,327 km² which extends between 23° 59' N to 25° 47' N and 92° 59' E to 94° 46' E. The state is resided by many ethnic communities which includes *Meiteis*, *Lois* (Scheduled caste group of *Meiteis*), Brahmins (*Meitei Bamons*), *Pangals* (Manipuri Muslims), Scheduled caste and Scheduled Tribes, and Non Manipuris like Nepalis, Bengalis, Biharis, Jains, Sikhs, Bangladeshis and Myanmarese refugees (Anonymous 2002; Singh 2014).

The *Meiteis* are the community with a rich cultural heritage and the culinary skills evolved through the ages and certain traditional dishes have remained as regular food items even today. However, eating habits of the Manipuri community has been changed drastically with only little knowledge traditional food plants. In this context, it is hoped that this paper will serve well as a handy document on *Singju* information, and will create more inquisitiveness to the people who are interested in Wild Edible Plants (WEPs) of Manipur. There is little comprehensive account dealing exclusively with the WEPs. Keeping with this view, the present paper discussed the multifaceted importance of WEPs.

MATERIALS AND METHODS

The study was conducted for 2 years (January 2013 – December 2014) and was based on the information gathered from the local inhabitants of *Meitei* community. The actual study area is the four valley districts of Manipur viz., Imphal East, Imphal West, Thoubal and Bishnupur districts, occupying an area of 2,238 km² where *Meitei* community distributed as a major community (Singh 2014). Many individuals especially woman who use to sell *Singju* in markets and small local women vendors were interviewed for the different plants which they use to prepare *Singju*. Intensive survey programmes were conducted primarily based on information gathered from the elderly people, herbal man (*Maiba*) and many local people of different ages. The plants were then collected with the help of local people. WEPs have been classified into a few broad groups on edible parts of plants e.g. (a) with edible underground parts, (b) with edible greens, (c) with edible flowers, (d) with edible fruits, (e) with edible seeds and (f) other edible kinds (Singh & Arora 1978; Arora 1981). From this classification, only plants with edible flowers (flowers, buds, inflorescence, etc.) have been taken into consideration in the present study, following the market survey method of Singh *et al.* (1988). The specimens collected were processed into mounted herbarium specimens following Jain & Rao (1977).

Plants were identified with the help of different literature (Kanjilal *et al.* 1934 – 1940; Livingston & Livingston 1996; Khan 2005; Elangbam 2002; Sharma *et al.* 2003; Singh *et al.*

1996; Singh 1980; Watt 1889-1899) and the up-to-date nomenclature was determined by consulting www.theplantlist.org. The herbarium specimens were then deposited at the Manipur University Museum of Plants (MUMP) Herbarium, Department of Life Sciences, Manipur University. Marketable and Non-marketable plants are indicated with a view for the basis of their cultivation and commercialization.

RESULTS

In the present investigation, eighty one (81) species of WEPs pertaining to 58 genera and 29 families were collected. The most important plants as ingredients of *Singju* (*Singju Mayan*) have been selected on the basis of market price and demand and also listed for commercial plantation (Table 1). Highest number of plant species 15 were recorded from Leguminosae, followed by 7 in Lamiaceae, 6 in case of Amaryllidaceae, 5 in Brassicaceae, 4 in Solanaceae and Nymphaeaceae, 3 in Zingiberaceae, Araceae and Moraceae; 2 each in Theaceae, Euphorbiaceae, Convolvulaceae, Rubiaceae, Polygonaceae, Apocynaceae, Smilacaceae and Rutaceae and 1 plant each in Trapaceae, Caricaceae, Araliaceae, Asteraceae, Arecaceae, Cucurbitaceae, Cycadaceae, Saururaceae, Isoetaceae, Musaceae and Bignoniaceae (Fig.1).

Table 1. Wild Edible Plants recorded during the present study along with their family, local name, uses and market value wherever available (NAM- Not available in Market)

Species [Family]; Voucher specimen	Local Name	Part/s Used	Market value
<i>Acacia nilotica</i> subsp. <i>indica</i> (Bentham) Brenan [Leguminosae]; MUMP - 000082	<i>Chigonglei</i>	Young pods	NAM
<i>Albizia lebbbeck</i> (Linnaeus) Bentham [Leguminosae]; MUMP - 000875	<i>Khok</i>	Tender leaves	NAM
<i>Allium ascalonicum</i> Linnaeus [Amaryllidaceae]; MUMP - 001225	<i>Tilhou-macha</i>	Whole plant	Rs. 5-10/bunch whole plant
<i>Allium cepa</i> Linnaeus [Amaryllidaceae]; MUMP - 000510	<i>Tilhou</i>	Whole plant	Rs. 10-15/bunch whole plant
<i>Allium hookeri</i> Thwaites [Amaryllidaceae]; MUMP - 000798	<i>Maroi napakpi</i>	Leaves	Rs. 5-10/bunch leaves
<i>Allium sativum</i> Linnaeus [Amaryllidaceae]; MUMP - 001224	<i>Chanam</i>	Whole plant	Rs. 5-10/bunch leaves
<i>Allium stracheyi</i> Baker [Amaryllidaceae]; MUMP - 003432	<i>Cholang</i>	Whole plant	Rs. 20 to 60 per bunch
<i>Allium tuberosum</i> Rottler ex Sprengel [Amaryllidaceae]; MUMP - 001254	<i>Maroi-nakupi</i>	Leaves	Rs. 5-10/bunch leaves
<i>Alpinia galanga</i> Willdenow [Zingiberaceae]; MUMP - 000791	<i>Kanghoo</i>	Young Inflorescence	Rs. 5-10/ Inflorescence
<i>Aralia armata</i> (Wallich ex G. Don) Seemann [Araliaceae]; MUMP - 000876	<i>Chom-panbi</i>	Young leaves	NAM
<i>Bidens biternata</i> (Loureiro) Merrill & Seriff [Asteraceae]; MUMP - 000973	<i>Sampakpi</i>	Young twig	NAM
<i>Brassica juncea</i> (Linnaeus) Czernajew [Brassicaceae]; MUMP - 002469	<i>Hangam yella</i>	Young inflorescence	Rs. 5-10/bunch
<i>Brassica napus</i> Linnaeus [Brassicaceae]; MUMP - 000920	<i>Hangam</i>	Young inflorescence	Rs. 5-10/bunch
<i>Brassica cretica</i> Lamarck [Brassicaceae]; MUMP - 000880	<i>Kobi-thamchet manbi</i>	Whole inflorescence	Rs. 5-10/Kg plant
<i>Brassica oleracea</i> Linnaeus [Brassicaceae]; MUMP - 000879	<i>Kobi-full</i>	Whole bud	Rs. 2-5/Kg plant

Species [Family]; Voucher specimen	Local Name	Part/s Used	Market value
<i>Calamus latifolius</i> Roxburgh [Arecaceae]; MUMP - 002471	<i>Lee-ren</i>	Young shoot	Rs. 10-15 / bunch of 3-5 young shoots
<i>Camellia sinensis</i> (Linnaeus) O. Kuntze [Theaceae]; MUMP - 003513	<i>Chaa</i>	Young twigs	NAM
<i>Capsella bursa-pastoris</i> (Linnaeus) Medikus [Brassicaceae]; MUMP - 000984	<i>Chamtruk</i>	Young plant	Rs. 2-5/bunch plant
<i>Capsicum annum</i> Linnaeus [Solanaceae]; MUMP - 000586	<i>Morok</i>	Fruit	Rs. 150-300/kg dried pepper
<i>Capsicum frutescens</i> Linnaeus [Solanaceae]; MUMP - 000884	<i>U-Morok</i>	Fruit	Rs. 150-300/kg dried pepper
<i>Carica papaya</i> Linnaeus [Caricaceae]; MUMP - 000546	<i>Awathabi</i>	Unripe fruit	Rs. 5-10/fruit
<i>Centella asiatica</i> (Linnaeus) Urban [Apiaceae]; MUMP - 000796	<i>Peruk</i>	Whole plant	Rs. 5-10/ bundle
<i>Cicer arietinum</i> Linnaeus [Leguminosae]; MUMP - 003449	<i>Chana</i>	Gram flour	Rs. 20-30/kg
<i>Colocasia esculenta</i> (Linnaeus) Schott [Araceae]; MUMP - 001275	<i>Paan</i>	Sun dried corm	Rs. 10-40/kg
<i>Colocasia esculenta</i> var. <i>aquatilis</i> Hasskarl [Araceae]; MUMP - 000885	<i>Singju-paan</i>	Corm	Rs. 10 – 30/corm
<i>Colocasia gigantea</i> (Blume) Hooker f. [Araceae]; MUMP - 000573	<i>Yendem</i>	Long petiole, corm	Rs. 10-20/bunch
<i>Coriandrum sativum</i> Linnaeus [Apiaceae]; MUMP - 000568	<i>Phadigom</i>	Whole plant	Rs. 2-5/bunch
<i>Crotalaria spectabilis</i> Roth [Leguminosae]; MUMP - 001806	<i>U-hawai maton</i>	Young leaves	NAM
<i>Cucumis sativus</i> Linnaeus [Cucurbitaceae]; MUMP - 002499	<i>Thabi</i>	Fruit	Rs. 2-5/fruit
<i>Curcuma longa</i> Linnaeus [Zingiberaceae]; MUMP - 000902	<i>Yaingang</i>	Leaf, flower	Rs. 2-10/bunch
<i>Cycas pectinata</i> Buchanon-Hamilton [Cycadaceae]; MUMP - 001233	<i>Yendang</i>	Young & mature leaves	Rs. 5-10/bunch
<i>Elsholtzia blanda</i> Benthham [Lamiaceae]; MUMP - 001249	<i>Kanghumaan</i>	Leaves, young inflorescence	Rs. 4-5/bunch
<i>Elsholtzia communis</i> (Collett & Hemsley) Diels [Lamiaceae]; MUMP - 000255	<i>Lomba</i>	Leaves, inflorescence	Rs. 5-10/bunch
<i>Elsholtzia stachyodes</i> (Link) Raizada & H.O. Saxena [Lamiaceae]; MUMP - 004303	<i>Tekta</i>	Leaves, young inflorescence	Rs. 5-10/bunch
<i>Eryngium foetidum</i> Linnaeus [Apiaceae]; MUMP - 000710	<i>Awa Phadigom</i>	Leaves, inflorescence	Rs. 5-10/bunch
<i>Euphorbia hirta</i> Linnaeus [Euphorbiaceae]; MUMP - 001290	<i>Pakhang leiton</i>	Tender shoot with inflorescence	NAM
<i>Euryale ferox</i> Salisbury [Nympeaceae]; MUMP - 001286	<i>Thangjing</i>	Nuts and petioles	Rs. 5-10/fruit
<i>Ficus auriculata</i> Loureiro [Moraceae]; MUMP - 000886	<i>Heirit</i>	Young Leaves	NAM
<i>Ficus racemosa</i> Linnaeus [Moraceae]; MUMP - 000889	<i>Heibong</i>	Unripe fruits and tender leaves	NAM

Species [Family]; Voucher specimen	Local Name	Part/s Used	Market value
<i>Ficus palmata</i> Forsskal [Moraceae]; MUMP - 001223	Heiba	Young leaves	Rs. 2-5/Bunch
<i>Glycine max</i> Merrill [Leguminosae]; MUMP - 000318	Nung -hawai	Roasted beans	Rs. 20-30/kg
<i>Houttuynia cordata</i> Thunb [Saururaceae]; MUMP - 000766	Tokningkok	Whole plant	Rs. 3-5/bunch
<i>Ipomoea aquatica</i> Forsskal [Convolvulaceae]; MUMP - 000558	Kolammi	Tender twigs	Rs. 3-5/bunch
<i>Ipomoea batatas</i> (Linnaeus) Lamarck [Convolvulaceae]; MUMP - 000560	Manggra angangba	Leaves and Tender Twigs	NAM
<i>Isoetes debii</i> Sinha [Isoetaceae]; MUMP - 000899	Shorbon	Whole plant	NAM
<i>Lathyrus sativus</i> Linnaeus [Leguminosae]; MUMP - 003437	Pi-khongjai	Tender twigs	NAM
<i>Manihot esculenta</i> Crantz [Euphorbiaceae]; MUMP - 001295	U-mangra	Young leaves	Rs. 10-20 per bundle of 5-6 tubers
<i>Mentha spicata</i> Linnaeus [Lamiaceae]; MUMP - 000028	Nungshi-hidak	Leaves, tender twigs	Rs. 3-5/bundle
<i>Meyna laxiflora</i> Robyns [Rubiaceae]; MUMP - 000898	Heibi	Leaves especially with gall formation	Rs. 3-5/bunch
<i>Mimosa pudica</i> Linnaeus [Leguminosae]; MUMP - 003499	Kangphal- ekaithibi	Tender twigs	NAM
<i>Musa x paradisiaca</i> Linnaeus [Musaceae]; MUMP - 001279	Laphu	Inflorescence, pseudo stem	Rs. 5-20/ inflorescence or pseudo stem
<i>Nelumbo nucifera</i> Gaertner [Nymphaeaceae]; MUMP - 000056	Thambal	Young leaves, rhizomes	Rs. 10 to 15 /bunch of leaves
<i>Neptunea oleracea</i> Loureiro [Leguminosae]; MUMP - 000897	Ikaithabi	Whole plant	Rs. 5-10/bunch
<i>Nymphaea nouchali</i> Burman f. [Nymphaeaceae]; MUMP - 003402	Tharo	Whole plant	Rs. 3-5/bunch
<i>Nymphaea pubescens</i> Willdenow [Nymphaeaceae]; MUMP - 000896	Tharo	Leaf petiole	Rs. 3-5/bunch
<i>Nymphaea stellata</i> Willdenow [Nymphaeaceae]; MUMP - 000772	Thariktha	Whole plant	NAM
<i>Ocimum americanum</i> Linnaeus [Lamiaceae]; MUMP - 000776	Mayangba	Leaves, tender twigs	Rs. 2-5/bundle
<i>Ocimum basilicum</i> Linnaeus [Lamiaceae]; MUMP - 000011	Naoseklei	Leaves, tender twigs	Rs. 2-5/bundle
<i>Oenanthe javanica</i> (Blume) DC. [Apiaceae]; MUMP - 000589	Komprek	Whole plant	Rs. 5-10/bunch
<i>Oroxylum indicum</i> (Linnaeus) Ventenat [Bignoniaceae]; MUMP - 000026	Shaamba	Mature pods	NAM
<i>Parkia timoriana</i> (DC.) Merrill [Leguminosae]; MUMP - 000527	Yongchaak	Inflorescence, pods	Rs. 2-3 inflorescence Rs. 3-5/ pod
<i>Perilla frutescens</i> (Linnaeus) Britton [Lamiaceae]; MUMP - 002470	Thoiding Angouba	Roasted seeds	Rs. 40-100/kg
<i>Persicaria barbata</i> (Linnaeus) H. Hara [Polygonaceae]; MUMP-000821	Yellang	Young twigs	Rs. 5-15/ bunch

Species [Family]; Voucher specimen	Local Name	Part/s Used	Market value
<i>Persicaria odorata</i> (Loureiro) Soják [Polygonaceae]; MUMP - 000895	<i>Phakpai</i>	Leaves, tender twigs	Rs. 5-10/bunch
<i>Pisum sativum</i> Linnaeus [Leguminosae]; MUMP - 000531	<i>Hawai -tharak</i>	Tender twigs and roasted beans	Rs. 5-10/bundle tender twigs
<i>Plumeria rubra</i> Linnaeus [Apocynaceae]; MUMP - 000894	<i>Khagi-leihao</i>	Young leaves	NAM
<i>Psophocarpus tetragonolobus</i> (Linnaeus) DC. [Leguminosae]; MUMP - 000900	<i>Tengnou-manbi</i>	Young leaves and pods	Rs. 10-15/bundle tender twigs and pods
<i>Rotala rotundifolia</i> Koehne [Lythraceae]; MUMP - 000893	<i>Labuk-leiri</i>	Young twigs	NAM
<i>Schima wallichii</i> (DC.) Korth [Theaceae]; MUMP - 001299	<i>Usoi</i>	Young leaves	NAM
<i>Sesbania sesban</i> (Linnaeus) Merrill [Leguminosae]; MUMP - 000078	<i>Chuchuranmei</i>	Young Leaves and tender pods	Rs. 5-10/Bunch
<i>Smilax lanceaefolia</i> Roxburgh [Smilacaceae]; MUMP - 001891	<i>Kwa-manbi</i>	Young twigs	NAM
<i>Smilax zeylanica</i> Linnaeus [Smilacaceae]; MUMP - 000892	<i>Keishum</i>	Tendrils climber	NAM
<i>Solanum gilo</i> Raddi [Solanaceae]; MUMP - 001863	<i>Khamen Akhabi</i>	Fruit	Rs. 10-20/10 fruits
<i>Solanum melongena</i> Linnaeus [Solanaceae]; MUMP - 002467	<i>Khamen</i>	Fruit	Rs. 5-7/ fruit
<i>Trapa natans</i> Linnaeus [Trapaceae]; MUMP - 000862	<i>Heikak Yelli</i>	Leaf petiole	Rs. 10-20/bunch
<i>Trigonella foenum-graecum</i> Linnaeus [Leguminosae]; MUMP - 000891	<i>Meethi</i>	Tender shoots	Rs. 5-10/bunch
<i>Vicia faba</i> Linnaeus [Leguminosae]; MUMP - 003470	<i>Hawai mubi</i>	Young leaves	NAM
<i>Vigna cylindrica</i> (Linnaeus) Skeels [Leguminosae]; MUMP - 000890	<i>Pong-hawai</i>	Pods	Rs. 5-10/bunch
<i>Vigna unguiculata</i> subsp. <i>sesquipedalis</i> (Linnaeus) Verdcourt [Leguminosae]; MUMP - 000818	<i>Hawai</i>	Pods	Rs. 5-10/bunch
<i>Wendlandia glabrata</i> DC. [Rubiaceae]; MUMP - 000714	<i>Pheija</i>	Inflorescence	Rs. 5-10/bunch
<i>Zanthoxylum acanthopodium</i> DC. [Rutaceae]; MUMP - 000789	<i>Mukthruhi</i>	Leaves and Fruits	Rs. 5-10/bunch
<i>Zanthoxylum budrunga</i> (Roxburgh) DC. [Rutaceae]; MUMP - 000882	<i>Ngang</i>	Young twigs	Rs. 5-10/bunch
<i>Zingiber officinale</i> Roscoe [Zingiberaceae]; MUMP - 001210	<i>Shing</i>	Whole plant, rhizome	Rs. 5-10/bunch Rs. 10-40/kg

Among these plants 62 are available in the markets having economic value and 20 plants are non-marketable i.e. not available in the market (NAM). Among the WEPs 19 plant species were selected on priority basis for commercialization to uplift economy of the poorer people. The most important plants as ingredients of *Singju* (*Singju Mayan*) have been selected on the basis of market price and demand and also listed for commercial plantation (Table 2).

Singju is one of the delicacies of the Manipuri culinary items, with a peculiar indigenous taste. The major components while preparing a *Singju* is the mixture of sliced vegetable (Tables 1 & 2). In the mixture 1 – 2 teaspoon-full of chilli-powder and salt are also added. There are two types of *Singju*, one is vegetarian and the other is non-vegetarian. In the vegetarian type roasted seed flour of *Pisum sativum* Linnaeus, *Cicer arietinum* Linnaeus and *Perilla frutescens* (Linnaeus) Britton are added. However, in case of non-vegetarian type the roasted or boiled fermented dry fish, commonly called *Ngari* is added. *Singju* is prepared by cutting the plant items in thin slices and keeping it in the sun. Usually fermented

Table 2. Selected plant species as priority for commercialization and conservation

Plant Name	Wild	Cultivated	Demand	Habit
<i>Centella asiatica</i>	+	-	Very High	Herb
<i>Colocasia esculenta</i>	+	+	High	Herb
<i>Colocasia gigantea</i>	-	+	High	Herb
<i>Coriandrum sativum</i>	-	+	Very High	Herb
<i>Cycas pectinata</i>	+	+	Very High	Shrub
<i>Elsholtzia blanda</i>	+	+	High	Under shrub
<i>Elsholtzia communis</i>	-	+	High	Under shrub
<i>Elsholtzia stachyodes</i>	+	+	High	Under shrub
<i>Euryale ferox</i>	+	+	Very High	Aquatic herb
<i>Mentha spicata</i>	-	+	High	Herb
<i>Meyna laxiflora</i>	+	+	High	Tree
<i>Musa paradisiaca</i>	+	+	High	Pseudo stem
<i>Neptunea oleracea</i>	+	+	Very High	Aquatic herb
<i>Nymphaea nouchali</i>	+	-	High	Aquatic herb
<i>Ocimum americanum</i>	-	+	High	Under shrub
<i>Oenanthe javanica</i>	-	+	High	Herb
<i>Parkia timoriana</i>	-	+	Very High	Tree
<i>Perilla frutescens</i>	-	+	Very High	Herb
<i>Wendlandia glabrata</i>	+	-	High	Shrub

fish is used as an ingredient of this preparation. The ‘*Ngari*’ is used by roasting it or by boiling with small amount of water. It is then mixed with powdered dried pepper or by smashing whole pepper. However, this *Singju* can also be prepared without *Ngari*. Instead, mixture of powdered roasted seeds of *Perilla frutescens* and gram flour or pea flour is used. This mixture is also used along with *Ngari*. Thus, the above said mixture of pepper, seed of *P. frutescens*, gram flour, and adequate amount of salt and with or without *Ngari* is mixed with the thin slices of somewhat dried plant items, and *Singju* is ready to serve to people. Some people use Salad and *Singju* as similar preparations, however, *Singju* is not similar to Salad even though both the preparations are mainly of green vegetables.

There are some types of *Singju* preparations based on the main vegetable used in the preparation. However, two main *Singju* types are of cultural implications of Meitei community (from birth till date) and are as follows:

(i) **Laphu Singju:** Young leaves of *Musa x paradisiaca* Linnaeus (*Laphu*) is the major vegetable. In this *Singju* type boiled seeds of *Pisum sativum* Linnaeus, *Vigna cylindrica* (Linnaeus) Skeels, *Vigna sesquipedalis* (Linnaeus) Fruwirth, etc. and *Persicaria odorata* (Loureiro) Sojak (*Phakpai*) are added as green spice for the preparation. *Laphu Singju* is culturally used in New Year Ceremony “*Cheiraoba*” of the Meitei community, Death Ceremony (*Potloiba*), etc.

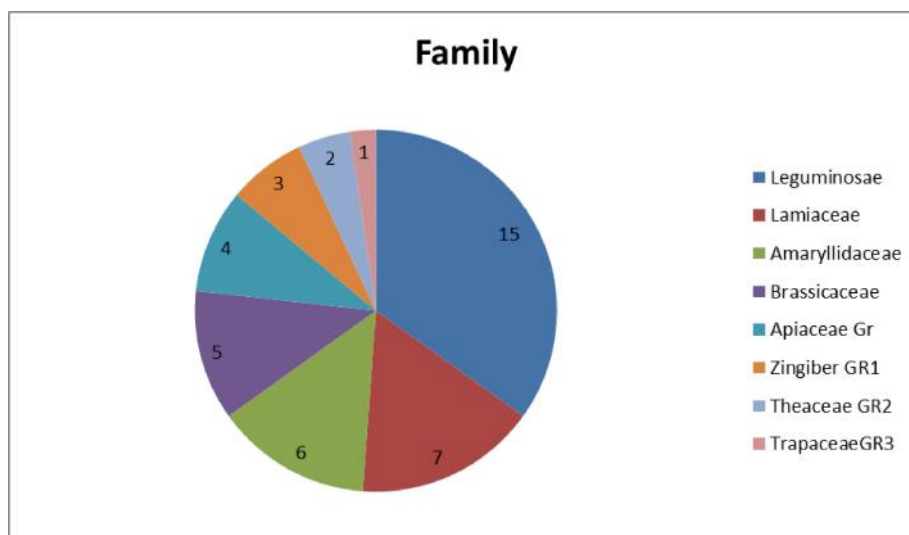


Fig. 1. Family wise representation of 81 plants which are used in the preparation of *Singju* - Number of plants under different families is given in the pie chart: Leguminosae -15; Lamiaceae -7; Amarillidaceae - 6, Brassicaceae - 5; Apiaceae Gr - 4 each- Apiaceae, Solanaceae and Nymphaeaceae; Zingiber GR1 (3 plants each in the family: Zingiberaceae, Araceae & Moraceae); Theaceae GR2 (2 plants each in the family: Theaceae, Euphorbiaceae, Convolvulaceae, Rubiaceae, Polygonaceae, Apocynaceae, Smilacaceae & Rutaceae); Trapaceae GR3 (1 plant each in the family: Trapaceae, Caricaceae, Araliaceae, Asteraceae, Areaceae, Cucurbitaceae, Cycadaceae, Saururaceae, Isoetaceae, Musaceae & Bignoniaceae).

(ii) ***Heibi mana Singju***: *Meyna laxiflora* Robyns (*Heibi*) leaves are the main component of this *Singju* type. *Nagri* or without *Ngari* type of preparations are commonly prepared. *Heibi mana Singju* is a traditional preparation, which is one of the delicacies offered to the Diety of the Birth ceremony commonly called “*Ipan thaba*” and New Year Ceremony “*Cheiraoba*” of the Meitei community.

The names of the main plants which are commonly used as various types of *Singju* preparation are as follows: *Yongchak* [*Parkia timoriana* (DC.) Merrill], *Thangjing* (*Euryale ferox* Salisbury), *Thambou* (*Nelumbo nucifera* Gaertner), *Kompreg* [*Oenanthe javanica* (Blume) DC.], *Awathabi* (*Carica papaya* Linnaeus), *Kobi* (*Brassica oleracea* Linnaeus), *Hanggam* (*Brassica napus* Linnaeus), *Hawaimaton* (*Pisum sativum* Linnaeus), *Yendem* [*Colocasia gigantea* (Blume) Hooker f.], etc.

DISCUSSION

Women folk use to sell *Singju* preparations of various types in markets of all sizes. It is a favourite delicacy and is liked by the people of any age group of the Manipuri community, children to senior citizens. It is worth to be mentioned, that the selected plant species on priority basis has been presented in Table-2 for better commercialization and conservation point of view will be a new approach for their future use. Income of the poorer group of community can be increased by practicing preparation and marketing of *Singju* as a profession. It will also lead them to initiate culturing or cultivating or sustainable harvesting of the wild edible plants. As the major constituents of *Singju* is green vegetable having medicinal values and a mixture of various spices is rich in vitamins and valuable nutrients including protein and antioxidants. The preparation will be another indigenous delicacy for the health care of the people of Manipur State using seasonal herbs.

In the present scenario, the population of the wild edible plants is depleting day by day from the natural habitat due to excess extraction for daily need or to meet necessary income by selling in the market for their economy. Traditional communities cut down the whole plant for easy collection of the edible plant parts. If this culture continues in the near future there will be a complete extinction of these plants in the wild habitat. It is right time to conserve these important wild edible plant resources (Borkataki *et al.* 2008).

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LITERATURE CITED

- Anonymous 2002. *Census of India*. Directorate of Census Operations, Manipur.
- Arora, R.K. 1981. Native food plants of the Northeastern tribes. In: S.K. Jain (Ed.), *Glimpses of Indian Ethnobotany*. Oxford & IBH Publishing Co., New Delhi. Pp. 91 - 106.
- Borkataki, S.; Chutia, M. & Borthakur, S.K. 2008. Ethnobotany of biofencing among teagarden and ex-teagarden communities of Nagaon district of Assam. *Indian J. Trad. Knowl.* 7(4): 666 – 668.
- Elangbam, V.D. 2002. *Studies on various aspects of wild Edible Plants of Manipur Valley*. Ph. D. Thesis, Manipur University, Canchipur.
- Gajurel, P.R.; Rethy, P.; Singh, B. & Angami, A. 2006. Ethnobotanical studies on Adi Tribes in Dehang Debang Biosphere Reserve in Arunachal Pradesh, Eastern Himalaya. *Ethnobotany* 18: 114 – 118.
- Jain, S.K. & Rao, R.R. 1977. *A Handbook of Field and Herbarium Methods*. Today and Tomorrow's Printers and Publishers, New Delhi.
- Kanjilal, U.N.; Kanjilal, P.C; Das. A. & Purkaystha, C. 1934. *Flora of Assam*, Vol. 1, Assam Govt. Press, Shillong.
- Kanjilal, U.N.; Kanjilal, P.C. & Das, A. 1938. *Flora of Assam*, Vol. 2, Assam Govt. Press, Shillong.
- Kanjilal, U.N.; Kanjilal, P.C.; Das. A. & Dey, R.N. 1939. *Flora of Assam*, Vol. 3, Assam Govt. Govt. Press, Shillong.
- Kanjilal, U.N.; Kanjilal, P.C; Das, A, & Dey, R.N. 1940. *Flora of Assam*, Vol. 4, Assam Govt. Govt. Press, Shillong.
- Khan, H.M. 2005. *Study of Ethnomedicinal Plants in Thoubal District of Manipur*. Ph. D. Thesis, Manipur University, Canchipur.
- Livingston, A.D. & Livingston, H. 1996. *The Wordsworth Guide to Edible Plants & Animals*, Worsworth Editions Ltd., Ware, Hertfordshire.
- Maheswari, J.K. 1994. Interdisciplinary approach in Ethnobotany, In: SK Jain (Ed.), *A manual of Ethnobotany*. Scientific Publications, Jodhpur.
- Mayer, J.D.; Salovey, P. & Caruso, D.R. 2000. Emotional intelligence as zeitgeist, as personality and as a standard intelligence. In: R. Bar-On & JDA Parker (Eds.), *Handbook of Emotional Intelligence*, Jossey-Bass, New York: Pp. 92 – 117.

- Sharma, H.M.; Sharma, B.M. & Devi, A.R. 2003. Contributions to Edible Fruits of Manipur. In: J.K. Maheshwari (ed.) *Ethnobotany and Medicinal Plants of Indian Subcontinent*, Scientific Publishers (India) Jodhpur. Pp. 615 – 623.
- Singh, H.B. & Arora, R.K. 1978. *Wild edible Plants of India*, ICAR, New Delhi.
- Singh, H.B.K.; Singh, P.K.; Singh, S.S. & Elangbam, B. 1996. Indigenous Biofolklores and Practices its role in Biodiversity conservation in Manipur. *J. Hill Res.*, 9(2): 359 – 362.
- Singh, N.P.; Chauhan, A.S. & Mondal, M.S. 2000. *Flora of Manipur (Ranunculaceae-Asteraceae)* Vol. 1, Botanical Survey of India, Calcutta.
- Singh, N.T. 2014. *Geography of Manipur*, Rajesh Publications, Darya Ganj, New Delhi, Pp. 559.
- Singh, O.K. 1980. *Floristic Study of Tamenglong District, Manipur with Ethnobotanical notes*. Ph. D. Thesis, Manipur University, Canchipur.
- Singh, P.K.; Singh, N.I. & Singh, L.J. 1988. Ethnobotanical studies of wild edible plants in the Markets of Manipur – II. *J. Econ. Taxon. Bot.* 12(I): 113 – 119.
- Watt, G. 1889-1899. *The Dictionary of Economic Products of India*, 6. Supdt., Govt. Printing, Calcutta.