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Inventory of Traditional Medicinal Plants of the Mongondow Tribe in Ambang II VillageBolaang Mongondow Regency, North Sulawesi

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Abstract

Indonesia is an archipelagic country that has 17,504 islands, 300 ethnicities and 1,340 tribes. Every tribe in Indonesia has a traditional way of medicine. Traditional medicinal plants are medicines obtained directly from natural ingredients that do not have clinical data. Traditional medicinal plants are processed naturally based on experience. The purpose of this study is to find out the types of plants used as traditional medicine, the parts of plants used and the processing methods carried out by the people of Ambang II Village. The method used in this study is a survey method, data collection through direct interviews with random respondents. The results of the study show that there are 74 types of plants used in Ambang II Village by the Mongondow tribe. The results of the inventory obtained 74 types of medicinal plants were found in 41 families. The most dominant families are Asteraceae and Lamiaceae as much as 9.46%. The most used part is leaves 60.46% and there are 34 types of diseases treated. The disease that uses the most medicinal plants is high blood pressure (hypertension) at 10.89%. There are 8 ways of processing, the most is boiled around 61.73%. There are 5 types of use, the most are 73.08% drunk.

Keywords: Inventory; Plant; Medicine; Traditional; Mongondow;

1. Introduction

Indonesia is an archipelagic country that has around 17,504 islands (Stuart and Scott, 2021). It is estimated that there are more than 300 ethnicities and 1,340 tribes (Pandiangan *et al.*, 2019). All tribes in Indonesia have different ways of utilizing biological resources and traditional medicinal plants (Adiyasa & Meiyanti, 2021). Biological resources are all living things that come from nature and have uses for humans such as plants, animals and microorganisms (Stuart and Scott, 2022). Meanwhile, traditional medicinal plants are a type of plant that has been used for generations by the community for traditional medicine. About 10% (±30,000 species) of all plants in the world are estimated to grow in Indonesia (Pandiangan & Silalahi, 2022). Local or ethnic communities use plants for various purposes, including as medicinal ingredients known as traditional medicinal plants. Over time, several plants that can be used by local communities have also been used as the basis for the development of standardized herbal medicines and modern medicines (Pandiangan et al., 2022). Standardized herbal medicines (OHT) are medicines derived from natural ingredients and have passed preclinical tests to ensure their safety, effectiveness and standardization process (Scott & Scott, 2022).

Various ethnomedical studies continue to be carried out to find new sources of information regarding the use of plants as traditional medicine. However, until now, the research is still dominated by the islands of Java and Bali and parts of Sumatra, while for the other islands, research is still limited (Pandiangan et al., 2025). Sulawesi has its own uniqueness because it is an area with biodiversity which is a combination of Western and Eastern Indonesia (Pandiangan & Silalahi, 2022).

Traditional medicines are medicines obtained directly from natural ingredients that do not have clinical data, processed naturally or simply based on experience. In certain areas in Indonesia, traditional medicines are the main medicine in maintaining health (Pandiangan & Silalahi, 2022). Medicinal plants are all types of plants that are known to have benefits and efficacy to prevent, alleviate or cure a disease (Ninawati *et al.,* 2023). Medicinal plants also have benefits for treating both directly and indirectly (Lingkubi *et al.,* 2015). Medicinal plants are plants whose whole or part of the plant can be used as traditional medicine. Such as leaves, fruits, flowers, roots (rhizomes), stems (skin), and sap (resin) plant parts that can be used (Yassir & Asnah, 2019). Medicinal plants are also plants that are either deliberately planted or grown wildly. These plants are used by the community as a medicine for curing diseases (Nge *et al.,* 2024). Medicinal plant inventory is an activity of collecting data and identifying types of plants that have properties as traditional medicine in an area. The purpose of this inventory is to document traditional knowledge about the utilization of medicinal plants (Kristina *et al.,* 2018).

2. Research Methods

This research was conducted in January-July 2025 in Ambang II Village, East Bolaang District, Bolaang Mongondow Regency, North Sulawesi, Indonesia. (Figure 3.1)

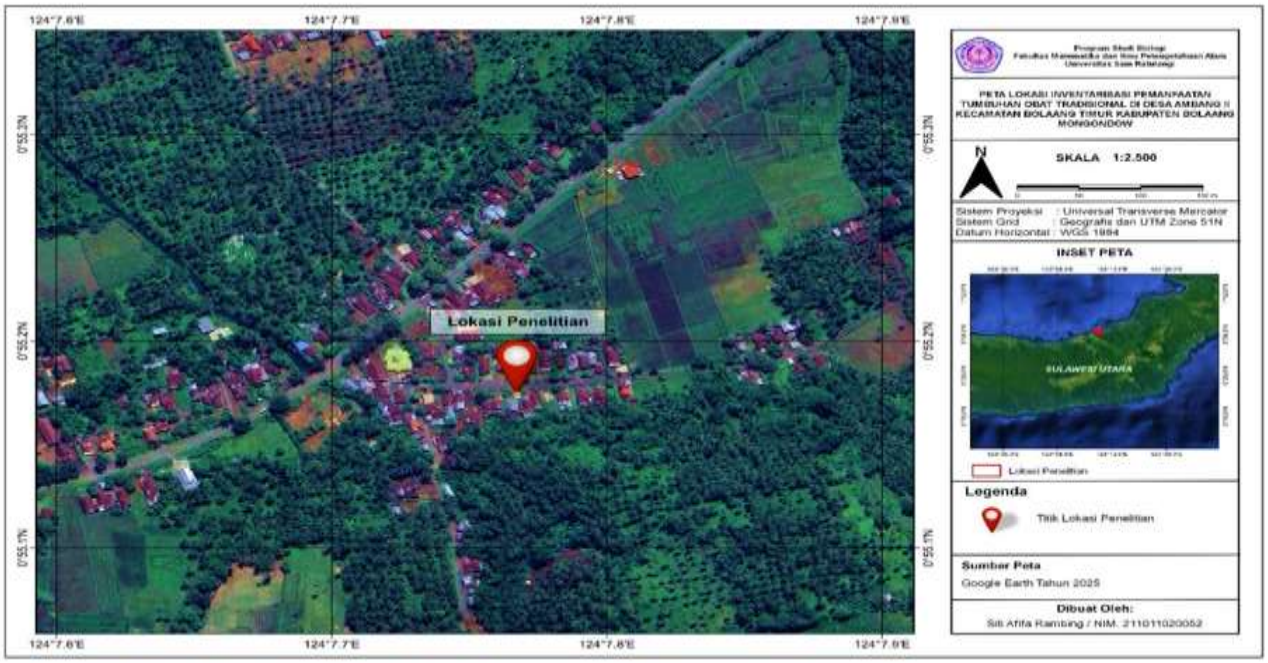

Figure 1 Map and Plan of Research Locations in Ambang II Village

2.1. Tools and Materials

The tools and materials used in this study are cameras for documentation, stationery to help write data and interview sheets, question lists (questionnaires), cardboard, wooden frames, tape, 70% alcohol, label paper, permanent markers, plastic samples, knives, tweezers, and rulers, sacks, Flora van Java

identification books, Ethnobotany (Pandiangan & Silalahi, 2022), and Empirical Ethnomedicine (Pandiangan et al, 2025).

2.2. Research Method

The method used in this study is the Survey Method. Data collection was carried out through interviews or questions directly to 50 respondents (Ambang II Village Community) with purposive sampling by prioritizing respondents who were BATRA (Tradisional Medicine), TOGA (Medicinal Plants), and other traditional medicines. However, there are still representatives from various professions and ages. Following Pandiangan (2006) in the interview on traditional medicine, the things asked were the respondent's name, village name, username, gender, age, subethnicity, last education, religion, day/date of data collection, local name, when sick what traditional medicine was used, the part used and how it was made. Then conduct direct observation with respondents who know about the use of traditional medicine while recording information about how to make and take plant documentation (plants are photographed), then samples are taken for further identification at the Biovina Herbal laboratory in Sea Mitra Pineleng Minahasa.

2.3. Data Analysis

Data analysis in this study was carried out by a descriptive method through tabulation of interview results in excel, making graphs and images of the results of data tabulation, then explaining the results of the description and identification of each type obtained so that the information obtained is easier and understandable.

3. Results and Discussion

Based on the results of traditional medicine research that has been carried out in Ambang II Village, Bolaang Mongondow Regency, 74 types of traditional medicinal plants and 40 tribes were obtained

Table 1. Medicinal plants used and used as traditional medicine of the Mongondow tribe in Ambang II Village, East Bolaang District, include local names, scientific names, family

No t	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
1.	Daun ungu	Graptophylu m pictum	Acanthaceae	Ulcer Disease	Leaf	Squirted	Affixed
2.	Kajebling	*Strobilanthes crispus*	Acanthaceae	Low back pain	Leaf	Boiled	Dimensio n
3.	Smbiloto	*Andrographi s panikulata*	Acanthaceae	Fever reducer	Leaf	Boiled	Dimensio n
4.	Malutow	*Strobilanthes bersinuate*	Acanthaceae	Fever reducer	Leaf	Boiled	Dimensio n
5.	Kayu lagapan	*Barleria priontisi L*	Acanthaceae	Itching	Want	Pounde d	Dioles
6.	Kucai	*Allium tuberosum* L	Amarylidacea e	Heat Reducer	Leaf	Squirted	Dioles
7.	Kayu Jawa	*Lannea cormendalic a* (Houtt.)	Annacardiacea e	Diabetes	Trunk	Boiled	Dimensio n

Not	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
		More					
8.	Buah Nona	*Annona squamosa*	Annonaceae	Heart	Fruit	Split	Eaten
9.	Sirikaya	*Anona muricata* L	Annonaceae	hipercholesterol	Leaf	Boiled	Drink
10.	Siol Kabalo	*Centella asiatica* CL. Urban	Apiaceae	Cough	Leaf	Boiled	Drink
11.	Bango	Coco nucifera L	Arecaceae	Gout	Fruit	Split	Drink
12.	Pinang	*Areca catechu*	Arecaceae	Diabetes	Fruit	Boiled	Drink
13.	Balontas	*Pluchea indica L*	Asteraceae	High blood pressure	Leaf	Boiled	Drink
14.	Buyu-Buyu	*Ageratum conyzoides*	Asteraceae	Cough	Leaf	Soaked	Drink
15.	Daong Afrika	*Vernonia amygdalina*	Asteraceae	High blood pressure, hipercholesterol, stomach acid	Leaf	Boiled	Drink
16.	Ilugi Adi	*Blumea balsamifera* L. DC	Asteraceae	After menstruation, internal wounds, external wounds	Leaf	Boiled, pounded	Drink, stamped
17.	Santa Maria	*Artemesia vulgaris* L	Asteraceae	Cough	Leaf	Soaked	Drink
18.	Sambung Nyawa	*Gynura procumbens*	Asteraceae	High blood pressure, diabetes	Leaf	Boiled	Drink
19.	Siangga Balu/Siangga Pata	*Impatiens balsamin*	Balsaminaceae	After childbirth	Leaf	Boiled	Drink
20.	Pinahong	*Anredera cordifolia* (Ten)	Basellaceae	Deep wounds	Leaf	Boiled	Drink
21.	Nanas	*Pineapples comosus*	Bromeliaceae	Headache	Leaf	Shaved	Affixed
22.	Bunga	*Omputia*	Cactaceae	Yacht Boat	Trunk	Shaved	Affixed

No t	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
	Papang	*cochinillifer a*					
23.	Kapaya	*Papaya*	Scarlet Witch	Malaria	Leaf	Pounde d	Drink
24.	Bage Pintad	*Ipomoea asarifolia*	Convolvulace ae	Deep wounds	Want	Boiled	Drink
25.	Nusu	*Terminalia catappa*	Combretaceae	Vomiting blood	Trunk	Boiled	Drink
26.	Bangong Buku	*Kalanchoe pinnata* (Lam.) pers.	Crasulaceae	Fever reducer	Leaf	Pounde d	Affixed
27.	Bonok Tosilad	*Carex cruciata*	Cyperaceae	Deep wounds	Leaf	Boiled	Drink
28.	Dukung Anak	*Phylantus niruri* L	Euphorbiaceae	Gout	roots, stems, leaves, fruits	Boiled	Drink
29.	Balacai Mobudo	*Jatropha curcas*	Euphorbiaceae	Blende and toothache	Leaves and stems	Boiled	Drink, stamped
30.	Balacai Mopura	*Jatropha gossypiifolia*	Euphorbiaceae	Aperture	Leaf	Boiled	Drink
31.	Daong Turi	*Sesbania grandiflora* (left). Person	Fabaceae	Heat reducer, cough	Leaves, stems	Boiled, pounded	Drink
32.	Yantuna Imanuk	*Eleutherine bulbosa*	Iridaceae	Cholesterol, high blood pressure	Tuber	Boiled	Drink
33.	Atoy-Atoy	*Coleus amboinicus*	Lamiaceae	Heat Reducer	Leaf	Squirted	Drink
34.	Daong Lelem	*Clerodendru m minahasae* L	Lamiaceae	Gout	Leaf	Boiled	Drink
35.	Gulasi	*Hyptis suaveolens*	Lamiaceae	Cough	Leaf	Boiled	Drink
36.	Kokuru	*Basilica of Ocimum*	Lamiaceae	Heat Reducer	Leaf	Squirted	Affixed
37.	Kumis Pinggo	*Orthosiphon spicatus* B.B.S.	Lamiaceae	Gout	Leaf	Boiled	Drink

No t	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
38.	Nilam	*Pogostemon cablin* Benth	Lamiaceae	External wounds	Leaf	Pounde d	Affixed
39.	Taba-Taba	*Coleus amboinicus*	Lamiaceae	Cough	Leaf	Squirted	Drink
40.	Patung Nginimbulo	*Hyptis capitata* Jacq	Lamiaceae	Diabetes	Leaf	Soaked	Drink
41.	Alpokat	*Persea americana*	Lauraceae	High blood pressure	Leaf	Boiled	Drink
42.	Mitung	*Barringtonia asiatica*	Lecythidaceae	Muscle pain	Leaf	Heated	Affixed
43.	Benalu	*Loranthus*	Loranthaceae	Chest	Leaves, stems	Boiled	Drink
44.	Bonok Gereja	*Acute AIDS*	Malvaceae	Gout	Leaf	Boiled	Drink
45.	Bunga Raya	*Hibiscus rosa-sinensis*	Malvaceae	Boil	Flower	Squirted	Affixed
46.	Yondok	*Abelmoschus manihot*	Malvaceae	High blood pressure, lower blood pressure	Leaf	Boiled	Drink
47.	Putri Malu	*Mimosa pudica*	Mimosaceae	Toothache	Leaf	Boiled	Gargle
48.	Daong Kelor	*Moringa oleifera* Lam	Moringaceae	Cholesterol, high blood pressure, gout	Leaf	Boiled	Drink
49.	Singgolong	*Burm septic ficus*	Moraceae	Types, dysentery, correlation, vomiting	Roots, stems, leaves	Soaked, boiled	Drink
50.	Buah Jeri	*Muntingia calabura* L	Muntigiaceae	Diabetes	Leaf	Boiled	Drink
51.	Tagin	*Paradise Muse*	Musaceae	Burns	Trunk	Shaved	Affixed
52.	Boyabat	*Psidium guajava*	Myrtaceae	Bears	Leaf	Boiled	Drink
53.	Daong Salam	*Syzygium polyanthum*	Myrtaceae	Diabetes, cholesterol, hypertension	Leaf	Boiled	Drink
54.	Jambolang	*Syzygium cumini*	Myrtaceae	Liver	Trunk	Boiled	Drink
55.	Lompiat	*Averrhoa*	Oxalidaceae	Cough,	Flowers	Boiled	Drink

No t	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
		balimbi		diabetes	, leaves		
56.	Pondang	*Pandanus amaryllifoliu s*	Stuart O'Neill	High blood pressure	Leaf	Boiled	Drink
57.	Obuyu	*Piper betle L*	Piperaceae	External wounds, rashes, diabetes	Leaf	Pounde d, boiled	Pasted, Drunk
58.	Salada Utang	*Peperomia pellucida* (L.) Kunth	Piperaceae	High blood pressure, cholesterol	Roots, stems, leaves	Boiled	Drink
59.	Tosimbano y Mobudo	*Cymbopogon citratus*	Poaceae	Cholesterol, high blood pressure,	Trunk	Boiled	Drink
60.	Tosimbano y Mopura	*Cymbopogon nardus*	Poaceae	Colds, liver	Trunk	Boiled	Drink
61.	Ilalang	*Imperata cylindrica* L	Poaceae	High blood pressure, cholesterol	Roots, stems, leaves	Boiled	Drink
62.	Daong Ulang-Ulang	*Eleusine indica* (L.) Gaertn	Poaceae	Cholesterol, high blood pressure	trunk	Boiled	Drink
63.	Bintooy	*Coix lacryma-jobi*	Poaceae	Colds, liver	Trunk	Boiled	Drink
64.	Doit-Doit	*Pyrrosia pilosselloide s*	Stuart O'Neill	Boil	Roots, flowers	Smashe d and Punched	Affixed
65.	Kokal In Bolay	*Drynaria quercifolia*	Stuart O'Neill	Gallstone	Roots, leaves	Boiled	Drink
66.	Bidara	*Ziziphus mauritiana*	Rhamnaceae	Heat Reducer	Want	Pounde d	Affixed
67.	Boyoba	*Physalis angulata*	Solanaceae	Itching, ping-gang pain	Leaf	Pounde d, boiled	Pasted, Drunk
68.	Mahkota Dewa	*Phaleria macrocarpa*	Thymelaeacea e	Gout	Fruit	Boiled	Drink
69.	Lidoyo	*Lantana L Camera*	Verbenaceae	Stupidity, external wounds	Leaf	Boiled, shaken	Drink Affixed
70.	Kolawak	*Turmeric domestica*	Zingiberaceae	Stomach, cholesterol	Leaf rhizome	Soaked boiled	Drink

No t	Local name	Scientific Name	Family (Tribe)	Treatment Benefits	Parts used	How to process	How to use
		Val					
71.	Bataka	*Galangal Kaempferia*	Zingiberaceae	Red spots	Tuber	Pounde d	Affixed
72.	Tumbulawa	*Comedian zanthorrhiza*	Zingiberaceae	Liver	Rhizom e	Boiled	Drink
73.	Lingkuat	*Alpinia galanga*	Zingiberaceae	Cough	Rhizom e	Boiled	Drink
74.	Yanat	*Zingiber officinale*	Zingiberaceae	Cold, stupid	Rhizom e	Boiled	Drink

Table 1 shows the types of medicinal plants obtained from the results of a research survey conducted in Ambang II Village, East Bolaang District, Bolaang Mongondow Regency, as many as 74 types were obtained from 40 families (tribes). The benefits of its treatment are used for the treatment of 34 types of diseases. These types of diseases include; Hypertension, diabetes, fever dropping, gout, cholesterol, cough, internal wounds, external wounds, liver ulcers, ulcers, low back pain, hives, blende, diarrhea, colds, heart, acid reflux after menstruation, after childbirth, yaki bang, headache, malaria, vomiting blood, muscle pain, cysts, toothache, typhus, cholera dysentery, vomiting, burns, gallstones, poison-antidote asthma and red spots. Medicinal plants can be found in the yards, gardens, mountains, beachsides and forests. How to use plants as traditional medicine must first be mixed, there are even some plants whose use must be added with other ingredients such as onion, honey, brown sugar, olive oil and coconut oil. In addition, the parts of plants used as medicine are leaves, stems, roots, fruits and flowers.

3.1. Parts of Plants Used in Ambang II Village

The parts of the plant used as traditional medicine can be seen in Table 1. Table 2 shows that the parts of plants used have several parts, namely roots, stems, leaves, fruits, flowers and seeds. The most widely used parts of plants for traditional medicine are 52 types of leaves (55.32%), 14 types of stems (14.89%), 8 types of roots (8.51%), 6 types of fruits (6.38%), 5 types of flowers (5.32%), rhizomes of 5 types (5.32%), 2 types of tubers (2.13%) and 2 types of seeds (2.13%). Empirically, leaves are the easiest part of plants to find in the surrounding environment and produce distinctive aromas (Pandiangan & Silalahi, 2022).

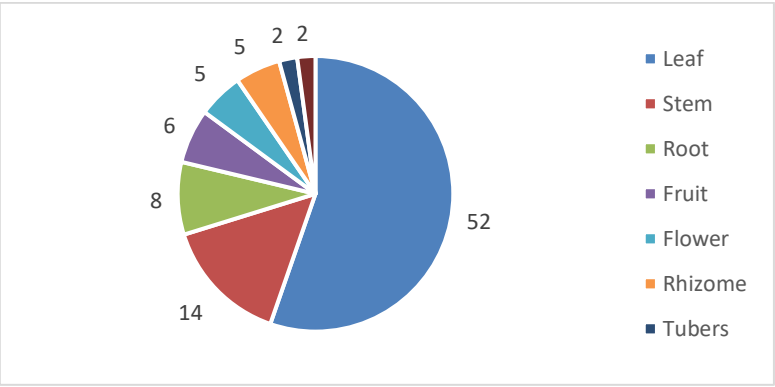

Figure 2. Graph of the number of medicinal plants by the part of the plant used Mongondow tribe in Ambang II Village

3.2. How to Process Traditional Medicine

The way of processing traditional medicine can be seen in Table 1. Table 1 indicates that the way of use is checked, boiled, pounded, split, soaked, shaved, heated and blended. The method of boiling processing can be seen to be the most processing of 50 (61.73%), followed by 11 (13.58%), kneaded 8 (9.88%), soaked 5 (6.17%), shaved 3 (3.70%), split 2 (2.47%), heated 1 (1.23%) and blender 1 (1.23%).

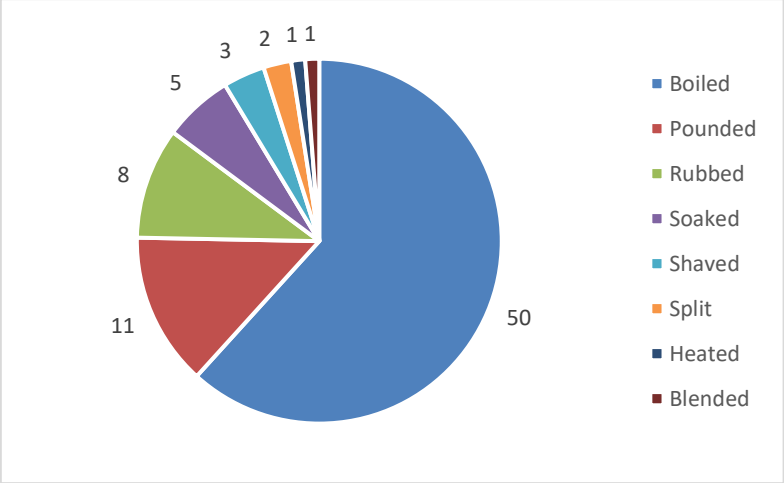

Figure 3. Graph of the number of plants based on the traditional medicine processing method of the Mongondow tribe in Ambang II Village

3.3. How to Use Traditional Medicine

The way of using traditional medicine can be seen in table 4. 4 Table 4. 4 shows that the way of using traditional medicine is pasted, drunk, smeared, eaten and gargled. The most commonly drunk methods of use amounted to 57 (73.08%), followed by pasted 17 (21.79%), polished 2 (2.25%), eaten 1 (1.28%) and gargled 1 (1.28%).

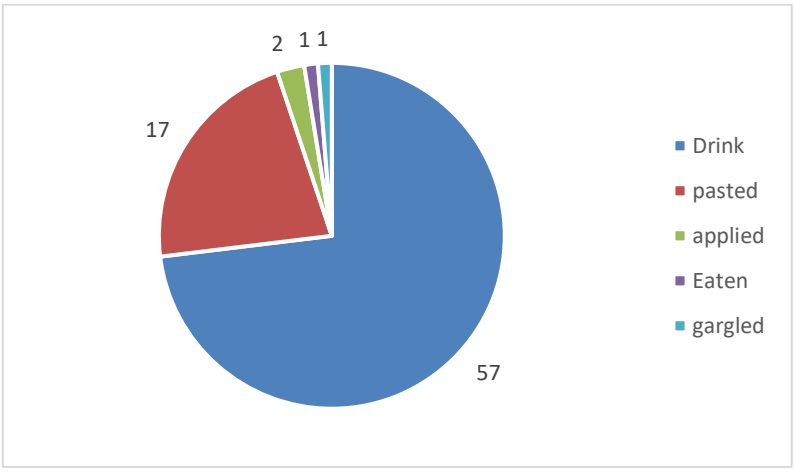

Figure 4. The number of medicinal plants used based on the way of using traditional medicine of the Mongondow tribe in Ambang II Village

Ambang II Village is one of the villages located in East Bolaang District, Bolaang Mongondow Regency, North Sulawesi Province. Bolaang Mongondow Regency is one of the autonomous regions in North

Sulawesi Province, which was formed based on the Law of the Republic of Indonesia Number 29 of 1959 concerning the Establishment of Level II Regions in Sulawesi (Statute Book of the Republic of Indonesia Number 74 of 1959, Supplement to Statute Book of the Republic of Indonesia Number 1822). In 2005, Bolaang Mongondow Regency was divided into several sub-districts, with the capital located in Kotamobagu District, which also serves as a center for government, health, and education (Anonymous, 2024).

Figure 6. Group photo with Ambang II Village officials (a), Ambang II village entrance gate (b), When conducting a survey to BATRA (c)

The area of Ambang II Village is 1.70 km² (170 hectares), the population consists of 1,008 people, 505 men and 503 women. The tribes or ethnicities in Ambang II Village consist of the Mongondow, Sanger and Minahasa tribes, the number and places of worship consist of 1 mosque building and 3 church buildings. Ambang II Village has 2 types of religions, namely Islam and Christianity, the number of residents of each religion in Ambang II Village is 511 people, Christians 489 people and Catholics 8 people. Ambang II Village is bordered by: East: Ambang 1 Village, West: Inobonto 2 Village, North: Sulawesi Sea, South: Ambang Mountains (Anonymus, 2024).

Ambang II Village, which is located in East Bolaang District, Bolaang Mongondow Regency, North Sulawesi Province. This village is a rural area with existing natural potential that makes it an ideal place for an inventory of traditional medicinal plants. The village also has an abundance of medicinal plants that have become part of the life of the local community. Some plants that contain medicine are traditionally turmeric (*Curcuma domestica* Val), chives (*Allium tuberosum L*), Chinese series (*Peperomia pellucida* L Kunth.) and soursop (*Annona muricata*), which are used for generations to treat various diseases, ranging from diabetes, gout, high blood cholesterol and others (Anonymus, 2024).

Culturally, the people of Ambang II Village, the majority of whom have a Bolaang Mongondow ethnic background, inherit the knowledge of traditional medicine that has been carried out from previous ancestors for generations. The availability of medicinal plants in Ambang II Village can be influenced by environmental conditions. The climate in the East Bolaang region includes a tropical climate where there are two seasons, namely the rainy season and the dry season which supports the growth of plant species and most of the people of Ambang II Village have a livelihood of farmers, planters and fishermen (Anonymus, 2024).

The description of the respondents interviewed was a random group of people who knew about traditional medicinal plants. The results of the survey were processed that the average age was 60 years. The age of

the respondents was 20-30 years, 31-40 years, 41-50 years, 51-60 years, 61-70 years. The most dominant age is around 40-60 years old. The education level of the respondents was around 62% in elementary school, while 23% in junior high school, 15% in high school, and 2% in undergraduate (Anonymus, 2024).

4. Conclusion

The results of the study can be concluded that the types of traditional medicinal plants used in Ambang II Village by the Mongondow tribe were obtained 74 types or species. The results of the inventory obtained 74 types of medicinal plants were found in 41 families. The most dominant families are Asteraceae and Lamiaceae as much as 9.46%. The most widely used part is 55.32% leaves. There are 8 ways of processing, namely pounded, boiled, soaked, checked, shaved, split, heated and blended, but the most is boiled around 61.73%. There are 5 types of use, namely pasted, spread, drunk, eaten and gargled, the most is drunk 73.08%. It was also found that the number of types of diseases treated was 34 types.

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