

Traditional culinary uses of aromatic plants as spice by the Meitei ethnic group: ethnobotanical evidence from Manipur, Northeast India

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Supplementary Data

Supplementary Table S1 — Scores for cultural food significance index (adapted from Pieroni, 2001)

Sub index	Characteristics	Scores
Availability Index (AI)	Availability	
	Very common	4.0
	Common	3.0
	Middle	2.0
	Rare	1.0
	Localization of use	
Frequency of utilisation index	Ubiquitous	0.0
	Localised	-0.5
	Very localised	-1.0
	>Once/week	5.0
	Once/week	4.0
	Once/month	3.0
Part used index (PUI)	>Once/year but once/month	2.0
	Once/year	1.0
	No longer used during the past 30 years	0.5
	Whole aerial parts	3.0
	Leaves with a few stems, whole aerial parts of very young plants	2.0
	Root/root stocks, bulbs, leaves, fruits	1.5
Multifunctional food use index (MFFI)	Shoots	1.25
	Bark, younger part of roots, stems, leaf stalks, young whorls of leaves, seeds.	1.0
	Younger part of shoots, buds, flowers, receptacles	0.75
	Chutney, curry, raw in salad, boiled then stewed or fried, boiled then used for diverse preparations	1.5
	Fried, boiled, Roasted, stewed, Condiment, pickles, syrups	1
	Soups, tea	0.75
Taste score appreciation index (TSAI)	Raw as snack	0.5
	*Use in mixtures	(-0.5)
	Best	10.0
	Very good	9.0
	Good	7.5
	Fair	6.5
Food medicinal role index (FMRI)	Poor	5.5
	Terrible	4.0
	Very high (“that food is a medicine”)	5.0
	High (“that food is quite a medicine”)	4.0
	Middle-high (“that food is very healthy”)	3.0
	Middle-low (“that food is healthy”)	2.0
	Not recognised	1.0

Supplementary Table S2 — List of plant species used as spice by the Meitei community of Manipur

Botanical Name// Voucher specimen No.	Local Name	Common Name	Family	Habit	Habitat (C= Cultivated; W= Wild)	Season of interest
<i>Allium ascalonicum</i> L. //NEIST/E3A	Meitei tilhoumacha	Shallot	Amaryllidaceae	Herb	C	Winter (Oct-Jan)
<i>Allium hookeri</i> Thw. //NEIST/E7	Maroinapakpi	Hooker chives	Amaryllidaceae	Herb	C	All year round
<i>Allium odorum</i> L. //NEIST/E15A	Maroinakuppi	Chinese chives	Amaryllidaceae	Herb	C	All year round
<i>Alpini agalanga</i> (L.) Willd. //NEIST/E17A	Kanghoo	Greater galangal	Zingiberaceae	Herb	C & W	Summer (April-June)
<i>Alpinia nigra</i> (Gaertn.) Burt. //NEIST/E21	Pullei	Bamboo leaved Galangal	Zingiberaceae	Herb	C & W	Summer (April-June)
<i>Alpinia officinarum</i> (Gaertn.) Burt. //NEIST/E22	Pulleimanbi	Galangal	Zingiberaceae	Herb	C & W	All year round
<i>Amomum aromaticum</i> Roxb. //NEIST/E19A	Namara	Bengal cardamom	Zingiberaceae	Herb	W	Summer (April-June)
<i>Amomum</i> sp. //NEIST/E12B	Sarei	-	Zingiberaceae	Herb	W	Summer (April-June)
<i>Cinnamomum verum</i> J. Presl //NEIST/E23	Ushingsha	Ceylon cinnamon	Lauraceae	Tree	C & W	All year round
<i>Citrus latipes</i> (Swingle) Yu. Tanaka //NEIST/E24	Heiribob	Khasi papeda	Rutaceae	Tree	C & W	Autumn (August-November)
<i>Curcuma angustifolia</i> Roxb. //NEIST/E125	Yaipan	East Indian Arrowroot	Zingiberaceae	Herb	W	Pre-monsoon (March-June)
<i>Curcuma longa</i> L. //NEIST/E26	Yaingang	Turmeric	Zingiberaceae	Herb	C	All year round
<i>Elsholtzia blanda</i> Benth. Benth. //NEIST/E11B	Kanghuman	Pleasant Himalayan Mint	Lamiaceae	Shrub	C & W	All year round
<i>Elsholtzia griffithii</i> Hook.f. //NEIST/E10A	Lomba		Lamiaceae	Shrub	C & W	Winter (Oct-Feb)
<i>Elsholtzia stachyodes</i> (Link) Raizada & H.O. Saxena //NEIST/E2A	Tekta	Spiked Mint	Lamiaceae	Shrub	C & W	Monsoon to winter (June-Dec)
<i>Eryngium foetidum</i> L. //NEIST/E4	Awafadigom	Wild coriander/ Culantro	Apiaceae	Herb	C	All year round
<i>Foeniculum vulgare</i> Mill. //NEIST/E27	Pakhon	Fennel	Apiaceae	Herb	C	All year round
<i>Hedychium coronarium</i> J.Konig //NEIST/E16A	Loklei	White Ginger Lily	Zingiberaceae	Herb	C & W	Monsoon to winter (June-Dec)
<i>Hedychium marginatum</i> C.B. Clarke //NEIST/E28	Takhellei	Red Ginger Lily	Zingiberaceae	Herb	C & W	Monsoon (June-August)
<i>Hedychium spicatum</i> Sm. //NEIST/E29	Takhellei	Spiked Ginger Lily	Zingiberaceae	Herb	C & W	Monsoon (June-August)
<i>Houttuynia cordata</i> Thunb. //NEIST/E20	Touningkhok	Chameleon plant	Saururaceae	Herb	C & W	All year round
<i>Litsea cubeba</i> Lour. //NEIST/E13	Usingsa/ Ngairong	Mountain pepper/Aromatic litsea	Lauraceae	Tree	C & W	Winter to pre-monsoon (Nov-July)
<i>Ocimum americanum</i> L. //NEIST/E6	Mayangton	Common basil	Lamiaceae	Shrub	C	Summer till winter (April-November)
<i>Ocimum basilicum</i> L. //NEIST/E5A	Naoshek-lei	Sweet basil	Lamiaceae	Shrub	C & W	Summer till winter (April-November)

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Supplementary Table S2 — List of plant species used as spice by the Meitei community of Manipur (Contd.)

Botanical Name// Voucher specimen No.	Local Name	Common Name	Family	Habit	Habitat (C= Cultivated; interest W= Wild)	Season of interest
<i>Perilla frutescens</i> (L.) Britton //NEIST/E30A	Thoiding	Perilla/Beefsteak Plant	Lamiaceae	Shrub	C & W	Winter (Nov- Feb)
<i>Persicaria posumbu</i> (Buch.-Ham. ex D.Don) H.Gross //NEIST/E14A	Phakpai	Creeping Himalayan Knotweed	Polygonaceae	Shrub	C & W	All year round
<i>Zanthoxylum armatum</i> DC. //NEIST/E9A	Mukthubi	Winged Prickly Ash	Rutaceae	Tree	C & W	All year round
<i>Zanthoxylum rhetsa</i> (Roxb.) DC. //NEIST/E31	Ngang	Indian prickly ash	Rutaceae	Tree	C & W	Summer to Winter (March- Nov)
<i>Zingiber montanum</i> (J. Koenig) Link ex A. Dietr. //NEIST/E8A	Tekhaoyaikhu	Cassumunar ginger	Zingiberaceae	Herb	C & W	Summer (April- June)
<i>Zingiber officinale</i> Roscoe //NEIST/E30	Shing	Ginger	Zingiberaceae	Herb	C & W	All year round

Supplementary Table S3 — Indigenous dishes of the Meitei Community of Manipur

Name of the dish	Brief description
<i>Chamthong/ Kangsoi</i>	Vegetable stew prepared by adding smoked fish and <i>ngari</i> (fermented small fish). Oil is usually not added and if so, in a small amount.
<i>Eronba</i>	A mash of boiled vegetables and chillies with <i>ngari</i> . In the vegetarian version, fried chives and chilli are added to the mash instead of <i>ngari</i> .
<i>Ooti</i>	Vegetarian dish made of rice, different kinds of vegetables, peas and baking soda.
<i>Chagempomba</i>	Green leafy vegetables (preferably mustard) cooked with fermented soybeans (<i>hawaijar</i>), smoked fish, rice and green peas.
<i>Bora</i>	Chopped vegetable slices and herbs mixed with a batter of gram flour and deep fried in oil (a type of fritter).
<i>Kanghou</i>	Stir fried finely chopped vegetables in a little oil.
<i>Kangsu</i>	Slices of boiled fresh bamboo shoot, peas and herbs mashed with <i>ngari</i> and chilli.
<i>Paknam</i>	Finely chopped inflorescence of banana, chilli, a few pieces of <i>ngari</i> , and some herbs are mixed with gram flour to make a batter which is then wrapped in the leaves of turmeric to give its special taste. Other variants of <i>paknam</i> use small fish or the split gill mushroom instead of banana inflorescence.
<i>Chasubi</i>	Rice is ground to fine powder and mixed with spices, herbs, chilli, <i>ngari</i> and baked. This spicy snack originated from the Meiteis in Kakching district of Manipur.
<i>Nga-atoiba thongba</i>	Fish curry (small pieces of fish cooked intact in traditional style with oil and spices)
<i>Singju</i>	Salad made by mixing chopped vegetables and herbs with chilli, roasted gram flour, roasted and ground seeds of <i>thoiding</i> (<i>Perilla frutescens</i>). Roasted <i>ngari</i> is usually added but it is optional.
<i>Ametpa</i>	Chutney with roasted <i>ngari</i> and chillies as base and different chopped herbs/vegetables added as garnish to complete the dish.
<i>Thoiding asuba</i>	Roasted seeds of <i>thoiding</i> (<i>Perilla</i> seed) ground to powder and mixed with minced ginger, chilli and salt. The mixture is assembled into small balls and eaten as a side dish in meals.
<i>Tharoi-thongba</i>	Edible snails cooked with tender rhizomes of aromatic plants such as <i>Hedychium coronarium</i> or <i>Amomum</i> sp. and seasoned with leaves of <i>Zanthoxylum armatum</i> .
<i>Maroi thongba</i>	Leaves of <i>Allium tuberosum</i> cooked in a significant quantity with a little oil and <i>bori</i> (baked lentil dumplings).
<i>Kelichana</i>	Dried peas are soaked overnight, boiled and stir-fried in a little oil with spices. Leaf of <i>Allium tuberosum</i> , <i>Houttuynia cordata</i> are used as garnish.