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Plant-Based Traditional Knowledge of an Indigenous Community in Transition: Ethnomedicinal, Wild-Edible and Dye-Yielding Plants of Mawryngkang Village, Ri-Bhoi District, Meghalaya, India

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Abstract: Traditional knowledge held by indigenous communities represents an accumulated, locally adapted understanding of plants, agriculture and material culture that is increasingly threatened by acculturation, migration and rapid social change. The present study documents the surviving plant-based traditional knowledge of Mawryngkang, a small hamlet of about fifty households in the Umling subdivision of Ri-Bhoi district, Meghalaya, inhabited by a Khasi community that migrated to the site more than five decades ago and has since largely adopted Christianity. Data were gathered through repeated field visits and semi-structured interviews with key informants, including the village headman, a hereditary herbal practitioner, elderly residents and weavers, supplemented by photographic voucher documentation. Thirteen ethnomedicinal plant taxa were recorded from the practitioner's repertoire, used singly or as a polyherbal decoction locally called *Dawaisuh*, principally for gastro-intestinal and urinary complaints. Eleven wild-edible and non-timber forest species were documented as seasonal foods and market commodities, several corresponding to taxa already reported for the Khasi, Jaintia and Garo tribes. *Bixa orellana* and a second dye plant were used to colour cotton and Eri-silk yarn for traditional textiles, while a shifting-cultivation (*jhum*) system centred on pineapple provided the principal cash income. Cultural practices such as the *Shad Sajer* and *Shad Rah Kynthei* dances, bamboo musical instruments and rice-beer utensils persist mainly as heritage performance rather than daily practice. The findings underline both the residual richness and the accelerating erosion of local plant knowledge, and argue for participatory documentation, herbarium verification of provisional identifications, and phytochemical validation of the ethnomedicinal claims.

Keywords: Traditional knowledge; ethnomedicine; wild edible plants; non-timber forest products; natural dyes; Khasi; Ri-Bhoi; Meghalaya.

I. INTRODUCTION

Cultural heritage is the legacy of tangible and intangible attributes inherited by a society from its past, maintained in the present and transmitted for the benefit of future generations. Its intangible dimension—oral traditions, performing arts, social practices, and the knowledge and skills concerning nature and the universe—depends for its survival on continuous transmission between generations rather than on the physical objects it produces. When this chain of transmission is broken, knowledge that has taken generations to accumulate can be lost within the span of a single lifetime.

Traditional ecological knowledge, and in particular the ethnobotanical knowledge embedded in it, is a dynamic body of understanding through which communities interpret and manage the biological resources around them. Such knowledge underpins food security, primary health care and material culture in many rural and forest-dependent societies. The World Health Organization has long recognised that a substantial share of the population of the developing world continues to rely on plant-based traditional medicine for primary health needs, both because of its accessibility and affordability and for historical and cultural reasons.

North-East India lies within the Indo-Burma biodiversity hotspot and supports an exceptional diversity of plants together with an equally diverse mosaic of tribal cultures. Meghalaya, home to the Khasi, Jaintia and Garo peoples, has a particularly rich tradition of plant use.

Earlier ethnobotanical work in the state has documented large numbers of wild-edible and medicinal species and the knowledge associated with them (Maikhuri & Gangwar 1993; Kayang et al. 2005; Kayang 2007; Sawian et al. 2007; Hynniewta & Kumar 2008; Jeeva 2009). These studies consistently emphasise that the region's plant knowledge is being eroded by biodiversity loss, changing lifestyles and the attenuation of oral transmission, and that village-level documentation is urgently needed before further knowledge disappears.

Most published surveys from Meghalaya have concentrated on the Khasi and Garo hill districts, while Ri-Bhoi—a lower-elevation, more accessible district astride the Guwahati–Shillong corridor—has received comparatively little attention. Communities here are often more exposed to markets, roads and media, and where they are also relatively recent migrants who have adopted Christianity, the conditions for rapid knowledge loss are especially acute. Mawryngkang village typifies this situation: its residents describe themselves as immigrants of more than fifty years' standing who have retained only fragments of their indigenous practice. Documenting what survives in such a community is valuable precisely because it captures traditional knowledge at an advanced stage of transition.

The present study was undertaken with the following objectives: (i) to record the surviving traditional practices of Mawryngkang village; (ii) to document and, where possible, identify the plants used in local medicine, food and material culture; (iii) to describe associated agricultural and cultural practices, including weaving and traditional dance; and (iv) to assess the state of transmission of this knowledge and to suggest measures for its conservation.

II. MATERIALS AND METHODS

A. Study area

Mawryngkang is situated in the Umling subdivision of Ri-Bhoi district, Meghalaya, within the traditional territory of the Hima Khatar Nonglyngdoh. The district lies along National Highway 40 (Guwahati–Shillong) and is drained by tributaries of the Umtrew and Umran systems; its vegetation is broadly sub-tropical, grading from moist deciduous to semi-evergreen forest with extensive secondary growth on fallow jhum land. The village comprises approximately fifty households. Its residents are predominantly Khasi and are, by their own account, migrants who settled at the site more than five decades ago; almost all are now Christian, and formal indigenous institutions such as sacred groves and customary rules for selecting the headman are no longer maintained, although a community forest persists and land continues to be allotted with the guidance of the headman and community members.

According to local tradition the village takes its name from an incident in which a goat and a tiger competed to leap between two large stones (*maw*, stone; *ryngkang*, to jump across), the goat prevailing; the commemorative stones remain a landmark of the settlement. Agriculture is the mainstay of the local economy, with pineapple cultivation especially prominent, and the practice of plant-based traditional medicine persists alongside a range of surviving craft and ceremonial traditions.

B. Data Collection

Field work was carried out through four to five visits to the village. A semi-structured questionnaire was used to guide interviews and conversations with key informants selected for their knowledge of local tradition, comprising the village headman, elderly residents, a hereditary herbal practitioner, and women engaged in weaving and in the preparation of rice beer. Guided walks with the headman and community members were made to the agricultural fields and to the site where the annual dance is performed. A dedicated interview with the local medicinal practitioner recorded the wild plants held in his repertoire and the ailments for which they are used, and the processes of natural dyeing and weaving were observed and documented directly. Additional questions were put to younger residents regarding their engagement with, and attitudes towards, the transmission of traditional knowledge. Plants, implements and practices were recorded photographically as voucher documentation.

C. Identification and Analysis

Recorded plants were listed by their local (Khasi) names, and botanical identities were assigned where these could be established with reasonable confidence from morphology, common names and comparison with the published ethnobotanical literature of the region. A number of taxa could be recorded only by local name and await herbarium verification; a few field identifications carry names of genera or species whose native distribution lies outside the region and are treated here as provisional pending voucher confirmation. This caution is made explicit in the tables and text. The documented material was grouped by use category—ethnomedicinal plants, wild-edible and non-timber forest products, dye-yielding plants, agricultural practice, and material and ceremonial culture—for description and discussion.

III. RESULTS AND DISCUSSION

A. Ethnomedicinal Plants

Traditional healing in Mawryngkang is centred on a single hereditary practitioner who dispenses wild medicinal plants to villagers, chiefly for complaints of the stomach and digestive tract. He learned the practice in childhood from his parents, a pattern of vertical, intra-familial transmission that is characteristic of folk medical knowledge across the Khasi region (Hynniewta & Kumar 2008). Thirteen plant taxa were recorded from his repertoire (Table 1). Nine of these could be recorded only by their Khasi names and require botanical verification; four were identified to species from voucher photographs, although two of these bear names of predominantly Neotropical or coastal genera and are regarded as provisional. The plants are administered singly or, more commonly, combined into a polyherbal decoction known locally as Dawaisuh, prepared as a mixture of the various roots, stems and barks. Across the repertoire the reported indications converge on gastro-intestinal and urinary conditions—kidney or bladder stone, diarrhoea, stomach pain, constipation and urinary retention—rather than being assigned individually to particular species.

The predominance of digestive and urinary indications, and the use of a single compounded remedy for a spectrum of related complaints, is consistent with the wider Khasi ethnomedicinal tradition, in which decoctions and multi-ingredient preparations of roots and barks are widely employed (Kayang et al. 2005; Hynniewta & Kumar 2008). The reliance of the community on one elderly custodian, however, illustrates the fragility of the system: with no formal apprentice recorded, the knowledge is vulnerable to loss within a generation. Several of the identified taxa have documented pharmacological relevance in the broader literature—for example the widely naturalised *Kalanchoe* used in folk medicine for stones and inflammatory conditions, and *Hedychium coronarium*, valued as a rhizomatous medicinal and aromatic species—but the specific claims recorded here should be regarded as ethnographic observations requiring phytochemical and clinical validation rather than as established therapeutic facts.

Sl.	Local (Khasi) name	Botanical identity (family)	Status / notes
1	Khyndaiklir	Unidentified	Requires herbarium verification
2	Phandiengblei	Unidentified	Requires herbarium verification
3	Bat khurai	Unidentified	Requires herbarium verification
4	Mahabir	Unidentified	Requires herbarium verification
5	Sohmyrleng maw	Unidentified	Requires herbarium verification
6	Snepdiengsohdanei	Unidentified	Requires herbarium verification
7	Khurai	Unidentified	Requires herbarium verification
8	Shyrmitiong	Unidentified	Requires herbarium verification
9	Mor stem	Unidentified	Requires herbarium verification
10	—	<i>Kalanchoe brasiliensis</i> (Crassulaceae)	Miracle leaf; identified from voucher
11	—	<i>Syzygium polyanthum</i> (Myrtaceae)	Indian bay leaf; identified from voucher
12	—	<i>Drymonia urceolata</i> (Gesneriaceae)	Provisional; range mainly Neotropical
13	—	<i>Hedychium coronarium</i> (Zingiberaceae)	White ginger lily; identified from voucher
14	Dawaisuh	Polyherbal mixture	Compounded decoction of the above

Table 1. Ethnomedicinal plants recorded from the herbal practitioner of Mawryngkang. Reported indications across the repertoire: stone, diarrhoea, stomach pain, constipation and urinary retention. Provisional identifications await voucher confirmation.

B. Wild-edible plants and non-timber forest products

Eleven wild-edible and non-timber forest species were recorded as being gathered from the surrounding forest and fallow land (Table 2). They include leafy vegetables, wild fruits, a rhizomatous spice-vegetable and an edible fern, and are consumed seasonally as supplements to cultivated staples. Several correspond to taxa well documented for the tribes of Meghalaya: the edible fiddlehead fern *Diplazium esculentum* (locally Jabyrnoh) is among the most widely eaten wild vegetables of the Khasi, Jaintia and Garo hills (Kayang 2007; Sawian et al. 2007), while the wild strawberry *Fragaria vesca* and wild betel *Piper betle* are typical of the minor fruits and masticatory-leaf plants of the region.

The persistence of wild-food gathering in a village otherwise well connected to markets is consistent with the wider finding that such plants remain an important, low-cost and nutritionally valuable dietary resource across Meghalaya (Agrahar-Murugkar & Subbulakshmi 2005; Kayang 2007). At the same time, three of the field identifications recorded here—notably a bulb vegetable given the cultivated Italian name “Scalogno di Romagna”, and *Pancratium maritimum*, a coastal Mediterranean species—are almost certainly local or trade names applied to regionally native relatives, and are flagged as provisional in Table 2. Their inclusion illustrates a general methodological point: field names must be corroborated by herbarium vouchers before they enter the formal record.

Sl.	Local name	Botanical identity (family)	Use / notes
1	Jabyrnoh	<i>Diplazium esculentum</i> (Athyriaceae)	Fronds cooked as vegetable
2	Sla Jakari	<i>Blumea lanceolaria</i> (Asteraceae)	Leafy vegetable
3	Syntu Piaw	<i>Pancratium maritimum</i> (Amaryllidaceae)*	Provisional identification
4	— (Wild strawberry)	<i>Fragaria vesca</i> (Rosaceae)	Fruit eaten raw
5	Lakor khlaw	<i>Piper betle</i> (Piperaceae)	Wild betel leaf, masticatory
6	Anjuni	Unidentified	Young shoots / stem
7	Niulikakot / Khuraistem	Unidentified	Gathered forest vegetable
8	RilangPhlang	Unidentified	Gathered forest vegetable
9	Sla Lyngmaw	Unidentified	Leafy vegetable
10	Slajewla	Unidentified	Shoot / leaf vegetable
11	— (bulb vegetable)	<i>cf. Allium sp.</i> *	Local name “Scalogno”; provisional

Table 2. Wild-edible plants and non-timber forest products of Mawryngkang. * Provisional identification requiring voucher confirmation; the field name may denote a regionally native relative.

C. Dye-yielding plants and traditional weaving

Weaving of cotton and Eri-silk cloth survives in the village and provides one of the clearest surviving links between plant knowledge and material culture. Yarn is coloured with plant dyes: the seeds of *Bixa orellana* (annatto, locally Onato) and a second, locally named plant (Sohkhu) are boiled together with the thread for about half an hour, after which the yarn is removed, sun-dried and made ready for weaving. *Bixa orellana* is one of the oldest and most widely used natural dye plants; its red seed coat yields the carotenoid pigments bixin and norbixin, which impart yellow-to-orange shades to cotton, silk and wool and are valued as eco-friendly, low-toxicity colorants (Siva 2007). Its use in this remote hamlet reflects the plant's long naturalisation and adoption into local craft across India.

The finished textiles carry characteristic red patterning on white and blue grounds. Informants attributed the motifs to observed natural forms—one design said to be inspired by a spider and another by a forest lizard—explaining that the patterns are decorative rather than symbolic. Such decorative naturalism, together with the on-site preparation of dyes from gathered plants, situates the craft within the broader tradition of natural-dye textile production that conservationists have increasingly sought to revive as a sustainable alternative to synthetic dyeing (Siva 2007).

D. Traditional Agriculture

Mixed farming based on shifting cultivation (jhum) is the principal agricultural practice of the village. Grass and weeds are slashed and sun-dried before burning; the burned plot is then ploughed on a hot day when the ground is hardest, left for the rains to soften, and finally sown. Informants hold that this sequence enriches the soil and yields better fruit—an understanding broadly consistent with the recognised, if debated, role of jhum in short-term nutrient release and with the wider literature on traditional Meghalaya farming as an ecologically embedded, low-input system (Jeeva et al. 2006; Das et al. 2016). Pineapple is planted along field margins both as a protective border and as the main cash crop, supplemented by sweet potato, ginger and other minor crops.

Pineapple provides the village's principal cash income. Fruit is harvested from July onwards and sold two to three times a week, either at market or to buyers who come to the village and distribute to markets in Shillong. It is traded in bundles of twenty fruits, locally shikhuri, with price varying by fruit size and cultivation area (Table 3). The system exemplifies how a traditional shifting-cultivation base has been articulated with a cash economy through a single high-value horticultural crop, a pattern increasingly common across Ri-Bhoi.

Fruit grade	Field size	Bundles	Sales / week	Price (₹/bundle)
Big	Big	20–30	3–4	500
Big	Small	16–18	2–3	500
Small	Big	20–30	3–4	350–400
Small	Small	16–18	2–3	350–400

Table 3. Grading and marketing of pineapple at Mawryngkang. One bundle (shikhuri) = 20 fruits.

E. Material and Ceremonial Culture

Two dances survive as the most visible expression of the community's heritage. The Shad Sajer, performed in January, brings together the clans of the Khatar Nonglyngdoh at a common ground, where the head priest performs rituals invoking blessing for the year and rice beer is shared among all who attend, men and women alike. Local tradition traces the dance to two founding warriors, Wan and Cha, said to have united the people and to have vanished into heaven rather than dying; foundation stones laid by them, and later by different clans along the approach to the dance ground, commemorate this origin. The Shad Rah Kynthei honours the goddess Leikba for a good rice harvest; although no longer performed as a living agrarian rite, it is taught to the young and staged for competitions and functions so that the form is not lost.

Associated material culture includes bamboo-and-timber houses of the raid built without nails or iron; stringed and other musical instruments (duitara, marynggod and related forms) played at the Shad Sajer; and a range of implements connected with rice and rice-beer preparation—among them the grinding mortar (u thlong u synrei) for dehusking rice, gourd vessels (u klong u skaw) that carry local alcohol during wedding exchanges, a bamboo filter (snait) used to separate rice from the fermented beer, and a wooden collecting vessel (daron). Together these objects document a still-legible technological repertoire built almost entirely from bamboo, gourd and wood.

F. Erosion and Transmission of Traditional Knowledge

The over-arching finding of the study is that traditional knowledge at Mawryngkang persists in a markedly attenuated state. Informants were explicit that little indigenous practice remains embedded in everyday life: the community has been Christian for more than fifty years and is descended from migrants, so that much of the earlier way of living has lapsed except for the elements recorded here.

Younger residents were reported to be losing interest under the influence of outside media, while elders and grandparents actively teach dance, weaving and plant knowledge in an effort to keep the tradition alive for future generations. This tension between decline and deliberate revival is characteristic of intangible heritage in transition, and it is precisely the window in which documentation is most valuable—capturing knowledge that is neither wholly intact nor yet lost. The concentration of ethnomedicinal expertise in a single ageing practitioner, and of dance and weaving skill in a handful of elders, means that without active safeguarding measures a substantial part of this repertoire could disappear within one or two generations.

IV. CONCLUSION

This study documents the surviving plant-based traditional knowledge of Mawryngkang village in Ri-Bhoi, Meghalaya, comprising thirteen ethnomedicinal taxa used chiefly for gastro-intestinal and urinary complaints, eleven wild-edible and non-timber forest species, and dye plants—led by *Bixa orellana*—that sustain a surviving cotton and Eri-silk weaving tradition, set within a jhum-based pineapple economy and a still-legible ceremonial and material culture. The value of the record lies less in any single novel use than in its documentation of a coherent knowledge system at an advanced stage of erosion within a migrant, largely Christianised community.

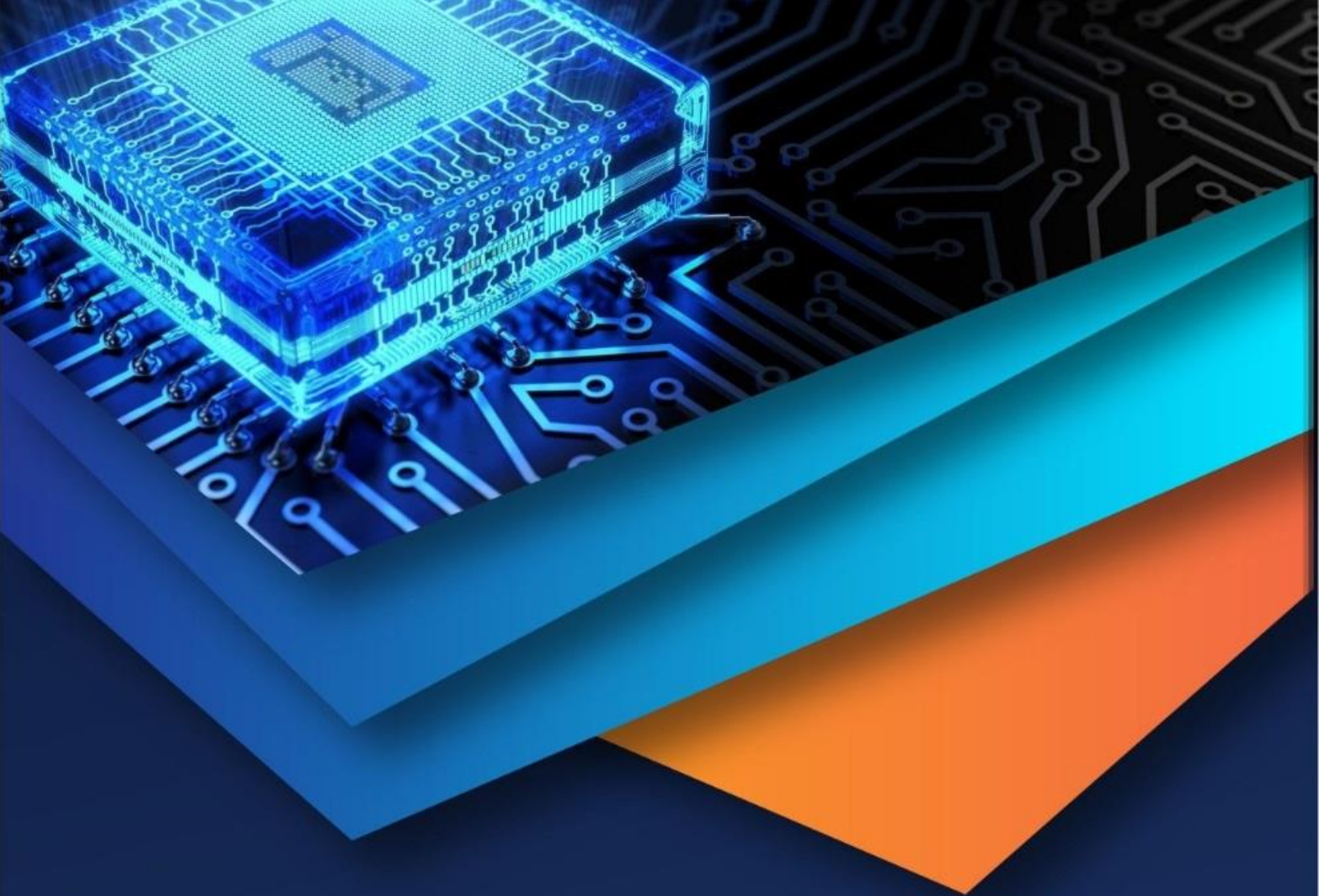
Three priorities follow. First, the provisional and unidentified taxa listed in Tables 1 and 2 should be verified through herbarium voucher collection, so that the local nomenclature is anchored to confirmed botanical identities. Second, the ethnomedicinal claims recorded here warrant phytochemical and pharmacological investigation before any therapeutic significance is inferred. Third, and most urgently, participatory safeguarding—recording the herbal practitioner's knowledge in full, and supporting the elders who teach dance and weaving—should be undertaken while living custodians remain. Documenting and transmitting this knowledge to younger generations is essential both to maintain community identity and to conserve a locally adapted, low-cost body of ecological understanding that modern systems cannot readily replace.

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