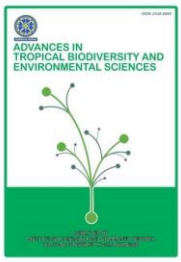

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Identification and Utilization of Medicinal Plants in West Wangurer Village, Madidir District, Bitung City, North Sulawesi

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Abstract. In Indonesia, around 9,600 plant species contain compounds or active ingredients with medicinal properties that people can use for traditional medicine because they are natural compared to modern medicine. Medicinal plants are found in many habitats, however, due to developments in the times, people are increasingly using modern medicine, so it is feared that the introduction of medicinal plants will become extinct. This research aims to identify medicinal plants in West Wangurer Village, Bitung City, and how to use them. The research was conducted in March-April 2023 using an exploratory descriptive method with a qualitative approach. Medicinal plant sampling used a purposive sampling method and data on the use of medicinal plants was obtained from interviews with the community. The research results obtained 30 species of medicinal plants used by the community as medicinal ingredients in West Wangurer Village, Madidir District, Bitung City, North Sulawesi. This medicinal plant is used for various diseases such as fever, hypertension, diabetes, diarrhea, digestive disorders, and others.

Keywords: Bitung City, ethnobotany, medicinal plants, North Sulawesi

I. INTRODUCTION

Medicinal plants are plants whose parts can be used. The parts used are roots, stems, leaves, and fruit. and its excretions contain various compounds or active ingredients that are useful and efficacious for healing or reducing pain [1]. Most research on medicinal plants in Indonesia states that the leaves are the most commonly used plants. Karmilasanti and Supartini concluded that the habitus of medicinal plants was mostly in the form of trees, while the most widely used plant parts were leaves [2].

Indonesia has a tropical forest area of 120.30 million hectares and has 80% of the total plants with medicinal properties. There are around 40,000 plant species in the world, 30,000 of which are found in Indonesia, and around 9,600 plant species are known to have medicinal properties, but approximately 300 plant species have been used as traditional medicine ingredients by the traditional medicine industry or business [3].

Medicinal plants have benefits for humans, animals and for the balance of nature. Medicinal plants can also be used as ingredients for making cosmetics, fragrances and dyes. Herbalists believe that using natural ingredients is more acceptable to the human body than using synthetic ingredients. [4]. Medicinal plants contain natural chemical compounds that have pharmacological effects and have potential as anti-degenerative disease agents [5].

The current development of time and technological advances has meant that the use of plants as traditional medicines in society is starting to decrease because synthetic medicines are being produced more because they are considered more practical and easier [6]. Based on surveys and initial observations carried out in West Wangurer Village, Bitung City, it was found that people still utilize the entire environment in which they live, such as in yards, gardens, and forests to cultivate herbal plants needed for daily living needs, such as ginger (*Zingiber officinale)* and Turmeric (*Curcuma longa*). Including the need for plants that people believe are useful as medicine. However, public knowledge of the use of these medicinal plants has not been well documented and it is feared that they will become extinct.

Meanwhile, research regarding the identification and use of medicinal plants traditionally used by the community in West Wangurer Village, Madidir District, Bitung City has never been carried out. Therefore,

research was carried out to identify types of medicinal plants and their uses in West Wangurer Village, Madidir District, Bitung City, which will later be able to provide information to the wider community about knowledge of medicinal plants, as well as what diseases can be treated with these plants, so that with documentation or records about traditional medicine knowledge, community knowledge about traditional medicine knowledge in the community. the future is not extinct.

II. METHOD

Types of research

The type of research used is descriptive exploratory with a qualitative approach. The research began with an exploratory method, taking samples of medicinal plants using a purposive sampling technique and identifying based on morphology, plant organs used as traditional medicine, methods of use, and properties of medicinal plants. Research data was obtained from interviews with 25 respondents in West Wangurer Village, Bitung City as well as comparisons with previously existing journal literature.

Place and Time of Research

This research was conducted from March to April 2023 in West Wangurer Village, Madidir District, Bitung City, North Sulawesi.

Tools and Materials

The tools used are stationery, photo cameras, interview sheets, android phones, and Google Lens which are used as a tool for introducing medicinal plants. The materials used are all types of medicinal plants in West Wangurer Village, Madidir District, Bitung City, as well as books and journals identifying medicinal plants.

Data analysis

Research data obtained from interviews with the community in West Wangurer Village, Bitung City were analyzed based on plant morphology, taxonomy, and use as medicinal plants and compared based on previously existing journal literature regarding medicinal plants. Next, the data is presented descriptively in the form of tables and graphs.

III. RESULTS AND DISCUSSION

Research Results

Based on the results of interviews with 25 respondents in West Wangurer Village, Bitung City who used medicinal plants as traditional medicine, 30 plant species were obtained as medicinal ingredients, which can be seen in the table below.

Parts used as medicinal plants

The results of data collection there are 30 species of plants that are used as medicinal ingredients from 6 plant organs that are often used by the people of West Wangurer Village Bitung City, namely leaves, roots, stems, flowers, fruit, and seeds. The most widely used plant organs as medicine are leaves. There are 26 plant species which are used as medicine from leaf organs, 1 plant species as medicine from root organs, 2 plant species as medicine from stem organs, 2 plant species as medicine from flower organs, 3 plant species as medicine from fruit organs and 2 species plants from seed organs.

Percentage of Habitus of Medicinal Plants

The results of research in the West Wangurer Village, Bitung City 5 types of plant habitus are used as medicine, namely herbs, bush, shrubs, trees, and liana. Plant species that are used as drugs are dominated by herbal habitus plants as much as 37% (11 plant species), while bushes 30% (9 plant species), 20% shrubs (6 plant species), 10% trees (3 plant species) and Liana (1 plant species). The Miana plant (*Plectranthus scutellarioides*) whose pharmacological activity has been tested provides anti-inflammatory, antioxidant, antimicrobial, and antibacterial activity. The cat's whisker plant (*Orthosiphon aristatus*) whose pharmacological activity has been tested provides antihypertensive and hypolipidemic activity.

Discussion

Human existence and life are inseparable from the diversity of organisms (flora and fauna) which is a gift from God, which created the universe. Plants in traditional medicine are plants that are known and trusted by the community for their medicinal properties and have been used as raw materials for traditional medicine. Until now, traditional and modern communities still use many traditional medicines derived from nature and some potential medicinal plants that are thought to contain bioactive compounds that have medicinal properties [7].

The community in West Wangurer Village, Bitung City is a community that has passed down traditional wisdom in utilizing natural resources from generation to generation. The customs and culture in West Wangurer Village are very diverse, especially in terms of language and customs. Like the people in West Wangurer Village, they also know about managing the diversity of natural resources and the surrounding environment. One of them is the use of plants as traditional medicinal ingredients that can be used every day and are believed to be able to cure diseases or have a better impact on health.

The results of research conducted in West Wangurer Village, Bitung City, found 22 families of 30 species that can be used as ingredients for traditional medicine.

Leaves are the most widely used part of the plant compared to other organs. The use of leaves does not have a major influence on the growth of a species and does not have a negative impact on plant survival [8]. Research in Durian Sebatang Village found that the leaves of the plant are the most widely used because they are easier to process and can also be dried so they last longer [9].

The research results obtained by the community in West Wangurer Village, Bitung City, use medicinal plants traditionally mostly by boiling them and then drinking them. However, there are also medicinal plants that are used without boiling, such as Betadine Leaves (*Jatropha multifida*) which are used from plant sap when the stem is broken and directly applied to the wound, Noodle Leaves (*Peperomia pellucida*) are used by extracting them and then drinking them to treat rheumatism. The boiling process can remove substances contained in plants compared to burning [10]. The boiling process also has a very fast reaction when drunk [11]. The results of research on medicinal plants in Jayawijaya Regency, Papua show that the Dani people more often use and process medicinal plants by boiling them. This is because this method is the easiest to carry out when compared to direct or rapid processing. After all, both methods have to go through several stages in processing [12].

Lamiaceae, Acanthaceae, and Zingiberaceae families as medicinal plants that are most widely used by the community in the area in West Wangurer Village, Bitung City. Among them are Miana plant (*Plectranthus*

TABLE 1.
MEDICINAL PLANTS FOUND IN WEST WANGURER VILLAGE, MADIDIR DISTRICT, BITUNG CITY, NORTH SULAWESI

No	Local Name	Latin Name	Family	Parts used	Efficacy
1.	Mayana Merah	*Plectranthus scutellarioides*	Lamiaceae	Leaf	Fever and Antibacterial
2.	Lireh	*Hemigraphis colorata*	Acanthaceae	Leaf	Dysentery, Kidney Stones and Wounds
3.	Kaki Kuda	*Centella asiatica*	Apiaceae	Leaf	Urinary Decay and Febrifuge
4.	Daong Kelor	*Moringa Oleifera*	Moringaceae	Leaf	Anti-bacterial, viral and fungal
5.	Balacai Merah	*Jatropha gossypiifolia*	Euphorbiaceae	Leaf	Diarrhea, Malaria and Fever
6.	Daun Betadine	*Jatropha multifida*	Euphorbiaceae	Leaf	Wound
7.	Daun Mi	*Peperomia pellucida*	Piperaceace	Leaf	Rheumatic
8.	Bunga Laka	*Impatiens balsamina L*	Balsaminaceae	Leaves, Seeds and Flowers	Bruises, Cancer and Vaginal Discharge
9.	Tabali	*Plectranthus amboinicus*	Lamiaceae	Leaf	Canker Sores and Worms
10.	Mahkota Dewa	*Phaleria macrocarpa*	Thymelaeaceae	Fruit	Gout and Flu
11.	Sese Wanua	*Clerodendron* sp	Verbenaceae	Leaf	Deep Heat
12.	Daun Kucai	*Allium tuberosum*	Alliaceae	Leaf	Prevents Cancer and Heart Attacks
13.	Daong Tagalolo	*Ficus septica*	Moraceae	Roots and Leaves	Urinary Tract Infections and Headaches
14.	Gedi Merah	*Abelmoschus manihot*	Malvaceae	Leaf	Lowers Cholesterol and Ulcers
15.	Pinahong	*Anredera cordifolia*	Basellaceae	Leaf	Diarrhea, Dysentery and High Cholesterol.
16.	Jambu Biji	*Psidium guajava*	Myrtaceae	Leaves and Fruits	Flu, Diarrhea and Cholesterol Lowering
17.	Bayam Batik	*Amaranthus sp*	Amaranthaceae	Leaf	Maintain Eye Health and Prevent Cancer
18.	Sirsak	*Annona muricata* L.	Annonaceae	Leaves and Fruits	Antiparasitic, Antiviral, Anti-inflammatory and Antimicrobial
19.	Dumarela	*Artemisia vulgaris*	Asteraceae	Leaf	Dysentery, Diarrhea and Constipation
20.	Kencur	*Kaempferia galanga*	Zingiberaceae	Leaves and Stems	Cough and Diarrhea
21.	Kumis Kucing	*Orthosiphon aristatus*	Lamiaceae	Leaf	Urinary Tract Infections, Rheumatism and Cough
22.	Engahusa Merah	*Justicia gendarussa* Burm.f.	Acanthaceae	Leaf	Constipation, Arthritis and Cough
23.	Keci Beling	*Strobilanthes crispus*	Acanthaceae	Leaf	Kidney Stones and Natural Diuretic Remedies
24.	Bayam Kucing	*Celosia argentea*	Amaranthaceae	Seeds and Flowers	Keratitis, Hypertension and Vomiting Blood
25.	Kunyit	*Curcuma longa*	Zingiberaceae	Trunk	Prevents Cancer
26.	Goraka	*Zingiber officinale*	Zingiberaceae	Trunk	Headache, Vertigo and Cough
27.	Salam	*Syzygium polyanthum*	Myrtaceae	Leaf	Rheumatism and Ulcer
28.	Cakar Bebek	*Kalanchoe pinnata*	Crassulaceae	Leaf	Headache and Cough
29.	Daong Afrika	*Gynura procumbens*	Asteraceae	Leaf	Dysentery and Cough
30.	Daong Pondang	*Pandanus amaryllifolius* Roxb.	Pandanaceae	Leaf	Fever and Rheumatism

scutellarioides), the cat's whisker plant (*Orthosiphon aristatus*), the Gandarusa plant (*Justicia gendarussa Burm.f.),* the smallbeling plant (*Strobilanthes crispus*), the galangal plant (*Kaempferia galangal*), the turmeric plant (*Curcuma longa*) and the ginger plant (*Zingiber officinale*). The Gandarusa plant (*Justicia gendarussa* Burm.f) which has pharmacological activity has been tested for the treatment of coughs, fever, and colds. The small plant Kecilbeling (*Strobilanthes crispus*) has proven pharmacological activity for the treatment of kidney stones, a natural diuretic, and a laxative. The galangal plant (*Kaempferia galangal*) has a pharmacological activity that has been tested to treat dandruff and pain such as headaches, toothache, and stomach aches. The turmeric plant (*Curcuma longa*) has a pharmacological activity that has been tested to prevent cancer and reduce the risk of heart disease. The ginger plant (*Zingiber officinale*) has a pharmacological activity that has been tested to relieve headaches and treat vertigo.

Research on the identification and use of plants as medicines used by people in West Wangurer Village, Bitung City has similarities in how they are used with the results of previous research conducted in several regions in Indonesia. The results of research in Serambi Hamlet, Kembayan District, Sanggau Regency, found 35 families and 51 species of medicinal plants [13]. The results of research in Subah Village, Sambas Regency, found 19 families and 30 species of medicinal plants [14]. The results of research in Sungai Daun Village obtained 74 plant species from 43 families which were used as medicine [15].

IV. CONCLUSION

Thirty species of medicinal plants are used as medicinal ingredients in West Wangurer Village, Madidir District, Bitung City, North Sulawesi.

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