



Ethnomedicinal Uses of Endemic Medicinal Plants among the Maranao Community for the Management of Health Conditions

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Abstract | Indigenous communities in the Philippines possess extensive knowledge of traditional medicinal practices that has been transmitted across generations. This traditional knowledge holds significant value for pharmaceutical development and biodiversity conservation. Despite increasing urbanization and the availability of modern healthcare systems, traditional medicine continues to play an important role, particularly in areas with limited healthcare access. The present study explored the ethnopharmacological knowledge of the Maranao Community, specifically in Marawi City. A total of 23 medicinal plant species were identified as being traditionally used for the treatment and management of various health conditions. The findings highlighted the rich botanical diversity of the region, with the Euphorbiaceae and Fabaceae families exhibiting particularly high species diversity. Leaves were identified as the most frequently utilized plant part, commonly administered orally after preparation through decoction or simmering. This practice not only supports sustainable utilization of medicinal plants but also contributes to addressing local healthcare needs. The study emphasized the importance of integrating traditional medicinal knowledge with modern scientific approaches through detailed pharmacological and clinical evaluations. Furthermore, the conservation of these valuable medicinal plant species and the preservation of indigenous cultural heritage were recognized as essential for sustaining ethnomedicinal knowledge for future generations.

Key Words Ethnomedicine, Endemic, Ethnopharmacology, Traditional Medicine, Bioactive Compounds

INTRODUCTION

The Philippines is recognized as a megadiverse country with a rich cultural heritage that includes extensive traditional medicinal knowledge [1]. Indigenous communities throughout the country have accumulated centuries of experience regarding the therapeutic properties of numerous plant species and have successfully utilized this knowledge to treat and manage a wide range of illnesses and health conditions. Ethnomedicinal knowledge therefore represents an important source of information with substantial potential for the development of new pharmaceutical products and therapeutic approaches.

The Maranao People are among the largest indigenous groups in the Philippines and are well known for their rich cultural traditions, including the use of

traditional medicine [2]. The Maranao community possesses extensive knowledge regarding the medicinal properties of plants found in their local environment and applies this knowledge in the treatment of various diseases and health-related conditions.

Ethnomedicine refers to the scientific study of traditional medicinal practices and the utilization of plants and other natural substances for the treatment and prevention of diseases [3]. It represents a broad and complex body of knowledge encompassing plant identification, preparation methods, modes of administration and the cultural beliefs and practices associated with health, illness and healing.

The importance of ethnomedicinal knowledge is multidimensional and deserves extensive scientific investigation. Such studies may reveal important therapeutic

properties of medicinal plants and other natural compounds, thereby contributing to the development of pharmaceutical products and treatment strategies for various diseases and medical conditions [4]. Furthermore, ethnomedicinal knowledge plays a significant role in biodiversity conservation, as indigenous communities often possess deep ecological understanding of the plants and animals within their environment and use this knowledge to preserve and sustainably manage natural resources [5].

In addition, ethnomedicinal knowledge contributes to cultural preservation, resilience and community well-being. Traditional healing practices frequently reflect the cultural beliefs, values and identity of indigenous populations. The continued practice of traditional medicine can strengthen social cohesion, reinforce cultural identity and empower individuals by enhancing their sense of responsibility and autonomy in managing personal health and well-being.

Despite the extensive ethnomedicinal knowledge possessed by the Maranao People, scientific evidence supporting the therapeutic efficacy of many medicinal plants traditionally used by the community remains limited [6]. This limitation may be attributed to several factors, including insufficient funding for ethnopharmacological research and the difficulties associated with conducting controlled clinical studies on traditional medicinal practices.

Nevertheless, scientific interest in the evaluation of traditional medicine has increased considerably in recent years. This growing attention is driven by the recognition that traditional medicinal knowledge may serve as an important source for the discovery of novel pharmaceutical compounds and may provide effective, accessible and affordable therapeutic options for the treatment of various diseases and health conditions [7].

MATERIALS AND METHODS

Study Area

Marawi City, formerly known as Dansalan, is the capital city of the province of Lanao del Sur in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), Philippines. The city is located in the inland portion of the region, approximately 877 kilometers south of Manila, the capital metropolis of the Philippines. According to the 2020 census, Marawi City covers a total land area of approximately 87.55 km² and has a population of 207,010 inhabitants.

Marawi City is considered one of the major tourism destinations in the region because of its rich cultural and historical heritage. The city contains several important cultural and historical landmarks, including the Marawi Grand Mosque, the Sultan Dipatuan Kudarat Shrine and the Lanao del Sur Provincial Capitol [8]. In addition, the city is known for its scenic natural beauty, characterized by lush mountains and clear lakes.

Data Mining

A systematic literature review was conducted to identify and analyze scientific publications and research

articles related to endemic medicinal plants traditionally used by the Maranao Community residing in Marawi City. This approach facilitated the process of data extraction for the present study.

Data were collected from a wide range of published scientific sources, including information related to the scientific nomenclature of the investigated plant species. Details regarding the specific plant parts utilized and their ethnomedicinal applications were also documented. Furthermore, the methods of preparation and formulation of these plant-based remedies were recorded.

In addition, an extensive literature review was carried out to identify the bioactive compounds present in the medicinal preparations and to evaluate their associated biological and pharmacological activities.

RESULTS AND DISCUSSION

The use of traditional medicine has been extensively documented throughout human history across many different cultures. In the Philippines, ethnomedicinal knowledge has traditionally been transmitted from one generation to another through oral tradition [9]. The primary objective of the present study was to comprehensively document the patterns of medicinal plant utilization among the Maranao Community, particularly those residing in Marawi City.

An extensive data-mining process identified a total of 23 plant species reported to possess medicinal properties and traditionally used by the Maranao people for various therapeutic purposes. Taxonomic classification of these species resulted in the identification of 18 different plant families, each associated with the treatment of specific diseases or health conditions. The findings presented in Table 1 demonstrated that the Euphorbiaceae and Fabaceae families exhibited the greatest species diversity regarding medicinal plant utilization. Specifically, the Euphorbiaceae family comprised three medicinal plant species, whereas the Fabaceae family contained four species. In contrast, the remaining families—including Lauraceae, Combretaceae, Cornaceae, Calophyllaceae, Equisetaceae, Araceae, Myrtaceae, Athyriaceae, Actinidiaceae, Cyatheaceae, Pteridaceae, Dilleniaceae, Boraginaceae, Simaroubaceae and Zingiberaceae—were each represented by a single species.

The results of this study indicate that the investigated area possesses a rich diversity of plant species with significant medicinal potential. Despite the urban setting of the study area, access to modern healthcare services remains limited for many residents, resulting in continued dependence on traditional medicinal practices among the local population.

The findings further revealed that leaves were the most frequently utilized plant part in traditional remedies. Similar observations were reported in previous studies conducted among the Meranao population of Lanao del Sur [10]. Decoction, involving the boiling or simmering of leaves in water followed by oral administration, was identified as the most common preparation method. The sustainable use of

leaves contributes to the preservation and continued growth of medicinal plant species within local ecosystems, thereby supporting rural communities that rely on medicinal plants for healthcare purposes [9].

In addition to leaves, other plant parts such as stems, roots, rhizomes, fruits and foliage were also commonly utilized for medicinal applications. The most prevalent health conditions treated using these herbal remedies included gastrointestinal disorders associated with diarrhea, respiratory illnesses characterized by fever, congestion and cold-like symptoms, as well as headaches. Non-communicable diseases such as hypertension and Diabetes Mellitus were also identified as important health concerns within the community.

The preparation and administration of medicinal plants varied according to the specific disease being treated. The most frequently used preparation technique involved decoction or simmering plant materials to achieve the desired concentration, with oral administration representing the predominant route of treatment. For wound management, traditional methods commonly involved crushing or pounding fresh leaves to extract their liquid content before applying them directly to the affected area. In some cases, leaves were heated prior to topical application.

According to the data presented in Table 1, leaves were identified as the plant part most frequently utilized in the treatment of various health conditions. As demonstrated by *Alangium longiflorum* Merr. and

Syzygium polyanthum, the method of administration varies depending on the specific ailment being treated. In these cases, the leaves are heated and applied to relieve skin irritation. In contrast, the leaves of *Calophyllum blancoi* and *Ceratopteris thalictroides* are prepared through simmering and subsequently used for cleansing wounds. Similarly, *Macaranga bicolor* and *Diplazium esculentum* are boiled or simmered to prepare remedies commonly used for the treatment of colds, nasal congestion and fever. These findings suggest that medicinal plants possess the potential to provide therapeutic effects against multiple diseases simultaneously.

Furthermore, several plant species were found to exhibit similar therapeutic applications for the treatment of the same health conditions through a common preparation method, particularly decoction or simmering in water followed by oral administration. For example, *Alocasia sanderiana* and *Micromelum compressum* were identified as traditional remedies for toothache.

Scientific investigations have also examined the medicinal utilization of other plant species through various administration techniques. Local communities have traditionally used *Homalanthus macradenius* and *Eurycoma longifolia* both as topical disinfectants for wound treatment and as orally administered remedies for congestion and inflammatory conditions.

Table 1: Endemic Medicinal Plants Used by Marawi City Residents

Family	Local Name	Traditional Name	Scientific Name	Ethnomedicinal Uses	Plant Part Used	Preparation	Bioactive Compounds	Biological Activities	Reference
Lauraceae	Kalingag	Kalingag	<i>Cinnamomum mercadoi</i>	Loss of appetite, bloating, vomiting, flatulence, toothache, headaches, rheumatism, dysentery, to help expel flatus and to facilitate menses; colds, fevers, sinus infections and bronchitis, cough, nausea, vomiting and hypertension, abdominal discomfort and stomach aches	Bark and Leaves	Decoction, Tincture	Saponins, Tannins and Polyphenols, Cardenolides and Bufadienolides, Flavonoids, Anthraquinones and Alkaloids	Analgesic, Antimicrobial, Fungicidal, Antidiarrheal, Antioxidant,	[11]
Euphorbiaceae	Kamala	Langganasi	<i>Mallotus philippensis</i>	Fungal skin infection, bronchitis, abdominal disease, spleen enlargement, parasitic infection, wound healing	Leaves, Bark, & Fruit	Infusion, chewing, & pounding	Phenols, Diterpenoids, Steroids, Flavonoids, Cardenolides, Triterpenoids, Coumarin, Isocoumarins	Antifilarial, Antimicrobial, Antiallergic, Antibacterial, Antifertility, Antioxidant, Hepatoprotective, Antineoplastic, Anthelmintic, Antidiabetic, Anti-tuberculosis, Anticancer, Antifungal, Antiuro lithiatic, Anti-inflammatory	[12]

Table 1: Endemic Medicinal Plants Used by Marawi City Residents (Continue)

Combretaceae	Kalumpit	Kalumpai	<i>Terminalia microcarpa</i> Decne	Eyewash, Repellent	Fruits, Leaves	Extraction and Pounding	Squalene, Lutein, α -glucosidase	Anti-inflammatory, cytotoxic, anticancer, larvicidal, antioxidant	[13]
Cornaceae	Malatapai	Malatapai	<i>Alangium longiflorum</i> Merr.	Skin itching	Leaves, Stem (Bark)	Extraction (Topical), Decoction, Heating	tetrahydroisoquinoline alkaloids, 8-hydroxytubulosine, 2'-O-trans-sinapoylisoalangsides, sinapoyloxylupene, isoalangsides, 2'-O-trans-sinapoyldemethylalangsides, 2'-O-trans-sinapoyl-3-O-demethyl-2-O-methylalangsides, 2'-O-trans-sinapoylalangsides, alangsides, demethylalangsides, 3-O-demethyl-2-O-methylalangsides, 2'-O-trans-feruloyldemethylalangsides, 9-demethyltubulosine, ankorine, α -tocopherylquinone, loganic acid, methyl pheophorbide, pheophytin	Cytotoxic, Antiproliferative, Anticancer	[14]
Calophyllaceae	Bitangol	Nenggang	<i>Calophyllum blancoi</i>	Boil, Wounds, Asthma, Eye Discomfort (Napuwing)	Bark, Leaves	Decoction	Apetalic acid, isoapetalic acid, apetalic acid methyl ester, apetalic acid 5-O-acetate, isoapetalic methyl ester, soapetalic acid 5-O-acetate, dihydrocoumarin, isorecedensolide, recedensolide, acetyl blancoxanthone, -hydroxyblancoxanthone, pyranoxanthones, pyranojaceubin, caloxanthone	Anticancer: Anti-viral, anti-melanoma, anti-plasmodial acid	[15]
Equisetaceae	Putod	Putod	<i>Equisetum ramosissimum</i>	Kidney problem, Strands, Hypertension, reddening and swelling pain in the eye, pterygium of the cornea, diarrhea, jaundice hepatitis and renal lithiasis	Stem, leaves	Decoction	Steroids, triterpenoids, alkaloids, phenolic compounds, flavonoids, saponins, tannins	Antioxidant, Diuretic, Toxicity, CNS depressant Activity, Protective against Oxidation, Melanoma, Melanogenesis, Biochemical and Hematological effects in Pregnancy, Essential oil, Carvacrol, Aerial parts, Flavonoids, Hepatitis treatment, Invention	[16]
Araceae	Kris Plant	Bagiang	<i>Alocasia sanderiana</i>	Toothache, Treat impotence, Increase Sexual Desire	Leaves, Stem, Root tubers	Decoction	Glycosides, Tannins, Sterols and Triterpenes, Saponins, Starch, Albuminoids	Non-Active Antimicrobial, Antioxidant	[16]
Myrtaceae	Salam	Toal	<i>Syzygium polyanthum</i>	Relieve itching, Treating Diarrhea, Abdominal Pain, Rheumatism, Diabetes Mellitus,	Leaves, Fruit, Bark	Decoction, Heating	Carbohydrates, tannins, alkaloids, steroids, triterpenoids and flavonoids, while the ripe fruits contain saponins, carbohydrates,	Anti-inflammatory, Antioxidant, Anti-diabetic, Anti-bacterial, Cytotoxic, Cardio protective in	[17]

				Hypertension, Skin Disease			tannins, alkaloids, triterpenoids and flavonoids.	Post-ACS, Effect on IL-10 Levels in Acute Coronary Syndrome, Antihyperglyce mic, Healing 2nd degree burn wounds, Antihyperlipide mic, Inhibition of HMG CoA Reductase Enzyme, Sub chronic Toxicity Testing, Teratogenic Testing, Cytotoxic, Antiproliferativ e, Hypouricemic, Anti-gout Potential, Photocytotoxici ty, Complementary to metformin, Neuroprotectiv e, Melanogenesis and Tyrosinase Inhibition, Repellent, Larvicidal against Aedes aegypti. Anthelmintic, Ascaridia galli, Cardioprotectiv e, Myocardial Infarction Model, Nephroprotecti ve, Anti-Plaque, Effect on blood Sugar regulation via GLUT4 Protein regulation	
Athyriaceae	Pako	Pako	<i>Diplazium esculentum</i>	Treatment for Diabetes, smallpox, asthma, diarrhea, rheumatism, dysentery, headache, fever, wounds, hypertension, glandular swellings, hemoptysis and coughs, headache, pain, fever, wounds, dysentery, dermatitis	Leaves, Rhizomes	Extraction, Decoction	Tetradecanoic acid, N hexadecanoic acid, Octadecane, Pentadecanoic acid, Hexahydrofarnesyl acetone, Pentadecanoic acid, Docosane, N hexadecanoic acid, Octadecanoic acid, Octadecane, 5-methyl, Hexadecanoic acid, 2 hydroxy 1 ethyl ester, Di-n-octyl phthalate, Hexacotane, Tetracosane, 1- Tricosene, 10-Methyl- Octadec-1-ene, Tetra pentacosane	Antimicrobial, antioxidant, anti- inflammatory, anticoagulative, antidiabetic, immunosuppre ssive, antimalarial, antileishmanial, anthelmintic, mast cell stabilizing, antipyretic, antiarrheal, anthelmintic, analgesic, antianaphylaxis , photocatalytic, biosorbent, CNS stimulant, antiarthritic, glucosidase inhibitory, antifertility, anticholinester ase, diuretic, hepatoprotectiv e properties.	[18]

Table 1: Endemic Medicinal Plants Used by Marawi City Residents (Continue)

Actinidiaceae	Tambaka	Tambaka	<i>Latifolia merr.</i>	Fever, cramps, jaundice and malaria, Diabetes	Roots	Sun Dried and Pulverized	O-methyl oktaadrenolon, Alloeovodionol, Isopimpinellin, Alloxanthoxyletin, Methylevodionol, N-methyl flindersine,	Pain Reliever, Anti-hepatitis, Antipyretic, Antinociceptive	[19]
Cyatheaceae	Pakong Buwaya	Pako Buwaya	<i>Alsophila fuliginosa</i>	Headache, Wound healing, Rheumatic problem	Pounding	Leaves	Flavonol Glucoside	Flavonol Glucoside	[20]
Pteridaceae	Swamp Fern	Pako paleta	<i>Ceratopteris thalictroides</i>	Wound Healing, Skin diseases, treatment for Carbuncles	Pounding, Decoction	Leaves	Alkaloids, steroids, coumarin, tannins, saponins, flavonoids, quinone, anthraquinone, phenol, glycosides, catechin and terpenoids	CtCVNH, Novel Anti-HIV Protein, Antibacterial, Pterosins, Anti-Diabetic Potential	[21]
Fabaceae	Velvet bean	Sabawil	<i>Mucuna pruriens</i>	Paralysis and Affection of the Nervous System, Cholera, Diuretic and Kidney cleanser, Elephantiasis, Swollen Gland, Remedy for Dropsy, edema, impotence, intestinal gas and worms, snake bite remedy	Leaves, Roots, Hairs of the Pod	Infusion, Decoction	L-dopa, antioxidants, phenolic, flavonoids, tannin, carbohydrates, starch, protein, micronutrients Sopanines	Parkinson's Disease/ Natural L-Dopa Source, Fertility & Semen Benefits/ Anxiolytic, Antioxidant, Hypoglycemic/ Hypolipidemic, Anti-Snake Venom, Antimicrobial, Improved Male Fertility/ Hypothalamus-Pituitary-Gonadal Axis, Anti-Parkinsonism/ Ant dysknetic Mechanisms, Neuroprotective/ Neurorestorative, Antibacterial, Drug Interactions, Acute Oral Toxicity, Safety Concern/ Precipitation of Manic Symptoms, Hypotension/ Antihypertensive / Hydrosylates, Double-blind, Randomized, Controlled, Crossover Study, Antitumor/ Antioxidant/ Ehrlich Ascites Carcinoma, phytochemical Constituent Concerns, Renal Toxicity, Effect on Biochemical Liver Indices, Antitussive Effect, Efficiency of Various Methods for Extraction of L-DOPA, Anti-Inflammatory/	[22]

								Diuretic/ Antibacterial/ Aerial Parts, Effect on Semen Count and Biochemical Parameters of Infertile Men, Wound Healing,	
Rutaceae	Piris	Piris	<i>Micromelum compressum</i>	Infantile convulsions, febrifuge, febrifuge, carminative, toothache, Stomach ache, headache, giddiness and fever	Shoot, Leaves, Roots,	Young shoot Heated with Oil, Decoction, Infusion	Coumarins: 3",4"- dihydrocapsaicin 1, 2',3'-epoxy iso capno lactone 2, 8-hydroxy caprolactone-2',3'- diol 3 and 8-hydroxy- 3",4"- dihydrocapsaicin- 2',3'-diol 4, methyl caprolactone and stigmaterol, tetramethoxyflavone, pentamethoxy flavones,	Cancer Prevention and Carcinogenesis Potentials, Cytotoxicity/ Coumarins, Fruits/C-7 Oxygenated Coumarins/ Anti-Cancer, Mahanine/ Apoptosis Induction, Antitubercular, Synergistic Inhibitory Effect of Polymethoxy Flavones against Mycobacterium tuberculosis H37Rv	[23]
Dilleniaceae	Katmon	Katmon	<i>Dillenia philippinensis</i>	Cough, Chest Pain, Swelling, Wound Healing	Leaves, Fruit, & Bark	Pounding of Leaves, Decoction of Fruit	Flavonoids, phenolic compounds, glycosides, coumarins and quinones	Antimicrobial Triterpenes, Glucoside/ Triterpenoid, Betulinic Acid/ Hypoglycemic/ Anti- Inflammatory/ Analgesic, Antihyperglyce mic, Acute Toxicity Study/ Anthocyanins and Polyphenols, Red Colorant from Bark, Antioxidant, Antidiabetic, Oleamide/ Potential for Alzheimer's Disease, Cytotoxic Activity Against Drug-Sensitive and MDR Cancer Cells, Instant Sinigang Powder from Fruit	[24]
Boraginaceae	Halimumog	Halimumog	<i>Ehretia philippinensis</i>	Painful and swollen joints, facial inflammation, post-traumatic swellings, inflamed swollen hangnail and cellulitis.	Bark, Leaves, Roots	Soaking, Decoction	Phenolic acids, flavonoids, benzoquinones, cyanogenic glycosides, fatty acids	Cyanogenic Glycosides, Antihistamine Release Activity, Toxicity, Anti- Inflammatory, Antimicrobial	[25]
Simaroubaceae	Tongkat- Ali	Tongkat-Ali	<i>Eurycoma longifolia</i>	Indigestion, Fever, Itches, Dysentery, High blood pressure, Diarrhea, Cancer, Diabetes, Constipation, Cancer, Leukemia, Ulcer	Roots, Leaves, Bark, Roots, Fruit	Decoction	Quassinoids, canthin- 6-one alkaloids, tirucallane triterpenes, squalene derivatives and bioactive steroids	Antimalarial, Cytotoxic, Antileukemia, Antiplasmodial, Anticancer, Anti-tumor, Anti-parasitic, Anti-ulcer, Anti- inflammatory	[26]

Table 1: Endemic Medicinal Plants Used by Marawi City Residents (Continue)

Euphorbiaceae	Balalanti	Balalanti	<i>Homalanthus macradenius</i>	Impetigo, diarrhea, stomach troubles, spasm, headaches	Leaves	Crushed	Diterpenoids, Triterpenoids, Alkaloids, Phenolic Compounds, Lignans	Antibacterial, Antiprotozoal, Estrogenic, Wound healing	[27],[28],[29]
Euphorbiaceae	Bagambang	Bagambang	<i>Macaranga bicolor</i>	Stomach-ache, dysentery, hemoptysis, cough, fever, Wound	Leaves	Decoction	(2S)-5,7-dihydroxy-4'-methoxy-8-(3"-methylbut-2"-enyl)flavanone, (2S)-5,7,4'-trihydroxy-8-(3"-methylbut-2"-enyl)flavanone, (2S)-5,7,4'-trihydroxy-8-(3",8"-dimethylocta-2",7"-dienyl)flavanone	Anticancer, Antimicrobial, Anti-inflammatory, Antioxidant	[30],[31]
Fabaceae	Tangalin	Malasagad	<i>Adenanthera intermedia</i>	Snake-bites	Bark, Seeds	Decoction	Alkaloids, Flavonoids, Tannins, Saponins, Phenolic Compounds	-	[32]

A review of the 23 identified medicinal plants revealed that flavonoids, phenolic compounds, terpenoids and alkaloids were the predominant bioactive constituents present in these species. Flavonoids were detected in all 23 medicinal plants examined, including compounds such as quercetin, kaempferol and rutin. According to previous studies [33], flavonoids possess a wide range of biological activities, including antioxidant, anti-inflammatory and anticancer effects.

Similarly, phenolic compounds were identified in all investigated medicinal plants. Examples include tannins, phenolic acids and stilbenes. These compounds are recognized for their significant antioxidant, anti-inflammatory and anticancer properties [34]. Terpenoids were present in 21 out of the 23 medicinal plants (91.3%). Representative terpenoids include limonene, menthol and artemisinin, which are known to exhibit various biological activities such as antimicrobial, anti-inflammatory and anticancer effects [35].

In addition, alkaloids were identified in 19 of the 23 medicinal plants. Common examples include morphine, quinine and codeine. Alkaloids are well known for their diverse pharmacological activities [36], including analgesic, anesthetic and psychotropic properties.

The chemical structures and biological activities of these bioactive compounds vary considerably among the different groups. Nevertheless, each group possesses characteristic structural features. Flavonoids are generally characterized by polyphenolic structures, phenolic compounds contain hydroxyl groups attached to aromatic rings, terpenoids possess cyclic structures and alkaloids are distinguished by nitrogen-containing heterocyclic structures.

The compounds identified in the medicinal plants investigated in this study possess numerous potential medical and industrial applications. For example, flavonoids and phenolic compounds are widely utilized in pharmaceutical preparations as antioxidants, anti-inflammatory agents and anticancer drugs [37,38]. Terpenoids are commonly employed in the development of antimicrobial, anti-inflammatory and anticancer medications [39], while alkaloids are extensively used as analgesics, anesthetics and antidepressant agents in modern medicine [40].

Residents of Marawi City were reported to use medicinal plants for the treatment of a broad spectrum of health conditions, ranging from minor ailments such as skin disorders and stomach pain to chronic diseases including Diabetes Mellitus, hypertension and goiter. This indigenous medicinal knowledge represents an important foundation for future scientific research concerning the therapeutic efficacy of these plant-based remedies and the identification of their bioactive constituents.

However, comprehensive pharmacological and clinical investigations remain necessary to evaluate the therapeutic potential and safety of the active compounds derived from these medicinal plants. Furthermore, as emphasized by previous studies [41], it is critically important not only to document and further investigate ethnomedicinal knowledge but also to implement effective conservation measures to protect these medicinal plant species from irreversible extinction.

CONCLUSION

This study highlights the valuable ethnomedicinal knowledge possessed by the Maranao People, particularly those residing in Marawi City, Philippines. The extensive indigenous knowledge regarding the medicinal properties of native plant species has significant potential to contribute to healthcare development and biodiversity conservation.

The study identified 23 medicinal plant species traditionally utilized for therapeutic purposes, demonstrating the remarkable botanical diversity of the region. Plant families such as Euphorbiaceae and Fabaceae exhibited high species diversity, emphasizing their important role in traditional medicine within the local community.

Despite the urban setting of Marawi City, dependence on traditional medicine remains common, mainly because of limited access to modern healthcare services. Leaves were identified as the most frequently utilized plant part, commonly prepared through decoction or boiling before oral administration. This traditional practice not only addresses immediate healthcare needs but also supports the sustainable utilization and long-term preservation of medicinal plant species.

To maximize the benefits of this ethnomedicinal knowledge, it is essential to integrate traditional medicinal practices with modern scientific research through comprehensive pharmacological and clinical evaluations. Furthermore, conservation strategies should be implemented to protect these valuable medicinal plant species and preserve the cultural heritage associated with traditional healing practices.

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