JIPS 6 (2) (2025)

Jurnal Inovasi Pendidikan dan Sains

E-ISSN 2721-9119

https://ejournal.unwmataram.ac.id/index.php/JIPS

Ethnobotany of Traditional Medicinal Plants as Phytotherapy Agents in Pemenang Timur Village, North Lombok Regency

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Accepted: April 29th 2025. Approved: June 04th 2025. Published: June 10th 2025

ABSTRACT

The people of East Juara Village still use plants as additional medicines in treating various types of diseases. The use of plants as medicine is part of local wisdom that needs to be explored and improved again to be preserved before it is lost by the changing times, one of which is through ethnobotanical studies. The purpose of the research is to identify the types of medicinal plants, as well as how they are used and utilized. This study uses a qualitative descriptive approach with the snowball sampling method. Data collection was obtained through interviews, observations, and documentation, with the selection of resource persons based on the snowball sampling method. The results of the study found that there were 68species of plants used as medicine by the people of Pemenang Timur Village, North Lombok Regency, which came from 37 different families. These plants are used to treat 36 types of diseases, either singly or in a mixture. In terms of habitus, the type of plant that is most widely used is the shrub type with a percentage of 31%. Meanwhile, the part of the plant that is most often used is the leaves, with a percentage of 56%. The people of Pemenang Timur Village mostly consume cultivated plants, which reaches a percentage of 59%.

Keywords: ethnobotany, phytotherapy, traditional plants, medicinal plants

INTRODUCTION

Indonesia, as a large archipelagic country, has a high diversity of flora due to its geographical location in tropical regions with high rainfall and fertile soils [1]. This diversity plays an important role in people's lives, both as a source of food, clothing, board, and medicine. In addition, Indonesia's cultural richness, with more than 400 ethnicities, helps to maintain and utilize flora in a traditional way, such as the Sasak Tribe in Lombok who have distinctive knowledge in the use of plants for health [2].

The indigenous people of the Lombok area are people who still rely on various plants for traditional medicine. The knowledge of the Sasak people about these medicines was inherited from generation to generation through the ancient manuscript of Lontar Usada Lombok which is hundreds of years old. This local wisdom comes from the results of community trials (trial and error) to the plants around their environment to meet their treatment needs [3]. Knowledge of the types of medicinal plants and how they are treated is passed down from generation to generation, as well as gained through personal experience. This knowledge is commonly called ethnobotany [4].

Ethnobotany is a branch of science that studies the relationship between plants and humans, focusing on how plants are used in daily life, including as food, medicine, and traditional tools. This study seeks to document and analyze traditional botanical knowledge that has been passed down from generation to generation in various regions. One of the important studies in ethnobotany is the use of plants as traditional medicine, which is often based on centuries of empirical practice called phytotherapy [5].

Phytotherapy is a method of treatment and disease prevention that utilizes plants, plant parts, and plant-based processed products. An important part of phytotherapy is the plant components that have medicinal properties. Compounds isolated from plants are categorized as potent herbal remedies. In phytotherapy, medicinal plants are used to produce therapeutic effects, either through raw preparations such as teas, extracts, capsules, or through more complex preparations for the treatment and prevention of various diseases [6].

Another research on the traditional medicine of the Sasak tribe based on science in West Lombok Regency, obtained results in the form of around 76 types of plants that are used as medicine traditionally by the Sasak tribe community in West Lombok Regency. Most are used solely, and a small number of others are used simultaneously with other plants. Apart from that, the research on the Identification of Traditional MedicinalPlants Based on Local Wisdom in Ranggagata

Village, Southwest Praya District, Central Lombok Regency, obtained results in the form of 41 types of medicinal plants used by the community in Ranggagata Village which came from 32 families, 33 types of plants of which were single medicinal plants (without mixture), and 8 other types of plants were mixed medicinal plants. The parts used include leaves, fruits, rhizomes, tubers, roots, bark and stems, and leaves are the most intensely used parts. The processing methods are very diverse, ranging from boiled, ground, directly consumed, squeezed, brewed, tested, spread, dried and grated [7].

Based on the results of observations that have been made in the Sasak tribe in the North Lombok area, Pemenang District, East Juara Village, Terengan Daya Hamlet, on November 4, 2024, from several interviews with several communities there, most of the people there still consume plants as additional medicine in treating diseases, both such as burn scars, fever medicine, cholesterol medications, stomach pain medications, headache medications, and even deep medicines. The people there are still thick with knowledge related to plants as medicine because people feel that using plants as medicine has a healing effect and does not cause serious side effects, and the plants are easy to get through gardens, rice fields, and even on the roadside. The plants used are diverse, both the way of processing and the way of consuming them also vary depending on the knowledge they have. Knowledge related to plants as medicine is mostly inherited from previous descendants, it can be said from generation to generation, there is also this knowledge known through friends and neighbors.

Based on the description above, problems related to the study of ethnobotany of traditional plants as phytotherapeutic agents of the Sasak tribe community need to be improved and further research is carried out, this is to provide further knowledge and deeper excavation related to the types of plants and how to process and utilize herbal plants as traditional medicine for the community in East Juara Village, North Lombok Regency.

RESEARCH METHODS

This study uses a qualitative descriptive approach with the snowball sampling method in data collection. Researchers started with a few initial respondents and then asked them to recommend other relevant individuals, so that the number of informants grew like a snowball rolling. This method was chosen because it effectively reaches hidden populations, such as the beli or people who have traditional knowledge related to medicinal plants [8]. The number of informants in this study consisted of eight traditional healers and nineteen local people who had knowledge about herbal medicine.The data obtained, namely from interviews, observations, and documentation, are described according to field conditions and displayed in the form of narratives and plant identification tables.

The research population is the people of East Juara Village, North Lombok Regency, with a focus on individuals who know the use of plants as medicine. Samples were taken using snowball sampling techniques, including buyers and local communities. The respondent criteria are as follows:

1. Buying: a person who has the knowledge and ability to do traditional medicine using plants and is trusted by the local community.
2. Local people: who have knowledge related to plants that can be used as a medium of treatment.
3. Age range 30-80 years.
4. Who can be interviewed.

This research was carried out from April 9 to April 30, 2025 in East Juara Village. The tools and materials used include notebooks, cameras, mobile phones, and GPS, for data collection and herbal plants as the main objects. The data analysis technique is qualitative descriptive based on the results of observations and interviews in the field. In addition, the literature review is used to deepen the understanding of the empirical data obtained, in order to strengthen the validity of information about the use of medicinal plants by the local community.

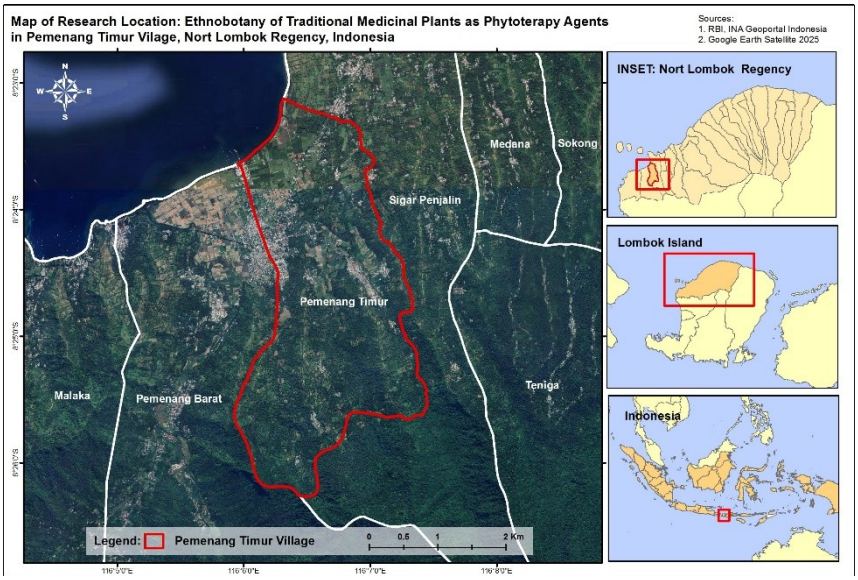

Figure 1. Location Map

RESULT AND DISCUSSION

Based on the results of research obtained through interviews with eight traditional healers (belian) and nineteen local people who have hereditary knowledge about traditional medicine, it is known that the people of East Juara Village, Pemenang District, North Lombok Regency, use various types of herbal plants as part of their traditional health practices to rotate modern medicine. From the results of the data collection, it was successfully identified as many as 68 species of medicinal plants spread across 37 different families, which can cure 36 types of diseases, which are actively used both singly and in mixtureslocal names of plants in Lombok and Indonesian names(Table 1).

The types of diseases treated with these medicinal plants are very diverse, including mild to chronic diseases, such as fever, wounds, hypertension, shortness of breath, kidney stones, cholesterol, rheumatism, toothache, and diabetes, to non-medical health disorders such as diseases caused by jinn disorders and "lumps", a condition that is culturally believed to be incurable with modern medical medicine. Some plants are also used to relieve symptoms of hypotension, tonsils, mumps, typhoid, smallpox, and malaria, as well as skin diseases such as rashes and itching. Some plants are also used for non-clinical purposes such as facilitating menstruation and "caring for newborns" such as treating redness in the newborn's body.

Table 1. Types of Plants Used as Traditional Medicine for the People of East Juara Village

Local Name (Indonesia)	Family	Species Name	Parts used	Benefit	Processing Method
PKI (Kirinyu)	Asteraceae	*Chromolaena odorata* L	Leaf	Wounds and hypertension	Pounded and Boiled
Sambiroto (Sambiloto)	Acanthaceae	*Andrographis paniculata* Ness	Leaf	Crowded	Boiled
Kumis Kucing (Kumis kucing)	Lamiaceae	*Orthosiphon stamineus* Benth	Leaf	Kidney stones, cholesterol, constipation	Boiled
Jambu Biji (Jambu biji)	Myrtaceae	*Psidium guajava* L.	Leaves, fruits	Sore throat	Pounded
Sirih cina (Sirih cina)	Piperaceae	*Peperomia pellucida* L	All parts of the plant	Rheumatism, hypertension	Boiled
Sesengit (Tahi ayam)	Asteraceae	*Lantana camara* L	All parts of the plant	Hypertension, toothache	Boiled
Nanas (Nanas)	Bromeliaceae	*Ananas comosus* L	Pineapple shoots, young pineapple	Sneezing, facilitating menstruation	Pounded
Jarak pagar (Jarak pagar)	Euphorbiaceae	*Jatropha curcas* L	Leaves, rubber	Wounds, fever, headache, Stomach ache and hypotension	Pounded,boiled
Banten (Abu hitam/abu rawa)	Oleaceae	*Fraxinus profunda* Bush	Leaf	Fever	Pounded
Bawang putih (Bawang putih)	Amaryllidaceae	*Allium sativum* L	Tuber	Toothache, canker sores	Pounded
Kelor (Kelor)	Moringaceae	*Moringa oleifera* Lam	Leaves, leaf shoots	Rheumatism, eye pain (tiwok)	Cooked
Kencur (kencur)	Zingiberaceae	*Kaempferia galanga* L	Leaf	Shock for small children and cough	Pounded, boiled
Kelepokan (Ciplukan)	Solanaceae	*Phisalis angulata* L	Stems, roots, fruits	Cholesterol	Boiled
Papaya (Papaya)	Scarlet Witch	*Carica papaya* L	Shoots, leaves, fruits	Chills, fever, malaria and eye pain	Boiled, pounded, and eaten instantly
Bunga katarak (Kitolod)	Campanulaceae	*Hippobroma longiflora* L	Flower	Eye pain	Tested
Salam (Salam)	Myrtaceae	*Syzygium polyanthum*	Leaf	Cholesterol and diabetes	Boiled
Singgepur	Muntingiaceae	*Muntingia*	Fruits, leaves	Cholesterol and	Boiled and eaten

Local Name (Indonesia)	Family	Species Name	Parts used	Benefit	Processing Method
(Kersen)		*calabura* L		hypertension	instantly
Alpukat (Alpukat)	Lauraceae	*Persea americana* Mill	Leaf	Hypertension	Boiled
Jeruk (monte)	Rutaceae	*Citrus X aurantium* L	Leaf	Cough and flu	Pounded
Sebie bungkok (Patikan kebo)	Euphorbiaceae	*Euphorbia hirta*L	Leaf	Toothache	Boiled
Kapuk (Randu)	Malyaceae	*Ceiba petandra* L	Leaf	Boil	Pounded
Yudium (Jarak tintir)	Euphorbiaceae	*Jatropha multifida* L	Sap	Wound	Drip
Terong liar (Terong hutan)	Solanaceae	*Solanum incanum* L	Fruit	Relieves fracture pain	Rubbed
Srikaya (Srikaya)	Annonaceae	*Annona squamosa* L	Leaf	Boils and deep pain	Pounded and boiled
Sirih (Sirih)	Piperaceae	*Piper betle* L	Leaf	Vaginal discharge, sprains, fever, itching, nausea (lumps)	Boiled and chewed
Pinang (Palem-paleman)	Arecaceae	*Areca catechu* L	Fruit	Fever, merriment	Chewed
Lembokek (Awar-awar)	Moraceae	*Ficus septica* Burm.f.	Leaf	Fever	Pounded
Sukun (Sukun)	Moraceae	*Artocarpus altilis* Parkinson	Leaf	Smooth menstrual blood	Boiled
Jemaka (Aren)	Arecaceae	Arenga pinnata Merr	Trunk	Kidney stone	Left alone for 1 night
Gol (Bidara)	Rhamnaceae	*Ziziphus mauritiana* Lam	Leaf	Driving out the jinn	Pounded
Bila (Beluntas)	Asteraceae	*Pluchea indica* L	Leaf	Cholesterol	Boiled
Mentimun	Cucurbitaceae	*Cucumis sativus* L	Fruit	Hypotension	Eaten directly
Jepun putih (Kamboja)	Apocynaceae	*Plumeria alba* L	Flower	Eye pain, tightness and cough	Dripped with water and chewed
Ubi (Ubi kayu)	Euphorbiaceae	*Manihot esculenta* Crantz	Leaf	Hypotension	Boiled
Putri malu (putri malu)	Fabaceae	*Mimosa pudica* L	Roots, leaves	Gout and ulcers	Boiled, and pounded
Ketepeng (Ketepeng)	Fabaceae	*Senna alata* L	Leaf	Eye pain	Pounded
Borok lengi (Orok-orok)	Fabaceae	*Crotalaria pallida* Aiton	Flower	Eye pain	Rubbed and then the water is squeezed
Cermen (Ceremai)	Phyllantaceae	*Phyllanthus acidus* L	Leaves, bark of the stem,	Tiwang	Boiled, pounded
Laos (Lengkuas)	Zingiberaceae	*Alpinia galanga* L	Leaves and rhizome	Itching, stinging and prickly heat	Boiled and grated
Kendini	Cucurbitaceae	*Coccinia grandis* L	Leaf	Bitten by a snake	Pounded
Kayu manis (Kayu manis)	Lauraceae	*Cinnamomum verum* J.Presl	Wood	Diabetes	Boiled
Sereh (Serai)	Poaceae	*Cymbopogon citratus* DC	Trunk	Flu	Boiled
Perie (Pare)	Cucurbitaceae	*Momordica charantia* L	Fruits, leaves	Diabetes, itching	Boiled, pounded

Local Name (Indonesia)	Family	Species Name	Parts used	Benefit	Processing Method
Jahe (jahe)	Zingiberaceae	*Zingiber officinale* Roscoe	Rhizome	Snoring and coughing	Boiled
Kunyit (Kunyit)	Zingiberaceae	*Curcuma longa* L	Rhizome	Stomach pain, sore throat and flu	Boiled and grated
Lidah buaya (Lidah buaya)	Asphodelaceae	*Aloe vera* L	Mucus	Hair Loss	Cut
Bawang merah (Bawang merah)	Amaryllidaceae	*Allium cepa* L	Tuber	Fever, headache and ulcers	Pounded and shredded
Deliman (Delima)	Lythraceae	*Punica granatum* L	Leaf	Smallpox	Pounded
Jeruk nipis (Jeruk nipis)	Rutaceae	*Citrus aurantiifolia* Christm	Fruit	Cough	Squeezed
Jahe merah (Jahe merah)	Zingiberaceae	*Zingiber officinale* L	Rhizome	Flu	Boiled
Meniran	Phyllantheaceae	*Phyllanthus urinaria* L	Leaf	Malaria	Boiled
Ketujur (Turi)	Fabaceae	*Sesbania grandiflora* L	Leaf	Hypotension	Boiled
Kelapa (Kelapa)	Arecaceae	*Cocos nucifera* L	Fruit	Removes toxins in the body	The water is drunk
Marus (Garut)	Marantaceae	*Maranta arundinaceae* L	Fruit	Crowded	Shredded and squeezed
Alang-alang	Poaceae	*Imperata cylindrica* L	Root	Tonsil	Boiled
Sambung nyawa (Dewa)	Asteraceae	*Gynura procumbens* L	Leaf	São Paulo	Boiled
Tebel (Cocor bebek)	Crassulaceae	*Kalanchoe pinnata* Lam	Leaf	Fever, tonsils and earache.	Pounded and baked
Mengkudu (Pace)	Rubiaceae	*Morinda citrifolia* L	Leaves and fruits	Wind and typhoid fever	Heated and made juz
Grondsel (Groundsel)	Asteraceae	*Senecio vulgaris* L	Leaf	São Paulo	Boiled
Daun ungu (Keremak)	Amaranthaceae	*Alternanthera brasiliana* L	Leaf	São Paulo	Boiled
Adas	Apiaceae	*Foeniculum vulgare* Mill	Leaf	Reduces redness in the body of a newborn baby	Ground / blended
Bambu	Poaceae	*Bambusa vulgaris* Schrad	Leaf	Meriang	Boiled
Rembige (Widuri)	Apocynaceae	*Calotropis gigantea* L	Sap	Shaking teeth	Affixed
Pecut kuda	Amaranthaceae	*Achyranthes aspera* L	Akat, leaves and flowers	Kidney	Boiled
Babak dempel (Kedondong hutan)	Anacardiaceae	*Spondias pinnata* L	Skin	Stomach ache	Boiled
Pisang ketip (Pisang tanduk)	Musaceae	*Musa paradisiaca* L	Banana Baby	Itch	Cut
Sirsak	Annonaceae	*Annona muricata* L	Leaf	Rheumatism	Boiled
Sager (Katuk)	Euphorbiaceae	*Sauropus androgynus* L	Leaf	Deep heat, canker sores and fever	Pounded and boiled

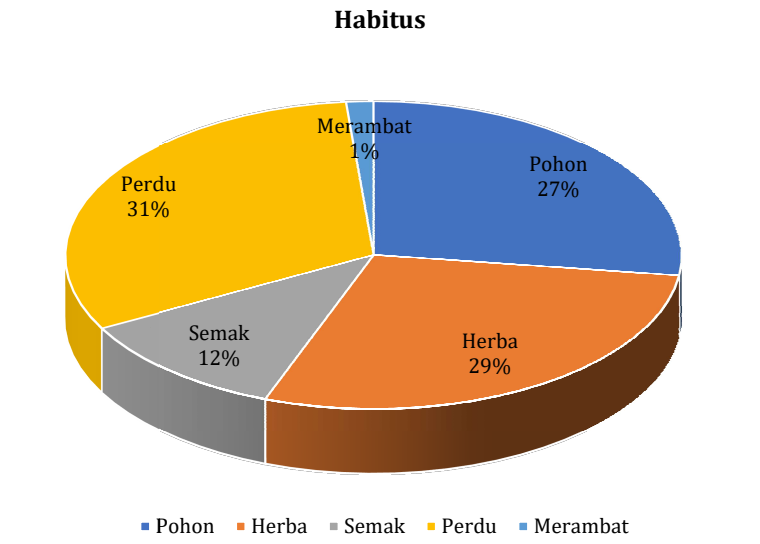

Figure 2. Plant Habitus Presentation

Based on Figure 2, it shows that the percentage of plant habitus types used by the Eastern Winner community. In general, the habitus of medicinal plants that is most widely used is herbs[9], but in the East Pemenang community, the use of herbal habitus is in second place.From the data, it can be seen that plants with herb habitus are the most common type or most commonly used in the daily life of the local community with a presentation of 31%. Furthermore, herbal habitus ranks second as a type of plant that is often used with a presentation of herbs of 29%. This reflects people's preferences for certain types of plants based on their availability and usefulness.

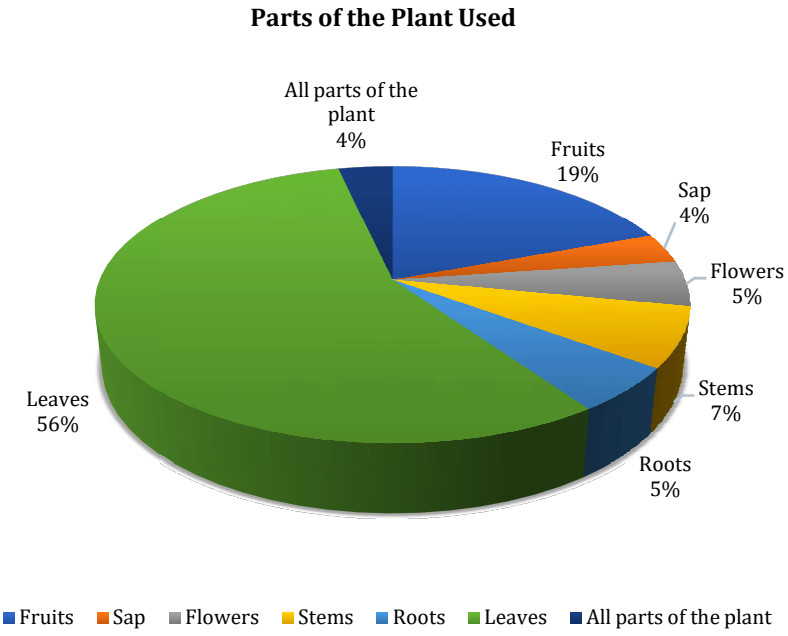

Figure 3. Presentation of the Plant Parts Used

The processing and use methods commonly used by the people of East Juara Village include stews, bumps, feelings, drops, and direct consumption. Then the most common way to use it is by drinking it, applying it, eating it and dropping it.The most widely used part of plants in the manufacture of traditional medicinal herbs is the leaves, with a percentage of 56% compared to other parts of plants. After the leaves, the fruit section ranks second with a percentage of use of 19%. This shows that the leaves have a dominant role in traditional medicine due to their high content of active substances and are easy to obtain. Leaves are the most commonly used part of plants, because they have a soft texture that contains a high amount of water, around 70–80%. Leaves are also a storage place for photosynthesis results which are suspected to contain

organic substances with healing properties. Some of the substances that are widely found in leaves include essential oils, phenols, potassium compounds, and chlorophyll, where chlorophyll is the main pigment in green plants, followed by roots, bark, stems, flowers, and entire parts of the plant[10]. Herbal medicines are administered orally and topically (directly), depending on the disease being treated (Figure 3).

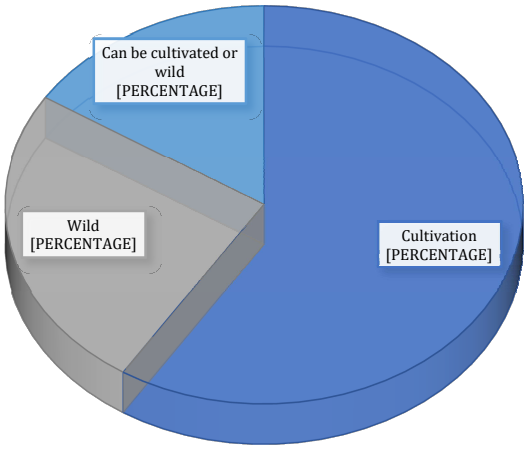

Figure 4. Categories Plants

Most of the medicinal plants used by the people of East Juara come from cultivated products, which is 59%. Meanwhile, about 25% comes from wild plants, and the rest are types of plants that can be grown wild or cultivated, (Figure 4). This data shows that people tend to rely more on cultivated plants in traditional medicine, because of their availability which is easier to reach and more guaranteed in terms of management and sustainability of their use.

Medicinal plants are types of plants whose parts or all contain active substances or compounds that are efficacious for curing diseases and are beneficial for body health[11]. he use of plants as traditional medicine tends to be more economical and causes milder side effects compared to chemical drugs, so their existence is very popular in traditional medicine practices. In addition, the processing and utilization process does not go through formal medical procedures, but is based on knowledge and experience that is passed down orally from one generation to the next. This knowledge continues to develop and is maintained as part of the local wisdom of the community, although it has not been fully documented scientifically[12], [13].

The use of herbal plants for medicinal purposes is a widespread practice among local communities around the world, which is firmly rooted in traditional knowledge and cultural practices. The use of medicinal plants is often based on ancestral knowledge that is inherited from generation to generation. This knowledge is usually shared by older members of society, traditional healers, and herbalists [14], [15].

The majority of people on the island of Lombok rely on traditional health services, with surveys showing that 27% of the population in West Nusa Tenggara, including Lombok, use traditional medicine. This practice is practiced by traditional healers known as "belian", who use various herbal herbs in community medicine [16]. The "belian" community uses various kinds of herbal medicines such as bubus (using rice), oil (using coconut), sembek (boiled betel leaves, areca nuts, and ground betel lime), and aik putek (mineral water). These preparations are used to treat a wide variety of diseases, demonstrating the versatility and importance of herbal remedies in the local health care system. Generally, the use of medicinal plants by communities is often associated with cultural rituals and spiritual practices, highlighting a holistic approach to health in many indigenous peoples [17].

Herbal plants including garlic, moringa leaves, kencur, ciplukan, papaya, chitolod, and other plants in are widely used to treat various health problems, including gastrointestinal diseases, respiratory problems, skin conditions, reproductive health problems, and many more[18],[19],[20].

The main reasons why many people continue to use herbal plants as medicine:

1. History and Tradition: The use of plants for medicine has been recorded in ancient manuscripts such as Egyptian papyrus, Unani writing, and Chinese. This tradition has been passed down from generation to generation and has become an integral part of the culture of many people.
2. Effectiveness and Safety: Many people believe that herbal remedies are safer than synthetic medicines because they are naturally derived and have fewer side effects. Although there are reports of side effects, the common perception is that herbal plants are safer [21].

3. Lower Cost: Herbal medicines are often less expensive than conventional medicines, making them more affordable for people with limited access to modern health services [22], [23].
4. Limitations of Conventional Medicine: The emergence of resistance to conventional medicines and the adverse side effects of many synthetic drugs are prompting people to look for more natural alternatives.
5. Cultural Influence and Local Knowledge: The use of plants for medicine is strongly influenced by local knowledge and cultural practices. Many people have hereditary knowledge about the use of certain plants to treat various diseases.
6. World Health Organization (WHO) Support: According to the WHO, about 75% of the world's population uses plants for their basic health needs. This support helps increase public trust in herbal medicine [24].
7. There is a growing global interest in herbal medicine, which is often considered a more natural and holistic alternative to health and well-being.

Overall, the combination of historical, cultural, economic, and perceived safety factors makes herbal plants remain a popular choice for many people in the treatment of various diseases. Nonetheless, there are several significant challenges to the use of herbal medicines, including the lack of standardized dosage, the potential interactions of herbs with drugs, and the need for more scientific validation and regulatory policies [25]. Therefore, it is then necessary to conduct further research for wider use by the world community.

CONCLUSION

There are 68 species of plants used as medicine by the people of Pemenang Timur Village, North Lombok Regency, which come from 37 different families. These plants are used to treat 36 types of diseases, either singly or in a mixture. In terms of habitus, the type of plant that is most widely used is the shrub type with a percentage of 31%. Meanwhile, the part of the plant that is most often used is the leaves, with a percentage of 56%. The people of Pemenang Timur Village mostly consume cultivated plants, which reach a percentage of 59%.

The types of diseases that are treated through the use of medicinal plants are very diverse, ranging from mild diseases to chronic diseases, including non-medical health disorders such as jin disorders and "ketemuk" conditions which are culturally believed to be incurable with modern medicine. The parts of the plant that are used include the roots, stems, leaves, fruit, sap, and water contained in the plant itself. The processing methods used by the community include boiling, pounding, grating, squeezing, eating directly, drinking, applying, and dripping, according to the type of disease and the form of the potion needed.

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