STUDY ON MEDICINAL VALUE OF HERBS AND VEGETABLES COMMONLY USED IN MANIPURI CUISINE THROUGH AYURVEDIC PERSPECTIVE
Loukrakpam Victoria devi1*, Khagen Basumatyary2

*P. G. Scholar, 2Professor & Head, Department of Samhita & Siddhanta, Govt. Ayurvedic college, Jalukbari, Guwahati, Assam, India.

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ABSTRACT
North east India is rich in medicinal plant diversity. Manipur, a state of north-eastern India, which falls in the Indo-burma border is known for its ecologically distinctive and rich biodiversity, having many endemic flora and fauna and rich cultural diversity. Herbs and spices form a very important part of Manipuri cuisine, specially for the Meitei community. The Meitei community typically raise vegetables in their kitchen garden therefore their cuisine is very much seasonal. In this article 14 herbs and vegetables are included for study. Some of the herbs are- Mayang-ton (lemon basil), Mukthrubi (Chamelon plant), Phakpai (Polygonum posumerb) etc. Further many large varieties of vegetables that are used in daily meals are found in and around the region and not seen elsewhere. Some of them are Yongchak (tree bean), Sougri (Hibiscus Cannabinus), Yeli (water caltrop) etc. These herbs and vegetables are used in day to day life but people are mostly unaware of the various health benefit of them. Now it’s high time to make the general masses aware about the benefits of their own traditional cuisine. Redefining them through Ayurvedic perspective will enable in knowing the medicinal action on Dosha and will help in promoting the knowledge to local people and physician to use these local herbs and vegetables appropriately and wisely on different disease treatment and prevention.

INTRODUCTION
India is extremely rich in medicinal plant diversity in different geographical and environmental conditions. Manipur, which lies in the north-eastern part of India, falls in the “indo-burma” centre of biodiversity hotspot of global significance. The Manipuri cuisine is famous for its used of various aromatic herbs and roots that are peculiar to the region. The Meitei community typically raise vegetables in a kitchen garden at home or obtained from the local market, therefore the cuisine are very seasonal, each season having its own special vegetables and preparation.

These herbs and vegetables possess various medicinal value which are not known to the people as well as other parts of the country. Under this study some of the commonly used herbs and vegetables are being studied to shed light on their health benefits through Ayurvedic perspective.

MATERIALS AND METHODS
Materials were collected from different books of medicinal plants from the library of Government Ayurvedic College, Guwahati, Assam, previous dissertations and research papers. For this article internet was also studied.

DISCUSSION
The following is a discussion on 14 commonly used herbs and vegetables of Manipuri cuisine. In this study, I have tried to throw light on the medicinal value of these 14 plants.

As Charak Acharya has stated in Sutrasthana (26/10-12) and (27/330) chapter that according to Ayurveda all matter is constituted of 5 Mahabhutas and there is nothing in the world which does not possess a therapeutic value and properties of those drugs which are not mentioned, may be determined by taking into account the attributes made by that locality.

Thus in this article, out of the 14 plants, Some of these plants are mentioned in Ayurvedic classics while some are not. Those which are not mentioned directly, here I have tried to draw a similar parlance, based on the plant species of the same family which are mentioned in Ayurveda and a probable mechanism of action is being established.
**Polygonum Posumber**

Manipuri name: *Phakpai*
Family: Polygonaceae
Habitat: Aromatic Under shrub
Parts used: Leaf / shoot
Mode of used: Eaten raw in salad or used to garnished traditional chutney called "Eromba"
*Rasa*: Astringent (Kashaya)
*Virya*: Shita
*Vipak*: Katu
*Dosa-karma*: Pitta shamak

**Constituents**: Oleonic and betulinic acid.

**Medicinal use**: Crushed leafy shoot is used for local application on forehead against fever. Its leaf is taken raw in hypertension and is very effective in lowering high blood pressure. Shoot extract is used in washing ulcers. Seeds are tonic, purgative and emetic and given in colic[1].

**Benincasa Hispida**

Manipuri name: *Torbot*
Common names: Petha in Hindi, ash gourd in English, *Kusmanda* in Sanskrit
Family: Cucurbitaceae
Habitat: Robust climber
Parts used: Seed and fruit
Mode of use: Fruit is boiled simply with sugar or is cooked with other vegetables to make a typical dish called "Ooti".
*Rasa*: Sweet (Madhur)
*Virya*: Shita
*Vipak*: Madhur
*Prabhav*: Medhya (intellect promoting)
*Dosa-karma*: Vatta pitta shamak

**Constituents**: Seeds yield a type of fatty oil and also contain pure protein and arginine, hispidine, lysine, tryptophane, phenylalanin and cystine.

**Medicinal use**: Boil fruit is used in stomach ulcers and jaundice[2]. Fresh fruit paste is good for local application on eyes against blackening of skin and eye itching. Seed oil is antihelminthic. Fruit is good for diabetes and diuretic in nature. It is a good antidote for many kinds of vegetable poison, mercury and alcoholic poisoning. Its ripened fruit is useful in *Manasik roga*[3]. Fresh juice of the fruit is administered in haemoptysis and other haemorrhages from internal organs[4].

**Zanthoxylum Acanthopodium**

Manipuri name: *Mukthrubi*
Family: Rutaceae
Habitat: Spiny bushy shrub
Parts used: flower, fruit and leaf
Mode of use: Eaten fresh in salad, cooked with certain small snail and as fried Pakoda.
*Rasa*: Pungent (Katu), bitter (Tikta)
*Virya*: Ushna
*Vipak*: Katu
*Dosa-karma*: Kapha vatta shamak and Pitta vardhak

**Constituents**: Dried flower yields an essential oil called wartara oil, it is rich in linalool largely used in perfumery.[5]

**Medicinal use**: Fruits and seeds used as tonic in fever, dyspepsia and toothache and scabies. Seeds and leaves used in indigestion, cough and bronchitis. Plant extract used in the preparation of insecticides. Oil extracted from the seeds is useful for healthy growth of hairs, as an antiseptic, deodorant and disinfectant. Bark decoction/infusion is used in cholera. In diseases of oral cavity and throat, the juice of the plant is used for gargling or its paste of powder is applied.[6]
Euryale Ferox

Manipuri name: Thangjing
Common names: Makhana in Hindi and Sanskrit, fox nut in English
Family: Nymphaeaceae
Habitat: Aquatic rooted spiny herb
Parts used: Fruit, leaf and seed
Mode of use: The immature fruit called Lolang is eaten after boiling and the mature fruit called Aroba is eaten fresh as Singju or mixed with Eromba (typical chutney).
Rasa: Sweet (Madhur)
Virya: Shita
Vipak: Katu
Dosa-karma: Kapha shamak

Constituents: The plant contains citral, linalool, geraniol and citronellol
Medicinal use: Leafy shoot paste is good for fever problem (local external application on forehead)\(^9\). Leafy shoot decoction is used as mouth-wash in pyorrhoea. Leaf juice with honey is given in fever, cough and colic. The seeds are used in malaria and emaciation.

Ocimum Canum

Manipuri name: Mayangton
Common names: Vantulsi in hindi, hoary basil in English
Family: Lamiaceae
Habitat: Aromatic bushy under shrub
Parts used: Leaf, seed and shoot
Mode of use: Used to garnished different types of traditional chutney, cooked with pumpkin and eaten fresh in salad.
Rasa: Pungent (Katu) and bitter (Tikta)
Virya: Ushna
Vipak: Katu
Dosa-karma: Kapha shamak

Constituents: The plant contains citral, linalool, geraniol and citronellol
Medicinal use: Leafy shoot paste is good for fever problem (local external application on forehead)\(^9\). Leafy shoot decoction is used as mouth-wash in pyorrhoea. Leaf juice with honey is given in fever, cough and colic. The seeds are used in malaria and emaciation.

Nelumbo Nucifera

Manipuri name: Thambou
Common names: Kamal in Hindi, lotus in English
Family: Nymphaeaceae
Habitat: Aquatic rooted herb
Parts used: whole plant, specially root
Mode of use: Tender leaves are eaten raw with dry fish and chilli, roots are eaten raw as salad, seeds are eaten raw as snacks.
Rasa: Astringent (Kashaya), bitter (Tikta), sweet (Madhur)
Virya: Shita
Vipak: Madhur
Dosa-karma: Vatta pitta shamak

Constituents: Leaves contain alkaloids like nuciferine, roemerine, non-nuciferine and quercetine. The plumules yields proteins, sugar and vitamins. The receptacles contain quercetin.
Medicinal use: Leaf petiole taken raw in stomach problem and for better urination. Roots, flowers, filaments and seeds are used in diarrhoea, cholera, leprosy, bleeding piles, dysentery, skin infection and snake-bites. Leaves and seed cores extract are effective for insomnia, haemorrhage and haematemesis. Decoction of flower is used for blood purification. It is useful in vomiting, thirst, diarrhoea. It is nutritious to fetus (filaments should be used). It is useful in Pittaja prameha\(^10\).
**Allium Odorum**

Manipri name: *Maroi-nakuppi*

Common names: Chinese chives in English
Family: Liliaceae
Habitat: Slender delicate aromatic
Parts used: Leaf
Mode of use: Eaten raw or fried and also used for tempering dishes
*Rasa*: Pungent (*Katu*), sweet (*Madhur*)
*Virya*: Ushna
*Vipak*: Katu
*Dosa – karma*: Kapha shamak

**Constituents:** Isolation of (-)3 (s)1, 2, 3, 4, -tetrahydro b-carboline-3-carboxylic acid and tyrosine from leaves. Leaves and bulbs contain sulphur compounds, saponins and bitter substances. Seeds contain alk saponins, tannins, phenols, volatile oil, flavonoids and amino acids.

**Medicinal use:** Plant soup is good against urinary disorder especially in scanty urination. Fresh leaf juice is good for nourishing scalp and hair growth.

**Allium Hookerii**

Manipuri name: *Maroi-napakpi*

Common names: Winter leek / hooker chives in English
Family: Liliaceae
Habitat: Aromatic delicate plant
Parts used: whole plant
Mode of use: Eaten raw garnishing “Eromba” or used for tempering.
*Rasa*: Pungent (*Katu*), bitter (*Tikta*)
*Virya*: Ushna
*Vipak*: Katu
*Dosa – karma*: Kapha shamak

**Medicinal use:** Leaf juice is useful for stomach ulcers. Consumption of fresh leaves is useful for reducing high blood pressure. Boiled leaf is useful against calculi formation inside the body. Studies shows that *Allium hookeri* has HO-1 activity on the oxidase stress conditions showing pancreato-protective effects against the development of inflammation in STZ-induced diabetic rats.[12]

**Centella Asiatica**

Manipuri name: *Peruk*

Common names: *Brahmi* in Hind, *Mandukparni* in Sanskrit, Indian pennywort in English
Family: Apiaceae
Habitat: Profuse stanggling herb
Parts used: whole plant
Mode of use: Eaten raw with fish and chilli or boiled to make "*Peruk kangsu*", a typical chutney only made by *centella asiatica*.
*Rasa*: Bitter (*Tikta*), astringent (*Kashaya*)
*Virya*: Shita
*Vipak*: Madhur
*Prabhav*: Medhya (intellect promoting)
*Dosa-karma*: Pitta kapha samak

**Constituents:** A glycoside, asiaticoside, shown to be active in the treatment of leprosy, has been reported to be found.

**Medicinal use:** Plant decoction is good for leprosy, skin, disease, chronic inflammation of the skin, chronic ulcers etc. Plant juice is applied externally on abnormal swellings and inflammations. Juice is also good to check fever. Dried leaf powder is good for tuberculosis. Boiled plant soup is used as hair lotion[13]. *Brahmi* is one of the recognised drugs used for *Rasayana*. For mental weakness, for improving memory-power, the dried leaves in small doses with milk is beneficial. Juice
combined with Cadamba bark, ghee and black cumin is applied as Lepa in skin eruptions supposed to arise \[14\].

**Trapa Ntans**

Manipuri name : Yeli
Common names: Singara in Hindi, water chestnut in English, Shringatak in Sanskrit
Family: Trapaceae
Habitat: Aquatic rooted herb
Parts used: whole plant
Mode of used: Fruit are boiled, leaf and shoot are boiled and use to prepare Eromba with dry fish and chilli.
*Rasa*: Sweet (Madhur), Astringent (Kashaya).
*Virya*: Madhur
*Vipak*: Shita
*Dosa-karma*: Pitta shamak

**Constituents:** Plant contains thiamine, riboflavin, nicotinic acid, vitamin C, A, oxalates and b-amylase. The starch isolated from the flour consists about 15% amylase and amylopectin

**Medicinal use:** The plant is used to enhance blood circulation and useful in leucorrhea. Fresh tender kernels are sweet, delicious, nutritious and a good source of minerals and carbohydrates. The fruit are astringent, cooling, constipating, diuretic, antipyretic, appetizer and tonic. It is useful in thirst, Grahani, Raktapitta, urinary disorders, general weakness, pregnancy and as Lepa in burns \[15,16\].

**Parkia Javanica**

Manipuri name : Yongchak
Common names : Tree bean in English
Family : Mimosaceae
Habitat : Robust tree
Parts used : Bark, fruit and inflorescence
Mode of used : Inflorescence and tender pod is eaten raw or cooked. It is regarded as one of the most delicacy food.
*Rasa*: Astringent (Kashaya), Bitter (Tikta)
*Virya*: Shita
*Vipak*: Katu
*Dosa-karma*: Pitta shamak

**Constituents:** The associating pungent smell of *P. javanica* is due to the presence of thiazolidine-4-carboxylic acid, a cyclic sulphur containing amino acid.

**Medicinal use:** Bark decoction is given for dysentery and diarrhoea. Roasted seeds eaten for stomach disorder. Tender pod is used for intestinal disorder. Fruit / seed decoction is used for bleeding piles. Pods and seeds are useful in stomach disorders. The leaves are applied as lotion to cure sores and skin infection \[17\].

A recent study shows that the extract ethyle acetate fraction of *Parkia javanica* has antimicrobial and antibiofilm potential against microorganism Pseudomonas aeruginosa \[18\].

**Hibiscus Cannabinus**

Manipuri name : Sougri
Common names : Ambari in Hindi, decan hemp in English
Family : Malvaceae
Habitat : Tall erect herb
Parts used : Leaf, stem and seed
Mode of used: It is boiled for potherb vegetables
*Rasa*: Sour (Amla)
*Virya*: Ushna
*Vipak*: Amla
*Dosa-karma*: Vatta shamak

**Constituents:** Plant contains thiamine, riboflavin, nicotinic acid, vitamin C, A, oxalates and b-amylase. The starch isolated from the flour consists about 15% amylase and amylopectin

**Medicinal use:** The plant is used to enhance blood circulation and useful in leucorrhea. Fresh tender kernels are sweet, delicious, nutritious and a good source of minerals and carbohydrates. The fruit are astringent, cooling, constipating, diuretic, antipyretic, appetizer and tonic. It is useful in thirst, Grahani, Raktapitta, urinary disorders, general weakness, pregnancy and as Lepa in burns \[15,16\].
are used in stomachic and aphrodisiac. leaves are purgative[20].

*Lysinachia Ovovata*

Manipuri name: Kengoi
Family: Primulaceae
Habitat: Gregarious spreading delicate herb
Parts used: Leaf / shoot
Mode of use: Leaves with tender shoot is boil for consumption.
*Rasa*: Sour (*Amla*)
*Virya*: Ushna
*Vipak*: Amla
*Dosa-karma*: Vatta kapha shamak

**Medicinal use:** Cooked plant is given against diabetes, piles and intestinal disorder.

**Neptunia Oleracea**

Manipuri name: *Eising ekaithabi*
Common names: *Lajalu* in Hindi, water mimosa in English.
Family: Mimosaceae
Habitat: Floating aquatic herb
Parts used: whole plant
Mode of use: Eaten boiled or used for garnishing “*Eromba*”.
*Rasa*: Astringent (*Kashaya*)
*Virya*: Shita
*Vipa*: Katu

*Dosa-karma*: Pitta shamak

**Constituents:** Plant contains moisture (88%), vitamin A (5.4mg/100g), crude fat (1.2%), crude fibre (16%), total ash (5.4%). Stem reported containing steroids, steroidal sapogenins, flavonoids, triterpenoidal sapogenins and carbohydrates were detected in different extracts of the stem. The alcoholic extract was found to posses significant anti inflammatory activity.

**Medicinal use:** Juice used in earache and roots in syphilis. Raw leaf is used for dysentery and intestinal infection.[21]

This plant is used as remedies like anticancer, antioxidant, dysentery etc and as bio fertilizer in the rice field.[22]

**CONCLUSION**

With the globalisation of fast food industry, many people are changing their food habits which is not at all suitable for their health and lifestyle. It is the need of the hour to educate or make the general masses aware about the benefits of their own traditional cuisine. These herbs and vegetables are not only useful as food but have certain medicinal value which helps in prevention as well as treating diseases. So people in other parts of the country should also try to include these plants in their food habit. As Charak acharya has stated “*All Dravya are Pancha bhautic*” and those plants which are not mentioned directly should be known from the local people using the plant” so, those plants which are not mentioned in Ayurveda, needs further research to bring them into the mainstream and use for the up gradation of Ayurveda.

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