

Perception and Appreciation of the Sumba Tribe in West Umbu Ratu Nggay District towards the Utilization of Medicinal Plant Diversity in Central Sumba Regency

Ariski Vevi Liswandari¹, Sulisetijono Sulisetijono^{1*}, and Frida Kunti Setiowati¹

¹Department of Biology, Faculty of Mathematics and Natural Science, Universitas Negeri Malang, Malang Indonesia

Abstract. An ethnobotanical study was conducted to inventory medicinal plants by in the Sumba Tribe of West Umbu Ratu Nggay District, and to determine local perceptions and appreciation of the medicinal plants. Data collection was carried out using direct and indirect interviews. Informants of this study totaled 93 local people, consisting of Sumbanese tribes including village shamans and village elders. This study used data analysis on the perception and appreciation of the use of medicinal plants by the Sumba tribe. Plants obtained from local communities were collected, identified, and documented. The results of the study found 54 species of medicinal plants with 33 families used to treat various diseases in West Umbu Ratu Nggay District. Plants recommended by the Sumba tribe include: *Swietenia macrophylla* King (mahoni) (0.11%), *Acorus calamus* L. (genoak/ hiku) (0.10%), *Jatropha curcas* L. (padamu) (0.10%). The Sumba tribe's perception of the use of medicinal plants with a percentage of 99% (very good) and community appreciation of the use of medicinal plants at 97% (very good).

1 Introduction

The balance of human life and nature will form a harmonious relationship in the use of natural resources. Natural resources on earth provide a variety of benefits to human life [1,2], one of which is the use of plants for medicine [3]. The pattern of life balance of local communities in the use of medicinal plants in daily life is known as the ethnobotany of medicinal plants [4]. Traditional knowledge of the use of medicinal plants and the importance of biodiversity conservation has gained popularity among different communities, researchers, academics, and policymakers [5]. Local knowledge of traditional medicine in people's lives is usually not documented but taught over generations [6]. This is the case of the research conducted by Saslis-Lagoudakis et al., the use patterns of medicinal plants preserved by traditional communities in Nepal, New Zealand, and, South Africa with a total of 1500 species [7].

* Corresponding author: sulisetijono_fmipa@um.ac.id

Efforts, including ethnobotanical research, must be made to obtain accurate information on the use of traditional medicinal plants. By conducting surveys on plants that are used as the main ingredients of medicines by local communities. [8,9]. The research method often applied by ethnobotanical researchers in the past is to conduct ethnobotanical data analysis on the utility value of local plants based on community perceptions. Meanwhile, the practical aspects of plant utilization involving local communities' knowledge and appreciation of these plants are still rarely studied. In fact, for the cultural preservation of medicinal plant use, proper information about the knowledge, use, and appreciation of medicinal plants by local indigenous people is very important. In this millennial era, the existence of local communities is threatened because medicinal plants are increasingly integrated into the market economy [5]. Therefore, it is necessary to conduct research about the analysis of the perception (knowledge) and appreciation (practice) of medicinal plant use in several tribes and regions in Indonesia.

The use of medicinal plants is an inheritance from our ancestors. The use of medicinal plants and traditional medicine to maintain health is a historical record of human life. Human attitudes and actions toward the use of medicinal plants are stimulated by the interaction between medicinal plants and the community. The use of medicinal plants also occurs in the Sumba Island region and has been carried out in almost all areas of the Central Sumba Regency. 116 species of medicinal plants have been used by the people of Sumba based on the research conducted by [10]. The high diversity of medicinal plant species is because the area of Central Sumba Regency still has a relatively large forest area [11]. One of these can be found in the area of West Umbu Ratu Nggay District. Research on the perception and appreciation of medicinal plants has also been conducted in Kayukebek Village, Pasuruan Regency by [12], which shows that the perception and appreciation of medicinal plants have essential aspects. These aspects include the knowledge of the diversity of medicinal plant species in an area and the knowledge of the importance of the conservation value of medicinal plants in a sustainable manner.

Previously, extensive research has been conducted on medicinal plant utilization in Central Sumba Regency, especially on inventorying medicinal plant utilization. However, there is still no research that reports on the knowledge and utilization of medicinal plants, as well as the perception and appreciation of the people of West Umbu Ratu Nggay Subdistrict towards the utilization of medicinal plants in the surrounding area. The results of this study are expected to provide important information for the community in general and the management of appropriate natural resources based on traditional wisdom as an effort to preserve the biodiversity of West Umbu Ratu Nggay District in Central Sumba, especially in the inventory of medicinal plant use has been conducted. However, there is still no research that reports on the knowledge and utilization of medicinal plants, as well as the perception and appreciation of the people of West Umbu Ratu Nggay Subdistrict towards the utilization of medicinal plants in the surrounding area. The results of this study are expected to provide important information for the community in general and for managing appropriate natural resources based on traditional wisdom as an effort to conserve the biodiversity of West Umbu Ratu Nggay District.

2 Experimental Details

2.1 Time and area of study

This research was conducted in West Umbu Ratu Nggay Subdistrict, September-December 2022. West Umbu Ratu Nggay sub-district is one of the 6 districts in Central Sumba Regency. Some villages in Umbu Ratu Nggay regency are located in the Manupeu Tanah Daru and

Laiwangi Wanggameti National Park areas. In general, the astronomical coordinates of the research location were 119°45'0"-119°31'20" East Longitude and 9°28'21"-9°41'40" South Latitude (Figure 1). And has a total area of 268.80 KM². The topography of Kecamatan Umbu Ratu Nggay Barat is hilly with an altitude of 2 masl. Kecamatan Umbu Ratu Nggay Barat is bounded as follows: The north is bordered by Mamboro and Umbu Ratu Nggay districts; the east is bordered by Umbu Ratu Nggay sub-district; the south is bordered by Katikutana and South Katikutana districts; and the west is bordered by West Sumba Regency and Mamboro district.

2.2 Respondent

The research respondents were local Sumbanese people in the areas of Umbu Mamijuk Village, Umbu Pabal Village, and Anapali=u Village with a total of 93 households including villange helaers. The respondents were categorized into four groups based on age, namely 17 – 30 years (7 people), 31 – 45 years (37 people), 46 – 59 years (29 people), and ≥ 60 Years (20 people) [13, 14].

2.3 Questionnaire and Interview

The social survey was carried out by means of open-ended interviews. The interviews were guided by a list of questions and completed questionnaires about the perception and appreciation of the local people of the Sumba tribes in the Regency of Umbu Ratu Nggay Barat towards the use of medicinal plants. Four questions were designed to reflect the perception and seven questions were designed to reflect the appreciation of the research participants. The questionnaire included information on the use, efficacy, and availability of medicinal plants. Through the sampling technique, a total of 93 respondents were identified. The respondents are people from the Sumba tribe in West Umbu Ratu Nggay district [15].

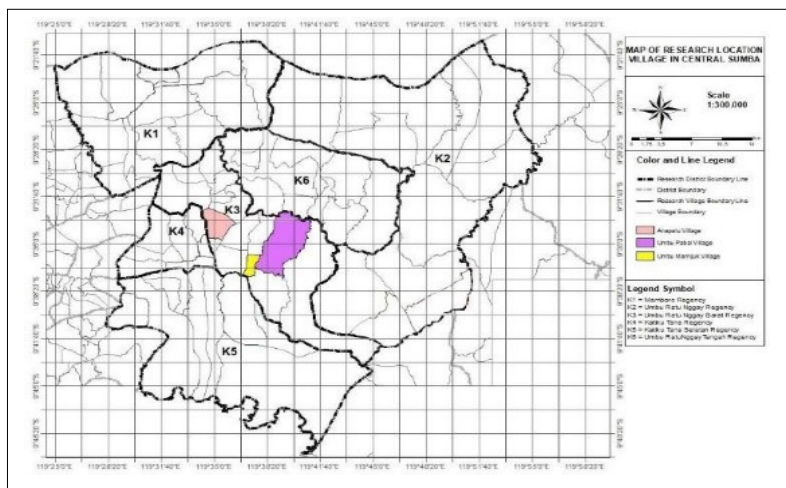


Fig 1. Map of Umbu Ratu Nggay Barat research site

2.4 Data collecting, Identification and Documentation of Plant

The medicinal plants mentioned by the research participants were collected as a whole and then identified and then identified the parts of the medicinal plants used as: leaves, roots,

stems, tubers, fruits, and flowers [16]. The medicinal plants found were identified using several literature books including: Flora of Java, Uncovering the Secrets of Medicinal Plant Species in MATALAWA National Park Sumba-East Nusa Tenggara and several other sources. The medicinal plants found in this study were documented in the form of photographs.

2.4.1 Utilization of Sumba Tribe Medicinal Plant in West Umbu Ratu Nggay District

Utility value is obtained from the sum of all medicinal plant uses recommended by respondents, divided by the number of respondents recommend (Eq. 1) [17,18]. The classification of values in UV analysis is categorized into four categories such as: very important species, important species (prioritized), unimportant species, and unused species: very important species, important species (prioritized), non-prioritized species, and not used species [3]. The high and low value of UV in the use of medicinal plants can be seen from the number of plants used by the community for medicinal purposes [10].

$$UV = \frac{n}{N} \times 100\% \tag{1}$$

UV = Use value of a species

n = Number of recommender/s for a species

N = Number of total recommenders

Table 1. Categories of UV (Hoffman *et al.*, 2007); (Eldeen, 2016)

No	Category	Interval Value
1	Very important species	>6% UV ≤9%
2	Important species (prioritized)	3%> UV ≤ 6%
3	Non-priority species	>1% UV <3%
4	Species not used	0%

2.4.2 Perception and Appreciation of Sumba Tribe Medicinal Plants in West Umbu Ratu Nggay District

Perception and appreciation scores were obtained based on the results of interviews and questionnaires on the use of medicinal plants (Eq. 2) [12,18]. Each answer choice is assigned a different value. In determining the value of an answer, it is known that the answer no/lack has a value of (0), which means that the respondent's knowledge about the use of medicinal plants is in the low category. The value of an answer has a value of (1), meaning that the community's knowledge about the use of medicinal plants is categorized as moderate, and the value of an answer is very/utilizing has a value of (2), meaning that the community's knowledge about the use of medicinal plants is categorized as high [12].

$$P = \sum \frac{x.k}{n.k.max} \times 100\% \tag{2}$$

P = value of perception/appreciation

x = value of respondents for a selected answer k = value of answer

n = total number of respondents

k. max = value of high answer.

The determination of appreciation and perception scores retrieved is into four categories, including: scores >80- 100 (very good), >65-80 (good), >51-65 (enough), > 40-51 (less), <40 (bad), and then the data are analyzed descriptively [12,19].

3 Results and Discussion

3.1 Results of Inventory and Utilization of Medicinal Plants in West Umbu Ratu Nggay District

In the survey conducted in Umbu Ratu Nggay Barat sub-district, 54 species of medicinal plants belonging to 35 families were found. The most common families used for treatment are Malvaceae and Zingiberaceae (9% each) and other families (2%-6%). The medicinal plants found are plants that are commonly used by the Sumba tribe in UmbuRatu Nggay Barat regency to treat various diseases. This is consistent with the research conducted by Jamun *et al*, who reported that the Zingiberaceae family is the most commonly used family for treatment among the Manggarai tribe in East Nusa Tenggara province [20].

3.2 Results of Use Value (UV) of Medicinal Plant Utilised by the Sumba Community in West Umbu Ratu Nggay District

Based on the results of UV analysis of medicinal plants in West Umbu Ratu Nggay District, it is known that the UV value ranges from 0.11% - 0.01% and is categorized into non-priority species. The plant with the highest UV value is the one most recommended by the Sumba community in Umbu Ratu Nggay Barat regency, namely *Swietenia macrophylla* King (mahogany) (0.11%) for malaria, headache, cough, body aches, followed by *Acorus calamus* L. (genoak/hiku) (0.1%) for fever, *Jatropha curcas* L. (padamu) (0.1%) for thrush, *Zingiber officinale* Roscoe (halia) (0.09%) for fever. The high UV value in this analysis indicates that these plants are commonly used by the Sumba tribe in West Umbu Ratu Nggay District. The use of 5 species of medicinal plants is considered to be the most effective compared to the use of other medicinal plants (Table 2).

Table 2. UV Values of Medicinal Plants Found in West Umbu Ratu Nggay District.

Local Name	Scientific Name	Symptom	Part of the Use	UV (%)
Mahoni	<i>Swietenia macrophylla</i> King	Malaria, headache, cough, body ache	Leaf, seed, stem	0.11
Genoak/Hiku	<i>Acorus calamus</i> L.	Hot ache, cough, cold, breathlessness and steps	Stem, seed, leaf	0.1
Damar	<i>Agathis dammara</i> (Lamb.) Rich. & A.Rich.	Fever	Leaf, sap	0.1
Padamu	<i>Jatropha curcas</i> L.	Thrush	Leaf, sap	0.1
Halia	<i>Zingiber officinale</i> Roscoe	Cough, cold, aches and pains	Bulbs, rhizome	0.09
Kalowu Djawa	<i>Carica papaya</i> L.	Fever, headache, malaria, external wounds	Leaf, sap, root	0.09
Lobung	<i>Syzygium polyanthum</i> (Wight) Walp.	Pain, headache, diarrhea, dengue fever	Leaf	0.06
Kunyit Putih	<i>Curcuma zedoaria</i> (Christm.) Roscoe	Gastric pain, external wounds, tumor, cold, menstrual pain	Bulbs, rhizome	0.06
Sirsak	<i>Annona muricata</i> L.	Hot ache, aches and pains	Leaf	0.05
Hakoru	<i>Kaempferia galanga</i> L.	Cold, laryngitis, hot ache, steps	Bulbs, leaf, rhizome	0.04
Taikabala	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	External wounds, gout, witchcraft sickness	Leaf	0.04

Local Name	Scientific Name	Symptom	Part of the Use	UV (%)
Kutta Kalara	<i>Piper crocatum</i> Ruiz & Pav.	Fever, cough, cold	Leaf	0.04
Serai	<i>Cymbopogon nardus</i> (L.) Rendl.	Fever, cold, cough, aches and pains	Leaf	0.04
Mengkudu	<i>Morinda citrifolia</i> L.	Gastric pain, lung pain, gout, cholesterol	Leaf, fruit	0.04
Pare	<i>Momordica charantia</i> L.	Fever, thrush, cough	Leaf	0.04
Kawilu	<i>Aleurites moluccana</i> (L.) Willd.	Steps	Fruit, leaf	0.03
Hapopu	<i>Physalis angulata</i> L.	Fever, cough, cold	Leaf	0.03
Langguhau	<i>Alpinia galanga</i> (L.) Willd.	Cough	Bulbs, rhizome	0.03
Binahong	<i>Anredera cordifolia</i> (Ten.) Steenis	External wounds, Dengue fever	Leaf	0.03
Wunga	<i>Sesbania grandiflora</i> (L.) Pers.	Breathlessness, external wounds	Leaf, sap	0.03
Sambilota	<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Headache, rheumatic, hot ache	Leaf	0.02
Afrika	<i>Vernonia amygdalina</i> Delile	Aches and pains, internal heat	Leaf	0.02
Alpukat	<i>Persea americana</i> Mill.	Body ache, aches and pains	Leaf	0.02
Bawang putih	<i>Allium sativum</i> L.	Fever	Bulbs	0.02
Madinu/ Andinu	<i>Melochia umbellata</i> (Houtt) Stapf	Fever, hot ache	Leaf	0.02
Waru	<i>Hibiscus tiliaceus</i> L.	Headache	Leaf	0.02
Bunga Sepatu	<i>Hibiscus rosa-sinensis</i> L.	Cough, cold	Leaf	0.02
Kersen	<i>Muntingia calabura</i> L.	Gout, aches and pains	Leaf	0.02
Kelapa	<i>Cocos nucifera</i> L.	Cough, kidney	Fruit, leaf, coconut water	0.02
Tembakau	<i>Nicotiana tabacum</i> L.	External wounds, Itching	Leaf	0.02
Bawang Merah	<i>Allium cepa</i> L.	Fever	Bulbs	0.02
Raukuta	<i>Piper betle</i> L.	Eye pain, fever	Leaf	0.02
Rita	<i>Alstonia scholaris</i> (L.) R. Br.	Cough, worms	Stem	0.02
Singkong	<i>Manihot esculenta</i> Crantz	Burns, toothache	Sap, leaf buds	0.02
Putri malu	<i>Mimosa pudica</i> L.	Kidney, toothache	Leaf	0.02
Gamal	<i>Gliricidia maculata</i> (Kunth) Steud.	Thrush, allergies, itching	Leaf	0.02
Jagung	<i>Zea mays</i> L.	Itching, chickenpox	Fruit	0.02
Temulawak	<i>Curcuma zanthorrhiza</i> Roxb.	Breathlessness	Bulbs, rhizome	0.02
Alang	<i>Imperata cylindrica</i> (L.) P.Beauv.	smallpox, serampah	Leaf, root	0.02
Kepuh (Kepok Hutan)	<i>Sterculia foetida</i> L.	Increase blood	Stem, leaf, root	0.02

Local Name	Scientific Name	Symptom	Part of the Use	UV (%)
Beluntas	<i>Pluchea indica</i> (L.) Less.	Body ache, aches and pains	Leaf	0.01
Pria Hutan	<i>Momordica charantia</i> L.	Cough	Leaf	0.01
Bajakah	<i>Spatholobus littoralis</i> Hassk.	Aches and pains	Stem	0.01
Pisang	<i>Musa paradisiaca</i> L.	Bruises	Stem, sap, banana heart, fruit	0.01
Au	<i>Bambusa</i> sp,	Itching	Leaf	0.01
Kacang Tanah	<i>Arachis hypogaea</i> L.	Chickenpox	Fruit	0.01
Tomat	<i>Lycopersicon lycopersicum</i> (L.) H.Karst.	Thrush	Leaf	0.01
Lamtoro	<i>Leucaena leucocephala</i> (Lam.) de Wit.	Freckles	Leaf, stem bark, sap	0.01
Nangka	<i>Artocarpus heterophyllus</i> Lamk.	Facilitating breastfeeding	Leaf	0.01
Pisang pendek	<i>Musa acuminata</i> Colla	Serampah	Root	0.01
Kumis kucing	<i>Orthosiphon aristatus</i> (Blume) Miq.	Kidney	Leaf	0.01
Linu	<i>Grewia laevigata</i> Vahl	Increase blood	Stem	0.01
Kelor	<i>Moringa oleifera</i> Lam.	Increase blood	Leaf	0.01
Kesambi	<i>Schleichera oleosa</i> (Lour.) Oken	Body resistance	Leaf	0.01

The categorization of UV values is based on several references and then modified using percentages. Based on the results of all the analyses, the medicinal plants used by the Sumba tribal community in West Umbu Ratu Nggay District are categorized as non-priority species, because some people mention medicinal plants that they usually use when they are sick, and researchers do not ask questions about the benefits of each medicinal plant species. In essence, medicinal plants have become a daily necessity for the people of Sumba. From the research conducted by Kusumanegara *et al.*, it is known that the Sumba tribal community in both Central Sumba and East Sumba Regencies are in the good category in the use of medicinal plants [21]. Tiga *et al.* reported that people in Katikuwai village and Praing Kareha village also use medicinal plants in the forests around Manupeu Tanah Daru and Laiwangi Wanggameti National Park areas [22].

The high value of UV on the use of medicinal plants in West Umbu Ratu Nggay Subdistrict is because the majority of people already know the medicinal properties of plants and the teachings of the ancestors have been embedded in the daily lives of the Sumba people, creating a sense of dependence and high trust in the use of medicinal plants for first aid in case of illness.

The development of local knowledge on the use of medicinal plants in West Umbu Ratu Nggay District is currently classified as very high, this is due to the way of life of the Sumba people who still believe that the medicinal plants around them have medicinal properties, and because the teachings given by their ancestors, which have been taught from generation to generation, are embedded in the daily life of the Sumba people, especially in West Umbu Ratu Nggay District. It is also known that the pattern of plant consumption in West Umbu Ratu Nggay regency is evenly distributed, almost every Sumba tribal community in several

villages in West Umbu Ratu Nggay regency has used medicinal plants as first aid in case of illness. Based on the exposures done by [10,11,23], it is known that there is a diversity of medicinal plants in Central Sumba Regency, especially in the area of Umbu Ratu Nggay Barat District. These medicinal plants are found in the yards of Sumba Tribe communities. The use of medicinal plants also occurs in several villages in East Wewewa, West Wewewa and South Wewewa districts, Southwest Sumba Regency [24].

In the West Umbu Ratu Nggay District, particularly in the villages of Umbu Mamijuk, Umbu Pabal and Anapalu, the use of medicinal plants is still practised in a simple way in accordance with the teachings of their ancestors. The majority of the Sumbanese people in Umbu Ratu Nggay Barat regency use medicinal plants for the treatment of several ailments that are classified as mild, such as: flu, headache, fever, cough, rheumatism, heat, pain, diarrhoea, external wounds, itching, garbage, toothache, bleeding and cancer (Table 2). Some of the medicinal plants used are found in the domestic garden, such as 'hakor' (*Kaempferia galanga* L.), 'sambiloto' [*Andrographis paniculata* (Burm.f.) Nees], soursop (*Annona muricata* L.), 'languuahau' [*Alpinia galanga* (L.) Willd.], 'kawolu djawa' (*Carica papaya* L.). Ferdosh argues that *Euphorbia hirta*, *Carica papaya* and *Psidium guajava* contain secondary metabolites that have potential as antibacterial, anticancer, antioxidant, anti-inflammatory and anti-diabetic agents [25].

3.3 Part used of medicinal plant

Most of the medicinal plants that have been found in West Umbu Ratu Nggay Subdistrict that is using there are plant parts of the leaves (Figure 2), it is known that the percentage of plant use in the leaves is (50%), the second highest use is in the stem of the plant (12.20%) and followed by the use of fruits and tubers (8.54%). The large percentage in the use of medicinal plant parts in the leaves academically the majority of the Sumba tribe only adheres to the teachings of their ancestors and does not know for sure some of the chemical compounds contained in the leaves and have the potential for treatment. The use of medicinal plants in the leaves is the easiest way, besides the leaves are very easy to find [26], [27]. While the exposure of Zuhud, in Indonesia the use of leaf parts of plants is known as much as 33.50% [28]. From several studies, it is known that the leaves contain several chemical compounds that have the potential to cure various diseases and also have the potential to be used as medicinal materials. The content of chemical compounds in the leaves include: phenols, essential oils, potassium compounds and chlorophyll [29]. This is in line with the results of research conducted by Sahusilawan et al., known for plant parts that are used others: sap, seeds, leaves, skin, stems, roots, tubers, rhizomes and fruits. However, the most widely used by the people of Waimangit village, Buru Regency is the leaves (48%) [30].

Based on the results of the study, medicinal plants used by the Sumba tribe in the leaves, including: 'beluntas' (*Pluchea indica* (L.) Less); avocado (*Persea americana* Mill); 'madinu/andinu' [*Melochia umbellata* (Houtt.) Stapf]; 'kutta kalara' (*Piper* sp.); and 'kalowu djawa' (*Carica papaya* L.). Among the medicinal plants used by the community, the stem parts include 'bajakah' (*Spatholobus littoralis* Hassk.); mahogany (*Swietenia macrophylla* King); 'genoak/hiku' (*Acorus calamus* L.); 'pisang' (*Musa paradisa* L.); 'kepok hutan' (*Sterculia foetida* L.); 'linu' (*Grewia laevigata* Vahl). and medicinal plants used in the tuber part include white turmeric [*Curcuma zedoaria* (Berg.) Rosc.]; 'hakoru' (*Kaempferia galanga* L.); garlic (*Allium sativum* L.); ginger (*Zingiber officinale*); 'languuahau' [*Alpinia galanga* (L.) Willd.].

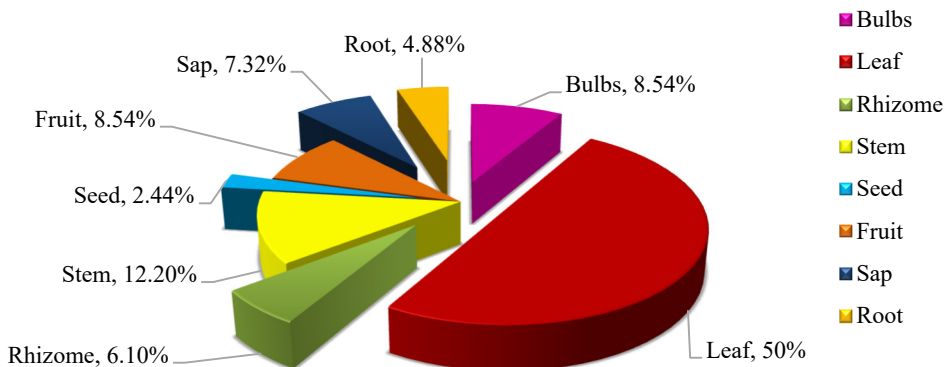


Fig 2. Part used of Medicinal Plants.

Perception and appreciation of the use of medicinal plants in Umbu Ratu Nggay Barat District can be presented in Tabel 3 and Table 4.

Table 3. Value of Perception Medicinal Plants in West Umbu Ratu Nggay District.

Question	Assessment aspect	Value of Perception (%)
1	Consumption of medicinal plants	98
2	Frequency of consumption	95
3	Giving prescriptions to other people	98
4	Effect of medicinal plants	97
5	Effectiveness of medicinal plants with medicinal drugs	93
6	Conservation of medicinal plants	98
7	Inherutance to the next generation	98
Perception average		99%

Table 4. Value of Appreciation Medicinal Plants in West Umbu Ratu Nggay District

Question	Assessment aspect	Value of Perception (%)
1	Knowledge of medicinal plants efficacy	98
2	Extension of medicinal plants	99
3	Availability of medicinal plants in homeyard	99
4	Consumption of medicinal plnts	99
Average appreciation		97%

The average appreciation of the perception of the use of medicinal plants by the Sumba community in West Umbu Ratu Nggay District is in the very good category (99%), while the knowledge of the use of medicinal plants by the Sumba community is also classified as very good (97%). The categorization of perception and appreciation scores is based on [12,19]. The high percentage of perception and appreciation of the use of medicinal plants in West Umbu Ratu Nggay district is due to the fact that the people of Sumba tribe make medicinal plants their first choice when they are sick. In addition, the inherent culture in the use of medicinal plants in the daily life of the Sumba people also affects the high percentage of

aspects of appreciation of medicinal plants. The majority of Sumbanese people tend to use medicinal plants for first aid because medicinal plants are very easy to obtain. However, after a few days of illness that has not healed, the Sumba people in Umbu Ratu Nggay Barat regency seek treatment at the nearest health center and hospital. According to Mirawati and Yulianti (2014), the reason for the high and low value of medicinal plant use is due to the value of use and people's preference in using plants for treatment in daily life [31].

The close relationship between the Sumba people and the use of medicinal plants makes the community confident in the properties of some medicinal plants, so much so that the community gives prescriptions to other communities to use medicinal plants when they are ill. This is known from the results of the research on the perception and appreciation of the Sumba tribal community in the sub-district of Umbu Ratu Nggay Barat. This is considered to be very good. The close relationship between medicinal plants and local communities means that there is diversity in their use. The diversity in the use of medicinal plants is due to cultural differences and knowledge given or taught by their ancestors. In West Umbu Ratu Nggay district, the majority of local people who have a high level of knowledge in the use of medicinal plants are village shamans and traditional elders. The knowledge of some village shamans and traditional elders is not easily passed on to their successors. However, there is a tradition for obtaining this knowledge.

4 Conclusion

This study aims to document the perceptions and appreciation of the Sumbanese community in Umbu Ratu Nggay Barat regency towards the use of medicinal plants. It is known that the Sumbanese people still believe in the use of medicinal plants in case of illness. There are known to be 54 species and 35 families. Families found are: Malvaceae and Zingiberaceae (9%). The most recommended medicinal plants by the people of Sumba tribe are *Swietenia macrophylla* King (Mahogany), *Acorus calamus* L. (Genoak/Hiku), *Jatropha curcas* L. (Padamu), *Zingiber officinale* (Halia). It is known that the perception and appreciation of the Sumba tribal community in Umbu Ratu Nggay Barat district is very good, perception (99%) and appreciation (97%).

The author would like to thank the people of Sumba Tribe in West Umbu Ratu Nggay District, as well as various parties from the Manupeu Tanah Daru and Laiwangi Wanggameti National Park who have provided the time, energy, licensing, and information needed in the research.

References

1. E. Yuniati, S. Indriyani, J. Batoro, and Y. Purwanto, *Biodiversitas* **21**, 2645 (2020).
2. R.R.N. Alves and U.P. Albuquerque, *Animals in Our Lives* (2018).
3. I.M.S. Eldeen, M.A.W. Effendy, and T.S. Tengku-Muhammad, *Res. J. Med. Plant* **10**, 382 (2016).
4. D. Ciciria, *Panggung* **25**, 189 (2015).
5. G. Yaseen, M. Ahmad, D. Potter, and M. Zafar, *Plant Hum. Heal.* **1**, 26 (2018).
6. S. Dubale, N. Abdissa, D. Kebebe, A. Debella, A. Zeynudin, and S. Suleman, *J. Herb. Med.* (2023).
7. C.H. Saslis-Lagoudakis, V. Savolainen, E.M. Williamson, F. Forest, S.J. Wagstaff, S.R. Baral, M.F. Watson, C.A. Pendry, and J.A. Hawkins, *Proc. Natl. Acad. Sci. U. S. A.* **109**, 15835 (2012).
8. V.A. da Silva, L. de H.C. Andrade, and U.P. de Albuquerque, *Field Methods* **18**, 98

- (2006).
9. A. Tariq, S. Mussarat, M. Adnan, E.F. Abd-Allah, A. Hashem, A.A. Alqarawi, and R. Ullah, *Biomed Res. Int.* (2015).
 10. A.V. Liswandari, Sulisetijono, and F.K. Setiowati, *Biotropika J. Trop. Biol.* **11**, 84 (2023).
 11. P.T. Retang and A.T. Ina, *J. Inofasi Penelit.* **3**, 8031 (2023).
 12. A. Witjoro, Sulisetijono, and F. Kunti Setiowati, *Nat. B (Journal Heal. Environ. Sci.* **3**, 303 (2016).
 13. J.G. Martin, (1995).
 14. Y. Purwanto, *Perhimpun. Masy. Etnobiologi Indones. Lemb. Etnobiologi Indonesia.* (2004).
 15. D. Sugiyono, *Metode Penelitian Kuantitatif Dan R&D* (Alfabeta, Bandung, 2010).
 16. N.H. Pramita, S. Indriyani, and L. Hakim, *J. Indones. Tour. Dev. Stud.* **1**, 52 (2013).
 17. O. Phillips and A.H. Gentry, *Econ. Bot.* **47**, 15 (1993).
 18. R. Azrianingsih and A. Kusumahati, *AIP Conf. Proc.* **2019**, (2018).
 19. Y. Juma, S. Sulisetijono, and F. Rohman, *J. Ilmu Hayat* **1**, 1 (2021).
 20. R. Jamun, M. Hendra, and N. Hariani, *J. Pendidik. Mat. Dan IPA* **11**, 271 (2020).
 21. A. Kusumanegara, E.Y. Pribadi, A.M. Jannah, N. Yuniar, H.S. Utomo, and D.A.N. Ngara, *Menyingkap Rahasia Jenis-Jenis Tumbuhan Obat Di Taman Nasional Matalawa Sumba-Nusa Tenggara Timur* (2020).
 22. M.R.M. Tiga, E.I.K. Putri, and M. Ekayani, *Sodality* **40**, 34 (2019).
 23. M.K. Yowa, T.L. Boro, and M.T. Danong, *J. Biotropikal Sains* **16**, 1 (2019).
 24. G. ND. Njurumana and B. Dwi Prasetyo, *J. Anal. Kebijak. Kehutan.* **7**, 97 (2010).
 25. S. Ferdosh, *Sci. Pharm.* **91**, 43 (2023).
 26. L. Fadilah and R. Irwan Linda, *J. PROTOBIONT* **4**, 49 (2015).
 27. L. Efremila, Wardenaar, E. dan Sisillia, *J. Hutan Lestari* **3**, 234 (2015).
 28. Z. Evizal A.M, *Potensi Hutan Tropical Indonesia Sebagai Penyangga Bahan Obat Alam untuk Kesehatan Bangsa* (2009).
 29. Nulfitriani, R. Pitopang, and E. Yuniati, *Biocelebes* **7**, 1 (2013).
 30. F.J. Sahu silawane, M.M. Puttileihalat, and A. Latbual, *Peringkat SINTA* **7**(2023).
 31. Mirawati and E. Yuniati, *Biocelebes* **8**, 29 (2014).