

Conservation Potential of Traditional Medicinal Plants in the Customary Forest Area of Saibi Samukop Village, Central Siberut, Mentawai Islands Regency

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ABSTRACT: The Customary Forest area of Saibi Samukop Village, Central Siberut District, Mentawai Islands Regency, harbors a rich diversity of medicinal plants that serve as a primary source of healthcare for the local Mentawai indigenous community. Ethnobotanical knowledge is traditionally inherited across generations through figures such as *Sikerei* and *Simatak*, forming an integral part of local wisdom that underpins community health and biological resource preservation. This study aims to identify the species diversity of traditional medicinal plants, describe their utilization patterns by the indigenous community, and evaluate conservation strategies based on local wisdom. A qualitative ethnobotanical approach was employed, incorporating participant observation, cruising surveys, in-depth interviews, and field documentation. Informants were selected using purposive sampling, consisting of *Sikerei*, *Simatak*, customary leaders, village officials, and local experts on medicinal plants. The collected data were analyzed using descriptive qualitative and thematic analysis. The results identified 107 medicinal plant species utilized to treat various ailments within the Mentawai traditional health framework. The dominant plant families observed were Zingiberaceae, Euphorbiaceae, Rubiaceae, Acanthaceae, Moraceae, and Arecaceae. Leaves were the most commonly used plant part, primarily prepared through decoction, concoction, pounding, or direct topical application. Local conservation practices are actively reinforced through customary regulations (*adot*), selective harvesting, customary forest protection, and intergenerational knowledge transfer. This study demonstrates that the synergy between medicinal plant preservation and indigenous knowledge serves as a critical strategy for biodiversity conservation and the long-term sustainability of traditional medical systems in the Mentawai Islands.

KEYWORDS: Ethnobotany, Traditional medicinal plants, Conservation, Customary forest, Mentawai community, Local wisdom

I. INTRODUCTION

Indonesia is one of the megabiodiverse countries with the highest levels of biodiversity in the world. Its flora is estimated to comprise over 30,000 plant species, of which approximately 9,600 possess recognized medicinal potential, and more than 300 species are actively utilized as raw materials for traditional remedies and pharmaceutical industries. This rich biodiversity represents a vital asset for supporting healthcare systems, natural resource conservation, and bio-based economic development. Furthermore, the World Health Organization estimates that nearly 80% of the global population relies on traditional medicine as part of primary healthcare, particularly in developing nations [1]. This highlights that medicinal plants possess not only ecological value but also profound social, cultural, economic, and health significance.

Indonesia is home to hundreds of indigenous communities that maintain traditional knowledge for the sustainable utilization of forest resources. This knowledge has evolved through prolonged environmental adaptation and is transmitted intergenerationally. A prominent form of this local wisdom is the application of medicinal plants as an alternative treatment for various ailments. This practice falls within the domain of ethnobotany, the study of the dynamic relationships between humans and plants, including their uses as food, medicine, and in ritual or cultural contexts [2], [3]. Consequently, the conservation of medicinal plants is inextricably linked to preserving the indigenous knowledge that underpins their usage.

The Mentawai Islands region is characterized by high biodiversity and a rich cultural heritage. Siberut Island, the largest island in the archipelago, was designated a UNESCO Biosphere Reserve in 1981 due to its relatively intact tropical rainforest ecosystem and

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high level of floral and faunal endemism. Beyond serving as a habitat for endemic species, the forest ecosystem on Siberut provides essential resources for the Mentawai indigenous community. For the Mentawai people, the forest is not merely a source of food and shelter, but a living space imbued with spiritual, social, and cultural value. Various plant species inhabiting the forest are harvested for daily necessities, including traditional healthcare remedies.

The Mentawai indigenous health system relies heavily on knowledge transmitted by Sikerei, traditional healers and cultural figures who act as custodians of local botanical knowledge. A related status is held by Simatak, individuals who fulfill a similar healing role but differ primarily in the cultural regalia and attributes worn during healing practices. This traditional knowledge encompasses plant identification, specific plant parts utilized, preparation methods, dosage, and harvesting ethics governed by customary norms. This healthcare system remains critical to local well-being, especially given the limited access to modern healthcare facilities in remote parts of Siberut. Thus, medicinal plants play a strategic role in sustaining indigenous community health and preserving Mentawai cultural identity.

Saibi Samukop Village, located in Central Siberut District, retains a customary forest (Hutan Adat) area with relatively well-preserved vegetation. This customary forest serves as a primary source for plants used in nutrition, construction materials, customary rituals, and traditional medicine. Local residents continue to utilize various plant species to treat ailments such as fever, malaria, digestive disorders, skin conditions, wounds, hypertension, and postnatal care. This ongoing reliance underscores the customary forest's role as a vital repository of medicinal plant germplasm that requires sustainable management.

However, traditional medicinal plant resources within the customary forest face increasing threats. Land-use changes, forest resource exploitation, economic expansion, shifting lifestyles, and declining interest among younger generations in learning traditional knowledge contribute to the erosion of traditional healing practices. Additionally, the intergenerational transfer of knowledge from Sikerei to younger community members is diminishing, raising concerns over the permanent loss of ethnobotanical wisdom. These challenges demonstrate that threats to medicinal plants encompass both ecological degradation and socio-cultural erosion.

Numerous ethnobotanical studies in Indonesia have documented medicinal plants utilized by indigenous groups. However, most existing research focuses primarily on species inventorying and usage, while comprehensive studies integrating medicinal plant potential with local wisdom-based conservation strategies remain limited, particularly in the Customary Forest of Saibi Samukop Village, Central Siberut. Furthermore, empirical research linking vegetation diversity, usage intensity, and traditional Mentawai conservation practices is scarce. Addressing this research gap is essential for developing sustainable management frameworks that align with indigenous cultural values.

This study is significant because it not only documents the diversity and utility of traditional medicinal plants in the customary forest, but also evaluates local conservation mechanisms, including customary regulations (adat), sustainable harvesting practices, and intergenerational knowledge transmission. The findings are expected to provide a scientific foundation for community-based medicinal plant conservation strategies and contribute to sustainable customary forest management policies in the Mentawai Islands Regency.

Based on these considerations, this study aims to: (1) identify the diversity of traditional medicinal plant species within the Customary Forest area of Saibi Samukop Village, Central Siberut District, Mentawai Islands Regency; (2) analyze the utilization patterns of medicinal plants by the Mentawai indigenous community; and (3) formulate local wisdom-based conservation strategies to support biodiversity sustainability and preserve indigenous traditional knowledge.

II. METHOD

A. Research Informants

Informants were selected using a purposive sampling technique, choosing key individuals based on their explicit knowledge, long-standing experience, and direct involvement in traditional medicinal plant utilization. The informant pool comprised Sikerei and Simatak (traditional healers), customary leaders (kepala adat), community elders, village officials, and local residents actively practicing herbal medicine. Purposive sampling ensures the acquisition of rich, context-specific data aligned with the research objectives [4]. The total number of informants was governed by the principle of data saturation, concluding when information became repetitive and no new theoretical insights emerged [5].

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B. Data Collection Methods

1. Participant Observation: Participant observation was conducted by directly accompanying community members during their routines in identifying, harvesting, processing, and applying medicinal plants within the customary forest area. The habitat conditions, harvesting practices, and local conservation ethics were simultaneously observed. Participant observation enables researchers to comprehend human behavior within its natural context, yielding deeper insights than non-participatory approaches [6].
2. Cruising Survey: The inventorying of medicinal plant species was executed via the cruising survey method by traversing traditional forest trails commonly utilized by the community to gather botanical resources. Throughout the survey, the research team was accompanied by two Simatak. Simatak refers to Mentawai traditional healers who possess medicinal concoction skills comparable to Sikerei, but conduct healing practices without performing spirit-invocation rituals (kereii). For each plant encountered, data recorded included its local name, Indonesian name, scientific name, family, growth habit, utilized plant parts, therapeutic applications, preparation methods, and spatial distribution. Digital photography was utilized for field documentation, while geographic coordinates were recorded using a Global Positioning System (GPS) device. The cruising survey is a standard ethnobotanical method capable of documenting species based on local knowledge while assessing ecological habitat contexts [3], [7].
3. In-Depth Interviews: Primary data regarding traditional knowledge, utilization patterns, preparation techniques, customary laws (adot), and local conservation measures were gathered through in-depth, semi-structured interviews. Interviews were conducted with Sikerei, Simatak, customary figures, village administrators, and experienced local practitioners. The semi-structured format allowed flexible exploration of unexpected themes based on informant responses. In-depth interviewing serves as a foundational qualitative technique for evaluating informant perspectives, beliefs, and indigenous knowledge [8].
4. Documentation: Field documentation was employed to complement observation and interview datasets. This encompassed high-resolution photography of medicinal plants in situ, habitat environments, harvesting routines, preparation processes, and relevant local administrative documents. Documentation serves as secondary empirical evidence that reinforces qualitative observation and interview findings [4].

C. Species Identification

Plant species encountered in the field were taxonomically identified using morphological traits analyzed through botanical literature and regional flora guidebooks, augmented by Google Lens visual recognition technology as a preliminary screening tool. All initial visual identifications were subsequently verified against formal botanical reference literature and validated by botanical experts to ensure taxonomic precision [7].

D. Data Analysis

Field data were processed using descriptive qualitative analysis and thematic analysis. Descriptive analysis was applied to summarize inventory data, including species richness, botanical family distribution, growth habit, plant parts used, targeted diseases, and preparation techniques. Data are presented through synthesis tables, figures, and narrative descriptions to depict the medicinal plant potential [9]. Thematic analysis was utilized to categorize qualitative insights regarding customary conservation practices and knowledge transmission.

E. Data Trustworthiness

To ensure data credibility and rigor, source triangulation, technique triangulation, and member checking were implemented [10]. Source triangulation involved cross-verifying information across Sikerei, Simatak, customary leaders, and general community users. Technique triangulation was executed by cross-referencing observational notes, interview transcripts, and photographic documentation. Furthermore, member checking was conducted by presenting synthesized interview data back to key informants to validate contextual accuracy.

III. RESULT AND DISCUSSION

A. Taxonomic Profile and Diversity of Medicinal Plants

The ethnobotanical inventory conducted in the Customary Forest of Saibi Samukop Village, Central Siberut District, Mentawai Islands Regency, recorded a total of 107 medicinal plant species distributed across various botanical families (the representative subset

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is shown in Table 1; complete 107 species data are provided in Appendix 1). As detailed in Table 1, the most dominant families utilized by the local community include Zingiberaceae, Acanthaceae, Rubiaceae, Moraceae, Arecaceae, and Orchidaceae.

The taxonomic predominance of Zingiberaceae, Acanthaceae, and Rubiaceae aligns with global ethnobotanical patterns observed across tropical regions. These families are widely recognized for their rich profiles of active secondary metabolites—such as alkaloids, flavonoids, terpenoids, and essential oils which underpin their widespread application in traditional primary healthcare systems [1], [11].

Note on Ethnobotanical Classification: Certain botanical species in Table 1 (such as *Graptophyllum pictum*, *Justicia gendarussa*, and *Alpinia galanga*) appear in multiple entries. This reflects the local Mentawai indigenous classification system, where a single botanical taxon with distinct morphological varieties or color variations (*simaingo* vs. *sibulau*) is assigned separate local names (vernacular names) and specific therapeutic applications by the Sikerei and Simatak.

Table 1. Inventory of Medicinal Plant Species in Saibi Samukop Village, Central Siberut District, Mentawai Islands Regency.

No	Family	Scientific Name	Local Name (Mentawai)	Indonesian Name	Habit	Organ	Therapeutic Indication	Preparation & Mode of Administration	Location
1	Zingiberaceae	<i>Hedychium coronarium</i>	Sikukuet	Gandasuli	Hr	Ri	<i>Lukluk</i> (Abdominal pain from navel radiating to back)	(R) Grate leaves & rhizomes, mix with companion herbs, infuse in hot water; drink liquid, massage & apply residue topically.	Ht
2	Iridaceae	<i>Eleutherine bulbosa</i>	Sebbui	Bawang dayak	Ph	Kb	Internal ailments / <i>Siripusou</i>	(R) Grated bark incorporated into complex internal formulations.	Ht
3	Polypodiaceae	<i>Microsorium pteropus</i>	Leba	Pakis Jawa	Tr	Kb	Internal ailments / <i>Siripusou</i>	(R) Grated and blended into multi-herb remedies.	Ht
4	Cyperaceae	<i>Kyllinga nemoralis</i>	Boku-boku	Rumput teki/pendul	Cal	D	Internal ailments / <i>Siripusou</i>	(R) Grated leaves integrated into internal concoctions.	Ht
5	Piperaceae	<i>Piper betle</i>	Talinge ngeng siboitok	Daun sirih	Pr	D	Internal ailments / <i>Siripusou</i>	(R) Grated leaves integrated into internal concoctions.	Ht
6	Menispermaceae	<i>Tinospora crispa</i>	Baba	Brotowali	Pr	D	Internal ailments / <i>Siripusou</i>	(R) Grated leaves integrated into internal concoctions.	Ht
7	Zingiberaceae	<i>Kaempferia galanga</i> L.	Sikopuk	Kencur	Hr	D	Internal ailments / <i>Siripusou</i>	(R) Grated leaves integrated into internal concoctions.	Ht

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8	Asteraceae	<i>Crassocephalum crepidioides</i>	Sanggrainok	Sintrong	Pr	D	Internal ailments / <i>Siripusou</i>	(R) Grated leaves integrated into internal concoctions.	Ht
9	Fabaceae	<i>Entadaphaseoloideis</i>	Teteket / pulanggurek	Akar beluru	Li	Kb	Internal ailments / <i>Siripusou</i>	(R) Scrapings of bark grated and mixed into concoctions.	Ht
10	Rubiaceae	<i>Nauclea subdita</i>	Kabobokbok simaingo	Menangit	Ph	Kb, D	<i>Siripusou</i> / <i>Tombak</i> disease	(R) Scrape bark & grate leaves, infuse in hot water; drink liquid, massage & apply residue.	Ht
11	Rubiaceae	<i>Mitragyna speciosa</i>	Kabobokbok sibulau	Kratom	Ph	Kb, D	<i>Siripusou</i> / <i>Tombak</i> disease	(R) Formulated with <i>Kabobokbok</i> group, infused or applied as poultice.	Ht
12	Rubiaceae	<i>Nauclea orientalis</i>	Kalumanang simaingo	Gempol	Ph	D	<i>Siripusou</i> / <i>Tombak</i> disease	(R) Formulated with <i>Kabobokbok</i> group, infused or applied topically.	Ht
13	Euphorbiaceae	<i>Excoecaria cochinchinensis</i>	Sibeusiokkok	Sambang darah	Pr	D	Secondary remedy for <i>Siripusou</i>	(R) Grate leaves, boil inside bamboo container with water, drink.	Ht
14	Lamiaceae	<i>Premna odorata</i>	Sipeupeu	Singkil	Pr	D	Secondary remedy for <i>Siripusou</i>	(R) Grate leaves, boil inside bamboo container with water, drink.	Ht
15	Zingiberaceae	<i>Alpinia galanga</i>	Singisingin	Lengkuas	Hb	Ri	Secondary remedy for <i>Siripusou</i>	(R) Grate rhizome, decoct in bamboo, drink liquid.	Ht
16	Zingiberaceae	<i>Elettaria cardamomum</i>	Sipurerenggeu	Kapulaga	Hb	Ri	Secondary remedy for <i>Siripusou</i>	(R) Grate rhizome, decoct in bamboo, drink liquid.	Ht
17	Zingiberaceae	<i>Etlingera elatior</i>	Sairsaira	Kecombrang	Hb	Ri	Secondary remedy for <i>Siripusou</i>	(R) Grate rhizome, decoct in bamboo, drink liquid.	Ht
18	Annonaceae	<i>Stelechocarpus burahol</i>	Bakbak siboitok	Kepel	Li	Bt, D	<i>Sibara kaoinan</i> (Cold/painful lower abdomen)	(R) Grate bark & leaves, add coconut oil, infuse; drink, massage & apply residue.	Ht
19	Asteraceae	<i>Vernonia amygdalina</i>	Bakbak sabeu	Daun afrika	Hb	Bt, D	<i>Sibara kaoinan</i> disease	(R) Processed alongside <i>Bakbak</i>	Ht

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								mixture, ingested & applied topically.	
20	Acanthaceae	<i>Justicia gendarussa</i>	Eruk teinung	Gandarusa	Pr	D	<i>Sibara kaoinan</i> disease	(R) Incorporated as a companion herb in massaging and poultice remedies.	Ht
21	Phyllanthaceae	<i>Baccaurea macrocarpa</i>	Onam	Tampoi	Ph	D	Internal ailments / <i>Siripusou</i>	(R) Mixed into internal formulations.	Ht
22	Anacardiaceae	<i>Mangifera foetida</i>	Buluk sailoppak	Bacang / Limus	Pr	D	Internal ailments / <i>Siripusou</i>	(R) Mixed into internal formulations.	Ht
23	Menispermaceae	<i>Pycnarrhena cauliflora</i>	Mamagri	Sengkubak	Ph	D	Internal ailments / <i>Siripusou</i>	(R) Mixed into internal formulations.	Ht
24	Moraceae	<i>Ficus montana</i>	Kalulubak	Uyah-uyahan	Hb	Bh	Chronic boils (<i>Tubak</i>)	(T) Clean fresh fruits and swallow whole.	Ht
25	Orchidaceae	<i>Coelogyne asperata</i>	Bakkapat silaluk	Anggrek mutiara	Hb	Bt	<i>Sigogook</i> / <i>Silotcit</i> (Axillary boils)	(T) Grate stem, mix with turmeric & coconut oil, apply topically as poultice.	Ht
26	Acanthaceae	<i>Graptophyllum pictum</i>	Aileppet simaingo	Daun ungu	Pr	D	<i>Lango</i> (Postpartum chills & headache)	(R) Grate leaves, soak in hot water; drink small amount, massage rest over body.	Ht
27	Acanthaceae	<i>Graptophyllum pictum</i>	Aileppet sibulau	Daun ungu / Handeleum	Pr	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht
28	Acanthaceae	<i>Justicia gendarussa</i>	Pangasele simaingo	Gandarusa	Pr	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht
29	Acanthaceae	<i>Justicia gendarussa</i>	Pangasele sibulau	Gandarusa	Pr	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht
30	Piperaceae	<i>Piper betle</i>	Talingengeng	Sirih	Li	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht
31	Rubiaceae	<i>Paederia foetida</i>	Susru	Sembukan / Daun kentut	Pr	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht
32	Pteridaceae	<i>Pteris orizabae</i>	Taimalaulau	Pakis / Paku	Pr	D	<i>Lango</i> disease	(R) Grated and blended into <i>Lango</i> formulation.	Ht

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33	Zingiberaceae	<i>Hedychium coronarium</i>	Saimakka inau	Jahe hutan	Hb	Bh, Bga	Lango disease	(R) Infuse flowers/fruits with hot water alongside Lango mixture.	Ht
34	Moraceae	<i>Ficus roxburghii</i>	Kalumattei siboitok	Ara Roxburgh	Ph	Kb, D	Agib (Pain in left upper quadrant of abdomen)	(R) Grate leaves & bark, infuse; drink liquid, apply poultice below left rib cage.	Ht
35	Moraceae	<i>Ficus auriculata</i>	Kalumattei sabeu	Ara telinga gajah	Ph	Kb, D	Agib disease	(R) Grated and blended into Kalumattei group formulation.	Ht
36	Arecaceae	<i>Socratea exorrhiza</i>	Oilap	Palem berjalan	Ph	Kb, D	Agib disease	(R) Grated and blended into Kalumattei group formulation.	Ht
37	Zingiberaceae	<i>Zingiber</i> sp.	Pelekak	Jahe	Pr	Bt	Agib disease	(R) Grate stem/rhizome as companion ingredient.	Ht
38	Cyperaceae	<i>Cyperus articulatus</i> L.	Kopuk	Kencur / Teki	Hr	D	Agib disease	(R) Grate leaves as companion ingredient.	Ht
39	Zingiberaceae	<i>Etlingera elatior</i>	Totonan	Kecombrang	Pr	Bt	Agib disease	(R) Grate stem as companion ingredient.	Ht
40	Arecaceae	<i>Metroxylon sagu</i>	Sagu	Sagu	Ph	Ri	Sinorokat (Pain in lower right abdomen)	(R) Grate shoot/rhizome, infuse in bamboo, drink 3x daily, massage liquid on abdomen.	Ht
41	Arecaceae	<i>Astrocaryum chambira</i>	Rui	Palm berduri	Pr	Um	Sinorokat disease	(R) Infuse in bamboo alongside sago formulation.	Ht
42	Marantaceae	<i>Donax cannaeformis</i>	Tousiu	Bamban	Tr	Um	Sinorokat disease	(R) Infuse in bamboo alongside sago formulation.	Ht
43	Malvaceae	<i>Sterculia oblongata</i>	Ikgou keru	Hantap	Ph	Bt, D	Sinorokat disease (Secondary remedy)	(R) Grate leaves & branch bark separately, infuse; drink branch liquid first, then leaf liquid, apply poultice.	Ht

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44	Commelinaceae	<i>Aneilema imeolatum</i>	Sibuka	Aneilema	Hb	Kb, D	<i>Pakop Sagu</i> (Dysuria, constipation, bloody stool)	(R) Infuse in hot water; drink liquid, warm up residue and apply as abdominal poultice.	Ht
45	Rubiaceae	<i>Paederia foetida</i>	Susru	Sembukan	Pr	Bt, D	<i>Pakop Sagu</i> disease	(R) Formulated with <i>Sibuka</i> ; drink liquid and apply warmed residue topically.	Ht
46	Basellaceae	<i>Anredera cordifolia</i>	Sirorop	Binahong	Li	D	<i>Laggek Sirorop</i> (Swelling from boils/joints)	(R) Grate leaves, mix with turmeric & coconut oil, rub topically over swollen area.	Ht
47	Phyllanthaceae	<i>Phyllanthus niruri</i>	Katuakup / Peremabai	Meniran	Pr	D	<i>Simanene simabulau</i> (Cervical lymphadenopathy)	(T) Grate leaves, mix with turmeric & coconut oil, apply topically as poultice.	Ht
48	Costaceae	<i>Cheilocostus speciosus</i>	Bagli-bagli simapilek	Pacing tawar	Pr	D	<i>Pilek Lolokkat</i> (Acute torticollis / stiff neck)	(T) Grate exactly 5 leaves, mix with turmeric, kencur & coconut oil, massage onto neck.	Ht
49	Asparagaceae	<i>Cordyline fruticosa</i>	Boblo simaingo	Hanjuang	Pr	Bt, D	<i>Siripusou</i> (Pulsating abdominal pain around navel)	(R) Infuse in hot water; drink liquid, apply heat-wilted leaf tip directly over navel.	Ht
50	Asparagaceae	<i>Cordyline fruticosa</i>	Siteppek	Andong merah	Pr	D	<i>Siripusou</i> disease	(R) Used as companion leaf in <i>Boblo</i> formulation.	Ht
51	Moraceae	<i>Ficus racemosa</i>	Karama nggra	Ara hutan / Loa	Ph	Bh	<i>Laggek sibara kaleleu</i> (Midday fever & chills)	(R) Grate all ingredient plants, boil until decocted; use liquid for therapeutic bathing.	Ht
52	Moraceae	<i>Ficus callosa</i>	Kalilima u	Pangsor	Ph	Bh	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
53	Polypodiaceae	<i>Pyrrosia eleagnifolia</i>	Siguruijat sigep	Sisik naga	Li	Bt	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht

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54	Blechnaceae	<i>Blechnum filiforme</i>	Paipaipoi	Pakis Blechnum	Li	SO	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
55	Polypodiaceae	<i>Pteridophyta</i>	Ubbau	Paku / Pakis	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
56	Araliaceae	<i>Trevesia sundaica</i>	Erat	Tapak hantu	Ph	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
57	Araliaceae	<i>Polyscias filicifolia</i>	Siklu	Cakra cikri	Pd	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
58	Blechnaceae	<i>Doodia linearis</i>	Sipualupat	Anggrek epifit	Hb	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
59	Altingiaceae	<i>Altingia excelsa</i>	Kenenean	Rasamala	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
60	Begoniaceae	<i>Begonia palmata</i>	Derat toulou	Begonia	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
61	Aspleniaceae	<i>Asplenium nidus</i>	Karakkat	Pakis sarang burung	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Used exclusively as a cover sheet for decoction vessel.	Ht
62	Polypodiaceae	<i>Phymatosorus scolopendria</i>	Soga	Pakis bentol	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
63	Smilacaceae	<i>Smilax leucophylla</i> Blume	Toktuk geta	Canar	Pr	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
64	Asteraceae	<i>Silphium perfoliatum</i>	Siputak ep	Tanaman cangkir	Li	D	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
65	Araceae	<i>Homalomena</i> sp.	Kasuka	Kemoyang	Hb	Bh	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
66	Zingiberaceae	<i>Etlingera hemisphaerica</i>	Sikka-sikka	Honje merah	Hb	Ri	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
67	Zingiberaceae	<i>Alpinia galanga</i>	Singi-Singin	Lengkuas	Hb	Ri	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
68	Zingiberaceae	<i>Etlingera elatior</i>	Gojo / Totonan	Kecombrang	Hb	Ri	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht

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69	Marantaceae	<i>Phrynium pubinerve</i>	Sailulua	Daun patat	Hb	Ri	<i>Laggek sibara kaleleu</i>	(R) Blended into therapeutic herbal bath decoction.	Ht
70	Dennstaedtiaceae	<i>Pteridium aquilinum</i>	Saksak	Pakis elang	Tn	D	Fever / Internal malaise	(T) Grate leaves and infuse in warm water.	Ht
71	Pandanaceae	<i>Pandanus amaryllifolius</i>	Okgaga	Pandan	Hb	D	Sedative formula additive	(T) Grate leaves and infuse.	Ht
72	Nephrolepidaceae	<i>Nephrolepis biserrata</i>	Patiruruk	Paku pedang	Hb	D	Internal disorders	(T) Grate leaves and drink liquid.	Ht
73	Aspleniaceae	<i>Asplenium nidus</i>	Karakkat	Kadaka	Hb	D	Vessel cover ingredient	Used strictly to cover traditional boiling pots.	Ht
74	Phyllanthaceae	<i>Baccaurea lanceolata</i>	Tekgeiluk	Lempaung	Ph	D	<i>Uji Laut</i> disease	(R) Harvest half of 9 leaves per plant, mix rhizomes, grate, infuse; drink, bathe & massage.	Ht
75	Phyllanthaceae	<i>Baccaurea racemosa</i>	Sileu	Menteng / Kepundung	Ph	D	<i>Uji Laut</i> disease	(R) Formulated with <i>Tekgeiluk</i> mixture.	Ht
76	Urticaceae	<i>Laportea simulans</i>	Alalatek	Jelatang	Ph	D	<i>Uji Laut</i> disease	(R) Formulated with <i>Tekgeiluk</i> mixture.	Ht
77	Urticaceae	<i>Clerodendrum paniculatum</i>	Sulei	Pagoda	Pr	D	External fever symptoms	(T) Grate leaves and apply topically.	Ht
78	Rubiaceae	<i>Uncaria gambir</i>	Tamesi	Gambir	Pr	Kb, D	Gastrointestinal / Aphthous stomatitis	(T) Grate bark/leaves and drink extract.	Ht
79	Anacardiaceae	<i>Mangifera kemanga</i>	Tumu	Binjai	Ph	Kb, D	Dermatological swelling	(T) Scrape bark and apply topically.	Ht
80	Euphorbiaceae	<i>Mallotus peltatus</i>	Kabobok simaker ek	Tutup beling	Pr	Kb, D	<i>Siripusou</i> / Infections	(R) Processed within the <i>Kabobokbok</i> complex group.	Ht
81	Acanthaceae	<i>Strobilanthes crispa</i>	Sairiake	Pecah beling	Pr	Ak	Helminthiasis & Dietary antitoxin	(R) Grate root, leaves & fruit, boil inside bamboo container, drink warm.	Ht
82	Asteraceae	<i>Crassocephalum crepidioides</i>	Sepsept	Sintrong	Hb	Ak, D	External wounds / Infections	(T) Crush leaves & root, apply topically as poultice.	Ht

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83	Aristolochiaceae	<i>Apama tomentosa</i>	Kairiggi bilou	Singa depa	Ph	Bh	Antidote for poisoning	(T) Grate fruit and infuse in warm water.	Ht
84	Arecaceae	<i>Chamaedorea seifrizii</i>	Pelege	Palem bambu	Pr	D	Internal disorders	(T) Grate leaves and infuse.	Ht
85	Arecaceae	<i>Socratea exorrhiza</i>	Oilap	Palem berjalan	Ph	D	Internal disorders	(T) Grate leaves and infuse.	Ht
86	Arecaceae	<i>Calamus draco</i>	Tasep	Jernang	Li	D	Diarrhea / Hemorrhage	(T) Express juice from leaves/resin and ingest.	Ht
87	Lauraceae	<i>Alseodaphne perakensis</i>	Aleppet leleu	Medang ketanah	Pr	D, Kb	<i>Sibara kaionan</i> (Abdominal coldness & pain)	(T) Grate bark & leaves, mix with kencur & sweet oil, express juice to drink, rub residue.	Ht
88	Arecaceae	<i>Arenga pinnata</i>	Poula	Aren	Ph	Um	<i>Bolot saini</i> (Severe cervical swelling & odynophagia)	(R) Grate palm shoot, mix with bamboo water, strain; drink liquid, rub residue onto neck.	Ht
89	Arecaceae	<i>Oncosperma tigillarium</i>	Ariribuk	Nibung	Pr	Um	Cervical swelling	(R) Formulated alongside sugar palm shoot.	Ht
90	Rubiaceae	<i>Morinda citrifolia</i>	Labbek	Mengkudu	Pr	Um	Inflammation / Swelling	(R) Formulated alongside sugar palm shoot.	Ht
91	Solanaceae	<i>Solanum lasiocarpum</i>	Dodolu	Terung dayak	Pr	Bga	Lactational mastitis / Breast swelling	(T) Grate flowers, infuse in hot water, allow to cool; drink small portion, rub rest on breast.	Ht
92	Moraceae	<i>Ficus padana</i>	Ebbeu	Hamerang putih	Pr	Bh	<i>Jomang</i> (Pruritic erythematous rash with conjunctivitis)	(R) Pierce fruit with knife (hand contact taboo), grate, mix with kencur & oil, rub topically.	Ht
93	Euphorbiaceae	<i>Baccaurea</i> sp.	Tekgeiluk Anitu	Rambai	Ph	Ak, Kb	Acute abdominal pain	(T) Pound roots, scrape bark, boil in bamboo with sugarcane juice, drink liquid.	Ht
94	Euphorbiaceae	<i>Phyllanthus urinaria</i> L.	Ikkuk	Meniran	Hb	Ak, D	<i>Langok</i> (Postpartum)	(T) Grate roots & leaves, infuse in	Ht

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							maternal care)	bamboo with warm water, drink.	
95	Euphorbia ceae	<i>Drypetes</i> sp.	Sigipgipi	Kayu kikir / Gambe	Ph	D	Asthma / Dyspnea	(T) Grate leaves, express juice, mix with sugarcane juice, drink.	Ht
96	Euphorbia ceae	<i>Euphorbia tirucalli</i>	Sitatakki	Kayu urip / Tikel balung	Pr	Bt	Fractures & Sprains	(R) Crush stem, mix with turmeric & coconut oil, massage onto affected joint/bone.	Ht
97	Euphorbia ceae	<i>Acalypha</i> sp. (<i>Welkesiana</i>)	Sasai	Akalipa / Sablo	Ph	Ak, D	Cephalea / Headache	(T) Decoct root in bamboo to drink; Grate leaves and apply as forehead poultice.	Hi
98	Euphorbia ceae	<i>Phyllanthus niruri</i> L.	Tikkup	Meniran hijau	Hb	Ak	Helminthiasis	(T) Crush roots, infuse in bamboo with warm water, drink.	Hi
99	Euphorbia ceae	<i>Mallotus</i> sp.	Eggleu	Kapasan	Ph	D, Bh	Amenorrhea / Oligomenorrhea	(T) Grate leaves & fruit, express juice to drink; Apply residue as forehead compress.	Ht
100	Polypodiaceae	<i>Blechnum</i> sp.	Sabbai	Pakis rusa	Hb	D	Measles	(T) Grate leaves, express juice, mix with sugarcane juice, drink.	Ht
101	Polypodiaceae	<i>Dicksonia blumei</i> Moore	Subbaba	Paku kidang	Hb	D	Tinea versicolor / Fungal skin infection	(R) Crush leaves, mix with turmeric & coconut oil, rub topically over lesions.	Ht
102	Polypodiaceae	<i>Microsorium nigrescens</i>	Soga	Paku sejati	Li	D	Appendicitis symptoms	(R) Grate leaves, mix with kencur (<i>kopuk</i>), express juice, drink.	Ht
103	Orchidaceae	<i>Trichoglottis subulata</i>	Palakuruk	Anggrek tirai	Pr	D	Measles	(R) Grate leaves, mix with kencur & sugarcane juice, express juice, drink.	Ht
104	Orchidaceae	<i>Coelogyne incrassata</i>	Bakkapatt silaluk	Anggrek mutiara	Li	Bt	Furuncles & Snakebites	(R) Grate stem, mix with turmeric & coconut oil, apply	Ht

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								topically over lesion/bite.	
105	Orchidaceae	<i>Spathoglottis affinis</i>	Jingak-jingak	Anggrek congkok kuning	Cal	D	Lumbago / Back pain	(R) Grate leaves, mix with turmeric & coconut oil, massage onto lumbar region.	Ht
106	Commelinaceae	<i>Aneilema imeolatum</i>	Sibuka	Rumput tapak burung	Hb	Ak	Abdominal colic	(T) Crush roots, decoct in bamboo with warm water, drink.	Ht
107	Commelinaceae	<i>Commelina diffusa</i>	Repa-repa	Aur-aur	Cal	SO	Abdominal colic	(R) Decoct root to drink; Grate stem & leaves + turmeric & coconut oil to massage abdomen.	Ht

Header Abbreviations & Codes:

- Habit (KTG): Ph = Tree (*Pohon*), Pr = Shrub (*Perdu*), Hb = Herb (*Herba*), Li = Liana/Climber, Hr = Grass/Reed (*Rumput*), Cal = Palm/Rattan (*Palem/Calamus*), Tr = Fern (*Tumbuhan Paku*).
- Organ Used: D = Leaf (*Daun*), Bt = Stem (*Batang*), Kb = Bark (*Kulit Batang*), Ri = Rhizome (*Rimpang*), Ak = Root (*Akar*), Bh = Fruit (*Buah*), Bga = Flower (*Bunga*), Um = Shoot/Tuber (*Umbi/Umbut*), SO = Whole Plant (*Seluruh Organ*).
- Method: (R) = Multi-herb Concoction (*Ramuan Kombinasi*), (T) = Single-herb Remedy (*Tunggal*).
- Location (LKS): Ht = Customary Forest (*Hutan Adat*), Hl = Homegarden (*Halaman/Pekarangan*).

B. Analysis of Growth Habits and Harvested Plant Parts

The growth habits (habitus) of the recorded medicinal flora in Saibi Samukop are dominated by trees (Ph), shrubs (Pr), and herbs (Hb), followed by lianas (Li), ferns (Tr), and palms (Cal). Herbaceous and shrubby species are preferentially utilized in primary remedies due to their high accessibility within secondary forests and the tropical understory canopy [2], [3]. In terms of plant organs harvested, leaves (folium) constitute the most frequently utilized part, followed by stem bark (cortex), rhizomes (rhizoma), roots (radix), stems (caulis), and fruits/flowers. The heavy reliance on foliage reflects a common pattern in global ethnobotanical studies [12]. From an ecological perspective, leaf harvesting is fundamentally non-destructive compared to root uprooting or bark ringbarking. Removing foliage allows rapid vegetative regeneration, ensuring the conservation and long-term survival of the plant populations in the customary forest ecosystem [7], [13].

C. Traditional Preparation Techniques and Ethnomedicinal Formulations

The formulation of traditional remedies in Saibi Samukop exhibits a structured system categorized into single-herb remedies (*Tunggal*) and multi-herb combination formulas (*Ramuan Komposisi*):

1. Extraction Methods: Mechanical processing such as grating (*diparut*), pounding (*ditumbuk*), and thermal extraction via hot water infusion or decoction inside green bamboo stems facilitates the release of bioactive compounds [14]. The use of bamboo tubes as natural cooking vessels is a specialized traditional extraction technique that maintains controlled heating without degrading heat-sensitive phytochemicals.
2. Administration Routes: Concoctions are administered orally (ingested liquids) or topically (massaged over the skin, applied as a warm poultice/compress, or used in therapeutic steam/herbal baths).
3. Carrier Mediums and Adjuvants: Coconut oil (*minyak manis*), sugarcane juice, and aromatic rhizomes (*kencur* and *jahe*) serve as essential carriers. Coconut oil acts as a lipophilic solvent that enhances transdermal drug delivery during massage or topical poultice application [15].

This ethnomedicinal system reflects the holistic healthcare concept of the Mentawai people. Disease is viewed as a systemic disruption rather than an isolated physiological defect. As documented by Schefold [16] and Darmanto [17], Mentawai culture draws

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a distinction between Sikerei (spiritual healers who combine plant medicine with trance rituals) and Simatak (herbal practitioners who rely strictly on physical plant properties without spirit invocation).

D. Health Indications and Pharmacological Evidence

The 107 documented species address two primary categories of health conditions:

1. General Physical Ailments: Gastrointestinal disorders (colic, dysentery, constipation with bloody stool), respiratory conditions (asthma, cough), dermatological lesions (boils, ringworm, rash), musculoskeletal injuries (bone fractures, sprains), and maternal postpartum recovery (*langok*).
2. Culture-Bound Syndromes:
 - *Siripusou / Tombak*: Severe abdominal pain characterized by a distinct opposing pulsation near the navel.
 - *Sibara kaoinan*: A sensation of intense coldness and pain in the lower abdomen.
 - *Lango*: Postpartum fever, acute headache, and chills experienced by mothers.
 - *Laggek sibara kaleleu*: Recurrent high fever accompanied by severe chills occurring specifically during afternoon hours.

Key species utilized across these complex formulations have strong empirical support in modern pharmacological literature. For instance, *Mitragyna speciosa* (Kabobokbok Sibulau / Kratom) contains mitragynine alkaloids with established analgesic and anti-inflammatory mechanisms [18]. *Justicia gendarussa* (Pangasele) possesses rich concentrations of flavonoids and alkaloids that exhibit antipyretic and analgesic effects [15]. Furthermore, *Graptophyllum pictum* (Aileppet) contains active flavonoids and tannins with proven local anti-inflammatory efficacy [11].

E. Indigenous Knowledge and Conservation Strategies

The sustained abundance of 107 medicinal plant species within the Customary Forest (*Hutan Adat*) of Saibi Samukop is preserved through traditional customary laws (*adot*):

1. Customary Forest Governance (In-Situ Conservation): Strict customary rules against clear-cutting and industrial land clearing serve as a natural in-situ conservation framework, protecting forest biodiversity [19], [20].
2. Controlled Harvesting Protocols: Local healers follow sustainable harvesting codes. For example, when harvesting foliage from *Baccaurea lanceolata* (Tekgeiluk), customary norms restrict harvesting to only half of a leaf per plant, leaving the remaining tissue intact. This practice prevents overexploitation and preserves individual plant vigor [3], [21].
3. Erosion of Intergenerational Knowledge: Despite the rich botanical diversity, oral transmission of ethnomedicinal knowledge faces threats from youth migration, formal education shifts, and modern socio-economic changes. This erosion of indigenous botanical knowledge among younger generations reflects a broader global trend [22], [23].
4. Integration of Digital Identification Tools: Implementing AI-based computer vision tools (such as Google Lens) during field inventories offers an efficient method for rapid taxonomic verification as a preliminary screening step, while ensuring local plant names and indigenous knowledge remain fully respected and documented [24].

IV. CONCLUSIONS

This study documented a total of 107 medicinal plant species belonging to various botanical families utilized by the indigenous community of Saibi Samukop Village, Central Siberut District, Mentawai Islands Regency. The ethnomedicinal profile is heavily dominated by families such as Zingiberaceae, Euphorbiaceae, Rubiaceae, Acanthaceae, Moraceae, Arecaceae, and Orchidaceae, with tree, shrub, and herb growth forms being the primary sources of traditional remedies. Leaves (folium) emerged as the most frequently harvested plant organ, reflecting an ecologically sustainable and non-destructive harvesting practice that allows rapid vegetation recovery.

The local healthcare system exhibits a sophisticated combination of single-herb remedies and multi-herb formulations designed to treat both common physiological ailments (e.g., gastrointestinal issues, skin infections, respiratory problems, and musculoskeletal injuries) and culturally specific syndromes (culture-bound syndromes such as *Siripusou*, *Sibara kaoinan*, *Lango*, and *Laggek sibara kaleleu*). The efficacy of key utilized plants (e.g., *Mitragyna speciosa*, *Justicia gendarussa*, and *Graptophyllum pictum*) is well-supported by modern pharmacological literature for their analgesic, anti-inflammatory, and antipyretic properties.

Furthermore, the preservation of this vast botanical diversity is intrinsically linked to local customary laws (*adot*), which enforce in-situ forest conservation and sustainable harvesting protocols (e.g., partial leaf harvesting). However, the oral transmission of this

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ethnomedicinal knowledge faces significant challenges from modern socio-economic transitions. Integrating digital plant identification tools and systematically documenting indigenous knowledge are crucial steps toward safeguarding both the biological diversity and the cultural heritage of the Mentawai Islands for future scientific and conservation efforts.

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