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Ethnomedicinal Plants and Indigenous Knowledge System of a Rural Community in Iligan City, Philippines

Samson L. Mangin[1], Edna B. Nabua[2]

[1]Department of Science and Mathematics Education, College of Education, Mindanao State University – Iligan Institute of Technology, Iligan City, Philippines 9200.

Abstract- Ethnomedicinal knowledge remains an important component of primary healthcare in many rural communities, yet it is increasingly threatened by modernization and environmental change. This study documents the ethnomedicinal plants used by the community of Sitio Langilanon, Barangay Pugaan, Iligan City, and examines their cultural and therapeutic significance. A mixed-methods research design was employed, integrating structured surveys and semi-structured interviews among selected settlers of Sitio Langilanon. Data collection focused on identifying medicinal plant species, ailments treated, methods of preparation, and associated indigenous health practices. Qualitative data were thematically analyzed, while quantitative data were summarized using descriptive statistics. Twenty-two (22) ethnomedicinal plant species were documented. Common methods of preparation included boiling, pounding, and infusion. These remedies were primarily used to treat ailments such as fever, diarrhea, cough, wounds, and hypertension. Findings revealed a strong community reliance on plant-based medicine and demonstrated the continued intergenerational transmission of indigenous medicinal knowledge. The study highlights the vital role of ethnomedicine in the local healthcare system of Sitio Langilanon. However, traditional medicinal practices face growing threats from cultural shifts and environmental degradation. Systematic documentation, cultural preservation initiatives, and scientific validation are essential to safeguard this knowledge and enhance its contribution to sustainable healthcare and broader scientific research.

Keywords: Ethnomedicinal, Indigenous Knowledge System, Herbal medicine.

I. INTRODUCTION

Ethnomedicinal practices remain a fundamental component of primary healthcare for many rural and indigenous communities, particularly in the Philippines, where traditional healing is deeply embedded in cultural identity and everyday life. Despite the increasing availability of biomedical healthcare services, a substantial portion of the population continues to rely on herbal remedies due to their local availability, affordability, and cultural acceptability. Across Southeast Asia, ethnomedicinal knowledge represents generations of empirical observation, experimentation, and adaptation within specific ecological contexts. In the Philippine setting, many communities continue to depend on medicinal plants derived from local flora, with knowledge transmitted orally across generations (Dizon & Migo, 2016). This continued reliance reflects not only the accessibility of indigenous plant resources but also the enduring cultural value of traditional knowledge systems.

In Sitio Langilanon, Barangay Pugaan, Iligan City, community members commonly utilize herbal plants to manage ailments such as fever, diarrhea, wounds, cough, and hypertension. This practice underscores the critical role of plant-based healthcare in areas where access to formal medical services is limited or constrained. Previous studies conducted in Mindanao indicate that indigenous knowledge systems remain robust yet insufficiently documented, placing valuable cultural and medicinal information at risk of loss. Guilaco et al. (2021) reported that indigenous communities in Mindanao possess extensive plant-based healing knowledge that contributes significantly to community health and cultural continuity. However, this knowledge base is increasingly threatened by modernization, environmental degradation, and declining interest among younger generations.

Given these challenges, systematic documentation of ethnomedicinal practices is essential to preserve

cultural heritage and to provide a foundation for further scientific evaluation and sustainable healthcare initiatives. Therefore, this study aims to document and analyze the ethnomedicinal plants and associated healing practices of the community in Sitio Langilanon. By doing so, the research seeks to contribute to the preservation of indigenous knowledge, enhance scientific understanding of traditional medicinal resources, and support the integration of ethnomedicine into local primary healthcare development.

II. MATERIALS AND METHODS

This study employed a descriptive approach with qualitative semi-structured interviews. This combination allowed the researchers to gather measurable data on the frequency and types of ethnomedicinal plants used while also capturing the cultural understanding and interpretations behind these traditional practices. The structured survey instrument included questions on plant sources, preparation techniques, and specific illnesses treated.

Participants were purposively selected based on their knowledge and experience with traditional healing practices. These included community elders, household heads, and individuals recognized for their practical use of herbal remedies. Ethical considerations were observed throughout the process, ensuring informed consent, confidentiality, and cultural sensitivity. Qualitative interviews further enriched the data by providing insight into the rituals, beliefs, and intergenerational teaching associated with plant-based healing.

Data analysis involved descriptive statistics for the quantitative component and thematic analysis for the qualitative narratives. Quantitative data were tallied and summarized to identify the most frequently used plants and preparation methods. Meanwhile, qualitative responses were coded into themes reflecting cultural values, healing traditions, and perceived effectiveness of the remedies. The integration of numerical and narrative data strengthened the validity and depth of the findings.

III. RESULTS AND DISCUSSIONS

A total of twenty-two (22) ethnomedicinal plant species were documented in Sitio Langilanon, representing various botanical families such as Euphorbiaceae, Verbenaceae, Asteraceae, and Zingiberaceae. The most commonly used plant parts were leaves, stems, and rhizomes due to their abundance and medicinal potency. Preparation methods included boiling, pounding, infusion, and heating, which align with widely documented ethnobotanical practices in the Philippines. These findings confirm that the community relies heavily on simple yet effective means of extracting plant-based therapeutic compounds.

The study found that the documented plants are used to treat an extensive range of ailments—from common conditions such as cough, wounds, fever, and diarrhea to chronic illnesses like hypertension and diabetes. Several plants, including Euphorbia hirta (Tawa-tawa) and Psidium guajava (Bayabas), showed consistent alignment with national ethnomedicinal literature confirming their traditional uses. This consistency suggests that the healing practices of Sitio Langilanon reflect broader Philippine ethnomedicinal knowledge, indicating generations of empirical refinement and cultural transmission.

Despite the richness of local knowledge, several concerns emerged, especially regarding the sustainability of ethnomedicinal resources and the weakening of traditional knowledge transfer to younger generations. Environmental pressures such as land-use change and declining plant abundance pose threats to the continued availability of medicinal flora. Moreover, community narratives suggest a gradual decline in youth engagement, reflecting the influence of modernization and shifting healthcare preferences. These findings emphasize the importance of conservation efforts, educational integration, and further scientific validation to ensure the survival and continued relevance of ethnomedicinal practices.

The most frequently used plant parts were leaves, stems, and rhizomes, reflecting their accessibility and

high concentration of bioactive compounds. Preparation methods included boiling, pounding, infusion, and direct extraction through heating, aligning with commonly documented Philippine ethnomedicinal practices (Fadriquela et al., 2019).

Table 1. Ethnomedicinal Plants and their Traditional Uses

No.	Scientific Name	Family	Local Name	Plant Part Used	Preparation	Mode of Application	Ailment treated
1	*Euphorbia hirta L.*	Euphorbiaceae	Tawa-tawa	Leaves and stem	Boil in water	Drink 3 times a day	For dengue fever
2	*Psidium guajava*	Myrtacea	Bayabas	Young Leaves	Boil in water	Externally, used as washing or antiseptic Internally, drink three times a day	Disinfect the wound, for diarrhea.
3	*Coleus aromaticus*	Labiatae	Kalabo	Leaves	Preheat leaves and extract juice	Take 1 tablespoon 3 times a day	Relief and soften cough
4	*Chromolaena odorata*	Asteraceae	Hagonoy	Leaves	Pound leaves to soften and extract the juice	Apply to affected area	For boils
5	*Artemisia vulgaris L*	Asteraceae	Hilbas	Leaves	Preheat the leaves, extract the juice	Applied on the chest and back to loosen the phlegm.	For cough and fever
6	*Blumea balsamifera*	Compositae	Gabon	Leaves	Boil with water	Drink four times a day to induce urination	Treat kidney infection
7	*Jatropha curcas*	Euphorbiaceae	Tuba-tuba	Stem	Scrape the stem preheat, squeeze to produce juice	Apply externally rub and massaged on the body	Relief of flatulence or panuhot that causes cough
8	*Portulacao leraceae L.*	Piperaceae	Sinaw-sinaw	leaves and stem	Infusion of leaves	Drink 4 times a day, induce urination	For kidney infection, arthritis
9	*Vitex negundo L.*	Verbenaceae	Lagundi	Leaves	Infusion of leaves	Drink 3 times a day	For cough and colds
10	*Zingiber officinale Roscoe*	Zingiberaceae	Luy-a	Rhizome	Pound and extract the juice and	Rub on affected area to induce gas	For Stomach-ache and hoarseness

					mixed with oil or water	pain or boil the water	
11	*Heliotropium indicum L.*	Boraginaceae	Elepante	Leaves	Boil with water	Drink 3 times a day	For diarrhea and stomach-ache
12	*Stachytarpheta jamaicensis L.*	Verbenaceae	Kanding-kanding	Leaves	Boil in water	Used as washing and antiseptic	Cleaning of wounds
13	*Coleus blumei*	Labiatae	Mayana	Leaves	Pound until soft and juicy	Apply the leaves directly to affected area	For mumps
14	*Curcuma longa L.*	Zingiberaceae	Dulaw	Rhizome	Preheat the rhizome and extract the juice mixed with coconut oil	Apply directly on the affected area	Heals bruise and boils
15	*Cassia alata L.*	Fabaceae	Sunting	Leaves	Boil with water	As washing or antiseptic	For athletes' foot
16	*Mentha arvensis*	Labiateae	Helba Buena	Leaves	Boil with water	Drink 3 times a day	For stomach discomfort
17	*Persea americana Gaertn.*	Lauraceae	Abucado	Leaves	Boil with water	Drink 3 times a day	For diarrhea, relief stomach-ache
18	*Plumeria obtuse L.*	Apocynacea	Kalatsutsi	Leaves	Pound and extract the juice	Apply directly on the affected area	Treatment for herpes simplex
19	*Tinospora reticulate*	Menispermaceae	Panyawan	Stem	Boil with water	Drink 3 times a day to lower blood sugar	For diabetes
20	*Moringa oleifera L.*	Moringaceae	Kalamungay	Leaves	Crushes the leaves	Apply on the open wound	Abate bleeding
21	*Manihot esculenta Crantz*	Euphorbiaceae	Bulanghoy	Leaves	Boil with water	Use in bathing	After healing of measles
22	*Cymbopogon citratus*	Gramineae	Tanglad	Leaves	Boil with water	Drink 3 times a day	Lower hypertension

The documented plants addressed various ailments ranging from common conditions such as cough, diarrhea, fever, and wounds, to chronic illnesses like hypertension and diabetes. For instance, Euphorbia hirta (Tawa-tawa) was widely reported for dengue-related symptoms, while Cymbopogon citratus (Tanglad) was used for hypertension management. These findings align with existing national ethnobotanical literature, which indicates that many Philippine herbal remedies serve as practical, low-cost alternatives to pharmaceutical treatments (Villanueva et al., 2023)

IV. CONCLUSION

The findings prove that ethnomedicinal plants remain integral to the health practices of Sitio Langilanon, serving both therapeutic and cultural roles within the community. The documented species reflect a broad pharmacopeia capable of addressing various illnesses using accessible and affordable remedies. The alignment of these practices with scientific literature further supports their potential value in complementary healthcare. Many of the documented plants—such as Tawa-tawa for dengue and Bayabas for wound disinfection—have been consistently cited in prior studies as culturally validated remedies with potential pharmacological value (De Padua et al., 1999; Musa et al., 2010). The alignment of local knowledge with scientific literature suggests that these practices, though traditionally transmitted, possess empirical foundations. This parallels observations by Farnsworth et al. (1985), who argue that indigenous pharmacopoeias often reflect generations of trial-and-error experimentation that approximate scientific methods.

However, environmental changes, modernization, and insufficient documentation threaten the continuity of this vital knowledge system. Without deliberate preservation efforts, both cultural heritage and ecological resources may be lost. The study highlights the need for collaborative, community-driven documentation and sustainable practices to safeguard medicinal plant resources. Despite this alignment, the study highlights concern regarding the sustainability and continuity of traditional knowledge, echoing warnings from Coronel et al. (2018) and Meyer et al. (2019) Environmental threats such as habitat loss, coupled with generational shifts toward modern medicine, pose significant risks to ethnomedicinal knowledge retention. Furthermore, though many plants demonstrate therapeutic promise, the absence of comprehensive laboratory validation restricts their inclusion in mainstream healthcare. Scholars such as Bodeker et al. (2005) advocate for integrated health policies that acknowledge traditional medicine while ensuring scientific standardization. Therefore, the present study underscores the need for community-driven documentation, conservation measures, and research collaborations to preserve and legitimize ethnomedicinal traditions for future generations.

It is recommended that local government units, educational institutions, and cultural organizations work together to establish conservation strategies, integrate ethnomedicinal knowledge into school curricula, and support scientific studies that validate the pharmacological properties of traditional remedies. Doing so will not only preserve cultural identity but also strengthen community-based healthcare systems.

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