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A SURVEY OF TRADITIONAL MEDICINAL PRACTICES IN LIANGA, SURIGAO DEL SUR, MINDANAO: EXPLORING ETHNOBOTANY IN THE PHILIPPINES

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ABSTRACT

Medicinal plants are integral to treating and preventing diseases while promoting overall well-being. Collecting the World's Ethnobotany highlights the importance of documenting ethnomedicinal practices across diverse communities. This study focuses on the traditional knowledge and healing practices of Lianga, Surigao del Sur in Philippines which are fundamental to the global repository of knowledge and contribute to the

ongoing program of preserving the Intangible Cultural Heritage (ICH) of Mindanao. Through a comprehensive assessment, we identified and recorded various medicinal plants used for emergencies in Lianga, Surigao del Sur. These include controlling bleeding, administering anti-venom, and treating issues like food poisoning, diarrhea, and other common illnesses. The research methodology employs a qualitative approach for data collection utilizing Key Informant Interviews (KI's), Snowballing, participant observation, and Focused Group Discussions (FGD), which are subsequently analyzed thematically. Our findings document 50 plant species from 30 plant families used in medicinal treatments and first aid, emphasizing the predominant use of fresh plant materials (98%) over dry materials (2%). This preference highlights the significant role fresh plants play in local healing practices.

Keywords: *Medicinal plants, Ethnobotany, Cultural Preservation, Surigao del Sur, Mindanao*

INTRODUCTION

Throughout history, medicinal plants have played a crucial role as a primary and dominant method for treating and preventing diseases and disorders and promoting overall well-being. This reliance on herbal remedies has deep roots dating back since time immemorial. Accordingly, medicinal plants are important sources of compounds for drugs, with recent research trends focusing on the search for new medicines or active compounds (Salmerón-Manzano et al., 2020). Tugume (2019) opined that herbal remedies continue to be an important source of treatment, highlighting the enduring significance of traditional healing practices. In fact, it was discovered that *Vitex negundo*, locally called Lagundi, shows antitussive impacts and is found to be void of poisonous quality, making it a potential substitute for codeine, dextromethorphan, and saline for respiratory disorders (Haq et al., 2012).

The increased interest in harnessing the wisdom of conventional medical practices reflects the desire to understand, preserve, and potentially integrate these practices into contemporary healthcare. Both local and international researchers concur that ethno-medicine is a topic worthy of exploration, recognizing its potential contributions to healthcare, biodiversity conservation, and the sustainable use of natural resources. Investigating ethnomedicinal knowledge allows one to bridge traditional practices with modern healthcare approaches, creating a holistic understanding of healing practices that can benefit communities and contribute to the broader field of medical knowledge.

The identification and conservation of medicinal plants are intricately tied to the skills and knowledge of the people, particularly those in rural and mountainous areas. The use of medicinal plants in these regions is deemed more effective, safe, and efficient, making them accessible and popular among the local population. The study conducted in Northern Philippines found that among the Y'Apayaos, a total of 38 medicinal plant species were identified (Baddu & Oanu, 2018). Ayta communities in Dinalupihan, Bataan listed a total of 118 plant species classified into 49 families used as herbal medicines (Tantengco et al., 2018).

In rural Mindanao, extensive research has been carried out across the island, focusing on its varied plant life and the traditional knowledge held by local communities (Montero & Geducos, 2021). Traditional herbal remedies are still a crucial part of local healthcare practices. Gruyal (2014) emphasizes the value of utilizing indigenous knowledge about medicinal plants in these communities. Her research in Northern Surigao del Sur, which includes areas like Carrascal, Cantilan, Madrid, Carmen, and Lanuza, demonstrates a deep local expertise in medicinal plant use. In Agusan del Sur, a study documented 126 species of medicinal plants across 57 families and 105 genera (Arquion et al., 2015). An ethnobotanical survey documented 66 species of medicinal plants belonging to 38 families among the Talaandig in Valencia, Bukidnon, Philippines (Odchimar et al., 2017). In Pualas, Lanao del Sur, four selected plants were tested for cytotoxic activities to determine the phytochemicals present in the extracts (Malawani et al., 2017). Another study recorded 60 medicinal plant species belonging to 29 families identified by the Subanens (Morilla et al., 2014). Thus, complementary research facilitated a more comprehensive and precise understanding of traditional medicinal practices in the Philippines. The Philippine Institute of Traditional and Alternative Health Care (PITAHC) actively supported scholars in the country in exploring ethnomedicine studies, resulting in an extensive database compiled from 1997 to 2019.

However, areas in Surigao del Sur, particularly those inhabited by the Kamayo, have been largely overlooked in ethno-medicinal studies. Therefore, the study on ethnomedicinal plants in Lianga marks a crucial starting point for the Kamayo, contributing to the ethnomedicinal map of Mindanao and the entire Philippine archipelago. The study aims to thoroughly document diverse traditional healing practices and plant knowledge across the country by broadening the research scope to include this region. This comprehensive ethnomedicinal mapping enhances understanding of local healthcare practices and is a valuable resource for future research, conservation initiatives, and sustainable development efforts. Ultimately, this effort plays a pivotal role in preserving and

showcasing the rich ethnomedicinal knowledge that underpins the cultural and biological diversity in the country.

Surigao del Sur is a strategic choice of research site because aside from providing access to knowledgeable practitioners of traditional medicine who are willing to share their expertise and practices, it hosts rich biodiversity that supports a wide range of medicinal plants. Through the participation of the people from this locality, the study captures the affluence of local knowledge and ensures that these practices are passed down to subsequent generations. Additionally, the study identifies the availability and utilization of traditional medicinal plants, shedding light on their continued relevance in contemporary times. The research emphasizes the documentation of herbal medicine not only for its potential contributions to healthcare and drug discovery but also for its role in preserving cultural heritage and local knowledge, which are at risk of being eroded by the forces of modernization. The study intends to identify and document Lianga-Kamayo's ethnomedicinal plant family and type with scientific and local names for preservation. Thus, this research necessitates identifying the specific parts of plants used as remedies for particular illnesses, documenting the modes of preparation, and detailing their methods of administration.

It is important to note that the study excludes medicinal plants not native to or introduced to the community and those believed to be extinct, focusing solely on plants deeply rooted in the local environment. To ensure the accuracy of information, the identification of medicinal plants by individual respondents is cross-verified through collaboration with other herbalists, a process aimed at identifying outliers and enhancing the reliability of the data. Importantly, the study emphasizes preserving and protecting traditional knowledge by establishing a connection between this knowledge and the practitioners themselves, rather than solely with the researchers. Any new knowledge generated through the study is recognized as part of the broader knowledge system of the local people, reinforcing the participatory and community-centric nature of the research.

RESEARCH METHODOLOGY

Research Design

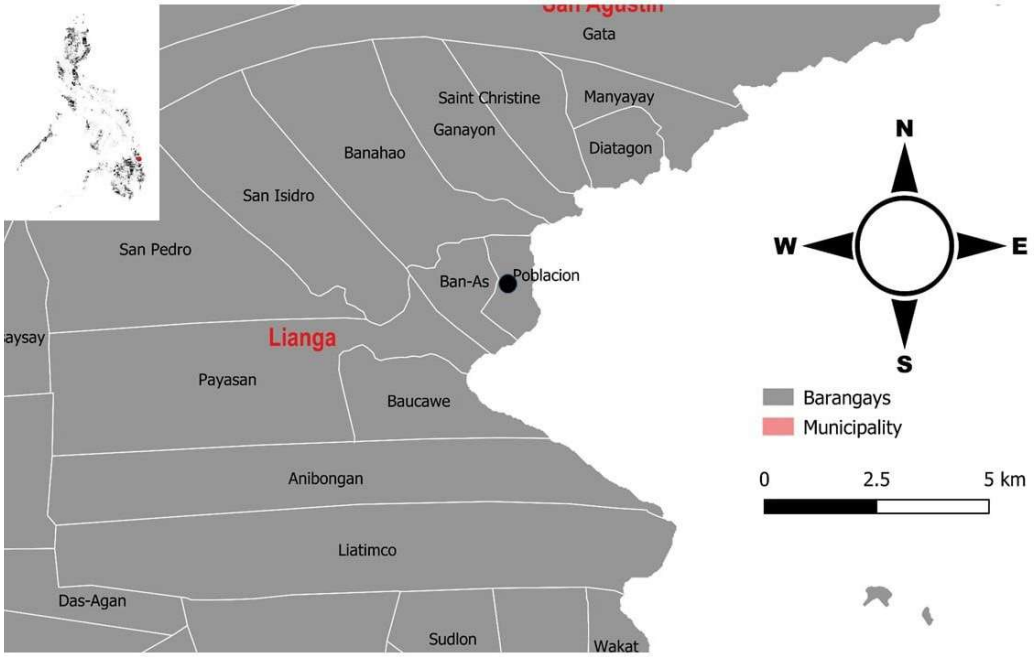
The study employed a comprehensive methodology of qualitative research, engaging open-ended interviews and participant-observation to gather detailed information. With the assistance of a local guide from consultation, immersion, and data verification period, the proponents succeeded in establishing rapport through depth-hanging out and

participant observation with the locals. Within the immersion period, incidents such as accidental cuts to animal bites among those working on their farms, illnesses like cough and fever among children and adults, flatulence, fatigue as well as poisoning, and other sorts of mishaps were picked up. First-hand accounts and the remedies applied were documented leading to a more penetrating inquiry concerning other incidents and the dependability of Traditional Medicines.

To mitigate potential biases in this study, guide questions were carefully crafted to be culturally sensitive, avoiding any implications that their reliance on traditional medicine equates to poverty or ignorance. Similarly, the questions were designed without stereotyping the traditional healers as backward or witchcraft practitioners. To uphold objectivity, the proponents, comprising migrants and Kamayo individuals, synthesized findings based on evidence rather than personal opinion. This approach ensures that conclusions are grounded in factual data. As a form of validation and cross-verification, focused-group discussions were conducted to ensure a thorough exploration of the subject matter and to enhance the credibility of the survey findings. Identified healers and community members convene in a collective setting facilitated by the researchers. The healers brought herbal plants and demonstrated their preparation methods and how they administer them for various illnesses. Throughout the session, participants are encouraged to engage actively, fostering a dialogue where they can agree on or critique each other's practices. This interactive approach allows for a rich exchange of knowledge and perspectives among all involved in a subtle and respectable manner.

Identified medicinal plants were photographed in their natural form and habitat (see Appendix A). For accurate taxonomic classifications, experts in the field were consulted to ensure the proper identification of the collected plant photographs after counterchecking from the *Co's Digital Flora in the Philippines'* database (Barcelona et al., 2013; Pelser et al., 2013). This step was crucial for maintaining the scientific integrity of the study. Data collected were transcribed and coded according to emerging themes, synthesizing them into identifying medicinal plants, what part(s) of the plant(s) is/are used for a particular illness, and the method of preparation and application. Following the completion of data collection and analysis, the research team prepared brochures for Information, Education, and Communication (IEC) materials. These materials served to disseminate the acquired knowledge to the local communities. Providing copies of these materials to the communities ensured that the findings were shared with the people directly affected and contributed to the promotion and preservation of traditional medicinal knowledge.

Figure 1
Map of Poblacion, Lianga, Surigao Del Sur, Philippines



Research Setting

This research focuses on a farming community named Purok Tigis near Barangay Poblacion in the Municipality of Lianga. Purok is the smallest unit of community in the municipality. Unlike colonial-designed resettlement areas (Poblaciones), which have been transformed by modernity, farming communities like Tigis have managed to preserve remnants of their traditional way of life. This makes Tigis an interesting landscape to study because it showcases how Kamayo people, despite being Christianized, managed to navigate their way with the tides of Westernization and even learn to coexist with migrants from Visayas and Luzon while maintaining their cultural identity. Lianga is deliberately chosen because it is situated within the Kamayo domain in Surigao del Sur. The Banwa-Kamayo or the localities where the Kamayo are the dominant inhabitants is in the eastern seaboard of Mindanao from the municipalities of Marihatag, San Agustin, Lianga, Barobo, Tagbina, Hinatuan, the City of Bislig and lastly, Lingig of Surigao del Sur down to the municipalities of Boston, Cateel, Baganga and Caraga of Davao Oriental.

Lianga is a fourth-class municipality in Surigao del Sur, Philippines. The municipality of Lianga, with its roots tracing back to one of the earliest settlements on the eastern seaboard of Mindanao, stands as a historical testament to the intricate culture that has shaped its identity. This region

is particularly noteworthy for being the ancestral home of the Kamayo people—an Indigenous entity that, unfortunately, has not yet received official recognition as an Indigenous inhabitant of Mindanao due to conflicting narratives tracing its origin and identity.

Despite the logging activities in Lianga during the 1950s to 1990s, which brought in many migrants, Tigis has managed to keep its distinct Kamayo identity intact. This area provides a valuable perspective for researching cultural interactions and their impact on traditional practices, especially regarding Traditional Medicinal practices among Christianized Kamayo communities. Studying Tigis helps us understand how cultural dynamics shape local traditions amidst external influences.

Research Participants

The informants in this study are individuals within the community who possess significant knowledge and experience in applying traditional medicinal practices to address illnesses. They underwent interviews supplemented with participant observation to capture a holistic understanding of their expertise. The study places great emphasis on respecting the comprehensive knowledge and experience of the respondent, valuing their perspective in the realm of traditional medicine. In the post-interview, informants are requested to recommend other individuals who could contribute valuable insights, a methodology commonly known as the Snowball approach. This approach allows for the expansion of the study network, ensuring a diverse range of perspectives and experiences.

The researchers specifically selected respondents from the chosen area based on certain criteria. These criteria include being a local resident, having practical experience with traditional medicine (either as a healer, patient, or a family member of a patient), and possessing knowledge acquired from familial or traditional sources rather than formal education, training, books, or mass media. This careful selection ensures that the respondents have a deep connection to the community and a genuine understanding of traditional medicinal practices through firsthand experiences within their cultural context. In the process of exploratory documentation of Traditional Medicinal practices, this research deliberately did not set a specific number of Key Informants (KI). The primary focus was on achieving data saturation through comprehensive interviews. Given that the Kamayo people are not officially recognized as a Lumad entity by the National Commission on Indigenous People (NCIP), obtaining Free Prior and Informed Consent (FPIC) proved challenging, as the Kamayo were considered outside the jurisdiction of this particular government agency.

The interviews were conducted in a dialect that the respondents could

fully comprehend to bridge potential language barriers and ensure effective communication. This linguistic approach was crucial in guaranteeing a mutual understanding of all aspects discussed. The utilization of open-ended questions played a pivotal role in guiding the interviews, each lasting approximately one (1) hour per session. This approach allowed for a thorough exploration of Traditional Medicinal practices and ensured that respondents had ample opportunity to express their knowledge and experiences in detail.

Data Gathering Process

To ensure effective coordination for the study, a formal letter of intent was submitted to local authorities, and the proponent presented at the Regular Session of the Municipal Council of the Municipality of Lianga in Surigao del Sur. This step is pivotal as it aligns with RA 11961, also known as the Cultural Mapping Act of 2023, stressing its importance within a broader initiative. RA 11961 is an amendment to the pre-existing RA 10066, the National Cultural Heritage Act of 2009. By meticulously documenting the local practices associated with traditional medicinal practices in Lianga, this study substantively contributes to the development of Local Cultural Inventories (LCI) and the ongoing narrative of cultural preservation and governance at the local level.

Twenty-five individuals were initially identified as informants, of whom 21 were deemed reliable sources. Four were excluded due to hearing difficulties or relocation to other areas because of work commitments. Among the remaining informants were seven mature male participants, primarily farmers, fisherfolk, and occasional herbalists or healers whose ages ranged from 25 to 70. A total of 14 females participated, including young housewives, gleaners, former Mananabang (traditional midwives), and occasional herbalists or healers. Older individuals demonstrated extensive knowledge of medicinal plants, while younger generations expressed their understanding and reliance on such knowledge in times of need.

Open-ended questions were used to gather information about their traditional medicine experiences and identify plants by their common names. The proponents of this study provided the scientific name, recorded the habits of growth and plant parts utilized for medicine, and documented the ailments treated, mode of application, and the different modes of preparation of the medicinal plants used by the local people/residents. Plants mentioned for treatment are photographed in their natural habitat to provide additional descriptions. An audio recorder is used during interviews, either in-depth or FGD interviews, with proper consent

from the respondents. Photographs are also used in the documentation process. See Appendix A for the collection of Photos of ethnomedicine in their natural habitat.

After generating the guide question, the data were classified into codes or ranked by theme with a common process of uses/administration for coding. Respondents were interviewed based on their knowledge of the application of medicinal plants, from first aid to prolonged application to counter common ailments and the effectiveness of used plants. Proponents conducting this study refrain from insinuating the dependability of advanced medicine over the exercise of traditional medicine to avoid biases on their part. Recorded interviews as data for this study were transcribed in verbatim and verified by the respondent or Key Informant for his/her assessment. Transcribed data were coded based on Thematic and Descriptive analysis. Data were triangulated by way of focus group discussions (FGD) for verification. The first FGD involving nine participants was mainly composed of individuals who often engaged in fields like gleaning, farming, and fishing. The second FGD involved 12 individuals of domestic background, most of whom were housewives and active healers. Moreover, a literature review is also instigated for triangulation and verification of the data.

Data Analysis

The collected data underwent a meticulous process, starting with verbatim transcription and subsequent verification by the respondents themselves. Once verified, the data were systematically coded according to themes to facilitate the identification of subthemes. The identified medicinal plants were then documented, including their taxonomic names, medicinal processes, and associated treatment methods. This involved a detailed description of the identified plants to enhance the necessary information for taxonomic purposes. However, due to the absence of linkages to agencies responsible for sample preservation and the unavailability of a gratuitous permit from the Department of Environment and Natural Resources (DENR), the research team opted only to capture photographs and data related to the Indigenous Knowledge System as shared by the locals. This decision was made to avoid complications related to ethical issues in sample collection.

Compensations and Reimbursements

Research participants were not promised any compensation or gifts to encourage their involvement. Community members who assisted during

the study received fair remuneration to offset their daily wages and were sometimes hired as local guides. In focus group discussions, the proponents provided food and transportation to alleviate any burden on respondents, particularly the elderly and those assisting them. No financial solicitation was imposed on the community; instead, the researcher responsibly utilized available resources to ensure the success of the activities.

Right to Refuse or Withdraw Participation

The proponents prioritized the safety and integrity of the data, recognizing that any potential harm to the community's well-being could result in the disqualification of the study. During the interviews, participants were informed that their involvement was entirely voluntary, and their rights to decide whether to commit were fully respected. Even after initial participation, their right to withdraw or terminate their involvement at any time was deemed essential.

The entire interview process was transparently outlined to respondents, including details such as the date, location, time, and context of the interview, ensuring clarity for verification before the data could be considered valid for interpretation. Failure to comply with these conditions would render the data invalid and unsuitable for analysis. Instances in which participants were advised to withdraw from the study arose when their physical or mental state was assessed as unfit, hindering their ability to respond adequately; continued participation in such cases could further exacerbate their condition.

RESULTS AND DISCUSSION

3.1 Kamayo's Traditional Medicinal Practices in Lianga

The Kamayo respondents identified 50 plant species as part of their Panamasama or Traditional Medicinal Practices in Tigis, Lianga Surigao del Sur. According to the responses obtained from the respondents, these species, representing 30 families of plants, were identified as crucial components of medicinal treatments for various illnesses and first aid responses to emergencies. The research involved coding and ranking the medicinal habit of growth, linking it with common ailments treated, modes of application, and preparation methods. This comprehensive information is presented in Table 1.

Table 1
Coded by Habit of Growth with Common Ailments Treated and Common Uses/Administered

Code (A1-TREE)				
Local Name of Medicinal Plant	**Ailments Treated**	**Mode of Application**	**Mode of Preparation**	**Plant part used**
Annato	heals sprain, cures cough	apply directly to the ffected area	heat over fire boil with water	leaves roots
Banaba (Sab- a)	treats diarrhea and kidney infection	drink decoction	boil with water	leaves and bark
Bayabas	diarrhea	swallow the extracted juice	wash and chew newly sprouted leaves	leaves
Buongon	relieves headache	apply directly to the ffected area	pound until soft	leaves
Gemelina	treats flatulence or PANUHOT	place onto the body	obtain some fresh leaves	leaves
Kamonggay	treats wound	squeeze the juice into the wound	pound leaves	leaves
Kaningag	treats stomachache	drink decoction	boil with water	leaves
Katmon	diarrhea	drink decoction	boil with water	bark
Lagnob	treats stomachache	drink decoction	boil with water	leaves

Lagundi	cough, phlegm	drink decoction	squeeze the juice into a glass and add water	leaves
Lemonsito	cures cough	drink the juice	squeeze the juice into a glass and add water	fruits
Madre de kakaw	relieves skin itchiness	apply directly to the ffected area	pound leaves	leaves
Mangga	diarrhea	drink decoction	boil with water	young leaves
Mansanitas	diarrhea	drink decoction	boil with water	young leaves
Sibukaw	UTI (urinary tract infection)	drink decoction	boil with water	roots
Ubana	relief stomachache	drink decoction	boil with water	leaves

Code (A2-GRASS)

Local Name of Medicinal Plant	Ailments Treated	Mode of Application	Mode of Preparation	Plant part used
Busikad	diarrhea	drink decoction	boil with water	whole plant
Karabao grass	UTI (urinary tract infection)	drink decoction	boil with water	roots and leaves
Paragis	relieves over fatigue	drink decoction	boil with water	whole plant
Tanglad	lower hypertension	drink decoction	boil with water	whole plant

Code (A3-HERB)				
Local Name of Medicinal Plant	**Ailments Treated**	**Mode of Application**	**Mode of Preparation**	**Plant part used**
Abaca	Diarrhea	drink decoction	boil with water	flowers
Ahos	inflammation: curves venom obtained from snake bites, dog bites etc.	apply directly to the affected area	pound	bulbs
Buyo	treats flatulence or PANUHOT	apply or rub the juice onto the body	pre-heat and squeeze the leaves	leaves
Dulaw	cures bruise	apply on the affected area	preheat the rhizome, squeeze to obtain an extract, then mix coconut oil	rhizome
Ganda	treats convulsion	apply directly to the affected area	heat over fire	leaves
Hagonoy	wound and abscesses	squeeze the juice on the affected area	pound leaves	rhizome
Hanlilika	relieves pain during toothache	apply on the affected area	pound to obtain an extract	leaves
Hilbas	relief for stomachache, cough, and fever	drink and apply on the chest and back	get leaves and put into a glass and add hot water or pre-heat the leaves, extract the juice	leaves

Kalabo	treats cough	drink the extracted juice	pre-heat and squeeze the leaves	leaves
Kanding-kanding	relieves headache	apply directly to the affected area	pound to obtain an extract	leaves
Kang-kong	loosen constipation	drink decoction	boil with water	leaves
Kukug banog	treats measle	drink the infused water	put roots in a glass of water	roots
Luy-a	flatulence	apply on the affected area	pound until soft, then mix with sagbong	rhizome
Manyana	treats wound	squeeze the juice into the wound	pound the leaves	rhizome
Maribelos	diarrhea	drink decoction	boil with water	leaves
Saging	treats bleeding woman	drink decoction	boil with water	leaves
Sili	relieves discomfort from asthma	rub thoroughly on the affected area	pound to obtain an extract	leaves
Sinaw-sinaw	treats for kidney infection	drink decoction	boil with water	whole plant
Tawa-tawa	dengue fever	drink decoction	boil with water	whole plant

Code (A4-SHRUB)				
Local Name of Medicinal Plant	**Ailments Treated**	**Mode of Application**	**Mode of Preparation**	**Plant part used**
Asunting	treats fungal skin infection	rub thoroughly on the affected area	Pound leaves	leaves
Gabon / Sagbong	cough (panuhot)	drink decoction and apply on the chest and back	pound to obtain an extract	leaves
Handamay	treats for cold sore	shake off on the affected area	surely, clean the leaves	leaves
Kapayas	dengue fever	drink decoction	boil with water	leaves
Mais	for kidney trouble	drink to stimulate urination	soak in water	young hair
Saluyot	diarrhea	drink decoction	boil with water	leaves
Tuba-tuba	relieves muscle pain	apply directly to the affected area	heat over fire	leaves and stem

Code (A5-PALM)				
Local Name of Medicinal Plant	**Ailments Treated**	**Mode of Application**	**Mode of Preparation**	**Plant part used**
Coconut	poisoned	drink the extracted juice	rasp the coconut fruit and squeeze the extracted juice	coconut milk
Uway	"Talimughat" or relieving pain during childbirth	confine roots inside any container infused with commercial wine	pound fruit	Roots

Code (A6-VINE)				
Local Name of Medicinal Plant	**Ailments Treated**	**Mode of Application**	**Mode of Preparation**	**Plant part used**
Ampalaya	diarrhea	drink decoction	boil with water	Leaves
Panyawan	for diarrhea and diabetes	drink decoction	boil with water	Leaves

The findings align with similar studies conducted among indigenous tribes in the Philippines, where ethno-medicinal practices have been investigated. The present study argues that Indigenous communities in the Philippines rely on a substantial number of plant families and species, ranging from 30 to 70 families and 30 to 150 species, for ethnomedicinal purposes, as also illustrated in the previous investigations (Arquion et al., 2015; Odchimar et al., 2017; Malawani et al., 2017; Baddu et al., 2018; Tantengco et al., 2018; Morilla et al., 2019). This consistency across studies highlights the significance of traditional medicinal knowledge within indigenous communities and emphasizes the rich biodiversity of plant resources that contribute to their healthcare practices. The broader comparison with other research validates the current study's findings and asserts the widespread and enduring relevance of ethnomedicinal plant usage in various Indigenous contexts in the Philippines. In analyzing the habit of growth data, six plant types were coded (A3-HERB), which emerged as the most commonly utilized herbal plant type according to the respondents in the local area. A total of 19 local species belonging to this herb category were identified as effective in addressing common ailments experienced by the community, as detailed in Table 1.

Herbs, the predominant plant type, were reported to be versatile in treating various health issues. The respondents highlighted that herbs could be employed for ailments such as bruises, dengue fever, diarrhea, flatulence, venom and rabies, constipation, cough, fever, asthma, headache, toothache, bleeding in women, convulsions, kidney infections, measles, wounds, and abscesses. These claims were discussed during the second FGD conducted involving 12 participants who agreed collectively to the statements below:

> Ngiyang mga dahon-dahon madayaw gayud ngiyan haw la-ab la-abon samot da haw panuhot. Ngiyang ganda ug buyo kanmo yaan

> ingbabaw sang agipo para malamtoay. Igo ma-agwanta yang kapaso ing lapi da dayun sang tiyan, ubin kanmo kumoton para yang duga amoy ing banyos sa gihub. Kanmo da dayun bigkisan. (excerpt taken from the signed transcript interview of Respondent #7)
>
> [Leaves are better applied if they are pre-heated, especially if the illness is flatulence or stomach pain. *Allium odorium* (Ganda) and *Piper betle* (Buyo) are excellent remedies if pre-heated over the ember. Just enough to tolerate the heat, leaves are applied directly to the affected area or pounded to extract the juice to be rubbed into the abdominal part. Residues must be tucked with cloth support to stay on the affected area until relief.]

Following herbs, trees, coded as A1, were the second most utilized plant type, with 16 local species identified by the respondents. These tree species were reported to have healing properties for conditions like urinary tract infections (UTI), wounds, diarrhea, flatulence, skin diseases, headaches, etc. This notable trend in plant usage was the preference for utilizing leaves as the most common plant part. Additionally, most medicinal cures involve crushing or pressing the leaves and stems to extract the healing juice. The respondents mentioned a prevalent method of infusion or decoction, where leaves are boiled with water to create a medicinal tea. For instance, the leaves of *Andrographis paniculata* could be boiled with water, and the resulting decoction was known to treat diarrhea effectively. The same procedure is highly dependable for curing respiratory tract infections such as cough or phlegm. A selection from the transcribed interview with one particular respondent was verified during the second FGD:

> Kalabo gayud yang pinaka dangpanan nami haw ipang lahan da kami, magkuha kaw nang dahon tapos kanmo dayun laabon para matipon yang duga. Tibhungan nang lemonsito para mainom. Yang salin ingpadakdak sang alipudhan laong nang mga hinuod. (excerpt taken from the signed interview transcript of Respondent #4)
>
> [Kalabo (*Origanum vulgare*) is highly dependable whenever we have a cough; one has to collect a few leaves and steam it on fire for concoction. Best serve with lemon juice to enhance flavor. The residue is damp on the hair whorl as tradition]

The information gathered from the respondents in Lianga, Surigao del Sur, sheds light on the diversity of plant types utilized and highlights

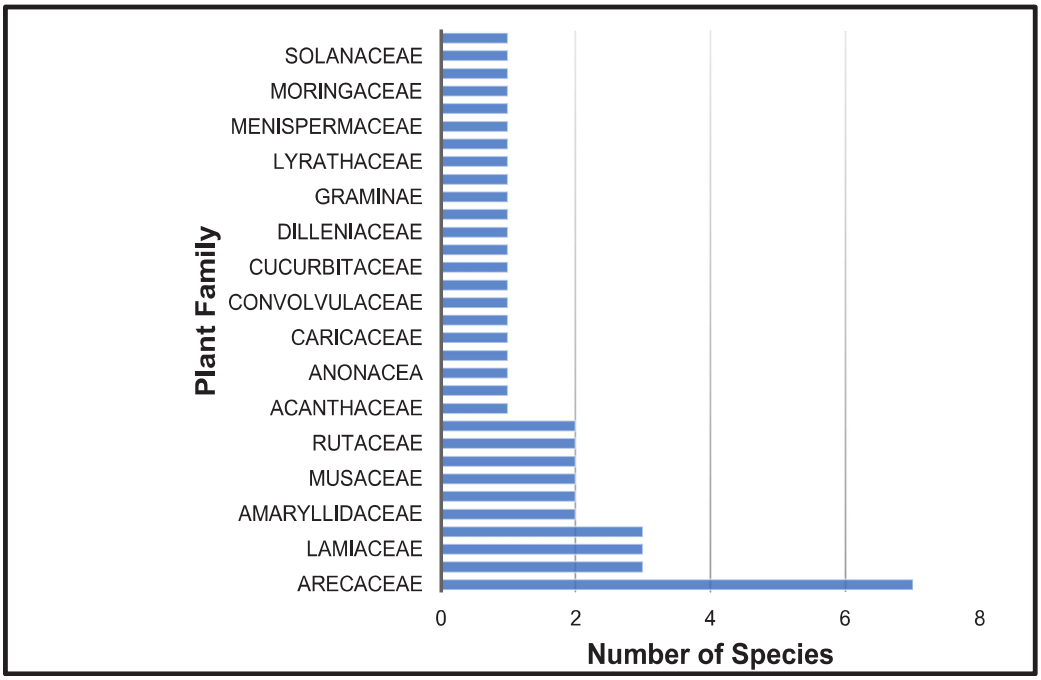
the specific plant parts and preparation methods that are integral to the traditional medicinal practices within the community.

3.2 Plant family and type used for medicinal purposes

The study reveals that a substantial majority, constituting 56% of the plant species employed for medicinal purposes, belong to the families Aracaceae, Lamiaceae, Amaryllidaceae, Musaceae, Pipperaceae, Rutaceae, and Zingiberaceae, as illustrated in Figure 2.

Figure 2

Number of Species per Plant Family Being Used for Medicinal Purposes by the Respondents



The Aracaceae family emerges as the most prominent, with seven species documented for medicinal use. In comparison, the Fabaceae, Lamiaceae, Annonaceae, and Poaceae families each contribute three species, while two species represent Amaryllidaceae, Euphorbiaceae, Musaceae, Piperaceae, Rutaceae, and Zingiberaceae. Other families are limited to a single species. Furthermore, the data highlights diarrhea as the most commonly treated condition, indicating its prevalence within the studied community.

Table 2
List of Medicinal Plants Used to Treat Common Illnesses and Emergencies by Respondents.

Family name	Scientific name	Plant type	Local name
Acanthaceae	*Andrographis cf. paniculata*	Herb	Maribelos
Amaryllidaceae	*Allium cf. sativum L.*	Herb	Ahos
Amaryllidaceae	*Allium cf. odorum L.*	Herb	Ganda
Anacardiaceae	*Mangifera cf. indica L.*	Tree	Mangga
Anonacea	*Anona cf. muricata L.*	Tree	Ubana
Arecaceae	*Coco cf. nucifera*	Palm	Coconut
Arecaceae	*Calamus sp.*	Palm	Uway
Asteraceae	*Ageratum cf. conyzoides L.*	Herb	Kanding-kanding
Asteraceae	*Artemisia cf. vulgaris L.*	Herb	Hilbas
Asteraceae	*Blumea cf. balsamifera*	Shrub	Gabon
Asteraceae	*Chromolaena cf. odorata*	Herb	Hagonoy
Asteraceae	*Elephantopus cf. scaber L.*	Herb	Kukug banog
Bixaceae	*Bixa cf. orellana L.*	Tree	Annato
Caricaceae	*Carica cf. papaya L.*	Shrub	Kapayas
Cirolanidae	*Coleus cf. scutellarioides* Blume	Herb	Manyana
Convolvulaceae	*Ipomomea cf. aquatic*	Herb	Kang-kong
Crassulaceae	*Kalanchoe cf. pinnata*	Herb	Hanlilika
Cucurbitaceae	*Momordica cf. charantia L.*	Vine	Ampalaya
Cyperaceae	*Cyperus cf. kyllingia EndL.*	Grass	Busikad
Dilleniaceae	*Dillenia cf. philippinensis* Rolfe	Tree	Katmon
Elaeocaraceae	*Muntingia cf. calabura L.*	Tree	Mansanitas
Euphorbiaceae	*Euphorbia cf. hirta L.*	Herb	Tawa-tawa
Euphorbiaceae	*Jatropha cf. curcas L.*	Shrub	Tuba-tuba
Fabaceae	*Gliricidium cf. sepium* Walp.	Tree	Madre de kakaw
Fabaceae	*Caesalpinia cf. sappan L.*	Tree	Sibukaw

Fabaceaepeas	*Cassia cf. alata L.*	Shrub	Asunting
Graminae	*Zea cf. mays L.*	Shrub	Mais
Lamiaceae	*Gmelina cf. roxb*	Tree	G-melina
Lamiaceae	*Origanum cf. vulgare*	Herb	Kalabo
Lamiaceae	*Vitex cf. negundo*	Tree	Lagundi
Lauraceae	*Cinnamomum cf. mindanaense* Elmer.	Tree	Kaningag
Lyrathaceae	*Lagerstroemia cf. speciosa* Pers.	Tree	Banaba (Sab- a)
Malvaceae	*Corchurus cf. olitorius*	Shrub	Saluyot
Menisperma-ceae	*Tinospora cf. reticulate*	Vine	Panyawan
Moraceae	*Ficus cf. septica*	Tree	Lagnob
Moringaceae	*Moringa cf. oleifera*	Tree	Kamonggay
Musaceae	*Musa cf. acuminate*	Herb	Banana
Musaceae	*Musa cf. textilis*	Herb	Abaca
Myrtaceae	*Psidium cf. guajava*	Tree	Bayabas
Piperaceae	*Peperomia cf. pellucida*	Herb	Sinaw-si-naw
Piperaceae	*Piper cf. betle L.*	Herb	Buyo
Pinaceae (Gramineae)	*Anxonnupos cf. compresus*	Grass	karabao grass
Poaceace (Gramineae)	*Cymbopogon cf. citratus DC.* Stapf	Grass	Tanglad
Poaceace (Gramineae)	*Eleusine cf. indica L.*	Grass	Paragis
Rutaceae	*Citrus cf. maxima (Burmf)*Merr	Tree	Buongon
Rutaceae	*Citrus x microcarpa* Bunge	Tree	Lemonsito
Solanaceae	*Capsicum cf. frutescens L.*	Herb	Sili
Urticaceae	*Pipturus cf. arborescens*	Shrub	Handamay
Zingiberaceae	*Curcuma cf. longa L.*	Herb	Dulaw
Zingiberaceae	*Zingiber cf. officinale* Roscoe	Herb	Luy-a

Mapatac (2019) maintains that the Mamanwa indigenous people in the Caraga region in the Philippines heavily rely on traditional herbal plants for medicinal purposes. Similarly, the present findings identified

that various parts of herbal plants, including leaves, stems, bark, roots, and tubers, were utilized by decoction, smashing, cutting, chopping into smaller pieces, and extracting the juice. The applications of these medicinal plants were diverse, encompassing child and maternal health care, stomach pain relief, diarrhea cure, wound healing, anti-inflammatory purposes, fever reduction, cough and cold remedies, and blood pressure regulation, especially for mothers with menstrual problems. The use of roots infused with commercial wine is observed among women who undergo childbirth as medicine. Confirmed during the first FGD, the following statement was highlighted:

> Ngiyang talimughat dako yang katabangan sian sang mga manganganak ngani. Mga gamot ngiyan nang mga pinili na klase nang kahoy ug mga uway na ag tibhungan nang kulafu (commercial wine). Madali kaulian yang yangamukan, madayaway ngiyan para dili ma bughat ug halayo sang mga buyag-buyag. (excerpt taken from the signed interview transcript of Respondent #5)
>
> *Talimughat* is reliable, especially among women who undergo childbirth. These are roots of selected trees of medicinal value and vines infused with commercial wine. It is proven to facilitate fast physical recovery after giving birth and is notable also for countering post-partum]

3.3 Mode of Preparation and part of the plant utilized for Traditional Medicinal Practices

In terms of the mode of preparation, boiling with water stands out as the most common method, constituting 47.06% of the responses. This indicates that the community predominantly relies on boiling to extract medicinal properties from plant materials. Additionally, in the theme of mode of application, drinking decoction was reported as the most frequent method, accounting for 48%. This aligns with the perception that drinking decoctions is the easiest way to prepare medicinal plants, emphasizing the practicality and accessibility of this method for the community. Respondents during the first FGD cited the reason for subjecting leaves to water boiling with the following statement:

> Iyan mga tambaw, usahay gikan kadi ikud-kudan nang mga malaa na mamang o mahān haw itub-tub. Yang pinaka madayaw na pamaagi labi na haw at-atonon yang tambaw paagihon gayud nang

pag itus. (excerpt taken from the signed interview transcript of Respondent #1)

[Medicinal plants are exposed to animal substances that could endanger human beings or have an unfavorable taste. The best way to extract impurities, especially if intended to be administered orally, is to boil them.]

Furthermore, in the theme of plant parts used, leaves are overwhelmingly favored, representing the highest frequency at 61.11%. This corroborates with existing ethnomedicinal studies in the Philippines, where plant leaves have consistently been documented as the most utilized and effective parts (Baddu et al., 2018; Guevara et al., 2018; Montero & Geducos, 2021; Gruyal et al., 2014; Mapatac, 2019).

Additionally, Morilla (2014) asserts that plants have historically captured people's curiosity due to their health-promoting qualities. The use of plants in traditional medicine has been a historical practice, often rooted in cultural beliefs related to magical or spiritual healing. Remarkably, the respondents in the current study exhibited a profound ability to prepare the necessary ingredients and concoctions for treating various ailments and emergencies, some knowledge they attribute to learning from their ancestors. This emphasizes the transmission of traditional medicinal knowledge through generations within the community.

The analysis of themes in the study reveals noteworthy insights into the ailments treated, modes of preparation, and plant parts used by the respondents. Diarrhea emerges as the predominant ailment, accounting for the highest frequency at 28.57%, followed by cough at 10.71%, and urinary tract infections (UTI) at 8.93%.

Table 3.

Plant Species and Treatable Ailments and Emergencies, Plant Parts Used and Medicinal Preparation Revealed from the respondents.

Species	Ailments treated	Mode of preparation	Mode of application	Plant parts
Andrographis paniculata *Corchurus olitorius* *Cyperus kyllingia EndL.* *Mangifera indica L.* *Muntingia calabura L.* *Musa textilis* *Psidium guajava* *Momordica charantia L.* *Tinospora reticulate* *Anona muricata L.* *Artemisia vulgaris L.* *Lagerstroemia speciosa pers.* *Lagerstroemia speciosa pers.* *Ficus septica* *Cinnamomum mindanaense* Elmer.	Diarrhea	Boil with water	Drink decoction	Leaves
Blumea balsamifera *Vitex negundo* *Citrus x microcarpa* Bunge *Bixa orellana L.* *Origanum vulgare*	Cough	pound the leaves	Apply directly to affected area	whole plant
Zea mays L. *Lagerstroemia speciosa pers.* *Peperomia pellucida* *Caesalpinia sappan L.* *Anxonnupos compresus*	UTI	heat over fire	Drink the extracted juice	Roots
Carica papaya L. *Euphorbia hirta L.*	Dengue fever	Boil with water and pre-heat the leaves; extract the juice	Rub thoroughly on the affected area	Fruits

Carica papaya L. *Euphorbia hirta L.* *Allium sativum L.* *Allium tuberosum* rottler *Exspreng*	Fever	pound the leaves	Squeeze the juice on the wound	Bark
Ageratum conyzoides L. *Citrus maxima (Burmf)* Merr	Headache	Get leaves and put into a glass and add hot water or pre-heat the leaves, extract the juice	Drink and apply on the chest and back	Rhizome
*Cymbopogon citratus DC.*Stapf	Hyperacidity	obtain some fresh leaves	Drink decoction and apply on the chest and back	Stem
Moringa oleifera *Coleus scutellarioides* Blume	Wound	pound the leaves	Drink the infused water	Bulb
Allium sativum L.	Rabbis	Pound then mixes with sagbong	Drink the juice	Flowers
Capsicum frutescens L.	Asthma	Pre-heat and squeeze get the juice	Drink to stimulate urination	Young hair
Musa acuminata	Bleeding woman	Pre-heat and squeeze the leaves	Swallow the extracted juice	

Curcuma longa L.	cures bruise	preheat the rhizome then squeeze to obtain extract, then mix coconut oil and drink	Apply or rub the juice onto the body
Tinospora reticulate	Diabetes	put roots in a glass of water	Place onto the body
Cymbopogon citratus DC.Stapf	Lower hypertension	squeeze the juice and drink	Shake off on the affected area
Elephantopus scaber L.	Measles	Soak in water	Squeeze the juice on the affected area
Coco nucifera	Poisoned	squeeze the juice and drink	
Calamus sp.	Relieving pain during childbirth (Talimughat)	Surely clean the leaves	
Gliricidium sepium Walp. *Cassia alata linn*	Skin allergy	Wash and chew newly sprouted leaves	
Bixa orellana L.	Sprain		
Kalanchoe pinnata(lam)pers	Toothache		
Jatropha curcas L.	Muscle pain		
Eleusine indica L. Gaernt	Over Fatigue		
Zingiber officinale Roscoe *Piper betle L.*	Flatulence		

Allium sativum L.	Venom
Chromolaena odorata	Abscesses
Chromolaena odorata	Cold
Pipturus arborescens	Cold sore

Most of the plant materials are prepared in their fresh state (98%), with a smaller percentage used in a dry form (2%), specifically for certain plant species. The range of ailments and emergencies treated by medicinal plants is extensive. It includes cough, asthma, dengue fever, toothaches, various stomach-related issues (diarrhea, constipation, and hyperacidity), wounds and bleedings, abscesses, bruises, skin allergies, diabetes, headaches, fatigue, flatulence, animal bites, measles, sprains, muscle pains, and birthing-related pains and bleeding. Leaves of plants have been extensively studied in ethnomedicinal research conducted in the Philippines, emerging as the most utilized and efficacious plant components. These studies also emphasize the importance of safeguarding and promoting the sustainability of the medicinal plants employed in traditional practices (Demetillo et al., 2019).

Extracting plant juice and drinking it for relief constitutes the most common treatment method (64%). In contrast, the remaining treatments involve using either the liquefied plant extract (decoction) or the pounded plant material. The practice of traditional healers testing the effectiveness of herbs or plants on patients and subsequently passing down their expertise and methods to younger generations reflects the cultural transmission of knowledge. The indigenous people in the study area recognize the value of keeping specific plant species to treat or alleviate illnesses among their relatives. During the first FGD, a passage from an interview with the following statement was collectively agreed upon:

> Ngiyang mga dahon na mapait ug magliwit ngiyan sila ipanid-an nang mga katiguwangan. Haw mutondog gani yang mga mananap sian haw aron kaniran ibati-bati, supo siang paintawon, nan, kanila yaan timan-an. Pag abot nang panahon na sila isab aron bation na singod sian, kanila usahay tibtiban naay, haw dili sila mahilo kanilan da dayun ngidto gamiton. Ngiyan na katigam ing tudlo isab nila kanami na ga sunod. (excerpt taken from the signed transcript of the interview of Respondent #15)
>
> [Leaves are known for their bitter taste or, if crushed, produce a sticky substance, which our ancestors keenly observed. If

> animals consume them during distress or illness-like diarrhea (LBM), the oldies imitate them. They initially try a small portion to avoid poisoning until it has proven its effectiveness to humans. This knowledge then transcends down to our generation.]

This practice aligns with similar beliefs in other tribes, such as the B'laan, where traditional therapeutic procedures are deeply integrated into their culture and heritage (Alinsug et al., 2022). The local people have accumulated a wealth of experiences and knowledge regarding the significance of preserving specific plant species that possess therapeutic properties for treating or alleviating the illnesses affecting their community members. This wisdom has been recognized and passed down as traditional knowledge on medicinal plants, as highlighted in the work of Guevara et al. (2018). This stresses the enduring connection between indigenous communities and their reliance on the healing properties of specific plant species as a vital part of their cultural and medicinal traditions.

Based on the findings provided, majority of the plant materials used by the local communities are prepared in their fresh state. This emphasizes the preference for the freshness of plant materials in medicinal preparations. The prevalence of fresh plant materials suggests that the community values the immediate accessibility and potency of these herbal remedies.

CONCLUSIONS

In conclusion, this study provides a comprehensive overview of the rich medicinal plant knowledge within local Lianga, Surigao del Sur communities. The research identifies 50 plant species from 30 different plant families actively utilized as medicinal treatments for various illnesses and emergencies. The extensive list of ailments and emergencies addressed includes common health issues such as cough, asthma, dengue, fever, toothache, stomach-related problems (diarrhea, constipation, and hyperacidity), wounds, bleeding, abscess, bruises, skin allergies, diabetes, headaches, fatigue, flatulence, animal bites, measles, sprains, muscle pains, and birthing-related pains and bleeding. The administration of plant extracts primarily involves liquefying them, and the two main application methods include drinking the extract and rubbing it on affected body parts. The versatility in administration methods highlights the adaptability of these medicinal plants to different health concerns and preferences within the community.

Additionally, the preparation processes extend beyond simple liquefaction. Pounding the plant materials and applying them directly to the

affected areas of the patients emerge as alternative methods in the treatment regimen. This diversity in preparation methods emphasizes the dynamic nature of traditional medicinal practices, reflecting an understanding of the plants' properties and their applications in addressing various health issues. Overall, the study documents the extensive use of medicinal plants and sheds light on the preferred modes of preparation and administration within the local communities. This paper provides valuable insights into the rich ethnomedicinal knowledge of the people in Lianga, Surigao del Sur, showcasing the practical and culturally embedded use of herbal remedies for health and well-being. This could serve as a starting point to inspire a Kamayo-wide survey of their Traditional Medicinal Practices and contribute to mapping ethnomedicine in Mindanao and the Philippines.

With this, this research recommends conducting more extensive research efforts to document additional information on ethno-medicinal practices within the remaining Kamayo Municipalities of Surigao del Sur, including Marihatag, San Agustin, Lianga, Barobo, Tagbina, Hinatuan, and the City of Bislig, as well as the Municipalities of Boston, Cateel, and Baganga. Such studies would provide a comprehensive understanding of the Kamayo people's cultural practices and heritage, extending beyond medicinal knowledge. By complementing the existing research, these studies could revive and restore ethno-medicinal knowledge, shedding light on the significance of these practices. As this study lays the necessary foundation for exploring Kamayo's Traditional Medicinal Practices known as Panamasama, it is recommended that similar studies be done in remaining Kamayo settlements to complement these efforts.

As additional documentation, this research can potentially enlighten government authorities and policymakers about the importance of Kamayo's cultural heritage. With a more comprehensive understanding of their ethno-medicinal practices, programs can be implemented that support and sustain this crucial cultural heritage. By recognizing and valuing the Kamayo people's knowledge, efforts can be directed toward preserving their traditions and ensuring that their cultural practices are not lost or forgotten over time. The broader aim is to foster a more inclusive approach that appreciates and protects the diverse indigenous knowledge systems present in Mindanao, contributing to the region's overall cultural richness and heritage.

The potential of Kamayo's ethnomedicinal knowledge to positively contribute to the healthcare system could inspire inclusivity and community empowerment, thereby ending negative labeling that has historically marginalized indigenous practices. It is crucial to emphasize that any knowledge generated from the study of the Kamayo's Panamasama should be recognized as part of their Intangible Cultural Heritage. It

should never be considered the researchers' intellectual property, as all rights are reserved to the community. This approach discourages cultural appropriation, especially considering that Kamayo's practices are not protected by the National Commission on Indigenous Peoples (NCIP). This study further recommends that any conservation initiatives must be community-based, encouraging a multi-disciplinary approach to cover other facets beyond the field of the proponent for this study.

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AUTHORSHIP CONTRIBUTION

Bernard D. Yu was instrumental in the conceptualization and overall design of the project. He was responsible for developing the methodology, managing project administration, and securing funding. As the project leader, he directed the writing and editing processes for publication, ensuring that the final manuscript met high-quality standards. Additionally, he supervised the entire data collection process and analysis, maintaining rigorous standards to preserve the integrity and accuracy of the data. His role was crucial in ensuring that each phase of the project was executed effectively and that the research findings were reliable and valid.

Jessa S. Macalber was responsible for identifying and validating the plant species. She conducted observations and documented plants during interviews, verified scientific names using Co's Digital Flora of the Philippines database, and categorized plants based on their growth habits. Additionally, she contributed to drafting the manuscript and analyzing the data.

Mylene J. Alsado played a key role in facilitating interviews and transcribing the results, as well as safeguarding the documents after validation. As a local resident, she introduced the team to the community

and ensured the smooth and safe conduct of the project. She also assisted with plant identification and documentation.
Diocelyn G. Meregildo's handled critical staff tasks, including preparing printed materials and managing communications. Her work ensured smooth information flow and organization, which was essential for the project's successful implementation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no significant conflicts of interest that could potentially affect the findings or interpretations of this study. This includes any financial interests, personal relationships, or other circumstances that might bias their research or influence their conclusions. They affirm that their work has been conducted with impartiality and integrity, ensuring that the results and interpretations are based solely on the data and evidence gathered.

DECLARATION OF USE OF GENERATIVE AI / AI-ASSISTED TECHNOLOGIES

The authors wish to clarify that generative AI technologies, such as ChatGPT, were utilized exclusively to enhance the text's language and readability. These tools were not employed to create or generate the study's content. The use of AI was limited to refining and improving the clarity and coherence of the written material, ensuring that the final document is well-articulated and accessible. All content, including research findings, interpretations, and conclusions, results from the authors' work and intellectual effort.

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APPENDICES

Appendix A

Photos of the Ethnomedicine Identified in Tigis, Poblacion, Lianga Surigao del Sur

Anxonnupos compresus, (KARABAO GRASS)
Ailments treated (Urinary tract infection)

Chromolaena odorata, (HAGONOY)
Ailments treated (Wound and Abscesses)

Cymbopogon citratus DC.Stapf, (TANGLAD)
Ailments treated (Lower hypertension)

Artemisia vulgaris L. (HILBAS)
Ailments treated (Relief stomach ache,

Psidium guajava, (BAYA-BAS)
Ailments treated (Diarrhea)

Jatropha curcas L. (TUBA-TUBA)
Ailments treated (Relieved

Euphorbia hirta L. (TA-WA-TAWA)
Ailments treated (Dengue

Gmelina roxb, (GEMELINA)
Ailments treated (Treats flatulence or PANUHOT)

Ficus septica, (LAGNOB)
Ailments treated (Stomach ache)

Eleusine indica L. gaernt, (PARAGIS)
Ailments treated (Relieved over fatigue)

Elephantopus scaber L. (KUKUG-BANOG)
Ailments treated (Treats measles)

Mongifera indica L., (MANGGA)
Ailments treated (Diarrhea)

Anona muricata L., (UBANA)
Ailments treated (Stomach ache)

Capsicum frutescens L., (SILI)
Ailments treated (Relieves discomfort from asthma)

Ipomomea aquatica, (KANG-KONG)
Ailments treated (Loosen constipation)

Moringa oleifera, (KA-MONGGAY)
Ailments treated (Treats wound)

Gliridium sepium walp, (MADRE DE KAKAW)
Ailments treated (Relieves skin itchiness)

Citrus x microcarp bunge, (LEMONSITO)
Ailments treated (Cough)

Muntingia calabura, (MANSANITAS)
Ailments treated (Diarrhea)

Zingiber officinale roscoe, (LUY-A)
Ailments treated (Flatulence or PANUHOT)

Origanum vulgare, (KALABO)
Ailments treated (Treats cough)

Blumea balsamifera, (GABON)
Ailments treated (Cough and flatulence or panuhot)

Cyperus kyllingia endL., (BUSIKAD)
Ailments treated (Diarrhea)

Peperomia pellucida, (SINAW-SINAW)
Ailments treated (Treats for kidney infection)

Allium sativum L. (AHOS)
Ailments treated (snake bites, dog bites and ect.)

Zea mays L., (MAIS)
Ailments treated (Kidney trouble)

Allium odorium L., (Ganda)
Ailments treated (Treats convulsion)

Tinospo reticute, (PANYAWAN)
Ailments treated (For diarrhea and for diabetes)

Vitex negundo, (Lagundi)
Ailments treated (Cough and fever)

Caesalpinia sappan L. (SIBUKAW)
Ailments treated (Urinary tract infection)

Corchurus oiltorius, (SALUYOT)
Ailments treated (Diarrhea)

Momordica charantia L. (AMPALAYA)
Ailments treated (Treats diarrhea)

Curcuma longa L. (DU-LAW)
Ailments treated (Bruise)

Kalanchoe pinnata(lam)pers, (HANLILIKA)
Ailments treated (Relieves muscle pain)

Carica papaya L. (KA-PAYAS)
Ailments treated (Dengue fever)

Citrus maxima (burmf) merr (BUONGON)
Ailments treated (Relieves headache)

Andrographis paniculata, (MARIBELOSA)
Ailments treated (Diarrhea

Ageratum conyzoides L. (KANDING-KANDING)
Ailments treated (Relieves headache)

Musa textilis, (ABACA)
Ailments treated (Diarrhea)

Piper betle L. (BUYO)
Ailments treated (Flatulence or panuhot)

Pipturns arborescens, (HANDAMAY)
Ailments treated (treats for cold sore)

Coco nucifera, (COCONUT/ LUBI)
Ailments treated (poisoned)

Coleus scutellarioides blume, (MANYANA)
Ailments treated (treats wound)

Cassia alata linn, (ASUNTING)
Ailments treated (fungal skin infection)

Musa acuminata, (SAGING)
Ailments treated (bleeding woman)

Bixa orellana L., (ANATO)
Ailments treated(heels sprain and cough)

Lagerstroemia speciosa pers, (SAB-A)
Ailments treated (diarrhea& kidney infection)

Dillenia phippinensis rolfe, (KATMON)
Ailments treated (DIARRHEA)

Calamus sp, (UWAY)
Ailments treated (Talimughat)

Cinnamomum mindanaense elmer, (KANINGAG)
Ailments treated (treats stomach ache)

Appendix B

BIONOTE of the AUTHORS

Bernard D. Yu, MA-Hist: He earned his Bachelor and Master of Arts in History from MSU-Marawi City and currently on his Dissertation writing leading to a degree of Doctorate in Anthropology at the USC in Cebu. His professional affiliations include membership in UGAT (Anthropological Society of the Philippines). He is teaching both graduate and undergraduate course in both Northeastern Mindanao State University Lianga Campus and North Eastern Mindanao State University (Main Campus). He is actively involved in both research and extension activities at the University, with a particular focus on the indigeneity of the Kamayo people along the eastern seaboard of Mindanao

Mylene J. Alsado: She earned a Bachelor of Science in Environmental Science from NEMSU-Lianga Campus in July 2023. She specialized in data collection through ethnographical methods, including participant observation and focus group discussions. Her meticulous approach and dedication to carefully observed protocols earned the respect of her teammates throughout the immersion phase and during data validation and analysis. Her deep familiarity with the research setting positioned her as a valuable team player, contributing significantly to the success of the research project.

Jessa S. Macalber: Jessa earned a Bachelor of Science in Environmental Science from NEMSU-Lianga Campus in July 2023. During the final stage of her undergraduate journey, she engaged in an ethnomedicine-focused research project, where she applied her expertise in the taxonomic and scientific identification of plants and their growth habits. She played a crucial role in exploring and documenting the customs and herbal treatments practiced by indigenous communities. Through her contributions, the team has significantly enriched the understanding of traditional medicine, contributing to the preservation of local cultural heritage and knowledge.

Diocelyn G. Meregildo: Diocelyn earned a Bachelor of Science in Environmental Science from NEMSU-Lianga Campus in July 2023. Her dedication to the project on the Traditional Medicinal Practices of the Kamayo was instrumental to its success. Diocelyn's tireless efforts ensured the smooth conduct of the study, as she proactively addressed challenges and implemented effective contingencies. Her commitment to support and manage tasks with precision and orderliness played a key role in maintaining timeliness and achieving the project's objectives.