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Traditional Manipuri Cuisine and Prospects of Promoting Medicinal Plant-based Food Tourism in Post-COVID-19

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Abstract *In the Post-COVID-19 pandemic, tourists are more health-conscious and look for healthy food during their travel. Food prepared with medicinal plants can be promoted as a tourist product with the competitive advantage of having medicinal properties in the food. From ancient times, Manipuri people have used medicinal plants in their daily food as a food culture of the place. Medicinal plant-based food tourism (MPBFT) can be promoted as a tourism product that can meet the need of post-COVID-19 tourists by offering healthy food with medicinal values and a unique travel experience in Manipur, Northeast India. The main objective of this study is to explore the prospects of promoting MPBFT and focus on identifying the strategies to develop MPBFT in Manipur as a tourism product. This review paper identifies medicinal plants utilized in Manipuri traditional cuisines imparting their medicinal properties. Cultivating medicinal plants, training local communities, organizing educational tours, food festivals, conducting cooking classes, and establishing restaurants focused on Manipuri traditional food with medicinal plants are the strategies to promote Manipur as an MPBFT destination.*

Keywords: *Traditional Cuisine, Medicinal Plants, Food Tourism, COVID-19, Manipur*

INTRODUCTION

Globally, around 80% of people in developing countries and 60% of the world population depend directly on plants and herbs for their daily food, diet, and medical treatments (Shrestha and Dhillion, 2003). Consuming wild plants and aromatic herbs in food balances mental and physical health (Esiyok *et al.*, 2004). Medicinal plants are used as a food source by local people to meet their nutritional needs to stay healthy, mainly in rural areas. Most of these plants grow in wild natural habitats, and some plants are cultivated in farms, kitchen gardens, and house yards as vegetables. Local communities in the rural areas collect them from the wild for daily food or sell them in local markets. They depend on these plants as a source of their livelihood. The forest areas are reduced due to roads, dams, tourism, land encroachments for agriculture, shifting cultivation, jump cultivation, wildfire, etc. It impacts the natural habitats of wild plants and the socio-economic status of the native local people.

During the post-COVID-19 pandemic, the government, service providers, and local communities need to rethink and reset the tourism industry in the recovery process by diverting the current unsustainable practices to sustainable ways (Sharma *et al.*, 2021; Stankov *et al.*, 2020). The World Tourism Organization mentioned that diversification of tourism products is required by identifying the needs and opportunities in the market to revive the industry (World Tourism Organization, 2020). Traditional cuisines with medicinal plants can be considered as one of the opportunities

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to recover the tourism industry from the pandemic outcomes by offering healthy food with a unique tourist experience. The recent pandemic around the globe gives a new dimension in the tourism industry to develop a unique tourism product like medicinal plant-based food tourism (MPBFT) to experience the local cuisine with medicinal properties (Khojimatov *et al.*, 2015). Local food is the easiest way to experience the culture, tradition and lifestyle of the place. This unique culture could be offered as a distinct tourism experience to the tourists who want to know, understand and learn about other cultures. It is an important factor for the satisfaction of the overall trip (Du Rand *et al.*, 2003). Food cultural heritage that relies on wild plants can be developed and promoted as MPBFT in the niche market by enhancing sustainable tourism initiatives (Pieroni and Quave, 2014). Tourists can gain knowledge about food culture, tradition, history, lifestyle related to native foods which includes medicinal herbs by tasting and experiencing the local cuisine using them (Baruah, 2016).

The traditional knowledge of medicinal plants used in food and their therapeutic value is rapidly decreasing across the globe. (Bultosa *et al.*, 2020; Harmayani *et al.*, 2019; Luczaj *et al.*, 2012). The present generation has less knowledge about it. It is vital to maintain and conserve such living tradition food culture in the current era for the future (Alarcón *et al.*, 2015; Bultosa *et al.*, 2020). The places where medicinal plants are used in their everyday food and still in practice can be promoted as a food tourism destination with a competitive advantage of healthy food with medicinal properties. It can conserve and sustain the food culture of a place like Manipur, rich in this traditional knowledge of medicinal plants used in food (Benz *et al.*, 2000; Hadjichambis *et al.*, 2008; Konsam *et al.*, 2016; Pieroni *et al.*, 2015).

Exploring the prospects of promoting MPBFT and identify the strategies to develop such tourism in Manipur as a tourism product envisaged to review a range of literature from research articles, books, master's theses, guide books, and internet sources. This article is based on secondary data related to food tourism, local food, ethnobotanical studies on local cuisine, traditional food with medicinal/wild plants of different places as well as Manipur.

MEDICINAL PLANTS AND FOOD

Yakuzen, meaning medicinal herbs food, is a Japanese concept of using medicinal plants in everyday food to prevent diseases and improve health. It believes that plants' sources in food and medicine cannot be differentiated clearly and should be considered together (Mabel, 2020; Pieroni and Price, 2006). A healthy eating campaign in Japan called *Shokuiku* also mentions that healthy life comes from healthy eating (Mabel, 2020). The consumption of wild plants and aromatic herbs maintains mental and physical health (Esiyok *et al.*, 2004). Wild plants contain more vitamins, water, mineral, and antioxidants with less protein, carbohydrates, and fat (Abu-Rabia, 2005; Ogle and Grivetti, 1985). People can live a healthy life without health issues by consuming them in their daily food. Since "Food is Medicine and Medicine is Food.", a healthy food which includes leaves, roots, stems, fruits and flowers of native plants imparts high nutritional and medicinal value (Muthulakshmi *et al.*, 2009). However, having all these benefits, food with wild plants is underutilized in most places due to a lack of awareness (Matenge *et al.*, 2011).

MEDICINAL PLANTS OF MANIPUR

Manipur is one of the Northeast states of India and located between 23°83′ to 25°68′ N latitudes and 93°03′ to 94°78′ E longitudes with an area of 22,327sq km (Fig. 1). The state shares 348/354 km international border with Myanmar on the eastern side and is surrounded by other states such as Nagaland on the North, Assam on the West, and Mizoram on the South. Hills cover around 90% of the total graphical area of the state, and only 10% are valley areas in the centre. Manipur has four major communities along with 29 tribes. According to the 2011 census, the population of the state is 2,855,794, which is only 0.21% of the total population of India. The main occupation of people in the state is agriculture.

Fig. 1 Map of Manipur, India

The Northeast region of India has rich plants biodiversity with medicinal plants and aromatic herbs. Manipur is an integral part of the Indo-Burma biodiversity hotspot. Dr. S.C. Sinha reported 1200 medicinal plant species in his book "Medicinal Plants of Manipur," and 430 species found are used in traditional medicine (Research, Silviculture &

Training Division, Government of Manipur, 2018). From the ethnobotanical studies carried out in Manipur, the study identifies medicinal plants utilized in Manipur traditional cuisines. It is mentioned in Table I. with their ethnomedicinal uses and scientifically proven bioactivities. These studies have proven that most of the wild edible plants which are used in food are identical with those used in treating several diseases. They have documented the traditional knowledge on the uses of wild plants in Manipuri cuisine and their nutritional value and therapeutic properties to heal various ailments. These studies help understand the linkage between food and medicine. The diversity of these plants is the strength to develop and promote tourism like MPBFT in the state with the unique and authentic food culture of seasonal medicinal plants (Mabel, 2020).

Most of the medicinal plants are growing in wetland and mountain areas of the state. Wetlands are drying up in most places globally due to many human impacts. The wetlands conservation is a vital discussion issue worldwide (Taft and Haig, 2005). The existence of medicinal plants is threatened by climate change worldwide. The wild plants supplement a large amount of local food in Manipur. Local communities whose livelihood depends on the resources of wetlands are necessary to educate and be aware of the linkage between their sustainable socio-economic development and conservation of the natural environment. Adopting proper agro practices to conserve medicinal plants would help to increase the per capita of that area.

Table I: List of medicinal plants used in Manipuri traditional cuisines

Scientific name	Local and English name	Ethnomedicinal use	Scientifically proven bioactivity
Parkia javanica Merr.	Yongchak / Tree bean	Diabetes (Khan and Yadava, 2010), dysentery (Laishram and Dey, 2021)constipation, piles (Thokchom *et al.*, 2015; Yumnam and Tripathi, 2012)	Anticancer, cytotoxic, anti-oxidative, anti-hypertensive, anti-inflammatory, anti-microbial activities (Chanu *et al.*, 2012; Chhikara *et al.*, 2018; Khangembam *et al.*, 2018; Patra *et al.*, 2016)
Oenunthe javanica (Blume) DC.	Komprek / Water celery	Appetizer, digestion, dyspepsia, diuresis, otorrhoea (Das and Thongbram, 2014; Jain *et al.*, 2007; Yumnam and Tripathi, 2012)	Anti-inflammatory, immune enhancement, antioxidant, antiviral, neuroprotective, anti-cancer, cardiovascular protection, analgesic, insecticidal activities (Lu and Li, 2019; Ma *et al.*, 2010)
Ipomea aquatica Forsk.	Kolamani / Swamp cabbage	Diabetes (Khan and Yadava, 2010), white discharge (Laishram and Dey, 2021) appetizer (Yumnam and Tripathi, 2012), otorrhoea, retinitis (Jain *et al.*, 2007)	Antioxidative effect (Umar *et al.*, 2015) antimicrobial, anti-inflammatory activities (Elegami *et al.*, 2001)
Allium odorum Linn.	Maroi nakupi Chinese chives	Urinary problems, improve hair growth, reduce tension (Singh and Sundriyal, 2003; Usharani *et al.*, 2015; Yumnam *et al.*, 2012) stone case (Laishram and Dey, 2021; Thokchom *et al.*, 2015)stomach complaints, old wounds, fever (Das and Thongbram, 2014)	Antioxidative activity (Talukdar *et al.*, 2021)
Allium hookeri (Thw.)	Maroi nakpakpi	High blood pressure (Das and Thongbram, 2014; Lokendrajit *et al.*, 2012), stomach ulcers, reduce body temperature (Laishram and Dey, 2021; Usharani *et al.*, 2015; Yumnam *et al.*, 2012) fever, cough (Singh and Devi, 2016), hair scalp & infection originating in a hair follicle (Sharma *et al*., 2015)	Neuroprotective agent (Sh *et al.*, 2020), anti-obesity effect (Yang *et al.*, 2017)
Ceutella asiatica (L.)	Peruk	High blood pressure, typhoid, nasal bleeding (Deb *et al.*, 2015), improve brain power, diuretic, cough, gastric, stomach problem, dysentery (Jain *et al.*, 2007; Yumnam and Tripathi, 2012; Yumnam *et al.*, 2012), leprosy, diarrhoea (Das and Thongbram, 2014), diabetes (Khan and Yadava, 2010), cuts and wounds (Laishram and Dey, 2021; Thokchom *et al.*, 2015)irritation, inflammation of throat (Ningombam *et al.*, 2014)	Wound healing potential (Rosen *et al.*, 1967), antinociceptive, anti-inflammatory properties (MN *et al.*, 2004), antimicrobial, antifungal activity, antioxidant activity (Jagtap *et al.*, 2009; Rahman *et al.*, 2013)
Houttuynia cordata Thunb.	Tokningkhok	Dysentery, muscular sprain, cholera, diuretic (Das and Thongbram, 2014; Devi *et al.*, 2015; Laishram and Dey, 2021; Usharani *et al.*, 2015; Yumnam and Tripathi, 2012)" detoxification, boils, allergy, antipyretic, anti-inflammatory, tumours, asthma, analgesic, diuretic, haemorrhoids (Sharma *et al.*, 2015)	Antimicrobial activity (Chen *et al.*, 2015), anticancer activity (Liu *et al.*, 2021)

Scientific name	Local and English name	Ethnomedicinal use	Scientifically proven bioactivity
Eryngium foetidum L.	Awa-phadigom/ False coriander	Arthritis (Leishangthem and Sharma, 2014; Sharma *et al.*, 2015), paralysis, epileptic attack, constipation (Das and Thongbram, 2014; Singh and Sundriyal, 2003; Usharani *et al.*, 2015; Yumnam and Tripathi, 2012), arthritis, body ache, bone fracture, cough, cut and injuries, diarrhoea, dysentery, dyspepsia, epilepsy, fever, hypertension, muscular sprain, paralysis, skin diseases, ulcer, vertigo, vomiting (Devi *et al.*, 2021, 2015)	Antibacterial activity (Borah *et al.*, 2020), antifungal activity (Lingaraju *et al.*, 2016), anticancer activity (Promtes *et al.*, 2016)
Elsholtzia blanda Benth.	Lomba	High blood pressure, menstrual disorder (Laishram and Dey, 2021; Yumnam and Tripathi, 2012), tonsillitis, fever, diarrhoea (Thokchom *et al.*, 2015; Usharani *et al.*, 2015), cough, sore throat (Sharma *et al.*, 2015), infertility (Singh and Sundriyal, 2003)	Anti-viral, anti-inflammatory, antibacterial, antioxidant activities (Guo *et al.*, 2012; Ishwori *et al.*, 2014)
Hedychium spicatum, Koen.	Loklei / Canna	Cough, fever (Jain *et al.*, 2007)	Antioxidative, antimicrobial activities (Ray *et al.*, 2018)
Alpinia nigra (Gaertn) Burtt.	Pullei / Shell ginger	Viral fever, cough, reduce body temperature, gout (Ningombam *et al*., 2014; Singh and Devi, 2016)	Antioxidant, antimicrobial activities (Sahoo *et al.*, 2018)
Cycas pectinata Grift.	Yendang	Dysentery (Yumnam and Tripathi, 2012), diabetes (Laishram *et al.*, 2015)	Antimicrobial, anti-oxidant, anti-diabetic, cytotoxic, analgesic, anti-arthritic, anti-inflammatory, (Afifi *et al.*, 2021)
Citrus latipes (Swingle) Tanaka	Heiribop	Cold, cough, stone case, Anti-dandruff, good complexion, dyspepsia, appetizer, enhances vocalism (Devi *et al.*, 2015; Laishram and Dey, 2021; Ningombam *et al.*, 2014; Thokchom *et al.*, 2015; Usharani *et al.*, 2015)	Antioxidative (Hijaz *et al.*, 2020)
Benincasa hispida	Torobot / Ash gourd	Stomach ulcer, jaundice, dizziness (Laishram and Dey, 2021; Ningombam *et al.*, 2014; Sharma *et al.*, 2015; Yumnam *et al.*, 2012)	Antidepressant (Dhingra and Joshi, 2012), hypoglycaemic (T. Jayasree *et al.*, 2011), hypolipidemic (Amirthaveni and Priya, 2011), antidiarrheal (Swamy *et al.*, 2005), anticonvulsant (Nimbal *et al.*, 2011)
Phlogacanthus thyrsiformis (Roxb. ex Hardw.) Mabb	Nongmangkha / Malaba nut	Cough, fever, bronchial congestion, muscular sprain, boils, swelling, blood pressure, irregular women menstrual, abortion, diarrhoea, dysentery, cholera, high malaria, asthma, allergic (Laishram and Dey, 2021; Leishangthem and Sharma, 2014; Lokendrajit *et al.*, 2012; Ningombam and Singh, 2014; Sharma *et al.*, 2015; Singh and Devi, 2016; Thokchom *et al.*, 2015; Yumnam *et al*., 2012)	Antimicrobial (Anil Singh and Nongmaithem, 2010), antibacterial (Shagufa *et al.*, 2012), antioxidant (Chanu *et al.*, 2012), cytotoxic, anti-inflammatory (Devi *et al.*, 2012), anti-hyperglycaemic, analgesic (Tassa and Gogoi, 2012)
Alocasia macorrhiza (L.) Schott.	Yendem	Anemia, rejuvenating women after giving birth (Das and Thongbram, 2014; Ningombam *et al.*, 2014; Sharma *et al.*, 2015), purifying the blood (Yumnam and Tripathi, 2012),	Antioxidant, antimicrobial, thrombolytic, cytotoxic, anthelmintic (Banik *et al.*, 2014)
Amaranthus viridis L.	Chengkruk	Liver tonic, improve health for adult (Singh and Devi, 2016), burns (Ningombam *et al*., 2014)	Anti-inflammatory, anti-hepatotoxic, antiulcer anti-allergic, anti-viral actions (Ferdous *et al.*, 2015), antibacterial, antioxidant (Akbar *et al.*, 2020)
Rhynchotechum ellipticum A.DC.	Yembum	Stomach ulcer (Khan *et al.*, 2015)	Analgesic, anti-diarrhoeal anti-microbial (Azad *et al.*, 2020)
Lysimachia ovovata Buch.-Ham. ex Wall	Kengoi	Diarrhoea, dysentery (Rajkumari *et al.*, 2013), diabetes, piles, intestine disorder (Devi *et al.*, 2017; Wangkhem *et al.*, 2011)	Anti-diabetic (Sheikh *et al.*, 2015)Anti-diabetic (Sheikh *et al.*, 2015)
Stellaria media (L.) Vill.	Yerum keirum	Bronchitis, skin inflammation, nasal bleeding, boils, wounds (Devi *et al.*, 2017)	Anti-obesity, antifungal, antibacterial, antioxidant, anti-proliferative, anti-inflammatory, analgesic, anti-diabetic, anxiolytic (Oladeji and Oyebamiji, 2020)

Scientific name	Local and English name	Ethnomedicinal use	Scientifically proven bioactivity
Viola pilosa Blume	Mansang	Cardiovascular diseases, stomach, skin diseases, constipation, urination, cold, cough (Devi *et al.*, 2015; Sharma *et al.*, 2015)	Anti-microbial, bioactive compounds including flavonoids, glycosides, proteins, alkaloids (Bakht *et al.*, 2017)
Gnaphalium indicum L.	Phunil	Intestine disorder, high blood pressure (Devi *et al.*, 2015)	Antioxidant, antibacterial, antifungal, anticomplement, antitussive, expectorant, insect antifeedant, cytotoxic, anti-inflammatory, anti-diabetic, anti-hypouricemic (Zheng *et al.*, 2013)
Foeniculum vulgare	Pakhon	Anti-inflammation colic, intestinal worm, digestive problem (Usharani *et al.*, 2015)	Antifungal, antioxidant, antibacterial, antithrombotic, hepato-protective (Rather *et al.*, 2016)
Ocimum canum, Sims	Mayangba / Lemon basil	Diabetes (Khan and Yadava, 2010), cough, colic, parasitical skin diseases fever, stomach ache (Das and Thongbram, 2014; Usharani *et al.*, 2015; Yumnam and Tripathi, 2012)	Antimicrobial, antiemetic, antidiabetic, antifertility, antiasthmatic, antistress, anticancer (Nascimento *et al.*, 2011)
Zanthoxylum acanthopodium DC.	Mukthrubi / Prickly ash	Diabetes (Khan and Yadava, 2010), chest pain (Laishram and Dey, 2021), gastric (Thokchom *et al.*, 2015), digestive, cough, chronic fever, bronchitis, asthma, tasteless, false smell, dyspepsia, toothache, insecticide (Das and Thongbram, 2014; Leishangthem and Sharma, 2014; Sharma *et al.*, 2015; Singh and Sundriyal, 2003; Usharani *et al.*, 2015; Yumnam and Tripathi, 2012; Yumnam *et al.*, 2012)	Antibacterial activity (Ishwori *et al.*, 2014), antimicrobial, antioxidant, anti-inflammatory, xanthine oxidase inhibitor, cytotoxic (Kristanty and Suriawati, 2015; Wijaya *et al.*, 2019)
Nelumbo nucifera Gaertn	Thambal / Lotus	Diabetes, liver problem, cardiac complaints, bleeding piles, diarrhoea, cholera, leprosy, tonsillitis, increase eye vision, stomach ulcer, dizziness, diuretic, strangury (Das and Thongbram, 2014; Jain *et al.*, 2007; Khan and Yadava, 2010; Yumnam and Tripathi, 2012; Yumnam *et al.*, 2012)	Antidiabetic, anti-inflammatory, diarrhoea, tissue inflammation, homeostasis, cholera, fever, hyperdipsia, cancer, skin diseases, leprosy, insomnia, cardiovascular diseases (Paudel and Panth, 2015)
Trapa natans L.	Heikak/ Water Chestnut	Improve blood circulation, dysentery, diarrhoea, diabetes, brain tonic, nutritive (Yumnam and Tripathi, 2012; Yumnam *et al.*, 2012)	Anti-inflammatory, antidiabetic, antimicrobial antifungal, hepatoprotective (Chaudhary *et al.*, 2012; Corovic *et al.*, 2021)

Even though wild plants have medicinal properties and nutrients, they are still unexplored. Fewer local people know their uses but are not known by outsiders (Konsam *et al.*, 2016). The natural habitat of the medicinal plants has been damaged due to the practice of shifting cultivation, terrace cultivation by uprooting plants, wildfire, deforestation, dams and roads construction, and land encroachment for agriculture (Singh *et al.*, 2003). Further, local healers utilize an excessive number of medicinal plants collected from the wild. This practice declines the different protected plant species from their natural habitats (Khan and Yadava, 2010). Collection of the wild plants from wild for selling is another source of income apart from agriculture. Women mostly do it to support their family financially and improve socio-economic culture. Some of the wild plants used in food are not sold in the market. However, due to high demand, the availability of some useful plants is increasing in the local market. Promoting tourism with medicinal plants in the state could be an innovative strategy for conserving medicinal plants and providing an alternative livelihood for the local people (Jain and Singh, 2012).

TRADITIONAL MANIPURI CUISINE USING MEDICINAL PLANTS

Rice is the main staple food of Manipuri people, along with green leafy vegetables and fish. Most Manipuri grow vegetables in their kitchen gardens and prepare food after plucking the fresh vegetables (Hauzel, 2014). Some buy vegetables from nearby places where the plants are grown or from local markets. Manipuri cuisine is different from mainland Indian cuisine because of fresh leafy vegetables and aromatic herbs as essential ingredients. Many of the herbs and aromatic plants used as vegetables have medicinal properties. Most dishes require seasonal medicinal or wild plants as ingredients to get the aromatic flavor of food and health benefits. The seasonality of these plants is an

opportunity to promote unique and authentic cuisines of the place (Fusté-Forné, 2019; Mabel, 2020). Authentic Manipuri cuisines are not prepared outside the state due to the unavailability of wild leafy vegetables (Hauzel, 2014; Jain and Singh, 2012; Konsam *et al.*, 2016).

Medicinal plants have a close connection with the culture, tradition and lifestyle of the local communities in the state (Khan and Yadava, 2010). From ancient times, these plants have been utilized as a food source for their daily food. Therefore, it is necessary to preserve the ethnobotanical traditional knowledge of the native medicinal plants of the state (Pieroni and Giusti, 2009). Due to the lack of awareness, people do not know much about the pharmacological properties and health benefits of these wild plants (Harmayani *et al.*, 2019; Mabel, 2020). They destroy the plants instead of protecting them from extinction. Women have more culinary knowledge of using wild plants in daily food (Pieroni *et al.*, 2017). Manipuri people prefer to consume leafy vegetables for their taste. Nevertheless, some people do not think of taste; they consume these plants for medicinal values and health benefits (Andel *et al.*, 2014; Konsam *et al.*, 2016).

Fermented foods are known for its notable health benefits as the bioactive compounds during fermentation elicit antimicrobial, antioxidant, antihypertension, antidiabetic, anticancer potential and also act as probiotics and prebiotics (Şanlier *et al.*, 2019). Manipuri people use fermented food as an integral part of their daily diet. Fermented food such as ngari/hentak (fermented fish), hawaijar (fermented soybean), and soibum (fermented bamboo shoot) constitute an indispensable part of Manipuri traditional food in most dishes. It enhances the taste, flavor, and aroma of the food with high medicinal and nutritional value (Das *et al.*, 2016). Cuisines of most Northeast India do not use spices like the rest of the other parts of India. Instead of spices, they use more natural spices such as chilies *(Capsicum frutescens),* ginger *(Zingiber officinale),* and garlic *(Allium sativum)*. The food is delicious, exotic, and healthy by adding medicinal plants, wild plants, and aromatic herbs (Hauzel, 2014). Eromba, singju, kangsoi, ooti, chagempomba, morok-metpa, champhut are the main traditional dishes of the Meitei community of Manipur.

Eromba

Eromba is one of the famous delicious cuisines of Manipur. It is prepared with boiled vegetables, mashed with chilies *(Capsicum frutescens),* steamed/roasted fermented fish (ngari), little common salt for taste, and added some water to make a soupy paste. Medicinal plants such as yongchak/tree bean *(Parkia javanica* Merr.*),* peruk *(Ceutella asiatica* (L.)*),* loklei *(Hedychium spicatum,* Koen.*),* pullei *(Alpinia nigra* (Gaertn) Burtt.*),* yendem *(Alocasia macorrhiza* (L.) Schott.*),* mansam *(Viola pilosa* Blume*),* etc. are cooked as vegetables to prepare eromba. Moreover, medicinal plants such as meitei tilhou macha/ small onion *(Allium ascalonicum),* lomba *(Elsholtzia blanda* Benth.*),* tokningkhok *(Houttuynia cordata* Thunb.*), mayangba/lemon basil (Ocimum canum,* Sims*),* etc. are added as garnishes to enhance the flavor. The ingredient used as garnish is based on those used in eromba. Its taste is spicy because of adding more chili. The dish is named after the ingredient used to prepare the dish. Mustard oil, fried dry chili, and sesame seeds powder are used for vegetarians instead of fermented fish. This dish is taken as the main curry with rice (Fig. 2).

Fig 2. A. Ingredient, Parkia javanica Merr B. Finished food, Eromba

Singju

Fresh green leaves of medicinal plants like komprek *(Oenunthe javanica* (Blume) DC.*),* yendang *(Cycas pectinata* Grift.*),* tokningkhok *(Houttuynia cordata* Thunb.*), rolled* leaves and rhizomes of thambal/lotus *(Nelumbo nucifera* Gaertn*),* fruits and inflorescence of yongchak/tree bean *(Parkia javanica* Merr.*),* whole plant of peruk *(Centella asiatica* (L.)*),* etc. are used for singju. The ingredients are finely chopped and mixed with chilies *(Capsicum frutescens)*, steamed/roasted ngari, little common salt, powder of fried peas or fried gram flour, and sesame seeds powder. More chili is added to make it spicy. Fermented fish is not added for vegetarians. Singju is taken as a side dish or snack (Fig. 3).

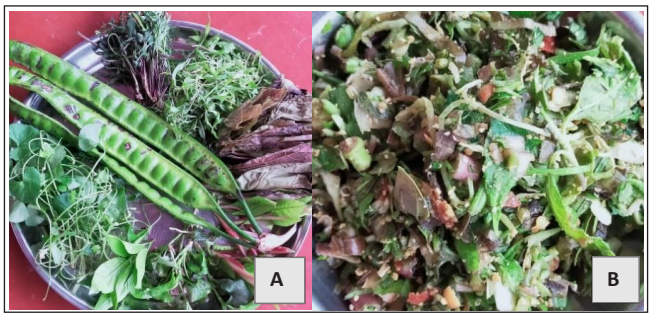

Fig. 3 A. Ingredients B. Finished food, Singju

Kangsoi / Chamthong

Kangsoi / Chamthong is prepared by boiling green leafy vegetables with dried fish or fermented fish and adding little chili *(Capsicum frutescens)*, common salt for flavor, and water. To prepare authentic kangsoi, medicinal plants such as yendem *(Alocasia macorrhiza* (L.) Schott*.),* yendang *(Cycas pectinata* Grift). kengoi *(Lysimachia ovovata* Buch. -Ham. ex Wall*),* nongmangkha/malabar nut *(Phlogacanthus thyrsiformis* (Roxb. ex Hardw.) Mabb*),* etc., are required. Some medicinal plants like maroi napakpi *(Allium hookeri* (Thw.)*)*, awa-phadigon *(Eryngium foetidum* L.*)* and ginger *(Zingiber officinale)* are added as spices. Potato and soaked peas are added to most of the dishes of kangsoi as side ingredients. Fermented soybean (hawaija) can also be added instead of dried fish and fermented fish for vegetarians. It is served as the main dish with rice (Fig. 4).

Fig. 4 A. Ingredient, Phlogacanthus thyrsiformis (Roxb. ex Hardw.) Mabb B. Finished food, Kangsoi/ Chamthong

Ooti

Ooti is a popular and authentic delicious dish of the state primarily served at all feasts. It is prepared with a small amount of rice, soaked peas, a pinch of soda, little chili *(Capsicum frutescens)*, and common salt as per taste, boiled together with green leaves until it becomes thick content. Maroi makupi *(Allium odorum* Linn.*)* are fried in mustard oil with tejpatta and some masala and added to the stale content. The green leaves of medicinal plants like pankhot mana/taro (*Colocasia antiquorum,* Linn) and other plants like tomato, pomegranate, etc. are added to make the curry in green colour. Medicinal plants such as maroi napakpi (*Allium hookeri* (Thw.)), awa-phadigon *(Eryngium foetidum* L.*),* mukthrubi/prickly ash (*Zanthoxylum acanthopodium* DC.), heiribob (*Citrus latipes* (Swingle) Tanaka), and ginger *(Zingiber officinale)* are added as a spice and for aroma. It is also named after the main ingredient used like *torbot-ooti* (*Benincasa hispida), u-shoi-ooti (Schima wallichi* DC. Korth.), *mangan-ooti* (soaked peas), ooti-ashangba (green leaves). This dish is purely vegetarian (Fig. 5).

Fig 5. A. Ingredients B. Finished food, Ooti

Chagempomba

Chagempomba is cooked with a small quantity of rice, fermented soybean, fermented fish, dried fish, green leaves boiled together till the mixture is thick. The leaves of pakhon (*Foeniculum vulgare*), kanglayen (*Schizophyllum commune,* Fr.), kengoi (*Lysimachia ovovata* Buch. -Ham. ex Wall), soibum (fermented bamboo shoot), young mustard plants, the young shoot of the pea plant, etc. are added to enhance the taste. Medicinal plants such as maroi napakpi (*Allium hookeri* (Thw.)), awa-phadigon *(Eryngium foetidum* L.*),* lomba (*Elsholtzia blanda* Benth.), heiribob (*Citrus latipes* (Swingle) Tanaka), and ginger *(Zingiber officinale)* are added as a spice and for aroma. Dried fish and fermented fish are not added for vegetarians (Fig. 6).

Fig. 6 A. Ingredient, Elsholtzia blanda Benth. B. Finished food, Chagempomba

Paknam

The chopped leaves of medicinal plants like maroi-napakpi/ hooker chives (*Allium hookeri* (Thw.)), tilhou macha (*Allium ascalonicum*), tender inflorescence of banana, kanglayen (*Schizophyllum* commune, Fr.) are smashed along with gram flour, fermented fish, chilies *(Capsicum frutescens)*, common salt to make into a paste. The paste is placed on banana leaves or turmeric leaves, covered thoroughly, and then baked. Medicinal plants such as awa-

phadigon *(Eryngium foetidum* L.*),* mukthrubi/prickly ash (*Zanthoxylum acanthopodium* DC.), heiribob (*Citrus latipes* (Swingle) Tanaka), garlic *(Allium sativum)*, ginger *(Zingiber officinale)* can also be added to enhance the taste and aroma. Paknam is taken as a side dish or snack. It is spicy because of adding more chili (Fig. 7).

Fig. 7 A. Ingredient, Zanthoxylum acanthopodium DC. B. Finished food, Paknam

Champhut

Champhut is the most simple and healthy food and is prepared only by boiling the vegetables like bottle gourd, pumpkin, carrot, squash, the tender shoot of mustard plants, etc. Champhut is the must dish to serve in all feasts, specially *torbot champhut* (*Benincasa hispida*). Sugar or salt also can be added as per taste (Fig. 8).

Fig. 8 A. Ingredient, Benincasa hispida B. Finished food, Champhut

Morok-Metpa / Ametpa

Morok metpa/ametpa is spicy chutney prepared with steamed/ roasted ngari and chilies *(Capsicum frutescens)* with salt. These ingredients are smashed to make a thick sauce. The leaves of medicinal plants like tilhou macha/small onion (*Allium ascalonicum*), mayangba/lemon basil (*Ocimum canum,* Sims), and coriander *(Coriandrum sativum)* are added as a garnish. The seeds with slimy aril of thangjing/ foxnut (*Eurgale ferox,* Salisb.) can be mixed with morok-metpa. Fresh green leaves of some medicinal plants such as tokningkhok (*Houttuynia cordata Thunb.*), mukthrubi (*Zanthoxylum acanthopodium*), rolled leaves of lotus (*Nelumbo nucifera* Gaertn), the young shoot of the pea plant, etc. are taken along with morok-metpa. For vegetarians, the leaves of maroi-nakupi (*Allium odorum* Linn.) and dried chili are fried in mustard oil and smashed with boiled potato; it is called allu kangmet. Fermented soybeans are also used in ametpa instead of fermented fish (Fig 9).

Fig. 9. Finished food, Morok metpa/ametpa

FOOD TOURISM AND MEDICINAL PLANTS

Food tourism is defined as "visitation to primary and secondary food producers, food festivals, restaurants and specific locations for which food tasting and/or experiencing the attributes of specialist food production region are the primary motivating factor for travel" (Hall and Mitchell, 2007). It is about cultural anthropology as tourists understand the culture of a place through food (Ellis *et al.*, 2018). Food tourists want to experience or enjoy the taste of the food and understand the story behind the food they are consuming. Tasting or experiencing the local food increases the bond between tourists and their destination (Cohen and Avieli, 2004). Food directly links travel motivation, destination choice, and travel satisfaction for them (Björk and Kauppinen-Räisänen, 2016; López-Guzmán and Sánchez-Cañizares, 2012).

Food tourism sustains the food culture of local people by maintaining and conserving their food heritage for future generations (Everett and Aitchison, 2008; Kim and Iwashita, 2016). Food is one of the easiest ways to experience and understand the destination's culture, tradition, and intangible heritage (Hjalager, 2004). Local food is one of the key factors

for sustainable regional development. The food prepared from locally grown ingredients in the traditional cooking style in the original place adds value to the experience of tourists by eating authentic food (Pieniak *et al.*, 2009; Sims, 2009). The distance between food production and consumption places impacts the environment by releasing greenhouse gas from transport and cool storage (Stanley and Stanley, 2015). Tourists who consume local food products are more concerned about the environment, the socio-cultural, economy of the local people. This directly helps the local community to sustain their livelihood (Pearson *et al.*, 2011). Tourists perceive local food as traditional, authentic, healthy, fresh, tasty, organic, safe, pure and simple.(Hadjichambis *et al.*, 2008; Kauppinen-Räisänen *et al.*, 2013; Sims, 2009). Therefore, they buy local food products to take home as a souvenir of the destination. It helps local communities to increase their income and sustain their livelihood through tourism (Bertella, 2011; Björk and Kauppinen-Räisänen, 2016; Kim, 2015; Sidali *et al.*, 2015).

In the tourism sector, medicinal plants are mostly considered part of herbal tourism, health and wellness tourism (Mabel, 2020). A few studies (Deka *et al.*, 2015; Mabel, 2020; Ratknić and Milovanović, 2016; Torabi Farsani *et al.*, 2018; Wibawa *et al.*, 2016) have been done in the area of medicinal plants with tourism development. It is in its infant stage of research and as a tourism product. The study (Torabi Farsani *et al.*, 2018)Iran. The results show that strategies (such as outdoor activities and tourist workshops in herbal medicine parks/ farms or in the plants' natural habitats; training tour guides who are familiar with botany and medicinal plants; and the integration of traditional medicine and tourism to emphasize the therapeutic properties of medical plants identifies herbal medicine-based niche tourism in Isfahan, Iran, as a new opportunity to develop tourism. The study (Mabel, 2020) found the opportunities and potentials of developing food tourism with medicinal plants used in everyday food in Oita Prefecture, Japan. In another study (Wibawa *et al.*, 2016), a Herbal Tourism Village has been established as an experiential tourist product in Surabaya of Indonesia with the involvement of the local community. The prospects of establishing an herbal garden in North East India to promote medical tourism, creating employment opportunities for local people, and conserving their traditional knowledge of using herbs in food is discussed elaborately by Deka and co-workers (Deka *et al.*, 2015). Herbal garden is a tourist attraction developed as a sustainable tourism development practice in Thailand with local community participation (Butthongdee, 2015). Likewise, the medicinal plants are promoted as a tourist attraction in Nature Park "Stara Planina" of Serbia and is a part of sustainable tourism development (Ratknić and Milovanović, 2016).

The cuisines that use medicinal plants as ingredients have the potential to promote food tourism (Mabel, 2020) by offering healthy food with medicinal properties to the tourists who are more conscious about their health and looking for a unique food experience. It is mentioned that the sources of food and medicine are difficult to distinguish between them (Pieroni and Price, 2006). The food using these plants can be promoted as food tourism and health and wellness tourism (Mabel, 2020). Medicinal plant-based food tourism (MPBFT) is a niche tourism product for promoting food tourism destinations along with the concept of conserving medicinal plants that local people include in their daily food. This form of tourism is unexplored within the tourism sector globally, although it has the potential to develop sustainable tourism products. It is also an integral part of herbal, health and wellness tourism; ecotourism; educational tourism; cultural tourism and agritourism.

STRATEGIES FOR DEVELOPING MEDICINAL PLANT-BASED FOOD TOURISM

Tourism can be used as a tool for the conservation of food heritage, medicinal plants, and ecology. At the same time, it helps in the socio-culture and economy of the local people by participating in the tourism industry (Pieroni *et al.*, 2017). The protection and conservation of wild plants are necessary for biodiversity and the source of human food (Alarcón *et al.*, 2015; Esiyok *et al.*, 2004). Promoting tourism in the natural habitat of medicinal plants can increase the economic benefits of the local people and their agricultural income (Alarcón *et al.*, 2015; Shrestha and Dhillion, 2006; Teklehaymanot and Giday, 2010). In the study (Hosseinpour *et al.*, 2022), authors have mentioned establishing aromatic and medicinal plants zone in the urban agricultural park by offering healthy food with medicinal plants for recreation and recreational purposes. MPBFT can be developed by providing the following activities for tourists seeking a unique and authentic tourism experience. The strategies for developing and promoting Medicinal Plant-based Food Tourism in Manipur are as follows.

- Cultivating medicinal plants in herbal villages, botanical gardens, and their natural habitats are necessary for conserving these valuable plants to disappearance in the future. It encourages the development of tourism in the place, protects the natural environment, improves the economy, and sustain the livelihood of the local people.
- Training local communities and awareness about tourism development and medicinal plants are required.
- Local community participation is necessary MPBFT starting from the ground root level. It sustains its economic and socio-culture by participating in tourism.

- Accommodation in the farmhouse, homestay, and herbal village need to be promoted for the tourists.
- Tourists participate in outdoor activities like an herbal walk in the forest, collecting medicinal plants from the wild, participating in the cultivation of these plants in the farms.
- Traditional food festivals with medicinal plants and showcases of different species of medicinal plants need to be organized. They can showcase their medicinal plants and their products to tourists and get the opportunities to sign agreements with traders and market their products.
- Establishing a medicinal plants museum, research centers, and herbarium for tourists, primarily students and researchers. They visit the place to study the medicinal plants and their therapeutic properties. They can participate in planting and harvesting these plants as a part of their travel experience and learn from them.
- Menus of Manipuri traditional food prepared with medicinal plants can be included in restaurants, hotels, and local food outlets. Dining at traditional mud huts along with local people and Interaction with them gives the feeling of belongingness to the place and a sense of respect towards the local culture of the host community.
- Organizing workshops about medicinal plants and cooking classes for tourists will provide a learning platform for medicinal plants and their uses in food. Tourists can also participate in planting, picking up medicinal plants, and making their food using them.
- Students and researchers studying medicinal plants and botany will learn more about medicinal plants by visiting their natural habitats, herbal villages, and herbarium.
- In or near MPBFT sites, villages need to establish souvenir shops by focusing on local food products prepared from medicinal plants like herbal tea, pickles, fruit candies, etc. and samples of medicinal plants which can be taken away as souvenirs.

MEDICINAL PLANT-BASED FOOD TOURISM IN POST COVID-19 PERIOD

The COVID-19 pandemic impacts the tourism industry by resulting in economic crisis and unemployment to many tourism professionals. Countries take measures such as lockdown, travel restriction, close borders, closure of tourist sites, hotels, cancel or postpone events, etc. to control the spread of the coronavirus across the globe. It directly contributes to the falling number of tourist arrival in 2020 and 2021. According to the World Tourism Organization, tourist arrivals were dropped by 87% in January 2021 compared to 2020. Asia and the Pacific region had the most significant drawback by falling 96% international tourist arrivals due to the most extensive travel restriction in the area (World Tourism Organization, 2021).

During the COVID-19 pandemic, people started looking at medicinal plants for home remedies that can boost the immune system (Nair and Mohanty, 2021) and have the properties to prevent the virus. It is a positive outcome of the COVID-19 pandemic by recognizing their medicinal value and the knowledge of utilizing them in traditional medicine and their food culture (Nair and Mohanty, 2021). MPBFT could be one of the tourism products that can be developed and promoted in Manipur and other places that have the potential. It could meet the sustainable tourism development in the post-pandemic recovery stage by offering healthy food with an authentic experience and utilizing local resources. After the pandemic, the tourism paradigm has shifted towards connection with locals, and it is an opportunity to contribute to social well-being. After the pandemic, local communities are the central point to revive the tourism industry (Sharma *et al.*, 2021).

Food tourism can be promoted with medicinal plants in rural areas and unexplored destinations which utilize the medicinal plants in their everyday food habit. The study (Sharma *et al.*, 2021) mentions that rural destinations have the potential to revive soon than urban destinations in the post-pandemic. Post-COVID tourists search for less popular destinations to get a unique trip experience. It provides opportunities to develop tourism in unexplored and less populated places like Manipur by offering measures to develop tourism with local resources in the post-pandemic (Cracolici and Nijkamp, 2008; Sharma *et al.*, 2021). Tourist destinations are needed to create new products and services with innovative strategies to recover the tourism industry from the COVID-19. Providing unique tourism products like healthy food with medicinal values can be one of the strategies to revive the sector during this period to stay healthy (Richards, 2003).

New local tourism products that have the potential to be developed must be identified for the resilience of the industry in the post-COVID-19 period (Benjamin *et al.*, 2020; World Tourism Organization, 2020). The MSMEs have a better path in the post-pandemic period by participating in tourism development by utilizing local products and sustaining their livelihood (Sharma *et al.*, 2021). MPBFT could be one of the tourism products that can be developed and promoted in Manipur and other places that have the potential. It could meet the sustainable tourism development in the post-pandemic recovery stage by offering healthy food with an authentic experience and utilizing local resources.

CONCLUSION

In this article, the authors have mentioned the uses of medicinal plants in traditional food, especially Manipuri cuisine, and their medicinal uses. In Manipur, 1,200 medicinal plant species are available, and 430 plant species are utilized to prepare traditional medicinal food. Herein, medicinal plants used in Manipur traditional cuisines are mentioned with their ethnomedicinal uses as well as scientifically proven bioactivities. Even though the state has the potential to develop food tourism with the unique food culture of utilizing medicinal plants in everyday food, Manipur is not yet developed such type of tourism as medicinal plants-based food tourism (MPBFT). Promoting such a form of tourism in the state attracts tourists seeking unique food experiences and healthy food and could be one of the strategies for protecting and conserving medicinal plants from exploitation. It will protect the traditional knowledge of medicinal plants associated with traditions and sustain the livelihood of local communities. It can positively impact local communities' socio-culture, environment, and economy by engaging them in tourist activities and earning income from tourism.

Cultivating medicinal plants, training local communities, organizing educational tours and food festivals, conducting cooking classes, and establishing restaurants focused on Manipuri traditional food with medicinal plants are the strategies to promote Manipur as an MPBFT destination. This form of tourism could be considered a tool to revive the tourism industry in the post-COVID-19 pandemic towards more sustainable tourism practices in rural areas and unexplored destinations utilizing medicinal plants in their everyday food habits.

Several studies have been done on food tourism, medicinal tourism, herbal tourism, health and wellness tourism, and medicinal plants in food separately. However, only a limited study relates food, tourism, and medicinal plants together. This manuscript is one of the leading research on medicinal plants with tourism development. It will increase awareness of Manipuri traditional food prepared with medicinal plants as a tourism product and has a vast scope for research in this area in the future related to every region.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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REFERENCES

Abu-Rabia, A. (2005). Herbs as a food and medicine source in Palestine. *Asian Pacific Journal of Cancer Prevention*, *6*(3), p. 404.

Afifi, N., Moawad, A., Hassan, M., Amir, D.A., Elwekeel, A., & Amin, E. (2021). Phytochemical content and biological activity of the genus Cycas, Family Cycadaceae: A review. *Pharmaceutical Sciences Asia*, *48*(4), 300-319.

Akbar, M., Sherazi, I.N., Iqbal, M.S., Khalil, T., & Waqas, H. M. (2020). Antibacterial and antioxidant activities of slender amaranth weed. *Planta Daninha*, Sociedade Brasileira da Ciência das Plantas Daninhas, Retrieved March 31, 2022, from http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-83582020000100206&lng=en&nrm=iso&tlng=en

Alarcón, R., Pardo-de-Santayana, M., Priestley, C., Morales, R., & Heinrich, M. (2015). Medicinal and local food plants in the south of Alava (Basque Country, Spain). *Journal of Ethnopharmacology, 176,* 207-224.

Amirthaveni, D. M., & Priya, V. (2011). Hypoglycemic and Hypolipidemic effect of ash gourd (Benincasa hispida) and curry leaves (Murraya koenigii). *International Journal of Current Research*, 3(8), 37-42.

Andel, T., van der Maesen, L., Asfaw, Z., Sosef, M., & Kidane, B. (2014). Wild and semi-wild leafy vegetables used by the Maale and Ari ethnic communities in southern Ethiopia. *Genetic Resources and Crop Evolution*, *62*(5).

Anil Singh, S., & Nongmaithem, R. (2010). Antimicrobial activity of Cassia didymobotrya and Phlogacanthus thyrsiflorus. *J. Chem. Pharm. Res*, 2(4) 304-308.

Azad, A. K., Islam, F., Begh, Z. A., Amin, A., Alam, S. M., Sugandha, N. J., Shekh, N., *et al.* (2020). Analgesic, Antidiarrhoeal and Antimicrobial Activities of Rhynchotechum ellipticum (Gesneriaceae) Stem and Leaf Extracts. *J. Pharm. Sci.*, *12*(1), 147-150.

Bakht, J., Panni, M. K., & Shafi, M. (2017). Antimicrobial Potential and Phyto chemical analysis of different solvent extracted samples of Viola Pilosa. *Pak. J. Bot.*, *49*(4), 1485-1489.

Banik, S., Ibrahim, M., Amin, M., Moghal, M., Majumder, M., Anonna, S., Alam, M. K., Anonna, S. N., & Rashed, M. S. U. (2014). Determination of biological properties of Alocasia Macrorrhizos: A Medicinal plant. *World Journal of Pharmaceutical Research*, *3,* 93-210.

Baruah, S. R. (2016). Promotion of culinary tourism as a destination attraction of North-East India. *International Journal of Interdisciplinary Research in Science Society and Culture, 2*(1), 201-209.

Benjamin, S., Dillette, A., & Alderman, D. H. (2020). We can't return to normal: Committing to tourism equity in the post-pandemic age. *Tourism Geographies*, *22*(3), 476-483.

Benz, B. F., J. Cevallos, E., Santana-Michel, F., Adame, J. J., & Graf-Montero, S. (2000). Losing knowledge about plant use in the Sierra De Manantlan biosphere reserve, Mexico. *Economic Botany, 54,* 183-191.

Bertella, G. (2011). Knowledge in food tourism: The case of Lofoten and Maremma Toscana. *Current Issues in Tourism*, *14*(4), 355-371.

Björk, P., & Kauppinen-Räisänen, H. (2016). Local food: A source for destination attraction. *International Journal of Contemporary Hospitality Management*, 28(1), 177-194.

Borah, J., Khumanthem, L., Singh, S., Mondal, Sthiti, P., & Dutta, S. P. (2020). Phytochemical analysis and synergistic interaction of plants extractson bacterial and fungal isolates (pp. 618-623).

Bultosa, G., Molapisi, M., Tselaesele, N., Kobue-Lekalake, R., Desse Haki, G., Makhabu, S., Sekwati-Monang, B., *et al.* (2020), "Plant-based traditional foods and beverages of Ramotswa Village, Botswana. *Journal of Ethnic Foods, 7*(1), p. 1.

Butthongdee, U. (2015). Sustainable tourism development planning in Klong-Blab village, Surat Thani Province Thailand. *International Journal of Social Sciences*, *4*(3), 20–29.

Chanu, K. V., Ali, M. A., & Kataria, M. (2012). Antioxidant activities of two medicinal vegetables: Parkia javanica and phlogacanthus thyrsiflorus. *International Journal of Pharmacy and Pharmaceutical Sciences*, *4,* 102-106.

Chaudhary, J., Jain, A., & Bhatiwal, S. (2012). Trapa Natans (Water Chestnut): An overview. *International Research Journal of Pharmacy*, *3*(6).

Chen, H., Yang, C., Ke, T., Zhou, M., Li, Z., Zhang, M., Gong, G., *et al.* (2015). Antimicrobial activity of secondary metabolites from Streptomyces sp. K15, an endophyte in Houttuynia cordata Thunb. *Natural Product Research*, *29*(23), 2223-2225.

Chhikara, N., Devi, H.R., Jaglan, S., Sharma, P., Gupta, P., & Panghal, A. (2018). Bioactive compounds, food applications and health benefits of Parkia speciosa (stinky beans): A review. *Agriculture & Food Security*, *7*(1), p. 46.

Cohen, E., & Avieli, N. (2004). Food in tourism: Attraction and Impediment. *Annals of Tourism Research*, *31*(4), 755-778.

Corovic, R., Bradic, J., Tomovic, M., Dabanovic, V., Jakovljevic, V., Zarkovic, G., & Rogac, Z. (2021). Chemical composition and biological activity of Trapa Natans L. *Serbian Journal of Experimental and Clinical Research*, p. 000010247820210032.

Cracolici, M. F., & Nijkamp, P. (2008). The attractiveness and competitiveness of tourist destinations: A study of Southern Italian regions. *Tourism Management*, *30*(3), 336-344.

Das, A. Kr., & Thongbram, Y. (2014). Study on medicinal plants used by meitei community of bishnupur district, Manipur. *International Journal of Current Research*, *6*(2), 5211-5219.

Das, G., Patra, J. K., Singdevsachan, S. K., Gouda, S., & Shin, H.-S. (2016). Diversity of traditional and fermented foods of the Seven Sister states of India and their nutritional and nutraceutical potential: A review. *Frontiers in Life Science*, *9*(4), 292-312.

Deb, L., Laishram, S., Khumukcham, N., Ningthoukhongjam, D., Nameirakpam, S. S., Dey, A., Moirangthem, D. S., *et al.* (2015). Past, present and perspectives of Manipur traditional medicine: A major health care system available for rural population in the North-East India. *Journal of Ethnopharmacology*, *169,* 387-400.

Deka, B. P., Borgohain, R., & Bharali, D. (2015). Prospects of herbal gardens as new vistas of medical tourism in North East India. *Annals of Pharmacy and Pharmaceutical Sciences*, *6*(1 & 2), 46-49.

Devi, J., Kotoky, J., & Sarma, T.C. (2012). Application of Leaf Extracts of Phlogacanthus Thyrsiflorus Nees. Against some Fungi Pathogenic to Onion (Allium Cepa l .). *The Ecoscan*, 393-396.

Devi, K. Y., Devi, M. H., & Singh, P. K. (2017). Survey of medicinal plants in Bishnupur District, Manipur, North Eastern India. *International Journal of Applied Research*, *Research Journals, 3*(4), 462-471.

Devi, P. B., Deb, P., & Singh, H. B. (2021). Ethno-medicinal uses of Eryngo (Eryngium foetidum L.) by Meitei community of Manipur, Northeast India. *Indian Journal of Traditional Knowledge (IJTK)*, *20*(3), 767-774.

Devi, T. I., Devi, K. U., & Singh, E. J. (2015). Wild medicinal plants in the hill of Manipur, India: A traditional therapeutic potential. *International Journal of Scientific and Research Publications, 5*(6).

Dhingra, D., & Joshi, P. (2012). Antidepressant-like activity of Benincasa hispida fruits in mice: Possible involvement of monoaminergic and GABAergic systems. *Journal of Pharmacology & Pharmacotherapeutics*, *3*(1), 60-62.

Du Rand, G.E., Heath, E., & Alberts, N. (2003). The role of local and regional food in destination marketing: A South African situation analysis. *Journal of Travel & Tourism Marketing*, *14*(3-4), 97-112.

Elegami, A. A., Almagboul, A. Z., Omer, M. E., & El Tohami, M. S. (2001). Sudanese plants used in folkloric medicine: Screening for antibacterial activity, Part X. *Fitoterapia*, *72*(7), 810-817.

Ellis, A., Park, E., Kim, S., & Yeoman, I. (2018). What is food tourism? *Tourism Management*, *68,* 250-263.

Esiyok, D., Otles, S., & Akcicek, E. (2004). Herbs as a food source in Turkey. *Asian Pacific Journal of Cancer Prevention*, *5*(3), 334-339.

Everett, S., & Aitchison, C. (2008). The role of food tourism in sustaining regional identity: A case study of Cornwall, South West England. *Journal of Sustainable Tourism*, *16*(2), 150-167.

Ferdous, M., Shahjahan, D., Tanvir, S., & Mukti, M. (2015). Present biological status of potential medicinal plant of Amaranthus viridis: A comprehensive review. *American Journal of Clinical and Experimental Medicine. Special Issue: Herbal Remedies as Alternative to Future Drugs Development and Treatment, 3,* 12-17.

Fusté-Forné, F. (2019). Seasonality in food tourism: Wild foods in peripheral areas. *Tourism Geographies*, 1-21.

Guo, Z., Liu, Z., Wang, X., Liu, W., Jiang, R., Cheng, R., & She, G. (2012). Elsholtzia: phytochemistry and biological activities. *Chemistry Central Journal*, *6*(1), 1-8.

Hadjichambis, A. C. H., Paraskeva-Hadjichambi, D., Della, A., Elena Giusti, M., De Pasquale, C., Lenzarini, C., Censorii, E., *et al.* (2008). Wild and semi-domesticated food plant consumption in seven circum-Mediterranean areas. *International Journal of Food Sciences and Nutrition*, *59*(5), 383-414.

Hall, C. M., & Mitchell, R. (2007). Gastronomic tourism: Comparing food and wine tourism experiences. *Niche Tourism*, 87-102.

Harmayani, E., Anal, A. K., Wichienchot, S., Bhat, R., Gardjito, M., Santoso, U., Siripongvutikorn, S., *et al.* (2019). Healthy food traditions of Asia: exploratory case studies from Indonesia, Thailand, Malaysia, and Nepal. *Journal of Ethnic Foods, 6*(1), p. 1.

Hauzel, H. (2014). *The essential North East cookbook*. Penguin Books India. Retrieved June 16, 2019.

Hijaz, F., Al-Rimawi, F., Manthey, J. A., & Killiny, N. (2020). Phenolics, flavonoids and antioxidant capacities in Citrus species with different degree of tolerance to Huanglongbing. *Plant Signaling & Behavior*, *15*(5), p. 1752447.

Hjalager, A. M. (2004). What do tourists eat and why? Towards a sociology of gastronomy and tourism. *Tourism (Zagreb)*, *52*(2), 195-201.

Hosseinpour, N., Kazemi, F., & Mahdizadeh, H. (2022). A cost-benefit analysis of applying urban agriculture in sustainable park design. *Land Use Policy*, *112,* p. 105834.

Ishwori, L., Talukdar, A. D., Singh, P. K., Choudhury, D. M., & Nath, D. (2014). Antibacterial activity of some selected plants traditionally used as medicine in Manipur. *African Journal of Biotechnology*, *13*(13). doi:https://doi.org/10.4314/ajb.v13i13.

Jagtap, N. S., Khadabadi, S. S., Ghorpade, D. S., Banarase, N. B., & Naphade, S. S. (2009). Antimicrobial and antifungal activity of Centella asiatica (L.) Urban, Umbeliferae *Research Journal of Pharmacy and Technology, 2*(2), 328–330.

Jain, A., Roshnibala, S., Kanjilal, P. B., Singh, R. S., & Singh, H. B. (2007). Aquatic/semi-aquatic plants used in herbal remedies in the wetlands of Manipur, Northeastern India. *Indian Journal of Traditional Knowledge*, *6*(2), 46-351.

Jain, A., & Singh, H. B. (2012). *Community Dependence on Wetland in the Indo Burma Biodiversity Hotspot: A Case Study from Manipur, Northeast India*. LAP LAMBERT Academic Publishing, Saarbrucken, Deutschland. Retrieved June 16, 2019.

Kauppinen-Räisänen, H., Gummerus, J., & Lehtola, K. (2013). Remembered eating experiences described by the self, place, food, context and time. *British Food Journal*, *115*(5), 666-685.

Khan, M. H., & Yadava, P. S. (2010). Antidiabetic plants used in Thoubal district of Manipur, Northeast India. *Indian Journal of Traditional Knowledge*, *9*(3), 510-514.

Khan, M. R., Kikim, A., & Yadava, P. S. (2015). Conservation of Indigenous wild edible plants used by different communities of Kangchup hills, Senapati, North East India. *International Journal of Bio-Resource and Stress Management*, *6*(6), p. 680.

Khangembam, V. C., Srivastava1, S. K., Leishangthem1, G. D., Kataria, M., & Thakuria, D. (2018). Evaluation of Apoptosis inducing ability of Parkia javanica Seed Extract in Cancer Cells. *Indian Journal of Pharmaceutical Sciences*, *80*(6), 1069-1077.

Khojimatov, O. K., Abdiniyazova, G. J., & Pak, V. V. (2015). Some wild growing plants in traditional foods of Uzbekistan. *Journal of Ethnic Foods*, *2*(1), 25-28.

Kim, S. (2015). Understanding the historical and geographical contexts of food festival tourism development: The case of the Tatebayashi noodle grand prix in Japan. *Tourism Planning & Development*, *12*(4), 433-446.

Kim, S., & Iwashita, C. (2016). Cooking identity and food tourism: The case of Japanese udon noodles. *Tourism Recreation Research*, *41*(1), 89-100.

Konsam, S., Thongam, B., & Handique, A. K. (2016). Assessment of wild leafy vegetables traditionally consumed by the ethnic communities of Manipur, northeast India. *Journal of Ethnobiology and Ethnomedicine*, *12*(1), p. 9.

Kristanty, R., & Suriawati, J. (2015). The indonesian Zanthoxylum acanthopodium DC.: Chemical and biological values. *International Journal of PharmTech Research*, *8*(6), 313-321.

Laishram, J., & Dey, M. (2021). Evaluation of plants used in traditional medicine in Bishnupur District of Manipur, Northeast India. *J. Himalayan Ecol. Sustain. Dev.*, *16,* p. 54.

Laishram, S., Sheikh, Y., Moirangthem, D. S., Deb, L., Pal, B. C., Talukdar, N. C., & Borah, J. C. (2015). Anti-diabetic molecules from Cycas pectinata Griff. traditionally used by the Maiba-Maibi. *Phytomedicine: International Journal of Phytotherapy and Phytopharmacology*, *22*(1), 23-26.

Leishangthem, S., & Sharma, L. D. (2014). Study of some important medicinal plants found in Imphal-East District, Manipur, India. *International Journal of Scientific and Research Publications*, *4*(9), 1-5.

Lingaraju, D., Sudarshana, M., Mahendra, C., & Rao, P. (2016). Phytochemical screening and antimicrobial activity of leaf extracts of Eryngium Foetidum L. (Apiaceae). *Indoamerican Journal of Pharmaceutical Research*, *6*(2), 1-6.

Liu, J., Zhu, X., Yang, D., Li, R., & Jiang, J. (2021). Effect of heat treatment on the anticancer activity of Houttuynia Cordata Thunb Aerial stem extract in human gastric cancer SGC-7901 Cells. *Nutrition and Cancer*, *73*(1), 160-168.

Lokendrajit, N., Devi, S. I., Swapana, N., & Singh, C. B. (2012). Ethno-medicinal plants of Manipur used in the treatment of blood pressure. *NeBIO*, *3*(1), p. 4.

López-Guzmán, T., & Sánchez-Cañizares, S. (2012). Culinary tourism in Córdoba (Spain). *British Food Journal*, *114*(2), 168-179.

Lu, C., & Li, X. (2019). A review of Oenanthe javanica (Blume) DC. as traditional medicinal plant and its therapeutic potential", *Evidence-Based Complementary and Alternative Medicine*, p. e6495819.

Luczaj, L., Pieroni, A., Tardío, J., Pardo-de-Santayana, M., Sõukand, R., Svanberg, I., & Kalle, R. (2012). Wild food plant use in 21st century Europe, the disapperance of old traditions and the search for new ciusines involving wild edibles. *Acta Societatis Botanicorum Poloniae*, *81*(4).

Ma, C. J., Lee, K. Y., Jeong, E. J., Kim, S. H., Park, J., Choi, Y. H., Kim, Y. C., *et al.* (2010). Persicarin from water dropwort (Oenanthe javanica) protects primary cultured rat cortical cells from glutamate-induced neurotoxicity. *Phytotherapy Research: PTR*, *24*(6), 913-918.

Mabel, T. K. (2020), *Medicinal plant and tourism development: Opportunities and potentials for the case of oita prefecture* (PhD Thesis, Ritsumeikan Asia Pacific University).

Matenge, S. T., Merwe, D. V. der, Kruger, A., & Beer, H. D. (2011). Utilisation of indigenous plant foods in the urban and rural communities. *Indilinga: African Journal of Indigenous Knowledge Systems*, *10*(1), 17-37.

Somchit, M. N., Sulaiman, M. R., Zuraini, A., Samsuddin, L., Somchit, N., Israf, D. A., & Moin, S. (2004), "Antinociceptive and antiinflammatory effects of Centella asiatica", *Indian Journal of Pharmacology (ISSN: 0253-7613) Vol 36 Num 6*, Vol. 36.

Muthulakshmi, V., Vijayakumar, Vasanthkumar, M., & Vasanthi, H. R. (2009). Food is Medicine and medicine is food - A siddha perspective. *Functional Foods for Chronic Diseases: Obesity, Diabetes, Cardiovascular Disorders and AIDS*, *4,* 274-317.

Nair, B. B., & Mohanty, P. P. (2021). Positioning spice tourism as an emerging form of special interest tourism: perspectives and strategies. *Journal of Ethnic Foods*, *8*(1), p. 10.

Nascimento, J. C., Barbosa, L. C. A., Paula, V. F., David, J. M., Fontana, R., Silva, L. A. M. & França, R. S. (2011). Chemical composition and antimicrobial activity of essential oils of Ocimum canum Sim. and Ocimum selloi Benth. *Anais Da Academia Brasileira de Ciencias*, *83*(3), 787-799.

Nimbal, S. K., Venkatrao, N., & Ladde, S. (2011). Evaluation of Anticonvulsant activity of alcoholic extract of Benincasa Hispida (Thunb) Cogn. fruit extracts. *International Research Journal of Pharmacy*, *2*(12), 166-168.

Ningombam, D., Devi, S., Singh, P., Pinokiyo, A., & Thongam, B. (2014). Documentation and assessment on knowledge of EthnoMedicinal practitioners: A case study on local Meetei Healers of Manipur. *IOSR Journal of Pharmacy and Biological Sciences*, *9*(1), 53-70.

Ningombam, D. S., & Singh, P. K. (2014). Ethnobotanical study of Phologacanthus Thyrsiformis Nees: A conserved medicinal plant of Manipur, Northeast India. *International Journal of Herbal Medicine*, *1*(5), 10-14.

Ogle, B. M., & Grivetti, L. E. (1985). Legacy of the chameleon: Edible wild plants in the kingdom of Swaziland, Southern Africa. A cultural, ecological, nutritional study. PartII- IV-nutritional analysis and conclusions. *Ecology of Food and Nutrition*, 17(1), 41-64.

Oladeji, O. S., & Oyebamiji, A. K. (2020). Stellaria media (L.) Vill.- A plant with immense therapeutic potentials: Phytochemistry and pharmacology. *Heliyon*, *6*(6), e04150.

Patra, K., Jana, S., Sarkar, A., Karmakar, S., Jana, J., Gupta, M., Mukherjee, G.,…Bhatacharjee, S. (2016). Parkia javanica extract induces apoptosis in S-180 Cells via the Intrinsic Pathway of Apoptosis. *Nutrition and Cancer*, *68*(4), 689-707.

Paudel, K. R., & Panth, N. (2015). Phytochemical profile and biological activity of Nelumbo Nucifera. *Evidence-Based Complementary and Alternative Medicine*, *3,* p. e789124.

Pearson, D., Henryks, J., Trott, A., Jones, P., Parker, G., Dumaresq, D., & Dyball, R. (2011). Local food: Understanding consumer motivations in innovative retail formats. *British Food Journal*, *113*(7), 886-899.

Pieniak, Z., Verbeke, W., Vanhonacker, F., Guerrero, L., & Hersleth, M. (2009). Association between traditional food consumption and motives for food choice in six European countries. *Appetite*, *53*(1), 101-108.

Pieroni, A., & Giusti, M. E. (2009). Alpine ethnobotany in Italy: Traditional knowledge of gastronomic and medicinal plants among the Occitans of the upper Varaita valley, Piedmont. *Journal of Ethnobiology and Ethnomedicine*, *5*(1), 1-13.

Pieroni, A., Nedelcheva, A., & Dogan, Y. (2015). Local knowledge of medicinal plants and wild food plants among Tatars and Romanians in Dobruja (South-East Romania). *Genetic Resources and Crop Evolution*, *62*(4), 605-620.

Pieroni, A., & Price, L. L. (2006). *Eating and healing traditional food as medicine (*pp. 1-10). 10 Alice Street, Binghamton, NY: Food Product Press, Inc.

Pieroni, A., & Quave, C. L. (2014). *Ethnobotany and Biocultural diversities in the Balkans: Perspectives on sustainable rural development and reconciliation*. Springer.

Pieroni, A., Soukand, R., Quave, C. L., Hajdari, A., & Mustafa, B. (2017). Traditional food uses of wild plants among the Gorani of South Kosovo. *Appetite*, *108,* 83-92.

Promtes, K., Kupradinun, P., Rungsipipat, A., Tuntipopipat, S., & Butryee, C. (2016). Chemopreventive Effects of Eryngium foetidum L. Leaves on COX-2 Reduction in Mice Induced Colorectal Carcinogenesis. *Nutrition and Cancer*, *68*(1), 144-153.

Rahman, M., Hossain, S., Rahaman, K., Fatima, N., Nahar, T., Uddin, B., & Basunia, M. A. (2013). Antioxidant activity of Centella asiatica (Linn.) urban: Impact of extraction solvent polarity. *J. Pharm. Phytochem.*, *1*(6), 27-32.

Rajkumari, R., Singh, P. K., Das, A. K., & Dutta, B. K. (2013). Ethnobotanical investigation of wild edible and medicinal plants used by the Chiru Tribe of Manipur, India. *East Himalayan Society for Spermatophyte Taxonomy*, *7*(1), 167-174.

Rather, M. A., Dar, B. A., Sofi, S. N., Bhat, B. A., & Qurishi, M. A. (2016). Foeniculum vulgare: A comprehensive review of its traditional use, phytochemistry, pharmacology, and safety. *Arabian Journal of Chemistry*, *9,* S1574–S1583.

Ratknić, T., & Milovanović, J. (2016). Medicinal herbs as part of the development of sustainable tourism in nature park 'Stara planina'. *Economics of Agriculture*, *63*(3), 847-860.

Ray, A., Jena, S., Dash, B., Kar, B., Halder, T., Chatterjee, T., Ghosh, B., *et al.* (2018), Chemical diversity, antioxidant and antimicrobial activities of the essential oils from Indian populations of Hedychium coronarium Koen. doi:https://doi.org/10.1016/J.INDCROP.2017.12.033

Research, Silviculture & Training Division, Government of Manipur. (2018). *Ex Situ Conservation of Medicinal Plants in Manipur - Establishment of Herbal Garden in Manipur*. Retrieved July 3, 2019.

Richards, G. (2003). Gastronomy: An essential ingredient in tourism production and consumption? *Tourism and Gastronomy*, 17-34.

Rosen, H., Blumenthal, A., & McCallum, J. (1967). Effect of Asiaticoside on wound healing in the rat. *Proceedings of the Society for Experimental Biology and Medicine. Society for Experimental Biology and Medicine (New York, N.Y.), 125*(1), 279-280.

Sahoo, S., Kar, B., Sahoo, A., & Nayak, S. (2018). Phytoconstituents analysis and bioactivity study of Alpinia nigra (Gaertn.) Burtt. *Journal of Essential Oil Bearing Plants*, *20*(6), 1461-1471.

Şanlier, N., Gökcen, B. B., & Sezgin, A. C. (2019). Health benefits of fermented foods. *Critical Reviews in Food Science and Nutrition*, *59*(3), 506-527.

Sh, R., S, Y., Gh, K., & Hj, P. (2020). Neuroprotective effect of Allium hookeri against H 2 O 2-induced PC12 cell cytotoxicity by reducing oxidative stress. *Food Science and Biotechnology*, 29(11). doi:https://doi.org/10.1007/s10068-020-00805-8.

Shagufa, A., Borah, M., & Swarnamoni, D. (2012). A comparative study of the antibacterial activity of the Ethanolic extracts of Phlogacanthus Thyrsiflorus, Hottuynia Cordata, Curcuma Caesia and Syzygium Jumbos. *International Research Journal of Pharmacy*, *3*(9), 282-85.

Sharma, G. D., Thomas, A., & Paul, J. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework. *Tourism Management Perspectives*, *37,* p. 100786.

Sharma, L. D., Devi, L. S., Singh, L. B., & Singh, T. C. (2015). Medicinal plants found in Imphal valley used in treatments of various ailments. *International Journal of Scientific*, *4*(12), 282-286.

Sheikh, Y., Maibam, B. C., Biswas, D., Laisharm, S., Deb, L., Talukdar, N. C., & Borah, J. C. (2015). Anti-diabetic potential of selected ethno-medicinal plants of north east India. *Journal of Ethnopharmacology*, *171,* 37-41.

Shrestha, P. M., & Dhillion, S. S. (2003). Medicinal plant diversity and use in the highlands of Dolakha district, Nepal. *Journal of Ethnopharmacology*, *86*(1), 81-96.

Shrestha, P. M., & Dhillion, S. S. (2006). Diversity and traditional knowledge concerning wild food species in a locally managed forest in Nepal. *Agroforestry Systems*, *66*(1), 55-63.

Sidali, K. L., Kastenholz, E., & Bianchi, R. (2015). Food tourism, niche markets and products in rural tourism: Combining the intimacy model and the experience economy as a rural development strategy. *Journal of Sustainable Tourism*, *23*(8–9), 1179-1197.

Sims, R. (2009). Food, place and authenticity: Local food and the sustainable tourism experience. *Journal of Sustainable Tourism*, *17*(3), 321-336.

Singh, G., Singh, H. B., & Mukherjee, T. K. (2003). *Ethnomedicine of North East India.* National Institute of Science Communication and Information Resources, New Delhi. Retrieved June 17, 2019.

Singh, H. B., & Sundriyal, R. C. (2003). Common spices and their use in traditional medicinal system of ethnic groups of Manipur state, North eastern India. *Indian Journal of Traditional Knowledge*, *2*(2), 148-158.

Singh, K. N., & Devi, K. B. (2016). Medicinal plants used by local people of Jiribam, Manipur for treatment of malaria and its associated symptoms: A step to assess the traditional knowledge of herbal healing. *International Journal of Herbal Medicine*, *4*(1), 12-15.

Stankov, U., Filimonau, V., & Vujičić, M. D. (2020). A mindful shift: an opportunity for mindfulness-driven tourism in a post-pandemic world. *Tourism Geographies*, *22*(3), 703-712.

Stanley, J., & Stanley, L. (2015). *Food tourism: A practical marketing guide*. UK: CABI. Retrieved June 23, 2019.

Swamy, V., Chandanam, S., Setty, S., Dhanapal, R., Veeranna, B., & Babu, A. (2005). Antidiarrheal Evaluation of Benincasa hispida (Thunb.) Cogn. Fruit Extracts. *Iranian Journal of Pharmacology and Therapeutics, 4*(1).

Jayasree, T., Chandrsekhar, N., & Dixit, R. (2011). Evaluation of Hypoglycemic effect of Chloroform extracts of stem of Benincasa hispida in Male Wistar Rats. *International Journal of Pharmaceutical and Phytopharmacological Research*, *1*(2), 67-72.

Taft, O. W., & Haig, S. M. (2005). The value of agricultural wetlands as invertebrate resources for wintering shorebirds. *Agriculture, Ecosystems & Environment*, 110(3-4), 249-256.

Talukdar, N., Devi, R., & Barman, I. (2021). A comparative study between Aqueous and Ethanolic extracts of Allium Odorum Linn with Reference to its Antioxidant and AlphaAmylase inhibition activities. *Indo Global Journal of Pharmaceutical Sciences*, *11,* 56-61.

Tassa, B. D., & Gogoi, G. (2012). A comparative study of the hypolipidaemic and antioxidant activities of ethanolic extracts of leaves of Phlogacanthus thyrsiflorus, Oxalis corniculata l. and Fragaria vesca in albino rats. *Asian Journal of Pharmaceutical and BiologicaL Research*, *2,* 12-17.

Teklehaymanot, T., & Giday, M. (2010). Ethnobotanical study of wild edible plants of Kara and Kwego semi-pastoralist people in Lower Omo River Valley, Debub Omo Zone, SNNPR, Ethiopia. *Journal of Ethnobiology and Ethnomedicine*, *6*(1), p. 23.

Thokchom, S., Ningombam, D. S., Chanchal, C., & Singh, H. B. (2015). Folk-medicare system of Chakpa community of Andro village of Manipur in Northeast India. *American Journal of Ethnomedicine*, *2*(4), 239-264.

Torabi Farsani, N., Zeinali, H., & Moaiednia, M. (2018). Food heritage and promoting herbal medicine-based niche tourism in Isfahan, Iran. *Journal of Heritage Tourism*, *13*(1), 77-87.

Umar, K. J., Muhammad, M., Sani, N., Muhammad, S., & Umar, M. (2015). Comparative study of antioxidant activities of the leaves and stem of Ipomoea aquatica forsk (water spinach). *Nigerian Journal of Basic and Applied Sciences, 23*(1), 81-84.

Usharani, L., Singh, W. R., & Surodhani, S. (2015). An ethnomedicinal plant - A less known spices used by Meitei community of Manipur. *Asian Journal of Plant Science and Research, 5*(6), 84-87

Wangkhem, I., Devi, Guruaribam, S., & Singh, C. B. (2011). Traditional herbal medicine used for the treatment of diabetes in Manipur, India. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, *2*(4).

Wibawa, B. M., Baihaqi, I., Hakim, M. S., Kunaifi, A., & Anityasari, M. (2016). *Business Model and value proposition design for the establishment of the herbal tourism village in Surabaya*. Presented at the Intrnational Conference on Innovative in Business and Strategy, Kuala Lumpur, Malaysia, pp. 1–8.

Wijaya, C. H., Napitupulu, F. I., Karnady, V., & Indariani, S. (2019). A review of the bioactivity and flavor properties of the exotic spice 'andaliman' (Zanthoxylum acanthopodium DC.). *Food Reviews International*, *35*(1), 1-19.

World Tourism Organization. (2020). UNWTO Releases a COVID-19 Technical Assistance Package for Tourism Recovery | UNWTO, 12 May. Retrieved February 20, 2022, from https://www.unwto.org/news/unwto-releases-a-covid-19-technical-assistance-package-for-tourism-recovery

World Tourism Organization. (2021). Tourist arrivals down 87% in January 2021 as UNWTO calls for stronger

coordination to restart tourism (Press Release - 31 March, 2021). Retrieved February 20, 2022, from https://www.unwto.org/news/tourist-arrivals-down-87-in-january-2021-as-unwto-calls-for-stronger-coordination-to-restart-tourism (accessed 20 February 2022).

Yang, M. H., Kim, N.-H., Heo, J.-D., Rho, J.-R., Ock, K. J., Shin, E.-C., & Jeong, E. J. (2017). Comparative evaluation of sulfur compounds contents and antiobesity properties of Allium hookeri prepared by different drying methods. *Evidence-Based Complementary and Alternative Medicine*. doi: 10.1155/2017/2436927

Yumnam, J. Y., & Tripathi, O. P. (2012). Traditional knowledge of eating raw plants by the Meitei of Manipur as medicine/nutrient supplement in their diet. *Indian Journal of Traditional Knowledge*, *11*(1), 45-50.

Yumnam, R. S., Devi, C.O., Abujam, S., & Chetia, D. (2012). Study on the ethnomedicinal system of Manipur. *Int. J. Pharm. Biol. Arch.*, *3*(3), 587-591.

Zheng, X., Wang, W., Piao, H., Xu, W., Shi, H., & Zhao, C. (2013). The Genus Gnaphalium L. (Compositae): Phytochemical and Pharmacological characteristics. *Molecules*, *18*(7), 8298-8318.