Bioscientist: Jurnal Ilmiah Biologi
https://e-journal.undikma.ac.id/index.php/bioscientist

March 2026 Vol. 14, No. 1
e-ISSN: 2654-4571
pp. 31-50

Identification of Medicinal Plant Species Utilized by the Community of Tindaki Village, South Parigi District

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Received: December 2025; Revised: February 2026; Accepted: February 2026; Published: March 2026

Abstract: This study aims to identify and describe the diversity of medicinal plants utilized by the community of Tindaki Village, South Parigi District, and to document their scientific names, morphological characteristics, plant parts used, and methods of preparation. The research employed a descriptive design with a qualitative approach using exploratory techniques. Data were collected through direct field observations conducted in six hamlets, structured interviews with ten informants consisting of five key informants and five supporting informants, and field documentation. Species identification was carried out through detailed observations of morphological characteristics, including roots, stems, leaves, flowers, and fruits. The identification results were subsequently verified using relevant scientific literature to ensure taxonomic accuracy. The findings revealed a total of 34 medicinal plant species belonging to 23 families and 18 orders. The plant parts most commonly utilized by the community were leaves and rhizomes, followed by fruits, roots, stems, and sap. These plants are traditionally used to treat various health conditions, including fever, cough, diarrhea, diabetes, hypertension, kidney stones, digestive disorders, and skin diseases. In conclusion, the results indicate that Tindaki Village possesses a high diversity of medicinal plants that continue to be actively utilized by the local community. Therefore, sustained conservation and systematic documentation efforts are essential to preserve this valuable ethnobotanical knowledge for future generations.

Keywords: Medicinal plants; species identification; Tindaki Village

How to Cite: Sari, R., Alibasyah, L. M., Febriani, V. I., Febriawan, A., Nurdin, M., & Lilies. (2026). Identification of Medicinal Plant Species Utilized by the Community of Tindaki Village, South Parigi District. *Bioscientist: Jurnal Ilmiah Biologi*, *14*(1), 31–50. https://doi.org/10.33394/bioscientist.v14i1.19664

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INTRODUCTION

Indonesia is widely recognized as one of the world's megabiodiversity countries, possessing an exceptionally rich diversity of flora distributed across a wide range of ecosystems, including tropical rainforests, wetlands, coastal environments, and mountainous regions. This remarkable biological wealth encompasses numerous plant species with significant potential as sources of traditional medicine. The abundance of medicinal plants in Indonesia has attracted considerable scientific interest due to their potential applications in herbal medicine, pharmacology, and modern drug discovery (Listyana et al., 2022; Zuhud, 2011). Medicinal plants constitute an important component of biodiversity and may contribute substantially to healthcare systems, particularly in developing countries where natural resources often serve as primary remedies for various health conditions (Fabricant & Farnsworth, 2001). On a global scale, the World Health Organization (WHO) reports that approximately 80% of the world's population still relies on medicinal plants as part of traditional or complementary healthcare systems (WHO, 2013). This condition underscores the strategic importance of medicinal plants not only from ecological and pharmaceutical perspectives but also in relation to public health, economic opportunities, and the socio-cultural values embedded within communities.

The utilization of medicinal plants has long been embedded in traditional knowledge systems that have developed through sustained interactions between human societies and their surrounding natural environments. In many indigenous and rural communities, knowledge concerning medicinal plants has been accumulated through observation, experimentation, and cultural transmission across generations (Heinrich et al., 2004). Communities often possess detailed knowledge regarding plant identification, the specific plant parts utilized, preparation techniques, and therapeutic applications. In Indonesia, various communities traditionally employ medicinal plants to treat a wide range of ailments using simple preparation methods, such as boiling plant materials, grinding them into pastes, or directly consuming herbal extracts (Elfrida et al., 2017; Sarno, 2019). These practices highlight the important role of local ecological knowledge in maintaining community health while simultaneously preserving cultural heritage and traditional practices.

Beyond their role in healthcare, medicinal plants also provide significant economic, ecological, and cultural benefits. The sustainable utilization of medicinal plants can support local livelihoods through the development of herbal products, traditional medicines, and community-based natural resource management initiatives (Hamilton, 2004). Furthermore, the use of medicinal plants contributes to biodiversity conservation, as it encourages communities to maintain and protect the natural vegetation where these plants occur (Pieroni & Quave, 2014). Consequently, the study of medicinal plants is closely associated with ethnobotany, a scientific discipline that investigates the relationships between human societies and plants, particularly regarding how plants are utilized for medicinal, nutritional, and cultural purposes (Cunningham, 2001; Bussmann & Sharon, 2006).

Despite their considerable potential, knowledge related to medicinal plants in many communities remains largely undocumented and is often transmitted orally. Traditional medicinal knowledge is commonly preserved through oral traditions and informal practices rather than systematic scientific documentation. As a result, this knowledge is highly vulnerable to gradual loss due to modernization, socio-economic transformation, and the declining interest of younger generations in traditional healthcare practices (Widayati et al., 2021; Cunningham, 2001). The erosion of traditional knowledge may also lead to the disappearance of valuable information regarding medicinal plant diversity and their potential therapeutic properties. Therefore, systematic inventory and documentation of medicinal plants are essential for preserving traditional knowledge while simultaneously supporting biodiversity conservation and sustainable natural resource management.

One region where the utilization of medicinal plants remains actively practiced is Tindaki Village, located in South Parigi District. Communities in this area continue to rely on various plant species as traditional remedies for treating a range of health problems, particularly in situations where access to modern healthcare services is limited. Medicinal plants are commonly used to treat ailments such as fever, digestive disorders, skin infections, and other common diseases. The persistence of these practices reflects the continued relevance of traditional healthcare systems within rural communities.

However, despite the active use of medicinal plants by communities in Tindaki Village, scientific documentation concerning the diversity of medicinal plant species, the plant parts utilized, and the methods of preparation remains limited. The absence of systematic scientific data may hinder conservation initiatives and restrict opportunities for further research in botany, pharmacology, and ethnobotany. Moreover, the lack of documented information may also limit the potential utilization of

local biodiversity as a learning resource in biology education, particularly in the development of contextual learning materials based on local environmental potential.

Previous ethnobotanical studies conducted in various regions of Indonesia have revealed a high diversity of medicinal plants utilized by local communities. However, most of these studies have focused on other regions, and scientific data concerning medicinal plant diversity in Tindaki Village remain scarce. This condition indicates the existence of a research gap, particularly with respect to the comprehensive inventory and morphological identification of medicinal plant species in this area. Documentation of plant morphology is essential because morphological characteristics—including roots, stems, leaves, flowers, and fruits—provide critical information for accurate taxonomic identification and classification of plant species.

Therefore, this study aims to identify and describe medicinal plant species found in Tindaki Village based on their morphological characteristics, including roots, stems, leaves, flowers, and fruits. A morphological identification approach is employed to ensure accurate scientific classification while simultaneously supporting community-based conservation of medicinal plant resources. The findings of this study are expected to enrich the ethnobotanical database of medicinal plants, contribute to the preservation of traditional knowledge, and provide potential learning resources for biology education based on local biodiversity.

METHOD

This study employed a descriptive research design with a qualitative approach aimed at identifying and describing the utilization of medicinal plants by the community of Tindaki Village, South Parigi District. This approach was selected to explore information related to the morphological characteristics of plants, the plant parts utilized, and their medicinal properties based on the local knowledge of the community.

The research was conducted in the residential area of Tindaki Village, which consists of six hamlets (Figure 1). The research procedure was carried out through several stages, including field exploration using a free exploration technique and structured interviews guided by a previously prepared set of questions. In addition, data collection was also conducted through direct observation and documentation to record the types of medicinal plants used by the community and to support the morphological descriptions of each identified species.

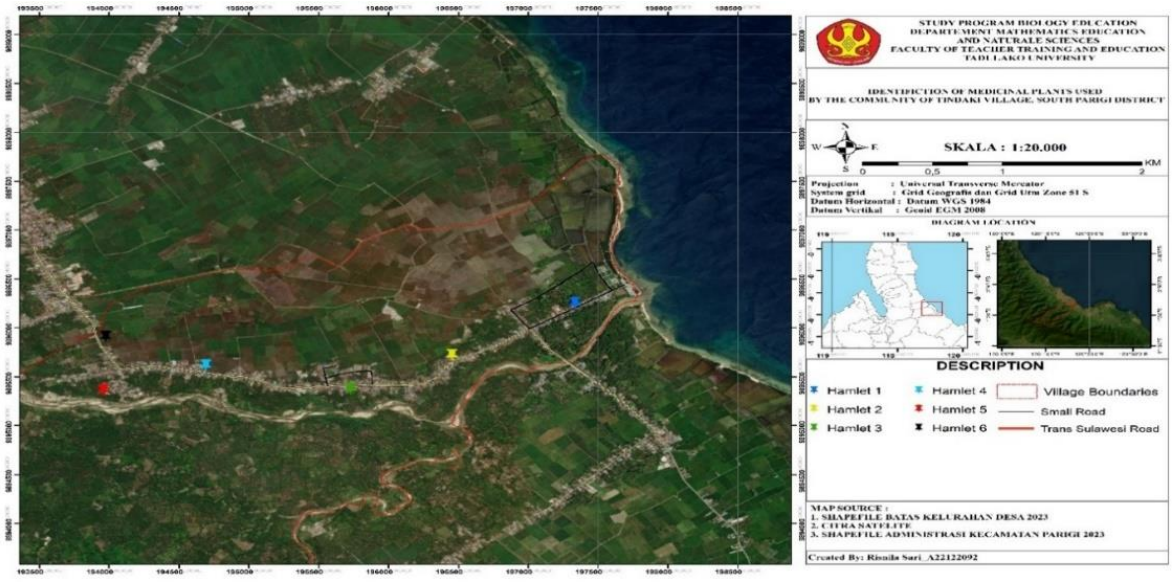


Figure 1. Research location

The subjects of this study were community members who utilize medicinal plants. Informants were categorized into two groups: key informants and non-key informants. Key informants were traditional healers who possess knowledge and skills in preparing herbal medicines and are commonly consulted by the community for treatment. A total of five key informants were selected to represent the six hamlets in the village. Meanwhile, non-key informants consisted of community members who are familiar with the benefits and uses of medicinal plants but only utilize them for personal needs; five individuals were included in this category.

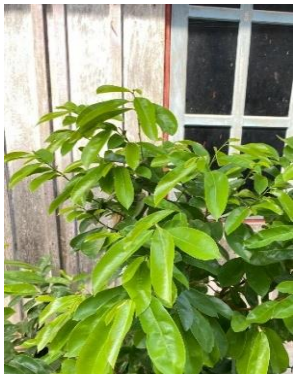
The population of this field research comprised all medicinal plant species found in Tindaki Village, South Parigi District. The sample, however, was limited to medicinal plant species identified through field observations and interviews with informants during the research period. Consequently, the research sample included 34 medicinal plant species that were discovered, recognized, and utilized by the local community.

Data collection was conducted in two stages: the preparation stage and the data collection stage. The preparation stage involved preliminary observations through direct field visits to identify areas where medicinal plants were present. The data collection stage employed interview guidelines as the primary research instrument, where the researcher conducted interviews with both key and non-key informants to determine the medicinal plants used by the community in Tindaki Village. Documentation was carried out by photographing medicinal plants as supporting data for the identification process. The tools used in this research included a camera for documenting plant samples, writing tools for recording field data, plant identification books for reference in identifying medicinal plant species, and a knife for collecting plant samples. The research materials consisted of all medicinal plant species encountered during the study.

Data analysis was conducted through several interconnected stages. The initial stage involved the collection and identification of medicinal plants utilized by the Tindaki Village community. Each identified plant was documented through photographs, and information regarding the plant parts used, medicinal benefits, and dosage of use was recorded based on interviews with informants. Information on local plant names was obtained directly from the community and subsequently verified using scientific literature to ensure the accuracy of the scientific names and taxonomic classification of the plants. After all data had been collected and identified, the data were organized and prepared according to the journal template used for manuscript preparation.

RESULTS AND DISCUSSION

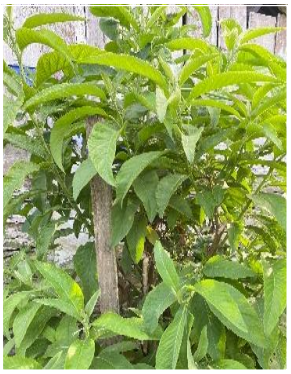
The medicinal plant species identified and utilized by the community of Tindaki Village are presented in Figure 2 and Table 1. The figure provides visual documentation of each species identified through field observations. The diversity of plants illustrated in the figure indicates the substantial potential of local biological resources that continue to be actively utilized in traditional medicinal practices. Presenting these species in the form of images aims to provide clearer morphological descriptions, thereby facilitating more accurate scientific identification and strengthening the validity of the research findings.



Annona muricata L.

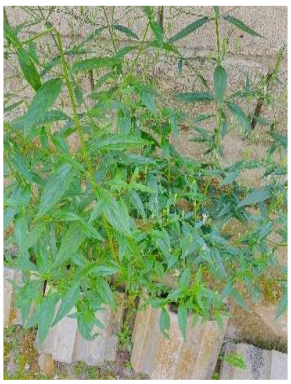
Areca catechu L.

Aloe vera L.

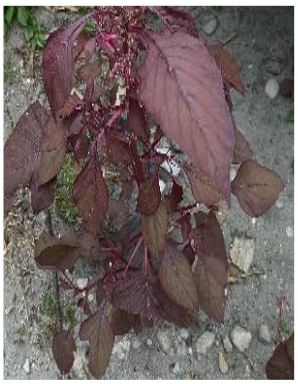


Blumea balsamifera L.

Strobilanthes cripus L.

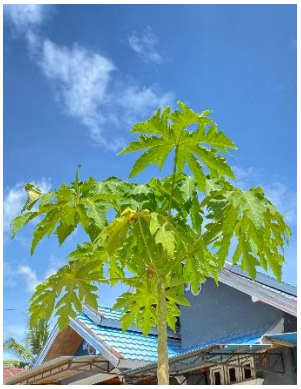


Andrographis paniculata Nees.

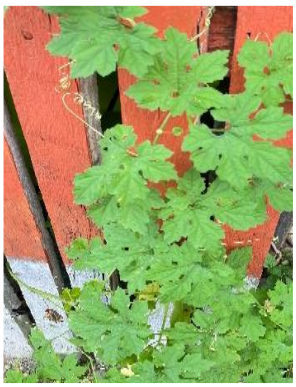


Amaranthus tricolor L.

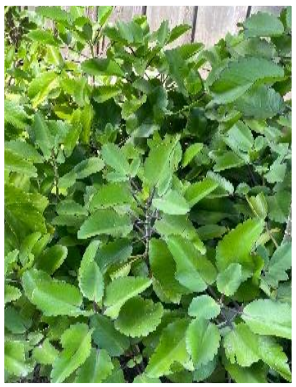
Anredera cordifolia (Ten) Steenis.



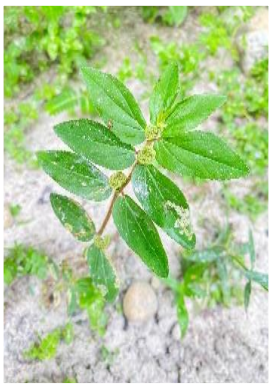
Carica papaya L.



Momordica charantia L.

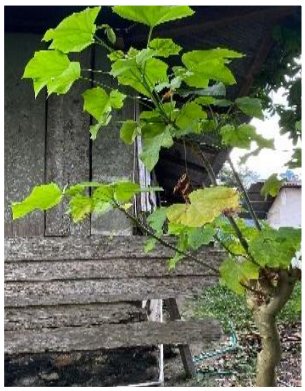


Kalanchoe pinnata L.

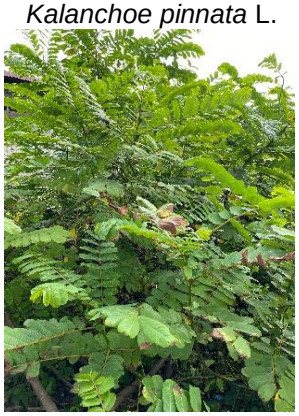


Euphorbi hirta L.

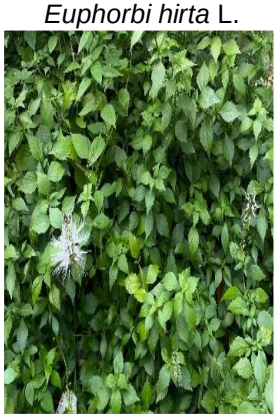
Acalypha indica L.



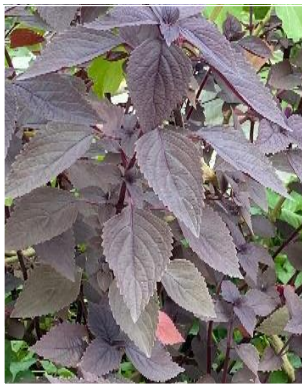
Jatropha curcas L.

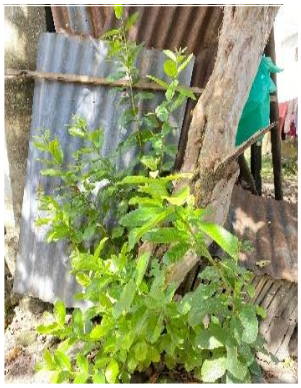


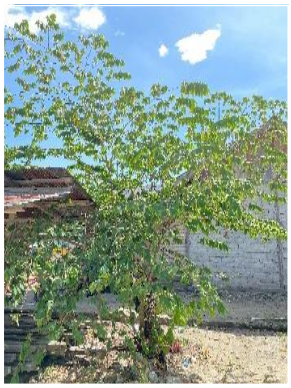
Cassia alata L.

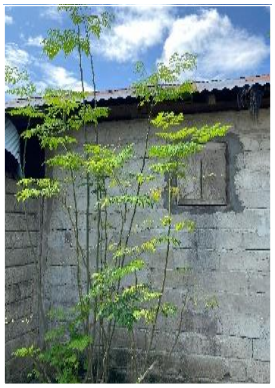


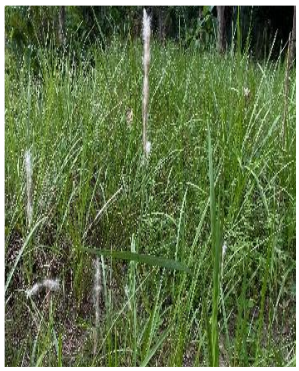
Orthosiphoon aristatus Benth.

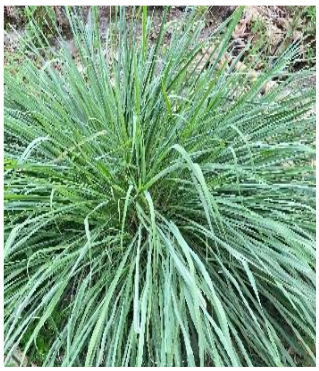

Coleus scutellarioides L.

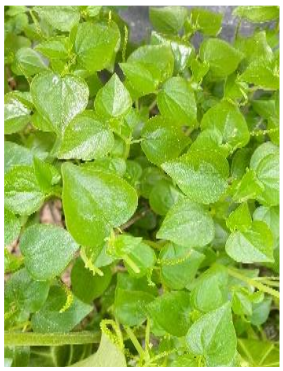

Psidium guajava L.

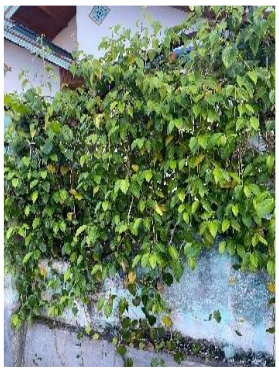

Muntingia calabura L.

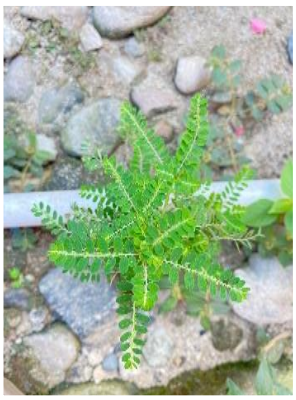

Moringa oleifera L.

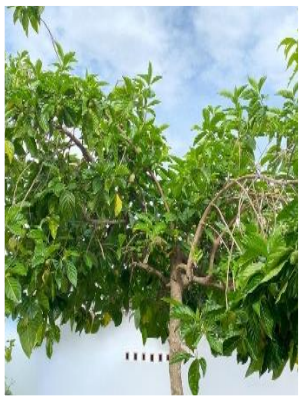

Imperata cylindrica L.

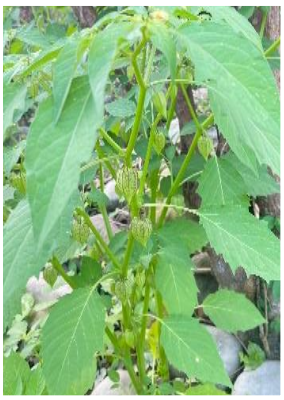

Cymbopogon citratus DC.

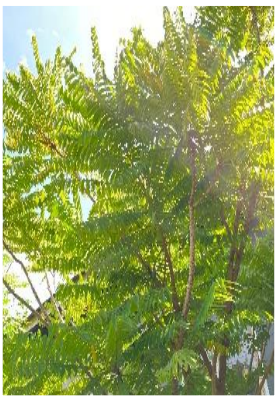

Peperomia pellucida L.


Piper betle L.

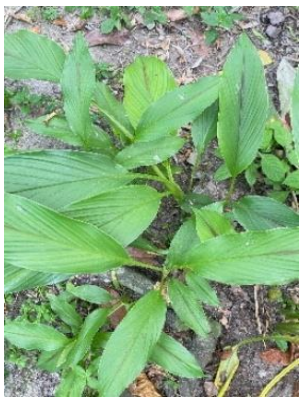

Phyllanthus niruri L.

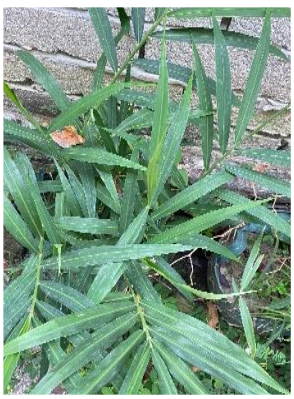

Morinda citrofolia L.


Physalis angualata L.

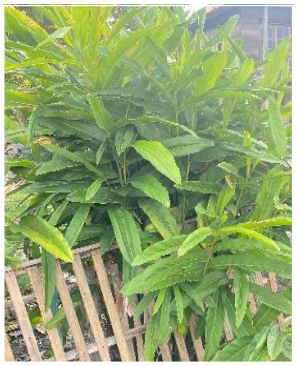

Averrhoa bilimbi L.


Curcuma longa L.

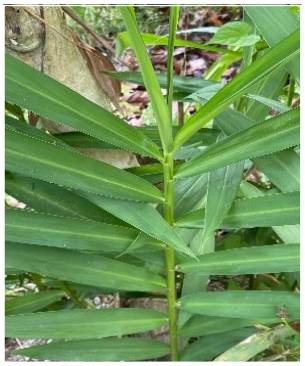

Curcuma zedoaria Rosc.


Zingiber officinale Var.


Curcuma xanthorriza Roxb.



Alpinia galanga L.



Zingiber cassumunar Roxb.

Figure 2. Types of medicinal plants utilized by the community of Tindaki Village

Table 1. Types of medicinal plants utilized by the community of Tindaki Village

No.	Species	Family	Local Name	Plant Parts Utilized
1.	*Annona muricata L.*	Annonaceae	Sarikaya	Leaves
2	*Areca catechu* L.	Arecaceae	Pinang	Fruit
3.	*Aloe vera* L.	Asphodelaceae	Lidah buaya	Leaves
4.	*Blumea balsamifera* L.	Asteraceae	Ampaung	Leaves
5.	*Strobilanthes cripus* L.	Acanthaceae	Kejibeling	Leaves
6.	*Andrographis paniculata* Nees.	Acanthaceae	Sambiloto	Leaves
7.	*Amaranthus tricolor* L.	Amaranthaceae	Bayam merah	Leaves
8.	*Anredera cordifolia* (Ten) Steenis.	Basellaceae	Binahong	Leaves
9.	*Carica papaya* L.	Caricaceae	Pepaya	Fruit and leaves
10.	*Momordica charantia* L.	Curcubilaceae	Paria	Leaves
11.	*Kalanchoe pinnata* L.	Crassulaceae	Cocor bebek	Leaves
12.	*Euphorbia hirta* L.	Euphorbiaceae	Patikan kebo	Leaves and latex
13.	*Acalypha indica* L.	Euphorbiaceae	Anting-anting	Roots and leaves
14.	*Jatropha curcas* L.	Euphorbiaceae	Balacai	Leaves and latex
15.	*Cassia alata* L.	Fabaceae	Galingkang	Leaves
16.	*Orthosiphoon aristatus* Benth.	Lamiaceae	Kumis kucing	Leaves
17.	*Coleus scutellarioides* L.	Lamiaceae	Mayana	Leaves
18	*Psidium guajava* L.	Myrtaceae	Jambu	Leaves
19.	*Muntingia calabura* L.	Muntingiaceae	gerseng	Leaves
20	*Moringa oleifera* L.	Moringaceae	Keloro	Leaves
21.	*Imperata cylindrica* L.	Poaceae	Ilalang	Roots
22.	*Cymbopogon citratus* DC.	Poaceae	Serre	Stems
23.	*Peperomia pellucida* L.	Piperaceae	Sirih cina	Leaves
24.	*Piper betle* L.	Piperaceae	Sirih	Leaves
25.	*Phyllanthus niruri* L.	Phyllanthaceae	Meniran	Leaves
26.	*Morinda citrofolia* L.	Rubiceae	Mengkudu	Fruit
27.	*Physalis angualata* L.	Solanaceae	Ciplukan	Fruit
28.	*Averrhoa bilimbi* L.	Oxalidaceae	Belimbing sayur	Fruit
29.	*Curcuma longa* L.	Zingiberaceae	Kunyit kuning	Rhizome
30.	*Curcuma zedoaria* Rosc.	Zingiberaceae	Kunyit putih	Rhizome
31.	*Zingiber officinale* Var.	Zingiberaceae	Jahe merah	Rhizome
32.	*Curcuma xanthorriza* Roxb.	Zingiberaceae	Temmu	Rhizome
33.	*Alpinia galanga* L.	Zingiberaceae	Lengkuas	Rhizome
34.	*Zingiber cassumunar* Roxb.	Zingiberaceae	Panini	Rhizome

The study conducted in Tindaki Village identified 34 species of medicinal plants. This number is relatively higher than that reported by Azmin et al. (2019) in Wera District, Bima Regency, where only 27 medicinal plant species utilized by the local community were documented. The difference in the number of medicinal plant species recorded in the two regions is likely influenced by several factors, including

environmental conditions as well as the socio-cultural characteristics of the communities. In addition, Tanzerina et al. (2025), in their study of the Besemah ethnic community in Lahat Regency, South Sumatra, reported 94 medicinal plant species used by the community to treat infectious diseases. This figure is substantially higher than those found in Tindaki Village (34 species) and Wera District (27 species). Such variation may be attributed to the exceptionally rich ethnobotanical knowledge of the Besemah community and to environmental conditions that support the growth of a wider diversity of medicinal plants.

Field observations in Tindaki Village further revealed that not all medicinal plant species were present in every hamlet. Several species were found only in specific hamlets: *Andrographis paniculata* (sambiloto) was found in Hamlet 2, *Momordica charantia* (bitter melon) only in Hamlet 4, *Anredera cordifolia* (binahong) only in Hamlet 2, and *Strobilanthes crispus* (kejibeling) in Hamlets 4 and 6. These species are generally cultivated in home gardens or intentionally planted by residents, which limits their distribution to particular hamlets. In contrast, several medicinal plants were found in almost all hamlets, especially species that grow easily, are frequently used, and have high utilitarian value in traditional medicine. These include *Peperomia pellucida*, lemongrass, turmeric, galangal, red ginger, white turmeric, papaya, *Cassia alata*, betel, and *Euphorbia hirta*. The occurrence of these species is also influenced by human activities, particularly cultivation practices and efforts to preserve plants with recognized traditional medicinal value.

Based on morphological observations of the roots, stems, leaves, flowers, and fruits of medicinal plants in Tindaki Village, 34 species with distinctive characteristics were identified. *Annona muricata* L., locally referred to as daun srikaya, has a taproot system, a brown stem, elongated leaves with pointed tips, fleshy-petaled flowers, and irregular fruits with blunt spines. The community uses seven leaves, which are washed and crushed, and the extracted liquid is applied to the abdomen to treat stomachache. Similarly, Anwar et al. (2024) reported that soursop leaves have potential as an herbal antitumor remedy because they contain active compounds, particularly acetogenins, which are capable of inhibiting the growth of cancer cells.

Areca catechu L., locally known as *pinang*, has dense and strong fibrous roots. Its stem grows upright, slender, and unbranched, reaching 15–25 m in height. The stem surface is smooth and marked by circular leaf-scar rings. At the apex, the leaves are pinnately compound, dark green, and composed of numerous ribbon-shaped leaflets. The flowers emerge from the leaf axils, while the fruits are ovoid to oval, green when immature and turning reddish-orange when ripe. The local community utilizes the fruit to strengthen and maintain healthy teeth. The preparation involves taking one or two young areca fruits, splitting them, and boiling them in two glasses of water until the liquid becomes brownish and reduced in volume. The decoction is then removed from heat, filtered, warmed, and consumed. This is consistent with Lewa et al. (2025), who reported that areca seed decoction is traditionally used to strengthen teeth, maintain oral hygiene, and freshen breath, supported by its calcium content and alkaline properties that help balance oral cavity pH. More broadly, areca has long been recognized as a culturally important medicinal plant in many Indonesian communities (Banurea et al., 2025; Sari et al., 2025).

Aloe vera L., locally known as *lidah buaya*, has fibrous roots that spread laterally and a very short stem. Its leaves are elongated-lanceolate, thick, fleshy (succulent), green to grayish-green, with finely serrated margins and clear gel functioning as a water reserve. The community uses the leaf gel to treat burns and to promote hair health. For burns, the leaf is split open, and the gel is directly applied to the affected

skin. For hair treatment, the gel is applied to the hair twice a week. This is in line with Maks (2024), who stated that *Aloe vera* primarily accelerates burn healing through stimulation of fibroblast proliferation and skin re-epithelialization. Its active compounds also help reduce pain and inflammation, making it effective as an alternative therapy for burns. The widespread use of *Aloe vera* in traditional medicine also reflects the broader reliance on medicinal plants as accessible household remedies (WHO, 2013; Widayati et al., 2021).

Blumea balsamifera L., locally known as *daun ampaung*, has a taproot system with lateral roots that spread widely and provide strong support. The stem is upright, woody, and greenish-brown. The leaves are oblong to oval, pointed at the tip, grayish-green, hairy, aromatic, and alternately arranged along the stem. The leaves are used by the community to reduce fever or elevated body temperature. The preparation involves taking five to seven leaves and squeezing them until they release their juice, which is then applied to the body. Putri et al. (2025) similarly reported that *Blumea balsamifera* exhibits anti-inflammatory activity, helping relieve inflammation, pain, and swelling, while also improving blood circulation and alleviating rheumatic symptoms. Thus, the leaves are considered highly beneficial for medicinal purposes. Similar ethnobotanical findings have shown that aromatic leaves are frequently used in topical traditional remedies because of their perceived cooling and anti-inflammatory effects (Supit et al., 2023; Wanda et al., 2025).

Strobilanthes crispus L., locally known as *kejibeling*, has a taproot system. Its stem is segmented, cylindrical, and branched. The leaves are simple, oppositely arranged, oblong to oval, with fine hairs on the surface. The leaf margins are serrated, the apex is pointed, and the venation is pinnate; the upper surface is dark green, whereas the lower surface is light green. The leaves are used by the community to treat urinary stones. The preparation consists of washing 8–10 leaves thoroughly, boiling them in three glasses of water until the volume is reduced to two glasses, filtering the decoction, and then drinking it. This accords with Nurcahyo et al. (2024), who reported that *Strobilanthes crispus* is used by communities to treat kidney stones and stomachache, with the leaves prepared by boiling and the resulting decoction consumed. The use of leaf decoctions for urinary disorders is also common in ethnomedicinal practice because leaves are easy to process and widely available (Banurea et al., 2025; Sari et al., 2025).

Andrographis paniculata Nees., locally known as *sambiloto*, has a taproot system. Its stem grows upright, and the leaves are simple, green, smooth-margined, pointed, and pinnately veined. The flowers are compound, whereas the fruit is a dry, capsule-like single fruit that is green in color. The community uses the leaves to treat flu and cough. The preparation involves taking 5–7 leaves, crushing or pounding them until liquid is released, and then drinking the extracted juice. This is consistent with Hossain (2021), who noted that *sambiloto* is widely used as a medicinal plant for health disorders, especially flu, cough, and upper respiratory tract infections. Its prominence in traditional medicine is also in line with the general role of medicinal plants in community-based healthcare systems (WHO, 2013; Heinrich et al., 2004).

Amaranthus tricolor L., locally known as *bayam merah*, has a taproot, an upright soft stem, and a reddish-green coloration. Its leaves are oval to oblong and bright red to purplish-red. The fruit is a small capsule containing very small, round, black or dark brown seeds. The leaves are used by the community to treat anemia. The preparation involves washing the leaves thoroughly, boiling them in two glasses of water with a small amount of salt, and then consuming the decoction. This is in line with Nurfauzia et al. (2023), who reported that this plant has the potential to increase hemoglobin

levels and help alleviate anemia due to its high iron content and other nutrients. Several quasi-experimental studies have also shown increases in hemoglobin levels following administration of juice or derivative products to anemic respondents. The use of nutrient-rich leaves as medicinal food also supports the idea that medicinal plants serve both therapeutic and nutritional functions in local communities (Fabricant & Farnsworth, 2001; Pieroni & Quave, 2014).

Anredera cordifolia (Ten.) Steenis., locally known as *binahong*, possesses rhizomatous and fibrous roots that effectively absorb water and store food reserves. The stem is long and flexible, while the leaves are heart-shaped, green, and smooth-surfaced. The leaves are used by the community to treat gastritis. The preparation involves taking 5–7 fresh leaves, washing them thoroughly, and boiling them in one glass of water until the volume is reduced by half. The decoction is then filtered and consumed when warm to help relieve gastric pain. This is consistent with Wanda et al. (2025), who reported that binahong leaves are traditionally used for the prevention and treatment of various ailments, including wound healing, gout, gastritis, diabetes, and post-surgical recovery. They are commonly prepared either by boiling for oral consumption or by pounding for topical application.

Carica papaya L., locally known as *pepaya*, has a taproot system and an upright stem. Its leaves are palmately veined, dark green on the upper surface and light green beneath. When the leaves fall, protrusions remain at the petiole scars. The fruit is round to elongated, green when immature and yellow when ripe. The community uses both the leaves and the fruit to treat malaria and constipation. The preparation involves boiling 5–7 young leaves and drinking the decoction to treat malaria, while ripe papaya fruit is consumed to facilitate bowel movements. This is in accordance with Merna et al. (2025), who stated that papaya has antimalarial potential due to its alkaloid and flavonoid content, which can inhibit the growth of *Plasmodium falciparum*. In addition, papaya fruit is rich in fiber, vitamins, and the enzyme papain, which aid digestion and help relieve constipation, thereby supporting its traditional medicinal use. This multifunctional use of one plant species is commonly observed in ethnobotanical studies (Nurcahyo et al., 2024; Sari et al., 2025).

Momordica charantia L., locally known as *paria*, has a taproot system with numerous fibrous roots that aid water absorption. Its stem is long, flexible, and climbing, reaching approximately 2–5 m. The leaves are green and palmately shaped, the flowers are small and yellow, and the fruit is elongated-oblong with a rough, warty surface. It is green when young and turns yellow-orange when ripe. Inside are flattened seeds that become brown at maturity. Bitter melon is known as a bitter vegetable. The community uses its leaves to treat chickenpox. The preparation involves taking a large amount of leaves, washing them thoroughly, pounding them until finely crushed and juicy, and mixing the extracted juice with grated yellow turmeric. The mixture is then applied to the body areas affected by chickenpox for three days, three times daily during the infection period. Oliveira et al. (2025) likewise reported that bitter melon, especially its leaves, is beneficial to health because it contains flavonoids and phenolic compounds with anti-inflammatory and antioxidant properties. The leaves are commonly dried, boiled as herbal preparations, or extracted for medicinal use.

Kalanchoe pinnata L., locally known as *cocor bebek*, has fibrous roots and a fleshy, upright, cylindrical stem. The leaves are oblong to elongated-rounded, green to grayish-green, with blunt apices, rounded bases, serrated margins, and pinnate venation. The community uses the leaves to treat fever and reduce body temperature in children. The preparation involves taking several leaves, washing them, pounding them, and applying them to the child's forehead. Tanaiyo et al. (2022) similarly reported

that the leaves are used in traditional medicine to relieve headaches, prepared by placing the leaves directly on the painful area. Topical application of fresh medicinal leaves is a common household practice in many Indonesian villages due to its practicality and low cost (Azmin et al., 2019; Supit et al., 2023).

Euphorbia hirta L., locally known as *patikan kebo*, has a small taproot with many fibrous roots spreading near the soil surface. Its stem is thin, highly branched, prostrate to slightly erect, 20–60 cm in height, reddish-brown, and covered with fine hairs. The leaves are small, oval to oblong, green with a slight reddish tint, and arranged oppositely. The flowers are very small, white to reddish, and clustered in the leaf axils. The plant produces small capsule-like fruits containing tiny brown seeds. The community uses the leaves to treat appendicitis and the stem latex to treat eye disorders. The preparation involves boiling a handful of the plant in three glasses of water until only one glass remains, then drinking the cooled decoction three times daily. In addition, the latex is used to treat eye problems by cutting the stem and applying the exuded sap every morning upon waking. Wattimena et al. (2023), however, reported that the plant is used by communities to treat hemorrhoids, with the leaves pounded and rubbed onto the affected area to support healing. This difference suggests that one medicinal species may serve different therapeutic functions across local traditions (Cunningham, 2001; Bussmann & Sharon, 2006).

Acalypha indica L., locally known as *akar kucing*, has a fairly strong taproot with many fine fibrous roots around it. Its stem is erect, greenish-brown, and soft-textured. The leaves are elongated-oval, bright green, with slightly serrated margins and pointed tips. The flowers are small and inconspicuous, arranged in elongated spikes at the stem tips or leaf axils, and are greenish-yellow. The fruits are very small, round to oblong, and contain brown seeds. The leaves are used by the community to treat gout. The preparation involves using 3–5 whole plants, including leaves and roots, boiling them in three glasses of water until the liquid turns brownish, then filtering and drinking up to two glasses per day. Guli et al. (2023) noted that *Acalypha indica*, particularly its leaves, has strong potential as a natural antimicrobial agent, as leaf extracts have been shown to inhibit the growth of pathogenic microbes harmful to humans.

Jatropha curcas L., locally known as *balacai*, has a strong taproot and a woody stem. Its leaves are broad and palmately lobed, while the flowers are small and greenish-yellow. The community uses the leaves to treat fever and the stem latex to relieve toothache. The leaves are pounded and placed on the head, whereas the stem is cut so that the exuded latex can be applied to the aching tooth. Siregar et al. (2020) also reported that this plant serves as a source of active compounds beneficial for skin health and wound treatment. Its use in household traditional medicine reflects the practicality of plants cultivated or found close to residences (Anwar et al., 2024; Sarno, 2019).

Cassia alata L., locally known as *galingkang*, has a strong taproot and several lateral roots that aid nutrient absorption. Its stem is woody, greenish-brown, and branched in the upper part. The leaves are large, compound, paired, elongated-oblong, and bright green. The leaves are used by the community to treat itching and tinea versicolor. The preparation involves crushing or pounding the leaves and applying them to the affected skin, or rubbing fresh leaves directly onto skin affected by tinea or ringworm. This is consistent with Ridianti et al. (2022), who stated that the plant is used by communities to treat ringworm and other fungal skin infections. Similar uses of medicinal leaves for dermatological disorders have also been reported in other regions of Indonesia (Manek et al., 2019; Tanaiyo et al., 2025).

Orthosiphon aristatus Benth., locally known as *kumis kucing*, has a taproot system. The stem is ridged, smooth-surfaced, purple to greenish in color, and grows upright. The leaves are simple, glossy, dark green, smooth-surfaced, serrated, with pointed apex and base, and pinnate venation. The flowers are solitary, whitish-purple, and characterized by long protruding stamens resembling “whiskers.” The leaves are used by the community to treat cough. The preparation involves boiling 20 g of leaves in one glass of water and drinking the decoction three times daily until recovery. This aligns with Ridianti et al. (2022), who noted that this plant is among those used by communities to treat various illnesses by processing the leaves, most commonly through boiling so that the active constituents dissolve into the water for consumption.

Coleus scutellarioides L., locally known as *daun mayana*, has fibrous roots and soft stems that range from green to reddish in color. Its leaves are the most distinctive feature: oval, serrated, and highly variable in color, including red, purple, and green. The flowers occur in slender spikes and are bluish-purple or white, later developing into small capsule-like fruits containing fine seeds. The leaves are used by the community to treat productive cough in children. The preparation involves taking the leaves, washing them, pouring warm water over them as one would prepare tea, and drinking the infusion three times daily. Alternatively, the leaves may be squeezed until their juice is released. Tanaiyo et al. (2025) similarly reported that communities use boiled mayana leaves to treat inflammation or digestive disturbances. This supports the view that medicinal leaves are favored because they are abundant, easy to collect, and simple to process (Banurea et al., 2025; Sari et al., 2025).

Psidium guajava L., locally known as *jambu biji*, has a strong taproot and a woody stem with bark that peels easily. The leaves are simple, oblong, and green. The flowers appear in the leaf axils, white in color, with numerous stamens. The fruit is round or oblong, with green skin that turns yellowish when ripe, and white or pink flesh containing many small seeds. The community uses the leaves to treat stomachache and diarrhea. The preparation involves collecting young leaves or shoot tips, washing them thoroughly, and consuming them directly. This is in line with Lolan et al. (2024), although the processing method differs; in Tanalein Village, the plant is used medicinally for digestive disorders such as diarrhea and dysentery, and the leaves are usually boiled and the decoction consumed. This variation in preparation method across communities is common in ethnobotanical practice (Nurcahyo et al., 2024; Cunningham, 2001).

Muntingia calabura L., locally known as *gersen*, has a strong taproot and a woody stem with bark that peels easily. Its leaves are simple, oblong, and green. The flowers emerge from the leaf axils, are white, and possess numerous stamens. The fruit is round to oblong, with green skin that becomes yellowish at maturity, and contains white or pink flesh with many small seeds. The community uses the leaves to treat high blood sugar. The preparation involves taking 7–10 fresh leaves, washing them thoroughly, and boiling them in three glasses of water until approximately one glass remains. The decoction is filtered and allowed to cool to a warm temperature before being consumed, generally 1–2 times daily, especially before meals. This is consistent with Dwiputri et al. (2025), who reported that kersen leaves are used as a multipurpose herbal remedy because they contain flavonoids and tannins. The plant is believed to reduce inflammation, lower blood sugar, and help maintain immunity, and is usually prepared simply by boiling or crushing the leaves.

Moringa oleifera L., locally known as *kelor*, has a strong taproot, a gray woody stem, and irregularly growing branches. Its leaves are compound, bearing many small, rounded-oblong green leaflets. The flowers are yellowish-white and clustered, while

the fruit is long and pod-like, green when young and brownish when mature, containing numerous small seeds. The community uses the leaves to prevent diabetes. The preparation involves boiling an adequate amount of leaves in two glasses of water until the liquid is reduced to one glass, filtering it, and drinking it in the morning before meals and at night before sleep; the leaves may also be consumed as a vegetable. This is in accordance with Khasanah et al. (2023), who noted that moringa is used to improve health, help manage hypertension, diabetes, digestive disorders, and inflammation, and accelerate wound healing. Its high nutritional value, including vitamins, minerals, and proteins, also makes it an important nutritional support plant for communities. Similar multifunctional use of *Moringa* has been reported in many ethnobotanical studies in Indonesia (Banurea et al., 2025; Sari et al., 2025).

Imperata cylindrica L., locally known as *ilalang*, has long, strong, creeping rhizomes that are yellowish-white and spread easily through the soil. The stem is erect, like that of most grasses. The leaves are long, narrow, pointed, and tough-edged, with a midrib running along the center. The flowers are borne at the stem tip in soft, white, feathery panicles that are very light and easily dispersed by wind. The community uses the roots to treat kidney inflammation. The preparation involves taking 100 g of fresh roots, washing and cutting them, boiling them in three glasses of water until only one glass remains, and drinking two glasses a day on a regular basis. By contrast, Wattimena et al. (2023) reported that alang-alang is used by communities to treat gastroenteritis, with the roots boiled and the decoction consumed. This again indicates that therapeutic interpretation of one species may vary among communities while the preparation pattern remains relatively similar (Bussmann & Sharon, 2006; Sari et al., 2025).

Cymbopogon citratus DC., locally known as *serre*, has fibrous roots and a pseudostem that is rounded and smooth. The leaves are light green, somewhat coarse in texture, and strongly aromatic. The roots are short-rhizomatous and light brown. The community uses the stem to treat high cholesterol. The preparation involves taking two fresh stalks, bruising them slightly to release their natural oils, then boiling them in two glasses of water until approximately one glass remains. The decoction is filtered and consumed once daily, usually after meals. Lolan et al. (2024) similarly reported that the people of Tanalein Village use this plant to treat fever, colds, malaise, nasal congestion, menstrual irregularities, and gout. The stem is generally boiled so that the decoction can be more easily absorbed by the body.

Peperomia pellucida L., locally known as *sirih cina*, has fine, shallow fibrous roots that anchor well in moist soil. The stem is light green, translucent, and somewhat succulent. The leaves are heart-shaped, thin, smooth, glossy, and bright green. The inflorescences are small, elongated spikes of pale green flowers arranged densely along slender stalks. The leaves are used by the community to treat gout. The preparation consists of taking 20 g of fresh leaves, boiling them in one glass of water, filtering the liquid, and drinking it three times daily. Marbun et al. (2019) likewise noted that this plant functions as a natural antiseptic, enhances immunity, and reduces inflammation. It is considered effective in treating digestive disorders, headaches, fever, joint pain, and bone health problems due to its high mineral content, and may also be consumed directly.

Piper betle L., locally known as *sirih*, has a taproot as well as aerial roots that help it attach to stems or fences. Its stem is segmented and flexible. The leaves are used by the community to treat vaginal discharge in women. The preparation involves taking ten leaves, boiling them in one liter of water, filtering the decoction, and drinking it. This corresponds to Manek et al. (2019), who reported that betel leaves are widely

used medicinally because they are practical and easily available in home gardens. They are usually prepared by boiling so that the active compounds dissolve into the water, which is then used to treat ailments such as eye problems and vaginal discharge. The prominence of home-garden medicinal plants has also been emphasized in other Indonesian ethnobotanical studies (Azmin et al., 2019; Supit et al., 2023).

Phyllanthus niruri L., locally known as *meniran*, has a small taproot with fine lateral roots. The stem is slender and green. The leaves are arranged alternately and resemble compound leaves; they are small, elongated, thin, and light green. A characteristic feature of the plant is its very small greenish-white flowers, which grow in the leaf axils. The fruits are tiny bead-like spheres arranged along the underside of the stem beneath the leaves; they are green and become dull when mature. The community uses the leaves to treat kidney stones. The preparation involves taking 17 sprigs of meniran, boiling them in three glasses of water until the mixture boils, filtering the liquid, and drinking it twice daily, in the morning and evening. Wattimena et al. (2023), however, reported that meniran is used by communities to treat rheumatism, with the leaves boiled and the decoction consumed. Such differences strengthen the importance of local documentation because medicinal knowledge is context-dependent and culturally mediated (Cunningham, 2001; Nurcahyo et al., 2024).

Morinda citrifolia L., locally known as *mengkudu*, has a strong taproot with numerous lateral roots that aid water absorption and stabilize the plant. The stem is woody, branched, and brownish. The leaves are large, thick, glossy, and dark green. The flowers form small white heads. The fruit is the most distinctive part, being oblong with an uneven surface, green when immature and whitish-yellow when ripe, and producing a strong odor. It contains many small brown seeds. The community uses the fruit to treat rheumatism and hypertension. The preparation involves taking three mature but still firm fruits, pounding them, adding one glass of water, filtering the mixture, and then drinking it. Sari et al. (2025) similarly reported that noni is used as a medicinal plant because it contains active compounds such as flavonoids and alkaloids; it exhibits antibacterial, antioxidant, and antihypertensive properties. The parts most commonly used are the fruit and leaves, which are prepared either by boiling or extracting their juice for consumption.

Physalis angulata L., locally known as *ciplukan*, has a taproot with many small surrounding roots. Its stem is green and branched, while the leaves are oblong, green, and slightly wrinkled. The flowers are small and pale yellow. The fruit develops inside a thin inflated calyx. When young it is green, turning golden yellow when ripe. The community uses the fruit to reduce blood sugar. The preparation involves taking 10–15 ripe fruits, washing them thoroughly, and boiling them in two glasses of water until one glass remains. The decoction is then filtered and consumed warm once daily, usually in the morning before meals. The fruit may also be washed and eaten directly. Rizal & Sustriana (2019) reported that the people of Lais Musi Village use the entire plant medicinally, or the leaves boiled or crushed, to treat boils, bleeding gums, and mouth ulcers. This shows that the same species can be used differently according to local therapeutic knowledge (Banurea et al., 2025; Cunningham, 2001).

Averrhoa bilimbi L., locally known as *belimbing wuluh*, has a strong taproot with spreading lateral roots that support the stem. The stem is woody, brown, and highly branched. The leaves are pinnately compound, oblong, thin, and fresh green. The flowers are small, purplish-red, and clustered on the trunk or older branches. The fruits are elongated-oblong, green when young and yellowish when ripe, with very sour and juicy flesh. The community uses the fruit to treat hypertension. The preparation

involves washing three fruits, cutting them into pieces, boiling them in three glasses of water until the volume is reduced, filtering the decoction, and drinking it every morning. Sari et al. (2025) likewise reported that bilimbi is used as a traditional remedy because it contains active compounds beneficial to health. It is used to treat cough, acne, rheumatism, hypertension, and diabetes, with the leaves and fruits commonly prepared by boiling for oral use or pounding for external application.

Curcuma longa L., locally known as *kunyit*, has fibrous roots and a yellow-orange rhizome as its main organ. The stem is a pseudostem formed by overlapping leaf sheaths. The leaves are elongated, green, smooth-surfaced, and pointed. The community uses the rhizome to treat gastritis. The preparation involves taking 2–3 rhizomes, washing and peeling them, then grating or slicing them thinly. The material is boiled in one glass of water until the liquid turns yellowish, then filtered and consumed warm. It may be taken twice daily, in the morning and evening. This is consistent with Ridianti et al. (2022), who reported that the rhizome is widely used medicinally and is generally prepared by boiling so that its active constituents dissolve in the water for therapeutic use. The use of rhizomatous plants as major household remedies is also widely reported in Indonesian ethnomedicine (Sari et al., 2025; Tanzerina et al., 2025).

Curcuma zedoaria Rosc., locally known as *kunyit putih*, has rhizomatous roots growing underground, whitish-yellow in color, and strongly aromatic. Its stem is formed by overlapping leaf sheaths, grows upright, and is light green. The leaves are oblong to lanceolate, pointed, green, and have slightly purplish-brown veins. The community uses the rhizome to treat cancer. The preparation involves taking one rhizome, crushing it, mixing it with one spoonful of honey, squeezing and filtering the juice, and drinking it three times a week. This is in line with Ridianti et al. (2022), who reported that communities use the rhizome, generally by boiling it, to treat illnesses such as cancer. As with many medicinal rhizomes, different preparation methods may occur depending on local preference and inherited knowledge (Banurea et al., 2025; Sari et al., 2025).

Zingiber officinale var., locally known as *jahe merah*, has fibrous roots arising from a reddish-orange rhizome with a stronger aroma and taste than common ginger. The stem is a pseudostem formed by overlapping leaf sheaths, and the leaves are long, thin, green, and somewhat smooth. The community uses the rhizome to treat internal heat and headaches. The preparation involves taking one or two rhizomes, washing them thoroughly, crushing or bruising them, and boiling them in two glasses of water until one glass remains. Palm sugar or honey is then added, and the decoction is consumed. To treat headache, the rhizome is grated and applied to the forehead or the painful area of the head. This is consistent with Qamariah et al. (2018), who reported that warm compresses using grated red ginger rhizome can reduce internal heat and pain due to its flavonoid, saponin, polyphenol, and essential oil content.

Curcuma xanthorrhiza Roxb., locally known as *temmu*, has fibrous roots arising from a large yellowish-brown rhizome. The rhizome is thick, branched, and strongly aromatic. The stem is a pseudostem formed by leaf sheaths and grows upright. The leaves are broad, elongated-oblong, pointed, bright green, and smooth-surfaced. The community uses the rhizome to stimulate appetite. The preparation consists of washing and thinly slicing 1–2 rhizomes, boiling the slices in two glasses of water until the liquid turns yellow, filtering the decoction, and drinking it warm. Although somewhat bitter, regular consumption once daily before meals is believed to improve appetite. This is consistent with Sari et al. (2025), who stated that temulawak is valued for its

curcuminoid content and functions as both an anti-inflammatory agent and an appetite stimulant, with the rhizome commonly boiled for consumption.

Alpinia galanga L., locally known as *lengkuas*, has a rhizome that is reddish-brown on the outside and yellowish-white inside, strongly aromatic, and spreading underground. The stem is a pseudostem formed by overlapping leaf sheaths and grows upright. The leaves are long, lanceolate, green, and smooth. The community uses the rhizome to treat tinea versicolor. The preparation involves washing the rhizome thoroughly, grating it, and rubbing it onto the affected skin area. This accords with Manek et al. (2019), who reported that galangal is traditionally used to treat skin disorders, especially tinea versicolor, and that the rhizome is the most commonly utilized part, usually prepared by grating.

Zingiber cassumunar Roxb., locally known as *panini*, has fibrous roots and a thick yellowish-brown rhizome with a characteristic and slightly pungent aroma. The rhizome spreads underground and is the part most frequently used. The stem is a pseudostem formed by leaf sheaths and grows upright. The leaves are long, lanceolate, dark green, and alternately arranged. The community uses the rhizome to reduce fever. The preparation involves washing and grating the rhizome, squeezing out the juice and drinking it directly, or alternatively boiling it in water. This is consistent with Ridianti et al. (2022), who reported that the rhizome is used by the Ulak Jaya community, typically boiled, as a remedy for fever.

The medicinal plant species documented in this study were found growing around residential areas, home gardens, and open land. In general, the people of Tindaki Village still rely heavily on traditional practices in their use of medicinal plants. Information obtained from both key and non-key informants through interviews revealed that the methods of use are highly diverse, including boiling, pounding, crushing, preparing as tea, direct consumption, grating, cutting into pieces, and topical application. Nearly all plant parts are used for medicinal purposes, with diverse therapeutic functions and preparation methods. This pattern is consistent with ethnobotanical findings from other Indonesian communities showing that medicinal plant use remains strongly embedded in household healthcare practices and local knowledge systems (Azmin et al., 2019; Banurea et al., 2025; Nurcahyo et al., 2024; Supit et al., 2023).

Based on interview findings, the plant parts most frequently used were leaves, rhizomes, fruits, roots, stems, and latex. These parts are preferred because their preparation is relatively simple, their extracts or active compounds are released more rapidly than those from harder plant organs, and they are generally more abundant and easier to obtain than other plant parts. These results are consistent with Banurea et al. (2025), who reported that among 65 identified medicinal plant species, leaves were the most frequently utilized part, followed by fruits and rhizomes, and that boiling was the dominant method of preparation because it is simple and directly produces a remedy that can be consumed by the community. Another study by Sari et al. (2025) similarly showed that leaves and rhizomes dominate the plant parts utilized by communities due to their abundant availability and relatively rapid and practical preparation process. Comparable trends were also reported by Tanzerina et al. (2025) and Nurcahyo et al. (2024), who found that leaves are commonly preferred because they are easy to collect, process, and administer. Thus, the present study demonstrates a similar pattern, in which leaves and rhizomes remain the most dominant plant parts used in traditional medicine by the community.

CONCLUSION

A total of 34 medicinal plant species belonging to 23 families were identified in Tindaki Village. The recorded species include *Annona muricata* L., *Areca catechu* L., *Aloe vera* L., *Blumea balsamifera* L., *Strobilanthes crispus* L., *Andrographis paniculata* Nees., *Amaranthus tricolor* L., *Anredera cordifolia* (Ten.) Steenis., *Carica papaya* L., *Momordica charantia* L., *Kalanchoe pinnata* L., *Euphorbia hirta* L., *Acalypha indica* L., *Jatropha curcas* L., *Cassia alata* L., *Orthosiphon aristatus* Benth., *Coleus scutellarioides* L., *Psidium guajava* L., *Muntingia calabura* L., *Moringa oleifera* L., *Imperata cylindrica* L., *Cymbopogon citratus* DC., *Peperomia pellucida* L., *Piper betle* L., *Phyllanthus niruri* L., *Morinda citrifolia* L., *Physalis angulata* L., *Averrhoa bilimbi* L., *Curcuma longa* L., *Curcuma zedoaria* Rosc., *Zingiber officinale* var., *Curcuma xanthorrhiza* Roxb., *Alpinia galanga* L., and *Zingiber cassumunar* Roxb. Various plant parts are utilized in traditional medicine, including roots, stems, sap, leaves, flowers, and fruits. These findings indicate that the environmental conditions of Tindaki Village remain conducive to the natural growth and sustainability of medicinal plants across the six hamlets of the village.

RECOMMENDATION

The findings of this study are expected to serve as valuable data and learning resources for the community of Tindaki Village, as well as a reference for students and researchers conducting practical activities or studies related to the morphology and diversity of medicinal plants used by the local community.

ACKNOWLEDGMENT

The authors would like to express their sincere gratitude to the supervising lecturers, academic advisors, research team members, and family members for their support in the form of facilities, guidance, and motivation. Appreciation is also extended to all parties who contributed to the implementation of this research entitled “Identification of Medicinal Plant Species Used by the Community of Tindaki Village, South Parigi District.”

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