



Ethno-medicinal uses of Eryngo (*Eryngium foetidum* L.) by Meitei community of Manipur, Northeast India

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The Meitei or Meetei ethnic community of Manipur (Northeast India) use the eryngo plant (*Eryngium foetidum* L. of Apiaceae family), locally called *Awa-phadigom* to treat at least 17 diseases and ailments namely, arthritis, bodyache, bone fracture, cough, cut and injuries, diarrhoea, dysentery, dyspepsia, epilepsy, fever, hypertension, muscular sprain, paralysis, skin diseases, ulcer, vertigo and vomiting which is in comparison to the 34 diseases or ailments treated as reported from different parts of the world. Out of the treatments for 17 diseases or ailments recorded in the present study, treatments for 12 diseases or ailments are already reported in the published reports but the treatments for 5 diseases or ailments like bodyache, bone fracture, muscular sprain, ulcer and vertigo are new additions to the list. In treating the 17 diseases and ailments, 14 other plants namely, *Allium hookeri* Thw., *Allium odorum* L., *Allium sativum* L., *Anotis foetida* (Dalz.) Benth & Hooker f., *Citrus limon* (L.) Osbeck, *Crassocephalum crepidioides* (Benth.) S. Moore, *Drymaria cordata* Willd., *Emblina officinalis* Gaertn., *Hyptis suaveolens* (L.) Poit, *Ocimum sanctum* L., *Piper nigrum* L., *Sapindus mukorossi* Gaertn., *Vitex trifolia* L. and *Zanthoxylum acanthopodium* DC. were also used by combining in different ratio. The fresh eryngo plant is widely used in food and cuisines across Manipur and cultivated in kitchen gardens as a cash crop. As the eryngo plant is widely used and has high potential for economic development, proper scientific cultivation technique (agro-technology) should be developed for different agro-climatic conditions.

Keywords: Cuisine, Eryngo, *Eryngium foetidum* L., Ethno-medicine, Meitei or Meetei community, Manipur, Traditional knowledge

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A total of 228 species of the genus *Eryngium* Linnaeus of the family Apiaceae (Umbelliferae) are reported worldwide¹ while according to a recent report there were about 250 species under the genus *Eryngium*². The genus has a cosmopolitan distribution with the centre of diversity in South America¹. Eryngo (*Eryngium foetidum* L.) also popularly called Spirit weed or Mexican coriander, Saw-leaf herb, Wild coriander or Thorny coriander or Culantro is an annual or biennial rosette herb, indigenous to tropical America and Caribbean Islands, from Southern Mexico to Panama through Brazil and from Cuba to Trinidad³. The plant is mostly grown in South Asia, tropical Africa, warmer parts of Europe and Pacific islands^{4,5} and became a crop of international trade mainly to meet the demands of ethnic population in the developed countries of the West⁶. The eryngo

plant is called *Awa-phadigom* in Manipur by Meitei or Meetei community, *Bahkhawr* in Mizo, *Ban dhania* in Hindi, *Naga dhania* in Assamese, *Bhutia dhania* in Nepali and *Bilati Dhaney* in Bengali. Regionally, it is called *Andu kola* in Sri Lanka, *Shadobeni* in Trinidad, *Chadron benee* in Dominica, *Fitweed* in Guyana, *Coulante* in Haiti, *Recao* in Puerto Rico, *Langer coriander* in Germany, *Walangan* in Indonesia, *Pak chi farang* in Thai, *Ngo ngai* in Vietnamese, *Culantro* or *Racao* in Spanish, *Nokogiri coriander* in Japanese, and *Yang yuan sui* in Chinese (Mandarin)⁷⁻⁹.

In late 1800s and in the beginning of 1900s, eryngo was introduced by the Chinese into Southeast Asia (Malaysia, Indonesia, Thailand, Vietnam, Singapore, Myanmar, Sri Lanka, Bangladesh and India) as a substitute to the coriander because of its similar pungent aroma^{6,10-12}. No literature or report is available whether the eryngo plant originated or was introduced in Manipur. If not originated, it is sure that

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eryngo plant has been naturalized in Manipur since long time back and was found plentifully growing during 1960s and before in the valley area of Manipur¹³ and is listed in the Flora of Manipur¹⁴, but now the plant population has drastically reduced in the wild habitat to the extent that the plant is not seen in good maturing population¹⁵. All the ethnic communities of Manipur use the eryngo plant for various purposes like culinary as a must spice and for wide variety of medicinal applications. Due to its multipurpose usage and high demand in the local markets, people frequently cultivate it in small-scale round the year in their home gardens as a cash crop. Except a few preliminary reports^{9,15-18}, there is no proper documented literature available on traditional medicinal uses of eryngo plant in Manipur. The present communication deals with the detailed information on traditional medicinal uses of the eryngo plant for treatment of diseases and ailments used especially by the Meitei or Meetei community of Manipur state, Northeast India which is the dominant community of the state.

Materials and Methods

The botanical or scientific identity of the *Awapadigom* pambi (eryngo plant) under the present study is established and authenticated as *Eryngium foetidum* L. of the family Apiaceae through available literatures^{13,14,17}. The seeds of eryngo plant were collected from the wild habitat of Bishnupur district (Keinow village) and Imphal West district (Karam village) of Manipur in November 2015 and were sown-cultivated in the experimental farms of the CSIR-NEIST, Branch Laboratory, Lamphelpat, Imphal, Manipur and Krishi Vigyan Kendra, Bishnupur, Imphal West, Manipur for characteristic study and as germplasm collection for agronomic and other studies (Fig. 1).

The Manipur state located in the Northeastern part of India has a geographical area of 22,327 km² in which around 9% of the land is a centrally located valley known as Imphal valley, while the rest are surrounding hills. The state is divided into 13 districts and is inhabited by 29 ethnic communities¹⁹. The present study was carried out in the five valley districts of Manipur, namely Bishnupur, Thoubal, Kakching, Imphal West and Imphal East districts, where Meitei community is dominant. A total of 25 traditional healers locally called *Maiba* for male and *Maibi* for female (5 healers from each of the 5 districts studied) and 53 local resource person and cultivators (41 women and 12 men) some lady

vendors of Nambol and Bishenpur markets (8 vendors from each market) who sold eryngo plant were interviewed for gathering data on eryngo plant during the study period of 2015-2018. The identification of the traditional healers for providing the information on eryngo was done by Shri Th. Shyamjai Singh (see Fig. 2, who is sharing the information with the first author, PBD). The purpose of the data collection was explained to the traditional herbal healers, resource persons and lady vendors and Prior Informed Consent (PIC) was taken from the resource persons. The mode of preparation, doses and application of eryngo plant for treatment of the patients were documented through intense interview and interaction with resource persons and by observation of few patients who were treated by those local healers. Data collection was also done through participatory rural appraisal method by gathering resource persons and traditional healers (Fig. 2). The data of one resource person was cross checked with the data of other resource person on the spot and consented data was used as the final



Fig. 1 — Germplasm collection and experimentation of eryngo (*Eryngium foetidum* L.) in the farm



Fig. 2 — Data collection on eryngo through Participatory Rural Appraisal by the first author (PBD)

information which is reported in this paper. The botanical identity of the other plants used in mixing with eryngo plant in the traditional practice was identified through their local names, actual sample collection, observation and through available scientific literatures^{13,14,17,20}.

Results and Discussion

Eryngo plant

Eryngo plant is diffuse, perennial, glabrous, dark green coloured, highly aromatic, rosette forming herb with stem dichotomously branched, deeply striate. Leaves are simple oblanceolate, 8-15×0.8-2.5 cm, attenuate at base, margin soft spinous toothed when young but hard enough to form a spine when matured; floral leaves palmatipartite, sessile and spinous when

matured. Flowers are minute, white, in oblong cylindrical heads; bracts spinulose, with stellate hairs, calyx teeth ridged, Fruits are ellipsoid, seed minute a. 2 mm diameter, dark brown; flowering and fruiting during May-Oct. (Fig. 1).

Uses of Eryngo plant

Eryngo (*Eryngium foetidum* L.) is a very important cash crop of Manipur in terms of its usage as food and medicine. Preliminary studies on the economic uses of eryngo plant in Manipur have been carried out by various researchers¹⁵⁻¹⁷. The use of eryngo plant in traditional medicine in different parts of the world and its scientific findings have been documented and reported by various researchers (Table 1). At least 35 diseases or ailments are treated by various ethnic

Table 1 — Medicinal properties and uses of Eryngo reported from different parts of the world

Disease/ailments	Particulars	References
Analgesic	Pharmacological investigations have established the eryngo plant to be having analgesic properties	21
Anthelmintic	Pharmacological investigations have established that the eryngo plant is having anthelmintic properties	21,22
Anticlastogenic	The eryngo plant has anticlastogenic properties	23
Antimicrobial & antifungal	The plant extract is applied against many fungal and bacterial skin diseases.	9,24
Anti-inflammatory	Pharmacological investigations have established that the eryngo plant is having anti-inflammatory properties	21,25
Antiparasitic	The eryngo plant is having antiparasitic properties in humans and other mammals	22,26
Appetizer	The root of eryngo plant is used as appetizer in India	27
Arthritis	The plant extract of eryngo is applied to treat arthritis	7
Asthma	The eryngo plant is beneficial in asthma	7
Burns	The eryngo plant is traditionally been used against burns	7
Carminative	The eryngo plant is having carminative properties	28
Carcinogenic	The eryngo plant is having anti-carcinogenic properties	29,30
Cold and cough	The plant extract of eryngo is given to treat cold in Jamaica	29
Constipation	The eryngo plant is used in traditional medicine for treatment of constipation	7
Convulsion	In Jamaica, the eryngo plant is used to treat convulsion in children	29,30
Diabetes	The eryngo plant is having anti-diabetic properties	29,30
Diarrhoea	The eryngo plant is effective against diarrhoea	7,29
Dysentery	The eryngo plant is effective against dysentery	7,29
Ear-ache	The eryngo plant extract is applied as drops in ear-ache	7
Epilepsy	The plant of eryngo is used in preventing epileptic fits and is believed to calm a person's spirit	15,17,31
Fever	The eryngo plant is used in traditional medicine for treatment of fever	7,29
Hepatic problem	In Manipur, the Chothe tribe use the plant extract to treat hepatic problems	18
Hypertension	The eryngo plant is used in traditional medicine for treatment of hypertension	7,15
Infertility complications	The eryngo plant has traditionally been used to treat infertility	7
Malaria & Pneumonia	The plant extract of eryngo is given to treat malaria, pneumonia and flu	7,27,32
Paralysis	The eryngo plant is taken regularly along with other vegetables to treat paralysis	15,17
Scorpion sting	In scorpion sting, the root of eryngo can be eaten. In Bangladesh, the plant extract is applied in scorpion sting	12,27
Skin whitening	In Japan, Yagi and his team have developed a product for skin whitening where eryngo plant is one of the four plants used	9
Snake-bite	The eryngo plant is traditionally been used against snake-bite	7
Stomach pain & gastrointestinal disorder	In India and Bangladesh, the root extract of eryngo plant is used in the treatment of stomach pain and gastrointestinal disorders	7,12,24,27
Vomiting	The eryngo plant is used in traditional medicine for treatment of vomiting	29
Worms	The eryngo plant is used in traditional medicine for deworming	7
Wounds, cut & injuries	The fresh plant extract is applied to wounds and has healing properties	24

communities using the eryngo plant (Table 1). Most of the traditional healing uses and its properties or action of eryngo like analgesic²¹, anthelmintic²², anticlastogenic²³, antimicrobial and antifungal^{9,24}, anti-inflammatory^{21,25}, antiparasitic^{22,26}, arthritis⁷, carminative²⁸, carcinogenic^{29,30}, diabetes^{29,30}, epilepsy^{15,17,31} and skin whitening⁹ are authenticated or supported through scientific studies. The Meitei people of Manipur use the eryngo plant for treatment of at least

17 different diseases and ailments (Table 2). The diseases and ailments treated by using eryngo plant by Meitei community are arthritis, bodyache, bone fracture, cough, cut and injuries, diarrhoea, dysentery, dyspepsia, epilepsy, fever, hypertension, muscular sprain, paralysis, skin diseases, ulcer, vertigo and vomiting (Table 2). Out of the 17 diseases or ailments treated by using eryngo plant in the present study, 12 diseases or ailments used in different parts of the

Table 2 — Ethno-medicinal uses of Eryngo (*Eryngium foetidum* L.) by Meitei or Meetei community of Manipur

Disease or ailment type	Mode of preparation, doses and application	Duration of application
Arthritis	Paste prepared from fresh eryngo plant and <i>Maroi Napakpi pambi</i> (<i>Allium hookeri</i> Thw.) in the same ratio is applied externally twice daily against arthritis. Hot fomentation of the above paste in burning charcoal is applied and massaged gently on the affected parts for 10-12 min and repeated twice daily.	30-60 days in early stage, but continue it till cured in case of advanced stage
Body ache	The fresh plant or leaf of eryngo is crushed and prepared to a thick paste. The paste is fomented in burning charcoal by wrapping in banana leaf and the paste is applied on the body and massaged gently thrice daily. A thick gel prepared by heating the plant paste along with mustard oil is reported to yield better results.	4-5 days
Bone fracture	Fresh eryngo plant and root of <i>Khut-chapi pambi</i> (<i>Anotis foetida</i> (Dalz.) Benth & Hook f.) were crushed together in the ratio of 1:3 and the paste is bandaged on the broken bone after proper setting. Replace it after 4-5 days.	20-30 days
Cough	The whole plant of eryngo and <i>Tandan pambi</i> (<i>Drymaria cordata</i> Willd.) after washing thoroughly is boiled in water (5 g each in 500 mL of water) for around 5-7 min, cool it down and filter it and the filtrate after adding a little common salt is given to the patient suffering from severe cough, half glass in the morning and another half glass in the evening. Adding a pinch of fruit powder of <i>Uchithi pambi</i> (<i>Piper nigrum</i> L.) gives better results.	2-3 days
Cut and injuries	In fresh cut and injuries, paste prepared from fresh leaf of eryngo and <i>Terapaibi pambi</i> (<i>Crassocephalum crepidioides</i> (Benth.) S. Moore) in the ratio 1:3 is applied and bandage which stops bleeding and heals quickly. It also enhances early suppuration and helps to remove foreign bodies like spine, bamboo and wood pieces, etc. Hot fomentation of the above mixture is also bandaged on the injured parts for the same purpose.	2-3 days
Diarrhoea	The whole fresh plant of eryngo is boiled in water (50 g in 500 mL of water) for about 10 min. Cool down the soup and add a pinch of common salt and the liquid is given a glass twice daily; one in the morning and another in the evening till completely cured.	3-4 days
Dysentery	The whole fresh plant of eryngo is boiled in water (50 g in 500 mL of water) for about 6-8 min to reduce the volume to half. Cool down the soup and add a pinch of common salt and a few drops of lemon juice and a glass of liquid is given twice daily; one in the morning and another in the evening till cured.	3-4 days
Dyspepsia	The soup prepared by boiling the leaf of eryngo (2 plants) and seed of <i>Tukma pambi</i> (<i>Hyptis suaveolens</i> (L.) Poit (20 seeds) in 300 mL water is dissolved with a pinch of common salt preferably the salt produced locally in Manipur (locally called Meitei thum) and the mixture soup is given to enhance digestion. A pinch of dried fruit powder of black pepper (<i>Piper nigrum</i> L.) and a few drops of fruit juice of <i>Champra pambi</i> (<i>Citrus limon</i> (L.) Osbeck) is added for better result.	2-3 days
Epilepsy	The fresh plant shoot or leaf of eryngo is washed thoroughly with water and crushed. The decoction is applied to the mouth of a patient suffering from epileptic attack. Also put a lump just nearby the nostril so that the smell of the plant is properly inhaled by the patient. It is a general practice that patients suffering from epilepsy would eat the fresh leaf or shoots of eryngo along with major meals on a regular basis. The plant is dried, powdered and made tablet along with little honey. The tablet is given along with lukewarm water twice daily to treat epilepsy.	Till cured

(Contd.)

Table 2 — Ethno-medicinal uses of Eryngo (*Eryngium foetidum* L.) by Meitei or Meetei community of Manipur

Disease or ailment type	Mode of preparation, doses and application	Duration of application
Fever	The whole plant is washed thoroughly and boiled in water (10 g in 500 mL of water) for around 5 min. Cool down and filtered. The liquid after adding little common salt is given to the patient one glass in the morning and another glass in the evening. Adding a pinch of fruit powder of <i>Uchithi pambi</i> (<i>Piper nigrum</i> L.) gives better result.	3-4 days
Hypertension	Local villagers regularly consume the eryngo plant as a vegetable to control hypertension. The paste is prepared with eryngo plant, <i>Maroi nakupi</i> (<i>Allium odorum</i> L.), few bulbs of <i>Chanam pambi</i> (<i>Allium sativum</i> L.) and is taken 1/2 spoonful daily. The paste prepared by mixing the seed powder of eryngo and honey is also given for the same purpose.	30-60 days
Muscular sprain	The paste prepared from the eryngo plant, root of <i>Khut-chapi pambi</i> (<i>Anotis foetida</i> (Dalz.) Benth & Hook f.) in the ratio 1:2 are applied on the affected parts and bandaged. Replace it every 2 days.	8-10 days
Paralysis	Fresh plant paste of eryngo is applied and massaged regularly to treat paralysis. Hot fomented plant paste gives better results. The pate prepared from the mixture of leaves of eryngo and <i>Maroi napakpi pambi</i> (<i>Allium hookeri</i> Thw.) in the same ratio is a better medication. The fresh plant may be eaten regularly along with vegetables for the same.	Till cured
Skin diseases	The ethnic people of Manipur applied the paste prepared from the leaf of <i>Mukthrubu pambi</i> (<i>Zanthoxylum acanthopodium</i> DC.), <i>Tulsi pambi</i> (<i>Ocimum sanctum</i> L.), <i>Urikshibi pambi</i> (<i>Vitex trifolia</i> L.) and eryngo plant in the ratio 1:1:2:2 to treat various skin diseases. It can be applied twice daily till cured.	8-12 days
Ulcer	The fresh root paste of eryngo along with little honey is applied against sore throat. The tincture made from fresh shoot or leaf after dissolving with a little common salt is used for gurgles twice or thrice daily to treat throat ulcer and foul smelling of mouth.	4-5 days
Vertigo	Eryngo plant (10 nos.) along with fruits of <i>Heigrü pambi</i> (<i>Emblica officinalis</i> Gaertn.) (2 fruits) are boiled in 1/2 L of rice water (liquid obtained after washing rice) for about 10 min and the filtrate is given after adding a spoon of honey. In another preparation, eryngo plant, <i>Maroi napakpi pambi</i> (<i>Allium hookeri</i> Thw.) leaf (20 g each) are crushed with 1 fruit cover of <i>Kekru pambi</i> (<i>Sapindus mukorossi</i> Gaertn.) and the paste is applied on forehead. Replace it daily.	8-12 days
Vomiting	Fresh plant paste of eryngo along with a few drops of fruit juice of <i>Champra pambi</i> (<i>Citrus limon</i> (L.) Osbeck) and a pinch of common salt is given to suppress vomiting. Give half spoon at one time and twice a day.	1-2 day

world are already reported, but 5 diseases, namely, bodyache, bone fracture, muscular sprain, ulcer and vertigo, are new additions to it. The use of the eryngo plant is generally by a crude method of preparation. Fresh plant is used in some disease and some use the plant after boiling. In most of the formulations, the eryngo plant is mixed with 14 other plants like *Allium hookeri* Thw. in case of arthritis and vertigo, *Allium odorum* L. and *Allium sativum* L. in case of hypertension, *Anotis foetida* (Datz.) Benth & Hook f. in case of bone fracture and muscular sprain, *Citrus limona* (L.) Osbeck in case of dyspepsia and vomiting, *Crassocephalum crepidioides* (Benth.) S. Moore in case of cut and injuries, *Hyptis suaveolens* (L.) Poit in case of dyspepsia, *Emblica officinalis* Gaertn. in case of vertigo, *Piper nigrum* L. in case of cough and fever, *Sapindus mukorossi* Gaertn. in case of vertigo, *Ocimum sanctum* L., *Vitex trifolia* L. and *Zanthoxylum acanthopodium* DC.

in case of skin diseases (Table 2). These 14 plants belong to nine families namely, Alliaceae, Asteraceae, Caryophyllaceae, Euphorbiaceae, Lamiaceae, Piperaceae, Rubiaceae, Rutaceae, Sapindaceae and Verbenaceae (Table 3). Out of the 14 plants, 9 plants are under cultivation while rest 5 plants are collected from wild habitat (Table 3). The local healers have excellent knowledge and the medicines are formulated by using these plants that are mixed in different proportions based on the type of diseases and ailments and stage of the illness. Most of the diseases and ailments take a few to several days for treatment while arthritis, epilepsy, hypertension and paralysis takes quite a long time extending even to years (Table 2). The use of eryngo plant to treat hepatic problem by Chothe tribe of Manipur¹⁸ is not known by the Meitei community of the state that shows that the knowledge of one community might not be known by another community of the same state. In the Meitei traditional healing

Table 3 — Other plants used along with eryngo plant (*Eryngium foetidum* L.) for treatment of diseases and ailments by Meitei community of Manipur

Sl.	Plant name	Local name	Family	Parts used	Source
1	<i>Allium hookeri</i> Thw.	<i>Maroi napakpi pambi</i>	Alliaceae	Whole plant	Cultivated
2	<i>Allium odorum</i> L.	<i>Maroi nakupi</i>	Alliaceae	Whole plant	Cultivated
3	<i>Allium sativum</i> L.	<i>Chanam pambi</i>	Alliaceae	Bulb	Cultivated
4	<i>Anotis foetida</i> (Dalz.) Benth & Hook f.	<i>Khut-chapi pambi</i>	Rubiaceae	Root	Wild
5	<i>Citrus limon</i> (L.) Osbeck	<i>Champra</i>	Rutaceae	Fruit	Cultivated
6	<i>Crassocephalum crepidioides</i> (Benth.) S. Moore	<i>Terapaibi pambi</i>	Asteraceae	Leaf/shoot	Wild
7	<i>Drymaria cordata</i> Willd.	<i>Tandan pambi</i>	Caryophyllaceae	Whole plant	Wild
8	<i>Embllica officinalis</i> Gaertn.	<i>Heigru pambi</i>	Euphorbiaceae	Fruit	Cultivated
9	<i>Hyptis suaveolens</i> (L.) Poit	<i>Tukma pambi</i>	Lamiaceae	Seed	Wild
10	<i>Ocimum sanctum</i> L.	<i>Tulsi pambi</i>	Lamiaceae	Leaf/shoot	Cultivated
11	<i>Piper nigrum</i> L.	<i>Uchithi pambi</i>	Piperaceae	Fruit	Cultivated
12	<i>Sapindus mukorossi</i> Gaertn.	<i>Kekru pambi</i>	Sapindaceae	Fruit cover	Cultivated
13	<i>Vitex trifolia</i> L.	<i>Urikshibi pambi</i>	Verbenaceae	Leaf/shoot	Wild
14	<i>Zanthoxylum acanthopodium</i> DC.	<i>Mukthruhi pambi</i>	Rutaceae	Leaf	Cultivated

system, the whole plant of eryngo is used, but in other places, the roots are used for treatment of scorpion sting^{12,16} and as an appetizer²⁷.

While in the present study, it was observed that the eryngo plant is generally cultivated in the kitchen garden for self-consumption and used as medicine, some households cultivated the plant for commercial selling in the local markets. In most of the cases, the use of the eryngo plant is in the form of fresh preparation and in combination with some other plants. Eryngo has been acclaimed as health food because of the significant amount of calcium, iron, carotene, riboflavin, proteins and vitamins A, B, and C and essential oils in the aerial parts³³. There are many health beneficial curative plants in Manipur. Many of the medicinal plants are used as food and many food plants are used as medicine. The traditional healing system in Manipur which can be treated with great value and as less costly and easily available has been practised not only by the rural population, but is also widely adopted by the people living in the urban areas where its use has been increasing day by day.

Many of the culinary plants are used in traditional healing system. In Thailand, *Zanthoxylum rhetsa* (Roxb.) DC. has long been used in Thai culinary and traditional medicine³⁴. Similarly, in Manipur, eryngo plant though very popular as a local spice is highly priced for its wide medicinal applications. Although eryngo plant has not been given the proper attention and care it deserves, it has tremendous potential for mankind in terms of its use as local spice, food and its medicinal properties¹⁵. Eryngo plant is increasingly becoming a crop of international trade mainly to meet

the demands of ethnic population in the developing countries of the West⁶. Due to its wide medicinal uses and as local spice, eryngo is cultivated in many parts of the world. It is a major cash crop in Bangladesh³⁵. In 1988, Puerto Rico produced 165,000 kg of eryngo plant with an estimated value of \$ 201,000⁶. Eryngo plant is sold in almost all the local markets of Manipur costing around Rupee 1.00 to 1.50 per plant based on its size and season, but the total volume of its trade and income generation is yet to be estimated. Current over-reliance on a handful of major staple crops with limited land resources has inherent agronomic, ecological, nutritional and economic stress and risks and is probably unsustainable in the long run³⁶. The eryngo is one such plant that has huge development potential in health and culinary sectors.

Conclusion

The use of eryngo plant in Manipur especially for culinary purposes and treatment of diseases and ailments is highly significant. The eryngo plant in combination with other plants is widely used by the local people of Manipur for treatment of at least 17 diseases and ailments like arthritis, bodyache, bone fracture, cough, cut and injuries, diarrhoea, dysentery, dyspepsia, epilepsy, fever, hypertension, muscular sprain, paralysis, skin disease, ulcer, vertigo and vomiting, thus it is a species of high importance in traditional health care. The report of five diseases and ailments like bodyache, bone fracture, muscular sprain, ulcer and vertigo in this communication is new to the existing information; hence, some scientific investigation may be carried out with the aim of formulating some herbal drugs. In Manipur, the

eryngo plant is widely used as the most preferred local spice specially in cooking fish and meats. Once abundant in the wild habitats, eryngo plant has now almost vanished from its natural habitat due to its rampant and unsustainable way of collection and harvesting. But the plant is generally found cultivated in the kitchen gardens for self-consumption and used in healing and for selling as a cash crop. Due to its high demand in the local markets and its potential for income generation, development of proper agrotechnology and systematic cultivation of the eryngo plant should be prioritized.

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Conflicts of interest

The authors have no conflict of interest to disclose.

Author(s) contribution

PBD, PD and HBS designed the study, PBD collected the field data; PBD, PD and HBS did data analysis; PBD wrote the manuscript in consultation with PD and HBS; HBS helped with plant identification; HBS and PD helped in manuscript correction and analysis.

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